A NEW PACIFIC STRATEGY

THE FUTURE OF POWER PROJECTION

HONEYCOMBING THE PACIFIC

A NEW PACIFIC STRATEGY: HONEYCOMBING THE PACIFIC FROM THE ARCTIC TO AUSTRALIA

The Conventional Wisdom 2

Taking Another Look 5

Re-Thinking Capability to Protect U.S. Interests 8

Crafting a Scalable Force 14

The 12th USAF Example 19

The Aegis Enabler 21

"Aegis is my Wingman" "The SSGN is my Fire Support 24

Inserting the UCAS into Maritime Operations 30

ISR Services to the Honeycomb 33

The Role of the Surface Fleet 38

The Role of the USAF 45

The South Korean Case 51

Re-Visiting the Defense of Taiwan 58

Basing the Honeycomb 63

Weaponizing the Honeycomb 71

The Way Ahead 76

As the United States looks forward to the twin challenge of rebuilding its forces within fiscal constraints and ending the priority focus on land campaigns, the Pacific clearly is the dominant strategic reality. How can the Pacific with its vast dimensions and many strategic players provide the stimulus for effective restructuring of American and Allied forces.

By leveraging some of the new platforms coming on line and replacing older, costly and stove-piped platforms and systems, a new scalable force structure can be built. And at the heart of doing so will be the inclusion of allies and US forces within a modular scaleable structure.

The strategy is founded on having platform presence. By deploying assets such as USCG assets, for example, the NSC, or USN surface platforms, Aegis, LCS or other surface assets, by deploying sub-service assets and by having bases forward deployed, the US has core assets, which if networked together through an end the stovepipe strategy, significant gains in capability are possible.

Scalability is the crucial glue to make a honeycomb force possible, and that is why we see a USN, USMC, USAF common fleet as a crucial glue. And when "Aegis becomes my wingman" or when "the SSGN becomes the ARG fire support" through the F-35 C4ISR D systems a combat and cultural revolution is both possible and necessary.

Two other key elements are basing and weaponization. Basing becomes transformed as allied and U.S. capabilities become blended into a scalable presence and engagement capability. Presence is rooted in basing; scalability is inherently doable because of C4ISR enablement, deployed decision-making and honeycomb robustness.

The reach from Japan to South Korea to Singapore to Australia is about how allies are re-shaping their forces and working towards greater reach and capabilities. For example, by shaping a defense strategy, which is not simply a modern variant Seitzkreig in South Korea and Japan, more mobile assets such as the F-35 allow states in the region to reach out, back and up to craft coalition capabilities.

The Conventional Wisdom

Clearly China is a central aspect of any US Pacific strategy. China is building up its forces, studies the US and its ups and downs very carefully, and are funding innovative technologies and shaping asymmetrical strategies to deal with US legacy forces and strategies. For example, the legacy approach to airpower as opposed to the new distributed operational approach, which is enabled by 5th generation aircraft, is widely understood and a benchmark against the PRC would seek to defeat US forces in the Pacific if needed.

http://www.sldinfo.com/renorming-air-operations/

US forces have formed the lynchpin of an Asian alliance, which has been central to deterrence of North Korea and the PRC who remain de facto partners. As US power projection capabilities have rapidly declined over the past 20 years, American allies have noted the REALITY of US capabilities and are making their own decisions about what they need to deal with the PRC and what kinds of policies are necessary as the US forces become smaller and with no clear US strategy towards the Pacific over the next 20 years. Even if forces are robust, the absence of strategy and of an ability to provide for coalition operations will lead to the perception of decline or defeat in battle. It is not just the forces; it is the strategy and the ability to implement the strategy, which matters as well.

http://www.sldinfo.com/lessons-from-dunkirk/

When looking at the challenge, which the PRC poses now and into the future, a key element will be the perceptions of core allies about the ABILITY of the US to do what is needed in the decades ahead. It will not be about a photo opportunity with the US Secretary of State at one of the many international conferences in Asia.

When one thinks of directly confronting China the following view of the globe is what is operating in most people's minds.

(Credit: Bigstock)

If we look at this view, what do we see? We see a giant landmass where China can swallow its enemies. It is the "sea" within which the PRC forces can operate. We see the Taiwan straits and the Dragon standing astride the narrow straits. We see a key zone of maritime transit, which provides for a significant conveyer belt of goods to the US and beyond. We see an exposed island continent Australia, which looks like it does not have a lot of independent options in dealing with the Dragon. We see the Koreas, with the divided Koreas remaining a festering point, but at some time in the period ahead perhaps the Koreas will decide to unite. Perhaps Taiwan will vote its way into the PRC. This is an area where the US forces intrude, not naturally live, operate and exist.

Such views raise the magnitude of the challenge for US forces to confront the PRC land mass and close in operational areas. The entire ordinance of the US Navy could probably be used with the PRC able to function quite nicely afterwards. In the current financial crisis, and absence of a significant effort to rebuild US power projection forces, this snap of the globe is quite discouraging for future of deterrence.

Such a view can lead to such amazing pieces as this one published in the US Naval Institute Proceedings. Entitled "Chinese Missiles and the Walmart Factor," we learn that *Scenarios of a military conflict with a rising China are pointless if they leave out a glaring detail—the global economy.*

Multiple news outlets recently carried stories about a Chinese antiship ballistic missile (ASBM) that could target U.S. aircraft carriers at sea.1 It was just the latest in a long-running stream of news coverage and concerned dialogue over China's expanding military capabilities and influence. As China's growing strength gains greater global attention, more and more time, energy, and money will be spent asking how the United States will counter an increasingly capable Chinese military.

For some within defense circles, this is a routine question and a question the U.S. Navy (particularly Pacific Command) is expected to answer.

But fear of China's perceived martial intentions is both overblown and unproductive for the United States and its military. Focusing solely on Chinese military capabilities clouds the critical challenge of preventing a catastrophic Sino-American conflict. Furthermore, this distraction obscures the real work of guiding China's rise as an open, self-confident, fully integrated member of the world community.

http://www.usni.org/magazines/proceedings/2011-07/chinese-missiles-and-walmart-factor

One could ask this enthusiastic naval analyst why an assertive global power like China building military capabilities to influence events in the Pacific and abroad is going to ask him to "guide" the Chinese on anything. Influencing one can understand and part of this "teaching" effort requires a real US Pacific strategy, which works seamlessly with allies and convinces the Chinese that they have no easy options to push the world around. We do not need the next Tiananmen Square to be a regional or global event. If all we have are "guidance options" rather than deterrence options, the likelihood of a global or regional Tiananmen Square is very high indeed. And our Asian allies are very clear both on their fears as well as the need for the US to move out of the lemming like strategic debate inside the Beltway and into an approach to provide the assets, the fortitude and vision to provide real capabilities to provide the glue for the Asian alliance. When the Chinese are building icebreakers and we are not is a metaphor for not getting it in Washington.

The Chinese have built hundreds of warships since 1991; we have a one hundred year recapitalization for tactical aircraft. Allies, partners, and not friends will draw their own conclusions.

It is also important to underscore developments within this global picture, which provide some options and opportunities for the deterrence effort. As China has modernized, they are no longer the primitive country with space being able to overcome strikes. Building major cities, highways, and infrastructure, coupled with building air and naval bases for their power projection capabilities is exposing the PRC to strikes which can undercut their operational capability. It means there is no free ride for their maritime forces operating in the Pacific, because there is a vulnerable backside.

It is also the case that as the PRC develops weapons and capabilities, most of these are untested and their reliability unknown. The press and many strategists give the PRC weapons and systems effectiveness upon the mere appearance of the weapon or platform. Whereas the same folks would not allow Western weapons such a space in which to be effective merely by appearing.

The Chinese are entering a period of moving their capabilities to sea. They have done this operationally in global counter piracy operations and other operational opportunities. The last time the Chinese moved to see was a long time ago. The Admiral Zheng He sailed the globe with as many as 70 ships and 30,000 sailors. After learning a great deal, the Emperor rewarded him by burning his ships out of fear of contamination of foreign ideas and cultures. Zheng He died in 1433 so there is a bit of an operation gap here.

The point of this little historical excursion is to remember that the US and its allies have considerable operational experience, and only a deliberate lemming like approach to throwing this experience away can guarantee Chinese hegemony in Pacific waters.

To better understand how the US and its allies can work together to deal with China and other Pacific challenges we need to start with a different view of the globe and then organize our capability around this alternative view.

Taking Another Look

The Pacific is a big place. As the Father of the American Navy John Paul Jones said about the quality of a Naval Officer —"It is by no means enough that an officer of the Navy should be a capable mariner. He must be that, of course, but also a great deal more. He should be as well a gentleman of liberal education, refined manners, punctilious courtesy, and the nicest sense of personal honor."

Being a capable mariner is thus a given by any Naval Force to simply survive to fight in the Pacific

The Pacific is nothing like the name –"Pacificum" or peaceful in Latin. It is a violent and expansive Ocean. Rounding the tip of South America. Ferdinand Magellan, in perhaps one of the more significant "name branding" mistakes in history pronounced the body of water he saw as peaceful

The answer to the question how large is the Pacific is very simple — it is huge.

"The Size of the Pacific Ocean is Massive; it covers more than one-third of the earth's surface, which is approximately 165 million square kilometers (about 65 million square miles). It extends about 15,000 kilometers (9,600 miles)"

The question of how dangerous and violent is the Pacific was answered by Sir Francis Beaufort in the 19th Century in his code measuring storms at sea "The Beaufort Scale."

After being wounded several times and commanding a Royal Navy ship of war Beaufort became Hydrographer of the Royal Navy for twenty-five years. In fact some of his charts are still used to this day. Sir Francis was a visionary who specifically recognized the strategic importance of the entire Pacific and he also focused on the strategic importance of the Arctic.

His "Beaufort Scale" runs from 1 to 12 with a Force 12 being "Hurricane Winds." –"Huge waves and sea is completely white with foam and driving spray greatly reduces visibility".

However, in 2006 the Peoples Republic of China adopted a scale that goes to a high of 17 to acknowledge what they saw as the power of a tropical cyclone off their shore known as a "Chinese Typhoon."

Consequently, all ocean going mariners, from early explores on war canoes, to Chinese Junks, to European sailing vessels to modern battle fleets must have a very healthy respect for the pure raw power and also extremely significant distances involved with the Pacific Ocean.

It is still very true that even a 21st Century maritime force can only venture forth with ships and planes that are rugged, survivable and have the range to go up against both nature and in combat against a reactive enemy — it is not as easy as the US Navy makes it look.

A famous World War Pacific Typhoon makes that startling point. Historians have debated the number of USN Ships sunk by Japanese Kamikaze attacks during all of WW II in the Pacific. Their counts vary from a low of 34 to a high of 47.

Compare that Kamikaze fight against a reactive enemy over a almost a four year war with a US Task Force caught in a Pacific Typhoon in one 24 hour period.

In the Pacific Typhoon of December 18, 1944 three Destroyers capsized; the USS Spence, USS Hull, USS Monaghan, with the loss of most of their crew–over 700 hundred sailors perished. Additionally, 146 aircraft on Fleet Carriers

were struck from the rolls because of damage. So yes being capable mariners along with rugged ships and planes makes a huge difference.

The Pacific from the Arctic to Australia Credit Image: Bigstock

Now let us look at the Pacific from the perspective of the Pacific seen from the American perspective. This Pacific begins in the Arctic and arcs down through Australia. The 50th state – Hawaii – is in the middle of this perspective. And as the senior Senator from Hawaii often reminds folks who come to testify about missile defense in the Pacific: "Is Hawaii a state in the United States?"

If one looks at the Pacific from this perspective and builds from an understanding of economic interests and protection of sovereignty, several brush strokes can be placed on this canvas.

The first brush stroke would start at the right of the picture. From Seattle to San Diego, the US has many key cities in the Pacific Basin. And the economic impact of the Asian relationship is evident everywhere in the region. The impact of maritime trade is central. And these cities and their ports are part of the conveyer belt of goods transferred from Asia to the United States and beyond.

The conveyer belt underscores the key role, which the West Coast container ports play in the US economy. As the 11th District USCG Commander has noted:

Another key challenge, which the Rear Admiral discussed, was managing the conveyer belt of goods coming into the United States. Rear Admiral Castillon noted that: Almost half of all US containerized cargo comes through the Port of Los Angeles/Long Beach. And if something were to shut that port down, the remaining ports on the west coast would not be able to handle the volume that one port complex handles. We work very closely with all of our partners in LA/LB, and in all our ports, to ensure the safety, security and efficiency of the port complex. And the process currently in place throughout the country requiring an Advance Notice of Arrival 96 hours prior to entering a U.S. port is critical to our efficient management of this "conveyer belt".

You never know for certain what's in a given container, and you've got to be able to reach back overseas, and make sure that they've got the security in place where that container's first getting loaded on a vessel. To enhance the probability that a container will not be a Trojan Horse you need to work with foreign authorities to reduce the risk inherent in the conveyer belt of global trade.

With the establishment of international standards, being able to be confidently determine what's getting loaded onto vessels in foreign ports, and securing the cargo that's being brought into our port long before it gets here, that's a big part of risk management and defense in depth.

With next stroke of the brush, one would highlight the trade routes for the conveyer belt, which follow the Great Circle Route from the Asian ports south of Alaska and then down the West Coast of the United States.

With the next stroke of the brush, one would highlight the Arctic and its growing impact on the global economy. As Prime Minister Putin has put it, in addition to the vast resources in the Arctic, the coming Arctic trade route will one day rival that of Suez.

Unfortunately, the US is a very reluctant Arctic power, and not crafting the capabilities to be a player, but the Arctic is drawing the 5 signatory powers to the Arctic as well as others like China, who are building icebreakers. (See http://www.sldinfo.com/ending-reluctance/, http://www.sldinfo.com/the-non-reluctant-arctic-power-russia-and-the-artic/, and http://www.sldinfo.com/the-arctic-sea-competition-strategic-competition/)

With the next stroke of the brush, one would highlight Hawaii at the center of the Pacific. Here is the base for much of US maritime power projection, coupled with that of Alaska. Ironically, the 49th and 50th states are the anchors for forward deployment of US forces in the Pacific. Last in, but now of front-line significance to the future of the US economy and protection of sovereignty in the Pacific. In the debate on missile defense, many miss the point of why protecting the US through Alaska and Hawaii is foundational.

With the next stroke of the pen, one would highlight core allies of the US, ranging from Japan, to the Philippines, to South Korea, to Singapore, to Australia, etc. These major Asian players are building forces and shaping their interests in the competition with China. One could call it co-opetition which would underline the need for a power balance in order to work with China in a strategic direction acceptable to the US and its allies.

With the next stroke, one could paint the key states along the global trade choke points that are clearly areas of concern in the counter-terrorism business. Indonesia and Malaysia certainly come to mind as well as the Malaccan straits.

The final brush stroke might highlight Australia all by itself. Australia is at the heart of China engagement, deterrence of China and deflection of pressure upon a central US ally. The growing concern, which the Aussies have expressed in many forums, notably their most recent defense white paper, about US capabilities and intentions, is an anchor point of the entire sweep of the US pacific strategy.

The White Paper notes about China that

China will also be the strongest Asian military power, by a considerable margin. Its military modernization will be increasingly characterized by the development of power projection capabilities. A major power of China's stature can be expected to develop a globally significant military capability befitting its size.

But the pace, scope and structure of China's military modernization have the potential to give its neighbors cause for concern if not carefully explained, and if China does not reach out to others to build confidence regarding its military plans.

China has begun to do this in recent years, but needs to do more. If it does not, there is likely to be a question in the minds of regional states about the long-term strategic purpose of its force development plans, particularly as the modernization appears potentially to be beyond the scope of what would be required for a conflict over Taiwan (page 34).

The White Paper comments as well on Aussie concerns about the US role in the Pacific:

Will the United States continue to play over the very long term the strategic role that it has undertaken since the end of World War II? It remains the case that no other power will have the military, economic or strategic capacity to challenge US global primacy over the period covered by this White Paper.

But the United States might find itself preoccupied and stretched in some parts of the world such that its ability to shift attention and project power into other regions, when it needs to, is constrained. This is likely to cause the United States to seek active assistance from regional allies and partners, including Australia, in crises, or more generally in the maintenance of stable regional security arrangements (page 32).

Next we will look at how one might work with this canvas and to shape credible capabilities in order to craft effective security and defense regimes able to protect US economic interests and sovereignty.

Re-Thinking Capability to Protect U.S. Interests

By shifting from the China focused Pacific globe to the Hawaii centered globe, the nature of the US defense and security approach to Pacific strategy similarly becomes re-focused. For the PRC truly to shift the situation, they must reach the US, its allies and partners, and not the other way around. The PRC landmass becomes salient in a major conflict, and Chinese modernization and power projection forces and their bases provide discernible targets, again if a major confrontation is in the cards. And classic conundrums such as the defense of Taiwan can be significantly rethought.

But the place to start is the strategic need to have maritime assets deployed to provide support for US economic interests, and sovereignty. Indeed, the intersection of the capabilities is at the heart of rethinking Pacific strategy. A capability triangle can be conceptualized: one side are platforms available and deployed; the second side the ability to connect these platforms, and the third the capability to operate with allies and partners through the systems which connect US platforms in the first place.

(Credit: SLD)

We will start the discussion on platforms and presence.

The basic point is that simply to protect US economic interests there will need to be significant US maritime presence in the Pacific. And air power provides the significant force enabling the ships to have much greater coverage and effectiveness in their operations. Too often in the inside the beltway conversation about air power this discussion is confused with the fate of the US Air Force or the ability of earlier air power thinking to continue forward into the 21st century. Rather, air power is what you need if you want something other than binoculars to see or to weaponize something like a 21st century spear carrier.

Another way to look at the argument we are developing is that the Hawaii centered globe is the canvas onto which one moves various forward presence assets to shape a connected capability to protect American interests. We will then focus on how to shape this into a honeycomb structure, far more resilient than thinking of a centralized net-worked structure.

Platforms Provide the Presence; Connectivity the Honeycomb and Scalability of Capabilities (Credit: SLD)

In this piece we will start with the USCG and its role in the Pacific, and how their baseline capability provides a fundamental building block in building an effective Pacific strategy.

If we start with the USCG, we can underscore how the C4ISR associated with air power – helos, MPAs, and other assets – can allow the USCG ships to operate in a domain as large as the Pacific and to be effective.

As Rear Admiral Day has argued:

Let's talk about just the Eastern Pacific drug mission. Let's just use that as an example. In the old days, we literally went down there and bored holes in the water, and if we came across a drug vessel, it was by sheer luck. It might be on a lookout list, and we might happen to see it. Let's fast-forward now to the 2000s and what we've started being able to do. By being able to fuse actionable intelligence, and not only that, but intelligence communicated at light speed. So now, we're to the point where we're telling a Cutter to go point A, pick up smuggler B with load C. And we're doing that in real time with delivery of a common operational picture, which has been fused with intelligence. That was unheard of 10 years ago.

Rear Admiral Day has had many years of operational experience in the Pacific and underscored that the new helicopters, and maritime patrol aircraft are crucial in giving the USCG ships range and effectiveness in their operations.

And the new National Security Cutter being deployed in the Pacific provides a command post, not just a ship, to provide area coverage and comprehensive presence. A key element of the operational capability of the National Security Cutter is its endurance. And it can operate up to three fast boats as well as having a large deck for handling helos.

As Vice Admiral Manson Brown (USCG Commander for the Pacific) has underscored:

Most people don't realize that 85 percent of the US exclusive economic zones (EEZs) are in the Pacific, mostly in the Central and Western Pacific. There are a lot of economies in that region that are driven by the fishing industry.

One of the things that I realized is that even with good enforcement in US EEZ's, the fish know no boundaries. So they will shift from our EEZ's to those of other nations and potentially be overfished there.

We formed partnerships with adjoining countries who are working their EEZs to try to manage the illegal fishing beyond our EEZ. We developed a joint strategy, a ship rider program where essentially we use Coast Guard assets and put enforcement officials from six nations that have signed ship rider agreements.

The Central and Western Pacific is significant distance away from the continental US. Most people don't know that sovereign American territory is located as well in the Central and Western Pacific.

To deploy a Cutter from here (Alameda, California) to American Samoa requires ten or more days. And the thing you have to realize in the Pacific, you don't have the infrastructure that you do in the Atlantic

So in terms of pier space, fuel, engineering support, food and other logistics, you have to take it with you. When you're down in a place like American Samoa, you better have most of what you need to operate.

And for the Arctic the Vice Admiral underscored he has authority but no assets. It is useful to hover for a moment with regard to the need for maritime assets even to be a player in the Arctic.

A good look at what this means for the USCG and the nation is the look at the Arctic problem by a leading expert with 30 years of operational experience in ice conditions.

According to Rear Admiral Jeffrey M. Garrett, U.S. Coast Guard (Retired):

The Arctic is centered on a large ocean basin….(and while other nations are investing) the U.S. is in the process of divesting its Arctic capability. The nation's multi-mission polar icebreaker fleet is being downsized by a third with the imminent decommissioning of USCGC Polar Sea. This will leave only the Polar Star, 35 years old and half-way through an expensive 2 ½-year refit, and the 11-year old Healy.

Unanticipated engine problems in Polar Sea forced the cancellation of two Arctic deployments in late 2010 and early 2011, the result of attempting to keep complex 1960s-era technology in use beyond its reasonable service life.

The icebreaker is a key asset of presence. Garrett explained in another piece why this is so.

In an icebreaker, you are not up in the Arctic to break ice per se; you are there to permit mobility to accomplish missions of national importance. You are an enabler for transit and related operations. It's really about mobility and being able to get to point A to point B or to wherever you want to go to do; whatever it is you're out there to do. So what you need, is a ship with a lot of power, a very strong hull, and which has been designed to get through ice efficiently. In addition, people often overlook that you need significant endurance; there are no gas stations in the polar regions.

When you look ahead to what the Coast Guard needs to do its missions in evolving Arctic conditions, you see that there's more open water, there's more human activity, and there's more maritime traffic. But the ice is still there, and its movements are becoming more unpredictable. You really need a ship that can operate in dynamic ice conditions to allow mobility and has the long legs to be there unreplenished for a reasonable length of time.

Protecting US economic and security interests in the North and South Atlantic requires the presence of USCG cutters and icebreakers. And these ships can be integrated as well into USN, USN-USMC and other defense operations. In a recent deployment of the Bertholf Cutter, US Special Forces used the deck of the new NSC as part of an exercise. The USN-USMC plan to work with the NSC in Pacific operations where appropriate as well.

The strategic point here is that the presence of maritime assets are required to protect US economic interests, provide for security, and protect US sovereignty. No presence; no assurance of the protection.

Two other examples from the recent operations of the Bertholf highlight the way ahead.

First, the Bertholf operates with a C4ISR D capability which can allow the commander of the Bertholf to leverage US, allied and partner's assets.

In our discussion with Captain Prince we highlighted the following:

A key way to think of the NSC is a command post afloat with self-contained assets, and because of C4ISR, reachback and reachout capabilities to national assets and partner capabilities. It is an operational bubble at sea able to control and operate over significant areas of land or sea to execute its various missions. Much like one can conceptualize the revolution inherent in the F-35 cockpit, the bridge and its various tool sets represent the "cockpit" for the command team of the Bertholf.

Rather than thinking of the NSC as a new cutter and simply as a replacement for the Hamilton class, one should think of the ship's entry into the 21st century world of C4ISR enablement, and the bridge as where C4ISR D (i.e, C4ISR enabled decision making) is executed.

While standing on the bridge with Captain Prince and Commander Ramassini, Second Line of Defense discussed the correlation between missions conducted on their recently completed patrol and the command assets on board the ship.

Secondly, the Executive Officer of the Bertholf underscored the impact of presence on protecting sovereignty. As Commander Ramassini emphasized:

We also offer great flexibility and adaptability for Homeland Defense and Security; and even serving abroad in support of U.S. Combatant Commander's global maritime partnerships. The transit ability and the sea legs in this ship are remarkable – we offer outstanding partnership and persistent presence wherever we go.

Up in the Bering Sea where we'd cover a 300,000 square mile area, steaming all the way up to the Maritime Boundary Line, and back down to the Aleutian Chain, and cover that area in a very efficient manner waving our flag, protecting our exclusive economic and projecting U.S. national interests in the Arctic along the Maritime Boundary Line, the U.S./Russia Border. So we have that presence.

And just be able to show our peer competitors that we're still concerned about this area, and we have a presence with remarkable helicopter launch and land capabilities up in the harsh Bering Sea with a ship like this is important to our nation and ultimately our sovereignty.

And the USCG example provides an understanding that no platform fights alone. By the USCG doing its job, other US forces can leverage what they do, provide scalable capabilities and provide for a significant expansion of impact with virtually no added cost.

James Carafano has rather forcefully put the proposition about sovereignty and his concern about the slow go on funding, building and deploying the new National Security Cutters.

The National Security Cutter's capability really matters. Presence at sea is what ensures the sovereignty of American territory at sea. Sacrificing capability means sacrificing sovereignty.

Abandoning the National Security Cutter as a budget-cutting drill makes about as much sense as dispensing with a security alarm, putting up "no trespassing" sign and telling yourself you are more safe at less cost.

We will turn next to various USN platforms and then to the USN-USMC team.

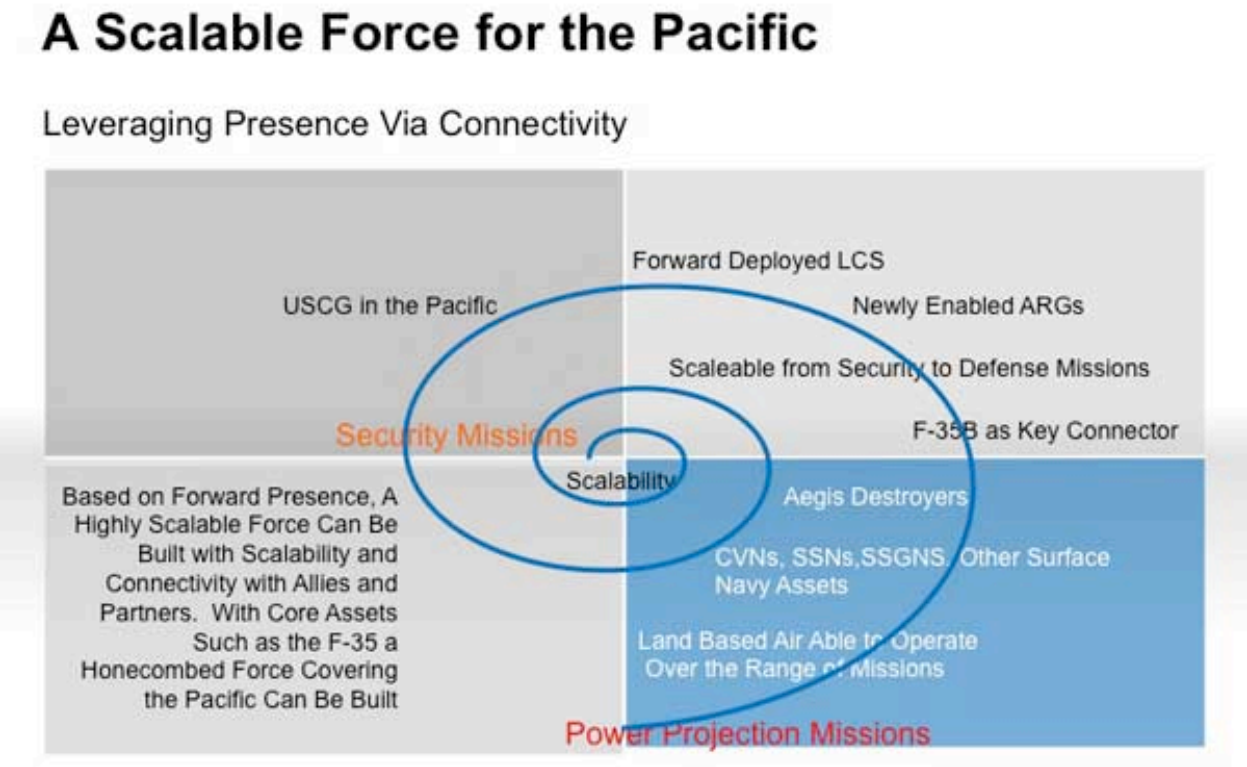
The approach we are building is from the ground up – quite literally. The US to protect its economic interests and sovereignty needs to deploy forward throughout the Pacific.

We started with the USCG and its everyday forward deployments in the North and South Pacific. And our interview with the senior USCG commander for the Pacific underscored the centrality of forward presence, including in the Artic, although the US is not engaging with significant assets in the Arctic acting as a "reluctant" Arctic power in the face of all the other powers who are not.

At the heart of our approach to the Pacific is leveraging all deployed forces through systems of connectivity but do so in a scalable manner. Rather than thinking of low and high end operations, we are thinking of a spiral of capabilities which allow one to leverage forces engaged initially on lower end operations to be part of a scalable capability which can go to the high end relatively quickly.

The key in this strategy is that any adversary will look at lower end assets such as the LCS or the NSC and see then as connected in a honeycomb whereby that platform represents a rapidly scalable force. No platform fights alone. An adversary who attacks an LCS cannot assume that he will be facing air assets off of an ARG, and CVN or off a land-base.

Crafting a Scalable Force



(Credit: SLD)

A forward deployed LCS is the next key element for building enduring presence and engagement. By forward deploying a significant number of LCSs to the Pacific, one can engage in operations while operating from the ports of core allies and partners.

Gaining geographical knowledge and cooperative capabilities with a variety of allies and partners in the region is a sine qua non of LCS success. By operating in the littorals, the LCSs will provide a core competence in working with allies and partners in dealing with various threats, piracy, counter mining, counter-narcotics, espionage from the sea, etc.

With the very significant decline in US naval and USCG ships, the shortage of assets to play a role in resolving such crises has fallen below the red line. Building the LCS and FORWARD DEPLOYING these assets to be available to have networked with allies and partners is crucial.

No platform; no presence; no capability to play a role protecting your interests. No platform fights alone, so the LCS's forward deployed can work with others, become fully networked with its C4ISR D capabilities to work in a crisis situation with local forces.

The LCS can operate in shallow waters and move to a crisis with speed. As the recently retired CNO put it: The speed, the shallow draft allows us to get into places we haven't been able to get into before, allows us to respond in ways haven't been able to respond before.

Choke points involve green and brown water operational conditions. The LCS is optimized for such conditions and can protect against or resolve threats to the choke points to keep US commerce flowing. The US needs assets, which can into small operational spaces to find and root out the forces threatening economic interests.

And the LCS is well configured to deal with the mining threats, which can be posed to the choke points as well. According to a recent article on the LCS, "The back of the ship is currently equipped with a big, black submarine-type vessel from a room deep inside the ship. If they come across what they think is a mine, they can attach a camera that's powerful enough to capture an image of a quarter on the sea floor."

The ability of the LCS to link with other assets – US, allied, and partner – is a key quality of how the ship can work to provide for success in security operations.

As one observer has put it:

The LCS would become the C2 focus platform as well as the launch platform for H-60s, Firescouts, etc. The maritime patrol aircrafts, working with the High Altitude Airship and the PTDS would be able to provide widespread overlapping ISR coverage. With regard to the PTDS, as I pointed out earlier, one would be deployed ashore, and the other three would be mounted on unused offshore oil platforms. Also, the LCS can be linked to other maritime assets to execute the mission as required leveraging this ISR information.

The LCS goes from security to lower-end defense missions. When connected to the newly enabled ARG the LCS becomes a key element of littoral operations which are truly scaleable.

These two forces – the LCS and the newly configured ARG – can be conjoined and forged into an enlarged littoral combat capability. But without the newly configured ARG, and the core asset, the F-35B, such potential is undercut.

(On the newly configured ARG, please see http://www.sldinfo.com/the-libyan-crisis/).

A newly configured USMC ARG is emerging from several new assets:

The new ARG built around the LPD 17 has a larger deck to operate from, with modern C2 capabilities.

The F-35B can be launched as a 360 degree presence asset to do electronic warfare, C4ISR and preparation for kinetic or non-kinetic strike.

The CH-53K can take off from the amphibious ships and carry three times the cargo of a CH-53E, to include 463L pallets (normally used in KC-130s).

The USMC Ospreys can support insertion operations with speed and range.

What the newly equipped ARG does is provide a significant shaping function for the President. And this shaping function allows significant flexibility, any hard 3000 foot surface is available for the Navy/Marine amphibious forces to seize and hold. This world class uniquely American battle capability is a redefinition of the dichotomy between hard and soft power.

And such capability in turn draws upon the decade of innovation which the USAF has engaged in in shaping the Air Dropping Revolution. As the commander of the Tanker Airlift Control Center (TACC) underscored:

Question: When you put that data out there about air dropping trends, it's impressive in and of itself, but when you think of the CONOPS implications they are significant as well. I don't even need to use roads to actually start inserting a force. Interestingly for the Marines when they're looking at the amphibious ready group (ARG) and what they could do with the future ARG, with their MC-130Js that can land in 3,000 feet or less, the Ospreys and the B's that they could put basically on almost any paved highway worldwide. They could be anywhere in the world, and then people say, "Well how would you supply them," and I would say, "Well what do you think we've been doing in the last ten years?" So if we marry up this revolutionary air dropping capability with projection of force from the sea, we could have a much more flexible and powerful insertion force if we wanted to.

General Allardice: I agree. Our new air dropping capabilities can be used to support our global operations in new and innovative ways. And honestly, innovation is really the essential takeaway. Through collaboration we are able to optimize the performance of the global mobility enterprise and orient it toward the effect we need. There will always be a tension between capacity and requirements, but we have found a way to manage it that allows us to respond rapidly and address those tensions in ways that would be much more difficult without the processes we have in place.

The USN-USMC amphibious team can provide for a wide-range of options for the President simply by being offshore, with 5th generation aircraft capability on board which provides 360 situational awareness, deep visibility over the air and ground space, and carrying significant capability on board to empower a full spectrum force as needed.

Now add the LCS. The LCS provides a tip of the spear, presence mission capability. The speed of the ship allows it to provide forward presence more rapidly than any other ship in the USN-USMC inventory.

It was said in fighter aviation "speed is life" and in certain situations the LCS can be paid the same complement. The key is not only the ships agility and speed but it can carry helicopters and arrive on station with state-of-the art C4ISR capabilities to meld into the F-35B combat umbrella.

Inserting an LCS into the Maersk Alabama incident can see an example of the impact of speed. As one naval analyst put it, the impact would have been as follows:

LCS at 45kts would have been on scene in less than 7 hours (6.7), or 37% sooner than a ship transiting at 28 kts.

LCS fuel consumption for such a sprint 40% less than the 28 kt sprint.

LCS would consume less than 23% of her fuel capacity in such a sprint.

A helo launch within 150 nautical miles from Maersk Alabama puts helo overhead within four hours (4.3) from the time of the initial tasking.

Two H-60's permits LCS to maintained a helo overhead Maersk Alabama for a sustained period of time.

With a response time of four hours the probability of thwarting a piracy attack is increased—especially if the naval ship is called upon the first realization of the targeted ship's entry into piracy-infested waters.

If an LCS was tasked to respond when Maersk Alabama encountered the first group of pirates craft on 7 April 2009, it would have arrived on scene well in advance of the attack on 8 April and may well have prevented it.

And if you add the LCS to the USN-USMC amphibious team you have even more capability and more options. As a senior USMC MEU commander has put it:

You're sitting off the coast, pick your country, doesn't matter, you're told okay, we've got to do some shaping operations, we want to take and put some assets into shore, their going to do some shaping work over here. LCS comes in, very low profile platform. Operating off the shore, inserts these guys in small boats that night. They infill, they go in, their doing their mission.

The LCS now sets up — it's a gun platform. It's a resupply, refuel point for my Hueys and Cobras.
Now, these guys get in here, okay. High value targets been picked out, there is an F-35 that's doing some other operations. These guys only came with him and said hey, we have got a high value target, but if we take him out, we will compromise our position. The F-35 goes roger, got it painted, got it seen. This is what you're seeing, this is what I'm seeing. Okay. Kill the target. The guys on the ground never even know what hit them.

In World War II the Imperial Japanese Navy Admirals were said to call the US PT, or Patrol Torpedo Boats—"Devil Boats"—The LCS is not a PT boat but the LCS ocean presence with 21st Century capabilities may make it a modern "Devil Boat" to vex any enemy combat action.

Similar to the PT boats of WWII the LCS by itself has limited staying power; connected to the ARG, the LCS announces presence and is connected to significant full spectrum combat capability.

Several LCS's could be deployed with Osprey and F-35B cover. The F-35B provides the 360 degree multiple of hundreds of miles coverage. The LCS becomes a node in the combat system of the F-35 and any weapons on the LCS can be cued up by the F-35B.

With the new aviation assets, the Marine Expeditionary Unit (MEU) can be split at sea allowing it to cover hundreds of miles more than historical operations with unexpended speed and maneuverability.. And adding an LCS to each of the disaggregated elements can further enhance the presence and combat functions of the MEU.

The recent operation of the Osprey in Libyan operations demonstrated how this game-changing asset allows for significant logistics support for deployed LCSs and ARGs.

As the ACE commander put it:

It completely changes the game for the ARG/MEU, it changes the game for how the Marine Corps does business. I didn't fully realize, nor appreciate this until I was operating in some of these locations during our deployment.

Once we got into the Med for the Libyan operations during Operation ODESSEY DAWN, Naval Air Station Sigonella was our only forward support base.

The Osprey functioned as a force multiplier in these circumstances. I could fly 300 miles plus from the USS Kearsarge to Naval Air Station Sigonella, land, get a quick hit of gas if needed, put five, six, seven thousand pounds of gear, equipment, troops, parts, and be back quickly to the ship within 2.5 hours.

Half of our MV-22s were conducting combat operations in Afghanistan while we were conducting combat operations off the coast of Libya aboard the USS Kearsarge. So you can do the math: Half of the Osprey's conducting combat operation in Afghanistan and the other half performing combat resupply, and TRAP operations off the coast of Libya.

I wouldn't have even fathomed this expeditionary and amphibious capability 10 years ago. Also, the Ospreys from Afghanistan flew directly to Souda Bay, Crete and then onto Naval Air Station Signalla, Italy. This trip is a 3500 NM transit. This has been the longest in our short history, and they did it in one day. You can't even begin to argue or compare and contrast these facts with the CH-46E.

The glue which generates LCS-ARG synergy are the aviation assets on the two entities, notably the Osprey and F-35B which have the speed and range to create a moving 360 degree combat and presence bubble over an operation. Without that glue, these platforms become disaggregated and vulnerable. Linked together, the resulting synergy creates a force multiplier effect.

And such a multiplier effect can have a significant deterrent effect. General "Dog" Davis, the Commander of the 2nd Marine Aircraft Wing at Cherry Point, North Carolina, underscored such an impact when discussing the newly enabled ARG.

I'm Muammar Gaddafi. I'm whoever, and I've got an ARG with this new gear embarked – and I can't help but think its going to change the way I view that force. That ARG can reach out and touch me from long range, landing high-end infantry forces deep inside my territory, and do so with a speed that twice as fast as anyone else can. Our MEUs have never been used as effectively as they are today. These new capabilities are going to make them exponentially more potent and useful to our nation's leadership.

The F-35Bs give the new ARG a very high-end air superiority fighter, that's low observable if I want it to be. I can roll from Air to Air to Air to Ground quickly and be superior to all comers in both missions. That's bad news for our adversaries. I can use the F-35s to escort the V-22s deep into enemy territory. With those V-22s we can range out to a 400-500-mile radius from the ship without air refueling. I can go deliver Marines deep in the enemy territory or wherever and do it at 250 miles an hour, so my speed of action, my agility is exponentially increased, and I think if you're a bad guy, that would probably give you a reason to pause. It's a very different animal that's out there. We are good now, but will be even more so (by more than a factor of two in the future).

I also have significant mix and match capability. And this capability can change the impact of the ARG on the evolving situation. It is a forcing function enabled by variant mixes of capability. If I wanted to strip some V-22s off the deck, to accommodate more F-35s – I could do so easily. Their long legs allow them to lily pad for a limited period of time — off a much large array of shore FOBs – while still supporting the MEU. It's much easier to do that in a V-22 than it is a traditional helicopter.

I open up that flight deck, or I can TRANSLANT or PAC additional F-35s. If I had six on the deck and I want to fly over another six or another four, we could do it rather quickly. Now the MEU has ten strike platforms. So if I need to have a TACAIR surge for a period of time, that deck provides a great platform for us. We've got the maintenance onboard that ship, so we can actually turn that Amphib very quickly from being a heliocentric Amphib to a fast jet Amphib. Conversely, I could also take the F-35s off, send them to a FOB and load it up with V-22s, 53Ks, or AH-1Zs and UH-1Ys.

Flexible machines and flexible ships. The combination is exceptional.

We will have a very configurable, agile ship to reconfigure almost on a dime based on the situation at hand. I think the enemy would look at the ARG as something completely different from what we have now. I think we have to change the way we do things a bit in order to allow for that, but I think we will once we get the new air assets. The

newly enabled ARG, or newly whichever the term you're using, will force our opponents to look at things very differently. We will use it differently, and our opponents are going to look at it differently.

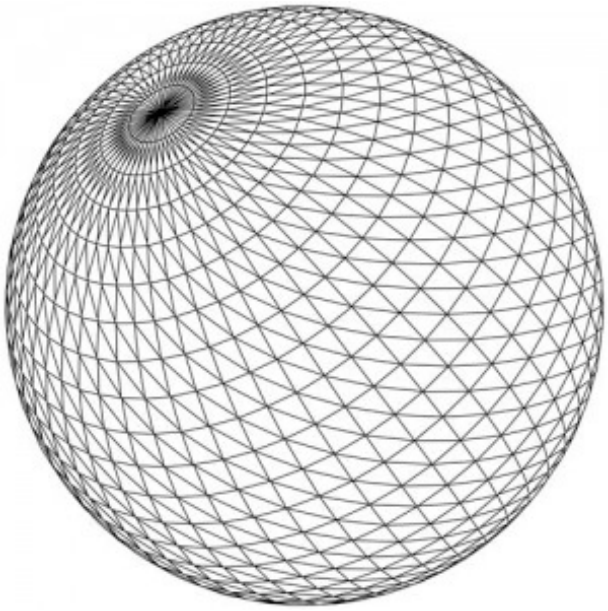
Finally, being connected to the newly enabled ARG can intelligently facilitate LCS modernization. The LCS can carry a range of assets, from missiles, to helos, to unmanned assets, to a complement of distributed "cyber warriors" all of which can much more potency by being part of the ARG team. The F-35B can perform the function of the battle manager, without the presence of large USAF aircraft, or a carrier presence. This is truly a combat revolution in the making.

We will next like at an aspect of crafting the honeycomb over the Pacific, namely creating an ISR grid over the Pacific built in part on the 12th AF model of working with the Dominican Republic.

The 12th USAF Example

A new approach to Pacific strategy would be built around presence assets, linked together to provide for scalable force. Building presence is not just about what the US does and can do. It is as well about working with allies and partners. But do so requires presence, linkages and connectivity. By shaping a connectivity enterprise, a honeycombed force can be built around scalable forces.

This approach is not built simply to deal with high-end threats but to operate across the spectrum of tasks necessary to provide for security and defense in the Pacific. In effect, one would look at a recent set of developments between the 12th USAF and the Dominican Republic and apply lessons learned to the Pacific.



Shaping a Grid to Shape a Hi-Low Mix (Credit Image: Bigstock)

A tremendous and unnoticed US Air Force victory is being won right off the shores of America. And this victory highlights the impact of a Hi-Lo mix of technology.

"Brazilian planes silence Dominican critics"

The mere presence of the Brazilian-made intercept planes and alerts by U.S. air surveillance on radar blips over the airspace have virtually halted all drug airdrops in Dominican Republic.

Traditionally, the concept of a "Hi-Lo" mix is in reference to Aircraft—but the 12th Air Force is rewriting that idea and showing the world new and successful con-ops.

The 12th Air Force is known as the "Doolittle Raiders" and just like the great "30 Seconds over Tokyo" raid by Col Doolittle's legacy, it is in capable hands.

However, this time they are supporting U.S. national security objectives much closer to home. The "Doolittle Raiders" are part of the mission espoused in the vision statement made by the US Southern Command (USSOUTHCOM).

We are a joint and interagency organization supporting U.S. national security interests, and with our partners, fostering security, stability and prosperity in the Americas.

The 12th is supporting nations just off our shore and recently held a U.S. Air Power demonstration in celebration of 100 years of aviation in the Dominican Republic.

Unheralded success has just been achieved by this partnership between SOUTHCOM and the Dominican Republic Air Force flying the Embraer Air Super Tucano. This remarkable and replicable success is made possible by U.S. "Hi" ISR technology in partnership with the Dominican Republic "Lo" technology the Super Tucano.

It has not been widely reported that this war against drug barons is being won in the sky.

Although drug money is unrelenting in finding ways to supply their corrosive product for now in the war against narco-criminals and terrorist this is a huge accomplishment, and the opening headline from Dominican Today quoted above says it all.

Along with the success in Dom Rep, the Colombian AF is wining the fight against the FARC with sensors and shooters—again the Super Tucano.

Consequently, this "Hi-Lo" mix is beginning to look like a winning formula for world wide partnerships between the U.S. and other nations by using American C4ISR that can give hot vectors in both the air-to-air and air-to-ground mission to a Light Armed Attack Aircraft (LAAR) like the Super Tucano.

(See also http://www.sldinfo.com/guns-guns-guns/.)

Worldwide possibilities are abundant: Indonesia, Afghanistan and hopefully some day back to the Philippines. There is no need for "Hi" U.S. tactical aircraft — just "Hi" American platform censors — and the "Lo" capabilities of the Super Tucano which is battle tested and perfect for the mission.

When thinking about the way ahead in the Pacific, we should consider that shaping a hi-low mix for the spectrum of operations can be facilitated by shaping a much more collaborative ISR enterprise in the Pacific. As the US re-shapes its military space capabilities, by leveraging in part the revolution in use of commercial hoisted payloads, we can take forward the capability of sharing information.

In other words, re-shaping the global ISR enterprise towards collaboration and coalition capability can facilitate COIN and security operations in the Pacific. And as the US deploys new aircraft aboard the amphibious ready group (ARG), another new capability displayed by the F-35B, namely 360 degree ISR over hundreds of miles, makes the F-35B its own high-low mix available to support allies across the spectrum of operations.

Indeed, in thinking about an ISR enterprise across the Pacific, land-based and sea-based air is a key facilitator. And dependent upon the situation, space-based and other air breathing assets can be key contributors as well. The challenge will be to ensure that data can flow but not be excessively constrained by intelligence limitations inappropriate to getting joint action.

The Aegis Enabler

Historically, the Aegis missile defense system was inextricably intertwined with the Carrier Battle Group. It remains a key element of the CBG, but now deploys separate from the CBG in its missile defense mission. Its permanent deployment at sea in the Pacific to deal with ever present danger of missile threats to the US and its forces is a key element for re-thinking the Pacific strategy.

With permanent deployment on the Pacific, the inclusion of Aegis sensors, missiles and capabilities within the honeycomb becomes a key element for the permanent presence, scalable force approach.

A key element for the Pacific force rethink is re-considering offense and defense. With a scalable force, the force is both able to do offensive or defensive missions. The circumstance dictates the task; not the limitations of the force. By providing for the defense of a deployed force, Aegis allows that force to deal with a wider spectrum of threats and engagement options. SM-3 missiles aboard the Aegis ships can be used to defend, or to support a strike force.

And the Aegis ship has become a coalition ship. Many Pacific allies are Aegis operators and as such the ability to develop coordinated operations enables the US and its Aegis partners to spread a defensive punch to the Pacific ISR grid.

Background

The Aegis program has evolved since its beginnings in the 1970s. The program was designed to provide enhanced fleet defense for the US Navy in confronting a challenging Soviet Navy. Here is one of those Cold War relics everyone likes to bash as irrelevant to the 21st century. But it isn't.

The program has evolved over 40 years and has morphed in several distinct ways.

First, the capabilities of the core program have been exponentially increased, by among other things the software and microelectronics revolution.

Second, the evolution of targeting precision, C4ISR and missile technologies has enabled the Aegis system to become a key element in global missile defense. And such capabilities are essential to the ability to project power in the 21st century against global proliferation of missiles and other capabilities possessed by potential adversaries.

Third, the core US national program has evolved over time into a global enterprise. Not only are there several partners who have purchased and developed Aegis capabilities, but those partners have put those capabilities onto a variety of ships. Indeed, every partner who has bought the system has put it onto its own preferred hull solution.

The Aegis effort is the premier global program underwriting joint US and allied high end defense capabilities. As such, the program has several lessons to be learned which underscore how to succeed in the face of 40 years of threat evolution, multiple Administrations, and changing global partners.

It is a success, which should be understood as significant to the future. When many defense commentators underscore the need for 80% solutions or criticize new programs, one should not that if the same perspective were taken in the 1970s and 1980s, we would not have had Aegis. And we would not have the core foundation for 21st century maritime power projection in place.

And a final consideration, which is central to the future: the Aegis coupled with the F-35 will provide unprecedented modular flexibility at sea for the national command authority and allies to shape responses to crises.

The Heinz Variety Solution

The SPY-1 radar/Aegis system has been successfully installed aboard 7 different ship classes at 7 shipyards worldwide.

Just to review the current status of the Aegis deployment is to underscore the diversity of platforms on which one finds the Aegis system.

First, there are 22 Ticonderoga cruisers in service with the USN. The USN has engaged in a cruiser modernization program in which it is outfitting the Ticonderoga class with the latest Aegis baseline.

Second, there are the 58 Arleigh Burke class destroyers in service with the USN through multiple Aegis baselines.

Third, the Japanese are the originally foreign purchaser of the Aegis system. They have six Aegis systems for the Atago and Kongo destroyer classes. The Japanese program is in a lifetime support phase; with completion of mid-life systems upgrades of the 1990s Kongo class ships, which includes a BMD capability.

Fourth, the Spanish then entered the program and provide a key turning point. The Spanish shipyards have been major innovators in shaping a global Aegis product, in Spain, in Norway and in Australia. The initial 4 Aegis equipped F-100 ships have an original configuration radar (SPY-1D). The 5th F-100 ship will have an Aegis system with SPY-1D (V) radar with an indigenous combat management system (CMS).

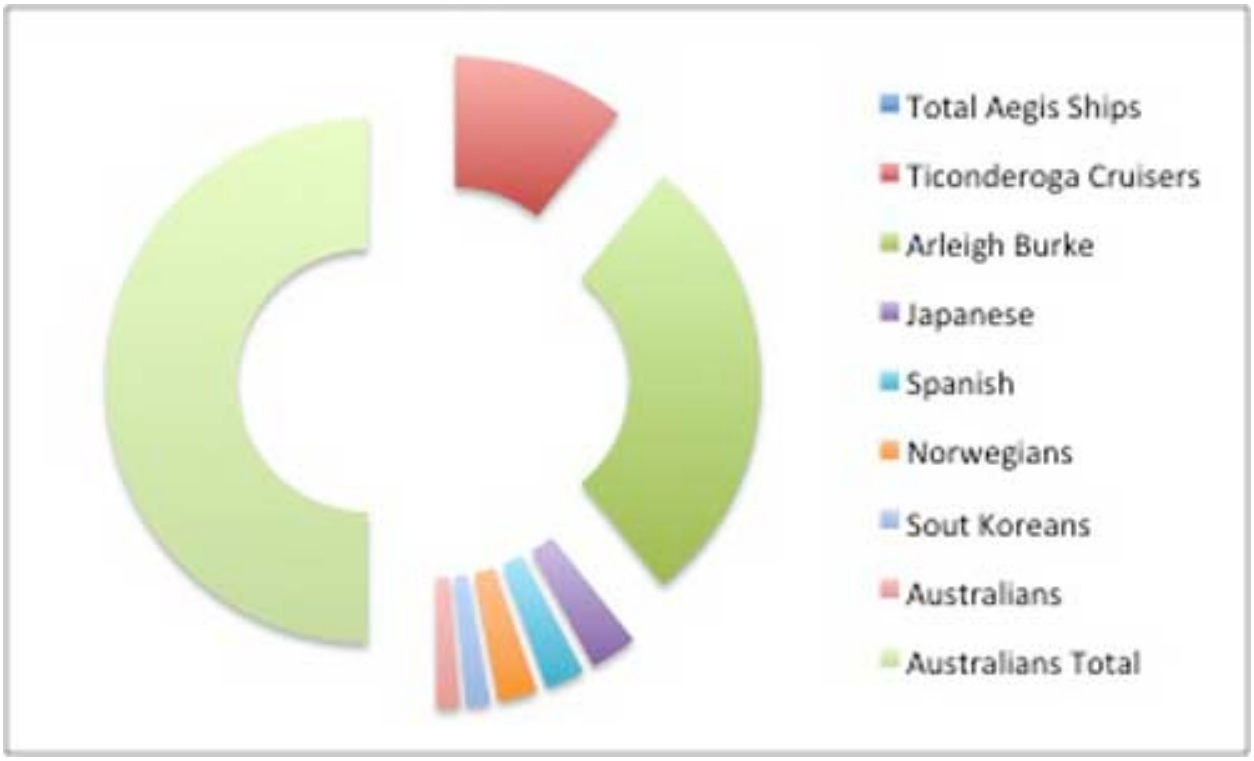
Fifth, the Norwegians leveraged the Spanish program and have five Aegis equipped F-310 ships with a SPY-1F radar. They were able to leverage the SPY-1Y radar technology to shape a smaller antenna to fit a 5000-ton ship.

Sixth, South Korea has three Aegis destroyers with SPY-1D(V) radar on the world's largest Aegis-equipped ships. The first ship will be in service with the remaining two ships to be completed by 2012.

Seventh, the Australians have also leveraged the Spanish program. There will have three Hobart class destroyers. This is t5he newest non-US Aegis program and leverages the Spanish F-100 ship design and the Aegis SPY-1D(V) system. The Australians picked the combat system prior to picking the shipbuilder.

Eighth, there are a number of other countries that have expressed interest in the Aegis solution. Those countries include Saudi Arabia, India, Canada, Brazil, and Turkey.

Currently, this means that more than 20% of the global Aegis fleet is non-American.



(Credit: SLD)

Shaping Modular Flexibility

Aegis provides significant capability to mix and match US and allied maritime capabilities to provide for regional defense, power projection, fleet defense or support for joint or coalition non-maritime forces. This mix and match capacity will be enhanced as many of the Aegis nations are looking to add the F-35 to the mix. And overtime, integration of the Aegis with F-35 sensor suites will help both to shape a more effective capability over time.

The Obama Administration has placed significant emphasis on continuing the upgrade path for the Aegis BMD program. By cancelling the Bush missile defense program in Europe, de facto, the Administration highlighted its commitment to Aegis as a key element for global missile defense.

But the evolution of the program depends upon a continuing significant commitment of increasingly scarce resources to testing and using test results to shape the concurrent development and manufacturing program.

And as the F-35 Joint Strike Fighter comes on line, the integration of Aegis with F-35 will provide a powerful capability for the US and its allies. It must always be remembered how significant numbers of allied partners are in the Aegis deployed fleet, and that there are several joint Aegis and F-35 allies in prospect.

An upcoming tests will support a launch/engage-on-remote concept is that links the Aegis ship to remote sensor data to increase the coverage area and responsiveness. Once this capability is fully developed, the SM-3 missiles—no longer constrained by the range of the Aegis radar to detect an incoming missile—can be launched sooner and therefore fly farther in order to defeat the threat.

Imagine this capability linked to an F-35, which can see more than 800 miles throughout a 360-degree approach. US allies are excited about the linkage prospects and the joint evolution of two highly upgradeable weapon systems.

A further set of evolutionary upgrades is planned. Notably, the Administration is focusing upon an "Aegis Ashore" in 2015. "This new approach will provide capabilities sooner," the President stated in September 2009, "build on proven systems and offer greater defenses against the threat of missile attack than the 2007 European missile defense program."

The first phase of the new approach focuses on existing sea-based Aegis missile defense ships and radars will be deployed in southern Europe to defend against short/medium-range ballistic missiles. Future decisions might also see Aegis Ashore in the Middle East and East Asia. Because of the inherent multi-mission qualities of the ABMD warships and their strategic and tactical mobility, they are highly survivable against a broad spectrum of threats, not just ballistic missiles.The focus of FTM-16 is on the SM-3 Block IB, the next-generation sea-based missile spiral upgrade. The seeker, signal processor, and propulsion system of the SM-3 Block IB missile kinetic warhead are improved versions of the Block IA missile and will result in increased missile effectiveness against longer-range and more sophisticated ballistic missiles.

These engineering upgrades have already undergone laboratory and ground tests, and flight-testing of the SM-3 Block IB missile is scheduled for this year. Fleet deployment could begin soon thereafter—roughly 18-24 months ahead of the test/deploy schedule defined by the Phased Adaptive Approach. Aegis BMD in 2010 began sea trials Aegis BMD 4.0.1, the next-generation system that will fire the SM-3 Block IB missile. The 4.0.1 signal processing capability greatly improves Aegis BMD performance and will enable Aegis BMD to remain well ahead of the threat. In short, Aegis BDM continues to "press the envelopes" of national and global BMD capabilities against a growing threat. It is already deployed and is being upgraded over time. It is a high-value system and a high-value capability.

In other words, the Aegis global enterprise lays a foundation for a global capability in sea-based missile defenses and the protection of deployed forces as well as the projection of force. And this capability, in turn, becomes increasingly central to the freedom of action necessary for the global operation of U.S. forces and its Pacific.

"Aegis is my Wingman" "The SSGN is my Fire Support

In a phrase, this is how the remaining core naval assets are integrated into a scalable Pacific capability. The F-35s, whether land or sea-based as a Z axis C4ISR D force can bring the entire surface and subsurface fleet into a scalable operation. An economy of force capability is deployed every day with the permanent presence forces. By making all of these forces C4ISR enabled, their individual strengths are combined into a honeycomb across the Pacific by a flying decision-making and decision directing asset.

With the combination of Aegis with F-35, the sensors are combined into wide area coverage. With a new generation of weapons on the F-35, and the ability to operate a broad wolfpack of air and sea capabilities, the F-35 can perform as the directing point for combat action. With the Aegis and its new SM-3 missiles, the F-35s can leverage a sea-based missile to expand its area of strike. With a combination of the F-35 and the Aegis, the defense of land-bases and sea-bases is expanded significantly.

The commonality across the combat systems of the three variants of the F-35 provides a significant advantage. When one talks about the Aegis as my wingman, this can be true for F-35As, Bs, or Cs. 80% of the F-35s in the Pacific are likely to be A's and many of these coalition aircraft. Building an F-35 and Aegis global enterprise provides significant coverage and capability across the Pacific.

As the F-35 Joint Strike Fighter comes on line, the integration of Aegis with F-35 will provide a powerful capability for the US and its allies. It must always be remembered how significant numbers of allied partners are in the Aegis deployed fleet, and that there are several joint Aegis and F-35 allies in prospect.

During exercise Stellar Avenger, the Aegis-class destroyer USS Hopper launches a standard missile 3 Blk IA, successfully intercepting a sub-scale short range ballistic missile, launched from the Kauai Test Facility, Pacific Missile Range Facility, Barking Sans, Kauai. (Credit: USN Visual Service, 7/31/09)

And by combining the F-35B with Aegis a whole new capability to defend land based air in the Pacific opens up. No longer should the F-35B be considered a boutique niche aircraft only essential for Marine combat con-ops. With vision and commitment on numbers it can become a tactical aircraft that sends a strategic signal.

The reason is simple, an F-35B can stand strip alert on any long runway, US or Allied. From a strategic point of view think of Guam, South Korea or in the Middle East on all long runways. As a crisis situation develops, the F-35Bs can be remotely placed in hardened bunkers and revetments and thus become a significant deterrence asset that can instantly sortie into combat and return to gas and go again and again.
(*http://www.sldinfo.com/the-f-35b-has-a-unique-war-winning-capability/*)

By using a detachment of F-35Bs the issue of enemy runway area denial and need for rapid runway repair does not become a show stopper to ops-tempo both offensively and defensively.

Tie an F-35B to the Aegis and the entire "wasting argument" about asymmetric IRBM and enemy strike against our hard fixed land targets becomes moot. This is because Guam for example will still have air power in its defense. This principal can be applied globally.

Folding the subsurface assets into the presence and scalable force structure exponentially expands the strike force quality of the deployed force. We have deployed the NSC, the LCS, the ARG, the F-35A, B, and C, and now add an integrated strike and surveillance capability of the SSGNs, and SSNs.

The SSN assets are expensive to buy, efficient to operate and own, and provide a multi-mission capability when their strike and other capabilities are included into the Pacific operational concept. Subs versus subs are an important part of ASW activity and for dealing with many at sea threats. But there are also a long at sea deployment capability, which can provide strike and other support to surface and air assets operating in an area of interest. The SSNs can provide such support to littoral engagement assets such as LCS as well as ARGs.

The guided-missile submarine USS Ohio arrives at Fleet Activities Yokosuka for a routine port visit. The visit to Yokosuka marks the beginning of a one-year deployment to U.S. 7th Fleet for Ohio. Ohio is home ported at Naval Base Kitsap, Bangor, Wash., and currently serves under Commander Submarine Group 7 at Fleet Activities Yokosuka, Japan. (Credit: USN Visual Service, 8/29/09)

The SSGNs are even more interesting. Sporting very large tubes, which could be enabled with new robotic or strike capabilities, the SSGN could well become the new wingman for the F-35Bs coming off of the ARG. Chris Cavas of *Defense News* has written from time to time highlighting the nature of the real estate onboard the SSGN which could be used creatively in supporting littoral assets such as the Agile Response Group.

The real value of the undersea strike capacity is in its ability to be delivered with surprise from close-in against particular high-priority targets. This "little or no notice" context greatly increases the military value of power projection and may serve an essential role in permitting general-purpose forces to gain subsequent access to the theater of operations.

(*Undersea Warfighting*, Command Submarine Forces, July 2011).

These SSN and SSGN capabilities will be supplemented over time as the robotic revolution unfolds. In a recent interview, which we conducted with General Heinz of I Robot, and the former F-35 PEO, the role of robotics in the littoral engagement was underscored:

SLD: We are working on a Pacific strategy, which highlights the centrality of the C4ISR D grid, and clearly some of the tools you are developing are very important for such a capability. We have had much verbiage about the Coast Guard/Navy/Marine Corps relationship, which is just verbiage, but we really need to make it real. And one way you could make it real is put that kind of ISR grid together and lay it down in this part of the world, and robotics would be certainly a key part of that.

Heinz: And you could start to develop that grid to be a little bit more persistent and mobile versus a stationary underwater grid, and it would be at a fraction of the price.

SLD: I would like to look back at your experience with the F-35 and forward with evolving work on maritime robotics. We're building littoral combat ships. We're building new LPD-17s, all of which can deploy news robotic vehicles, and I think the missing factor in the conversation about how we're going to manage the thousand nautical miles into the littorals is the whole robotic contribution that an LCS can deliver that you can drop by tactical aircraft, that you can manage data.

I think that the 360-degree bubble deliverable by the F-35, and how I manage it and working with a robotic front end, all of this is not really been focused on in the national conversation.

Heinz: This is important and doable for the future. The environment in under water is as difficult as it is in space and compounded further by the fact that you don't get the same bandwidth in terms of trans activity/communications protocols when you're in water as you do when you're in space. So the vehicles themselves actually have to be more autonomous in terms of their smarts that they employ and their ability to operate remotely by themselves without human intervention.

The bandwidth that you're going to be able to provide under water as well as the ranges that you'll achieve are much smaller and so you're not going to be able to send high resolution video movies from station to station through water without some kind of tether.

But having said that, what I also think is a fallacy of the current thinking is that most of it in terms of underwater robots is centered almost entirely around duration or ability to move covertly to a location. So the large diameter UUV program and others are building these very large vehicles that have separate power systems and lots of storage for batteries simply because it's believed you're going to drop these things in waters and they're going to have to travel 200 miles by themselves covertly in order to begin to be able to perform the mission that you're looking for.

And I would simply propose that either that concept or an air deployable one, but the reality is we want to start moving to a number of smaller robots that can populate that grid and do so by delivering them near the site and then allowing the persistence of the mission to fill in those gaps and whether that's an air deployable system or it's a

mother ship that then carries them a number of smaller robots that are deployed at intervals, but we have to start thinking about what those smaller robots are going to do for us and what persistence that they want to have.

So the simplest mission or challenge might actually be: How you going to blow up mines in the surf, and what's the means that you're going to do to deliver those and dolphins probably is not the answer.

The challenge will be: What is the communications protocols that you're going to have to have those robots do because again that is the number one issue relative to water operations is that I want to be under water most of the time. I still want to be able to communicate my data back to some platform and I also have to have better obstacle avoidance than we have today.

What the F35 will bring to the party is a much more robust and wide-ranging capability to leverage the full range of maritime and air capabilities, which can be brought to bear on an area of interest.

(For a look at the Norwegian F-35 and Aegis context see
http://www.sldinfo.com/emerging-strategic-challenges-the-case-of-arctic-co-opetition/.)

Addendum: Chris Cavas alerted us to the SSGN possibilities when he wrote this story in 2008 and filed it with *Navy Times* March 11, 2008.

Part of the story follows and we thank Chris Cavas for providing.

The Navy's new submarines have unprecedented flexibility to carry and operate a variety of payloads.

The four Ohio-class guided-missile submarines, converted from Trident ballistic missile subs, have 24 payload tubes, each 7 feet in diameter — more carrying room than any previous submarine. New Virginia-class attack submarines have a nine-man lockout chamber; future versions will feature two payload tubes nearly as large as those in the subs.

Submariners are excited about the prospect of filling those tubes with new generations of manned and unmanned vehicles, weapons, sensors and a variety of gear to handle an ever-expanding range of missions. But they also acknowledge a problem: Not enough people in other warfare communities know about the new capabilities. They worry that if the new submarines aren't used to their full potential, follow-on programs could be in jeopardy.

To flesh out the possibilities, a group of experienced submarine officers met in mid-February with analysts, academics and industry representatives.

"The goal," said Rear Adm. William Hilarides, the Navy's program executive officer for submarines, "is to generate buzz and energy so we can get going on this."

Some of those in attendance during the two-day unclassified meeting, sponsored here by the Massachusetts Institute of Technology, came from warfare communities outside the "bubblehead" sphere.

"I can't tell you how excited we are," said Mike Cleary of the Defense Intelligence Agency. The subs' ability to carry large payloads close to shore means access, he said.

"It gets me there, brings endurance," he said. "It can be a robust package without expending a lot of funds."

Rear Adm. Mark Kenny, commander of Navy counterterrorism operations, was equally enthusiastic as he pointed to the large Virginia Payload Tubes that will be installed in the submarine class' Block 3 ships.

"This is huge. This gets us lined up for the next 30 to 40 years," said Kenny, who commanded an attack sub. The new capabilities "give us the ability to make these investments and leverage them for years to come."

The money spent to rebuild the former ballistic missile submarines "is pennies on the dollar," he said.

Navy officials realized that experimentation would play a key role in developing the new subs' capabilities, so one payload tube aboard each Ohio-class sub is dedicated on every deployment to experimental use…..

But Vice Adm. Jay Donnelly, Submarine Force commander, noted a number of hurdles. Scheduling experiments is a challenge, for example, because the subs have only about three months between deployments.

Other issues include bandwidth and technology problems. Donnelly said a submarine recently fed 30 seconds of video of an experiment but needed about three hours to transmit the video file from periscope depth.

More ideas

Other ideas include installation of surface-to-air missiles. The Missile Defense Agency recently identified the submarine as the ideal delivery platform for the Kinetic Energy Interceptor under development for ballistic missile defense.

But setting up reliable communications below periscope depth remains a challenge.

"Communication difficulties need to be addressed before [BMD from submarines] can become a reality," Donnelly said.

He also pointed to efforts to operate UAVs from submarines, saying the attack submarine Montpelier flew its first Buster UAV in early February while operating in the Persian Gulf. The small UAV — launched slingshot fashion from the submarine's cramped bridge — operated for about four hours at ranges up to about 10 miles and fed surveillance video to the submarine.

In future experiments, a submerged sub will try to launch a UAV. Donnelly said the submarine force hopes to experiment next year with UAVs that can be launched through the trash disposal unit and feed data directly into the submarine's combat system.

But no one envisions a near-term way to stealthily recover them.

"For now, launching a UAV from periscope depth may be good enough as a first step," Donnelly said. "We can add additional bells and whistles later."

Development of a disposable, cost-effective UAV is a challenge, other speakers noted. Tim Devane, a special projects manager with Northrop Grumman's KEI effort, described missions and capabilities required for a submarine-launched UAV, including instant video, communications and data relay, precision targeting, signals intelligence, mine detection and chemical-biological detection.

Encapsulated UAVs capable of being launched underwater are under development, he said, with designers hoping to achieve 15-hour endurance and six-hour loiter time.

Kenny noted the submarine Florida will try out UAV ideas on its spring deployment.

"We have another wave of Buster-like aircraft that will deploy on the Florida," he said, adding that Montpelier's aircraft might be "in combat in the next couple of months."

Larger UAVs flown from shore also are being tested from submarines. An assessment of the Predator B/SSGN combination will begin this year and "last about a year," Kenny said, and other experiments will be conducted with satellite links with large aircraft.

While technological testing is necessary, so is work to develop capabilities for other purposes…..

Inserting the UCAS into Maritime Operations

A key development for the evolution of U.S. Pacific operations will be the use of new remotely piloted vehicles as part of the C4ISR capabilities. So called-unmanned systems are clearly not that; but are an important part of extending the reach and persistence of the strike and reconnaissance capabilities of the sea-based forces.

All of the RPAs suffer from vulnerabilities in their data links and no RPA has flown in Northern Edge into the teeth of hostile jamming and electronic warfare. And a robust jamming or cyber environment is something that those who believe unmanned systems are the only future of airpower would soon see in combat demonstrations that they are not.

Rather than a key element of the future it would be wise to grasp that UAS have not been tested in a contested air combat environment nor their accident rate really discussed.

The X-47B UCAS flew with its landing gear up for the first time on September 7, 2011 during a test flight at Edwards AFB, California. (Credit: Northrop Grumann)

If someone figures out what happens when Cyber Warriors fight UAS Drivers then maybe it will be time for some speculation. But early hard budgeting decisions to substitute reliance on UAS as a direct trade off for fighter pilots is yet to be validated in a demanding combat environment.

UAS primacy advocates have yet to produce a robust test in which the entire mission profile for a UAS was pitted against dedicated Cyber Warriors. A cyber team that was allowed to employ all of their techniques available-from jamming, spoofing, malware, denial of service, Trojans, backdoors, viruses, worms and even finding a deliberate saboteur (there are some evolving CI programs that look for such action) think PFC Manning and Wiki-leaks.

Additionally, UAS accident rates have not been addressed. As Col. (retired) Bill Buckey, a Marine F/A-18 Combat Pilot, LSO and the officer who directed the surge build out at Kandahar Afghanistan points out; "The accident rate for UAS ops at Kandahar was noticeable and that harsh environment is less demanding than a pitching Carrier Deck–an operational environment that includes CV ops is as of yet uncharted territory for UAVs."

Nonetheless, RPAs will be an important part of the evolving wolfpack con-ops of air operations over Areas of Interest. The F-22s and F-35s can work interactively with RPAs to establish a new concept of operations to leverage, and control deployed assets to shape effective strike and reconnaissance operations in Areas of Interest.

(See further our series on this topic: http://www.sldinfo.com/leveraging-5th-generation-aircraft/ ; http://www.sldinfo.com/managing-non-linear-battlespace/ ; http://www.sldinfo.com/re-norming-the-asymmetric-advantage-in-air-dominance/ ; and http://www.sldinfo.com/the-emergence-of-a-21st-century-concept-of-air-and-military-operations-the-impact-of-the-"forcing-function"-of-the-5th-generation-aircraft-2/)

A key capability which the USN is developing to provide such an RPA system is the X47B.

The X-47B is a tailless, strike fighter-sized unmanned aircraft currently under development by Northrop Grumman as part of the U.S. Navy's Unmanned Combat Air System Carrier Demonstration (UCAS-D) program. Under a contract awarded in 2007, the company designed, produced and is currently flight testing two X-47B aircraft. In 2013, these aircraft will be used to demonstrate the first carrier-based launches and recoveries by an autonomous, low-observable-relevant unmanned aircraft. The UCAS-D program will also mature relevant carrier landing and integration technologies, and demonstrate, in 2014, autonomous aerial refueling by the X-47B aircraft. (Northrop Grumman)

The program brings a number of key enhancements to the sea-based force to the table.

First, it extends the strike range of an already funded core capability, namely, the carrier task force. Tactical aircraft have limited range; the UCAS has much greater range and reach. This makes it valuable in and of itself, but extending the reach of the new tactical aviation asset to be deployed to the fleet, namely the F-35, enhances its value. The sensor and communication capabilities of the F-35 are significant, but the reach of the aircraft remains within tactical ranges; the UCAS has forward strategic strike reach as well as ISR and communications reach-back to the tactical assets.

The UCAS can spearhead the entire sensor and strike grid put up by the carrier task force.

Second, the UCAS will be the first unmanned system developed in the wake of the deployment of the new F-35. The F-35 as a "flying combat system" should be a generator of change in the unmanned fleet.

The development and then deployment of the UCAS will be integrally interconnected with the F-35, and as such can take advantage of commonality in sensors and communications with the new manned aircraft. Shaping a common concept of operations between the F-35 and the UCAS can provide an important stimulus for change for the US Air Force as well.

Third, it is highly likely that the US Air Force new bomber program will be shifted to the right in funding priorities. This provides a significant opportunity for the US Air Force to learn from the US Navy's experience in deploying the UCAS with the F-35 to shape a possible unmanned successor for the manned bomber.

A template could be shaped by the Navy, which could provide important lessons learned in shaping the US Air Force's strategy to work the future of its unmanned programs with manned aircraft.

Fourth, the company building the UCAS demonstrator, Northrop Grumman, can draw on significant lessons learned in their other unmanned programs, such as Global Hawk, and on their core contributions in sensors and communications to the F-35 to provide a realistic development to production program for the new UCAS aircraft.

The UCAS will provide a multi-mission capability for the joint and coalition force structure. It should not be understood as a stand-alone platform, which is of value only in the most extreme warfighting conditions. It is NOT a specialized asset, rather it is a multi-mission asset useful across the spectrum of conflict and in the diverse concepts of operations which the U.S. Navy, and the joint and coalition forces are likely engage in against the most likely threats of the next two decades.

The UCAS will be a significant asset in the formation of the new concepts of operations for distribution aerospace forces. Among the forward deployed stealth assets, a significant sharing of ISR, C2 and strike functions will be shared, and communicated to other assets in supporting roles.

The UCAS with its distinctive stealth capabilities will become an important node in the new air operations network which can be used in command and control functions, as a forward air controller identifying targets for either stealth or legacy aircraft, as strike platforms leading an attack or supporting an attack by providing more weapons on targets needed by the manned stealth aircraft.

The UCAS will an important contributor to fighting the hybrid wars facing America and its allies. With the diffusion of advanced technologies, both commercial and military, U.S. and allied militaries cannot count on a clearly defined spectrum of conflict from low to high intensity of operations; Low intensity can become mid-intensity rapidly. You do not want to bring a knife to a gunfight, especially when you are not certain of who is defining the nature of the conflict or its tactical or strategic reach.

A modular UCAS brings a diversity of capabilities to the battlespace, ranging from command and control support, situational awareness, providing crucial links in a distributed electronic or cyber war attack, initial strike weapons, additional support strike weapons. In addition, these capabilities are launched from an alternative airfield at sea with a different set of trajectories than land-based facilities, which further enhance the capability of the joint or coalition force.

The UCAS also can provide an important tool in support of insertion forces. The USMC focuses on the need for a new approach to sea basing. As the U.S. Army, the U.S. Air Force and the USMC augment their Special Forces capabilities, and in the case of the U.S. Air Force and USMC the Osprey is seen as a key tool for rapid force insertion, the UCAS can provide a crucial support element for rapidly inserted ground-air forces.

The introduction of a stealthy UAV provides the top cover for the insertion of Special Forces for raiding or counter-terrorism operations. Insertion forces by definition can be rapidly withdrawn as well. The U.S. after long wars in Iraq and Afghanistan might well consider the advantage of rapidly inserted forces to deal with the suppression of local threats creating global consequences.

The USMC for certain, and several allies as well will deploy the F-35B. And perhaps the U.S. Air Force as it reconsiders its position within the re-set of power projection forces might acquire this aircraft as well. The STOVL aircraft has many advantages for concepts of operations, including deploying ashore on rugged "airfields" and operating from support structures at sea or on the air.

Dependent upon the amount of time ashore and where operating the USMC has developed an effective plan for support of the dispersed force ashore. The advantage of "airfields" not known ahead of actual deployment is significant; a UCAS as providing for early and continuing ISR or defensive support for forward deployed STOVL airfields is compelling.

And finally, the UCAS can provide a significant contribution to an "enduring littoral presence" mission for the U.S. Navy. The U.S. Navy has struggled to define its littoral mission. When the service operated "from the sea" construct, the littoral were simply space through which strike and sea control was exercised. In the world of today and the next decades, engagement in the littorals for relatively long duration is a crucial mission.

As the U.S. Navy considers acquisition of the littoral combat ship (LCS), the question of how to sustain the operation of these ships or how to combine them with other littoral assets such as an engaged USMC will become significant. The UCAS will provide a significant airborne asset to support the LCS in its initial engagement and provide sustained support as desired.

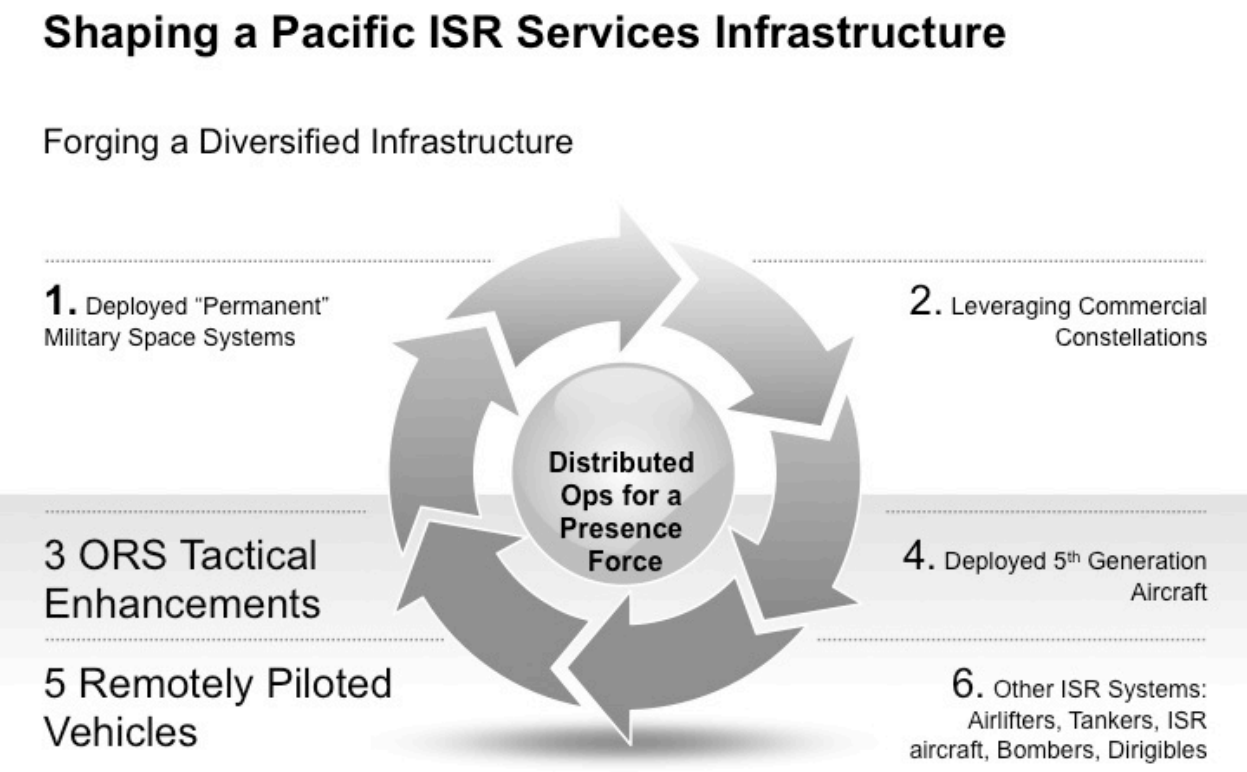
(To read further: http://www.sldinfo.com/x-47b-unmanned-combat-air-system-demonstrator/ and http://www.sldinfo.com/the-case-for-new-programs-in-a-period-of-defense-transition-the-naval-ucas-case/)

ISR Services to the Honeycomb

As the presence forces operate in the Pacific from the Arctic to Australia, a key enabler will be the ISR inputs or services which support and enhance deployed decision-making centers, whether in the combat aircraft of the 5th generation or by the ships and longer-range strike assets.

The service structure should be understood as a function of capabilities deployed permanently or deployed in areas of interest when appropriate to various insertions or augmentation of force. The ISR service structure is a key element of the scalability of capabilities, and shaping of both US and allied concepts of operations. We are using the term service structure to highlight that the structure is platform agnostic. The ISR service structure is very dynamic as well and can come from commercially leased systems, large aircraft, dirigibles, or robotic systems whether air-breathing or not. The key is to feed the ISR services into the decision making system and to support deployed presence platforms, capabilities and warfighters.

Space-based systems shape the "permanent" presence foundation for ISR in the Pacific. Given the weather conditions and the vast expanse of the Pacific, an ability to tap into space systems is a crucial foundation for situational awareness and guidance for deployment decisions.



A comprehensive C4ISR service structure can be built based on parterning with commercial and allied offerings pursued in a realistic policy enviornment and a distributed architecture shaped whereby capabilities emerge from the elements of a deployed capability, rather than trying for a costly comprehensive architecture which requires solely proprietary funding to support the end to end effort.

Leveraging other people's money, whether commercial or foreign space, or other Command, Control, Communications, Intelligence and Decision Making Support or C4ISR D platforms is essential for an affordable, capable military space strategy.

The mix can well drive innovation and match quality of shaping a de facto distributed space architecture. Overcoming stove piped programs, and challenging DOD and the intelligence community to OPERATE outside the box is crucial. Simply contemplating change is not adequate.

Engaging in organizational innovation is at the heart of today's technological innovation. Money can be freed up to support needs revealed by organizational innovation and core needs, which emerge at the edge of overlapping capabilities.

Space provides a significant contribution to C4ISR D or data for decision-making. Yet the unmanned revolution as well as the fifth generation aircraft is game changers in providing data for deployed decision makers. And the role of

hoisted payloads in supporting UAVs has become evident in the Afghanistan operation. The new capabilities can provide a re-think about how to leverage commercial space, notably hoisted payloads, in supporting air-breathing C4ISR D assets.

The role of proprietary military space becomes a default capability: what CAN NOT be provided by the powerful conjunction of air breathing assets and commercial satellite capabilities? The relatively un-agile DOD structure would then be put on notice to identify programs that are needed which can interact with such a conjunctive capability, but provide unique and core capabilities UNABLE to be generated either by air breathing military assets of the commercial space, notably hoisted payloads structure.

Savings would come from both sources.

First, DOD would have to ACT outside the box in leveraging its investments in unmanned and manned aerospace assets. The deployment of the F-35 will provide game-changing ISR capabilities, which can be harvested to reshape the C4ISR D structure.

Second, the evolution of satellite capabilities in the commercial sector provides significant cost investments, which DOD does NOT need to make. DOD by shaping long-term contractual service relationships can save scarce investment capital. But this requires DOD to think and contract long term, not one of its core competencies.

Such an approach facilitates a strategic re-think, which parallels what we are doing with fifth generation aircraft. The focus is upon distributed operations and shaping a honeycomb of decision-making supporting the deployed warfighter. Such a focus allows one to tap into the emerging thinking about shaping a disaggregated strategy whereby space policy makers look to focus on overall capabilities from the enterprise rather than concentration of capabilities on single point of failure platforms.

Disaggregation and distributed operations further highlights the opportunity to build smaller payloads and to operate across a variety of launch platforms. By reducing the cost impact of a launch failure and its impact on expensive and complicated satellites, innovation is enhanced as well. With a diversity of assets distributed across the space enterprise, and leveraging commercial space and air-breathing assets, innovation and cost effectiveness are enabled.

At the same time, various air-breathing assets are key elements of a presence force with an ability to become scalable and tailored to specific situations. The potential of the fifth generation aircraft and their associated robotic systems can be exploited to shape C4ISR capabilities very scalable for the presence forces.

Here the onboard processing capabilities of the F-22 and F-35 would be recognized for what they are, namely, breakthrough capabilities to process data for their own use, for the network of air combat systems and to integrate their capabilities with maritime and ground forces.

As the manned systems are deployed and their capabilities better understood and exploited, the role of robotic vehicles in the air network will go up dramatically. A wolfpack concept is likely to emerge within which the manned systems direct and are embedded within airborne robotic networks which, in turn, work closely with maritime and ground forces.

The capability of providing for collaborative decision-making among maritime, ground, and air commanders becomes possible as the interactive network shapes options and provides choices to the joint commanders.

The role of space in this world has the potential to become radically redefined. The propriety U.S. military space network is most significant when the U.S. seeks to establish air superiority and conducts joint and combined maritime and air strikes against adversaries, either nation state or discrete adversary targets located on foreign territory. Here the interaction among US military systems must be carefully protected and highly integrated for a successful insertion of force. In a way, given the key role of the evolution of the F-22 and F-35, the military space network would be sized to support this initial air superiority and air dominance effort.

And as the fleets of 5th generation aircraft increase, the relationship between large manned aircraft, AWACS, bombers, tankers and lifters will change. Some of these assets may well go away, such as the AWACS. The tankers and airlifters can have key ISR systems and routers emplaced on them to be part of the honeycomb. And the next generation bomber will become a core additive element whose requirements and capabilities may well be determined what it contributes from what is lacking from a forward deployed presence force – namely, a 5th generation aircraft and Aegis enabled force.

Cybersecurity challenges and the threats from some powers who are developing abilities to disrupt US-specific military systems simply re-enforce the advantages of a multi-layered architecture encompassing commercial, air-breathing, allied, and US military systems. The US cannot afford to build a proprietary Pentagon-funded layered and diverse architecture, which deal with Cybersecurity threats all by itself.

A diversified architecture in which commercial and allied elements are part of the foundation makes the task of disruption much harder and certainly for states not terribly desirable politically.

The augmentation of capability WHEN necessary is facilitated by a diversified architecture. If a joint and coalition force is operating in an area of interest and needs shared data in an air permissive environment, the deployment of dirigibles as a system to provide persistent situational awareness can be provided. And the ISR systems put upon on the dirigible can allow information sharing in such an environment.

If a Black Swan pops up and planning needs to be facilitated in an area of interest an operationally responsive space capability can deployed to up the tactical information necessary to insert a force or to re-inforce if an when necessary an already deployed presence asset or group of assets.

An example of a littoral operation where such a need was underscored was in Libya. The Libyan military operation in Libya is not yet over. It is too early for scholarly and learned lessons. But it is not too early to look at the tactical experiences and how those experiences presage changes to come. We have done an initial look at the overlap between the experience of the French and of the U.S. Marine Corps in the Libyan operations and have discovered some significant overlaps in experience.

If we look at the congruence of the French with the USMC Marine experiences, several things can be highlighted.

First, the centrality of leveraging multiple bases in a littoral operation is significant. The French used several land bases and incorporated the sea base — whether the carrier or their amphibious ships — to work with land-based aircraft. The Marines used their land base largely to supply the sea-based air ops via Osprey transport.

Second, having the C4ISR — command, control, communications, computers, intelligence, surveillance and reconnaissance — forward deployed with the pilot as the key decision maker is crucial to mission success. The classic USAF U.S. Air Force CAOC (Combined Air Operations Center) is challenged by what the Marines demonstrated in the operation; the French experience also challenges it.

If you have a long C4ISR chain, the information in a fluid and dynamic situation must be provided in a more timely fashion than a system built for 1991 air operations permits.

Third, new air capabilities make a significant difference. For the USMC, the Osprey was the game changer in this operation. For the French, it was the new recce reconnaissance pods off of the Rafale fighters.

Fourth, the dynamic targeting problem experienced by the French was also highlighted by the USMC Marines' experience. Getting accurate information from the ground is central to operations. The USN-USMC Navy-Marine team has a number of new capabilities being deployed or acquired which that will enhance its ability to do such operations. The F-35B fighter will give the USMC Marine Corps an integrated electronic warfare and C4ISR capability. The new LPDs have significant command and control capabilities. For the French, acquiring unmanned aerial vehicles (UAVs), which that could become wingmen for the Rafales would be important, and the role of the C2 command and control capabilities of the new amphibious ships were was underscored as well.

Fifth, the pickup quality of this operation may be more a norm than an aberration moving forward. If it is, then the old paradigm (significant planning and roll out of a fleet of C4ISR aircraft and capabilities) may be challenged by a new one: Deploying air assets that can be tapped by the sea base to shape an operation may become one of the key requirements moving forward.

Let us now hover over the C4ISR aspect a bit more. The French officers in charge of the operation were keenly aware of how little time they had to plan for the it, and putting UAVs and combat aircraft over Libya prior to a U.N. authorization was not a great idea. President Nicolas Sarkozy decided considerably before the U.N. resolution that France would operate in Libya, but to the French military leaders, this meant that the political roll out did not mesh with what their planning requirements.

This discussion about the comparative U.S.-France experiences in the Libyan intervention raises the question about space systems: Could they be used, in the future, to provide a much more operationally reactive and efficient role, in the spirit of what is called in the U.S. Operationally Responsive Space (ORS)?

For instance, if such ORS systems had been available in Europe, France could have used the insertion of a small constellation of LEO small satellites into low Earth orbit by quick launch to allow a couple-of-months cushion for planning, and then to provide efficient tactical support to the intervention.

Not only would such an ORS capability be essential to operations where the political dynamic is determinant, but the military capability decisive, it would also enable significant manpower savings compared to with UAVs. Contrary to the common wisdom, UAVs are not cheap; they are vulnerable to ground fire and cyber-attacks,; they require significant manpower to support an "unmanned" asset,; and of course they cannot be used before an official green light since they operate in the airspace of a sovereign country. Once the satellites are launched, the manpower support is minimal to deliver the capability. And their intelligence information can be downloaded directly to the cockpits of the pilots, who then, after initial destruction of enemy capabilities, can transition to dynamic targeting.

An ORS capability would be a very valuable complement because the main issue is not the strategic intelligence but the tactical input to the commanders and pilots in the field, which has to be put in place, tested and exploited before the beginning of the operations. A constellation of a few small satellites, launched on- demand, and injected in very low altitude orbits tailored to provide the best coverage of the countries of operations, would add enormously to the efficiency of the combat syste

The world is changing in an accelerated way. New military challenges like the Libyan intervention call for new ways to operate, with focus on local C2command and control, and tailored tactical means.

In effect, the middle layer of the ISR service structure will grow and with it the ability to push decision making down to level of the deployed forces. With the emergence of the F-35, a true revolution in ISR capabilities will be available to US and allied forces. The F35 has significantly greater processing power than current aircraft and has an open-chip architecture. With this level of processing power available, the F35 will be capable of simultaneous multi-mission operations, rather than current combat aircraft's approach to sequential multi-tasking.

Additionally, remotely piloted aircraft developments part of the future of shaping high-mid-low altitude C2 and ISR capabilities. Additional introduction of dirigibles and other assets will contribute as well to an expanded mid-layer role in the C4ISR or C4ISR D (shared decision-making) enterprise.

All of this depends on how permissive the air environment is in an operation and the scope and nature of the strategic objectives and the tactical conditions. But the core point is rather simple: by shaping a distributed and diversified structure, the National Command Authority can leverage normal presence capabilities and scale up or down dependent upon the situation.

(To read further, please see: http://www.sldinfo.com/building-blocks-for-a-new-us-military-space-policy/ ; http://www.sldinfo.com/new-u-s-national-security-space-strategy-proposes-new-partnerships/ ; http://www.sldinfo.com/the-evolving-u-s-space-paradigm-lynchpin-for-a-global-c4isrd-enterprise/ ; http://www.sldinfo.com/leveraging-austerity-recrafting-military-space/)

The Role of the Surface Fleet

We have discussed three surface combatants earlier: the LCS, Aegis and the CVN and have integrated these platforms into a discussion of the interaction between presence and scalability. Here the focus is upon other surface combatants and their roles in the way ahead.

If one is focusing upon littoral operations, the role of the mine fleet, which will be augmented and perhaps someday subsumed by the LCS is a crucial element. But as Dr. Scott Truver has underscored in an earlier article on our website, the need to deal with de-mining challenges is not being met.

A CH-53 Sea Stallion helicopter assigned to Helicopter Mine Countermeasures Squadron 15 conducts an airborne mine countermeasures exercise with a MK-104 Mod 3 acoustic mine sweeper. HM-15 is assigned to Combined Task Force 52, conducting mine countermeasure activities in the U.S. 5th Fleet area of responsibility. Credit: US Navy Visual Service, 5/9/11

The 2010 Quadrennial Defense Review called for the Air Force and Navy to develop a new concept for defeating potential adversaries — principally China, Iran and North Korea — that possess sophisticated anti-access and area-denial (A2/AD) capabilities. In response, the AirSea Battle Concept (ASBC) captured the imagination of former Defense Secretary Robert M. Gates, outgoing Chief of Naval Operations Adm. Gary Roughead, and Air Force Chief of Staff Gen. Norton A. Schwartz.

The ASBC is to help guide the development of future capabilities for effective power-projection operations. Surprisingly, this seems to include innovative ideas for using naval mines to defeat adversaries' naval forces and strategies. While still not formally approved as of mid-2011, several observers noted the ASBC seems to address future naval mining capabilities:

Offensive mining appears particularly attractive, given its comparatively low cost and the difficulty and time-consuming nature of countermine operations. Mining will generally be effective only in areas close to hostile territory, near the approaches to ports and naval bases, and in chokepoints.

Significant numbers of smart, mobile mines capable of autonomous movement to programmed locations over extended distances will enable offensive mining.

Stealthy mine-laying platforms capable of penetrating A2/AD systems are preferred for conducting this mission, primarily submarines and stealthy Navy and Air Force bombers.

These AirSea Battle naval mining initiatives are years, if not decades, away from bearing fruit and depend upon a commitment to design, engineer and acquire modern mines, which is problematic at best….

Until recently, the Navy maintained a large stock of mines, including the Destructors, the Mk 67 submarine-launched mobile mine (SLMM), and the Mk 60 CAPTOR (enCAPsulated TORpedo) anti-submarine mine. But with the end of the Cold War, the Navy's mine capabilities have atrophied.

Today the United States lacks modern mines, and the U.S. stockpile is significantly smaller than North Korea's estimated 50,000 mines, while the Chinese Navy might have on the order of 100,000, and Russia has been estimated to have 250,000.

The CAPTORs are gone, and only the obsolescent SLMMs and three "Quickstrike" mine variants, which have limited effectiveness in deeper waters against surface targets, are in the Navy's inventory. But, the SLMMs will be phased out in 2012. At that point, the Navy will have no mines capable of being launched from submarines.

Worryingly, should the Navy actually have to deploy its weapons, there are only a few trained mine specialists on staff. In mid-2011 there were only two minefield planners in the U.S. Navy—a retired USCG captain and a USN Limited Duty/Surface Ordnance Officer assigned to the Naval Mine and Antisubmarine Warfare Command in San Diego—in addition to a handful of enlisted Minemen (none having formal training).

The "workhorses" of the Navy's mining capabilities are the Quickstrike weapons — 500-pound (Mk 62) and 1,000-pound (Mk 63) bomb-conversions that are fitted with multiple-influence target detection devices (TDDs) plus the 2,000-pound, "thin-wall" Mark 65 dedicated Quickstrike mine. (The Mk 62/63 mines replaced the Mk 36 Destructors.) All are bottom mines and are deployed from tactical and strategic aircraft.

There is no surface mine-laying capability, although the U.S. Navy might investigate rolling Quickstrike mines off virtually any available ships and craft — something Libya, using Russian/East German "export" mines, did from a ferryboat in the Red Sea during the summer of 1984 — but that doesn't seem to support ASBC stealthy mine-laying ideas.

Once the SLMMs are phased out, the nation's sole mine-laying capabilities will reside in naval aviation and the Air Force. The Navy's P-3C Orion maritime patrol aircraft and F/A-18 Hornet/Super Hornet can drop Quickstrike mines, but the P-3Cs start leaving service in 2013. They will be replaced by the P-8 Poseidon Multi-Mission Maritime Aircraft, which also will have a modest mining capability, but the ability to do so in meaningful numbers is years away.

Today, there is no U.S. Navy mine program, other than the Quickstrike TDDs. The inability to invest in an advanced new mine looks to be held hostage to resource competition. The Navy's mine warfare resource sponsor has a difficult challenge: balancing mines/mining with mine countermeasures (MCM), while having to fund legacy and future MCM systems as new systems are being brought on line, with no growth in total funding. Indeed, challenges with the mine warfare module for the littoral combat ships (LCS) recently dictated a redesign of that "mission package," including additional costs and delays in the future MCM program.

That underscores the fiscal truth of U.S. Navy mine warfare: mines and mine countermeasures — from the labs and industry, and from the Pentagon to deployed forces — usually accounts for less than 1 percent of the Navy's annual budget.

Nevertheless, several senior Navy officials, including the Chief of Naval Operations and the Commanders, U.S. Third and Fifth Fleets, are warming to the idea of "offensive" mine warfare. Without mines the U.S. Navy essentially gives adversaries a "free pass…."

http://www.sldinfo.com/usn-mines-and-mining-in-the-airsea-battle-concept/

The newly developing robotics revolution married to LCS and Amphib ships could provide a partial solution to these gaps. As General (Retired) Heinz now of Irobot commented in a recent interview:

SLD: We are going to put LCS, LPDs, ARGs, and F-35s into the littoral, how do we best leverage the robotic element in littoral operations?

Heinz: In that discussion, we need a little bit more time spent at the front end of what is the data and the threat that I need to have SA on in near real time and then I'll solve the vehicle problem that collects that on the robotic domain, and I think that's the last part of this that's still missing is that we're talking about counter mines to blow them up, but if the premise is: If I had enough robots out there to simply tell you when they're coming or delivering those systems and when they've been put down, then I'm actually trying to avoid the threats instead of trying to neutralize it after it exists.

And that's where robots provide you with an unblinking eye in terms of surveillance, but the discussion has to be about what it is I want to know about and how persistent does it need to be under water like we are having the discussions with Global Hawk and other platforms today in the air.

SLD: And certainly the LCS is almost a perfect platform to work the kind of robotics you are developing.

Heinz: Absolutely. And a point I think that's worth saying is that I believe that robots in the underwater domain are different than air in the fact that the human logistics chain is less expensive for underwater robots, that I don't have to maintain that very large human back train for a UAV. I don't have to do that for a UUV and so there is potential for savings beyond just the functionality that the robot provides.

In addition to the de-mining or counter mining issue, surface combatants provide a wide range of contributions to presence and scalability interactions.

The fleet provides a significant fueling and support capacity;

Fire support is provided through missiles, and surface strike assets;

Fleet defense is augmented significantly by a connected surface combatant fleet which if properly connected can be key elements of the honeycombed force supporting a variety of air, surface and subsurface forces;

Surface combatants play a key role in anchoring Anti-submarine activities as well.

The surface fleet can provide significant lilly pads for various maritime air breathing platforms to operate off of – over time maritime UAVs will proliferate and become a key element of the robotic revolution; V-22s and other modern vertical lift assets will proliferate and work a honeycomb approach to leap off, deploy and engage from a variety of surface assets; and the revolutionary lift fan capability of the F-35B suggests that the airplane could land and take off a wide variety of surface assetss in the period ahead.

In this respect when looking at the surface fleet, one should distinguish between ships provide full support to an air assets versus a surface asset providing a lilly pad functionality whereby the air asset can land, get refueled, and take off again. This allows the mix and match capability between surface and air assets which significantly increase the number of vectors of operation and enhance both survivability and capability in Pacific operations.

These are only a few of the key roles and in this regard the ability of the US surface combatants to work with allies in the Pacific is a key element of shaping a viable scalability approach in the Pacific itself.

The allied issue will be discussed in a future piece, but innovations in the surface fleet are essential to re-shape the capabilities in a littoral engagement force. A key contributor in this process would be to leverage the innovations generated by the DDG-1000 force.

An artist rendering of the Zumwalt class destroyer DDG 1000, a new class of multi-mission U.S. Navy surface combatant ship designed to operate as part of a joint maritime fleet, assisting Marine strike forces ashore as well as performing littoral, air and sub-surface warfare. Credit: USN Visual Service 7/23/08

The "bundle" of technologies embodied in the DDG-1000 destroyer – as well as those innovative technologies that will easily find a "home" in this ship – represent many of the most cutting edge and transformational technologies adapted for military use:

- the integrated power system (IPS); integrated electric drive;
- a stealthy tumblehome hull and integrated topside (InTop)[i] design;
- 155-mm Advanced Gun System (AGS);
- the Mark 57 Peripheral Vertical Launching System (PVLS);
- the S-band Volume Search Radar (VSR) and the X-band AN/SPY-3 Multi-Function Radar (MFR);
- and a host of other advances related to network-centric warfare, stealth, and survivability.

In brief, the DDG-1000 destroyer represents one of the most ambitious technology leaps that the U.S. Navy has undertaken since steam-driven, iron-hulled ships replaced wood-hull sailing ships.

But as cutting-edge as the technologies currently embodied in the DDG-1000 destroyer are, it is the potential to host game-changing technologies in this ship as the Navy evaluates these and other technologies for the Navy-After-Next that makes the DDG-1000 arguably one of the most exciting naval vessels ever fielded.

For example, the Office of Naval Research recognized, "Among the possibilities inherent in all-electric ships are the new weapons that become feasible when virtually unlimited electric power is available on board."[i] The advanced DDG-1000 propulsion plant can enable such weapons to be used without significantly drawing down the ship's electronic surveillance and weapons control systems, or speed, a critical factor because of the high electrical demands of these cutting-edge, weapons.

These weapons are generally classified under the general heading of Directed-Energy Weapons (DEW) and include high-energy lasers, radio frequency weapons (high-power microwaves or ultra-wideband weapons), and electromagnetic rail guns.[ii] Far from futuristic weapons that may-or-may-not-be feasible, the Office of Naval Research is already developing and working to scale up the power of free-electron lasers, chemical lasers and their associated beam directors, radio-frequency weapons, and full-scale electromagnetic rail guns capable of launching precision-guided hypersonic projectiles at supersonic speeds.[iii] Indeed, independent assessments outside government have concluded that solid-state lasers (SSL) "are capable of making unique and important contributions to U.S. military effectiveness."[iv]

The DDG-1000 can perform ideal host platform for the technologies that will accelerate the Navy's revolutionary leap to the Navy-after-Next.[v] As the DDG-1000 destroyer technologies continue to be tested and mature, the DDG-1000 will serve as a credible platform to evolve these technologies for the Navy's entire family of new surface combatants.[vi]

It is the prospect afforded by directed-energy weapons that promise to revolutionize naval warfare and will represent for the Navy and Marine Corps a dramatic paradigm shift on how the two services – as well as the Joint Force – will conduct operations on and from the sea in the 21st Century. As the only feasible host platform for directed-energy weapons for at least the next decade, the DDG-1000 destroyer is the ship that will move these technologies out of the laboratory and ground test sites and to sea where they offer the potential to revolutionize warfare at the tactical, operational, and strategic levels.

Hosting these directed-energy technologies on the DDG-1000 offers the promise of accelerating the development and refinement of these weapons in the operational environment and in so doing, not only identify "the art of the possible" for what the Navy-After-Next can look like, but if these emerging technologies deliver merely a portion of their enormous potential, the DDG-1000 destroyer will become the prototype for the entire high-end of the Future Surface Combatant family of ships.[vii]

With a defense budget under increasing stress, any new military technology must do more than just offer the potential to reshape how the military fights in the future – it must also have the ability to close current warfighting gaps today. And given the especially high cost of naval vessels, any ship the Navy deploys must have an impact today. In the case of the DDG-1000, this ship will immediately close important warfighting gaps.

A Cooperative Strategy for 21st Century Seapower, the Navy, Marine Corps, and Coast Guard's first new maritime strategy in a generation, lists six missions for U.S. maritime forces, four "traditional missions" (Forward Presence, Deterrence, Sea Control, and Power Projection), and two new missions (Maritime Security and Humanitarian Assistance and Disaster Response).[viii]

While the DDG-1000s destroyer will be capable of supporting all six-mission areas of the maritime strategy, it is the power projection and sea control missions that serve to define the primary focus of this ship and its "bundle" of new technologies….

In supporting a wide-array of Navy missions, the DDG-1000 will bring important capabilities to the fight, especially in the littorals. It is beyond debate that most of the areas of instability and strife are located in major cities and urban areas easily accessed by seaward approaches. The emergence of potential threats in these areas, coupled with the nation's dependence on the world market and support for regional allies, demand increased U.S. presence in the littoral regions.[ix] This is not a "futuristic" concern, but a near- and mid-term warfighting requirement. The DDG-1000 is optimized to operate at the land-sea interface, supporting the Navy and the Marine Corps combined arms mission.

It is anticipated that the USN will procure a significant number of new littoral combat ships for operation in the littorals. There are key technologies on the DDG-1000, which will prove to be important compliments to the LCS ships and their supporting aircraft and unmanned systems. Notably the radar systems and defensive suites on the ship will provide to important assets added to the new destroyer or cruiser class to be built and deployed with the LCS in the future.

A Cooperative Strategy for 21st Century Seapower states the power projection requirement clearly, "Our ability to overcome challenges to access and to project and sustain power ashore is the basis of our combat credibility."[x] The gaps in the Navy's ability to dominate this littoral battlespace are significant – and growing. The ship is optimized for this mission and many of its other features – especially its radar, stealth, and survivability – are specifically designed to enhance its ability to project power and defend it effectively in the littorals. Sensors – radars in particular – are crucial to success in the littorals.

And the new destroyer class will be working with a number of new littoral assets, the F-35, unmanned systems and the LCS. It can form the lynchpin for the enduring littoral maritime presence mission.

http://www.sldinfo.com/leveraging-naval-technologies-the-case-of-the-ddg-1000/

See also, http://www.sldinfo.com/a-new-capability-in-search-of-a-platfo

This article is a contribution to the Strategic Whiteboard

http://www.sldinfo.com/resources/strategic_whiteboard/

[i] Science and Technology for the 21st Century Warfighter, p. 25.

[ii] George Galdorisi and Lynn Pullen, *Leveraging Directed-Energy Weapons to Accelerate Naval Transformation: Prospects and Issues* (Arlington, Virginia, Center for Security Strategies and Operations, December 2004), p. 15.

[iii] *Science and Technology for the 21st Century Warfighter*, pp. 25-26. See also, *Leveraging Directed-Energy Weapons to Accelerate Naval Transformation: Prospects and Issues* and William McCarthy, *Directed Energy and Fleet Defense: Implications for Naval Warfare* (Maxwell Air Force Base, Alabama, Air War College Press, May 2000). The fact that Directed Energy Weapons have not been written about extensively in the defense media over the past several years can be traced *directly* to the uncertainties surrounding the DDG-1000 *Zumwalt*-class destroyer program. Without a "host" platform having an integrated power system and integrated electric drive, directed energy weapons will remain land-bound.

[iv] Thomas Ehrhard, Andrew Krepinevich, and Barry Watts, "Near-Term Prospects for Battlefield Directed-Energy Weapons," *CSBA Backgrounder*, January 2009, accessed at www.CSBAonline.org. The authors note, among other findings, that "Lasers have long been considered a technology that could give rise to a new RMA. As a December 2007 Defense Science Board on directed-energy weapons (DEW) observed, lasers promise to be transformational "game

changers" in military operations…Recent advances in solid-state laser technologies suggest , however, that directed energy weapons in the 100-kilowatt (kW) range with power sources dense enough to provide "deep" magazines could be fielded in the near future…In sum, the technical challenges that have long delayed the fielding of directed-energy weapons for battlefield use finally appear to be giving way to technical and engineering progress." See also, Andrew Krepinevich, Tom Ehrhard, and Barry Watts, "Solid-State Laser Weapon Systems: Bridging the Gap – or a Bridge Too Far," Center for Strategic & Budgetary Assessments (CSBA) briefing, May 20, 2009. The briefers, all highly-respected defense experts who authored the study cited here, conclude that the key impediments to the development of solid-state lasers are not technical, but are cultural and institutional.

[v] See *Zumwalt DDG-1000 Multi-Mission Destroyer: Strategic and Operational Context* and David Maurer et al, *Comparative Analysis of Surface Warfare Designs*, Report prepared for the DDG-1000 Program Office (PMS-500), PEO Ships, 4 September 2008, pp. 1-43.

[vi] The current Navy Future Surface Combatant (FSC) Program includes the DDG-1000 *Zumwalt*-class Destroyer, the CG(X) Cruiser, and the Littoral Combat Ship (LCS). This FSC program is the evolutionary successor to the Navy's mid-1990s program called the SC-21 (Surface Combatant for the 21st Century) program. See, *Navy DDG-1000 and DDG-51 Destroyer Programs: Background, Oversight Issues, and Options for Congress*, CRS Report to Congress RL 32109, pp. 49 – 50.

[vii] *Science and Technology for the 21st Century Warfighter*, p. 25. This now-five-year-old ONR report was prescient in recognizing the potential the DDG-1000 *Zumwalt*-class destroyer as the lead ship for the Navy-after-Next, noting, "IPS and electric drive will revolutionize surface ship and submarine warfighting capabilities by increasing combat effectiveness and agility while reducing ownership costs, space, requirements, vulnerability, and crew size. Indeed, IPS is critical to the future development of the 'all-electric Navy.'"

[viii] *A Cooperative Strategy for 21st Century Seapower* (Washington, DC, Department of the Navy, October 2007). pp. 6-12.

[ix] Zumwalt DDG-1000 Multi-Mission Destroyer: Strategic and Operational Context, p. 2.

[x] A Cooperative Strategy for 21st Century Seapower, p.12.

[i] The Integrated Topside (InTop) Design was developed via the Innovative Naval Prototype Program managed by the Office of Naval Research. The ONR website (www.onr.navy.mil) defines InTop as; "An integrated, multi-function, multi-beam top-side aperture construct that has a modular open RF architecture, software defined functionally, and synchronization and optimization of RF functions for mission support and EMI mitigation." In defining the attributes of InTop, this description further states; "InTop plans to reduce the number of topside apertures o Navy ships through the use of integrated, multi-function, multi-beam arrays. In the past, the topside design approach was based on developing separate systems and associated antennas for each individual RF function which led to significant increases in topside antennas. This increase has led to problems with Electro-Magnetic Interference (EMI), Radar Cross Section (RCS) and the overall performance of critical ship EW and communication functions.

The Role of the USAF

As this rollout of a Pacific strategy for the United States in the Pacific has made clear, air power is not synonymous with the USAF. Airpower is crucial at every level of establishing presence and shaping the building blocks of scalability. Without aviation assets, the USCG cutters have very limited effectiveness. Without air-breathing assets of various sorts, the CVNs have no meaning, and the surface navy significantly limited. Without F-35Bs coming to the amphib, the USN-USMC team becomes a fleet of helo carriers with V-22s and the effectiveness severely curtailed.

And the shaping of a scalability approach involves the use of USAF assets as one rolls out different capabilities over time, whether lift, tanking, ISR services or elements of the combat air force. The USAF is a key element of the entire tissue of scalability and its combat air capabilities are key elements of the capacity to ramp up the scale of a scalable force.

For the USAF to play its proper role it must however be a warfighting force, which can as the opening of Gladiator noted: "At my signal: Unleash Hell."

http://www.youtube.com/watch?v=Kc8fqgbU_SU

Herman Kahn made the point when he visited the Strategic Air Command and noted its Motto: "Peace is our Profession." As Kahn noted, "That is great but I hope there are many warfighters in the Command as well." If Herman were around today, I am sure he would have some comments on the situation today.

If the USAF is not built around the Wynne doctrine "I do not want a fair fight. If I have put myself in a fair fight, I have failed as a planner and force builder."

http://www.sldinfo.com/the-challenge-of-avoiding-the-far-fight/

As the late Jack Wheeler put it: The Mission of the US Military is to dominate the foe, first with deterrence, and then, with the dominant, "unfair" fight.
The Wynne Doctrine, after SECAF21 Michael W. Wynne: "If you are ever in a fair fight, senior leaders have failed you."

http://www.sldinfo.com/cyberpoints-two/

Getting on with rebuilding the combat air force quickly is essential if US forces can deter as they deploy.

The Role of the USAF

It is always better to prevail without having to fight. Today, the U.S. military does this by shaping the international environment with the potent tools of assurance, deterrence and dissuasion. The principal role of the U.S. military is to defend the nation and the national interests. A powerful tool in this task is a capability to assure allies that they need not bow to violent threats and the ability to work with them to ensure global security. US armed forces accomplish this role by providing a solid foundation of military strength to complement the tools of peaceful diplomacy. None of these tools alone can sustain the US position of international political and economic influence. Leaders must be prepared to use all the instruments of national and coalition power in proper combination, in as integrated a manner as feasible, in order to address potential threats to national and collective interests.

The evolving strategic environment places a premium on global operations with allies and partners in providing for comprehensive global security. This networking forms a "Global Security Enterprise," of which Pacific capabilities forms a crucial case study. The USAF has a key role in shaping U.S. options for crafting a Global Security Enterprise. With the reach and persistence of modern air power – space, air-breathing strike, ISR, lift, tanking, cyberwar and related capabilities – the USAF is a key element for U.S. and coalition capabilities in global security operations.

With modern ISR, the USAF provides an important contribution to the persistent awareness to shape a global security monitoring system. Integration of air and ground with maritime forces is increasingly possible given the evolution of technology. And the USAF has a key role in shaping technological options for global reach, persistence and integration. Indeed, USAF innovation to help craft a Global Security Enterprise is a key aspect of USAF Air, Space,

and Cyber planning. rade But it is the thoughtful shaping of coalition capabilities that will provide the authority within which power may be exercised in the turbulent years ahead. From the perspective of the USAF, there are several contributions for the operation of a global security enterprise.

First, the USAF contributes several key elements to build global C4ISR capabilities. The new 5th generation aircraft, the evolving capabilities of unmanned systems and the U.S. military space system are becoming increasingly interactive. By moving data among the air-space systems and connecting with the ground forces, the USAF can be at cutting edge of crafting a truly global C4ISR system for joint and coalition operations.

Second, today's air forces are being reshaped as core participants in interdependent military operations in theater contexts. The USAF is combining close air strike/close air support (CAS) *on the same platforms* that already have key roles in performing ISR engagement with the ground forces. The battle domains of Ground, Air, and Cyberspace are becoming interconnected within an evolving Global Security Enterprise.

Third, the USAF is evolving its capability to shape a ground-air partnership with joint and coalition forces. Here the US Air Force can play the role either of the supported or supporting command. From the standpoint of the supported command, the USAF can establish air superiority and coordinate kinetic and non-kinetic operations within a theater of operations. At the same time, the USAF can shift seamlessly into the role of supporting command to ground commanders for a variety of mission sets ranging from peacekeeping, to stability operations to maneuver warfare. For example, the USAF is a natural partner of he USMC in shaping new approaches to the ground-air partnership dynamic.

Fourth, the USAF is a core facilitator of global operations. USAF lift, tanking, ISR, and strike forces increasingly operate as a globally interconnected force providing global reach and support to U.S. and coalition forces. The USAF functions as a global central nervous system for the operation of U.S. forces through the mix of its space unmanned and manned assets. Connectively, collaboration and global presence are core elements of the 21st century approach of the US Air Force.

This role is threatened by the actual state of the tanker fleet. However, in the Pacific region, Japan has new 767 tankers and the Aussies have new A330 tankers which can be brought to the fight. And tanking in the air is supplemented by tanking at sea for the presence force.

http://www.sldinfo.com/re-visiting-the-usaf-tanker-impact-on-con-ops/

Key Tool Sets

The USAF provides a key element of tanking and lift to the security and military enterprise and is a key element of supporting, sustaining and linking the elements of the honeycomb. The tanker and lift fleet are crucial to sustain forward deployment and to move force over the checkerboard. We have written earlier about key commands which embody the ability to perform such key functions at the command level. Notably TRANSCOM and the TACC are key tissues enabling the military body to operate worldwide.Transcom provides the overall planning and organizational center to provide for lift and support. As General McNabb put it:

We manage the operation of those assets to deliver capability to the warfighter. As such, we use the military airlift and sealift available to us as well as work with our commercial air and sea transportation partners. We are looking for cost effective ways to deliver capability. Obviously, the priority is important as well. If it is time urgent, we will use

air. If it is less time urgent, we rely on other assets. But in general we deliver about 90% of our equipment by surface modes and 10% by air. In Afghanistan, based on the threat, we deliver approximately 80% by surface and 20% by air.

http://www.sldinfo.com/general-mcnabb-on-transcom/

The TACC or the Tanker Airlift Control Center is a unique asset for managing from one operations floor US airlift, both commercial and military, as well as tanking and inter-theater medevac assets. As General Allardice put it:

What we do and the "why" of our existence at the 18th Air Force level is to set the global mobility enterprise up for success. In simple terms we are the warfighting headquarters for AMC. What that means is that we support General Johns' AFTRANS role by providing a robust mobility capability to the combatant commanders through U.S. Transportation Command. In practical terms, the first component of the enterprise is our active, reserve and guard air mobility wings in the continental United States. They generate the airplanes, the crews to fly them, and then of course, they generate airmen that deploy out into the world to support a variety of Air Force missions, many of which directly support our global mobility enterprise.

Another key piece of the global enterprise is our two air mobility operations wings. They support the enroute structure, 16 main enroute locations and numerous other bases operating worldwide in the Pacific, throughout Europe, and in the Mideast. It's a fairly lean organization, ranging from small, two-person detachments all the way up to robust squadrons. They're the ones that catch the airplanes, refuel the airplanes, and fix the airplanes. If a crew needs rest, they'll make sure there's billeting for them, and they'll run a crew stage. Simplistically, what I say is they accelerate the flow of iron throughout the world. The third major piece is our contingency response wings, CRWs, and that's the expeditionary part. They're not fixed. The CRWs are made up of a variety of small teams, but in many ways the crown jewel is the contingency response group. These are the expeditionary groups that can go out and open up a bare base anywhere in the world. They are self-contained organizations, about 110 people. Their whole purpose is to act as a forward hub so that our airplanes can flow in, perform their mobility mission and flow back out again.

Simplistically, what I say is they accelerate the flow of iron throughout the world.

http://www.sldinfo.com/shaping-global-con-ops-2/

An illustration of two ways beyond the obvious ability to support aircraft operating throughout the Pacific, that the TACC and related capabilities shape scalability in the Pacific are the following: the airdropping revolution and the ability to move troops rapidly through the AOR.

First, the airdropping revolution means that the USAF can supply honeycombed deployed forces throughout the AOR. This capability was discussed in the interview with General Allardice.

SLD: Could you talk about the whole revolution in airdropping?

General Allardice: Absolutely. Right now, I would say we are in the longest sustained airdrop in history. Since 2005, we've been airdropping virtually every day. We've doubled or tripled our load every year since then. Last year we dropped about 60 million pounds of supplies. This year we'll exceed 100 million. The interesting thing is the revolution or leaps in the technology of not just the delivery but the rigging, as well as our understanding of collateral damage, et cetera. We understand that when you're dropping a pallet if it goes off the drop zone or even if it's on the drop zone, if it kills somebody that's no different than if a bomb killed somebody, so we really focus on that. I think

there's been a tremendous revolution and improvement in our airdrop rigging, and accuracy; and when you get into the Joint Precision Airdrop System, the JPAS, that's even higher.

SLD: When you put that data out there about air dropping trends, it's impressive in and of itself, but when you think of the CONOPS implications they are significant as well. I don't even need to use roads to actually start inserting a force. Interestingly for the Marines when they're looking at the amphibious ready group (ARG) and what they could do with the future ARG, with their MC-130Js that can land in 3,000 feet or less, the Ospreys and the B's that they could put basically on almost any paved highway worldwide. They could be anywhere in the world, and then people say, "Well how would you supply them," and I would say, "Well what do you think we've been doing in the last ten years?" So if we marry up this revolutionary air dropping capability with projection of force from the sea, we could have a much more flexible and powerful insertion force if we wanted to.

General Allardice: I agree. Our new air dropping capabilities can be used to support our global operations in new and innovative ways…

A second example is the ability to move troops from CONUS to Pacific areas of operations. We recently published an interview with Master Sgt. Adam Smith, U.S. Army. In the video, we showed footage of 501st Parachute dropping in support of Talisman Sabre, Shoalwater Bay Training Area.U.S. soldiers with 1st Battalion, 501st Parachute Infantry Regiment, Fort Richardson, Alaska, were seen parachuting from a U.S. Air Force C-17 Globemaster III aircraft into the Shoalwater Bay Training Area during Talisman Saber 2011.

TS11 is an exercise designed to train U.S. and Australian forces to plan and conduct Combined Task Force operations to improve combat readiness and interoperability on a variety of missions from conventional conflict to peacekeeping and humanitarian assistance efforts.

http://www.sldinfo.com/u-s-army-paradrop/

Of course, none of this is possible if the air environment is not permissive or protected. A key role to provide for that protection and to ensure a capability to ramp up the scale to ensure strategic dominance is provided by the combat air force.

The USAF operating off of land bases in CONUS and forward deployed in the Pacific provides a key essential element in ensuring strategic dominance throughout the scale of capability. The dwindling numbers of combat air are clearly threatening the ability of the USAF to play this role, and the very slow roll out of 5th generation aircraft integrated with the fleet is threatening as well.

http://www.sldinfo.com/assessing-the-5th-generation-competition-losing-a-decade/

As General Corley underscored in an interview on the website:

The enduring goals, ends, or objectives of the combat Air Force (CAF) are underpinned by a set of concepts of operations. For the air domain, air superiority is a service core competency of the Air Force, bolstered by collaborative competencies from other services that also contribute to air superiority. This is a constant of operations that underpins operational freedom of action. If you don't underpin operational freedom of action, then again, your freedom from attack, freedom to attack, freedom to maneuver vanishes. If that vanishes for the joint force, then I don't think you have an effective fighting joint force. I also think your ability to dissuade/deter comes called into question.

Frankly, the unraveling of the CAF is already significantly underway. The USAF is becoming like the USCG, able to surge to an operation, with very little staying power beyond that surge. This is not a situation in which the United States would wish to find itself.

General Corley then discussed how to best proceed in an era of constrained financial resources to empower such a concept of operations supporting the global ends of the U.S. military and the CAF. Throughout the interview, General Corley highlighted that to achieve core strategic objectives in a constrained environment, it was crucial to build upon the new air combat capabilities provided by the F-22/F-35 force. The capabilities of a deployed "stealth sensor integrated force" to operate as the tip of the spear and to enable the rest of the air and joint force to operate globally was highlighted.

Leveraging the legacy fleet with selective modernization to work more effectively with the "re-normed" air arm based on the F-22/F-35 was significant, but he warned against buying new "legacy" aircraft because of their inherent limitations. The approach is to leverage extant legacy assets through building the foundation provided by F-22s and F-35s.

"For example, if I've got a fleet of F-15s, how can I leverage those F15s in a potential future environment at the challenging end of the scale with the range of military operations? F-15s today, or F-18s, or F-16s, do not possess the needed survivability inside an anti-access environment. One can say what you will, argue what you won't, they will not be survivable. And from con-ops point of view, they're being pushed further and further out due to terminal defenses or country wide or regional defenses that exist. And this diminishes their utility, but they can still be effectively utilized. For example you may take an existing platform, like an F-15 from the Air Force and begin to apply a pod to provide for infrared search tracking, so that it could basically begin to detect assets and then feed that information back to other assets. Or, by providing for connectivity with some advanced tactical data link, that platform, in turn, could be directed to launch weapons from it."

http://www.sldinfo.com/a-conversation-with-general-corley-about-the-future-of-air-power/

(And for a complete look at the Corley presentation on re-shaping the CAF see

http://www.sldinfo.com/pdf-download-of-a-conversation-with-general-corley-about-the-future-of-air-power/)

The growing challenges to the USAF to be able to play the role essential in the Pacific is real. Questions of ethos and capabilities are central to the challenge. As Lt. General (Retired) Deptula has warned:

It's in the Nation's interest to secure national objectives through deterrence, dissuasion, and regional shaping—in other word's peace through strength. To do so requires sufficient numbers of capable systems to win 99 to 1, vice 51 to 49. When combat operations are necessary, we must employ forces capable of securing our country's objectives in an efficient and effective manner—projecting focused and intelligent power, and minimizing liabilities and vulnerabilities….

One should understand that the only thing more expensive than a first rate Air Force is a second rate Air Force.

http://www.sldinfo.com/jointness-airpower-and-the-emerging-security-environment/

Secretary Wynne will provide in a later piece in this series how this can be done in South Korea by rolling in three F-35A squadrons and re-setting the entire combat air force as combat role of aircraft in support of joint and allied operations in the Korean peninsula.

(A first piece in this effort can be seen here

http://www.sldinfo.com/f-35as-to-korea-shaping-a-defense-transition-to-deal-with-real-threats/)

In short, the USAF is a key element for Pacific operations and a key element in shaping global operations in a global security enterprise. It does so by providing lift and tanking as well as selective elements of the Combat Air Force (CAF) throughout various segments of the honeycomb as presence is established and enhanced. And with a large enough CAF can ensure strategic dominance in a scalable approach. This dominance is clearly threatened today by the slow roll out of 5th generation aircraft and a recapitalization rate which will replace legacy aircraft in a hundred years.

The South Korean Case

In our discussions at USMC Yuma Air Station with MAWTS, one issue analyzed was the impact of the first 4-6 F-35Bs on the first operations of the Amphibious Ready Group. This has naturally led us to look at the same sort of question for the CVN and for the USAF. The most plausible roll-out scenario with immediate strategic impact seemed to us to be the insertion of the F-35As into South Korea.

The F-35 and its impact on defense modernization revolves around the fact that it is not simply a new tactical aircraft. Rather, it is a flying combat system able to achieve new levels of connectivity and operational effectiveness. The replacement of the F-16s with F-35As would lead to immediate changes in the air-to-air operational situation and would lead to a new relationship between ground and air capabilities.

This map view underscores why the impact of enhanced and more agile defense capabilities in South Korea has an immediate impact on the defense of Japan (Credit image: Bigstock)

In this interview, a former West Pointer, and then later Undersecretary for Acquisition, Logistics and Technology and the 21st Secretary of the USAF discussed how the deployment of F-35As into South Korea could effect operations and the re-shaping of the forces in this significant operational area.

Secretary Wynne: I would argue that you relieve the F-16s first and you conduct basically a readiness review. This to determine the military capability available. The Air Force is proceeding with what they call Golden Eagles to bring them up to the best they can be in a fourth generation sense, so call them Generation 4.5 F-15E's.

But the F-16s become then the force of choice to essentially come back to America, be distributed to the National Guard as basically defensive fighters, likely a more advanced block upgrade from their current fleet, for CONUS or with the F-22s being distributed between Alaska and Hawaii for their mission space.

SLD: So by the first deployments of the 35 that really allow us to better manage a diminishing force structure at home, make better use of the F-22 deployments and we start with working the 35As with the Golden Eagles, so we're re-doing the CONOPS of a 4.5 generation fleet with a fifth gen fleet, so we're learning how…

Secretary Wynne: At the same time, you then have the opportunity to leverage through the Eagles and through the F-35s the air battle management of both. By the way, even though it wasn't well advertised, the F-15 can easily integrate with the current state of affairs in the Army command and control, fire control, and fire direction system, and the Navy ship-borne missile systems just as easily as the 35. It just can't pick up the targets as clearly.

SLD: So you start by bringing those two airplanes together.

Secretary Wynne: Right.

SLD: And you're figuring out the new CONOPS and you're starting from the beginning to lay a new foundation for fire control and sensor integration with the air fleet.

Secretary Wynne: That's right, this will define jointness.

SLD: So in round one, including the Eagles as well as the 35s, but the 35s providing a broader spectrum capability, more comprehensive capability than the Eagles so that they're integrating the Eagles into the 35A approach, the two together are starting a different integration process with the offshore forces and the Army forces, so a process of change is generated to provide for more capability within a very difficult Area of Operation.

Secretary Wynne: And don't forget that the Republic of Korea Air Force is very well trained, is very well positioned and flies F-16s, which historically have been able to take targets from the F-15s anyway so they can easily take targets from the F-35 just as well.

And as they have kept up with our deployments in Iraq and Afghanistan, understand the concept of ground commanders and share, by the way, our command and control facilities, so they have a ground command and air operation center within the borders of the peninsula south.

SLD: So in addition what you're doing is you're starting from day one integration with a coalition partner using legacy aircraft and you're working overall the 15/16s and the Korean planes into a different kind of command and control CONOPS.

Secretary Wynne: Absolutely, and the F-16s, though you've relieved them, that does not mean that you've discarded them. They are returned to the National Guard or they're returned to the Air Forces in CONUS and become a ready reserve and at the same time, the pilot force can then become overt trainers, if you will, to guide the Republic of Korea Air Force to fully integrate with the American Air Force, which they're doing a masterful job of now.

SLD: But now you're doing this from the foundation of a "pull function." You're taking the new aircraft and driving change.

Secretary Wynne: That's right.

The Transition in Flight (Credit Photo: Lockheed Martin)

SLD: You're pulling people towards the 21st Century rather than just basically bumping along with 20th Century capabilities. And presumably, because you've deployed the As, you can also now begin to think about 22/35 integration with the rest of the fleet as well. You can bring 22s into this picture as a SEAD aircraft and can begin to shape an innovative new CONOPS in a significant Area of Interest.

Secretary Wynne: Exactly. And that's why it's very important because I think if we like anything in the construct of Northern Edge, although we're getting some air integration because we are getting some internationals to in fact come up and play with us, but I think the real world atmosphere that surrounds the peninsula is about as real as it gets. It's very well understood now because of the artillery exchange that occurred. It woke up the public both in the south and perhaps even in the government of South Korea and as usual air and sea integration are far more permissible, if you will, than massive ground forces.

Being deployed in that part of the world and being used in a real world sense, you can even look at and think about a rotating additional force squadron that essentially takes advantage of Australian training areas and rotates through the Korean Peninsula so you have an opportunity to use the training grounds.

You have an opportunity to integrate with the Australian Air Force, the Singapore Air Force, the Japanese Air Forces and all of the air forces in that region, and have them become knowledgeable and very realistic scenarios because one of the de facto missions of the forces in Korea is to essentially protect Japanese homeland and so they become surge forces for the Japanese homeland in a airborne engagement.

SLD: These aren't exercises. This is not Northern Edge and the inclusion of the new aircraft which can grow over time in terms of the number of squadrons and displacement, so it's real world. So let's say that this process is three years. Let's say it's 2013 to 2016 where you're doing this new deployment, you're experimenting, you're figuring out what to do.

Clearly in this three-year period, you want to demonstrate to the U.S. Army, and the Korean Army that this is a very different kind of aircraft — this is a flying combat system. One can start thinking in the next three, four, five years about integrating ground assets with the 35As — your THAADs and your Patriots. Couldn't that come out of this for the next phase?

Secretary Wynne: Yes, I think we should be mindful that the commander of the American or United Nations Forces is an Army general and that Army general has to update periodically the war plan that is the Korean Peninsula, but he has to update the war plan to the more modern equipment that's available to both sides.

And so his war plan update has to involve very much the aspects of: How do you use in a surgical strike, how do you use in a massive strike, how do you use the forces to best effect?

And so it is not Army-centric per se because he understands very well that the American and ROKAF, the Republic of Korea Air Force, has to do a major intervention to slowdown any invasive assault, and in effect becomes his hammer to an army anvil in stopping such an overt assault. This is not the French Maginot Line per se, but the line of demarcation, or forward edge of the battle area, is very well marked in Korea.

SLD: And so the point is that this is an Army general who because of the geography he has to protect, the nature of the forces he has to use to do the protection because of the nature of the threat should be open to the innovation of an A with the ground forces.

Secretary Wynne: This becomes an operational imperative. The nation's one-third of the population is literally a day's foot march from the North Korean border. He knows that you have got to essentially create a deterrent or a barrier to any invasion force because of the humanitarian mission of protecting the population of South Korea begins at the outskirts of Seoul.

SLD: And what this also does is get people to begin to understand that offense and defense are not separate terms. The As working with THAAD and Patriot is really about offense and defense. It's basically you're ability to maneuver in space because you have no depth.

That I think is a key point. So the broad point would be: This is a software upgradable aircraft so in about three years you'll be adding capabilities into the As and as you add the capabilities, you've laid down a very good foundation for getting the forces to work together and that collaboration works then with the software to create new capabilities over the decade ahead.

Secretary Wynne: Well the most interesting thing about it is as Apple is inventive because they have user participation in the development of the apps. What better crucible to design the future applications for the F-35 software than to have its overt participation in the development by the Army command and control, by the Navy command and

control, by the coalition partner in the Republic of Korea Air Force and Army and these are the fixes that we need in order to conduct a better operation here on the peninsula. In fact; why not use the facilities in Korea, rather than the facilities in the United States to both operate and develop our force capabilities. In a budget conscious world, this would be 'On the Job Training' at its finest; and the complaints from both operators and maintainers would be crisp.

This is an ideal design as opposed to simply having sort of the American serviceman who are airman conducting the upgrades, you're going to have full participation across the board, and I don't know where else frankly you can get that kind of participation.

And by the way, involvement with the contractor software development group, here again because Korea's a friendly environment, very high tech, Lockheed could literally put a group of advanced architects over in the country and work directly with that combined user group, so it really becomes a very interesting laboratory.

And the only thing you can ask yourself is: Is this portable? In other words, can this port to, for example, to any other exercise point? And the answer to that is: Probably yes because many of the air forces around the world that we coalition and partner with have as good electronic systems as the F-16s in the Republic of Korea Air Force.

The substance of the lab could be in fact ported out, or example, to the United Arab Emirates has a wonderful testing ground that they've developed for them. They fly in a combined air force, by the way, with the Saudis, the Pakis, so there's a way to at least take the elements of the training and of course we have the Nellis Range and we have the Northern Edge where we could invite others to come who are uncomfortable practicing with the Koreans.

My sense of this is that everybody would be eager to learn the concepts of operation because the airmen are indifferent to strategic or tactical targets.

SLD: Your point is that they would innovate and enjoy the innovation very much.

Secretary Wynne: That's right. They would innovate and they would enjoy the innovation and the question of then integrating in the long range strike capability is really a question of overt suppression and bringing larger payloads and I think there again having the ability to mix and match and having the long range strike airplane becomes a nice add on to a future fight where you need to have a deeper penetration on any kind of an exercise.

SLD: So by rolling in the F-35As to South Korea, you get immediate benefits to the country and to our partners. You get a much more effective deterrent structure.

Secretary Wynne: And by doing this, our partners will not feel ignored anymore. Our diplomats will not feel as second rate as they do now. Our ability to negotiate from a position of strength immediately rises. Concepts that deterred the assignment of the F-22 to the Middle East because it would disrupt the diplomatic peace that we allegedly had over there are totally bogus and should be discarded especially when it comes to an active military sight like the Korean Peninsula.

SLD: By inserting the F-35As into Korea, one is providing with a so-called future capability, immediate solutions to upgrading capability, which will be much more cost effective in terms of employment costs and deployment costs. It also opens up the possibility as one integrates the ground and air forces, that one can have a much more lethal and smaller ground force over the next few years deployed in Korea.

Shaping a New Sensor-Shooter Relationship in Japan with Aegis, Patriot and THAAD will significantly expand the capabilities of all (Credit Photo: Raytheon and its PAC-3)

One is opening up the possibility of real savings, much more capability, much more deterrent effect. You're opening up the possibility for real defense reform that you talked about many times. This is a defense reform with higher capability, enhanced deterrence from simply introducing the As and the associated changes in the force structure over time.

Secretary Wynne: That's right. The inherent technology that comes out of the coalition and combined user group will begin to push our technologists to bring the margin of excellence and a sharper edge to this military system and as well to our commercial enterprises.

One of the things that people don't get is when the Indians fall out of respect for the American military equipment, they also fall out of respect for the American commercial cutting edge technologies. And by the way, in their countries, many times one leads the other. And so Americans, we see a distinctive difference between our commercial industry and our defense industries than from the perspective of our international competitors and many times our commercial partners, they don't.

When we lose that cutting edge for our military equipment, our competitors and many times our commercial partners see it as a loss of our commercial edge and our commercial deal negotiators feel it whether it's big power generators, whether it's wind turbine blades, or whether it's even the architecture of the next IC circuit, they don't get that we don't have it first and foremost in our military products.

SLD: Beyond the immediate impact you have with restructuring US and allied forces in South Korea, you have significant impacts on US global interests as well from introducing the three squadrons of As into South Korea.

Secretary Wynne: I think there's another way to put it and that is that all of a sudden America may not be written out of the Australian defense papers. All of sudden America may not be written out of and ignored as the Indians pursue Russian equipment. All of sudden American power might not be as ignored as having Pakistan simply ignore our overtures to clean up their act.

It's amazing. And by the way, the Chinese do not have to be the instant target. They don't have to be declared as an enemy. In fact, I would foster them as a commercial partner, but I would also posit that absent the clear domination of the American military, the Chinese, of all people, do not understand why the American military is the recipient or reflect the technological superiority of the American commercial industry.

And the one industry that we have that is currently on the brink of collapse in America, one of the last remaining, is the defense industry.

SLD: If we think about Korea, this is an ideal area to shape a new CONOPS. The North Koreas provide a large but linear force. The minute one starts throwing the As in there and then grow the numbers over time and shape the CONOPS, one is now inserting chaos into their military thinking. They don't know what the US and its allies are going to operate. The US could operate offshore. The US can bring 22s from Guam. The US now have multiple vectors to confuse their military planning and disrupt any kind of linear attack they do.

From a military technological point of view, this allows the US to get a big pause in their thinking about whether this makes any sense or not to go to war, which I think is not a bad thing either.

Inserting a chaos approach as opposed to just lining up the linear targets for the North Koreans would be a good thing. That is why your Army officer might find this very, very interesting because you could get to the other issue that we've talked about a lot, an agile army. The As could actually foster a lot of innovation on the Army side on how to be more mobile, more distributed, and more agile. So I think there are a lot of gains just from a pure military point of view.

Secretary Wynne: The gains are really if you have a distributed shooter set, it's chaos to start with because the North Koreans have a very linear plan.

In the arterially exchange, it was a very linear plan. In the points of crossings on the borders, it's a very linear plan. The placement of their artillery pieces in the mountains depicts a very linear thinking on their part. And what they can't stand and I don't think they have the citizenry support to actually stand a non-linear solution set.

So it will cause us to essentially rethink our whole game plan because it has to involve the surrounding terrain, the surrounding military where frankly we have to show the Chinese that we're not planning on invading them and we will stop at the North Korean border. Korea is after all the last vestige of Yalta.

SLD: And they demonstration effect from doing this is very significant given North Korean relationship with Iran, so forth and so on. The strategic resonance from a very modest investment and a significant Air Force, Army, Navy cultural shift and working this hard, with the strategic impact on Iran could be immediate. If they could see that this is a very different not just aircraft, it's a whole different way the U.S. military is going to operate, you can get a broader strategic resonance.

Secretary Wynne: I mean you can't plan for it because as you think about you can apply an ARG, right, I mean right in the middle of your fight, you think it's an Aegis cruiser, it's not an Aegis cruiser. This is an Amphibious Readiness Group with F-35B's and they are ready to enter the fight and it's coming in undercover of tremendous artillery fire from other Navy ships or aircraft.

It's a very difficult problem to solve for our adversaries.

And I think the savings, by the way, in onsite maintenance and related aspects is significant as well. So you get defense reform, enhanced capability, a smaller footprint and increased savings. What is there not to like from this approach.

Re-Visiting the Defense of Taiwan

Ever since the evacuation of the Chinese Nationalist Forces to Taiwan after their defeat on the mainland by Mao's Peoples Liberation Army (PLA) the Peoples Republic of China (PRC) has quested for a complete victory by establishing sovereignty over that island fortress.

(Credit Image: Bigstock)

Taiwan is an island 89 miles across and 245 miles long, and approximately the same distance from mainland China as the US island of Key West is from Cuba. Taiwan is 99 miles from the mainland and Key West is 94 from Cuba.

The post WW II history of the Peoples Republic of China (PRC) vs. the Republic of China (ROC) has been an on again off again quasi hot war. PLA shelling of the much closer ROC Islands of Quemoy and Matsu, was a real flash point in Cold War brinkmanship

It got so contentious that in 1954 the use of nukes against mainland China was advocated by the JCS but was resisted by Ike. Instead treaty commitments were made for defense of the Island in the event of an attack.

Consequently, the flash point of ensuring the survivability of a free democracy of 23 million Chinese in the Republic of China moved to US deterrence by Navy Carrier Battle Groups in the nineties. The PRC livid on so many levels about the ROC returned the 1954 US JCS recommendation about using nukes in a very public way. A PLA general said to an American diplomat as a CBG was showing presence in the Taiwan Straights– is the US prepared to trade Taipei for L.A?

The practical issue below nuke bluster is that the real battle for Taiwan has always been looked at in conventional terms.

It is very fair to say after the Clinton administration executed an effective, and insulting to PRC, show of force with USN Carrier Battle Groups in the nineties one of the principal raison d'etats of PLA military forces (PLA.PLAAF, PLAN and 2nd Artillery, Special Forces and seaborne infantry) is to modernize and train to conquer ROC by force.

Being smart the PRC has two additional strategies. One makes enough bluster so that the ROC surrenders peacefully into reunification, or, two essentially buy them so the Taiwan Democracy votes for unification.

However, if the PRC makes a military move a well designed and executed Air/Sea/Land Battle US battle plan leveraging presence, scalability and multiple access can make such an attack become the PLA's equivalent of the US WWII Battle of the Bulge.

The U.S. goal if the PLA goes "feet wet" to cross the Straight, if we continue to build out our current technology in sufficient numbers, will be to make all their strike forces and their entire surface fleet die.

This boldness can be grasped with U.S. emerging military strategy of "'No platform fight alone and make a Mao legacy centric force fight individually in the dark and die." This strategic and tactical mindset will have the same effect the Bulge had on the German Forces as General Patton said: "Hell let's have the guts to let those son-of-a-bitches go all the way to Paris. Then we'll cut 'em off and chew 'em up."

It will just take the fighting Navy/Marine/AF team with allied assistance to really "chew 'em up".

Unfortunately, the 'Thinking Navy" isn't.

In a July 11, 2011 story about the improving military capability of the Peoples Republic of China—"China's 'eye in the sky' nears par with US" —A professor at the US Naval War College symbolically rowed ashore and surrendered her sword to the PLA forces.

Another cubicle commander articulates the way ahead.

"The United States has always felt that if there was a crisis in Taiwan, we could get our naval forces there before China could act and before they would know we were there. This basically takes that off the table," said Joan Johnson-Freese, a professor at the US Naval War College in Rhode Island.

History shows the fighting Navy/Marine/AF team with modern 21st Century weapons and systems might think and prove otherwise.

Rick Fisher, a Senior Fellow on Asian Military Affairs at the International Assessment and Strategy Center, nails it on the need for strong capable 21st century technology in the Pacific to deter war.

Washington gains nothing by delaying the sale of new F-16s to Taiwan. Selling new F-16s with modern subsystems will more quickly prepare the Taiwan Air Force for what it really needs, a version of the fifth-generation F-35. Depending upon the equipment package, upgrading Taiwan's early model F-16s can sustain a low level of parity, but that will not keep pace with a Chinese threat that grows every day.

The statement in a global newspaper from the Naval War College by Professor Johnson-Freese sends the exact opposite signal.

First a history lesson for Professor Johnson-Freese.

Less then a year after the attack on Pearl Harbor, the "Doolittle Raiders" had their "30 Seconds Over Tokyo" bombing raid. In doing so the Navy-Army Air Corp team gave the Japanese leaders a real wake up call that they would ultimately lose WWII. B-25 Army Air Force crews made their heroic flight launching from the deck of the CV-8, USS Hornet.

(Credit: http://www.doolittleraider.com/)

After the Doolittle Raid, the USS Hornet continued to fight the Imperial Japanese Fleet. At the Battle Of Midway the entire complement, save one pilot, of Torpedo Squadron 8 from the Hornet were all killed, but the great miracle at Midway victory was achieved.

Finally, the heroic ship was sunk at the Battle of the Santa Cruz Island. Quoting various reports about the battle proved that it was a hard ship to kill.

From various sources compiled by Wikipedia:

In a 15-minute period, Hornet took three bomb hits from "Val" dive bombers, another bomb hit compounded by the "Val" itself crashing into the deck, two torpedo hits from "Kates", and another "Val" crashing into the deck. Because of the damage the Hornet was taken undertow when another Japanese plane scored a hit.

The order was given to abandon ship. U.S. forces then attempted to scuttle Hornet, which absorbed nine torpedoes and more than 400 5 in (130 mm) rounds from the destroyers Mustin and Anderson. Mustin and Anderson moved off when a Japanese surface force appeared in the area.

Japanese destroyers Makigumo and Akigumo then finished Hornet with four torpedoes. At 01:35 on 27 October, she finally sank with the loss of 140 of her crew

It was the last US fleet Carrier to be sunk in WW II.

And another history lesson this time from a class in naval history over four decades ago at the US Naval Academy. I have tried to find the original source but just remember the professor's narrative.

As the war in the Pacific got closer to the main Islands of Japan, Kamikaze – the "unmanned" vehicles of the day — were used to attack the American battle fleet—at that time the aircraft carrier was the primary ship leading the attack. So killing carriers was the goal. The Navy knowing this screened the fleet carriers with radar picket Destroyers to both give warning and provide anti-aircraft fire at incoming Kamikazes.

During a lull in after a wave of deadly Kamikaze attacks a voice was heard skipping across the waves-by sailors of the main fleet — sound can do this at sea. As told it was an ensign on a radar picket ship and he was telling the crew that all the officers were killed but he was in command and they would continue to fight the ship—the Destroyer was lost.

There is a fundamental rule in tactical battles that all technology is relative against a reactive enemy. With that said, it is most often the intangibles of training, tactics, and quickly reacting to develop newer and more capable technology that can win the final battle.

Now to the 21st Century–apparently the professor missed a recent event.

If PLA satellites are a problem and it is a choice between putting a carrier battle group at risk or fighting a space war, I think the fighting Navy is capable and ultimately ruthless enough to blind the PRC military.

After the PLA shot down a satellite from a land based launch pad the US Navy demonstrated our at sea capability – from a Department of Defense report:

"At approximately 10:26 p.m. EST, Feb. 20, (2008) a U.S. Navy AEGIS warship, USS Lake Erie (CG-70), fired a single modified tactical Standard Missile-3 (SM-3) hitting the satellite approximately 133 nautical miles over the Pacific Ocean as it traveled in space at more than 17,000 mph. USS Decatur (DDG-73) and USS Russell (DDG-59) were also part of the task force."

F-35C in Flight (Credit: Lockheed Martin)

So to make it simple for the PLA, PLAN. PLAAF and 2nd Artillery: the US Navy, Air Force and Marine Corps are battle tested, currently with ten years of real, but different, combat experience. When provoked the US has a legacy of carrying the fight to any enemy.

But wait, Professor, it gets even better.

In the 21st century it will be important that no platform fight alone. USN satellite killing Aegis ships will soon be joined by F-35s flying from the Navy/Marine Amphibious Readiness Group "Gator" Navy-the USMC F-35B V/Stol. This is a huge at sea multiplier in capability.

Carrier Battle Group Air Wings with the F-35C will give Naval Forces afloat both situational awareness and the ability to fight a 3 Dimensional War. Add in attack subs and SSGN's with cruise missiles and a hidden US vigilant on station offense punch remains silent but deadly.

Finally, like the radar picket ships of WWII, current Destroyers, frigates and perhaps even the Littoral Combat Ship (LCS) can add a huge defensive element against CHICOM incoming missiles. The capability to spoof and jam incoming guided weapons is an art of "tron" war practiced by Navy forces for decades. One can imagine the targeting frustration trying to hit a 50+ knot LCS that an incoming warhead thinks is an aircraft carrier.

It gets even better, by pure accident during a test flight over Pax River an F-35 system picked up a launch in Florida over 800 miles away. So the second a missile is launched against the fleet the Commander can light up the launch pad using a combination of B-2s and F-22s, especially in a their emerging Suppression of Enemy Air Defensive (SEAD) role along with at sea and sub launched cruise missiles.

Eventually UAS systems with combat firepower guided by F-35s and the robot revolution can take out any threat, launch be seen and die. This F-35 ability has been further validated in the exercise "Northern Edge." It was reported

one F-35 capable test bed aircraft using F-35 current sensor/radar systems could sweep over 50,000 square miles of ocean.

So rather then unilaterally as suggested in print "take our forces off the table," the 21st century Navy can blind them and blast them-and that is real deterrence and should give the PRC pause before starting a hostile action.

American just needs the political will to continue to commit the resources to keep the US Navy/Marine/AF the number one fighting force in the Pacific.

A USMC General David Shoup, the Commandant pointed out how hard crossing 94 miles of Ocean can be to invade an Island. Commandant Shoup, Congressional Medal of Honor, for action on Tarawa pointed out the relative size of Tarawa to Cuba when a lot of bluster was being raised about invading Cuba. He took a map of Cuba and then put a dot on the map. When some asked what was that he said "That Gentlemen is the island of Tarawa it took us three days and eighteen thousand Marines to take it"

(Taken from David Halberstam's great book "The Best and the Brightest").

Basing the Honeycomb

A key element of understanding a scalable presence strategy is basing. Basing of the force in the Pacific is a function of several key capabilities:

Sebasing;

Partners and Allies Connected Capabilities;

The F-35 and Re-crafting Land Basing

Presence is rooted in basing; scalability is inherently doable because of C4ISR enablement, deployed decision-making and honeycomb robustness.

We will address the central role of re-crafting the weapons enterprise as a key enabler of the honeycomb and its capabilities in the next piece.

The Seabase

The seabase is a core presence asset in the Pacific. What they can carry to the fight and how connected they are to other assets to shape a scalable impact define the impact of deployed ships and sub-surface elements. We have seen in the Libyan operation a good reminder or harbinger of things to come.

In a piece on AOL Defense the impact of the seabase was highlighted in some detail.

What the ARG ended up doing was re-shaping the next phase of operational history. The recently departed Secretary of Defense confused amphibious with Inchon, whereas the ARG really is a seabase from which one can conduct a variety of operations across the spectrum of warfare.

The ARG is in the throes of fundamental change, with new ships and new planes providing new capabilities. These new capabilities are nicely congruent with the Libyan operational experiences. Given the Marines battle hymn, it seems that "off the shores of Tripoli" can have a whole new meaning for the evolution of the US force structure.

The ARG was used in several unprecedented ways in the Libyan operation. First, the V-22 Osprey was a key element of changing how U.S. forces operated. The Osprey provided a logistical linchpin, which allowed the ARG to stay on station, and allowed the Harriers to generate greater sortie generation rates and ops tempo. The use of the Osprey in the operation underscored the game changing possibilities of the ARG in littoral operations of the future.

Kearsarge Amphibious Ready Group (ARG) executes a column maneuver. (Credit: US Naval Forces Europe, 6th Fleet Public Affairs 9/10/10)

For the Marine Expeditionary Unit, the combat elements might be on the ship, might be ashore, or might be in transit. The challenge for the MEU commander is to be able to concentrate force on the task at hand. Prior to the Libyan operations, Col. Dessens, the 26th MEU commander, faced the challenge of assembling his capability to fight the battle and then to be able to flexibly change the mix of forces at sea. What this meant was that some of his Ospreys were in Afghanistan, and not on his ARG ships.

The key point here is that the sea base, which in effect the ARG is, can provide a very flexible strike package. Given their proximity to shore, the Harriers could operate with significant sortie rates against enemy forces. Not only could the Harriers come and go rapidly, but the information they obtained with their Litening pods could be delivered to the ship and be processed and used to inform the next strike package. Commanders did not need a long C2 or C4ISR chain to inform combat. This meant that the ground forces of Gadaffi would not have moved far from the last positions Harriers noted before the new Harriers moved into attack positions. This combination of compressed C4ISR and sortie rates created a deadly combination for enemy forces and underscored that using sea bases in a compressed strike package had clear advantages over land-based aircraft several hours from the fight dependent on C4ISR coming from hundreds or even thousands of miles away.

One more point about the ARG's operations. The Osprey and the Harrier worked closely together to enhance combat capabilities. One aspect of this was the ability of the Osprey to bring parts and support elements to the Harriers. Instead of waiting for ships to bring parts, or for much slower legacy rotorcraft to fly them out, the 300-mph Osprey could bring parts from land bases to keep the ops temp up of the Harriers.

The well known pilot rescue mission certainly highlighted how a vertically-launched aircraft working with the Osprey off of the ARG can create new capabilities. The elapsed time of authorization to the recovery of the pilot and his return to the USS Kearsarge was 43 minutes.

This rescue took place even though the US Air Force had a rescue helo aboard the USS Ponce. In my view, having discussed this with the relevant personnel, it was not used for two reasons. It would have gotten to the pilot much later than an Osprey team and the command and control would have been much slower than what the Marines could deliver. The key to the Marines' C2 was that the pilots of the Ospreys and Harriers planned the operation together in the ready room of the USS Kearsarge. They did not meet in virtual space. They exchanged information in real time and were in the same room. They could look at the briefing materials together. The Harriers were informed by fresh intelligence ABOARD the USS Kearsarge. The sea base brought together the assets and intelligence to execute the mission.

If we look at the French experience several Libyan lessons can be highlighted. First, the centrality of leveraging multiple bases in a littoral operation is significant. The French used several land bases and incorporated the sea base – whether the carrier or their amphibious ships – to work with land-based aircraft. The U.S. Marines used their land base largely to supply the sea-based air ops via Ospreys. Second, having the C4ISR forward-deployed with the pilot as the key decision maker is crucial to mission success.

The classic Air Force CAOC system was challenged by what the Marines demonstrated in the operation; the French experience reinforces that lesson. In a recent story from London on AOL Defense, the point was made that some French pilots felt the release authority from Predator information was too slow. The interpretation was unhappiness with the US, but I would argue that it is more the case that the information in a fluid and dynamic situation must be provided in a more timely fashion than a system built for 1991 air operations permits. Third, new air capabilities make a significant difference. For the Marines, the Osprey was the game changer in this operation. For the French, it was the new recce pods off of the Rafales. Fourth, the dynamic targeting problem discussed in the first article was also highlighted by the USMC experience. Getting accurate information from the ground is central to operations.

The USN-USMC team has a number of new capabilities being deployed or acquired which will enhance their ability to do such operations. The F-35B will give the Marines an integrated electronic warfare and C4ISR capability. The new LPDs have significant command and control capabilities. The new LCS could provide — along with the Osprey — significant combat insertion capability for ground forces and rapid withdrawal capability.

For the French, UAVs could become wingmen for the Rafaels. Also, the role of C2 capabilities of the new amphibious ships were underscored as well. Fifth, the pick-up quality of this operation may become more a norm than an aberration in the future. The old paradigm of days or weeks of significant planning and then roll out of a fleet of C4ISR aircraft and other capabilities may be challenged.

Deploying air assets that can be tapped by the sea base to shape an operation may become a key requirement for future battles on the littoral. As with any operation, each one's characteristics are unique and thus not predetermined. What the Marines and the French forces have demonstrated is that 2011 certainly is not Iraq 1991 or Bosnia 1996. (http://defense.aol.com/2011/10/06/marine-libya-lessons-short-command-control-links-stovl-flexibi/)

Partners and Allied Capabilities

The reach from Japan to South Korea to Singapore to Australia is about how allies are re-shaping their forces and working towards greater reach and capabilities. At the hear of such an effort will be adding the F-35s with Aegis to

shape allied "capability bubbles" which can link effectively with deployed U.S. forces. Shaping Aegis-F35 consortia able to cover the Pacific needs to be understood as a core strategic effort by the United States.

We have often argued that the F-35 is less about a plane than crucial capabilities for power projection and coalition interoperability. No greater demonstration of this can be seen in the Pacific whereby the capacity to conjoin capabilities across the vast expanse of the Pacific is crucial to the entire set of players in the Pacific.

(For a discussion of how such an interaction works among the Arctic partners see http://www.sldinfo.com/emerging-strategic-challenges-the-case-of-arctic-co-opetition/).

Japanese Aegis flight test. (Credit: US Naval Forces Central Command Public Affairs, 12/18/07)

And the intersection between Aegis and the F-35 can provide for dynamic defense in support of forward presence and offensive operations. Missile defense is a global effort. It requires the global deployment of U.S. forces and the capability to connect those forces with those of its allies.

Joint and coalition concepts of operations are being shaped to ensure decision makers with the options of providing defense for allied deployed forces and the homelands of the U.S. and allies. As a global enterprise, missile defense will always be a work in progress ensuring that evolutions in sensor technologies are joined with defensive missiles in a joint and combined command and control system.

A key example of how multiple basing in the F-35 age can work will be seen with South Korea. South Korea is defending itself against North Korea. This means that it has defensive systems against missiles and a good Army capability,. Now fast forward to the F-35 era. Now the South Koreans follow the lead of the USAF in introducing As into the inventory. Now defense and offense become transformed into strategic mobility. And instead of investing in in place defensive systems able to do NOTHING but wait for an invasion, now the South Koreans have flexible forces which can operate to defend their country, participate in regional defense and to provide a global reserve capability.

And add the F-35Bs to the South Korean military and now you have significant capability to disperse force, complicate any North Korean attack AND this can be added to the mobile Naval force which the South Koreans are rolling out. They can land on the Aegis or they can build an American class amphibious ship to add to their evolving capability. The South Koreans know how to build ships and the US can see a significant growth in capability as the South Koreans build ships and participate in the world wide deployments of the F-35As and Bs.

As Defense News has noted: The KDX-III ship, armed with the up-to-date Aegis air warfare defense system, is the core of the Navy's future "strategic mobile squadrons" consisting of 14,000-ton Dokdo-class landing platform vessels, 4,300-ton KDX-II Gwanggaeto the Great-class destroyers, 1,800-ton Type 214 submarines and other support vessels and anti-submarine Lynx helicopters, Navy officials said.

The modernized squadrons will enable South Korea to conduct blue-water operations both independently and jointly with its allies for purposes such as securing sea lanes for energy supplies, peacekeeping and control of maritime disputes with neighboring countries, they said.

The Navy plans to create a mobile squadron in 2010 and wants at least two more with the commissioning of additional Aegis destroyers, they said.

http://www.defensenews.com/story.php?i=3821769

http://www.defenseindustrydaily.com/drs-wins-multiplexing-contract-for-korean-aegis-destroyers-0431/

Now the deterrence of the PRC is enhanced as well because the mobility of operations FROM South Korea complicates PRC thinking. There is NO SINGLE LINE of attack on US Forces. If you target Guam, you have multiple bases from the sea and from land whereby the 360 degree enabled F-35s coupled with Aegis and other systems can provide an impossible situation to guarantee success with a large area single strike.

The U.S. Navy's Aegis program is an important contributor to shaping the foundation for such a global system. Through initially foreign military sales programs in Japan and eventually cooperative commercial defense programs, Aegis has become part of the allied fleet. Today five allied navies have purchased or deployed the Aegis combat system: Japan, Spain, Norway, the Republic of Korea and Australia.

An additional collaborative aspect of the Aegis program has been the central role of Spain and its industry in introducing a frigate-sized Aegis ship to the world's fleets. The Spanish frigate series, in turn, has shaped Norwegian and Australian options. Aegis has truly become a global enterprise.

While not all of these ships are tested to be BMD capable, the sensors on the Aegis system of all of these navies can play a role in a global sensor grid important to shaping missile defense capabilities worldwide.

And when one adds the consideration that the coming deployment of the F-35 Joint Strike Fighter to the U.S. fleet and to U.S. and allied air forces will add significant sensor capabilities to the U.S. Navy as well as to allied forces (all of the current Aegis navies are potential candidates for the F-35). There is a significant 21st century opportunity to shape an integrated air-sea sensor net for the deployed fleets which provides, in turn, a growing capability to shape missile defense forces and protective cover for global presence forces.

These F-35-Aegis "offense and defense" bubbles can be networked throughout the Pacific to enhance the capability of any one national member of the deployed force. As such, it is a prime example of how assets of one nation can enhance the reach of another and to put in place a scalable capability for a honeycombed force.

The F-35 and Rethinking Basing

A good example of re-thinking basing was presented in an earlier posting, which focused specifically on the impact of the F-35B working with the USN and USAF team.

In the not two distant future the US Navy/Marine and USAF team may have to establish presence from the sea in a potential combat theater. The threat will be great: friendly forces can be intermixed with opponents who will do what ever it takes to win. From placing IEDs, to employing small unit ambushes, to spotting for artillery and Multiple Launch Rockets, the enemy will be unforgiving and aggressive. In addition there is a large land Army with armor and land-based precision weapons nearby to attack.

The opposing forces also have a tactical aviation component of Fighters and Attack Aircraft, along with Unmanned Aerial Systems and some proficiency in offensive "cyber war" ready to engage. To make it even more difficult the enemy has located and identified potential airfields that could be occupied and has targeted them to be destroyed by terminally guided cruise and intermediate range ballistic missiles.

Finally, the fleet off shore is vulnerable to ship-killing missiles. The problem for US war planners is to secure a beachhead and build to victory from that beginning. Traditionally, the "beachhead" was just that on a beach–but now it can be seizing territory inland first and attacking from the back door toward the sea to take a port and also grab an airfield.

The USAF flying high cover after being launched from bases far enough away to be safe from attack can establish Air Superiority, and the Navy Fighters can go on CAP (Combat Air Patrol) to protect the Fleet. Both services can launch offensive weapons from their TacAir also from B-2s, surface ships and subs. UAS can go into battle for ISR and offense "cyber" can be engaged. US "smart munitions" can attack enemy offensive rockets and missiles launch sites. There will be significant casualities on both sides.

But the Marines do the unexpected and land where the enemy does not have ease of access –a natural barrier perhaps, mountain range, water barrier, very open desert or even on the back side of urban sprawl—. Once established, logistical re-supply is a battle-tipping requirement.

Once ashore the one asset that can tip the battle and keep Tactical Aviation engaged in support of ground combat operations if runways are crated is the F-35B, because every hard surface road is a landing strip and resupply can quickly arrive from Navy Amphibious ships by MV-22s and CH-53K.

F-35B Taking off Aboard the USS Wasp (Credit: SLD)

The F-35B is a 5th Generation airborne stealth fighter with its own distributed intelligence center. Each aircraft has a total 360-degree knowledge. If the enemy launches an attack from the air or ground, airborne sensors can instantaneously pick up the launch. The battle information displayed in each F-35B can be linked to UAS drivers as well as ground and airborne command centers to coordinate both offensive and defensive operations.

The sortie rate of the aircraft is more than just rearm and "gas and go": it is continuity of operations with each aircraft linking in and out as they turn and burn—without losing situational awareness. This can all be done in locations that can come as a complete tactical surprise –the F-35B sortie rate action reaction cycle has an add dimension of unique and unexpected basing thus getting inside an opponent's OODA (Observe, Orient, Decide and Act) loop.

The sortie rate of the aircraft is more than just rearm and "gas and go": it is continuity of operations with each aircraft linking in and out as they turn and burn—without losing situational awareness.

Enemy air is predictable by needing a runway and consequently all the problems of precision weapons crating their runways come into play for their battle plan—the F-35B does not have that vulnerability. (http://www.sldinfo.com/the-f-35b-has-a-unique-war-winning-capability/)

And an additional posting added some important insights into how Aegis and F-35Bs working together allow for dynamic basing defense.

For example, some consider the F-35B a boutique niche aircraft only essential for Marine combat con-ops. From the perspective of working the Aegis/F35B relationship to provide for deployable defense underwriting a broader presence strategy, it should not.

The reason is simple, an F-35B can stand strip alert on any long runway, US or Allied. From a strategic point of view think of Guam, South Korea or in the Middle East on all long runways. As a crisis situation develops, the F-35Bs can be remotely placed in secret hardened bunkers and revetments and thus become a significant deterrence asset that can instantly sortie into combat and return to gas and go again and again.

By using a detachment of F-35Bs the issue of enemy runway area denial and need for rapid runway repair does not become a show stopper to ops-tempo both offensively and defensively.

Tie an F-35B to the Aegis and the entire "wasting argument" about asymmetric IRBM and enemy strike against our hard fixed land targets becomes moot. This is because Guam for example will still have air power in its defense. This principal can be applied globally.

The F-35B reverses the relationship between pre-defined operational bases and the aircraft. The aircraft no longer constrains the definition of an airfield.

As far as USAF and Allies a few Squadrons of F-35Bs could be an invaluable insurance asset to stay in the battle if runways are sucker punched by the crazy follow on to the "Dear Leader" in North Korea, or Iranian fanatics with IRBMs. Taiwan could also send a powerful signal to the PLAAF if we allowed them to purchase the F-35B.

The 21st Century US Military has the potential to be the most agile combat force in the world by leveraging the F-35B throughout the force, rather than considering this solely a USMC weapon system. (http://www.sldinfo.com/21st-century-agility-leveraging-the-f-35b-as-a-strategic-asset/)

An additional aspect of re-working both basing and allied capabilities will flow from the shift in the maintenance capabilities of the F-35. The shift from local ownership of parts to a global sustainment system will have a significant

impact on the functioning of bases. Rather than having to operate as dynamic parking lots for planes, which will have to wait for parts from CONUS or Hawaii, forward, bases – allied or US can provide parts to the combat air force.

As an interview with Scott Ogden, former USAF maintenance official and now with Lockheed Martin underscored:

SLD: This is all built around a local ownership either by base or deployed squadron, so local ownership is the rule of thumb.

Ogden: Right. All of your CONOPS and all of your traditional standard operating procedures are that you can operate as an independent unit, you're staffed that way, and you're manned that way.

That's going to be the big cultural thing that will take some time for the synergies that we have and for people to understand that. Some services still today, as you have heard many times, do not want somebody else to have access to a part that they think is theirs.

SLD: This maintenance culture is based on several decades of historical experience. But this experience is dysfunctional to the strategic environment in which we find ourselves. We're in a strategic environment where our allies and we, with probably the exception of Asians, have stringent defense budgets. So you're going to have less aircraft. You're going to more frequently wish to leverage one another's capabilities.

From an operational tempo point of view, if you continue to have this kind of segregated maintenance legacy, it's going to ensure that basically the capability of our allies and ourselves collectively goes down if we don't find a way to take advantage of the cultural revolution inherent in common technology.

Ogden: The challenge is to have the Services accept the cultural change that will afford them the ability to harvest the economies of scale, and the common spares pool.

Let's say it's an upgrade to an aircraft that you want to do and your aircraft are deployed into Europe, okay, normally we would never send an aircraft into Italy and contract with Italy to do an upgrade on an F-16. Even if they could, we would not do that. We would go somewhere that it was US organization or US administered contract to do the upgrade.

Let's say you land at a an F-16 base in Italy, you got to go back through your base supply to get a part shipped in to you with your crew to come out and take care of that airplane. Now the airplane sits on the ground until you get maintainers out there to take care of the airplane.

In the US Air Force process until an airplane is on your base for seven days, it still belongs to the unit that flew in the airplane. So if I'm flying cross-country, the unit, even if it is another F-16 base, they may help me, but they aren't responsible for repairing that airplane till after seven days because that's just the process that they do.

They're going to say, "Okay, we'll help you with the part. We'll do this. We'll give you a mechanic," but most of the time you end up you take care of the airplane across country.

With the F-35A and the ALIS system, when the airplane drops in, we know what part, kit is available from what nearest base, we know a worldwide warehouse we would ship a part to a location to that tail number for that person to put that part on the aircraft and fix it.

This is because we have no contract limitations. We know that we're responsible for aircraft availability and if an aircrafts down, we know and see that immediately with ALIS and we make the determination to send the part right there.

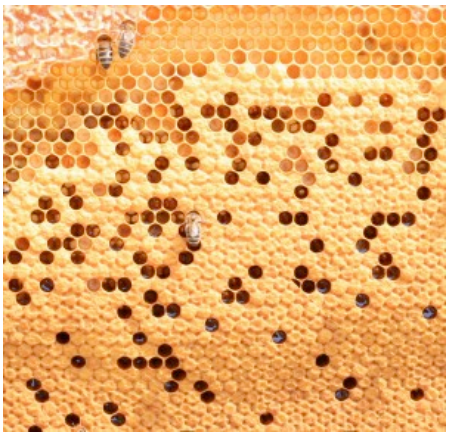
It is not a matter of the base having to decide the prioritization going back to their own, working through their base supply. And if it's an Italian F-35 that lands a UK base, from a technological point of view it does not have to make a difference. The part would go right into the UK and be shipped to that tail number. (http://www.sldinfo.com/moving-from-legacy-to-5th-generation-aircraft/)

Global sustainment is a core contributor to a significant shift in the utility of land bases and allows for encompassing land and sea bases into a comprehensive maintenance enterprise which can fuel significant sortie generation rates and re-shape combat dynamics and outcomes.

Weaponizing the Honeycomb

One of the greatest strength's America has is to dream great dreams. Nowhere is this more evident in our pushing the envelope in aeronautical and space research. A robust debate is always going on in professional and scientific journals about the next generation of aircraft and technology. It would be extremely foolish to stop such dreams.

However, in very hard and unforgiving budget debates about funding future weapon systems very hard choices will be made. The danger at all times is for visionary "paper proposals" to accidentally or on purpose act as a poison pill for fielding the near term innovative technology now coming on line. It requires significant insight and judgment to make such trade offs.



Weaponization of the honeycomb is the next key technological opportunity after re-norming air power. Credit Image: Bigstock

In a recent example of Congressional Report Language such a balance was struck. In this case future funds for a far out model of the very successful Navy ship missile the SM-3 were redirected to solidifying and building more of cutting edge but proven SM-3 technology. The Senate Appropriations Committee said that money should go to a proven SM-3 variation the Block II A of T/M/S model thereby recognizing the near present over the uncertain far future.

"The Committee notes that MDA has programmed in excess of $1,700,000,000 for the SM–3 Block IIB missile over the next 5 years, while at the same time, the SM–3 Block IB is scheduled to enter production in fiscal year 2013, and the SM–3 Block IIA is in early development, with fielding expected in 2018."

This is but one example of many trade offs yet to come. It is our position that the real achievable "sixth gen" revolution should focus on weapons and not be platform centric. With that viewpoint driving funding weapons can be developed, improved and fielded prior to prematurely locking in funding for any future "sixth gen aircraft" or "Strategic Strike Platform" study yes but commit to a specific type of platform –not yet.

This approach has the benefit of capturing the evolving con-ops across the spectrum of US and allied platforms embracing the revolutionary F-35 initiated concept that no platform fights alone. So now weapons first should be the focus to improve the warfighting capability of platforms in the inventory and soon to arrive at IOC-the F-35, A, B, &C.

The scalable force built around diverse basing and F-35 enabled C4ISRD needs a a new Weaponization effort to build out the capabilities of the deployed force. The current weapons enterprise builds on older technology and innovations have been driven to support the ground warrior by reducing collateral damage and shaping greater capability for close proximity weapons.

http://www.sldinfo.com/the-308th-armament-systems-wing-at-eglin-air-force-base-weapons-development-and-the-case-of-the-small-diameter-bomb-i-block-9/

The internal weapons bays of the F-22 and F-35 need new weapons. The internal bays will be especially important to the B as it can then deploy across the fleet rather than just operating on ships that are able to arm the aircraft.

The F-35 also has a core advantage as one builds out the new weapons enterprise. Common software allows for savings and capabilities across a FLEET, rather than building to a specific aircraft or even a specific model of that aircraft.

SLD: Single configuration has a major impact on weapons development as well. The current situation is a software Tower of Babel whereby weapons are integrated with a type of aircraft or even a model of a type of aircraft. Software commonality across the fleet will mean that I can save time, effort and money on inserting weapons onto that single configuration F-35A.

Malone: Ultimately it comes down to what weapons are qualified by development test and then also operational test and evaluation. Which airplane? What weapons are what they call "seek eagle tested" and approved for carry and employment off the weapon system? The F-16 has now been around for quite a while and over the last 25 or 30 years, and has been modernized, upgraded, and it can carry a plethora of weapons that are out in the field today.

The F-35 will go through the same flight test requirement. Initially there'll be a set of weapons that are very specifically driven toward precision and non-precision GPS type weapons and it's a very limited scope. . Eventually the F-35 platform will end up growing and broadening to many more weapons, but that ends up taking time with more testing and flights to ensure the seek eagle process is accomplished.

Initially when the airplane goes operational for each of the variants, there will be a very specific list of weapons that the airplane can carry. It's been designed and agreed to qualify the airplane with Block 3 and then ultimately that number of weapons that can be employed off each variant will grow like the number of weapons have grown on the F16, the F-15E, the F-18 and A-10 and other aircraft, Tornado, Typhoon, but each one of those platforms that were just mentioned all went through a growing curve where initially they qualified one weapon and they just continued to

grow the number of weapons, but it's a process they had to go through for safety and to ensure safe separation and safe weapons' effects and the F-35 will go through that same process.

SLD: But the difference is this: what we I saw down at Air Armaments Command (AAC) at Eglin was they qualify each weapon up against the platform as you just described which costs a lot of money, and takes a lot of time. The big advantage here is one can qualify a new missile across a fleet.

Malone: What it does is reduce ultimately the number of test flights that you have to do across all three variants, but there will probably be a requirement to drop each individual weapon off each variant just to confirm safe separation. But there'll be a lot of synergy; especially with the software that drives the avionics' processes of stores' management, radar handoffs and all the interfaces. And this should represent a significant savings of time and money within the testing and evaluation cycle.

http://www.sldinfo.com/moving-from-the-f-16-to-the-f-35a/

In addition, leveraging the connectivity across the scalable force means that designing new weapons for the sub-surface as well as surface force makes sense. Now with "Aegis as my Wingman" and the "SSGN as my fire support," one can focus on building weapons that are cost effective to the support mission. Rather than using expensive Tomahawks for the strike mission, weapons designers can now look at what to insert into the subsurface fleet or put aboard the surface fleet that fit a broader range of needs at a more effective price point.

By shaping new weapons enterprise, which can enable the SCALABLE force, rather than being platform centric, weapons planners can shape in effect the 6th generation capabilities.

Rather than focusing upon new platforms – long range strike, next generation tactical aircraft or the like – the US would have a moratorium on building new air platforms for the next 15 years as R and D is invested into what then best works with the re-normed air elements shaped by the F-35 cultural revolution. The F-22 needs to be back fitted with relevant capabilities from the F-15 and the MADL data systems can then be able to shape a broader spectrum strike and defensive capability within the entire 5th generation fleet.

http://www.sldinfo.com/leveraging-new-platforms-during-the-strategic-transition-avoiding-"penny-wise-and-pound-foolish"-acquisition-approaches/

One can already see some new weapons entering the game which can be part of the 6th generation enablement.

One is the SM-3 missile coming off of surface ships which provides a "6th generation capability" to the re-normed air forces.

In a first rate bit of reporting by AOL's Carlo Munoz it is clear why distributed F-35s linked to a fleet SM- 3 missile batteries on AEGIS ships is a real battle winning combination. Combining the F-35 with AEGIS/SM-3 directly addresses the "wasting asset" argument because a system real time sensor/shooting link, F-35/AEGIS/SM-3 can mitigate the PLA and other countries IRBMs incoming missile threat. (North Korea and Iran?).

"The newest version of the SM-3 missile, the Block IIB, is actually designed to extend the range of previous variants so it can hit long-range threats."

http://defense.aol.com/2011/08/05/dod-panel-says-sm-3-makes-sense/

Taking advantage of one of the most unique missile shots in history and building forward the F-35/Aegis/SM-3 sensor shooter combination will be the best in the world. The Surface Navy's huge success was reported in numerous press reports in February 2008.

"A U.S. Navy AEGIS warship, the USS Lake Erie, fired a single modified tactical Standard Missile-3, hitting the satellite approximately 247 kilometers (133 nautical miles) over the Pacific Ocean as it traveled in space at more than 17,000 mph."

The fundamental point is that regardless of basing mod, the Air Force, Navy, and Marines must establish air dominance and for AA combat capability theF-35A (USAF) F35B (USMC) and F-35C (USN) are essentially equal.

Critics have pointed out that the F-35B has more limited range, however VSTOL aircraft will be distributed among fleet assets because of unique flight characteristics. Thus, the range differential for air-to-air combat is a moot point for a cockpit that senses threats more than 800 miles away and can link to SM-3.

An SM-3 (Block 1A) missile is launched from the Japan Maritime Self-Defense Force destroyer JS Kirishima (DD 174), successfully intercepting a ballistic missile target launched from the Pacific Missile Range Facility at Barking Sands, Kauai, Hawaii. Credit: USN Visual Service 10/30/201

Additionally, in the range/basing trade off for air-to-ground missions because of VSTOL the advantage always goes to F-35B. Therefore, from a distributed combat capability on the high seas with networked F-35Bs to support moving the infantry ashore the F-35B provides "staying" air power.

Navy/Marine con-ops for amphibious operations make it the most unique and lethal agile combat force in the world. The value of VSTOL sortie rates in support of troops in combat shows us Desert Storm is a perfect example. However, there is one critical point for the future, except for VSTOL capability, the F-35B is most definitely NOT son of AV-8.

Marine squadron's with the AV-8s Harrier were land based up close to the action, while there were time delays of Marine F/A-18s flying from runways hundreds of miles away and even more time delays for Navy F/A-18 Carrier pilots who had to go even further to get to the fight. This historical combat example shows the value of VSTOL in not trading distance for performance. The same is true for sortie rates by Marines flying AV-8s in Afghanistan and F/A-

18 pilots flying off decks significantly far away. The value of proximity, after air dominance was established is playing out in the current NATO Libyan Air War.

This capability is something enemies of America would forget at their peril. Navy and Marine squadron pilots are courageous and have mastered the intangibles of training and battle proven tactics. State-of the-art dynamic training and tactics are never an issue for Naval Aviators. As Top Gun states "you fight like you train." For both Navy and Marine combat aviators it is a matter of simply procuring the best aircraft for their mission.

As the Peoples Republic of China modernizes and quest for a Blue Water combat fleet, the newer CBGs (Ford Class (CVN-78) CVN-79 is USS John F Kennedy and CVN-80 yet to be named) can sink the Peoples Liberation Army Navy (PLAN) ships. Perhaps with some help from subs and B-2s.

A CBG with an air wing complement of F-35Cs networking with Air/Sea battle assets; F-22, B-2, AEGIS, subs, cruise missiles, PGMs UAS, Robots and lasers and allies is a real Deterrence force and if need be a force for "Victory At Sea".

http://www.sldinfo.com/re-norming-the-navy-battle-fleet/

A second example will be adding hypersonic missiles to the tip of the spear forces. When an adversary sees an LCS or an ARG, it is important that this front edge presence force be seen as linked to other capabilities inextricably interconnected within a scalable force.

As the former chief scientist of the USAF put it, in effect, hypersonics missiles adds a 6th generation capability to the 5th generation air systems:

Modern warfare is about doing things quickly. It's about achieving fast effects, getting results quickly. If you want to affect something quickly, I can think of basically three options.

The first option is that you have ubiquitous presence. That means you've got an asset anywhere you need it. That asset might be unmanned, and frankly, that's a lot of what remotely piloted aircraft are enabling for us – having small assets available and re-locatable at a moment's notice. Of course, ubiquitous presence is only good in a limited area; we obviously can't have ubiquitous presence at every location around the globe, but that's one part of the solution that is already changing warfare.

The second option for doing things quickly is to operate at the speed of light. For my aerodynamics friends, the speed of light is about a million times faster than the speed of sound. Operating at light speed means using directed energy systems and/or cyber systems, which are among the other things that Mr. Wynne championed when he was Secretary of the Air Force. And of course, there's a lot of development underway right now in directed energy systems, and lots of corresponding questions about how we ultimately would deploy them, as well as how we would ultimately use cyber systems.

If you don't have the first two available, or if they cannot deliver the desired result, a third option is that you get to where you want to go as fast as you possibly can. That's the advantage of hypersonics. This could be to perform reconnaissance of some sort, do some sensing, or to deliver weapons on a target. In order to do that, we need to master the technology required to fly at hypersonic speeds.

Hypersonics would also give us a degree of invulnerability. We know that the application of stealth technologies has been a tremendous game-changer, but that stealth advantage won't last forever. I would argue that the next step beyond stealth is speed.

http://www.sldinfo.com/professor-lewis-on-the-evolution-of-hypersonics-and-its-impact-on-the-future-of-warfare-part-i/

Another core aspect in shaping the new weapons enterprise will be the blurring of lines between RPAs, weapons and robots. The ability to swarm RPAs or Robots will allow the Z axis deployed decision maker to determine the targets of interest or the AOIs of interest for ISR swarms with weapons implications.

A suggestion of the way ahead was underscored by the COO of iRobot and former head of NAVAIR, Admiral (retired) Joe Dyer:

SLD: How do you see the next phase of robotics as part of re-shaping concepts of operations?

At iRobot, we have a vision of integrated Unmanned Air Vehicles (UAV's), Unmanned Ground Vehicles (UAV's) and Unmanned Underwater Vehicles (UUV's). A way I like to think about that is to envision a littoral combat ship that shows up off the coast of some bad guy's country. Let's take a look at how different that will be compared to the way we do it today:

Let's consider UUVs, which I think are one of the most exciting developmental areas that are underway. UUV's are, by the way, the area where autonomy is needed more than anywhere else. Why? Well, while you've good radio frequency bandwidth when you're airborne, you have very little bandwidth when communicating with UUVs. Underwater, you're limited to acoustic modems for un-tethered operations. An acoustic modem is slower than your first dial-up PC connection to the web. But as you start to introduce more autonomy, you start to tremendously increase the utility of unmanned underwater systems. Autonomy is important for the future of all robots, but critically important for UUVs. That is what iRobot is building at our unmanned underwater systems group in Raleigh-Durham, North Carolina. But let's continue with this Navy ship showing up with a Navy/Marine Corps team on an adversary's littoral during the next decade. The preparation for entering that battle space will be tremendously improved in many ways by unmanned systems.

http://www.sldinfo.com/vice-admiral-joseph-w-dyer-u-s-navy-ret-on-the-future-of-military-robotics-and-awaiting-new-concepts-of-operations/

Using swarm techniques, which DARPA has funded iRobot and others to develop; you start to see the operations research numbers get much, much better. This isn't something that's awaiting better batteries and more power; it's awaiting further development of a new concept.

In short, if each element of the deployed honeycomb can reach out, up and back for weapons, which can be directed by the Z-axis of the F-35, a significant jump in capability, survivability, flexibility and lethality can be achieved.

The Way Ahead

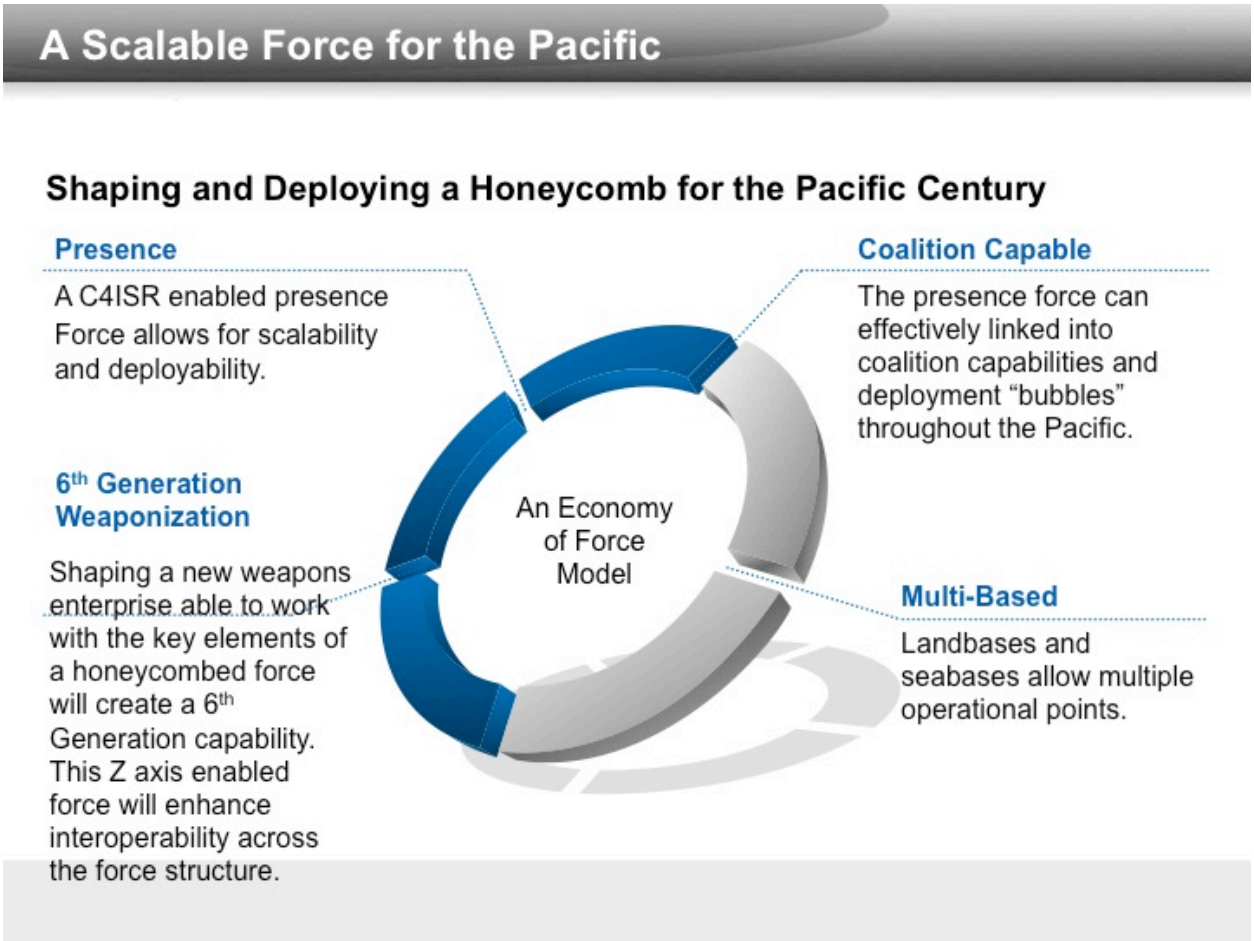
We have laid out several key building blocks for a new Pacific strategy which leverages the new platforms we are building now or about to build. We also believe that the approach we have laid out allows the United States to take the best of what we are currently doing and leave the rest. To determine what systems or approaches we no longer want will be a function of the pull strategy for acquisition and operational reform.

http://www.sldinfo.com/leveraging-new-platforms/

It is built in significant part around the Cultural Revolution, which the new F-35 engenders in terms of interconnecting capabilities through the C4ISR D enablement strategy. No platform fights alone, and shaping a honeycomb approach where force structure is shaped appropriate to the local problem but can reach back to provide capabilities beyond a particular AOI within the honeycomb is key.

http://www.sldinfo.com/embrace-the-air-power-revolution/

http://www.sldinfo.com/fifth-generation-aircraft-and-disruptive-change/



The strategy is founded on having platform presence. By deploying assets such as USCG assets, for example, the NSC, or USN surface platforms, Aegis, LCS or other surface assets, by deploying sub-service assets and by having bases forward deployed, the US has core assets, which if networked together – through an end the stovepipe strategy, significant gains in capability are possible.

Scalability is the crucial glue to make a honeycomb force possible, and that is why we see a USN, USMC, USAF common fleet as a crucial glue. And when "Aegis becomes my wingman" or when "the SSGN becomes the ARG fire support" through the F-35 C4ISR D systems a combat and cultural revolution is both possible and necessary.

Two other key elements are basing and weaponization. Basing becomes transformed as allied and U.S. capabilities become blended into a scalable presence and engagement capability. Presence is rooted in basing; scalability is inherently doable because of C4ISR enablement, deployed decision-making and honeycomb robustness.

The reach from Japan to South Korea to Singapore to Australia is about how allies are re-shaping their forces and working towards greater reach and capabilities. For example, by shaping a defense strategy, which is not simply a modern variant Seitzkreig in South Korea and Japan, more mobile assets such as the F-35 allow states in the region to reach out, back and up to craft coalition capabilities.

In the case of South Korea, instead of strengthening relatively static ground capabilities shaping a mobile engagement force allows for better South Korean defense as well as better regional capabilities to deal with the myriad of challenges likely to unfold in the decades ahead.

In the Pacific, at the heart of such an effort will be adding the F-35s with Aegis to shape allied "capability bubbles" which can link effectively with deployed U.S. forces. Shaping Aegis-F35 consortia able to cover the Pacific needs to be understood as a core strategic effort by the United States.

We have often argued that the F-35 is less about a plane than crucial capabilities for power projection and coalition interoperability. No greater demonstration of this can be seen in the Pacific whereby the capacity to conjoin capabilities across the vast expanse of the Pacific is crucial to the entire set of players in the Pacific.

A new weapons enterprise needs to be built out on top of and embedded into the honeycomb.

The scalable force built around diverse basing and F-35 enabled C4ISRD needs a a new Weaponization effort to build out the capabilities of the deployed force. The current weapons enterprise builds on older technology and innovations have been driven to support the ground warrior by reducing collateral damage and shaping greater capability for close proximity weapons.

If each element of the deployed honeycomb can reach out, up and back for weapons, which can be directed by the Z-axis of the F-35, a significant jump in capability, survivability, flexibility and lethality can be achieved.

A scalable structure allows for an economy of force. Presence and engagement in various local cells of the honeycomb may well be able to deal with whatever the problem in that vector might be.

And remembering that in the era of Black Swans, one is not certain where the next "crisis" or "engagement" might be. But by being part of a honeycomb, the deployed force to whatever cell of the honeycomb, the force can be part of a greater whole, whether allied or U.S.

http://www.sldinfo.com/black-swans-and-the-future-of-power-projection/

This means simply put, that the goal is NOT to deploy more than one needs to appropriate to the task. Vulnerability is reduced, risk management is enhanced and the logistics and sustainment cost of an operation significantly reduced. One does not have to deploy a CBG or multiple air wings, when an ARG is enough.

By leveraging the new platforms which are C4ISR enabled and linked by the F-35 across the USN, USMC, USAF and allied FLEETS are new Pacific strategy can be built. And this strategy meets the needs of this century, and the centrality of allied capabilities, not the last decade where the U.S. dealt largely with "asymmetric" adversaries with limited power projection tools.

The Goldwater-Nichols airplane for joint forces is coming at the right time. The US and its allies can build out a common fleet to provide strategic glue to connect capabilities into a scalable force. We referred to the F-35B tests on the USS Wasp as starting the next hundred years of Naval Aviation but the United States Air Force, Coast Guard, Army along with US allies will all have the opportunity to link in scalable operations crafting an economy of force.