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Visiting Jax Navy and Mayport, June 2020

By Robbin Laird

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Ed Timperlake and I visited Jax Navy almost four years to the day of when I visited Jax Navy this month.

In 2013, the first P-8 squadron prepared for deployment; and this year, the 100th P-8 was delivered to the Navy.

When we visited in 2016, the Navy was in to only three years of deployment and the partner of the P-8, the Triton, was not operating as it is today in the Pacific.

During the 2016 visit, we got a clear sense of how the fighting Navy was re-calibrating to deal with the new strategic context, in which it was spearheading the new generation ISR and anti-submarine fight.

During that 2016 visit, the CO of Patrol and Reconnaissance Wing 11, Captain Anthony Corapi highlighted the launch point of the transition in the Navy from a P-3 enabled ASW enterprise to a P-8/Triton enabled ASW enterprise.

"As I transitioned and learned how to fly the P8, I was still using like a P3. It's hard to break 3000 plus hours of flying in a P3 and looking at it as something radically different. I've had to even teach myself that this is not a P3 replacement.

"What struck me the most when I got on board the aircraft for the first couple of flights is how it is so integrated into a network. For years the P3 was alone and unafraid. It was really good at doing it. It had some good sensors at the time, but it's ability to be networked was very, very minimal. This airplane is completely different. It is much more automated, so much more. Everything is just set up so much different in the cockpit, just in particular."

Captain Corapi argued that with the new networked enabled ISR/ASW aircraft which the P-8 clearly is, innovation will be driven from the operating level going forward, and notably so for the digital native generation.

"Because there's so many young aviators now that have never seen a P3 and they're innovating from the ground up, they're learning how to fight the airplane in a completely different way.

"In my opinion, if you want innovation to really happen you got to just let it go. You can't hold onto it. If you hold onto it and you try to mandate innovation, you will not innovate. These young crews, do not know what they don't know. They are not unlearning P-3 behavior; they are shaping new behavior appropriate to the digital age."

During that 2016 visit, all the squadrons in Wing 11 were baseline P-8s.

Now four years later, the software upgradeable aircraft has evolved, and the capabilities of the now global fleet of P-8s as well.

My recent visit provides a series of insights into the evolution over the past few years, as well as the nature of the foundation being laid for the next leap of capabilities within the fleet and the joint force.

For the P-8/Triton combination is clearly a key capability for the dynamic targeting which the USAF and the USN are focusing upon for deterrence in the new strategic environment.

In a number of the interviews conducted at Jax Navy and Mayport, I had a chance to discuss with P-8, Triton, Seahawk crews and with a MISR officer how the Navy is leveraging these capabilities to shape a kill web approach for the fleet.

I started my visit with a discussion with CDR Mike Kamas, Commanding Officer, Maritime Patrol and Reconnaissance Weapons School and his Executive Officer, CDR Matt Griffin, who will assume command of MPRWS on July 24, 2020.

Both of these Naval aviators have a wide range of operational experience and are clearly leveraging that experience in shaping a way ahead for the maritime patrol enterprise as a plank holder in a kill web enabled maritime force.

CDR Mike Kamas has 20 years of USN service in a variety of roles. Starting out his career as a P-3 Naval Flight Officer at VP-16 in Jacksonville, he has also operated aboard aircraft carriers, served as a flag aide at the Undersea Warfighting Development Center in San Diego, and worked with the surface warfare community in Hawaii. He has operated forward in Europe and the Middle East, providing ISR to the joint force during the land wars of the past two decades. He also served as a Staff Officer at the United States Africa Command as well. In 2017, CDR Kamas came back to Jacksonville, made the P-3 to P-8 transition and assumed command of the Maritime Patrol and Reconnaissance Weapons School.

CDR Kamas noted that even though the mission sets for the P-3 and P-8 were similar, ASW, surface warfare support and maritime ISR support, the approach is radically different.

The P-8 is part of a wider sensor network which is interconnected through various C2 links and the platform shapes innovative new ways to do third party targeting, or essentially operated as part of interactive kill webs rather than like the P-3, which flew “alone and unafraid.”

His XO is CDR Matt Griffin who came from an ROTC background at Ohio State. He first deployed from Brunswick Maine as a Naval Flight Officer with VP-26, a P-3C squadron primarily supporting ASW. Midway through this tour, the focus of the squadron’s effort transitioned to support the land wars of OPERATIONS IRAQI AND ENDURING FREEDOM in support of the joint force. During his time in the Gulf, he became familiar with the challenge of operating in an area which is chock full of ships of varying sizes, purposes and capabilities, which of course, is a major challenge facing the US and allied maritime forces in the Pacific.

CDR Griffin noted that even while involved in the Middle East, the Navy made sure that his team's ASW skill set did not atrophy too much.

For example, during one of his deployments, his team was sent to Japan for a period of time to work ASW even while their primary mission had shifted to overland ISR for the joint force.

He later went to the Undersea Warfighting Development Center in San Diego where new staff members received insight from very experienced commanders who did ASW in the Cold War period as well. "We were learning from retired Naval officers with hours and hours and hours of real-world operations against adversary submarines."

After his time at the Undersea Warfighting Development Center, he went to serve on the staff of a Destroyer Squadron (DESRON). Here he worked on the challenge of translating the language and world of the MPA community into the language and world of the black shoe navy community. Obviously, this translation challenge becomes crucial to work given that with the third-party targeting capabilities being shaped by the networks and wave forms enabling interactive kill webs, empowering effective distributed strike and sensing collaboration is crucial.

CDR Griffin then went to NAWDC where he served for two years as the P-3 WTI program coordinator. This added the integration with the carrier air wing aspect to his training and education, in which the fast jet pilots also need to relearn their roles within a kill web concepts of operations whereby interactive networks both inform their targeting but also guide their roles in the kill web going forward. And with the sensor rich F-35 coming to the fleet, the role interactions among F-35, Triton, and P-8 is reshaping significantly how the fleet can operate a distributed integrateable force.

Next he transitioned to the P-8 and on his first deployment was intercepted by the Chinese Air Force in the South China Sea.

Both Commanders underscored that for the MPA community their home cycle readiness focus is geared toward dealing with peer competitors.

"We practice killing submarines and surface ships with a larger fight in mind."

They both emphasized as well that the sensor networks are evolving and within that context the MPA community is learning new ways to shape interactive approaches within the fleet and in the joint community to manage ISR and strike capabilities.

A key aspect which often gets lost when addressing the competition with China is the importance of the combat experience of the joint force being taken forward to provide a combat advantage.

I asked them how they looked at how their combat experience from the land wars is leverageable going forward to the new strategic environment.

The answer: experience in adaptability and agility.

CDR Kamas noted that during his time in the Middle East, they would operate a significant amount of new roll on and roll off gear on their P-3s.

“The gear would be new to use, and we never trained for it during our home cycle. We learned on the fly. The level 500 instructors would shape a rapid learning course and we were able to fly a new technology in a very short period of time.

‘We flew missions in strange places the P-3 was never designed to operate in, and that kind of learning and the incorporation of new technology rapidly is a skill set we are taking forward toward current and future variants of the P-8 Poseidon and MQ-4 Triton.”

The P-3 ended up being a global aircraft.

The P-8 fleet is being built out as a global fleet, and there is a concerted effort to provide for greater information sharing and interoperability with P-8 partners, like the UK, Australia, New Zealand and Norway.

There is a clear effort to do better in this domain than was done with regard to P-3.

And that interoperability can yield a major advantage with regard to expanding the reach of interactive kill webs as well. The two leaders underscored that the P-8 is a key piece in the evolution of coordinated dynamic targeting.

“We are agnostic to who the shooter is. We think the P-8 has significant value in a kill web approach.”

They emphasized as well the importance of ongoing modernization of the sensor networks within which the P-8 is embedded, including key capabilities such as the sonobuoy sensors.

In contrast to 2016, now the Triton is part of the operating force, and the approach for P-8 is being modified to leverage this capability as well.

Here the opportunity being generated is for the Triton to provide for wide sweep ISR data, with the P-8 then being able to prioritize targets during its time on station.

And to get full value out of the P-8/Triton interactivity, the ability to correlate spiral software development on the two platforms is a key opportunity to evolve the overall ISR/strike enterprise.

At the time of this interview, the Maritime Patrol and Reconnaissance Weapons School was executing its 7-week Maritime Weapons and Tactics Instructor (WTI) course, focused not only on current capabilities but also on what the future has in store for the Maritime Patrol and Reconnaissance Force.

“A lot of our focus during the WTI course is on challenges like third party targeting and execution of integrated strike tactics.

'We deep dive the current way P-8s contribute to the kill web and give the class some ideas of how the platform's software and sensor packages will evolve in the next 3 to 5 years.

'This gives the students the opportunity to use their imagination on the role of the P-8A and MQ-4C Triton in a future fight."

Third party targeting for the Navy means that the tac air community now is beginning to appreciate fully what a P-8/Triton dyad can bring to the party.

"They are clearly starting to see all of the goodness that the P-8 and Triton can provide.

"As a result, our staffs are talking at a significantly greater level than when you were here four years ago."

The coming of MISR is clearly a major change as well in bridging the large wing aircraft and tac air communities as well, but I will focus on that in greater detail later.

But the software upgradeability piece which we discussed four years ago is clearly becoming a more significant part of the way ahead for the MPA community.

When we visited Jax Navy four years ago, all of the P-8s were baseline aircraft.

Now the community is seeing more rapid advances with software upgrades to changing baseline aircraft.

CDR Kamas noted that they are now able to feed operator input "back to the engineers and resource sponsors to inform the requirements process and software upgrades, in a way that integrates into the spiral software that comes out every two years and the D.C. budget cycle.

'We keep a running list of software discrepancies that have been observed by the fleet and need to be corrected and we also prioritize new ideas for software features that can fill tactical capability gaps."

CDR Kamas added that they host an annual conference where the fleet operators meet to formally deliberate on the list of desired changes.

"We have a contractor that helps us with the rack and stack prioritization process, transfers those suggestions to the program office, and engages with the resource sponsor to fund the top candidates on the list."

This approach is laying down the foundations for further fundamental change within the procurement system and the way spiral software upgrades are managed as well. The speed brake is largely the information assurance piece.

"The whole process takes time, but it ensures we comply with DoD Information Assurance requirements."

In short, 2013 was the beginning; 2016 laid a solid baseline aircraft to the fleet operational reset; and now we see the foundation being set for a build out of the integrated distributed fleet empowered by interactive kill webs.

O.K I am a P-8 Operator: But How do I Train to Work in a Kill Web?

06/29/2020

Kill webs rely on networks, wave forms, connectivity, distributed C2 and platforms which can leverage all of the former.

Platforms are the time-space entities which enable the force; integrability allows a distributed force to deliver the desired combat effect.

At Jax Navy, the P-8 operators are trained to be P-8 operators at VP-30 to be proficient at working the platform. At VP-30 takes the operators fresh out of flight school and introduces them to the P-8 as a platform and gets them safe to fly and operate in the aircraft.

Now I am a competent "newbie" on the aircraft, beyond gaining actual operational experience, how do I train for the higher end warfighting capabilities which the aircraft can achieve when operating within interactive kill webs?

My guide to thinking through the answer to this question was my guide for my time in Jacksonville and Mayport, Lt. Jonathan Gosselin.

Figure 1 Lt. Jonathan Gosselin

He has a rather unique path to where he is currently within the Navy. "Duck Duck" is his call sign which probably comes from not wanting to have him referred to as the great baseball player "Goose"

Goslin. He was enlisted navy before being recruited for the Seaman to Admiral Program. He went to The Citadel and then became a commissioned officer. He was an early P-8 officer, entering VP-45 as it became the third squadron to deploy with the P-8 in 2015. He has certainly experienced the "training wheels" phase of deployment and is now a P-8 Weapons and Tactics Instructor at the Maritime Patrol Reconnaissance Weapons School.

When he first deployed, the P-8 was an anomaly.

Now it is deployed to all of the COCOMS worldwide.

The P-8 global fleet provides ISR, Anti-Submarine Warfare and Surface Warfare products to the combatant commanders.

In his current position, he serves an innovation, cross-functional team lead where he works with innovation experts, defense industry and the Navy to shape projects which are then generated for implementation by industry. He works as well on process changes where advances in TTPs can be enabled as well.

We discussed at some length the training processes from baseline operator to weapons expert and I will outline that in a later article.

But in this article I want to highlight how the process of thinking through a kill web enabled P-8 is being shaped and trained.

For Lt. Gosselin, at the heart of the effort is really understanding, training for and executing third party targeting.

He argued that moving from a stove-piped mentality where I am both the sensor and the shooter, to a kill web perspective where the P-8 could provide the sensors for a firing solution, or whether the P-8 would deliver a weapon provided by another asset to perform the firing solution is at the heart of the change.

According to Lt. Gosselin: "What I am working on right now is shaping a curriculum to bring that capability to the MPRA community."

He added: "We are working to develop con ops and integrate with other platforms such as the B-1, the B-52 and eventually with the B-21.

"This is where we're trying to go with the force.

"We've realized that we've put ourselves in a stovepipe, and we have to break ourselves out of that stovepipe and understand that we are not going to win this fight alone.

"It does not matter who the adversary is.

“This is a joint fight.”

In effect, what we are discussing is dynamic targeting across a distributed integrated force.

As Lt. Gosselin put it: “We’re talking about taking targeting data from one domain and quickly shifting to another, just like that. I have killed target under sea.

“I am now going to go ahead and work the surface target and being able to understand the weapon sensor pairing network, and being able to call in fires from different entities using commander’s intent to engage the target.

“That’s what we’re trying to do.

“Get our operators to understand that it is not just a one-piece answer.

“here may be a time when you have to kick to another shooter.”

To do so, he is engaging significantly with the Triton squadron as well to shape a way ahead for kill web dynamic targeting.

Lt. Gosselin noted: “With the P-8 and Triton we are able to expand our envelope of situational awareness.

“We can take that and now take the baseline concepts from what the P-3 did and apply them to a more advanced tactics, techniques, and procedures in the form of integrating with the B-21, the B-1, the F-18’s, the F-35 joint strike fighter in a dynamic targeting kill web.”

And with regard to the cultural shift, this is what he added:

“It’s important to talk not about how can I defeat this target, but really it should be, how can we defeat this target?

“Let’s break ourselves out of this stovepipe and understand that I may not always be the best shooter.

“I may be the best sensor, but I’m not be the best shooter.”

He focused on the key role which the weapons school is and will play within the US Navy to shape this cultural shift.

I will focus on the discussion about the shift in training to achieve this dynamic targeting function in a later article.

His call sign may be “Duck Duck,” but it seems more appropriate to think of the MPA community is operating like the Ospreys flying outside of windows here in North Carolina – if you are a fish, you certainly do not want to see an Osprey overhead.

ISR, C2 and Strike: All in One Package

But for the adversaries who operate below and above the sea, the evolving MPR community is not just watching those adversaries is working ways to kill you with weapons that they are not even carrying.

The Coming of MISR to the Fleet: The Perspective of the First Deployed MISR Officer

08/05/2020

Earlier this year, in a visit with Vice Admiral Miller, the US Navy’s Air Boss, I was introduced to the coming of MISR, or the Maritime ISR Officer.

MISR officers are trained as ISR subject matter experts to operate at the fleet or CSG level and to work the sensor fusion for the integratable CVW.

According to the Air Boss: “I think of MISR as additive, not lessening of TOPGUN, but instead akin to a new phase which builds upon our historical experience in the development of TOPGUN in the first place.”

In effect, these are "6th generation officers" in the sense of working the C2/ISR capabilities which enable an integrated and distributed fleet to have its maximum combat impact.

I followed this introduction to MISR up over the past two months with discussions with officers from the Naval Aviation Warfighting Center or NAWDC with regard to how the focus on training for the integrateable air wing was shaping the way ahead. Two new warfighting training courses reflect the change.

The first is the information warfare training course which is focused on dynamic targeting.

And the second is MISR which is focused on providing the connective tissue between the operational platforms working as a integrated force to deliver the dynamic targeting effect.

The MISR effort is clearly a work in progress, but is laying the foundation for what is clearly ongoing innovations with regard to connectivity among platforms and how C2 is delivered at the tactical edge and aggregated into strategic decision making as well.

MISR is both a capability here now, but a dynamic driver for how to change the force as new ISR capabilities are added to the force, such as Triton and the upcoming revolutions in maritime remotes.

If one does not learn how to change the culture of how ISR is used and C2 redesigned then adding new ISR rich platforms or new ISR capabilities will not have the desired combat effect.

From this perspective MISR is an innovation, a new foundational element, and a plank holder in the strategic shift for force structure integratability, notably to deliver the desired political and combat effects necessary to prevail in the new strategic environment of engaging in full spectrum crisis management and escalation control and dominance.

Recently, I interviewed CDR Pete "Two Times" Salvaggio, Naval Aviation Warfighting Development Center (NAWDC), Maritime ISR (MISR) Weapons School, Department Head (DH), MISR & EP-3E Weapons and Tactics Instructor (WTI).

The career of this officer spans the period prior to MISR, the creation of MISR and the maturation of the MISR and Minotaur initiatives.

The officers involved in the MISR Weapons School are the seed corn for the strategic change which MISR is introducing.

And during my visit to Jax Navy during the week of June 14th, I had a chance to talk with the first MISR officer deployed to the fleet, LCDR Tracy Maddox.

Her call sign is "Mad Dog" and is as she described herself a "VQ" person by trade and an EP-3 operator.

She became a MISR officer through her engagement at NAWDC and worked with "Two Times" there as well. She was involved in the standing up of the MISR cell at NAWDC which has now become a full warfighting course. She now is with VPU-2, a heralded squadron in the US Navy involved in "special projects."

An October 2, 2018 article by Richard Burgess of *Seapower Magazine* highlighted the squadron as follows:

The Navy has established a new unit to sustain a special mission capability in its maritime patrol community with the coming retirement of the P-3 Orion aircraft.

A Sept. 10 internal directive from the Office of the Chief of Naval Operations directed the establishment on that date of Fleet Support Unit One at Naval Air Station Jacksonville, Florida, one of two sites that serve as home bases for the Navy's P-8A Poseidon maritime patrols aircraft.

According to the directive, Fleet Support Unit One "will configure and operate P-8 aircraft to provide a follow-on special mission capability in place of [special] projects patrol squadron (VPU) P-3 aircraft due to sundown in 2019."

The mission of the unit will be to provide "oversight, training, operations, maintenance, and configuration management for the P-8 quick reaction capability aircraft," according to the directive.

Fleet Support Unit One will have an officer in charge rather than a commanding officer, who will report to commander, Patrol Reconnaissance Wing 11, at Jacksonville.

The Navy's sole VPU squadron, VPU-2, operates several specially configured P-3C Orion aircraft from Marine Corps Air Station Kaneohe Bay, Hawaii. The squadron is scheduled for deactivation in fiscal 2019 in concert with the phase-out of the P-3C from operational active-duty patrol squadrons.

LCDR Maddox noted that the EP-3 community works closely with the USAF, so this has carried over for the MISR community and in terms of NAWDC working with Nellis as well.

But she clearly highlighted the challenges to getting the USAF and the USN to work fully together in shaping enhanced integratabilty but clearly the MISR standup was an important step in moving in that direction.

LCDR Maddox was posted to the USS George H. W. Bush CSG-2 under the command of Rear Admiral Kenneth Whitesell, now Deputy Commander of the US Pacific Fleet and soon to be the next commander of Naval Air Forces and and commander of Naval Air Force Pacific

During that deployment, the Admiral explored ways that a MISR approach could enhance the lethality of the fleet.

The experience shaped a demand side as well where as Vice Admiral Miller put it, there is desire to have MISR officers in every carrier strike group and at the fleet level as well.

And technology needs to be shaped to allow for this kind of innovation.

A case in point is Minotaur.

As Rear Admiral Garvin put it: "The Minotaur Track Management and Mission Management system was developed in conjunction with the Johns Hopkins University Applied Physics Laboratory.

"Minotaur was designed to integrate sensors and data into a comprehensive picture which allows multiple aircraft and vessels to share networked information.

"It is basically a data fusion engine and like many software capabilities these days, doesn't physically have to present on a platform to be of use.

"These capabilities ride on a Minotaur web where, if you are on the right network, you can access data from whatever terminal you happen to be on."

LCDR Maddox underscored from her point of view that bringing the various wave forms into a single screen via Minotaur allows those data streams to come together and to shape a common operating picture.

She underscored that with different assets using different operating pictures the full value of the ISR streams was not being realized.

"With the Minotaur web everyone has access to the same COP regardless of whether you are airborne or onboard a ship."

In my view, the MISR incorporation in the fleet, plus the coming of Triton are opening the aperture in understanding of how to widen the scope of what a fleet can achieve within the extended battlespace.

And this is clearly a cultural shift as well.

As LCDR Maddox put it: "It's a very different mindset shift."

With regard to the carrier strike groups, the core focus has been upon the fast jets and kill chains.

But with the ISR/C2 revolution and the ability to do third party targeting, the kill web is becoming a reality.

But this means that the Admirals who have come through the fast jet community are facing the challenge of changing their approach as well to incorporate MISR and dynamic targeting, ultimately in a joint capability environment.

In my view, the standing up of MISR is significant in and of itself, but lays a foundation for the way ahead.

And quite an honor to meet the first MISR officer assigned to a carrier strike group.

This is also a significant generational change as the digital natives become more prevalent within the fleet, and who experienced rapid apps upgrades and want to see the same being delivered in terms of knowledge to the fleet operating in a dynamic combat environment.

Shaping a Way Ahead for the Triton: Enabling the Integrated Distributed Force

07/22/2020

During my recent visit to Jax Navy, I had a chance to talk with several members of the maritime reconnaissance patrol community about Triton.

A particularly insightful discussion was with Joseph Opp, currently the Northrop Grumman Director/Site Lead for Triton at Jacksonville Navy Air Station, who has served in this capacity for the past three years.

Previously Opp served for thirty years in the US Navy and has been involved while in the service for many years with the maritime reconnaissance patrol community.

In this capacity, he has been in Jacksonville for some time, first with VP-30 and now with Northrop Grumman.

Clearly, the US Navy has worked the relationships between Triton and P-8 to provide a comprehensive ISR/Strike solution set.

Triton can provide the long-haul wide-angle view of the battlespace with P-8 and its organic and third-party targeting capabilities playing the focused targeting role.

To work coordinated operations, the Triton and P-8 crews need to understand from the ground up how each platform works independently and together, to shape an integrateable sensor-striker system.

The Triton can have the dwell time to identify a much wider range of targets than P-8; which then enables P-8 to focus their operation on high priority targets.

I would also add, that in the kind of extended battlespace which has and will emerge, knowing where critical choke points are with regard to an adversary's system or force becomes a priority task.

An integrateable Triton and P-8 working together can provide significantly greater capability to deliver this outcome, rather than simply operating separately.

By having crews which have operated on the P-8 as well as the Triton, they share an ability to do the kind of ISR appropriate for dynamic targeting.

By working on one platform, then on the other, it is not so much cross-learning as shaping and integrated knowledge base and skill sets to operate in the ASW kill web.

Triton can inform the P-8 before it takes off about the threats in the extended battlespace which then the P-8 can prioritize.

Opp noted progress that is being made with regard to software onboard the Triton. He noted that the program is continuing to work on new workload software for the Triton operators.

With the amount of surface targets on the ocean today in certain regions of the world, this new software can work with AIS data and other systems to help the operators identify threats to be further studied, evaluated and potentially targeted.

This is akin to the mission systems library onboard the F-35s but this mission library is prioritizing maritime threats.

And of course, such threats are crucial for both the US Navy and the US Air Force to deal with, as significant threats to the USAF in the Pacific come from the sea.

As I mentioned in an earlier article, the Triton as an orbital concept of operations airplane is challenging the data management systems which the US Navy currently operates.

There clearly needs to be progress on the data infrastructure side to better handle real time data and to deliver it the combat edge to support operations which increasingly face the challenge of fighting at the speed of light.

There is some confusion with regard to EP-3 and Triton. There are those who see Triton as replacing EP-3. Some of the core capabilities of the EP-3 are clearly being brought to the Triton platform, but that platform has a wider range of vision and activities than the EP-3.

In my view, the Triton/P-8 dyad poses a significant challenge to reworking the C2/ISR enabled force.

On the one hand, decisions can be pushed to the tactical edge.

On the other hand, at the fleet command level decisions need to be made rapidly at the strategic level, whereby determinations of what combination of force is appropriate to the crisis at hand, and how best to aggregate that force effectively?

Triton certainly can be a contributor to fleet wide decision making and at the same time channeling P-8s and other ASW assets (such as the Romeo helicopter) to focus their capabilities on the core targets in the extended battlespace.

But there is another challenge facing both industry and the Navy: how to maximize the advantages generated by an orbit concept of operations set of platforms versus a sortie generated set of platforms?

Triton does the first; P-8 does the second; and the US Navy's legacy is only the second.

It is early days for sorting out how to get the number of aircraft up to do the kind of orbital concepts of operations for which Triton was designed.

But without enhancing the data management network side of the challenge, the ability to leverage the data generated by Triton will not be maximized.

Triton like F-35 is not being used in terms of storage of data coming off of the aircraft, which makes little sense if the ISR/C2 side of the force will indeed drive the way ahead for the combat force.

The data backbone which was assumed to arrive with Triton is not yet there.

And, in my view, if we move towards LEO constellations to work with Triton to add yet another kill web layer, if the backbone infrastructure is not in place, we will have technology deployed without a solution to how to capitalize on that technology for the evolving combat force.

There are significant opportunities to make use of the post-mission data which F-35s and Tritons can deliver.

But an opportunity without a solution is not a capability for the operational force.

The opportunity is clearly there and provided by the new data rich combat assets.

The Standing Up of TOCRON-11: The Next Step in Building Out Kill Web Infrastructure

07/07/2020

For some, the shift from using kill web instead of the kill chain is a variant of wordsmithing.

But it is not.

I have worked on fifth generation aircraft since the mid-2000s and certainly understood what an impact a data rich aircraft flying as a fleet would make with the coming of the F-35. I also understood that if the infrastructure to manage data, and to exploit data much more effectively and rapidly, that the impact of the new generation of aircraft would be limited.

I also have argued that fifth generation aircraft was leading to the "renorming of airpower," and not the end point of transformation.

But what this new generation of aircraft posed along with their being built around software upgradeability was a significant challenge to rethink the ISR/C2 dynamic and to build out an infrastructure which allows for the platforms operating within interactive kill webs to deliver combat effects throughout the extended battlespace.

For the P8/Triton community, what this has meant that after managing the initial P-8 transition and now adding the Triton in its early phases of contribution is that infrastructure is changing as well to find ways to better exploit the new platform capabilities.

The problem is that if one focuses on the pictures of the aircraft – whether P-8 or Triton – one is looking at a snapshot of a part of the kill web enterprise but missing in many ways the most significant aspect which is the evolving infrastructure. The infrastructure is not as dramatic as watching a plane take off or land but it is the enabler for the kill web enterprise.

In the case of the P-8, a squadron deploys with at Mobile Tactical Operations Center. These centers support the P-8s by managing data and air tasking orders.

As this story published on October 7, 2019 about the return of a P-8 squadron highlights the role of the paring of P-8s and MTOCs.

JACKSONVILLE, Florida – The "Fighting Tigers" of Patrol Squadron EIGHT (VP-8) and the "Dog Pound" of Mobile Tactical Operation Center SEVEN (MTOC-7) have returned to Naval Air Station (NAS) Jacksonville after a successful six month deployment to the 4th and 7th Fleet Areas of Responsibility (AOR).

While deployed, the Fighting Tigers and Dog Pound operated from three deployment sites in the Philippines, Japan, and El Salvador, where they provided intelligence, surveillance and reconnaissance (ISR) and conducted anti-submarine warfare (ASW) to advance U.S. Southern Command and U.S. Pacific Command lines of operation.

The VP-8/MTOC-7 team is attached to Commander, Patrol and Reconnaissance Wing ELEVEN, and was one of several MPRF squadrons assigned to Commander, Task Force 72 for the last six months. VP-8 is led by Commanding Officer Cmdr. Rodney Erler, and consists of 300 personnel and seven P-8A Poseidon aircraft. MTOC-7 is led by Officer in Charge Lt. Taylor Cannon, and consist of 21 personnel providing media support, mission construction, and safety of flight following for all VP-8 missions.

The sleek P-8s look cool; but what an MTOC (as seen in the featured photo) looks like does not.

But guess what?

Without the less cool MTOC, the effectiveness of the P-8 squadrons is reduced significantly.

The infrastructure engagement is a key driver of the way ahead for the maritime patrol reconnaissance enterprise in playing its proper role within a kill web force. And since the initial P-8 deployments and the coming of the Triton, the US Navy has changed two key aspects of the infrastructure.

The first is the establishment of the MISR officer who is the link between the carrier strike group and the non-organic assets which are both supporting and supported assets for the carrier strike group.

And the second is the current standing up of two TOCRONs for the maritime patrol reconnaissance enterprise. Not surprisingly, the TOCRONS are evolving from the MTOC experience, but are being stood up as a recognition that the data management side of the enterprise is at least on equally footing with the flying side of the enterprise.

The MISR officers are the connectivity tissue between the TOCRONS and the carrier strike group as well. This will be a two-way street as tasking coming from MISR officers will be shaped in part with regard to the kind and quality of information which the TOPCRONS can provide as well.

As I noted in an earlier article about the standing up of TOCRON -11 at Jax Navy:

Tactical Operations Control Squadron (TOCRON) ELEVEN as part of the Patrol and Reconnaissance Wing as well. This command is operational this month and is the latest member of CPRW-11.

The squadron is tasked with data support and management for CPRW-11. They are tasked with imaging all of the fleet's mission systems hard drives, and data with regard to software, mission planning and the flight profiles of the fleet.

They are the key enabler to maritime patrol's Tasking, Collection, Processing, Exploitation, and Dissemination (TCPED) process, which helps drive the intelligence analysis cycle.

With the increase in mission system's capability and increasing integration into the joint kill web, the MPRA community clearly relies on TOCRON with a P-8 enabled MPA force.

During my visit to Jax Navy the week of June 14th, I had a chance to discuss with the TOCRON -11 leadership the role of the squadron. I met with CDR Donte' Jackson and LCDR Heriberto Cruz, both experienced officers in the MPA community and with regard to the working relationship between P-8 and MTOC squadrons.

A key point made by the officers was the importance of socializing the value of the kind of data which the MTOC, MISR and MPA communities could bring to the fleet.

As CDR Jackson underscored: "Sometimes we get caught up in the new systems and what they can do and neglect the core function of leading the sailors who will use the capabilities which the new systems can deliver to the fleet."

He sees this as one function of what the TOCRON squadrons could bring to the Navy.

Mission support in terms of what the data providers bring to the fight is crucial to shaping an effective way ahead, and certainly in terms of what a kill web approach can do to empower the fleet.

But being data providers does not have the cache of being a Top Gun pilot, but as the data providers become more crucial, a process of change is underway.

The officers underscored that there is significant generational change underway that intersects with the evolving role of the MPA community.

On the one hand, "Sailors are well versed in ASW, ISR and C2," not just classic ASW functions in the MPA community.

On the other hand, "the new generation of Sailors is able to multi-task much more effectively than the older generations. And the new generation functions better when they gain a grasp of the whole within which their basic task is performed."

Thus, the officers argued that there was basic synergy between the evolving technology and the capabilities of the new generation of Sailors.

And they see the TOCRON squadron as contributing to enhancing this process of synergy, as well.

The new face of the kill web Navy is MISR officers, TOCRON squadron members and the warfighters at the information school at NAWDC.

And the focal point of this outcome is to deliver the right information, to the right person in the right time. Learning how to fight at the speed of light is an ongoing challenge.

Adding new MISR and TOCRON capabilities to the fleet are the next steps in shaping a more effective capability to meet this challenge.

As I noted in an earlier article:

As we work through force structure change to deal with the new strategic environment, terms like C2, ISR and training are being changed significantly.

New concepts of operations are being shaped, with modifications of existing platforms to play new roles and responsibilities, and new platforms being designed to enable an integratable force.

With the crafting of an integrated distributed force able to operate through interactive kill webs, the ability and capability to shape task forces appropriate to crisis management challenge is enabled.

To do so effectively, rests upon how specific platforms can work together, which, in turn, depends in significant part on what wave forms they have onboard which enables them to work together in a crisis management environment….

When I refer to standing C2 on its head, what I mean is simply, that C2 and wave form availability is becoming a foundational element for force generation in contested combat environments, rather than simply being ways to connect platforms operating in sequential operations….

Put bluntly, C2 systems are no longer commodities added platform by platform; they are the operating infrastructure within which platforms find their role within a scalable, tailorable combat force.

VUP-19 and the Coming of Triton to the Fleet

07/05/2020

As I have argued earlier, the Triton is bringing a whole new layer to the kill web for fleet operations.

Operating at high altitude, the Triton is delivering area wide ISR data for dynamic targeting.

Indeed, one way to look at the way ahead for the integrated distributed force is to understand that new platforms are providing interactive ISR and C2 layers for a kill web approach for dynamic targeting.

Ed Timperlake and I argued in a *Space News* story published in 2012, that the global fleet of F-35s would provide a significant ISR/C2 layer for the joint and coalition force, which provided redundancy for the space force as well.

The ability of the deployed F-35s — again owned by allies as well as U.S. forces — presents a diversified and honeycombed presence and scalable force. This baseline force is significantly enhanced by reachback to space assets, but the space assets now receive redundancy by being complemented as well by a deployed fleet of flying combat systems. This joint capability means that the value of space-based targets goes down to the Chinese or whomever, and diversification provides significant enhancement of deterrence as well.

In short, in rethinking the way ahead with regard to military space — notably in a period of financial stringency — getting best value out of your entire warfighting enterprise is highlighted. Reorganizing the space enterprise within an overall C5ISR approach enabled by a honeycombed fleet of F-35s is a strategic opportunity of the first order.

The Triton provides another layer for a kill web-enabled force able to operate with redundancy and resiliency.

But to do so, much like learning how to use a data rich aircraft like the F-35, requires technological changes, data management changes, and cultural changes to leverage what the technology provides.

Just having the technology is clearly not enough; training and cultural change are crucial to weave what the new technology COULD do into what the force CAN do.

Clearly, the US Navy is working these challenges.

In 2013, the first Triton squadron was established.

According to the US Navy:

Unmanned Patrol Squadron ONE NINE (VUP-19) was established on October 1st 2013 and was later commissioned on October 28th 2016. As the United States Navy's first unmanned maritime patrol squadron, VUP-19 is a team of more than 500 active duty, reserve, and civilian personnel which draws its lineage from and honors the rich history of Patrol Squadron ONE NINE (VP-19) "Big Red."

Established in July of 1946 as VP-907 and re-designated as VP-871 in February 1950, VP-19 finally came to be in February of 1953 and carried that name for 38 years of honorable service. In 1951, the sailors of VP-871 were called upon to participate in the Korean War and it was during this time that the squadron earned its nickname "Big Red" for their role in night interdiction missions, dropping red night illumination flares to support allied air and ground units.

As VP-19, "Big Red" participated in the Vietnam War as well as Operation DESERT STORM along with deployments to Japan, Guam, Alaska, Thailand, Vietnam, the Philippines, Saudi Arabia, and countless detachments around the world. VP-19 was disestablished in August 1991, having operated the PV-2, PBY-5A/6A, P4Y-2/2S, P2V-2/3/5/7, and P-3A/B/C maritime patrol aircraft as well as earning four Navy Unit Commendations, seven Meritorious Unit Commendations, and two Battle Efficiency "E" Awards over its 45 years of distinguished service.

Homeported at Naval Air Station Jacksonville, Florida with a permanent detachment to Naval Air Station Point Mugu, California, and multiple, globally-dispersed detachment sites, VUP-19 will continue VP-19's storied legacy and dedication to the defense of the United States by launching the US Navy's newest Intelligence, Surveillance, and Reconnaissance Maritime Patrol asset, the MQ-4C Triton, to the fleet.

The Mission of Unmanned Patrol Squadron ONE NINE is the sustained, successful deployment of the MQ-4C Triton in support of Combatant and Fleet Commanders.

When Ed Timperlake and I visited Jax Navy in 2016, we learned that the US Navy was taking a very different course than the US Air Force to working the training and operations for the Triton fleet, than the USAF has done with its remotely piloted aircraft.

We wrote in 2016:

The team at Navy Jax is building a common Maritime Domain Awareness and Maritime Combat Culture and treats the platforms as partner applications of the evolving combat theory. The partnership is both technology synergistic and also aircrew moving between the Triton and P-8The P-8 pilot and mission crews, after deploying with the fleet globally can volunteer to do shore duty flying Tritons.

The number of personnel to fly initially the Tritons is more than 500 navy personnel so this is hardly an unmanned aircraft. Hence, inside a technological family of systems there is also an interchangeable family of combat crews.

With the P-8 crews operating at different altitudes from the Triton, around 50K, and having operational experience with each platform, they will be able to gain mastery of both a wide scale ocean ISR and focused ASW in direct partnership with the surface navy from Carrier Strike Groups, ARG/MEUs to independent operations for both undersea and sea surface rather than simply mastering a single platform.

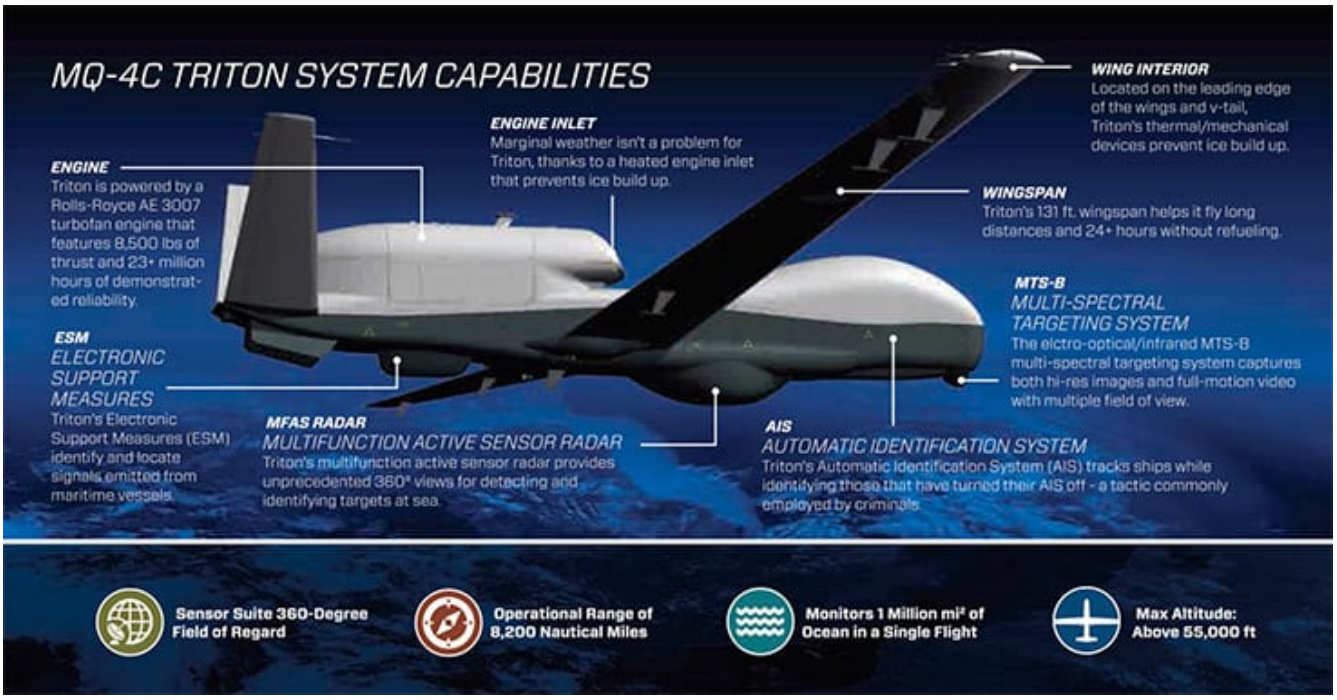
This is a visionary foundation for the evolution of the software upgradeable platforms they are flying as well as responding to technological advances to work the proper balance by manned crews and remotes.

During my visit to Jax Navy the week of June 14, 2020, I got a number of updates on the progress and challenges facing integrating Triton into the fleet.

One of those updates was provided by VUP-19. I met with Lt. Samantha (Thompson) Johnson who transitioned from serving as a P-3 pilot to becoming a Triton air vehicle operator and a weapons and tactics instructor at the Maritime Patrol and Reconnaissance Weapons School in Jacksonville.

I also met with LCDR Grant Coddington, the Intelligence Officer for the Squadron.

Rather than quoting either officer directly, I will indicate a number of takeaways I formed from the discussion and will not hold either officer responsible for any errors on my part in my learning process.



The first takeaway, one which was reinforced by other discussions during the visit, was that the Triton operation much like the first few years of P-8 operation, is in its "wheels phase." There is much to learn about the aircraft, its operations, and the data management challenges being posed by the aircraft as well.

The second takeaway is that the learning process has clarified key aspects of the operational cycle for a Triton orbit. Typically, the squadron operates with five members on a shift: two AVOS or air vehicle operators, two MPOs or Mission Payload Operators and one TACCO or Tactical Coordinator.

The third takeaway was that the personnel coming into Triton and "learning to Triton" come from the manned collection platform side of the house, P-3, P-8 or EP-3.

The fourth takeaway is that unlike Global Hawk, which has its own dedicated pipe to deliver data, the Triton is working through the Navy's mission data collection systems. This creates challenges in terms of how to best handle the data and how best to ensure it gets delivered to the right place at the right time.

The fifth takeaway is that as software upgradeable aircraft, one paired with the P-8, the Triton is a work in progress. And with a clear focus on informing dynamic targeting, the Triton community is clearly looking forward to coming of the next major upgrade to the mission payload on the aircraft, namely, a multi-INT capability.

The sixth takeaway is that there is clearly a cultural learning process as well. The MPA community has operated throughout its history based on a concept of operations driven by air sortie operations. The Triton is based on a multi-airplane orbit concept of operations which yields a very different data stream than one gets from an air sortied aircraft. And it is one which is layered between what the space systems deliver and what the sortied air collection platforms can deliver.

The seventh takeaway is that the flying side of the house is a work in progress. Notably, with the weather challenges in the Pacific, learning how to manage weather avoidance for a remotely piloted aircraft is a work in progress.

The eighth takeaway is that the Triton in common with other software upgradeable platforms faces the challenge of concurrency between simulators and operational platforms. The operational platform gets and upgrade earlier than the simulators, but the time lag is greater than it should be to close the concurrency gap as efficaciously as possible.

The ninth takeaway is that the Triton community is starting to build some experiential depth, the kind of depth crucial for the knowledge revolution which the Triton can bring to the fleet. And given that the Triton is engaged in tasking, collecting, processing, exploitation and dissemination of information in real time, learning how to do this for the fleet is a crucial challenge facing the future of a kill web enabled force.

And looking forward, as the Triton gains multi-INT capabilities, it will become a more effective platform to contribute to the collaborative effort where multiple sensors can be cross-referenced to provide greater fidelity on targeting, and notably when it comes to smaller vessels of interest as well.

Editor's Note: Below are a number of Triton stories which provide further information with regard to VUP-19 as well.

U.S. Navy's Triton Unmanned Aircraft System Arrives in 7th Fleet

January 27, 2020

PEARL HARBOR, Hawaii – The Navy's first MQ-4C Triton unmanned aircraft systems (UAS) have arrived in Guam for their initial deployment in the Pacific theater.

Unmanned Patrol Squadron (VUP) 19, the first Triton UAS squadron, will operate and maintain two aircraft as part of an early operational capability (EOC) to further develop the concept of operations and fleet learning associated with operating a high-altitude, long-endurance system in the maritime domain.

The Tritons forward-deployed to Guam, both of which have arrived at Andersen Air Force base as of Jan. 26, will fall under Commander, Task Force (CTF) 72, lead for patrol, reconnaissance and surveillance forces in 7th Fleet.

"The introduction of MQ-4C Triton to the Seventh Fleet area of operations expands the reach of the U.S. Navy's maritime patrol and reconnaissance force in the Western Pacific," said Capt. Matt Rutherford, commander of CTF-72. "Coupling the capabilities of the MQ-4C with the proven performance of P-8, P-3 and EP-3 will enable improved maritime domain awareness in support of regional and national security objectives."

The Navy's Persistent Maritime UAS program office at Patuxent River, managed by Capt. Dan Mackin, and industry partner Northrop Grumman, worked closely with VUP-19 in preparation for EOC. Prior to flying the aircraft to Guam, the team completed extensive operational test and unit level training.

"This significant milestone marks the culmination of years of hard work by the joint team to prepare Triton for overseas operations," said Mackin. "The fielding of the Navy's premier unmanned aircraft system and its additive, persistent, multi-sensor data collection and real-time dissemination capability will revolutionize the way maritime intelligence, surveillance and reconnaissance is performed."

The MQ-4C Triton will conduct intelligence, surveillance and reconnaissance missions that will complement the P-8A Poseidon and will bring increased persistence, capability, and capacity through its multi-sensor mission payload.

"The inaugural deployment of Triton UAS brings enhanced capabilities and a broad increase in Maritime Domain Awareness to our forward Fleet commanders," said Rear Adm. Peter Garvin, commander, Patrol and Reconnaissance Group. "VUP-19, the Navy's first dedicated UAS squadron supported by an outstanding NAVAIR and industry team, is superbly trained and ready to provide the persistent ISR coverage the Navy needs."

Initial operational capability will include four air vehicles with capacity to support 24/7 operations.

Jacksonville-Based Unmanned Patrol Squadron Changes Commanders

From Commander, Naval Air Force Atlantic Public Affairs

April 30, 2020

Jacksonville, Florida (NNS) — The commanding officer of the Navy's Unmanned Patrol Squadron (VUP) 19, transferred leadership during the time-honored change of command ceremony, April 30 aboard Naval Air Station (NAS) Jacksonville.

The time-honored tradition of the change of command traces its origins back to long before the United States became a nation. It serves as an in-person handoff from one commander to another in a show of unity, good order and coordination in front of those under the command.

Cmdr. Kim DaCosta-Azar, a native of Tarrytown, New York, turned over responsibility to Cmdr. Michael Minervini, a native of Chicago, after two years of leading the command of more than 500 Sailors.

DaCosta-Azar served a unique role by leading a geographically dispersed command in NAS Jacksonville and detachment sites in Andersen Air Base, Guam and Naval Base Ventura County Point Mugu, California. Her leadership contributed to the squadron's first certification for deployment. Additionally, she is responsible for the operations of the Broad Area Maritime Surveillance Demonstrator (BAMS-D), the predecessor to the MQ-4C Triton Unmanned Air System (UAS).

According to DaCosta-Azar, the past two years has been about building a foundation for the Navy's very first MQ-4C squadron. During this time VUP-19 accomplished many milestones to include the establishment of the following positions: Air Vehicle Operators (AVO), Tactical Coordinators (TACCO), Mission Payload Operators (MPO), and Triton maintainers in support of fleet operations.

DaCosta-Azar added that flying Triton is very different, "while the basics of the piloting are the same, there is a complexity that comes with fly unmanned aircraft." Nearly 100 AVOs and MPOs have qualified under her command.

"The people are what make Triton successful, my personnel do extraordinary things with challenging resources, because this is not your typical aerial platform," said DaCosta-Azar. "I cannot express in words how proud I am of the Big Red Team. We are charting a new course in Naval Aviation. There has been a lot of discovery learning, but all of the Sailors of VUP-19 have answered the call at every turn to show up on station. We have arrived and I look forward to seeing what they will accomplish in the future under Commander Minervini's leadership."

DaCosta-Azar led her team Sailors through the first-ever operational readiness evaluation for Triton, executing over 300 flight hours of two MQ-4C aircraft, and established permanent presence for the unmanned system in the U.S. 7th Fleet area of responsibility.

Following her assignment at VUP-19, DaCosta-Azar will report to the U.S. State Department to work for the Bureau of International Security and Nonproliferation in the Office of Counter Proliferation Initiatives.

Minervini praised his predecessor for her sound leadership and impact she had on the community.

"Skipper DaCosta-Azar transformed both VUP-19 and the future of the MQ-4C Triton," said Minervini. "Doubtlessly, her leadership proved critical in laying the foundation for Unmanned Aerial Systems as a new problem-set for America's enemies and a boon to Naval Aviation."

VUP-19 was established on Oct. 1, 2013 and commissioned three years later as the U.S. Navy's first unmanned maritime patrol squadron, VUP-19 draws its lineage from and honors the rich history of Patrol Squadron (VP-19) "Big Red" legacy. The squadron reports to Commander, Patrol and Reconnaissance Wing (CPRW) 11, which is also based aboard NAS Jacksonville. The mission of VUP-19 is the sustained deployment of the MQ-4C Triton in support of Combatant Commanders around the globe.

Navy MQ-4 Triton Flying Operational Missions From Guam

By Gidget Fuentes

USNI News

May 12, 2020

Almost three months after arriving in Guam, a pair of MQ-4C Triton autonomous, unmanned aircraft have integrated into fleet operations and training flights and stretched the Navy's maritime domain awareness across the Indo-Pacific, according to the Navy.

The Navy is counting on the Triton, which can operate at greater than 50,000-foot altitudes and at the 2,000-mile-plus range, to provide an unmanned platform for persistent, maritime intelligence, surveillance, and reconnaissance capabilities and work alongside its manned fleet of reconnaissance and surveillance patrol aircraft. The Tritons with Unmanned Patrol Squadron 19 – the Navy's first unmanned aircraft squadron – arrived in Guam in late January to support CTF-72, which oversees the patrol, reconnaissance and surveillance force in the U.S. 7th Fleet region.

"Bringing Triton forward creates a complex problem set for our adversaries," Cmdr. Michael Minervini, VUP-19's commanding officer, said in a statement.

"Our ability to provide persistent ISR to fleet and combatant commanders is unmatched in naval aviation."

Along with supporting current operations for several Indo-Pacific-based task forces, one Triton drone recently joined in a "close formation" taxiing along with more than a dozen manned aircraft prior to takeoff at Anderson Air Force Base, Commander Task Force 72 officials said.

The radar and sensors-packed Triton drones have been operating from Anderson AFB to provide, according to the Navy, an "early operational capability (EOC) to further develop the concept of operations and fleet learning associated with operating a high-altitude, long-endurance system in the maritime domain." Tritons' onboard sensors and radar can track ships at sea, match tracks with automated identification systems and relay that information to shore-side bases or nearby aircraft, for example.

While the Tritons fly from Guam, the "Big Red" squadron of 300 personnel isn't based in Guam.

A group of VUP-19 aircrew and maintainers are forward-deployed to Guam, but squadron officials and mission operators are based at VUP-19's home at Naval Air Station Jacksonville, Fla., and a permanent detachment including maintenance personnel reside at NAS Point Mugu, Calif.

The Challenge of Manning, Training, and Equipping Maritime Patrol and Reconnaissance Forces for the New Strategic Environment

07/02/2020

Earlier this year on March 12, 2020, Capt. Matthew Pottenburgh became the 58th Commodore in charge of Patrol and Reconnaissance Wing Eleven.

In an article by Lt. Zachary Galcynski, the Wing Eleven Public Affairs Officer, the event was highlighted as follows:

The Navy's Patrol and Reconnaissance Wing (CPRW) Eleven held a change of command ceremony aboard Naval Air Station (NAS) Jacksonville, March 12.

Vice Adm. DeWolfe Miller III, commander, Naval Air Forces/commander, Naval Air Force, U.S. Pacific Fleet, served as the guest speaker for the ceremony and highlighted the accomplishments of Capt. Craig Mattingly during his tenure, and welcomed Capt. Matthew Pottenburgh as the 58th commodore.

"He's a 'mission first – people always' leader and when he says, 'take care of your Sailors and families and they will take care of the mission' he means it," said Miller. "He walks that walk and has walked that walk ever since his first day as an enlisted Sailor in 1987."

Rear Adm. Peter Garvin, commander, Patrol and Reconnaissance Group, served as the presiding officer for the ceremony and discussed the stalwart professionalism, inspirational leadership, and operational focus exhibited by both Mattingly, and Pottenburgh.

"Patrol and Reconnaissance Wing Eleven has been very well served by Capt. Mattingly during his time in command, and we look forward to continuing that brilliant record of success under Capt. Pottenburgh," said Garvin.

Mattingly, a native of Austin, Kentucky, left the family dairy farm in 1987 to enlist as an aviation anti-submarine warfare operator in the Navy. He is a 1995 graduate of the United States Naval Academy where he received a Bachelor of Science degree in Oceanography. He also holds a Master of Science in National Security Strategy from National Defense University in Washington, D.C.

He took command of CPRW-11 as the 57th commodore in June 2018 and reflected on his time in command.

"I am proud to have led this great team. I can only ask that you continue to strive to be a competent, professional force which has no equal; that you lead Sailors with compassion, that you excel in the air, and that most of all, you continue to be better today than yesterday," said Mattingly. His flying tours include Patrol Squadron (VP) 50 during his enlisted days, and as a Naval Flight Officer (NFO) with VP-8 and VP-26 aboard NAS Brunswick, Maine, as a fleet instructor with VP-30, NAS Jacksonville and command of VP-9 at Marine Corps Air Station Kaneohe Bay, Hawaii to name a few.

As he thought about his original plans following the 2018 change of command and to present day, Mattingly reflected on the wing's accomplishments. "Our focus will be to take care of our most precious assets, the men and women of CPRW-11. We will sustain current readiness of our P-8A squadrons and reserve P-3C squadron while incorporating the MQ-4C Triton in to the maritime patrol and reconnaissance force," said Mattingly.

During his tenure, Mattingly oversaw continuous squadron deployments, along with supporting Mobile Tactical Operations Centers engaged in various areas of responsibility.

Pottenburgh, a Galena, Ohio native, assumed command of the largest P-8 Poseidon, P-3 Orion and MQ-4 Triton Wing from Mattingly, who has commanded CPRW-11 over the last 21 months. Pottenburgh addressed the ceremony attendees and discussed the focus of the Wing after assumption of command.

"We will continue to man, train, equip, and operate combat-ready and lethal Maritime Patrol and Reconnaissance Forces who are ready to deploy to any corner of the globe," said Pottenburgh. "We will continue to deter aggression and maintain freedom of the maritime domain."

In 1996, Pottenburgh commissioned as an Ensign earning his Wings of Gold upon completion of Naval Flight Officer training in May 1997. Pottenburgh holds a Bachelor of Science in Industrial Design, a Master of Science in Operations Management from the University of Arkansas and a Master of Science in National Resource Strategy from the National Defense University of Dwight D. Eisenhower School. His recent flying tours include VP 40, VP-47 and command of the VP-5 "Mad Foxes" aboard NAS Jacksonville.

After relinquishing command at CPRW-11, Mattingly will serve as the Executive Assistant for the Deputy Chief of Naval Operations for Operations, Plans, and Strategy (OPNAV N3/N5) at the Pentagon in Washington D.C.

CPRW-11 squadrons include Patrol Squadrons (VP) 5, VP-8, VP-10, VP-16, VP-26, VP-45 and VP-62, along with the Unmanned Patrol Squadron (VUP-19).

There are two Patrol and Reconnaissance Wings in Florida and Washington State, composed of 14 Patrol and Reconnaissance squadrons. There is a single Fleet Replacement Squadron located in Jacksonville, FL.

Patrol and Reconnaissance Wings serve as the Navy's premier provider for airborne Anti-Submarine Warfare, Anti-Surface Warfare, and Maritime Intelligence, Surveillance, and Reconnaissance operations.

But what does it mean to man, train and equipping the Maritime Patrol and Reconnaissance Forces for the new strategic environment?

During my recent visit to Jax Navy, I had a chance to talk with Capt. Pottenburgh, Commodore of Patrol and Reconnaissance Wing ELEVEN, and Captain T. J. Grady, Commanding Officer of VP-30 and the Triton Fleet Introduction Team. The two leaders have worked together on and off again throughout their careers and that collaboration informs and helps synchronize their current efforts as well. And both early on were part of the transition from P-3 to the P-8 and involved in the "training wheels" phase of P-8 development from 2012 through approximately 2017 and the next phase of the deployment of a global fleet and fleet wide modernization efforts since that time.

There were a number of takeaways from our conversation which provide an understanding of one might effectively answer the question posed above. I am not going to quote Captain Pottenburgh and Captain Grady directly, but will identify what I learned from that conversation.

Obviously, introducing a significantly different aircraft from the P-3, one which operates most effectively embedded in networks, is a challenge. It is challenge on several levels.

The first challenge is working through the kinks in the aircraft itself and getting that aircraft fully functional to deliver the baseline capabilities which the aircraft as a fleet might provide.

That takes time for the operators, the operational crew and the maintainers, to gain the experience to inform the engineers and the contractors of what needs to be fixed, improved or replaced.

That initial phase has been completed, but because it is a software upgradeable aircraft, there is an ongoing quality of what will change onboard the aircraft to adjust to the kill web operational realities of the aircraft within the fleet going forward.

The second challenge is training to operate an aircraft operating with a very different concept of operations than the P-3 which operated "alone and unafraid."

Given the nature of the operational capabilities of the aircraft, and how the cabin is configured for operators, there has been a learning process to sort through the kind of crewing and squadron size most effective.

This phase is now under the belt for the Maritime Patrol and Reconnaissance community.

And operating the aircraft over time has led to different crewing approaches as well.

When we visited Jax Navy in 2016, there were five work stations onboard the aircraft. This now has been increased by one, or to having six work stations onboard the aircraft. They have added a second Electronic Warfare Operator or EWO to the operational crew onboard the P-8.

The third challenge is to adapt the enterprise not simply the P-8 as a platform.

Clearly, mastering an ability to operate the P-8 as a platform and one embedded in a kill web is the bedrock from which enterprise management can then be addressed. But because this is a sensor generating, receiving and embedded platform which is both a sensor and shooter, but a sensor-

shooter that can enable third party targeting, the enterprise is an important part of the man, train and equip function as well.

Part of this challenge is to work ways to manage data much more effectively in support of the MPA fleet as well as the larger joint combat force.

This has led to the standing up of Tactical Operations Control Squadron (TOCRON) 11 as part of the Patrol and Reconnaissance Wing as well. This command is operational this month and is the latest member of CPRW-11. The squadron is tasked with data support and management for CPRW-11. They are tasked with imaging all of the fleet's mission systems hard drives, and data with regard to software, mission planning and the flight profiles of the fleet. They are the key enabler to maritime patrol's Tasking, Collection, Processing, Exploitation, and Dissemination (TCPED) process, which helps drive the intelligence analysis cycle.

With the increase in mission system's capability and increasing integration into the joint kill web, the MPRA community clearly relies on TOCRON with a P-8 enabled MPA force.

The fourth challenge is standing up of the Triton squadron and working the challenge of the co-development of Triton with the P-8 to deliver the common operating picture enabling the kill web force.

The Triton is the new kid on the block and is working through the "training wheels" phase much like the P-8 faced earlier.

But the Triton poses other challenges associated with the evolving nature of the enterprise.

How to manage orbital concepts of operations along with more traditional sortie generation operations by manned aircraft?

While the P-8 can operate with autonomy and networkability, the Triton is network generating and enabling asset. CPRW-11 and VP-30 works cross training for the operators for the P-8 and Triton, as the Navy does want to create an isolated remote piloted operating community.

The Triton puts significant demands on the wave forms and networks enabling the Maritime Patrol and Reconnaissance and the equip function here certainly reaches beyond what the P-8 and Triton platforms organically carry themselves.

I have referred elsewhere as Triton being an example of manned-unmanned teaming but it was suggested in this conversation that there was a better way to put this idea.

What is being shaped are coordinate operations between the two platforms, where the Triton can sweep the field of operations to identify targets and allow the P-8s to focus on those targets and to focus their activity from take-off on where they need to go and what they need to do.

By training operators in both Triton and P-8 operations, crews gain first hand access to the wider range vision which Triton delvers compared to P-8.

In short, the evolution of the Maritime Patrol and Reconnaissance community poses significant challenges in mastering evolving platforms, notably ones designed to work together.

But even greater challenges are posed by the question of training for how that community operates within a distributed maritime force to deliver integrated effects.

Editor's Note: Recently, VP-30 received the 100th Poseidon aircraft.

In a Navy article published on May 15, 2020, the event was underscored as follows:

JACKSONVILLE, Fla. (NNS) — The Navy's 100th P-8A "Poseidon" was delivered to Patrol Squadron (VP) 30 at Naval Air Station (NAS) Jacksonville, May 14.

In July 2004, the Navy placed its initial order of P-8A aircraft to replace the venerable Lockheed Martin P-3C Orion, which has been in service since 1962. The Maritime Patrol community began transition to the P-8A in 2012. The delivery of the 100th P-8A coincides with VP-40's successful completion of the 12th and final active component squadron transition to the Poseidon.

The final transition concluded amidst a global pandemic, which could have halted or delayed the schedule, however, VP-40 remained on track.

"We finished up VP-40's transition this month, and it has been a challenge. Despite the travel restrictions, the additional required procedures, and the aircraft transfers, VP-30 answered the call. The VP-30.1 detachment at NAS Whidbey Island, Washington was grinding every day to keep the transition on schedule," said VP-30 Commanding Officer Capt. T. J. Grady.

The P-3C to P-8A transition has been on glideslope, on course, maintaining the original schedule over the last seven years, all while continuing to meet VP Global Force Management and deployment obligations.

"The P-8A program has delivered ahead of schedule and under budget since its inception, which is why the delivery of the 100th P-8A is such a significant milestone," said Rear Adm. Pete Garvin, commander, Patrol and Reconnaissance Group.

Between January 2016 and now, the P-8A fleet has grown from 33 to 100. The U. S. Navy is on contract to deliver a total of 117 P-8As in support of a larger fleet.

VP-30, the "Pro's Nest," is the U.S. Navy's Maritime Patrol and Reconnaissance Fleet Replacement Squadron (FRS). VP-30's mission is to provide P-3 specific training to pilots, naval flight officers, and enlisted aircrew prior to reporting to the fleet. More than 650 staff personnel train over 800 officer and enlisted personnel annually, utilizing 21 P-3 aircraft.

And in a June 6, 2019 article, the way ahead was highlighted for VP-30.

As the Fleet Replacement Squadron (FRS) for the MPRF, Patrol Squadron THIRTY (VP-30) is ground zero for new developments.

The VP-1 "Screaming Eagles" are the latest to receive training on the P-8A. With VP-1 complete, there are only two active duty VP squadrons still flying the P-3, one of which is currently transitioning.

This winter, VP-30 graduated the very last class of P-3 pilots it intends to send to the Fleet. There remains a small cadre of pilots who will continue to train students on the electronic intelligence-gathering variant of the P-3 — the EP-3 — but from this year forward almost all students at VP-30 will be trained solely on the P-8.

"It's exciting to see firsthand how the community is changing," said LCDR Darryl Abriam, the Student Control Officer at VP-30.

The EP-3 will remain in service until the full integration of the MQ-4C Triton, an Unmanned Aerial System (UAS). The Navy just broke ground on a new facility for Unmanned Patrol Squadron ELEVEN (VUP-11) at Naval Air Station Whidbey Island.

In a US Navy article by June 17, 2020 by Cmdr. Jennifer Cragg, the standing up of the new TOCRON 11 command was highlighted.

JACKSONVILLE, Fla. – Tactical Operations Control Squadron (TOCRON) 11 took the first step toward standing up as an official command aboard Naval Air Station (NAS) Jacksonville, June 17.

Capt. Matthew Pottenburgh, commander, Patrol and Reconnaissance Wing (CPRW) 11 served as the guest speaker at the assumption ceremony welcoming the command's first commanding officer, Cmdr. Anne Gilson.

"This is a watershed moment for the Maritime and Patrol Reconnaissance Force to welcome Tactical Operations Control Squadron 11 officially to Naval Air Station Jacksonville," said Pottenburgh.

As of June 2020, 179 personnel, to include 26 officers and 153 enlisted personnel, have reported to TOCRON-11 commanded by Gilson who is from Concord, N.C.

"As the first commanding officer of TOCRON-11, I am proud to serve alongside such committed and dedicated Sailors in this critical mission," said Gilson. "Our efforts provide the Maritime Patrol and Reconnaissance Force with robust, agile, and reliable Tactical Operation Centers to maximize maritime domain awareness, command and control, and lethality."

Assuming command of TOCRON 11 marks the first commanding officer position in her 17-year career. Upon assuming command, she will wear the command pin, established in 1960 to recognize the responsibilities placed on those officers of the Navy who are in command.

"We are committed to the success and wholeness of the entire P-8A fleet and aim to unite MPRF against any and all adversaries by expanding situational awareness throughout the globe," said Gilson.

CPRW-11 squadrons include Patrol Squadrons (VP) 5, VP-8, VP-10, VP-16, VP-26, VP-45, VP-62, Unmanned Patrol Squadron (VUP-19), and TOCRON-11.

There are two Patrol and Reconnaissance Wings in Florida and Washington State, composed of 14 Patrol and Reconnaissance squadrons, one Fleet Replacement Squadron and over 45 subordinate commands.

Patrol and Reconnaissance Wings serve as the Navy's premier provider for airborne Anti-Submarine Warfare, Anti-Surface Warfare, and Maritime Intelligence, Surveillance, and Reconnaissance operations.

Finally, this is how the US Navy describes the command:

Patrol and Reconnaissance Wing Eleven's history and reputation are unparalleled. Commissioned on Aug. 15, 1942 at Norfolk, Va., Patrol Wing Eleven relocated five days later to San Juan, Puerto Rico to provide support for allied shipping convoys in the Navy's Caribbean Sea Frontier. As the Navy overcame Germany's Atlantic/Caribbean U-boat campaign, Wing Eleven PBY-5Ns patrolled a million square miles of ocean, providing spotting and assistance to scores of wounded allied ships and sinking 10 German submarines while damaging 18 others.

The post-World War II drawdown culminated for Wing-11 in 1950 with a homeport shift to NAS Jacksonville and a transition to the P-2V Neptune. Throughout the decade, Wing-11 squadrons continued to patrol vast areas in support of long-range reconnaissance and fleet exercises. Operational commitments grew as the Cold War intensified and Maritime Patrol Aviation (MPA) continued to refine warfighting competencies in anti-submarine warfare (ASW), aerial mine warfare, search and rescue, and aerial photographic intelligence.

MPA excellence continued in the 1960's with Wing-11 aircraft on-station for the recovery of our first astronauts and in support of President Kennedy's quarantine of Cuba at the height of the 1962 Missile Crisis. By 1970, Wing-11 squadrons had transitioned to the P-3 Orion. In the years that followed, Wing-11 squadrons recorded thousands of hours 'on top' of Soviet submarines in Cold War operations from Greenland, Iceland, Bermuda, Ascension, the Canary Islands and Azores, and bases throughout the Mediterranean.

Wing-11 units met the challenge of the immediate post-Cold War period, supporting Operation Desert Shield/Storm, establishing an airborne presence during the Balkan Wars of the 1990's, and supporting counter narcotics efforts in the Southern Hemisphere. The Navy formally recognized the close link between VP and VQ missions in 1998, bringing Fleet Air Reconnaissance Squadron Two (VQ-2) into Wing-11 and amending the command name to Commander, Patrol and Reconnaissance Wing-11.

Wing-11 units continue to excel in multi-mission roles. P-3 Aircraft Improvement Program (AIP) delivers traditional maritime capabilities, real-time intelligence, surveillance, and reconnaissance (ISR), and standoff land attack missile (SLAM) capability to theater and fleet commanders. Wing-11 units proved their continued relevance and vitality during operations over Kosovo in 1999 and in subsequent stabilization efforts there.

The terrorist attacks of Sept. 11, 2001 signaled a new focus for Wing-11 units. In addition to traditional missions, units support homeland defense and the Global War on Terrorism in Operations Vigilant Shield and Enduring Freedom respectively. During Operation Iraqi Freedom, Wing-11's VP-45 was the first east coast squadron to establish a permanent detachment site in Iraq, flying combat missions in direct support of the troops on the ground.

Additionally, supporting Department of Defense's initiatives, Wing-11 transferred administrative control of VQ-2 to Wing-10 in Whidbey Island, Wash., and subsequently acquired Jacksonville's Aviation Support Detachment. The BRAC decision in 1995 to shut down NAS Brunswick forced a major transition for Wing-11 with the arrival of Brunswick's four squadrons beginning with VP-8 and VPU-1 in June 2009. Today, eight squadrons and Aviation Support Detachment fall under Wing-11, making it the first "Super Wing" in Maritime Patrol and Reconnaissance history.

Wing Eleven's squadrons include VP-5, VP-8, VP-10, VP-16, VP-26 and VP-45. Additionally, the unmanned patrol squadron is VUP-19.

Visiting the Seahawk Weapons School: Insights in the Way Ahead for the Fleet

07/08/2020

Living Inside the Beltway, one would clearly miss how to understand how the Romeo helicopter, a variant of the Seahawk helicopter, in expanding the envelope of fleet defense, was itself part of how one might reconsider the way ahead for the fleet.

The Romeo is the successor of the Bravo variant of the Seahawk.

An Australian article published in 2017 at the time of the Avalon Air Show highlighted the transition:

The Navy's Sikorsky S70-B2 Seahawk – known as the 'Bravo' – is winding down operations. Its replacement is the modern, fifth generation MRH-60 Seahawk 'Romeo'.

Both helicopters are on display at the Avalon – the new Romeo will be flying, while the older Bravo is on static display.

Lieutenant Luke Mein, an instructor, has been inundated with questions about the Bravo while manning the stand at Avalon.

"The Bravo had always been a capable workhorse, but the new Romeo is a quantum leap forward in terms of warfighting capability," Lieutenant Mein said.

"Navy has placed a heavy focus on a strategic planning cycle to make sure assets were replaced in a timely fashion," he said.

Petty Officer Aircrew Jason Wikman is also a Bravo instructor who is at Avalon this week assisting at the Navy display.

"She might be an aging helicopter but people are still very interested to know all about her," Petty Officer Wikman said.

"As an instructor I believe the training involved to the transition from the Bravo to Romeo has delivered a skilled and flexible aviation workforce to the Navy," he said.

Lieutenant Mein and Petty Officer Wikman are among about a dozen Navy aviators who are still flying the Seahawk Bravo. Both will transition to the new Romeo variant.

Navy has purchased 24 of the Romeos, which are now in-service operating out of 725 and 816 Squadrons at HMAS Albatross in Nowra, New South Wales.

The primary mission of the Romeo helicopter is anti-submarine warfare and anti-surface warfare. Secondary roles include search and rescue, logistics support, personnel transport and medical evacuation.

With a twin turboshaft engine, the Seahawk is based on the US Army's UH-60 Black Hawk design. It is able to deploy from a range of surface ships.

The Seahawk boasts an impressive pedigree, and has been exported from the United States to serve with various armed forces around the world.

From a platform perspective, the shift from the Bravo to the Romeo is one which brings significant upgrades in terms of sensor and data processing capabilities.

Navy Recognition describes the Romeo systems as follows:

The MH-60R avionics includes dual controls and instead of the complex array of dials and gauges in Bravo and Foxtrot aircraft, 4 fully integrated 8″ x 10″ night vision goggle-compatible and sunlight-readable color multi-function displays, all part of glass cockpit produced by Owego Helo Systems division of Lockheed Martin.

The Lockheed Martin Common Cockpit™ enables MH-60R and MH-60S aircrews to perform diverse missions, including anti-submarine warfare, anti-surface warfare, combat search and rescue, vertical replenishment, and airborne mine countermeasures.

Onboard sensors include: AN/AAR-47 Missile Approach Warning System by ATK, Raytheon AN/AAS-44 electro-optical system that integrates FLIR and laser rangefinder AN/ALE-39 decoy dispenser and AN/ALQ-144 infrared jammer by BAE Systems, AN/ALQ-210 electronic support measures system by Lockheed Martin, AN/APS-147 multi-mode radar/IFF interrogator, which during a mid-life technology insertion project is subsequently replaced by AN/APS-153 Multi-Mode Radar with Automatic Radar Periscope Detection and Discrimination (ARPDD) capability, and both radars were developed by Telephonics, a more advanced AN/AQS-22 advanced airborne low-frequency sonar (ALFS) jointly developed by Raytheon & Thales, AN/ARC-210 voice radio by Rockwell Collins, an advanced airborne fleet data link AN/SRQ-4 Hawklink with radio terminal set AN/ARQ-59 radio terminal, both by L3Harris, and LN-100G dual-embedded global positioning system and inertial navigation system by Northrop Grumman Litton division.

For naval combat missions, the MH_60R can be armed with AGM-114 Hellfire air-to-surface missiles to perform anti-surface warfare missions. It can be also armed with ATK mk50 or mk46 active/passive lightweight torpedoes to conduct anti-submarine warfare. Fort its self-defense, the MH-60R is equipped with pintle-mounted 7.62mm machine gun.

But if one visits the Seahawk Weapons School, Atlantic, with a kill web-oriented P-8 WTI instructor, the aperture opens up considerably with regard to thinking about the integrability context and what the impact of the platform in a broader, "no platform fights alone context, might mean.

During my visit to Jax Navy and Mayport during the week of June 14, 2020, I visited the Helicopter Sea Combat Weapons School Atlantic with my host, Lt. Lt. Jonathan Gosselin, a P-8 Weapons and Tactics Instructor at the Maritime Patrol Reconnaissance Weapons School.

I had a chance while visiting Mayport to talk with Colin Price, who is the Weapons School Standardization Officer responsible for working to shape and support TTP standardization within the fleet.

He is also a next generation officer so to speak in that he is neither a Cold Warrior nor a land warrior.

He has come to the fleet, when the focus is clearly upon the new strategic environment and dealing with the new world of surface and anti-submarine warfare, and within the extended battlespace in the sea-air domain.

He has been posted to Japan where he worked the Romeo with the new Naval assets which came to Japan, the new generation Hawkeye and the F-35. With regard to the new generation Hawkeye,

Price underscored how important cross learning in the flight line is for tapping into the potential for a new platform and sharing knowledge of how your platform might contribute to the success of the new platform, notably with an integratability focus.

With regard to the F-35, the Marines had brought the F-35 Bravo to Japan, and the Romeo squadron flew down to their base and engaged in cross learning. As Price put it: "It is important to open communication with the operators of a new platform, to have the kind of cross-learning which can shape more effective concepts of operations, and to get the full combat capability from your platform and the new one."

With regard to getting better value out of the Romeo, Price pointed out that the AN/ALQ-210 Electronic Support Measures System on the Romeo can contribute significantly to EW combat as well, and the Romeo community has recently increased its focus on improving their capabilities with regard to this mission set.

As the focus shifts to distributed EW in the force, and away from a primary reliance on a specialized EW platform, then learning how to tap into an integrated EW capability distributed within the force is a key task, one to which the Romeo community can contribute to significantly.

To do so, will require shaping the kind of architecture which can more effectively network EW capabilities across the fleet.

But the Romeo can provide a significant contribution here, notably when ships are operating in congested waters or close in transit points where fast jets are of more limited value in the EW role.

The basic function of the Romeo is to provide the "Paul Revere" role for the fleet.

The Romeo's systems are critical ones for closer in support to the fleet, given the ability of its dipping sonar when combined with the processing power onboard the aircraft to provide rapid warning to the fleet of impeding threats.

As the US Navy works to shape an interactive kill web force, a key challenge will be to more effectively manage what integratable sensor networks can deliver to the fleet and to the force. Lt. Gosselin put the challenge in a particularly clear fashion.

Lt. Price argued that when working a Romeo with a P-8, for example, it is important to be able to share track data for a dynamic targeting solution, and especially so, if that track data would be used by a third party to deliver the targeting solution.

Lt. Gosselin underscored that the challenge can be seen as one of layering and sequencing. "How do we layer most effectively our sensors to the point where we get the best quality of target tracks?"

With regard to sequencing: "How do we sequence most effectively so that we can maintain a consistent track over a long period of time?"

This might be seen as a tactical challenge but it is clearly one which delivers strategic consequences, notably in terms of determining which targets are the ones which the commander wants to prosecute, and which ones he does not.

It is clear that this is a kill web approach being forged at the source.

In this case, it is the P-8 and Romeo communities working to sort through how to work more effectively as an integrated capability for the offensive-defensive enterprise which the Navy needs to deliver in the peer fight and operating in the extended battlespace.

LT Colin Price

Qualified as a Seahawk Weapons and Tactics Instructor (WTI) on May 1st, 2018. Previously he served with Helicopter Maritime Strike Squadron 77 (HSM-77) and Carrier Air Wing 5 (CVW-5) with Forward Deployed Naval Forces (FDNF) Japan from 2015-2018, completing 6 deployments embarked on the USS George Washington (CVN-73), USS Ronald Reagan (CVN-76) and the USS Chancellorsville (CG-62).

He currently serves as the Air Combat Training Continuum Program Manager for the MH-60R Atlantic Wing. To execute these duties Lt. Price standardizes syllabi, update qualification programs, and routinely inspect squadrons and evaluate aircrew across the Wing to ensure tactical excellence and compliance with tactics, techniques and procedures.

He recently served as the Helicopter Advanced Readiness Program (HARP) Officer. As HARP Officer, he led, planned and organized the HARP syllabus of instruction, which is required for squadrons to complete during the basic phase of the pre-deployment workup cycle. It includes an academic, simulator, and flight phase, where MH-60R combat crews learn and demonstrate the latest tactics, techniques, and procedures before deployment.

He also serves as the Night Systems Program Manager for the MH-60R Atlantic Wing. To execute these duties, Lt. Price writes the syllabus for night tactical formation flight, instructs and evaluate pilots and aircrew in the night environment, and inspects squadrons to ensure proper documentation of qualifications.

Seahawk, Fire Scout and Shaping a Way Ahead for the Kill Web Force

During my visit to Jax Navy and Mayport, I had a chance to meet with the leaders of the Seahawk squadron at Mayport and will highlight those discussions in future articles. But also had the opportunity to talk via teleconference with CDR Gregory Knutson, the CO of the Helicopter Sea Combat Weapons School Atlantic or HSC Weapons School based in Norfolk.

My host, Lt. Jonathan Gosselin had arranged the discussion for a very good reason – not only is the Sierra and the Firescout working in innovative new ways to deliver the desired operational outcome, but there is an important potential to be unlocked by broadening the P-8s working relationship beyond Triton in terms of working with remotely piloted aircraft.

“Helicopter Sea Combat Weapons School Atlantic, established 10 June 2005, combined Weapons and Tactics Units of COMHSWINGLANT and COMHELTACWINGLANT to form a single shore-based command headquartered in Norfolk, VA. In 2016, the MH-53E Weapons and Tactics Unit was combined with HSCWSL. HSCWSL provides tactical training to Commander, Helicopter Sea Combat Wing Atlantic HSC and HM squadrons.”

https://www.public.navy.mil/airfor/hscwsl/pages/history.aspx

We discussed a number of issues regarding the Seahawk family of helicopters but I am going to focus primarily on one aspect of the CDR’s experience, namely working the Sierra helicopters with the Fire Scout remotely piloted aircraft. We discussed at some length how the two rotorcraft were working tighter off of Littoral Combat Ships.

For example, he explained that the Sierra’s and the Fire Scouts were operating off of LCS ships in support of security missions in the Caribbean. And in those missions, the force package was working in support of Joint Interagency Task Force South. This command is a multi-service, multi-agency task force based at Naval Air Station Key West and is under the command of a USCG officer.

The command provides a unified command and control for drug interdiction activities. And its C2 is supported by integrated ISR resources as well, and although focused on security missions provides an interesting model of how integration might proceed in other command areas as well.

In support of JIATF South, Romeos and Fire Scouts work together to prosecute the counter-drug mission. Based on a tasking from JIATF South, a potential counter-drug target is identified. The Fire Scout is sent out to verify that it is indeed a target which needs to be prosecuted. If confirmed, then the Sierra is sent out with a USCG sniper in the back of the helicopter to prosecute the drug smugglers.

The two rotorcraft operate from the LCS with a joint support crew of maintainers. The Fire Scout is managed from the LCS itself and the two rotorcraft work closely together to pursue and prosecute the identified target.

The Fire Scout can also be used to remote designate targets for other assets. For example, with regard to Sierras working with Fire Scout, they can remote designate targets for the Sierra's Hellfire missiles or APKWS rockets. This clearly is an important role in the Pacific and has been used in the past as well in the Mediterranean.

What Fire Scout and Sierras have achieved is an operational demonstration of ways remotes and manned assets can work together to prosecute missions. Certainly, a key way ahead for the P-8 would be to encompass Fire Scout operations as well as Triton operations as a way for paving a way ahead for the expansion of maritime remotes which can be anticipated in the decade ahead.

This is especially important given the challenge which small ships pose to combat ships as well as masking adversarial combat intentions and operations. Sorting through the chaff of maritime traffic and understanding how adversaries mask intentions and capabilities by using smaller ships is part of the challenge moving ahead.

By being able to use an evolving capability of remote sensing assets, the C2 capabilities afloat, in the air or ashore can be enhanced to make timely decisions with regard to desired security or combat outcomes. In other words, enhancing the capability to prevail in full spectrum crisis management.

CDR Gregory Knutson

Commander Greg Knutson, a 2001 graduate of the United States Naval Academy, completed flight training and was designated a Naval Aviator in 2003. His first assignment was with the World Famous Golden Falcons of Helicopter Anti-Submarine Squadron TWO (HS-2), supporting Operations UNIFIED ASSISTANCE and ENDURING FREEDOM while deployed aboard USS Abraham Lincoln (CVN-72).

CDR Knutson transferred from HS-2 to Helicopter Anti-Submarine Squadron TEN (HS-10), serving as the SUPERHAWK NATOPS Program Manager, a NATOPS evaluator and Fleet Replacement Squadron Instructor Pilot. During his tour at HS-10 he was selected as the Instructor Pilot of the Year, completed the Seahawk Weapons and Tactics Instructor course at the Naval Strike and Air Warfare Center, and completed his master's degree from the University of San Diego.

Following his assignment with the HS-10, he transferred to the staff of Carrier Airwing TWO (CVW-2), supporting Operation NEW DAWN while deployed aboard CVN-72.

After completing his Airwing Staff tour, CDR Knutson joined the "Red Wolves" of Helicopter Sea Combat Squadron EIGHT FOUR (HSC-84), one of only two US Navy squadrons dedicated to Special Operations support. While assigned to HSC-84, he completed three deployments supporting the Special Operations Command Central (SOCCENT) Crisis Response Element.

While deployed, he was the Navy Element Commander and Officer-in-Charge for Joint Special Operations Air Component Central, supporting theater Special Operations Forces.
Following his tour with the REDWOLVES, CDR Knutson was assigned to the Joint Chiefs of Staff Deputy Directorate for Nuclear, Homeland Defense and Current Operations (J-33) in the Intelligence, Surveillance and Reconnaissance (ISR) Division. He was subsequently selected as the Flag Officer's Executive Assistant for the Deputy Directorate of ISR operations (J-32), providing strategic advice to the Secretary of Defense, Interagency Leadership, the National Security Council and members of Congress.

https://www.public.navy.mil/airfor/hscwsl/Pages/cobio.aspx

The Seahawk in the Extended Battlespace

07/12/2020

During my visit to the maritime patrol reconnaissance community during the week of June 14, 2020, I had a chance to meet with the leadership of the HSM Weapons School, Atlantic based at Mayport.

According to the US Navy's description of the HSM Weapons School, Atlantic:

To counter small boat threats that began emerging in the early 1990s, the Helicopter Anti-Submarine Light (HSL) community began deploying helicopters armed with crew-served .50 caliber machine guns and AGM-114 Hellfire missiles.

This enhanced lethality required comprehensive weapons and tactical training, so the U.S. Atlantic Fleet HSL Wing Commander established a Weapons and Tactics Unit (WTU) manned by a select handful of highly specialized and trained pilots and aircrewmen. The resounding success of the WTU made it clear to the leaders of the helicopter community that centralized, standard training was the most efficient way to prepare combat detachments for sea.

Helicopter Maritime Strike (HSM) Weapons School Atlantic, was officially established as a new command on 18 May 2005. The HSM Weapons School serves as the Atlantic Fleet's center of tactical excellence for training and evaluation of Maritime Strike combat helicopter aircrews. It is responsible for developing and maintaining cost-effective, standardized tactical curricula, including academic, simulator, and flight events for the MH-60R Seahawk helicopter.

The squadron is organized into cells that specialize in the three primary HSM mission areas of Surface Warfare, Electronic Warfare, and Anti-Submarine Warfare. The Weapons School also provides training on conventional ordnance handling and loading, crew served and personal weapons, Low-Slow Flyer

Intercept, Maritime Interdiction and coordinates a multitude of tactical development and evaluation projects aimed at making a more lethal force.

The Weapons School staff is comprised of dedicated Officers, Enlisted, Department of Defense employees, and specialized contractors. Many of these men and women are designated Seahawk Weapons and Tactics Instructors (SWTI), or hand-picked leaders in their areas of expertise chosen for their superior warfighting skills and tactical insight.

All SWTIs are graduates of the "SEAWOLF" course, named after the venerable Helicopter Attack (Light) Three (HAL-3) squadron of Vietnam. SEAWOLF is an intensive 8-week certification process that includes classroom, simulator, and flight events conducted by the Naval Aviation Warfighting Development Center at Naval Air Station Fallon, NV.

SWTIs administer the Helicopter Advanced Readiness Program along with many other advanced training and certification exercises involving the United States and Allies all over the world. The Weapons School callsign is "MAULER" representing the tenacity and overwhelming power that our community brings to bear.

The squadron's motto is "Warrior Spirit" underscoring the focus and ferocity required to protect the United States of America from its enemies. HSM Weapons School Atlantic remains committed to elevating the tactical proficiency and lethality of combat aircrews at home and over the horizon.

In my discussion with CDR Nathaniel "Velcro" Velcio, the Commanding Officer of the School, we discussed the evolution of the community as the Navy has shifted from its support role in the land wars to operations in the extended battlespace against peer competitors.

The broad point driven home by the CO was that in the land wars, the carrier strike groups were focused on support for the land forces and as such operated close to land.

This meant that the Romeo version of the Seahawks were clearly focused on the protection of the strike group from close in threats, notably, small boats, and subsurface threats of various kinds.

With the shift to a primary concern for the fight at sea, the strike groups have an increased focus on long range surface warfare in addition to ASW. The Romeo is using its long range detection capability in support of the strike groups and is working as well with interactivity with other assets which can provide the longer range capabilities for the offensive-defensive force which a strike group represents.

This evolution is a work in progress, as the US Navy and its coalition partners and the joint force re-focus on the challenge of dealing with peer competitors.

We discussed a number of the aspects of the strategic shift underway, and I will highlight the takeaways which I brought from the conversation, but am not holding the CO accountable for my conclusions.

But what I would note, is that CDR Velcio (Seahawk) and Lt. Gosselin (P-8), who was my host for the visit, and participated in the discussion, are fully onboard with refocusing on the Navy's efforts to shape a lethal and effective kill web enabled force, and by so doing, are clearly rethinking how to use their respective platforms to support shaping a more integratabtle set of capabilities for the fleet and the coalition and joint force as well.

The first takeaway is the opportunity which better integration of an asset like the Romeo within the kill web approach can provide for the fleet.

With the legacy platform build approach, the focus has been upon data links from that platform to the force, without focusing on integrability.

The coming of the Minotaur front end to manage data streams into a single common operating picture is a key step forward to enhanced integrability which will then enhance the role of the Romeo in supporting the fleet as well.

As Rear Admiral Garvin put it: "The Minotaur Track Management and Mission Management system was developed in conjunction with the Johns Hopkins University Applied Physics Laboratory. Minotaur was designed to integrate sensors and data into a comprehensive picture which allows multiple aircraft and vessels to share networked information.

"It is basically a data fusion engine and like many software capabilities these days, doesn't physically have to present on a platform to be of use.

"These capabilities ride on a Minotaur web where, if you are on the right network, you can access data from whatever terminal you happen to be on."

Bringing the various wave forms into a single screen via Minotaur allows those data streams to come together and to shape a common operating picture. With the Minotaur web everyone has access to the same COP regardless of whether you are airborne or onboard a ship.

The second takeaway is that integrability requires training to achieve a common operating understanding as well. The P-8 and Romeo communities are now cross learning by putting their operators in each other's simulators, as well as focusing on more common cross-platform training in Florida as well.

Such cross training is reduced though by the fact that their simulators cannot work together. Clearly, as the US Navy pursues a kill web approach, clusters of platforms that are going to work together to shape a shared targeting solution, need to have their simulators integrate as well.

For example, the P-8, and Seahawk, with the coming of MQ-25 should be able to cross train in the synthetic environment.

And other new options, such as the Viper operating with Seahawk would be facilitated by integration in the synthetic or simulated environment as well.

The third takeaway is that integration of P-8. Triton, Seahawk and Vipers could provide a whole new role for the L class ships.

Rather than being greyhound buses, the new LHA's could spearhead a whole new sea denial capability. With Romeos onboard then their ability to integrate with Link-16 enabled Vipers could provide for data flowing from the P-8/Triton dyad and sensors on the MQ-25 to shape new capabilities, simply by wave form linkages, cross training, and new kill web enabled concepts of operations.

To be clear, integrated operations with L-16 enabled Vipers has the potential to enhance close in defense which is a key task, which frees up other assets to focus on longer-range surface warfare peer threats.

The fourth takeaway would be that platforms like the Romeo should have a seat at the table determining which passive sensors should go on platforms operating in the extended battlespace.

For example, the Navy is replacing the C-2 with the CMV-22B. But which passive sensors onboard the CMV-22B would be useful to provide data to the Romeo in its extended range EW/SUW role?

CDR Velcio put it: "We tend to focus on the sensors to be put under the glass.

"But what we should also focus on are the sensors that could be added to a platform, that the air crews will not be operating.

"We can get a significant combat effect by having the right sensors on a platform, but which do not require operational control by that platform's air crew."

A fifth takeaway is we could make much better use of the global partnerships enabled by a program like the Seahawk.

With regard to the Australians, their Romeos and the US Navy's are virtually the same and both forces are working common TTPs.

This also means for the Australians as they rethink the role of their amphibious ships, they can work Romeos with Vipers, if they choose to buy them, into a formidable capability flying off of an amphibious ship, now not just a greyhound bus, but a key part of a sea denial mission.

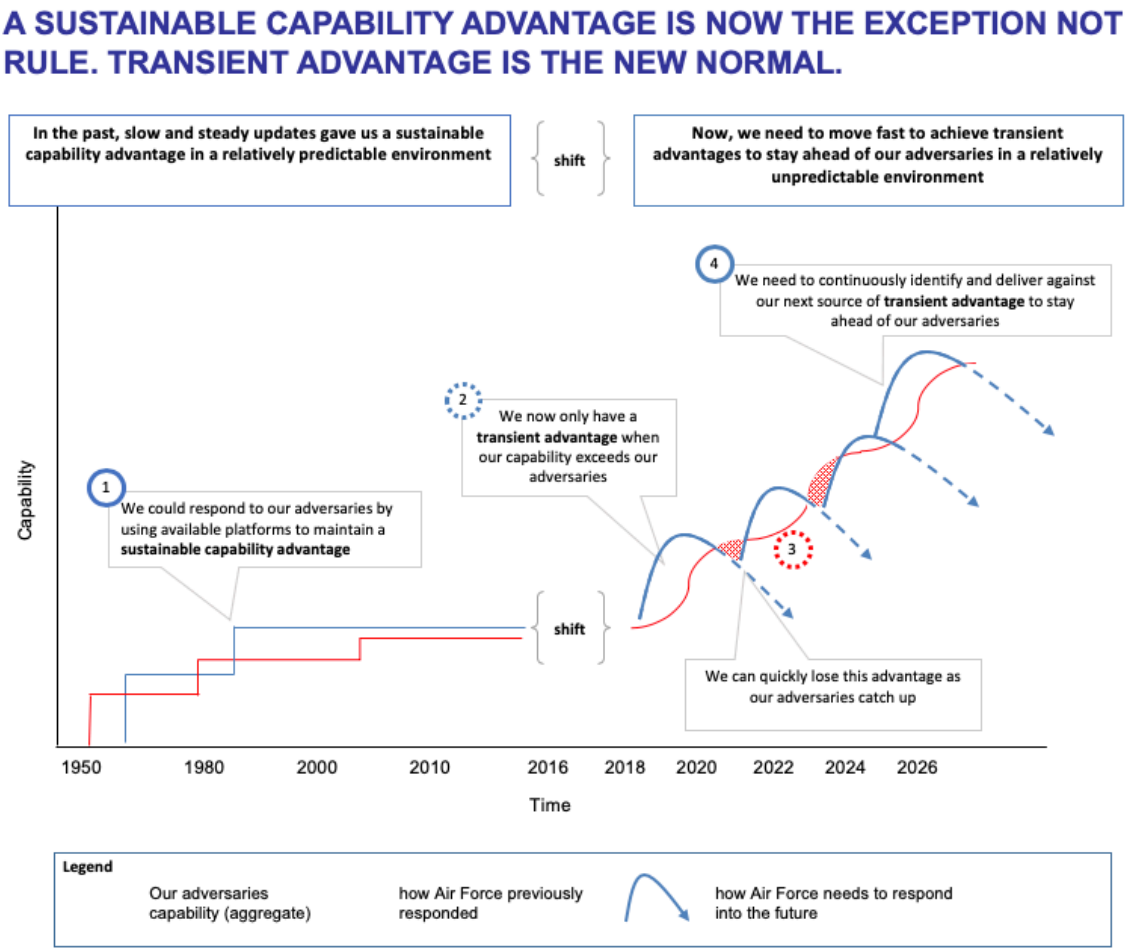
With regard to NATO, there is some commonality in operations. According to CDR Velcio, if the ally in question is operating a dipping sonar system, such as the Canadians do with Cyclone and the Brits do with Merlin.

In short, by shaping a kill web approach, one rethinks how an asset like the Romeo could be used much more effectively in support of the force in the extended battlespace.

And one can also focus on how individual platforms might be modernized more effectively but in terms of the pairings with the other platforms with which they operate and to ensure that they can work in a common synthetic environment as well.

Software, Operations, Training and Development: Working the New Combat Cycle for a Kill Web Force

04/26/2020



One of the changes facing the emergence of the kill web force is recognizing that it is already here.

The current situation reminds one of Molière's famous line spoken by his main character in his play on social relations in 18th Century France: "My faith! For more than forty years I have been speaking prose while knowing nothing of it, and I am the most obliged person in the world to you for telling me so."

As we build out an integrated distributed force, terms which have been used in the previous legacy military operation environment, like C2, networks, ISR and software, take on very

different meanings, and the legacy versus the kill web ways to talk about operations are also very different, but the terms look apparently the same, when they are not.

Software is a good case in point.

Our team has highlighted the importance of software upgradeability changing the nature of the modernization process of core platforms.

But seen within a platform disguises the true impact of being able to kill web wide innovations and modernizations which a new approach to code writing allows.

We have seen beginnings generated by new platforms like the Wedgetail, the F-35 and the P-8/Triton dyad, but these are just beginnings which lay down a way ahead.

Where we are headed is in a direction which could yield significant operational advantages whereby code re-writing is driven by operations and operations by training, and training driving development and looping back again into operations.

An aspect of this strategic shift is highlighted in the graphic at the beginning of this article which highlights the strategic opportunity to position one's forces for transient software advantage.

Recently, Lt. Sean Lavelle, a part of the P-8 Navy team, discussed one aspect of change driven by the impact of software upgradeability as a strategic shift in a podcast with Eric Lofgren.

According to Lofgren:

I was pleased to speak with Navy Lieutenant Sean Lavelle on the Acquisition Talk podcast. He is the founder and lead of the iLoc development team, which rapidly deploys valuable software capabilities to the Navy's P-8 fleet. During the episode, Sean describes how P-8 aviators took it upon themselves to code new applications that could solve hard problems with software rather than pencil and paper. One application reduced reporting errors by 90 percent.

Sean provides a compelling vision of the future where operators also take on duties as software developers or product managers.

This doesn't require everyone to have coding skills. The P-8A's organic software team only has six rotating developers. Sean argues it is better to have many users involved in defining the business logic with a small team of software developers rather than a large software team with little access to user input.

The result is a continuous process where knowledge from the military operators can quickly get embodied in software and deployed to the entire fleet. Sean calls this "software-defined tactics," and it's a compelling concept indeed.

One of the many benefits is that it decreases the burden of training as operators are constantly involved in small changes. This is in contrast to the large and infrequent software drops from contractors, where increased capability often comes at the expense of increased complexity. It usually takes 3 or 4 years, for example, to train a P-8 tactical coordinator.

However, with the iLoc tools, a trainee of 6 months can reach a level of proficiency that used to take two or more years. Agile in-house software development vastly decreases complexity at the same time in generates new capabilities, allowing the U.S. military to scale much more rapidly in the event of conflict with a great power.

The Maritime Patrol Reconnaissance and Man Machine Teaming

06/28/2020

With the coming of the P-8/Triton dyad the U.S. Navy is paving a way ahead for collaborative concepts of operations between manned and remotely piloted aircraft operating in the Pacific.

But also, the US Navy's MPR community is working man-machine teaming with regard to its P-8 as well.

Man-machine teaming is a key part of the way ahead for the P-8 as a software upgradeable aircraft, as well as being part of reworking decision making onboard the aircraft as well.

Although much of the focus on artificial intelligence is upon its future within autonomous systems, a real-world use which is evident in the MPR community is the evolution of decision aids through automating repetitive action tasks.

I had a chance to discuss these developments during my visit to Jax Navy with Lt. Sean Lavelle, a key player in the effort on man-machine teaming in the MPR community.

In an earlier piece, I highlighted the context within which Lt. Lavelle's work was unfolding.

And in that article, I highlighted the discussion which Lt. Lavelle had in a podcast with Eric Lofgren.

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In that article, I highlighted importance of the kill web approach to provide for transient software advantage as conceptualized in the featured graphic above.

After writing that article, I spoke with Lt. Lavelle who explained how he saw the relationship of transient software advantage to a kill web versus kill chain approach.

Software-defined tactics are the key to quickly adding capabilities to different assets that are supposed to work together. It's kill chain vs kill web for acquisitions.

In the kill chain – you devise a new weapon for a shooter, then figure out the sensor you need for the ISR node, then you figure out the network that makes the most sense for data transmission, then you write the messages you'll send from sensor to shooter. After that, you have to try to sequence all the capabilities so that they arrive roughly at the same time.

Then when you add a sensor or a weapon, you have to teach the sensor asset what the new weapon brings to the table, or vice versa, and how they can maximize it. It's hard for a community to get good at operating their own new sensors or weapons. It's harder to get good at helping another community employ their capabilities.

All of that adds so much time to acquiring and fielding new capabilities, so you end up buying weapons and sensors much slower than the pace of what is technologically possible.

In the kill web – you buy whatever improves your capability as a sensor or a shooter. Period. If there isn't a perfect network to transmit information right away, it's okay. Just write a software-defined tactics

application that can leverage information from a basic data-link, has some basic modeling assumptions, and can give the task force a good, ad hoc plan that gets to a local maximum solution. The force can figure out the absolute best way to work together as they experiment, we just need an acceptable way to work together that can get the ball rolling.

We actually just did this for a new sensor/weapon combination in less than 20 hours of software development. The application we fielded solved the entire coordination problem for a completely new concept and optimized the sensor/shooter team. It lets the sensor act as a cloud processing node for the team, even if the human in the sensor aircraft isn't really an expert in what the shooter brings to the table.

This process means the limiting factor in technology adoption is not the acquisitions process as is typical, but the actual science.

During my visit to Jax navy the week of June 14, 2020, I finally met Lt. Lavelle and to discuss with him the way ahead with regard to the man-machine software redesign dynamic.

Lt. Lavelle is part of the Weapons School and an officer working the kill web capabilities of the force.

The basic software upgrade dynamic operates around block upgrades which are planned long in advance.

He explained: "The ideal acquisitions process is to conduct operations, learn from those operations and then decide what we want to buy based on that experience. The paradigm that the FAR forces us into doesn't always lend itself to that sort of iterative, learning-oriented acquisitions process."

He then noted that to break that paradigm, they were focusing on a different approach to software upgradeability.

As he explained: "Rather than trying to fix the entire contracting process, we are focused on finding ways to in-house talent to get more rapid software upgrades driven by operational experience.

"We want a tighter coupling of operations and software development than is really possible with current acquisitions regulations."

They are focusing on ways to in-house software development under PMA-290, the Program Office for the P-8.

Within PMA-290 is an office called the Software Support Activity, which Lt. Lavelle and his team work with.

There they are focused on building a system on the P-8 where mission system data, including data links, and information generated by the sensor networks goes to the "sandbox" which is a secure computing environment that can take data, process it and generate decision making recommendations for the operator or alert them to tactical problems.

It does not directly push data to the aircraft, so it is divorced from safety of flight software considerations.

According to Lt. Lavelle: "This allows us to push updates to the sandbox on timescales measured in days or weeks, rather than years.

"The Weapons School is building the software for the sandbox based on operators' experiences, while the traditional acquisitions enterprise builds the infrastructure to allow that development.

"The process is that we observe the fleet's problems, we write code to solve those problems, send the finished application to PMA-290, they do a security analysis and then they push it back to be integrated onto the aircraft.

"We are funding this process operationally rather than on a project basis. We have four to six people at the weapons school at any one time who are trained to write software for the sandbox.

How does he view the impact and outcome?

"The way I think about it is, we're changing the learning cycle for a force.

"Right now when we identify a solution to a tactical problem, we allocate training effort to teach the fleet how to implement it.

"About 5% of that effort goes toward teaching operators the theory around the solution and how to implement it.

"The remaining 95% goes toward continuous training to retain currency. If you have to practice a technique in two simulator events per year to retain currency, which is an underestimate for most techniques, you're looking at 8,000 man-hours per year given the roughly 1,000 operators we have in our force and 4-hour simulator events.

"That's a huge amount of resources and the end result is that we are just good at the basics and never really advanced anything because it's sort of a treadmill.

"You need to spend all of your time maintaining basic skills. Adding new skills just requires too many additional resources.

"With the new approach, we find a problem, we still do the initial effort to teach the fleet the theory, but then we write a piece of software that alerts the operator when that problem is presenting itself and gives them in-situ tactical recommendations.

"It is much easier to stay proficient at a task if a machine is helping identify problems and recommending a set of reasonable solutions the human can choose from.

“Instead of 8,000 man-hours per year, each individual might only need to practice a technique every other year, meaning we save 75% of the effort we would have spent and can add 4 times more new skills per year.

“We’ve already executed this new approach with several tactical problems.

“In one case, we reduced failures in a particular scenario from 20% of instances to less than 1%.

“Rather than a treadmill where we’re constantly teaching the basics, we can have a baseline level that’s of performance that’s very easily maintained.

“And then we can advance from there much more quickly.”

In short, part of the innovation being done in the MPR community is about reaching towards a much more rapid process of software upgradeability and integrability for the distributed force.

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