DEFENCE AND SPACE
SECURE COMMUNICATIONS

Network for the Sky

Secure networked airborne communications

AIRBUS

From connectivity silos

Information superiority is a critical determinant of mission success. The ability to instantly collect and share data is crucial. And pressure to reduce costs requires optimal use of military assets. In the airborne environment, existing communications make it difficult to achieve either.

Individual aircraft continue to operate on separate networks with limited interoperability between them and often little resilience. Multi-mission capability and its associated cost-savings are typically not possible based on current communications.

To secure networked airborne communications

Airbus' Network for the Sky (NFTS) securely and reliably connects all your airborne assets together with the rest of your operations, giving you the communications superiority to execute the mission more efficiently and effectively. As one.

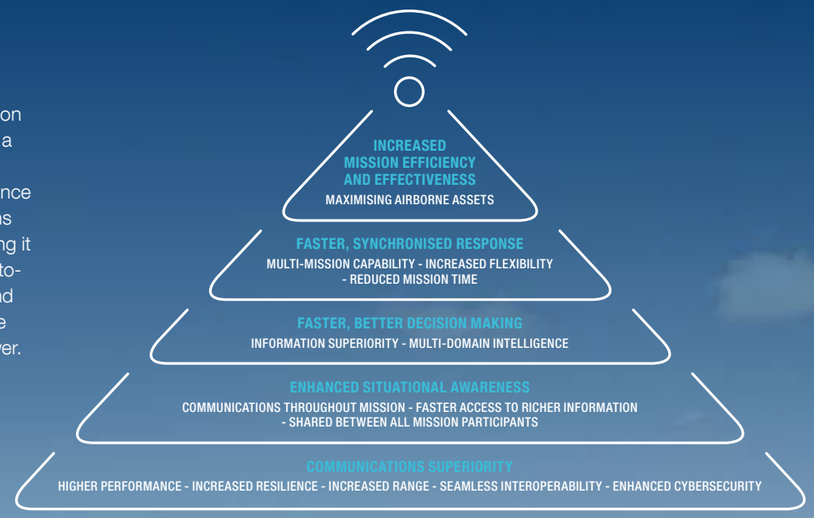
Operating over a mix of technologies to form one resilient, high-speed global network, it delivers seamless voice, data and video to support the most advanced applications. With a highly secure overlay that meets the most demanding requirements.

It allows all mission participants – including joint and coalition forces – to communicate throughout the entire mission, delivering information superiority through enhanced situational awareness.

This in turn enables faster, better decision-making and rapid response through more synchronised operations. It increases your operational flexibility by improving multi-mission capability, with real-time re-tasking of the mission as it unfolds.

And the connected battle space

Network for the Sky is the foundation for the connected battlespace. It's a solution from Airbus, the company with unequalled breadth of experience in aircraft, airborne communications systems and services – and bringing it all together into highly secure end-to-end solutions trusted by military and government customers. We are the company delivering Future Air Power.



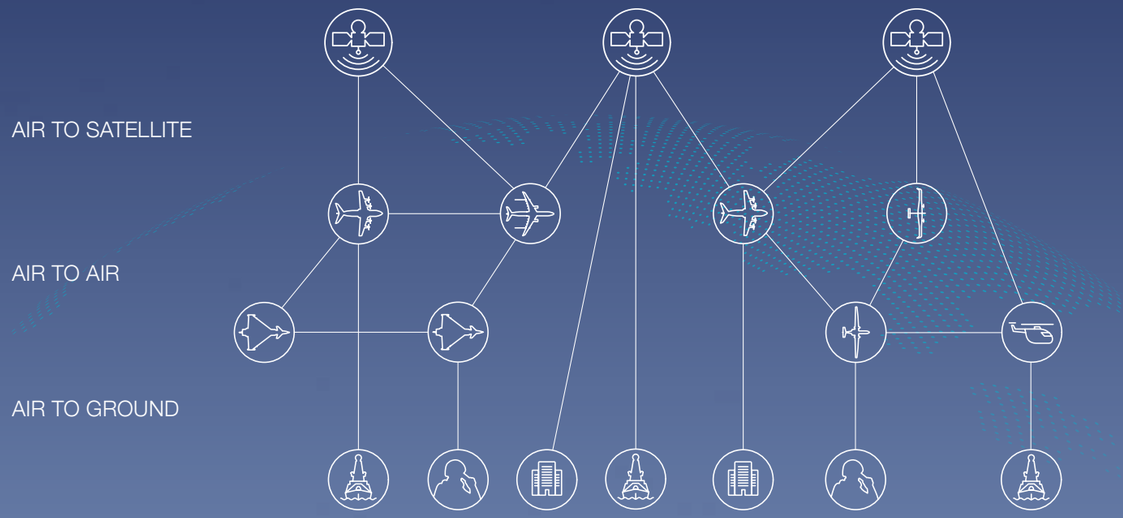
Delivering as one

'Network for the Sky' securely and reliably connects all your airborne assets together with the rest of your operations, giving you the communications superiority to execute the mission more efficiently and effectively. As one.

Delivering communications superiority

NFTS creates an intelligent network across diverse air assets – manned and unmanned – with seamless interoperability between them.

It emulates the experience of today's cellular networks in a secure airborne environment, expertly configured for the unique challenges this brings.

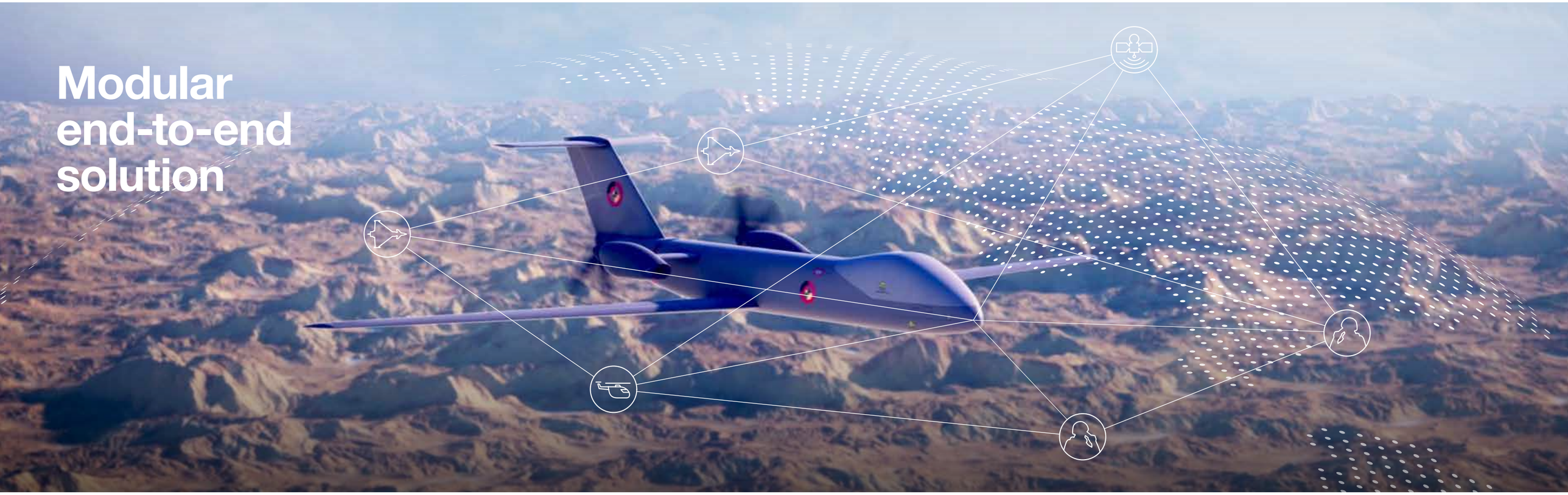


Phased implementation

NFTS first lays the improved connectivity foundations for the subsequent delivery of secure networked airborne communications, through better interoperability between diverse air assets and with the ground.

	Phase 1 **Improved aircraft satellite connectivity**	Phase 2 **Networked communications and interoperability**
Higher Performance	• More capable satellite communication services to deliver advanced applications and suit the latest ISR fits. • Transmission of high definition sensor data.	• Best quality of experience via multiple networks, using the highest performing or more cost effective links. • Higher throughput based on new satellite broadband communication platforms (LEOs, MEOs and laser link satellite services).
Increased Resilience	• Flexibility and redundancy: managed services over commercial and military satellites, with dual-band antennas and in-flight switching capabilities. • Continuity of service through anti-jamming and graceful degraded modes.	• Redundancy with managed services across multiple networks. • Best quality of experience through agile reconfiguration of data links, with priority to mission critical data.
Increased Range	• Extension of UHF and VHF radio links with re-transmission over satellite for "push-to-talk" connectivity throughout the entire mission. • ISR broadband services with multiple beams. • Broadband bi-directional data relay (ISR sensors, LOS radios and satellite links) to extend reach to/from the command centre.	• Relay through multiple networks and airborne communication nodes.
Seamless Interoperability	• Beam switching, IP roaming. • Compatibility with defence networks.	• Traffic orchestration: agile routing and service reconfiguration based on dynamic events and network analytics to optimise the user quality of experience. • Compliance and interoperability with joint forces and coalition networks. • Fully-automated connectivity with UAV swarms, control and mission data; easy to set-up and use for rapid deployment.
Enhanced Cybersecurity	• Multi-level security • Governmental-accredited security levels: – Transmission security (anti-jam, ESM, discretion). – Communications security (High grade, accredited crypto). – Transport security (VPN, firewalls). – Overall system security with risk analysis and mitigation from design to operation.	• Multi-level and fully compliant with future combat cloud requirements. • Advanced features: – Content filtering. – Anti-spoofing authentication. – Advanced data integrity. – Advanced key management system; easy to use.

Modular end-to-end solution



The four key pillars of Network for the Sky

Available as individual, scalable elements to a complete end-to-end solution.

Airborne Equipment

Airbus and best-in-class third party equipment. High reliability, qualified for harsh airborne environment.

Proteus modem

- Advanced multi-mode, broadband satellite modem
- Includes frequency hopping, anti-jam waveform
- Automatic link adaptation for rain fade, platform movement, satellite footprint variation; QoS support
- Easy to use, efficient DAMA modem with military modes – ESM compatible and receive only

AirPatrol satcom antenna

- X or Ka-band, >10Mbps symmetric throughput
- Flight proven technology, market-leading performance in harsh weather and high altitudes
- Lightweight, modular design for easy maintenance and installation
- Skynet and WGS certified

Janus satcom antenna

- Innovative, robust, compact dual-band system
- Dual/tri-band: Ku + commercial/Mil Ka
- High throughput: 10Mbps+ at Ka; 4Mbps at Ku
- Low-profile, ARINC 791-compliant
- No ITAR components

Secure Communications node

- Manages all communications links (satellite, line-of-sight radios, 4G LTE), routing and interoperability, gateway interfaces when needed
- Priority and QoS management based on available bandwidth, link status, traffic, security, mission objectives
- Transport security (firewall, VPN) and data encryption
- Intelligent routing, agile reconfiguration of data links, failover policies based on link status
- Designed for RPAS C2 safety certification

Airborne Communications

Secure, hybrid connectivity

- Skynet X-band, military Ka-band satellite capacity
- X, Ka, Ku and L-band services on commercial satellite networks
- LTE and UHF/VHF networks
- Space Data Highway: future Airbus capability providing broadband quality in near real-time through high-precision laser communications at 1.8Gbps

Tailored communication services

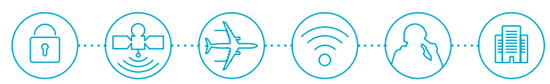
- Tactical or global shared satcom services with fleet subscription plans: medium-high data rates; asymmetric or symmetric
- Mission office in the sky: secure IP voice and data services with multiple security levels; BYOD calls; videoconferencing
- ISR services: adaptive sensor data transmission; ground ISR data transfer to aircraft
- Socius ISR data broadcast service
- Satellite extension: to L16, UHF, LTE, wideband and other tactical datalinks

Network Services

- End-to-end communications services, provided as infrastructure or services
- End-to-end guaranteed bandwidth on ground network; IP address management
- Network service orchestration with datalinks reconfiguration and traffic optimisation
- Multi-level security management; advanced key distribution; advanced security data analytics
- Interconnection from Airbus teleports to customer network or customer teleport management

Support Services

- Dedicated account management and billing support
- 24/365 helpdesk
- Aircraft communications integration support
- Consulting services
  - Requirements analysis, RF and services planning
  - Cybersecurity risk assessment and system design for network management
- Field support engineering services
- Spares management and repairs
- Training



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Ref 12085mn / June - 2018.