THE VALUE OF PERFORMANCE.

NORTHROP GRUMMAN

Resilient Info Exchange For Persistent UAS

Unmanned Aircraft Systems (UAS) Symposium San Diego, CA

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Today's Briefing Agenda

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- Northrop Grumman's UAS experience
- Guiding principles: UAS payloads in heterogeneous networks
- Highlighting challenges and solutions for gateway networks
  - Battlefield Airborne Communications Node (BACN)
- Future trends in UAS Payload design and function

Modular, tailorable communication systems that meet Joint Forces requirements.

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Northrop Grumman's UAS Experience

- BAT
- UCAS (X-47B)
- FireBird
- Firescout
- Global Hawk
- Hunter
- Payloads for UAS
  - Internal, wide body aircraft payloads
  - External, captive carry, Small Form Factor (SFF) payloads
    - Communications, Intelligence-Surveillance-Reconnaissance (ISR), other

Extensive Experience Producing/Operation UAS Platforms and Payloads.

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Guiding Principles

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- Every node is networked
- Common control interfaces for sensors and data links
  - Emerging Standards : OMS, FACE (Open Mission Systems, Future Airborne Capability Environment)
- Payload control can be remote, semi- or fully- automated
- Data is discoverable and accessible
- Data delivery mechanisms are transparent to the user(s)
  - Communications as a service
- Interoperability between disparate and autonomous platforms, creating heterogeneous networking

Combining UAS Persistence for Communications Resilience

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BACN Basics and Operational Accomplishments

E-11A

- Over 6,400 missions flown to date
- More than 59,000 flight hours to date
- Greater than 97% aircraft in-air time across all missions

EQ-4B

- Over 1100 flights since first mission flight on 03 Dec 2010
- Over 28,000 flight hours to date
- Sorties up to 32.5 consecutive hours

Operational Definition

- Network and communications payload
- Forward deployed in persistent, high altitude aircraft
- Configurable, quick reaction capability

Basic Capabilities

- Range extension/connectivity for dissimilar systems
- Voice bridging, situational awareness, non-traditional ISR communications
- Disadvantaged user connectivity to the Global Information Grid

Basic Principles

- Payload, not a platform (platform agnostic)
- Radio agnostic
- Content based information management

BACN arrived in theater in October 2008. The BACN fleet has provided 24/7 coverage to warfighters since March 2010.

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BACN in Theater Operations

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4 BACN E-11A Aircraft

BACN Global Hawk First Flight (5 Aug10)

Deployed BACN Aircraft Supporting Missions

BACN Mission System Operations at RICC (Regional Integrated Command Center)

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BACN OCONUS Operations Current

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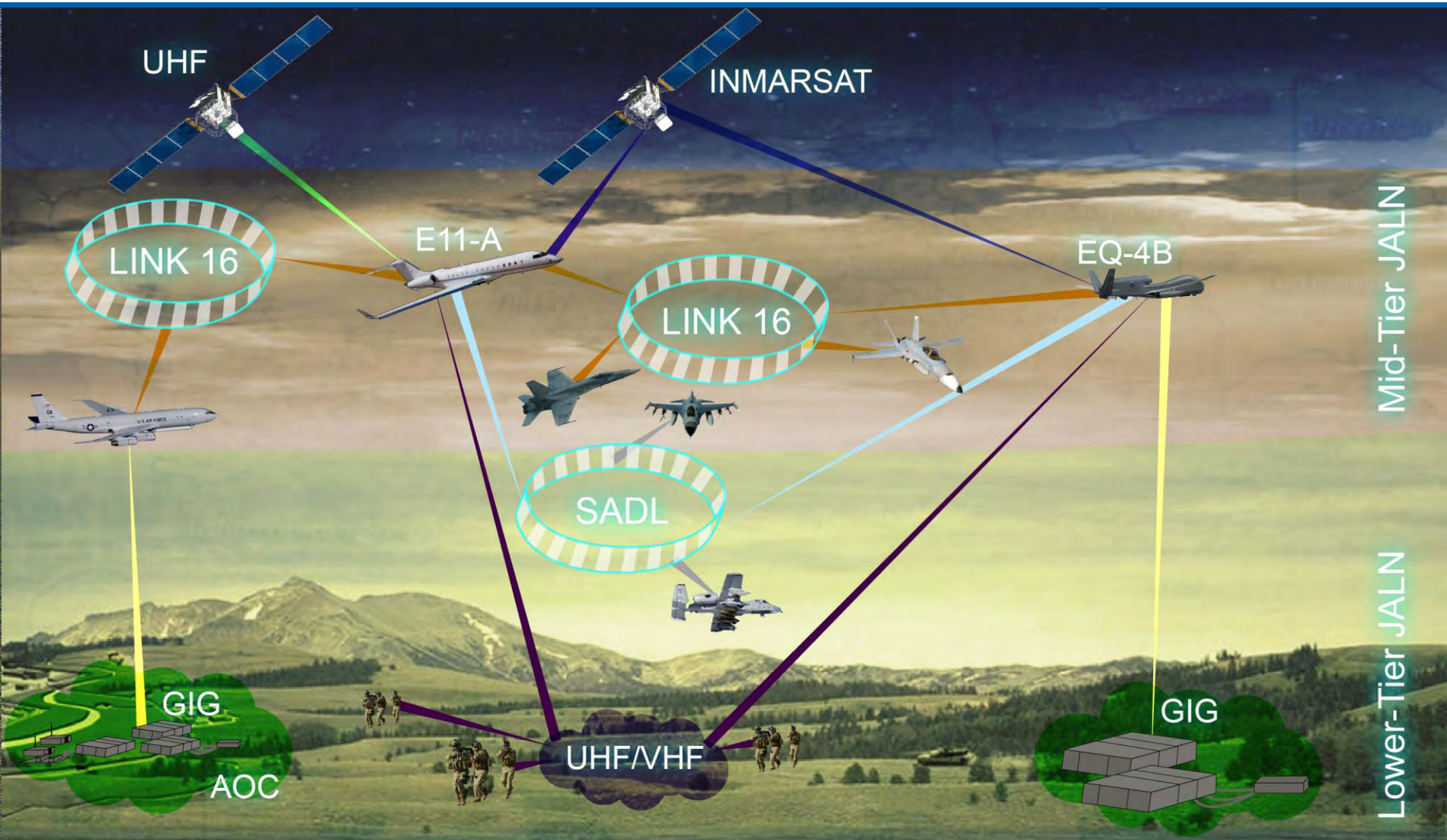

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