



## Joint Capability Technology Demonstration:

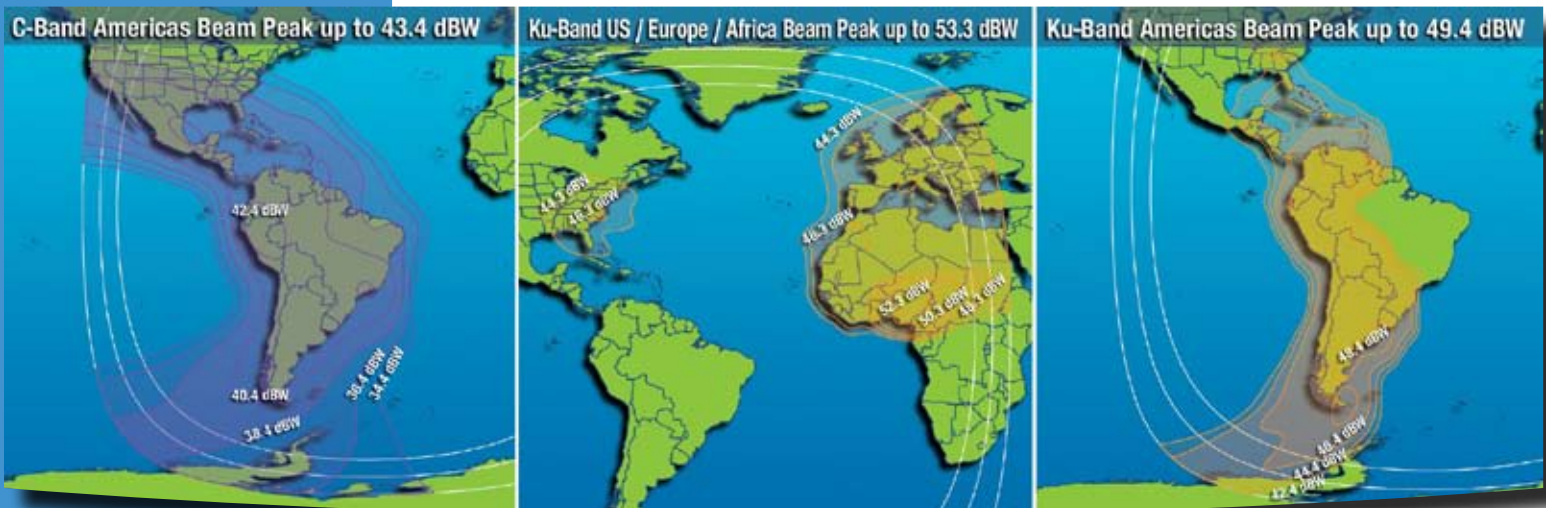
IRIS is a Joint Capability Technology Demonstration (JCTD) with the Department of Defense (DoD) and is a three-year program that allows the DoD to collaborate with its Industry Team to demonstrate and assess the utility of IRIS.

Goals of the IRIS JCTD include:

- Demonstrate collaboration with industry in leveraging the commercial acquisition processes to provide space-based IP network routing.
- Gain knowledge on how to manage space-based IP networks, while demonstrating the advantages that space-based networking brings to the warfighter.
- Demonstrate terrestrial standards-based on-board IP packet routing communications from a geostationary orbit satellite.

The IRIS demonstration will be evaluated through military exercises driven by mission scenarios that will represent realistic operational conditions. A set of key Critical Operational Issues will be identified, based on stakeholder inputs, in areas such as functionality, operational impact, interoperability and suitability. Upon completion of the JCTD's military utility assessment, the U.S. Army, Air Force, Navy, Marine, Coast Guard and NATO forces could leverage this capability to enhance military network-centric operations.

### IRIS Beam Coverage on Intelsat 14



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# Countdown to Capability

## IP Routing in Space

### Launching Q2, 2009



#### BENEFITS AT A GLANCE

Improved Signal Margin from On-Board Regeneration

- Smaller antennas
- Higher throughput

Increased Situational Awareness

- Use of more common operational picture/situational awareness applications and data

Distributed operations

- Function as a Net Centric Operations (NCO) 'peer'
- Ability to coordinate/synchronize operations with partners
- Perform/function as a 'sensor' as part of NCO and Global Information Grid

Long-haul 'reach back' to data, information, operations centers

Collaboration

- Networked near real time
- Planning and synchronization

Common "unified communications" protocol

- Current communications integrated into global protocols and standards
- Everything over IP

Connectivity

- Dynamic routing
- Efficiently provides cross-band, cross-beam connectivity

Capacity

- Dynamic bandwidth allocations
- More efficient link budgets benefit small terminals

Control

- Flexible provisioning, single focus of info in space.
- End-to-end IP service which converges to the government-services approach.

Interoperability

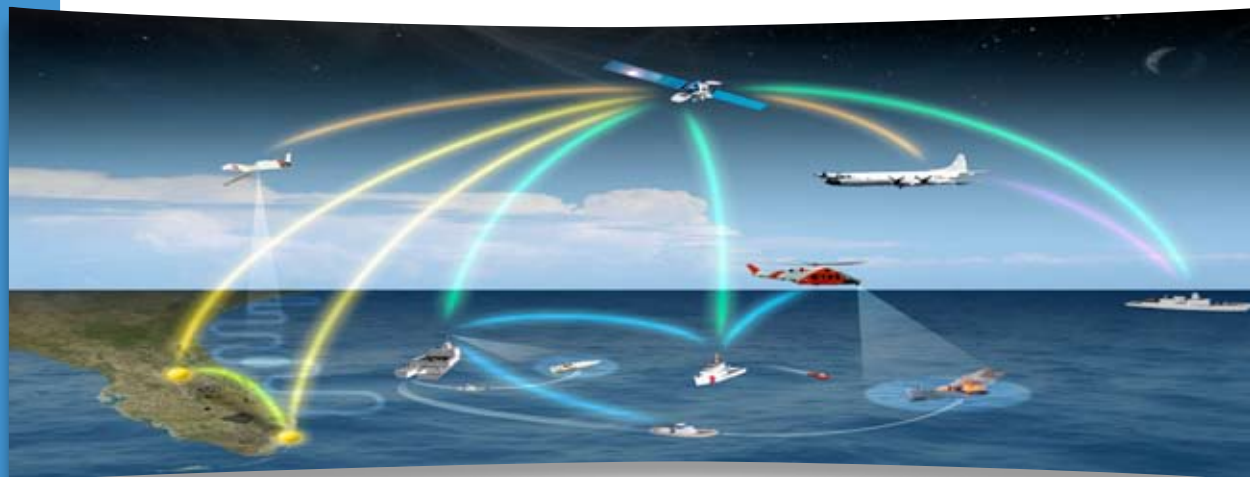
- IP technologies leverage open standards and allow faster integration
- Compatibility with existing & future terminals

#### From Contract to On-Orbit Capability in 36 Months

In 2006, the US Strategic Command (STRATCOM) issued a challenge to industry: Create and fly a live on-orbit demonstration of geo-belt IP Routing in Space (IRIS) within three years.

The industry team is on target to meet STRATCOM's challenge. The IRIS payload passed its critical design review and has undergone functional and thermal vacuum testing. All ancillary hardware associated with hosting IRIS has been successfully integrated onboard the IS-14 spacecraft bus being built by Space Systems/Loral. The IRIS Payload is currently undergoing final acceptance testing and will then be integrated with the spacecraft. The IRIS program is on schedule for its Q2, 2009 launch.

IRIS will provide the ability to integrate terrestrial and space communications nodes through a common network layer protocol and enable U.S. and allied military forces to communicate seamlessly. Having an IP network node in space will eliminate the need for dedicated routing via a ground-based teleport, thereby dramatically increasing the efficiency, flexibility, and data throughput of satellite links and communication networks. IP-based routing in space is a path to achieve multi-protocol interoperability while enhancing operational performance.



#### Extended Testing Period Provides New User Group Opportunities

The on-orbit testing period for IRIS is being extended from 3 to 15 months, presenting a unique opportunity to include additional government and commercial participants. We invite you to contact us to learn how your organization may benefit from IP Routing in Space.



IntelSat 14 (IS-14) being built by Space Systems / Loral



IRIS Payload



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