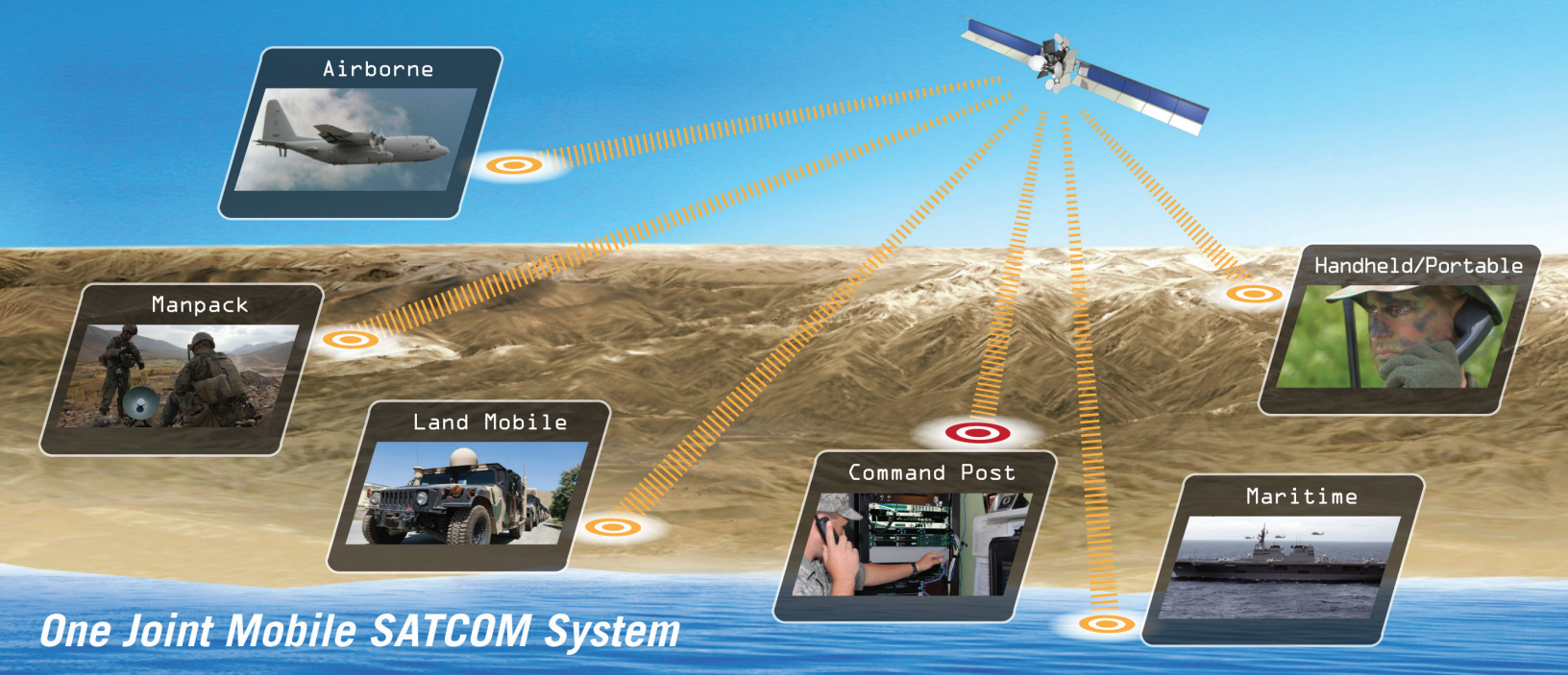


Defense and Intelligence  
Systems



Redefining the Network



High-performance communications for wherever the campaign goes.

Even when the troops are out-of-sight, they can't be out-of-touch. That's why IP-based solutions from Hughes are ideal for meeting the extensive communications networking needs of military and intelligence operations around the globe. Wherever the mission leads, Hughes can deliver one joint mobile SATCOM system, keeping troops on the move connected to command posts—and to each other—on land, in the air, and at sea. With facilities run by cleared personnel and U.S.-based program management and support, Hughes stands ready to provide the satellite communication needs of the future military—today.

### IP-Based Satellite Solutions

Available globally, Hughes solutions and services are ideal for the needs of military and intelligence communities wherever the mission may lead. Hughes solutions are fully IP-compliant.

### Industry-leading Communications Technologies

Hughes is the worldwide leader in broadband satellite networks and services delivering end-to-end IP-based solutions to defense organizations globally. Hughes leading-edge broadband solutions span both mobile and fixed, satellite and terrestrial systems. Hughes systems are fully IP-compliant and deliver the highest throughput satellite links for direct and beyond-line-of-sight communications (BLOS).

### Transformational SATCOM Systems

Hughes commercially available satellite technologies solve today's bandwidth shortages and are well positioned to exceed the projected growth of satellite communications bandwidth for military and intelligence communities. Plus, Hughes solutions directly address the rapidly growing need for professional network management within defense organizations.

### Tactical SATCOM Systems

Tactical SATCOM systems provide the backbone for warfighter communications networks, linking ground units with command and control centers, as well as defense information networks such as the U.S. Department of Defense's Global Information Grid.

Hughes tactical SATCOM solutions support the full range of defense communications needs, including fixed, at-the-halt (ATH), and on-the-move.

## IP-based Satellite Solutions

Built on the foundation of its technology and market leadership in satellite networks and solutions, Hughes delivers high-performance, IP-based broadband satellite services and applications around the globe.

### Enterprise Secure Systems

With enhanced signaling security and state-of-the-art technology, Hughes enterprise-grade solutions can be readily integrated with existing military systems and equipment.

Hughes supports the DOD's security requirements with public, routable IP addresses, phone numbers, and program management that are U.S.-based and housed in a secure facility staffed by cleared personnel.

### In-theater Broadband Connectivity

In-theater deployments often put troops into rugged and sometimes hostile environments. While these troops are deployed, it is vital that defense information networks, such as the Global Information Grid, are extended to provide constant, reliable communications with enhanced security. Hughes fixed, ATH, and COTM solutions are critical to assist in completing troop missions safely and successfully.



Photos: Courtesy of the Department of Defense

## Broadband Satellite Services Supporting the Military's Morale, Welfare, and Recreation Programs

Hughes delivers high-speed satellite Internet access for deployed troops in support of the U.S. military's Morale, Welfare, and Recreation (MWR) programs. This service provides individuals and small groups with an available, cost-effective means to stay in touch with family and friends via email, social networking, and VoIP phone calls.

The Hughes service is available in most regions where U.S. and Coalition forces are deployed, including the Middle East and Central Asia.



Photo: Courtesy of the Department of Defense

## Mobile SATCOM Solutions

Hughes provides a variety of commercially proven mobile satellite communications solutions, ideal for military and intelligence missions worldwide. Working with key industry partners, Hughes also provides customized, turnkey broadband systems, products, and managed services to meet the most demanding requirements.

- **Inmarsat's Broadband Global Area Network (BGAN)**—a range of BGAN broadband fixed and mobile terminals for high-speed data and voice communications worldwide.
- **Thuraya**—dual-mode GSM cellular/satellite handsets and ThurayaIP data terminals.
- **Ultra Electronics Advanced Tactical Systems**—Ku-band SATCOM Fixed and COTM capability in High-Capacity-Line-of-Sight (HCLOS) radios for a comprehensive Beyond-Line-of-Sight (BLLOS) communications system.

## Transformational SATCOM Systems

With commercially proven technologies and DoD tested and validated solutions, Hughes is ideally positioned to fill the void created by the cancellation of the Transformational Satellite System (TSAT).

### Commercial SATCOM Systems

Cutting-edge solutions from Hughes enable military and civilian agencies to benefit from commercial solutions while leveraging the power of Indefinite Deliver - Indefinite Quantity (IDIQ) contracting.

#### **Bandwidth Shortage**

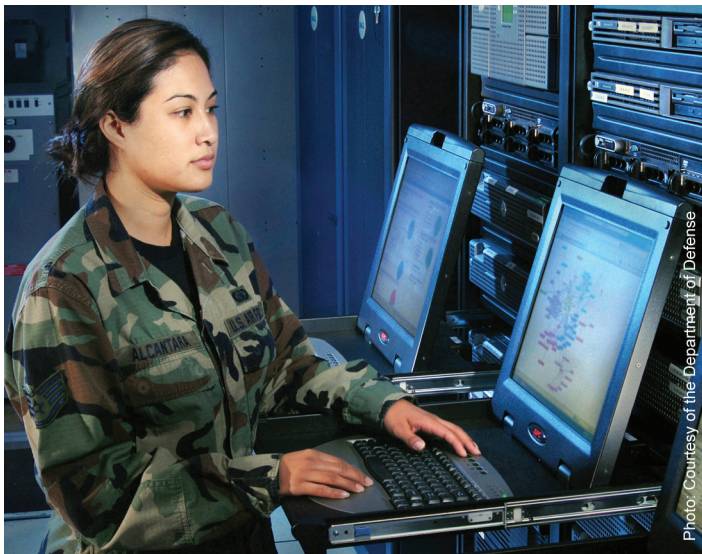
The Hughes SPACEWAY® 3 satellite system addresses bandwidth shortages today with its 10 Gbps capacity, Ka-band, spot-beam technology. And up next is Jupiter™, the next-generation, high-throughput satellite, with over 100 Gbps capacity, scheduled for launch in the first half of 2012.

#### **Network Management**

As advanced networks evolve, network management is a growing need within defense organizations. Hughes has the experience and expertise to adapt its commercial managed services for government civilian and military requirements.

#### **Standards-based Solutions**

Today, defense agencies can source Hughes IPoS-compliant, mesh-capable COTM solutions with FIPS-140-2 enhanced security, which yield the warfighter high-performance and bandwidth-efficient technology, plus are fully supportable from an acquisition and logistics perspective.



### SPACEWAY 3 Satellite System

SPACEWAY 3 is the world's first commercial satellite system with onboard switching and routing. Utilizing multi-spot beam technology, the Ka-band, SPACEWAY 3 satellite system has a throughput of 10 Gbps and enables communications directly between terminals in a single hop without requiring a central hub. SPACEWAY 3 meets a key requirement for tactical forces with full-mesh communications via compact terminals and provides continuity of operations (COOP) services across its operating coverage in North America.

Hughes is engaged in a Cooperative Research and Development Agreement (CRADA) with the Defense Information Systems Agency (DISA) researching network-centric enterprise architecture validation of IP networking using the Regenerative Satellite Mesh (RSM-A) standard employed by SPACEWAY 3. The CRADA will determine how SPACEWAY 3 can support overall IP convergence to seamlessly integrate DoD SATCOM networking with the Global Information Grid.

### Jupiter Next-generation High-throughput Satellite System

In 2009, Hughes initiated development of Jupiter, a next-generation, high-throughput satellite system. Employing a multi-spot beam, bent-pipe, Ka-band architecture, Jupiter is designed with 100+ Gbps capacity and an enhanced version of the IPoS standard, the world's leading broadband satellite standard approved by TIA, ETSI, and ITU.

With a planned launch of 2012 and service delivery in North America, Jupiter will carry multiple waveform traffic and enable easy integration into existing systems.

## Tactical SATCOM Systems

Hughes tactical SATCOM systems support the full range of defense communications needs—fixed, at-the-halt, and on-the-move. Built into these solutions are the high throughput and high capacity necessary to maintain net-centric communications for U.S. and Allied troops—ensuring mission mobility globally.

### Transportable Communications Terminals

Easy-to-use, transportable terminals are vital for rapid deployment and robust communications in the field. Hughes partners with multiple providers to deliver integrated, ruggedized equipment for a total solution that enables superior communications in any environment.

### Communications-On-The-Move

Satellite is the ideal technology to provide reliable BLOS broadband communications to troops on the move.

Hughes has enhanced and optimized its satellite broadband solutions to address the key requirements and challenges of mobile applications. Offering global coverage, Hughes COTM solutions have been extensively tested in military programs for mobile SATCOM, helping meet the critical needs of military missions. FIPS 140-2-compliant, Hughes solutions are highly secure and provide BLOS communications even in varied mountainous terrain or urban landscapes typical of today's conflict zones.

Hughes COTM solutions offer a full suite of mobile capabilities in a comprehensive range of network topologies and with enhanced security built in: star and full mesh, single-hop and peer-to-peer communications utilizing C-, Ka-, Ku-, and X-bands.

Whether the mobile application is airborne, maritime, land mobile—or all three—Hughes COTM solutions help meet military communications mission requirements globally.

#### **Airborne**

Hughes mobile SATCOM solutions are ideal to meet the military's requirements for comprehensive, net-centric airborne communications around the world, delivering voice, video, and high-speed data services to and from airborne platforms anywhere.

Hughes solutions are DO-160-certified and enable sophisticated, real-time IP applications such as airborne

intelligence surveillance reconnaissance (AISR), including streaming live video links back to operating centers at multi-megabit data rates. Any airborne system platform can be supported, as Hughes works with third-party antenna manufacturers to provide full system integration of hatch-mount, fuselage-mount, and tail-mount antennas.

#### **Maritime**

Hughes maritime communications solutions are designed to withstand the extreme environments of ships and vessels. Whether ship-bound or on an expeditionary mission, sailors and special operations forces traveling on the seas need continuous connectivity with command and control centers to successfully complete their missions.

Hughes broadband, on-the-move, maritime solutions enable those aboard vessels and at other edge locations to maintain high-quality connectivity with command centers, in what is often a harsh communications environment.

#### **Land Mobile**

Hughes COTM solutions enable joint military communications and ensure that ground-based troops remain connected whether they are stationed at a military base or deployed in an area of operations.

Built to withstand harsh environments, Hughes rugged COTM solutions have undergone rigorous military testing and are designed for rapid recovery during the intermittent connectivity typical of mobile applications.

### Fixed Communications Terminals

Hughes offers a full range of semi-permanent to permanent terminals.

**Small** – Lightweight, 74 or 98cm terminals in a compact form factor, and optional Ku-band, Ka-band, or X-band versions. Ideal for transitional or semi-permanent applications with a small footprint.

**Medium** – Higher availability 1.2m terminals for applications that require higher throughput with a smaller footprint. Perfect for permanent or semi-permanent edge applications.

**Large** – 1.8 or 2.4m terminals with high throughput and availability. Designed for permanent infrastructure, command posts, and trunking applications.

## Ready to Serve

Hughes Defense and Intelligence Systems Division (DISD) has a deep history of supporting defense and intelligence communities. Hughes is the world's leading provider of broadband satellite networks and services, with over 2.2 million systems shipped to customers in more than 100 countries. The company's core expertise ranges from design of advanced components, terminals, and broadband systems to the development and turnkey operational management of complex communications networks. Hughes stands ready to provide the satellite communication needs of the future military—today.

### A Snapshot of Hughes

Worldwide market leader in broadband satellite services and technology

- Over 20 years of experience managing large-scale networks
- Recognized by the Yankee Group as a top-tier managed network provider
- More than 10,000 government sites in North America
- Over 225,000 enterprise sites in North America for many Fortune 500 companies
- Global service delivery with sales offices and operations worldwide
- Frost & Sullivan 2009 North American Company of the Year Award
- Frost & Sullivan 2009 North American Space Communications Customer Value Leadership of the Year Award

For more information about Hughes Defense and Intelligence Systems visit [defense.Hughes.com](http://defense.Hughes.com) or email us at [disd@hughes.com](mailto:disd@hughes.com)

[defense.hughes.com](http://defense.hughes.com)

## Experience and Leadership—Second to None

Owner and operator of SPACEWAY 3, the world's first commercial satellite system with onboard switching and routing, Hughes stands alone as both a leading broadband technology and systems supplier and fully integrated broadband service provider.

Hughes owns and operates broadband service businesses in North America, Brazil, Europe, and India, and offers global service coverage for the DISD community through its base of operating partners on every continent. Hughes can provide U.S.-based, full lifecycle program management that is staffed by our cleared personnel in a cleared facility.

### Special Projects and Custom Engineering

Hughes stands ready to deliver complete, turnkey SATCOM solutions. Hughes works as part of your team to design, optimize, and implement the right broadband solution to complete your mission. In addition, Hughes has the cleared people and facilities to work on custom classified solutions and programs.

### Easy and Convenient Purchasing

Hughes makes it easy to order through a variety of contract vehicles, including the GSA Schedule, GSA SATCOM II, and GSA Networx. Hughes also participates in various contract vehicles specific to the Army, Air Force, and certain Government agencies and is working to expand its list of contract vehicles.

### Certifications and Standards

- Advanced satellite products based on global standards approved by the TIA, ETSI, and ITU standards organizations, including IPoS/DVB-S2 with ACM (adaptive coding and modulation), RSM-A, GMR1-3G.
- FIPS 140-2 certified
- Hughes systems are also compliant with all transponded satellites, including Intelsat, Eutelsat, SES, WGS, X-TAR, and Paradigm.
- Facilities run by cleared personnel and U.S.-based program management and support.

**HUGHES**

11717 Exploration Lane Germantown, MD 20876 USA