# MILCOM 2007

29•OCT•07

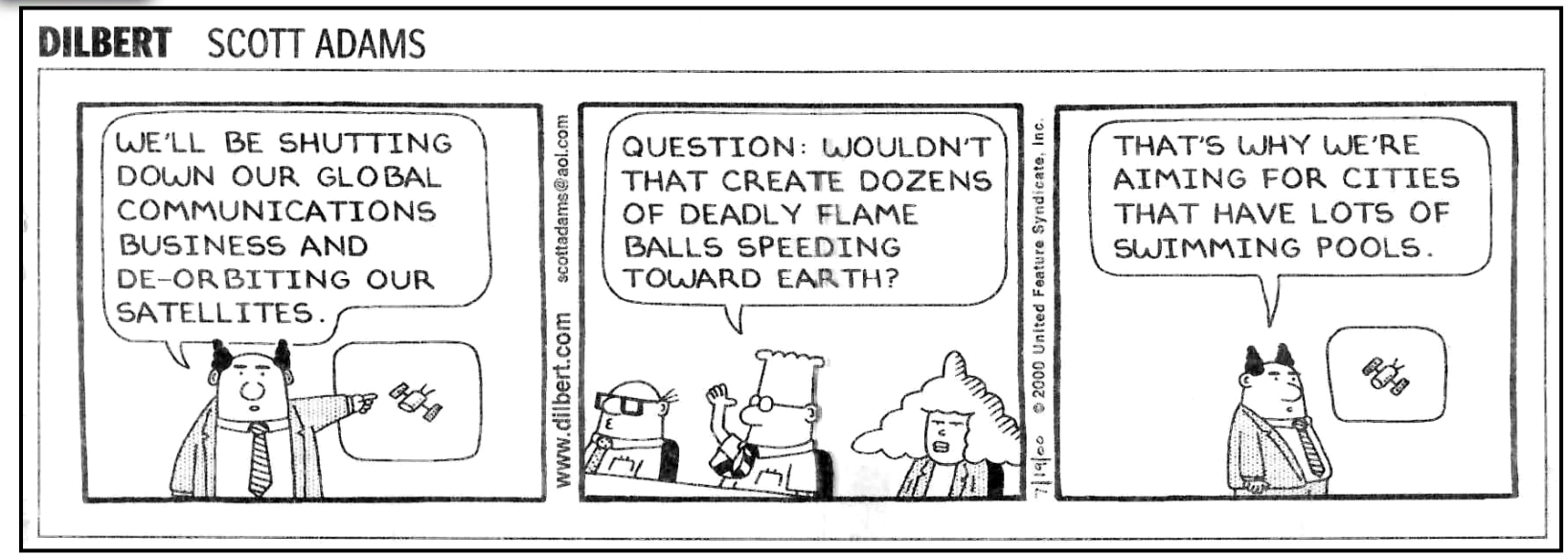
## SATCOM in Support of the Warfighter

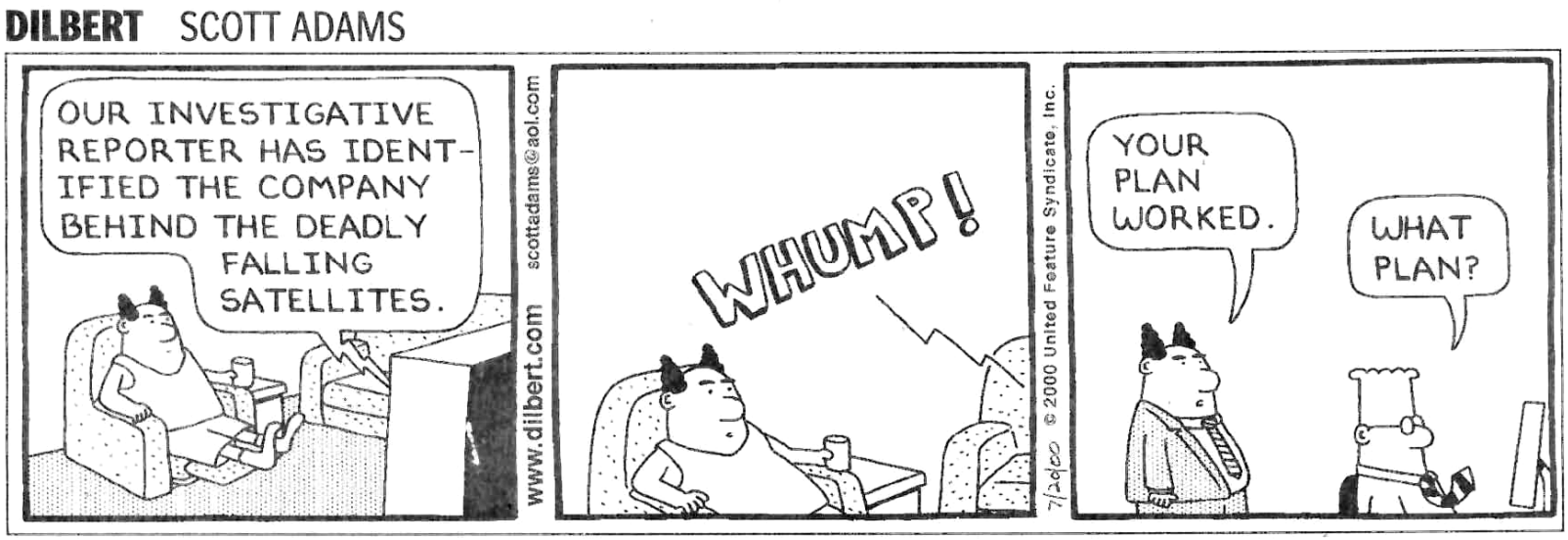
MG Jeff Sorenson

AMERICA'S ARMY: THE STRENGTH OF THE NATION
ARMY STRONG

U.S.ARMY

# Strategic Satellite Planning



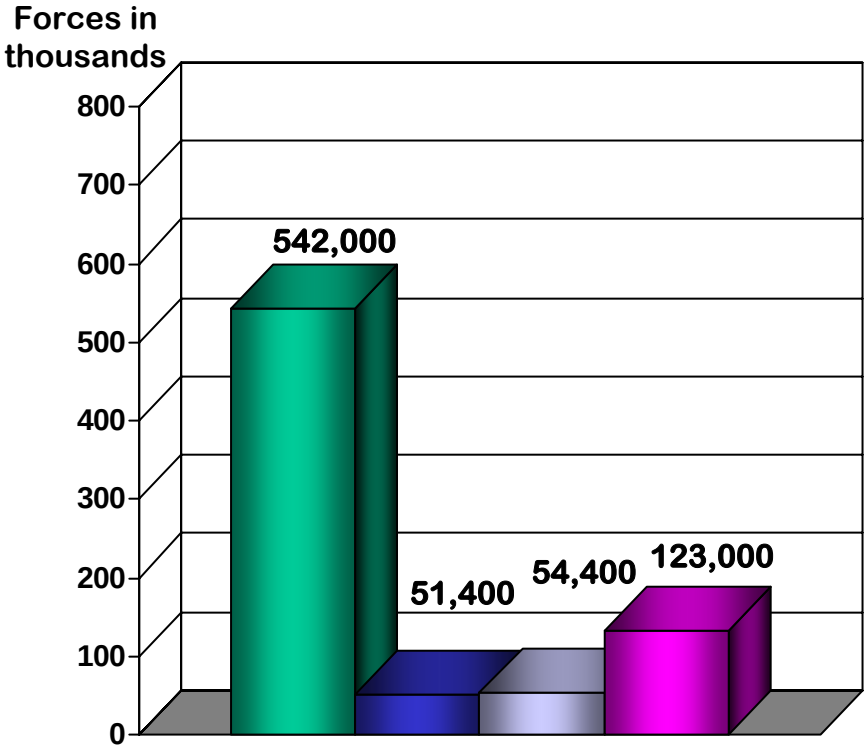
# Agenda

- ✯ Requirements
- ✯ Satellite Convergence & Army Transport Layer
- ✯ Future SATCOM Programs & Continuity of Services
- ✯ Challenges & Kudos
- ✯ Conclusions

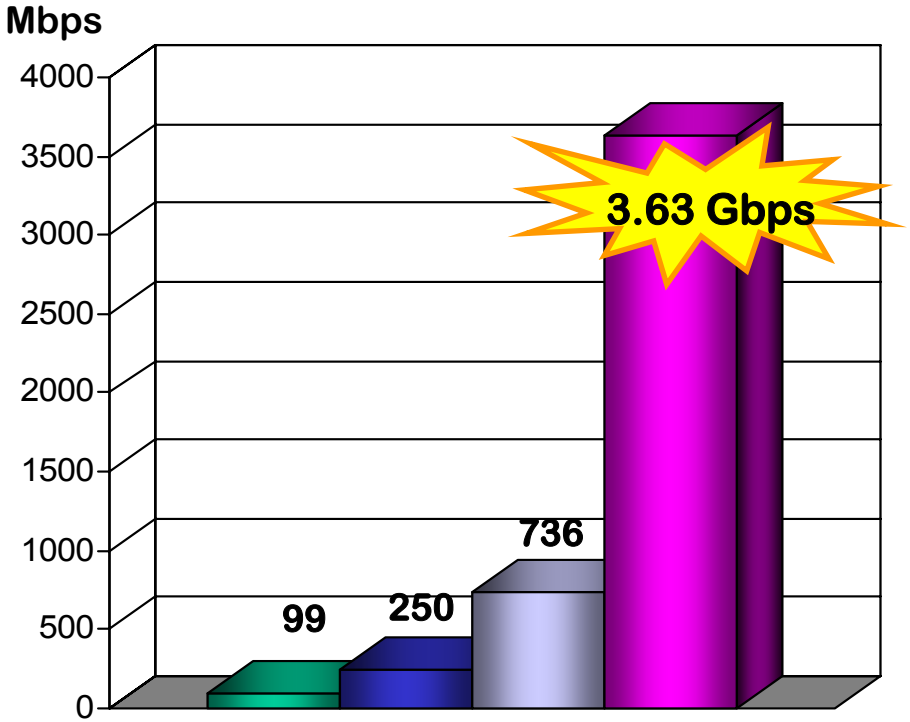
# Warfighter SATCOM Requirements

# Historical SATCOM Usage

## DEPLOYED FORCES

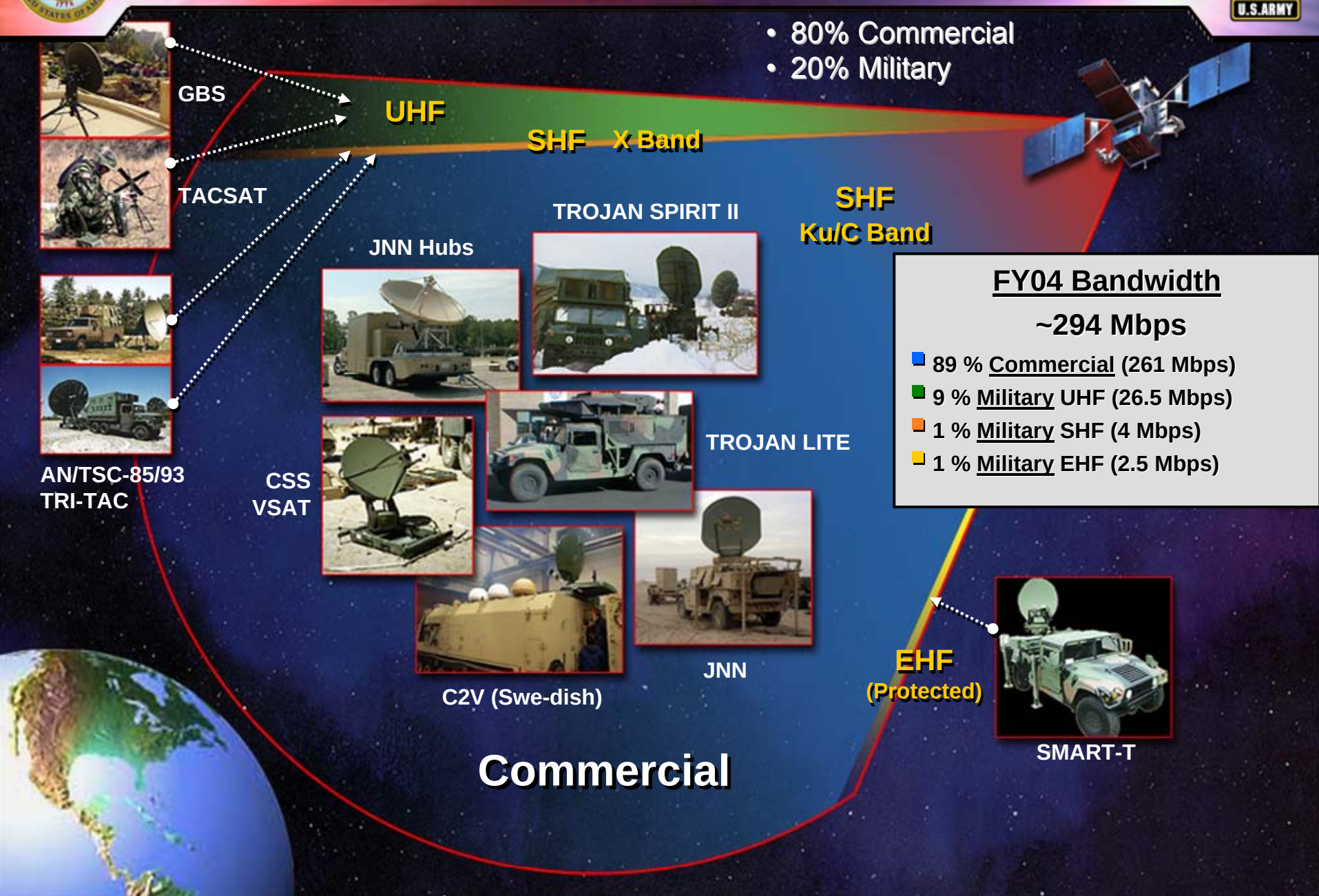



## BANDWIDTH USED




DESERT STORM (1991) | KOSOVO (1999) | ENDURING FREEDOM (2002) | IRAQI FREEDOM (2003/04)

# Brigade Combat Team In The Fight – 2004



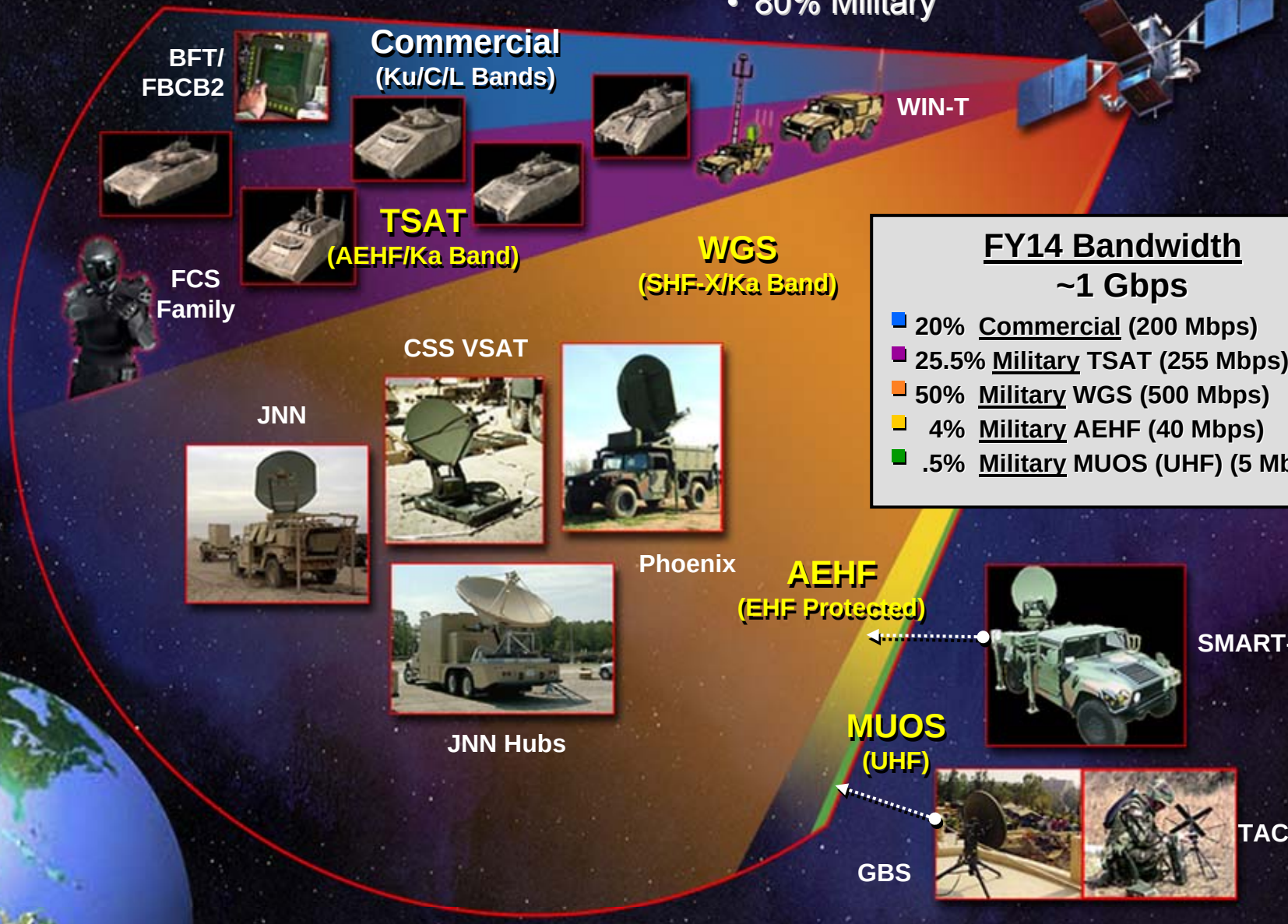

**FY04 Bandwidth**

**~294 Mbps**

- 89 % Commercial (261 Mbps)
- 9 % Military UHF (26.5 Mbps)
- 1 % Military SHF (4 Mbps)
- 1 % Military EHF (2.5 Mbps)

# Brigade Combat Team In The Fight – 2014

- 20% Commercial
- 80% Military




**FY14 Bandwidth**
**~1 Gbps**

- 20% Commercial (200 Mbps)
- 25.5% Military TSAT (255 Mbps)
- 50% Military WGS (500 Mbps)
- 4% Military AEHF (40 Mbps)
- .5% Military MUOS (UHF) (5 Mbps)

# Moving to "Everything Over IP (EoIP)"

- FIRST … the Joint Special Operations Command - Fort Bragg
- THEN …. the Joint Communications Support Element - MacDill AFB
  - Iraq
  - Afghanistan
- JNN to WIN-T

- Everything over Internet Protocol
  - Scalable
  - Flexible
  - Efficient
  - Less cost, smaller footprint, less people
  - EoIP will converge & reduce training requirements

Current Circuit Based & Telephony Capability

Everything Over IP (EOIP) Refit

Data

Voice

Secure Networks

Converged IP

Video Teleconferencing

Unclassified Networks

**JOINT COMMUNICATIONS SUPPORT ELEMENT**

***To address inefficiencies of traditional bandwidth allocations.....migrate everything to EoIP***

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**JOINT COMMUNICATIONS SUPPORT ELEMENT**

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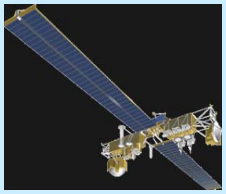
# Hot Projects

- DoD SATCOM Roadmap
- Warfighter Information Network – Tactical (WIN-T)
- High Capacity Communications Capability (HC3)

# DoD MILSATCOM Roadmap

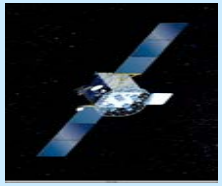
**Wideband**
Air Force programs

- DSCS: 10 GEO, X-band
- WGS: 1 – In transit/testing
- WGS: 4 GEO, X & Ka-bands



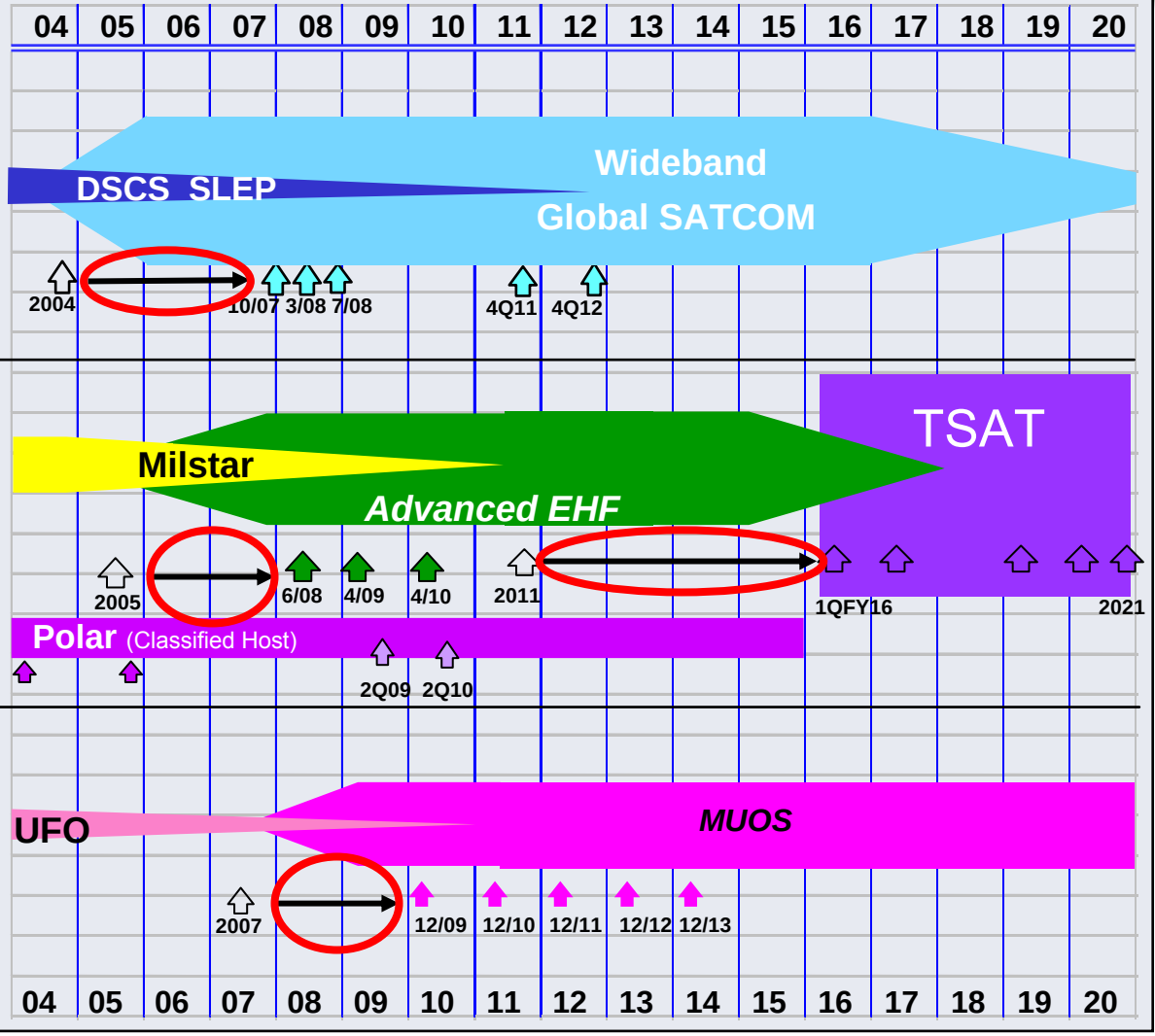
**Protected**
Air Force programs

- Milstar I: 2 GEO, EHF LDR
  Milstar II: 3 GEO, EHF LDR & MDR
- AEHF: 3 GEO, LDR, MDR, XDR
- Polar: Payloads on hosts
- TSAT: 5 GEO, XDR, XDR+



**Narrowband**
Navy programs

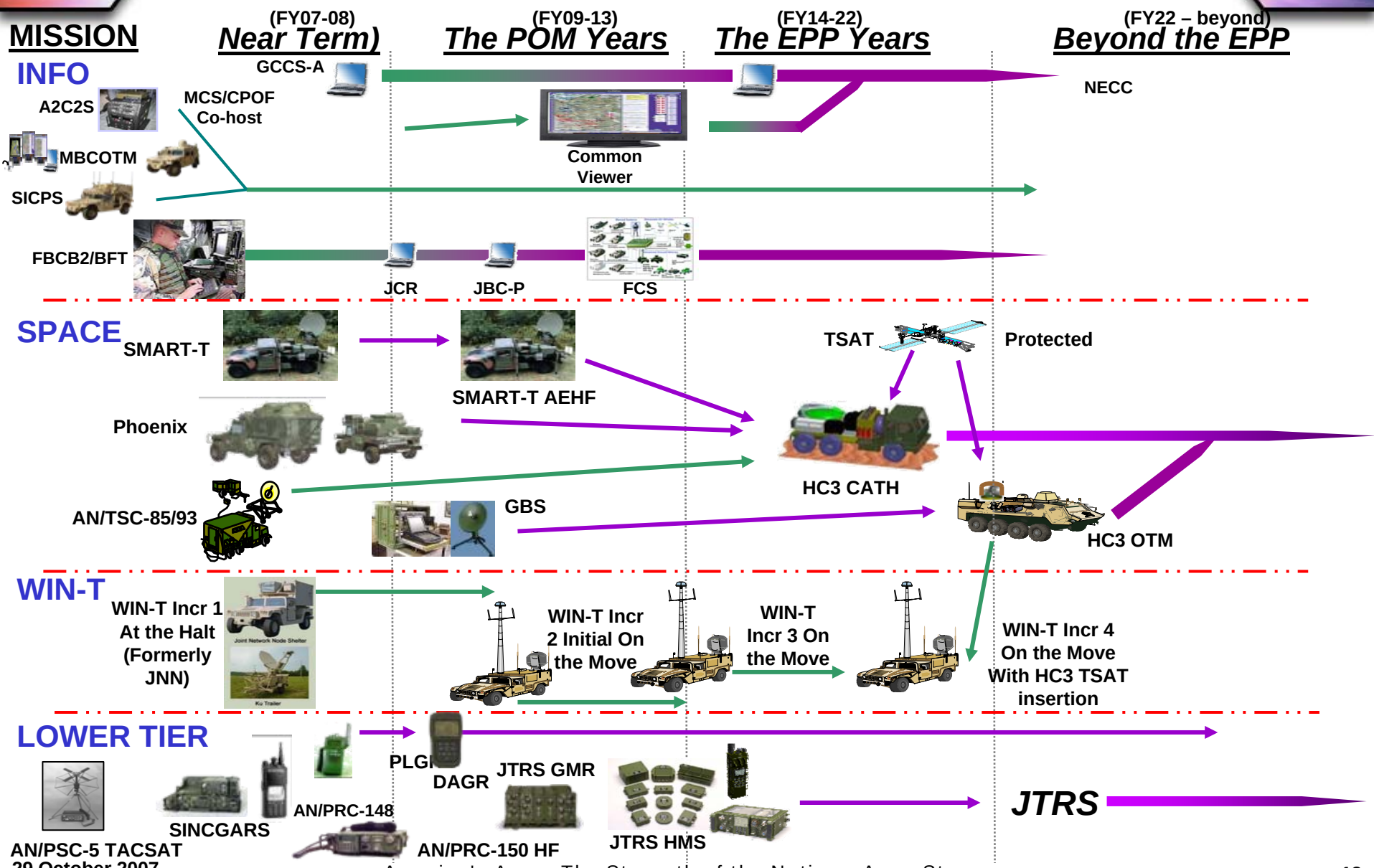
- UFO: 10 GEO, UHF Band
- MUOS: Up to 6 GEO, UHF Band
- COTM to Handheld terminals
- Gateway provides link to rest of TCA




**- Satellites Currently on Orbit**

**Satellite Launch Slippages Impacting Current & Future Force**
**Army Forced to Rely on Expensive Commercial Systems**

# Battle Command Enablers

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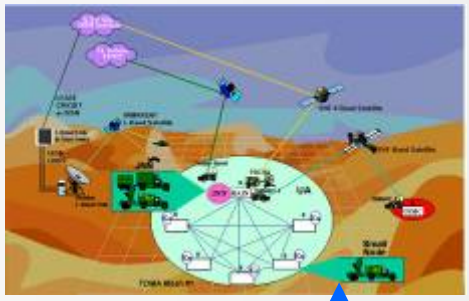
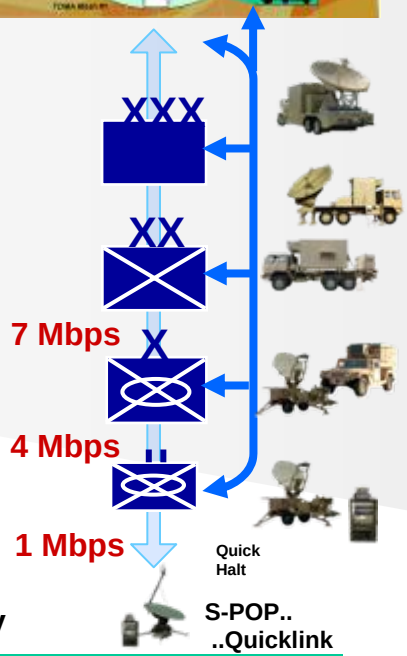
# Transforming Today ...to Meet Tomorrow's Needs

2004 - - - - - - - - - - - - ?

2014 - - - - - - - ?

## Joint Network Node (JNN)






**Modular Force**

## Warfighter Information Network-Tactical (WIN-T)

### Program Restructuring

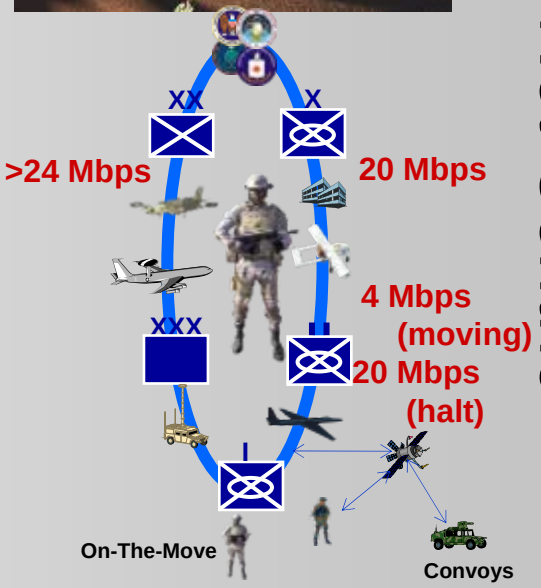
**Increment 1:**
*Networking At-The-Halt*
- 1a – Extended Networking-at-the-Halt
- 1b – Enhanced Networking-at-the-Halt

**Increment 2:**
*Initial Networking On-the-Move*

**Increment 3:**
*Full Networking On-the-Move"*

**Increment 4:**
*Protected Satellite Communications On-the Move"*

## Future Combat Systems (FCS)




Net-Centric

Joint & Coalition

**Future Force**

# High Capacity Communications Capability (HC3) System Overview

## Capabilities

- Protected SATCOM capability
- High Bandwidth SATCOM capability
  - Inc 1: Communications At-the-Halt (CATH)
  - Inc 2: Communications On-the-Move (COTM)
- Only way Army gets TSAT capability for COTM

## Characteristics

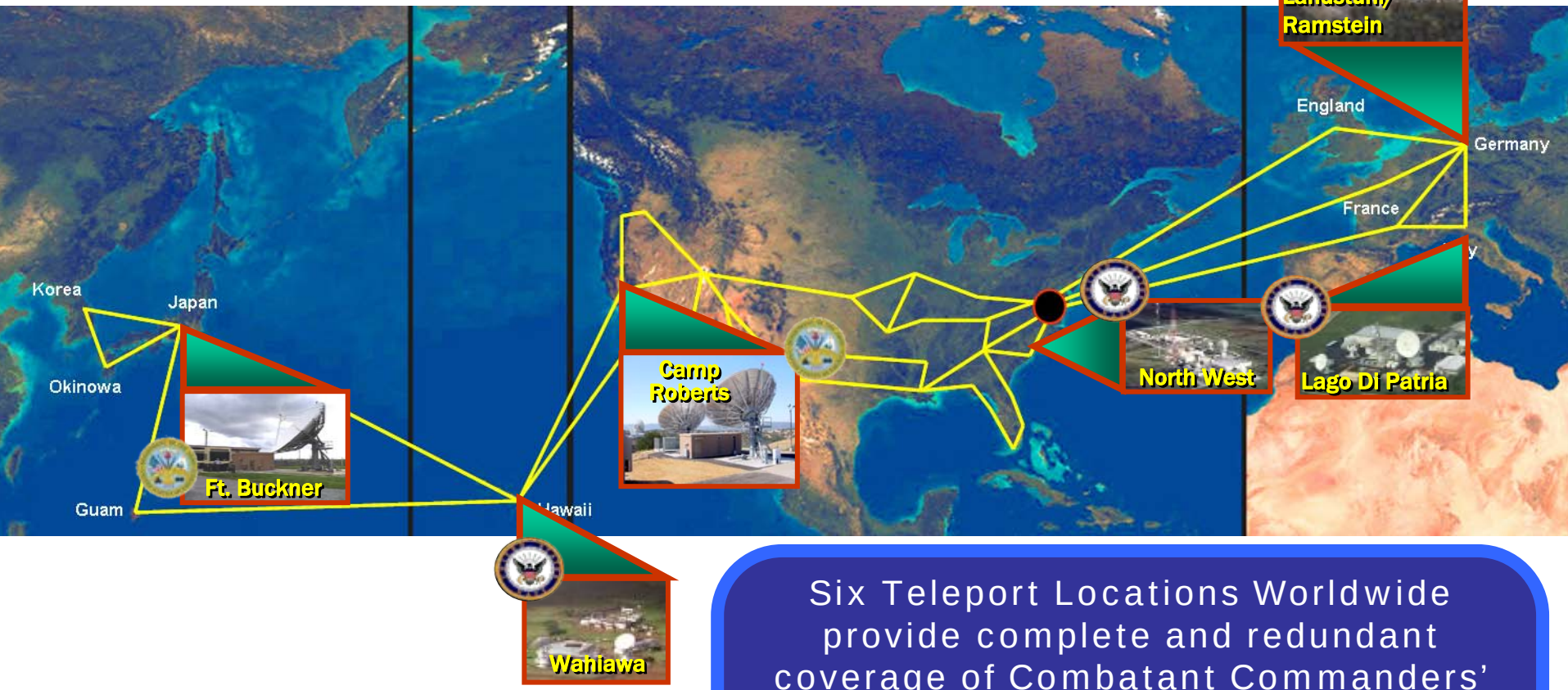
- Tactical Multi-Band & Multi-Mode
- Reduced Up-Armored Footprint
- Postured to develop Joint technologies for TSAT

## Roadmap

- HC3 Analysis of Alternatives in-process
- Objective solution to replace legacy tactical terminals nearing EOL (FY14)
- Goal is to synchronize terminal fielding with TSAT
- HC3 will enhance WIN-T architecture for BLOS connectivity

# DoD Teleports

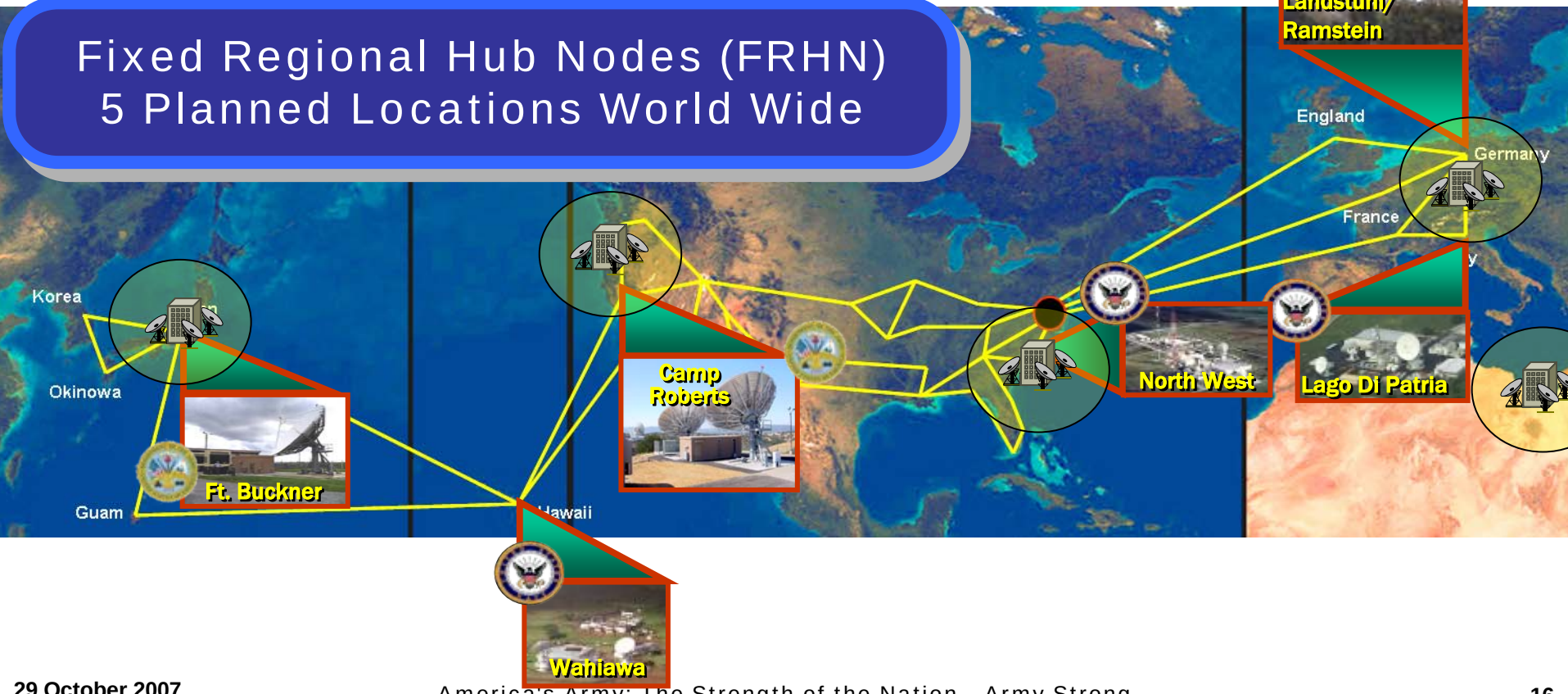
**Extending Internet Protocol Power through Global Reach**




Six Teleport Locations Worldwide provide complete and redundant coverage of Combatant Commanders' Area of Responsibility

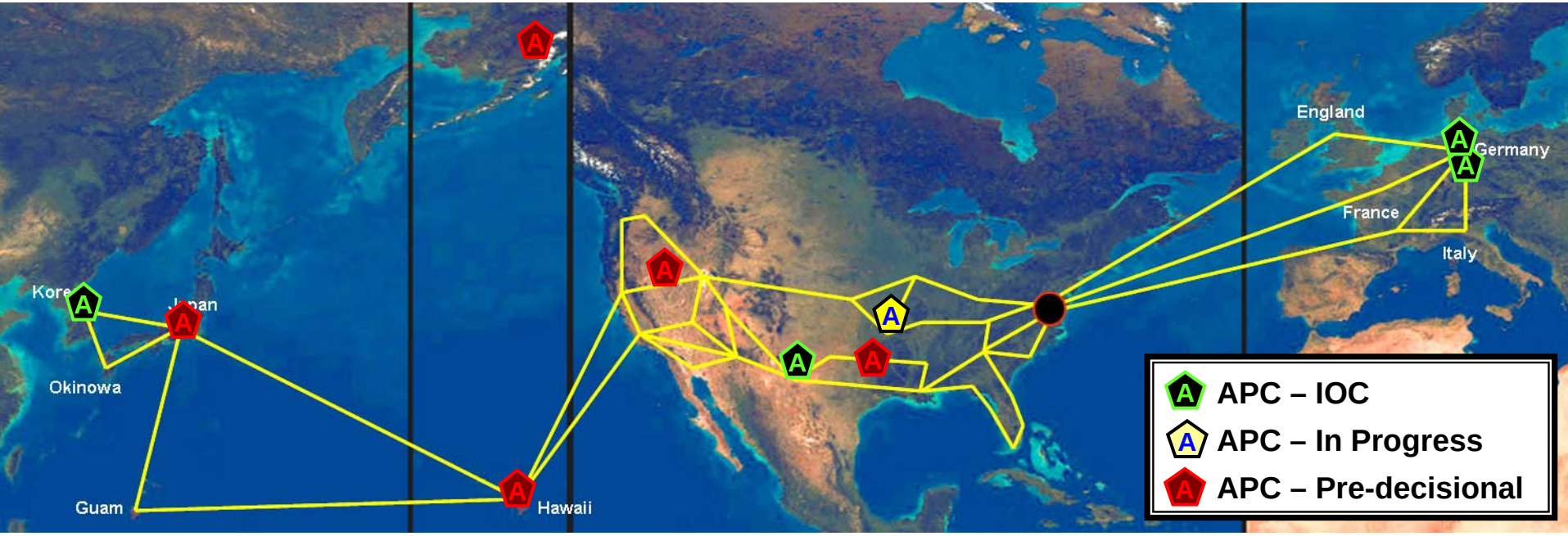
# Fixed Regional Hub Nodes

- **Five locations to provide complete & overlapping coverage of Combatant Command Areas of Responsibility (AOR)**
  - **All connected to the Global Information Grid (GIG)**
  - **Focus on Intertheater vs. Reachback via Teleports**
  - **Support Army/USMC Units & Comm-on-the-Move**



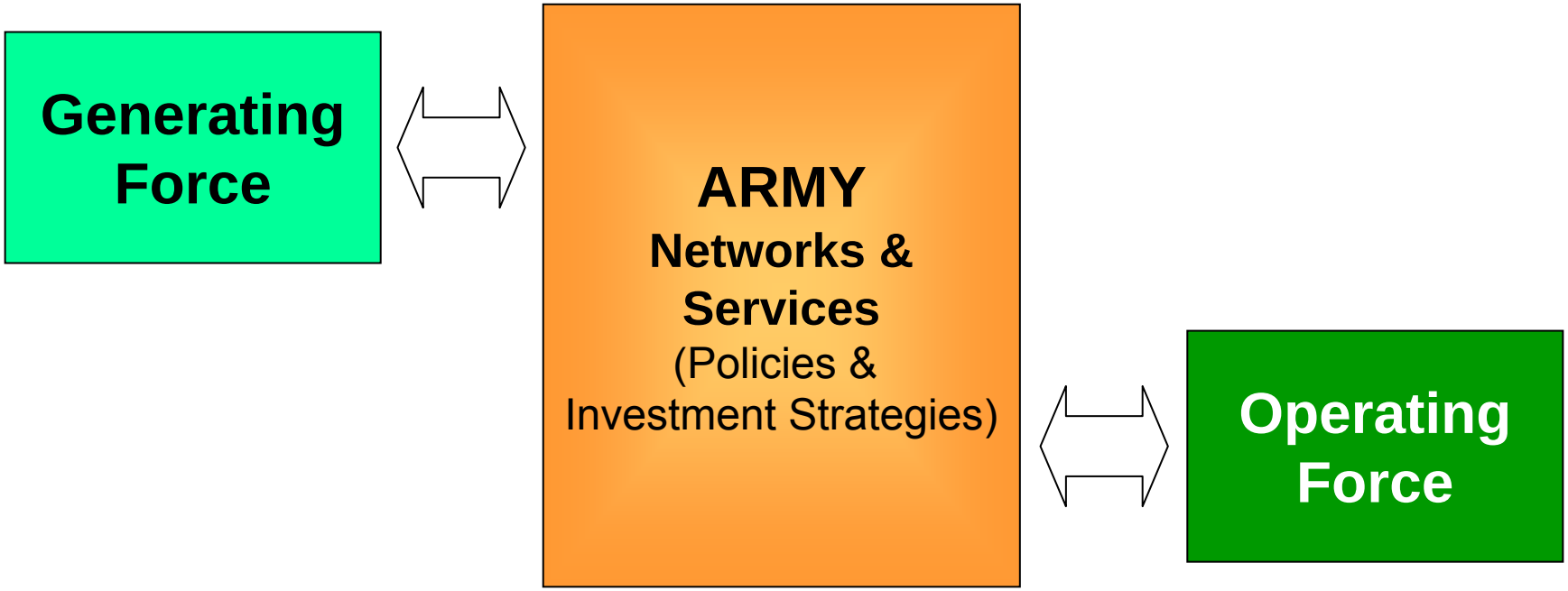
# Area Processing Centers

- The purpose of the APC initiative is to improve delivery services through:
  - Achieving Net-Centric Operations and Warfare Environment
  - Improving IA and Security Posture
  - Reducing Total Cost of Ownership (TCO) for Information Technology



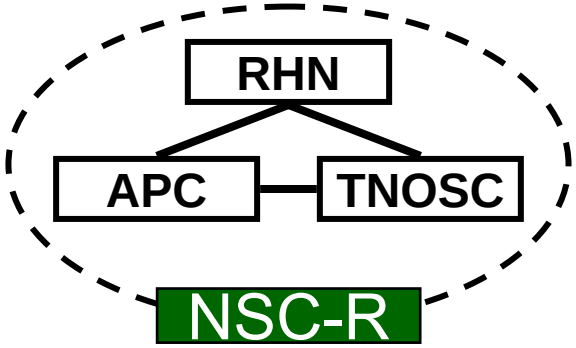
# The Goal

**Fully integrated & synchronized programs that deliver required warfighting capabilities**



# Network Service Center - Regional Concept (U)

- **Transport: Regional Hub Nodes (RHN)**
  - Positioned for global coverage—Europe, Southwest Asia, Pacific, CONUS-East, CONUS-West—plus a training hub at Ft Gordon
  - Supports up to three full division enclaves per hub node
  - Connect units to each other and to DISN services in garrison and deployed
- **Information Services: Area Processing Centers (APC)**
  - Consolidated IT services
  - Support projection and forward staging of user applications, information & services
- **NetOps: Theater Network Operations & Security Centers (TNOSC)**
  - Technical oversight of NSC-R component operation
  - Enterprise management, content management (staging and dissemination), network defense, spectrum management, help desk, applications



# Network Service Center - Regional

## Generating Force

**Capabilities:**
- I3MP
- NetOps
- KCs (AKO/DKO/…)
- Business Domain
- Intel Domain
- NCES
- APCs
- TNOSCs
- Net Svc Ctr – Tng
- (NSC-T)

## Network Service Center – Regional

(Virtual Combination of Global Capabilities with a regional expression)
- Regional Hub Node (RHN)
- Area Processing Center (APC)
- AKO-F
- Theater Network Operations & Security Center (TNOSC)

## Operational Army

**Capabilities:**
- WIN-T Increments (JNN-N)
- JTRS
- SATCOM
- NetOps
- Aerial Layer
- Transport for Trojan SPIRIT, CSS VSAT, SSET VSAT, BFT, PAONet, MedNet, etc.
- APCs
- RHNs
- NSC-Rs

# Kudos to Industry

- ✯ You are generating innovative ideas
- ✯ You have shown great flexibility in responding to our needs
- ✯ You have consistently worked to support our Warfighters

# Challenges to Industry

- ✯ Develop solutions to support Army's evolving and flexible architecture
- ✯ Use open standards vs. proprietary systems
- ✯ Maintain delivery of technical, cost, and schedule

# Conclusions

- ✯ **SATCOM Requirements**
  - **…*growing & will continue to grow***
- ✯ **Satellite Transport**
  - **…moving to EoIP**
- ✯ **Army Transformation**
  - **…tactical battle command enablers**
  - **…enterprise support generating & operational forces**
- ✯ **Military-Industry Team**
  - **…Kudos**
  - **…Challenges**

# QUESTIONS & THOUGHTS

## MG Jeff Sorenson

AMERICA'S ARMY: THE STRENGTH OF THE NATION
ARMY STRONG

U.S.ARMY