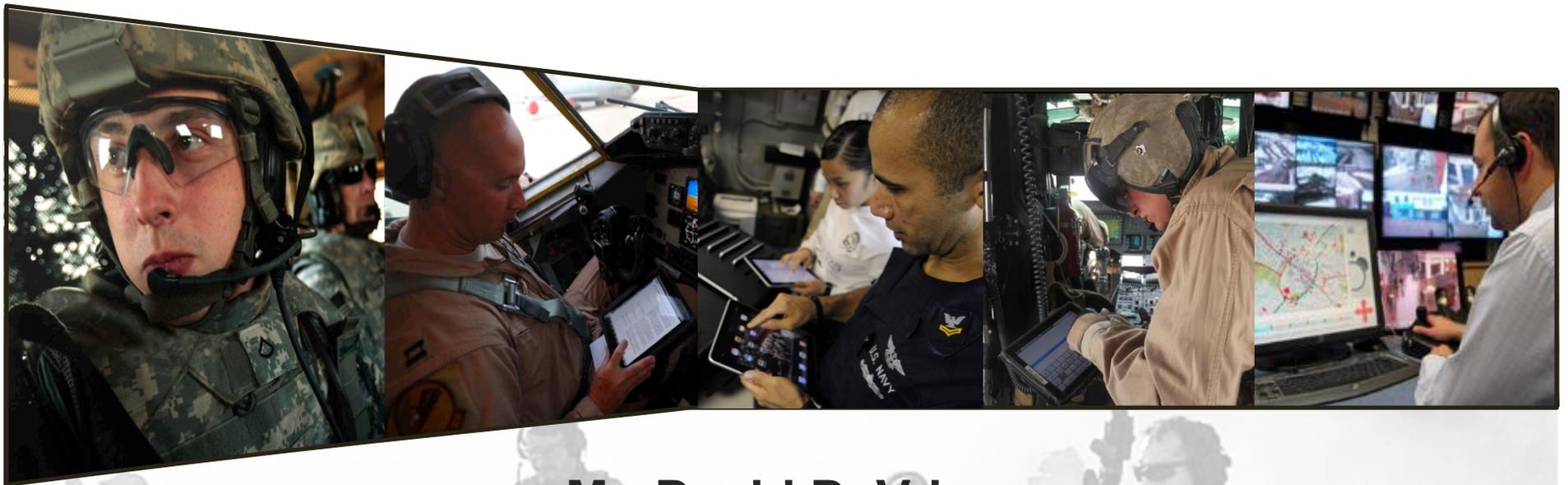# DoD Joint Information Enterprise

Mr. David DeVries

**DoD Deputy Chief Information Officer
For Information Enterprise (IE)
May 21, 2013**

DoD's Cyber Footprint … How Big?

DoD IT User Base

- ~1.4 million active duty
- ~783,000 civilian personnel
- ~1.2 million National Guard and Reserve
- 5.5+ million family members and military retirees
- 146 + countries
- 5,000 + locations
- 600,000 + buildings and structures

Total IT Budget

- > $39.6B in FY14
- > $17.4B in IT Infrastructure
- > $4.7B for cybersecurity

IT Systems

- >10,000 operational systems (20% mission critical)
- ~1850 data centers
- ~65,000 servers
- ~7+ million computers and IT devices
- Thousands of networks/ enclaves
- Thousands of email servers, firewalls, proxy servers, etc.
- Mobile devices
  ~ 493,000 Blackberries
  ~ 41,000 iOS Systems (Pilots)
  ~ 8,700 Android Systems (Pilots)

Scale of the footprint … scope of the challenge

Current DoD IT Environment

Hundreds of sub-optimal datacenters and networks incur **unnecessary costs**
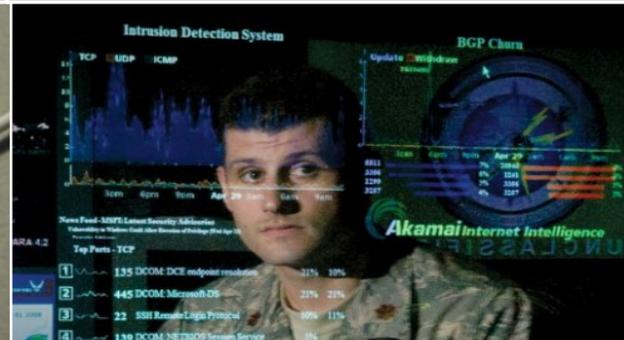
Limited interoperability reduces information sharing and collaboration on mission threats

Increasing demand for **new technology** on **rapidly** evolving devices

IT programs average **81 months*** cannot rapidly, efficiently field new tech to meet warfighter needs

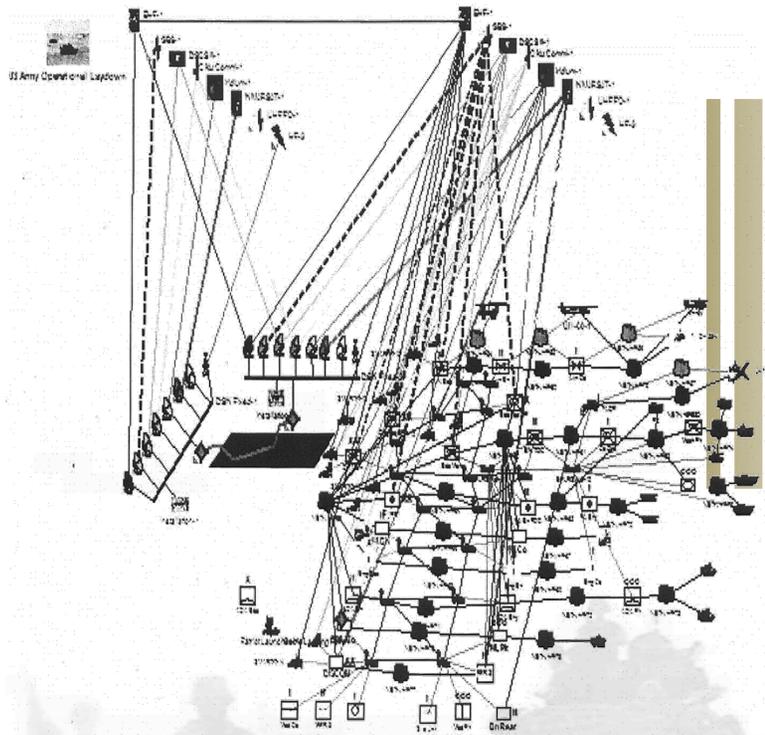**Cybersecurity vulnerabilities** threaten to exploit classified information and endanger mission success

Current IT delivery process hinders our ability to take advantage of **new commercial technology**

Transforming DoD IT/Cyber Environment

From This:

To This:

DoD Must Change

DoD IT Future: Joint Information Environment (JIE)

*A secure joint information environment, comprised of **shared information technology (IT) infrastructure**, **enterprise services**, and a **single security architecture** to achieve full spectrum superiority, improve mission effectiveness, increase security and realize IT efficiencies. JIE is operated and managed per Unified Command Plan (UCP) using enforceable standards, specifications, and common tactics, techniques, and procedures (TTPs).*

JIE drives:

- **Mission Effectiveness**: Enables Joint forces to achieve full spectrum superiority in protecting US. national interests

- **Cybersecurity**: Improves network security, enabling dynamic tasking of cyber forces

- **IT Efficiencies**: Synchronizes IT investment strategies through a common vision using a single security architecture

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JIE Enabling Characteristics

- **Transition from** network-centric to data-centric capabilities

- **Rapid delivery and use of** integrated cloud services **accessible by all means from anywhere**

- **An interdependent information environment providing** real-time cyber situational awareness

- **A** scalable platform **allowing flexibility and mission partnering**

- Secure **where it needs to be,** resilient **throughout, and appropriately** consolidated
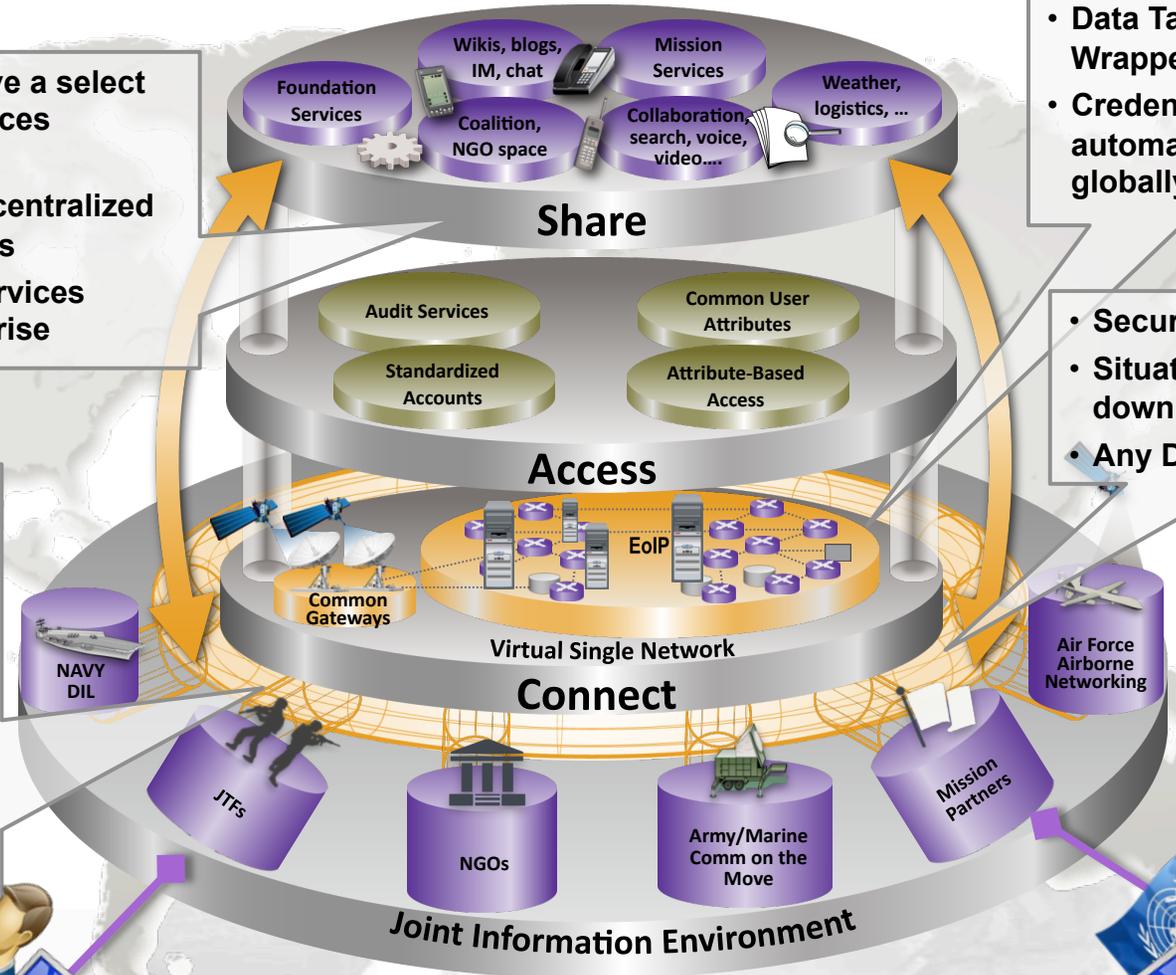
Information is a Critical Strategic Asset

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How Does JIE Impact DoD?

- **Smart Data**
- **Data Tagged and Wrapped**
- **Credentials work automatically & globally**

- **All DOD users receive a select set of common services automatically**
- **All services ride on centralized foundational services**
- **Targeted mission services shared to the enterprise**

- **Security End-to-End**
- **Situational Awareness down to the desktop**
- **Any DoD device anywhere**

- **Enables C2 Cyber Ops**
- **Eliminate network divisions & barriers**
- **Consolidate computing/storage**
- **Supports Low-Bandwidth Disconnected**

Wikis, blogs, IM, chat

Mission Services

Foundation Services

Coalition, NGO space

Collaboration, search, voice, video....

Weather, logistics, ...

Share

Audit Services

Common User Attributes

Standardized Accounts

Attribute-Based Access

Access

EoIP

Common Gateways

Virtual Single Network

NAVY DIL

Air Force Airborne Networking

Connect

JTFs

NGOs

Army/Marine Comm on the Move

Mission Partners

Joint Information Environment

C/S/A User's

ISAF/Coalition User's

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DoD IT Modernization

	F Y 1 4	~ F Y 1 7
Consolidate Data Centers	~2000	< 100
Network Optimization	Duplicative	Federated/ Enterprise
Consolidated Network Ops Centers	> 65	< 25
Replace legacy phone switches		Unified Communications
Reduce reliance on PCs	Desktop PCs	Client-Based Technology
Consolidate H/W and S/W Procurement	Multiple Contracts — 90 – 360 days	Enterprise Contracts — 10 – 60 days
Reduce duplicative IT staff		
Purchase Green IT to reduce energy use		

Plan of Action & Milestones (POA&M) Rough Order of Magnitude (ROM): TBD

Bottom Line: DoD IT Annual Budget $39.6B   **$????** $

JIE Strategy: Keep Initial Focus on Big Rocks

- **Network Optimization**
  - Common network standards and TTPs
  - Single Security Architecture

- **Data Center Consolidation**
  - Core Enterprise Data Center Standards
  - Service Data Center consolidation plans move to a Department focused plan

- **Identity and Access Management**
  - Access the Network from anywhere
  - Attributes access to data

- **Enterprise Services**
  - Common capabilities across the Department
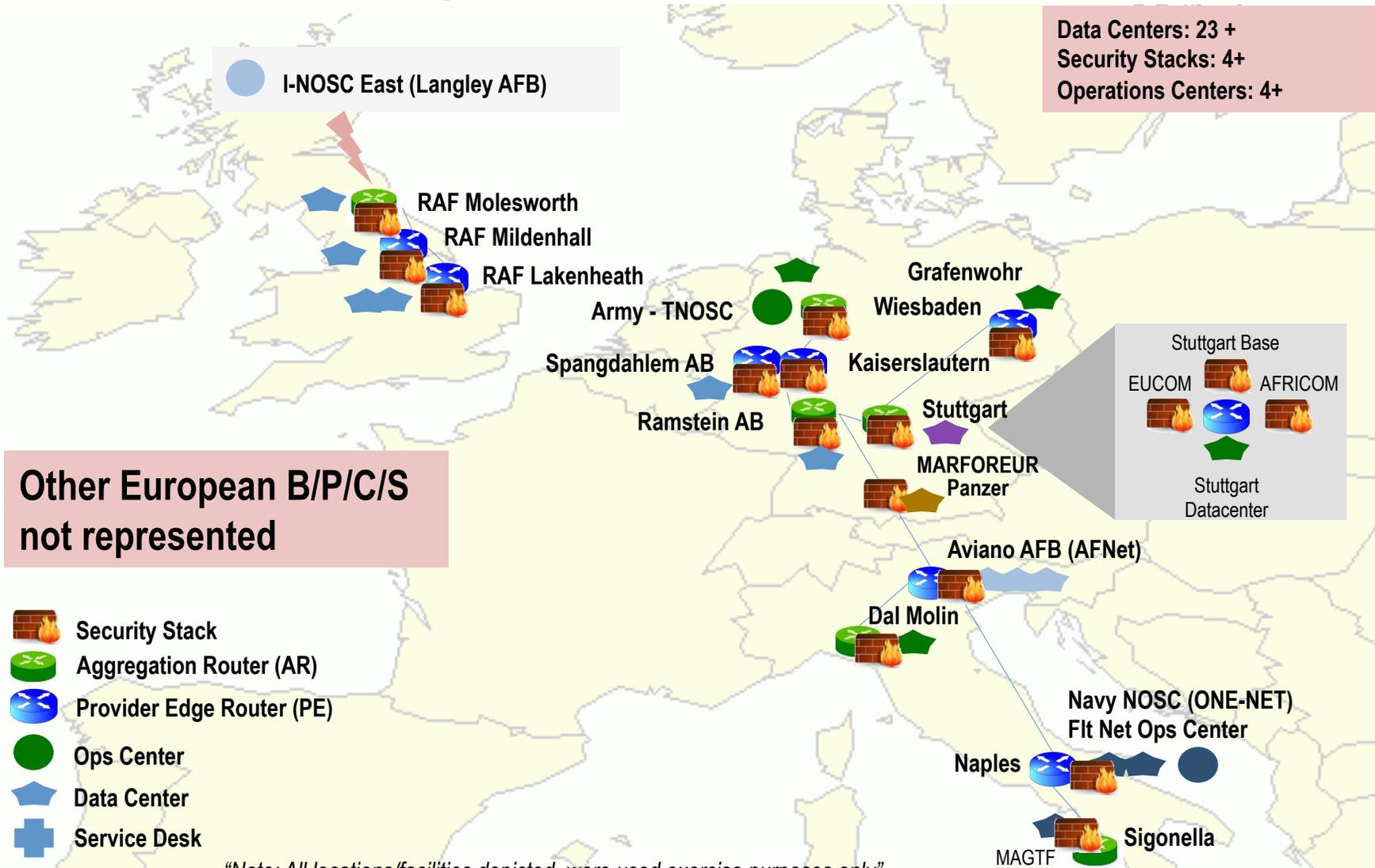 - Mission specific applications remain

- **Governance**
  - Move Service IT efforts into optimized DoD plan

Network Optimization:
Europe JIE Use Case – As Is

Data Centers: 23 +
Security Stacks: 4+
Operations Centers: 4+

I-NOSC East (Langley AFB)

RAF Molesworth
RAF Mildenhall
RAF Lakenheath

Grafenwohr
Wiesbaden

Army - TNOSC

Spangdahlem AB   Kaiserslautern

Ramstein AB

Stuttgart

MARFOREUR
Panzer

Stuttgart Base
EUCOM   AFRICOM
Stuttgart
Datacenter

**Other European B/P/C/S
not represented**

Aviano AFB (AFNet)

Dal Molin

Navy NOSC (ONE-NET)
Flt Net Ops Center

Naples

MAGTF   Sigonella

Security Stack

Aggregation Router (AR)

Provider Edge Router (PE)

Ops Center

Data Center

Service Desk

"Note: All locations/facilities depicted were used exercise purposes only"

Network Optimization:
Europe JIE Use Case – To Be

Data Centers: 5
Security Stacks: 5 (plus tactical entry)
Operations Centers: 2
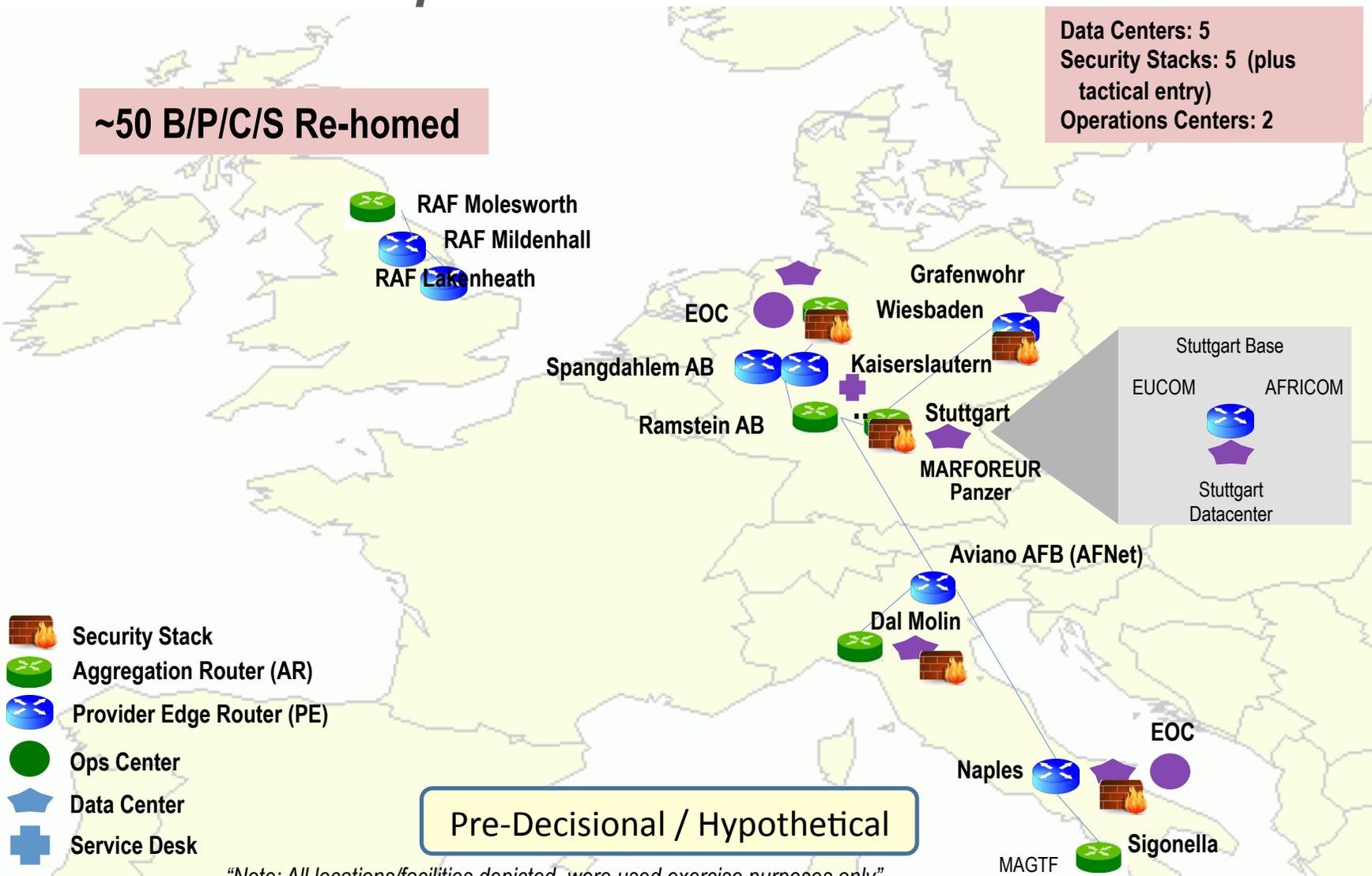
~50 B/P/C/S Re-homed

RAF Molesworth
RAF Mildenhall
RAF Lakenheath

EOC

Grafenwohr
Wiesbaden

Spangdahlem AB

Kaiserslautern

Ramstein AB

Stuttgart

MARFOREUR
Panzer

Stuttgart Base

EUCOM   AFRICOM

Stuttgart
Datacenter

Aviano AFB (AFNet)

Dal Molin

EOC

Naples

Sigonella

MAGTF

Security Stack
Aggregation Router (AR)
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Ops Center
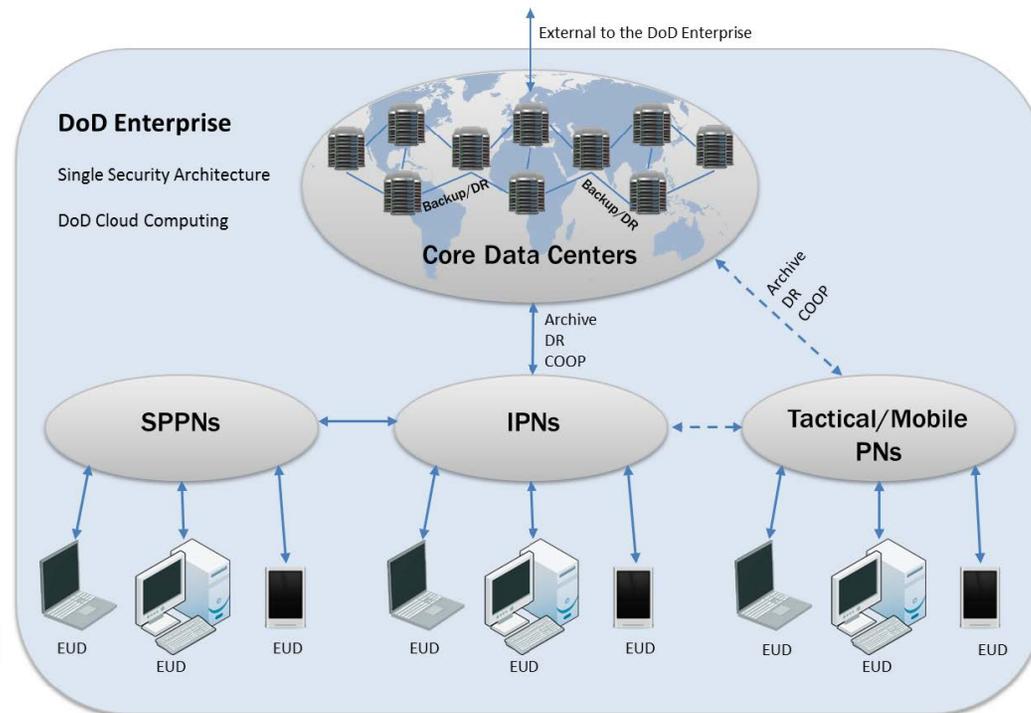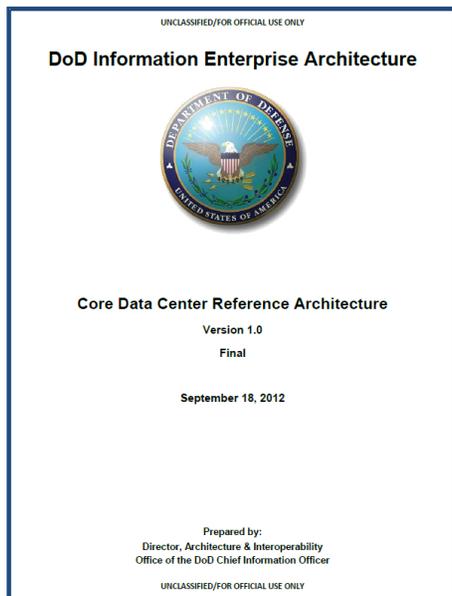**Data Center**
Service Desk

Pre-Decisional / Hypothetical

"Note: All locations/facilities depicted were used exercise purposes only"

Data Center Consolidation

DoD Core Data Center Reference Architecture defines the DoD cloud. Extension of this "core" with modularized and containerized data centers (data center in a box) will enable synchronized data and services within tactical edge environments.

Identity and Access Management (IdAM)

- DoD IdAM Vision: *DoD Enterprise Users and Non-Person Entities (NPEs) have trusted access to any resource, anywhere, at anytime*

  - DoD IdAM Strategic Goals
    - Drive out Anonymity
    - Implement Dynamic Access Control
    - Institutionalize DoD IdAM

- Enterprise approach for Attribute Based Access Control and services
  - Digital identity management, credentialing, authentication, authorization, and access auditing
  - Linking identity to data, applications, and IT resources access transactions
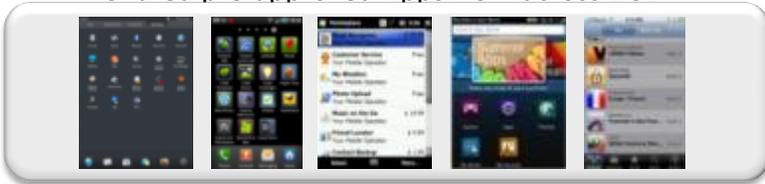
Data

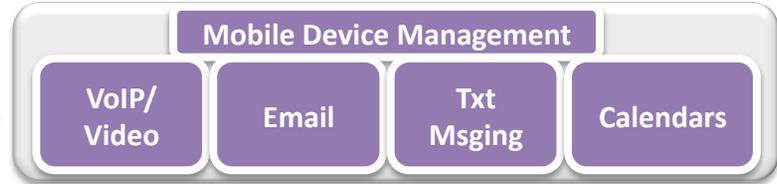# Enterprise Services: *Mobility End-to-End Vision*

Secure Government Enterprise Services

DoD Mobile Application Storefront
Shared pre-approved Apps from across DoD

DoD Enterprise Capabilities

Mobile Device Management

| VoIP/ Video | Email | Txt Msging | Calendars |

Mobility Gateway Apps and devices authorized & ready to connect to DoD networks & services

Mobility Networking

Wireless Carriers
Standardized service plans and DoD negotiated rates

Identity Management
DoD wide creates interoperability

HOME   WORK

Commercial Mobile Devices
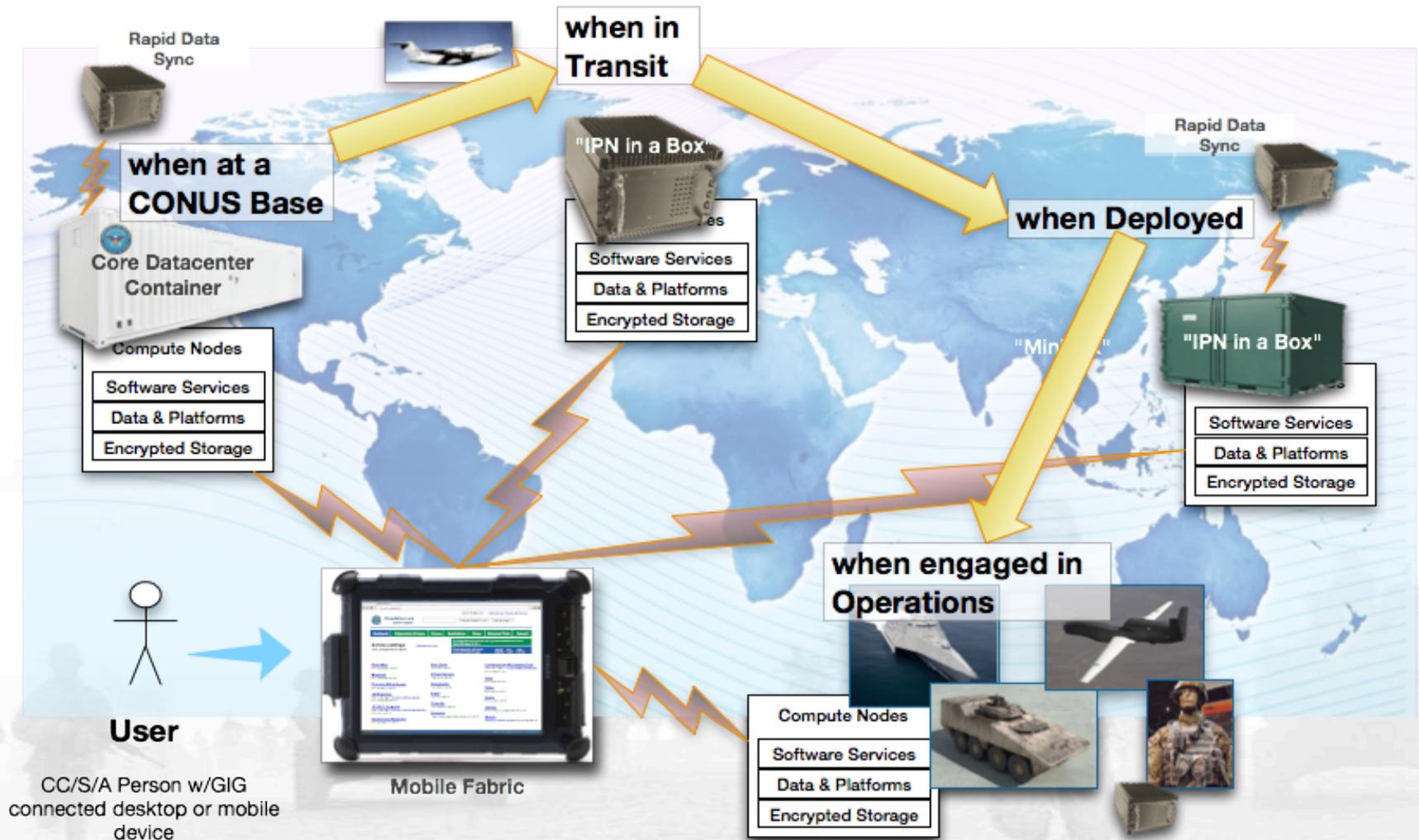Simplified pre-approval of multiple devices for all DoD

MOBILE (TDY/DEPLOY)   **FUTURE DEVICES**

Bottom Line: New mission-specific capabilities are more agile and quick to develop because standard infrastructure is available

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Enterprise Services: *DOD Cloud Infrastructure: Soldier Always Stays Connected to the Cloud*

Rapid Data Sync

when at a CONUS Base

Core Datacenter Container

Compute Nodes
- Software Services
- Data & Platforms
- Encrypted Storage

when in Transit

"IPN in a Box"
- Software Services
- Data & Platforms
- Encrypted Storage

when Deployed

Rapid Data Sync

"IPN in a Box"
- Software Services
- Data & Platforms
- Encrypted Storage

when engaged in Operations

Compute Nodes
- Software Services
- Data & Platforms
- Encrypted Storage

User

CC/S/A Person w/GIG connected desktop or mobile device

Mobile Fabric

Challenges – Achieving JIE

- **Cultural Changes**

  o Cultural/institutional differences

  o Adapting to new management construct for JIE

- **Technology**

  o Disparate technologies and security architectures throughout DoD CC/S/As

- **Resources**

  o Stovepipe funding streams

  o Seed money to fund investments

  o Budget / Sequestration

Way Ahead

- Continue to articulate JIE Vision to internal and external audiences

- Continue to leverage COCOMs, Services and Agencies IT initiatives to achieve end-state

- Drive implementation and execution actions necessary to deliver capabilities

- Embed policies, procedures, oversight, and culture that enable info sharing

- Partner with industry to deliver National Security in Cyberspace

- Leverage extensive and unprecedented capabilities afforded by the Information Age

- Implement JIE Increment 1 to test capabilities in Europe

Coalition Forces ISAF

Looking Ahead with Industry

- Improve / simplify the user experience

- Turn capabilities into mobile applications
    - Applications to represent "lite" versions of working business systems

- Keep pace with emerging technologies

- Mobile device management; device auditing; and device provisioning

- Strong partnerships between government and industry

- Work early and often with Industry to get it right from the start!

- Combined efforts to protect DoD Environments from outside adversaries

Must deliver mobile solutions that leverage commercial off-the-shelf products, improve functionality, decrease cost, and enable increased personal productivity

DoD Joint Information Environment

- ## Achieving JIE enables:

  - Faster Deliveries

  - Innovative Solutions – **Federation/Shared Infrastructure**

  - Improved Efficiencies – **Enterprise Services**

  - Secure Capability – **Defensibility/Redundancy/ Resiliency**

"The relevance of space and cyberspace to national security will grow exponentially in magnitude of importance. Our reliance on technological superiority is a potential vulnerability that our adversaries will seek to exploit."

General Martin E. Dempsey, USA, Chairman, Joint Chiefs of Staff

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