Federal Networks Conference

DHS Enterprise Network Modernization

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Department of Homeland Security

Office of the Chief Technology Officer (OCTO)

Homeland Security

Protect. Connect. Perform.

Welcome – A little about me

- Started with DHS, October 2017
- Director, Enterprise Network Modernization PMO
- Previous DHS Service Delivery Chief and Deputy Director for Data Centers Operations
- Led all facets of data center operations, cloud migrations, cybersecurity, program management, network management, and enterprise IT modernizations
- Previous Positions: DISA, FRTIB, and U.S. Navy Active Duty
- Education:
  - Georgetown University, Master's in Technology Management
  - Villanova University, Master's Certificate in Software Testing
  - Old Dominion University, B.S. Occupational and Technical Studies
  - DAWIA Level III: IT and Test and Evaluation Engineering
  - Certified Information Security Manager (CISM)
  - Information Technology Infrastructure Library (ITILv3)

DHS OCIO IT Focus

Challenges with the Status Quo
End User Performance
DHS Bottom Line
Moving to the Cloud

Network Modernization
Way Forward
Strategy and Approach
Management Construct
Notional Timeline

Data Center Optimization
and Cloud Migration
Data Center 1
Data Center 2
DHS Cloud Strategy

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Enterprise Network Modernization Program Management Office

Mission
Provide exceptional enterprise network strategies, governance, acquisition, transition, and modernization initiatives in support of DHS wide missions and objectives

SIMPLIFY THE PROCESS
Simplify the process of acquiring telecommunications and IT products and services.

1

PROVIDE COST SAVINGS
Provide cost savings through aggregated volume buying and increased visibility into spending.

2

PROCURE INTEGRATED SOLUTIONS
Enable the procurement of integrated solutions.

3

4

MOVE AT SPEED
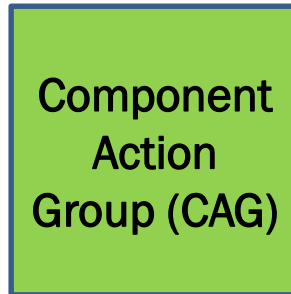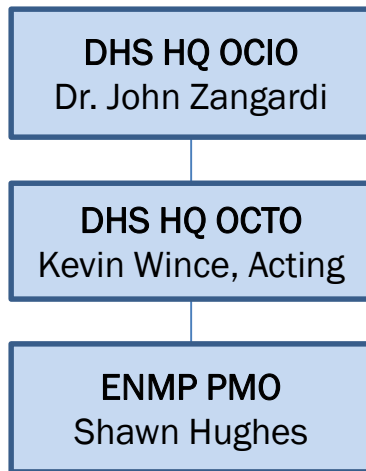Move quickly to modernize the network and meet Department and Component mission needs.

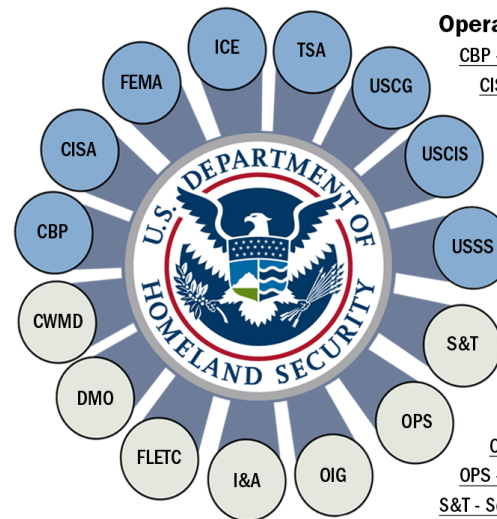## Foster collaboration and teamwork across DHS and its partners

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Organization

DHS Components

DHS HQ OCIO
Dr. John Zangardi

DHS HQ OCTO
Kevin Wince, Acting

ENMP PMO
Shawn Hughes

Component Action Group (CAG)

Operational Components
CBP - U.S. Customs and Border Protection
CISA - Cybersecurity and Infrastructure Security Agency
FEMA - Federal Emegency Management Agency
ICE - U.S. Immigration and Customs Enforcement
TSA - Transportation Security Administration
USCG - U.S. Coast Guard
USCIS - U.S. Citizenship and Immigration Services
USSS - U.S. Secret Service

Support Components
CWMD - Countering Weapons of Mass Destruction Office*
DMO - Departmental Management and Operations
FLETC - Federal Law Enforcement Training Centers
I&A - Office of Intelligence and Analysis
OIG - Office of Inspector General
OPS - Office of Operations Coordination
S&T - Science and Technology Directorate

Requirements Collaboration, Modernization, Operations

Enterprise Network Modernization Strategy and Approach

- **Vision:** Enable a more flexible and sustainable architecture that is easier to manage and more responsive to Component mission requirements and Department priorities

- **Goal:** Achieve management efficiencies, like increased cost savings and reduced overhead costs, consistent with guidance including:
  - Executive Order (EO) 13781, the Effectiveness and Efficiencies EO
  - The Report to the President on Federal IT Modernization
  - OMB transition direction to DHS Fair Opportunity / Opportunities

- **Transition Scope**: In line with OMB/GSA transition direction, the initial DHS EIS transition will cover the current services of three GSA contracts expiring in 2023:
  - Networx,
  - Washington Interagency Telecommunications System – 3 (WITS-3), and
  - Local Service Agreements (LSAs) – including circuits

Enterprise Network Modernization Approach

EIS Network Modernization Program Management Office (PMO)

- EIS Service Areas (FY20)
  - o **Data** – Provide backbone connection for all Components and reduce contract complexity
    - ✓ Recently communicated to the EIS awarded vendors our currently in-development requirements and near term engagement schedule
  - o **Voice** – Includes video and audio conferencing; improve UCaaS modernization efforts
  - o **Contact Centers** – includes al IT services and capabilities needed to operate
- Migration of telecomm infrastructure from expiring GSA contracts (starting in FY20)
- DHS network modernization and transformation (FY20 → Beyond)

EIS Acquisition	EIS Transition & Modernization	Network Transformation (e.g., SD-WAN, Consolidation, etc.)
FY18-FY20	**FY20-FY23**	**FY23-Beyond**

# Constraints with Today's Network Connectivity

Technical Challenges

- Technical debt limits end user performance

- Legacy IT is expensive to maintain

- Network challenges increase the time of issue resolution

- Current environment is not optimized for Cloud

Vendor Accountability and Management

- Inter-dependencies are easily misunderstood

- Increased cost transparency

Contracting Situation

- OMB transition direction and timeline to use EIS

- Three major GSA contracts expire in 2023:

  - Networx, WITS 3, and LSAs
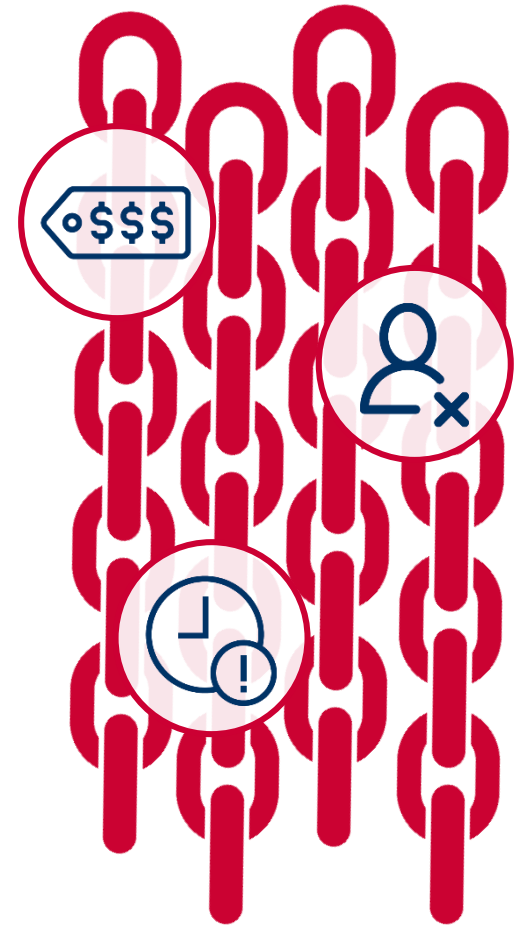
Network Architecture Initiatives

| Discover | Visualize | Understand | Transform |

- Discovery of all network circuits, creating network diagrams
- Develop network architecture by region and service
- Develop strategic network modernization plans given DC2 closure, DC1 optimization, EIS, legacy devices, Cloud, IoT, etc.
- Develop network modernization strategic To-Be architecture and a service delivery roadmap
- Identify opportunities for network modernization activities based on utilization/capacity planning
- High Risk Communication mapping by region, service, bandwidth utilization
  - Capacity planning/analysis, visualization reporting - use for development of a modernization plan.

Transport Technologies

Goals

- Transition to a managed services solution under EIS
- Reduce dependence on Time-Division Multiplexing (TDM) technology
- Improve network performance and manageability
- Increase cost-effectiveness of services

- Reduce over-capacity
- Increase resiliency
- Improve rapid response capability
- Increase operational effectiveness
- Incorporate new technologies

Service Technology Areas			
Virtual Private Network	Commercial Satellite Communications	Circuit Switched Voice	Video Teleconferencing
Internet Protocol Voice	Managed Network	Audio Conferencing	Service Related Equipment & Labor
Ethernet Transport	Managed Trusted Internet Protocol	Circuit Switched Data	Managed Mobility
Optical Wavelength	Managed Security	Access Arrangements	Unified Communications
Private Lines	Access Arrangements	Software- Defined Networking	Managed Mobility
Internet Protocol	Service Related Equipment	Land Mobile Radio	Web Conferencing
Colocated Hosting	Cable and Wiring	Wireless	Toll Free

The Future of IT and Networks

- Network traffic increasing
- Moving to a data driven environment
- Emerging Technologies
  - Biometrics
  - Artificial Intelligence
  - 5G, 6G, 7G, 8G...
  - Internet of Things (IoT)
  - Federated Architecture – Agility
  - Cloud – Security/Ops

- Considerations
  - Where's our data?
  - Who has access to our data?
  - Can we quickly and securely scale the network to support end user demand?

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Summary

- Comply with OMB direction to transition and modernize the data and voice network using EIS

- Initiate network architecture initiatives

- Partner with industry for managed service concept

- Focus the next generation of the network on:
  – Strategic planning
  – Service delivery
  – Operational availability
  – Transformation
  – Cost Savings
  – User Experience
  – Embrace Emerging Technologies, e.g. Software Defined Netrworking

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DHS CIO Mission and Vision

Mission

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Vision

Deliver World Class Information Technology (IT) To Enhance and Support the DHS Mission