Program Executive Office
Command, Control, Communications, Computers and Intelligence (PEO C4I)

PMW 790 Shore And Expeditionary Integration Program Office

NDIA Briefing

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Statement A: Approved for public release; distribution is unlimited. (21 OCTOBER 2014)

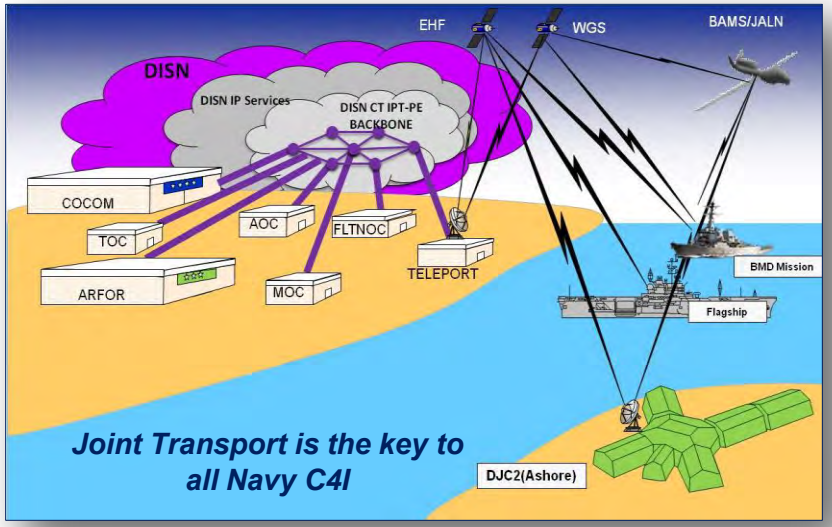
Integrated Information Warfare for the 21st Century

Outline

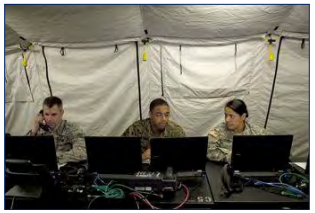
- PMW 790 Overview, What We Do…
- Major Programs and Projects
- Focus Areas
  - C2 as a Service (C2aaS)
  - Commonality Alignment
  - Science and Technology (S&T)
- Small Business Engagements
- Future Solicitations

We Connect

Providing assured connectivity between tactical forces and higher commands



STACC connecting Fleet, MOCs, Joint and Expeditionary



Support for Operation Tomodachi

20+ Major Shore Sites

NCTAMS (2) NCTS (5) MOCs (9)
DOD Gateway (7)

12 Expeditionary Commands

Demonstrated by:

✓**Global Shore C2 Connectivity:** Shore Tactical Assured Command & Control (STACC) program provides assured communications for critical Navy and Joint partners

✓**COOP Contingency:** Providing connectivity during failover

✓**Expeditionary C2:** Flexible network and communications configurations to support full range of military operations

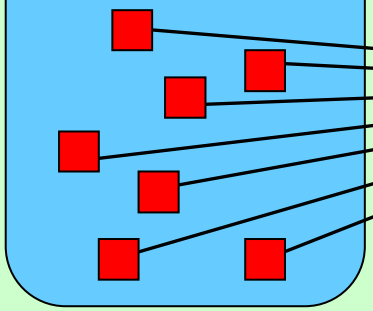
✓**Messaging:** Strategic and Tactical

We Integrate

Fielding aligned and integrated C4I solutions and capabilities for shore and expeditionary forces

Program Offices

Portfolio Products

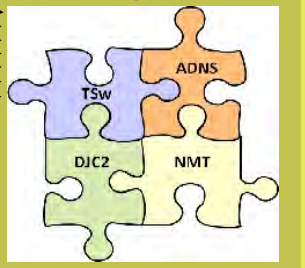


Assure Product Interoperability/Integration

- Achieve requirements functionality
- Modernization/Tech Refresh
- Testing
- CM Control (ECR)

Manage Shore C4I Builds

PEO Systems



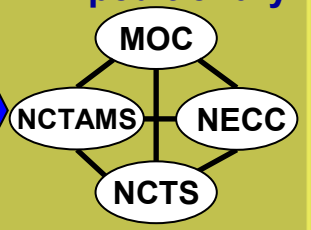
Multisystem Interoperability & Integration Planning

- Validate readiness/risk
- Shape planned deliveries to platform requirements (Power/HVAC/Minor MILCON)

FRD Fielding Handover

World Wide Shore Sites

Shore & Expeditionary



Fleet Operating Forces

- Site/expeditionary command installation & integration
- Deliver PEO functional systems

Development → Integration → Delivery

We Support

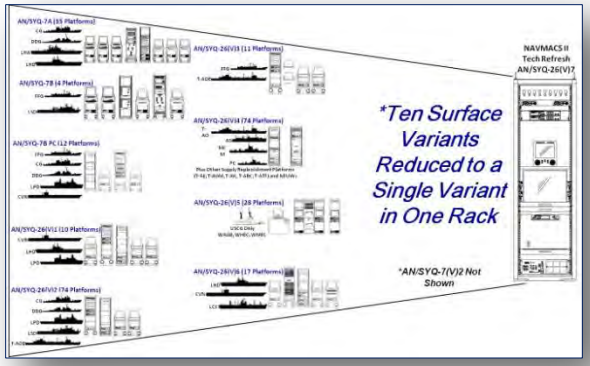
Ensuring cradle-to-grave shore and expeditionary C4I capabilities are fully supported and cost effective

Accomplished through:

✓**Information Assurance:** Compliance, Certification, Type Accreditation, IAVM

✓**Integrated Logistics Support (ILS):** Technical Support, Help Desk, Training, Spares, Technical Publications, Warranties

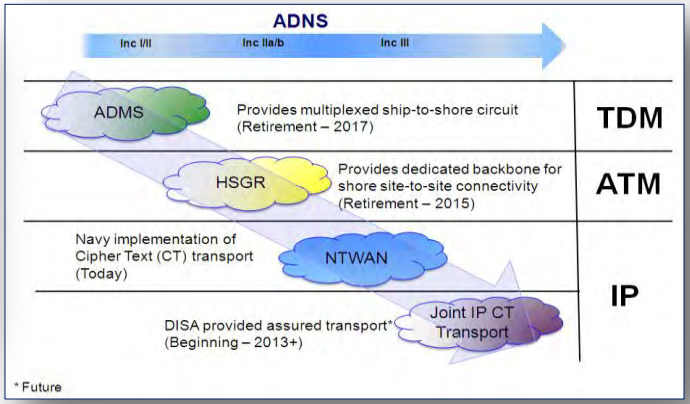
✓**Modernization:** Tech Insertion/Tech Refresh, SWAP Reduction, Enhanced Bandwidth



NAVMACS support multiple variants while migrating to single variant

- 2 Networks/ Reach-back
- 5 Networks/Local Clients x 250+
- +8 Support Positions

Flexible, deployable C2 capabilities



STACC support on TDM and ATM while migrating to IP

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Portfolio Overview

Shore Command Systems & Integration

1. Shore Tactical Assured C2 (STACC) – ACAT IV(M)
2. VSE/CENTRIXS-M) – Project
3. Maritime Operations Center (MOC) – Project

Joint Communications Systems

4. NC3 – ACAT IV(T)
5. Messaging (afloat & ashore) – Project
6. Telephony – Project

Expeditionary Systems and Integration

7. Deployable Joint Command and Control (DJC2) – ACAT IAC Inactive
8. Navy Expeditionary C4I – Project
9. United States Naval Observatory (USNO) – ACAT III
10. Joint (UHF) MILSATCOM Networks Integrated (JMINI) – ACAT IV(T)

Platform Integration

11. Site Integration – Multiple Projects
12. Design Center

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C2aaS Aligning Platforms

- 8 Platforms: STACC (Secret, Unclass, SCI, VSE, CENTRIXS-M) DJC2, Expeditionary, USNO
  - 6 different refresh timelines
- Established Ashore Application Integration Process (AAIP)
  - Modeled from PMW 160 AIP
  - Common application entry point for PMW 790 Hosting Platforms
- Establishing Hyper Converged Infrastructure and Platform baselines
  - Common Software Baseline
    - Common Expeditionary and Shore Baseline (CESB)
  - Common Hard
- Establishing common engineering processes and common reviews
  - SSDD, SPS, SDD, Test Plan/Report etc …

Laying the Foundation through STACC

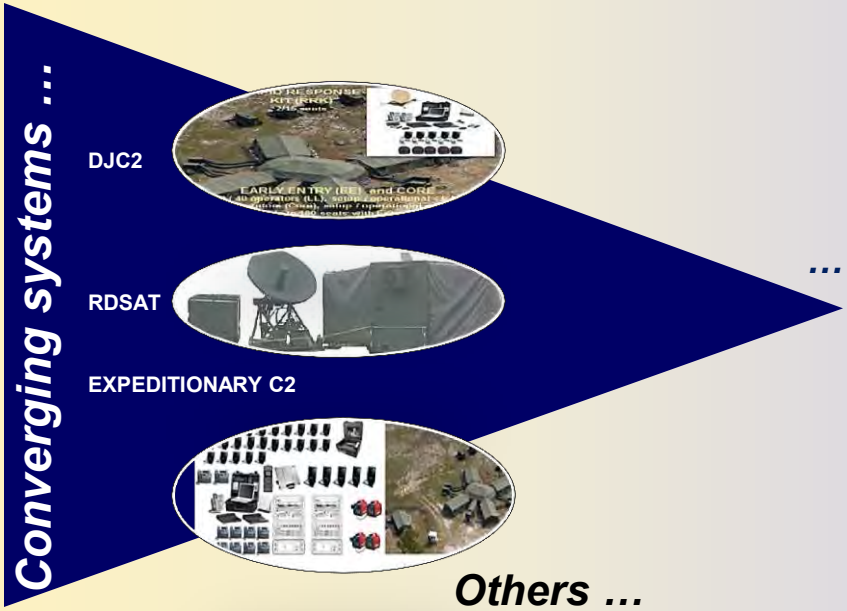
End of FY17 State

- 5 of 8 platforms already moved to common hardware platform
- 8 of 8 will be HCI by Q4FY17
- FY16 efforts lead to CESB
- FY17 efforts bring CESB to 8 of 8 platforms

Expeditionary C4I Convergence

Today's Reality

- Similar capabilities across different expeditionary systems fielded to Fleet
- Multiple variants and configurations within each system
- Multiple ISEAs



… to produce scalable Expeditionary C4I Best of Breed

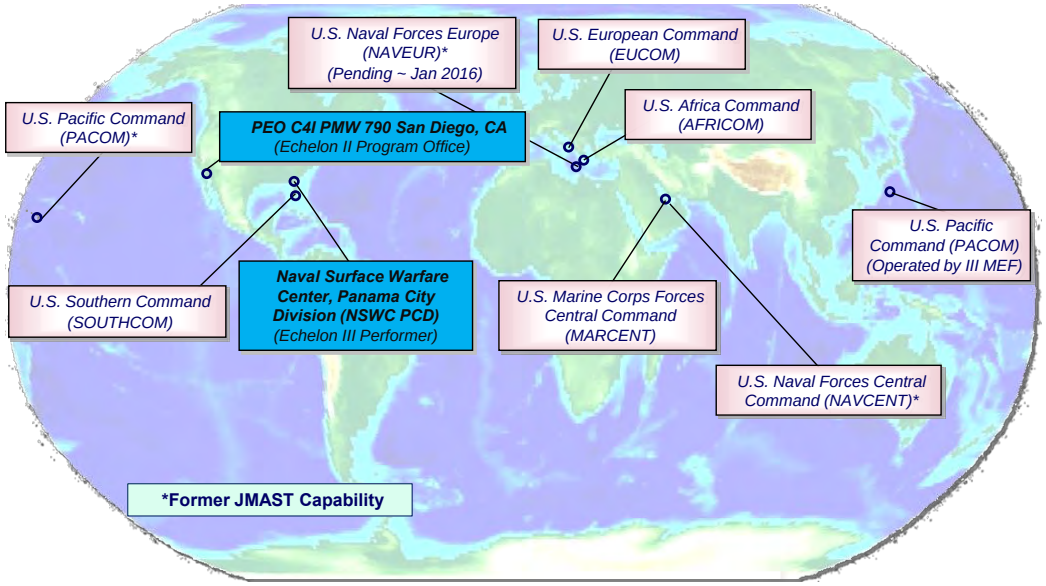
Tomorrow's Vision

- Single, common expeditionary C4I portfolio
- Portfolio meets all expeditionary C4I requirements for all customers
- Scalable variants for maximum operational flexibility (large, medium, small, rapid response ops)
- Reduce SWAP Characteristics

Deployable Joint Command and Control (DJC2)

Integrated C2 HQ system enables set up of self-contained, self-powered, network-enabled JTF HQ anywhere in the world within 6 - 24 hours of arrival

Design is fully self-supporting with its own power, environmental control, and SATCOM — augmented with an autonomous rapid response capability



Key DJC2 Operational Stakeholders

POR DJC2 owners:

- *U.S. Pacific Command (PACOM) x 2*
- *U.S. European Command (EUCOM)**
- *U.S. Army Africa (USARAF)**
- *U.S. Southern Command (SOUTHCOM)**
- *U.S. Naval Forces Europe (NAVEUR)*

*Transfer to JCSE planned for 1 Oct 2016

Non-POR DJC2 owners:

- *U.S. Naval Forces Central Command (NAVCENT)*
- *Marine Corps Forces Central Command (MARCENT)*

Operational Sponsor:

Joint Staff J3 & J6

DJC2 Scalability

Scales from the few to the many

 # Users

<4

Commander's Kit

- ➢ 2 Networks/Rchbk
- ○ BGAN

Wt : 90 lb
Cubic ft: 3.59

<15

Rapid Response Kit (RRK)

- ➢ 2 Networks/Rchbk
- ▪ Client x 5
- ○ Hawkeye 3 Lite
- ○ VoIP/VoSIP
- ○ Voice (analog)
- ○ VTC

Wt: 465.40 lb
Cubic ft: 32.47

40

Early Entry (EE)

- ➢ 3 Networks/Local
- ▪ Client x 40
- ○ Hawkeye 3 Lite
- ○ GBS
- ○ AN/PRC-117G
- ○ Iridium
- ○ VoIP/VoSIP
- ○ Voice (analog)
- ○ DRSN
- ○ VTC
- ○ FAX
- • Shelter/HVAC
- • Power gen & distro
- • Tables/Chairs
- ❖ +8 Support Positions

Wt: 44891.0 lb
Cubic ft: 6288.23

60

CORE

- ➢ 5 Networks/Local
- ▪ Clients x 130
- ○ Hawkeye 3 Lite
- ○ GBS
- ○ AN/PRC-117G
- ○ Iridium
- ○ VoIP/VoSIP
- ○ Voice (analog)
- ○ DRSN
- ○ VTC
- ○ FAX
- • Shelter/HVAC
- • Power gen & distro
- • Tables/Chairs
- ❖ +8 Support Positions

Wt: 78797 lb
Cubic ft: 11798.26

124/244

CORE Expansion

NOTE: *Each expansion kit adds 60 seats to CORE*

- ➢ 5 Networks/Local
- ▪ Clients x 250+
- ○ Hawkeye 3 Lite
- ○ GBS
- ○ AN/PRC-117G
- ○ Iridium
- ○ VoIP/VoSIP
- ○ Voice (analog)
- ○ DRSN
- ○ VTC
- ○ FAX
- • Shelter/HVAC
- • Power gen & distro
- • Tables/Chairs
- ❖ +8 Support Positions

Wt: Variable
Cubic ft: Variable

All tented configurations can also be set up in buildings on local power

➢ = No. of networks
▪ = No. of clients included
○ = Communications
• = Infrastructure
❖ = No. of support positions

NETC2

Navy Enterprise Tactical Command and Control System

Product line developed/ leveraged from DJC2

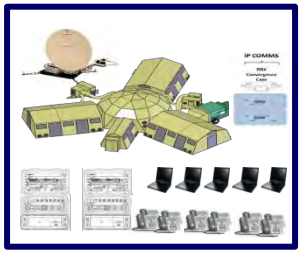
# Users	CAPSET 1	CAPSET 2	CAPSET 3	CAPSET 4	CAPSET 5
	1	<5	28	50	+25
	BGAN Configuration	Rapid Response KIT (RRK)	NETC2(V)1	NETC2(V)2	NETC2(V)2 Expansion Kit

- NGO (dirty internet)
- BGAN
- Iridium
- Laptop
- Backpack

- 2 Networks/Rchbk
- Workstation x 5
  - 4 SIPR / 4 NIPR HD
  - 2 ADMIN HD
- H3L
- (2) VoIP/DSN
- (2) VoSIP long local

- (2) Networks
  - SIPR/NIPR LAN
- CENTRIXS/Rchbk
- Workstations x 30
  - 30 HD each NW
- H3L (X/Ku)
- (8) VoIP/DSN
- (4) VoSIP long local
- Webcam VTC
- (2) Color Printer
- Share Storage 4TB
- Off-Site Back up 4TB

- Shelter/HVAC
- Power Gen & Distro
- Tables/Chairs



- (3) Networks
  - SIPR/NIPR/CTRX
- (50) Workstations
  - 50 HD each NW
- H3L (X/Ku)
- IPCS
- Radio Over IP Interface
- (30) IP Phones
  - VOIP or VOSIP
- Briefing VTC
- Tabletop VTC
- (3) 60” LCD
- (4) 40” LCD
- (3) Color Printers
- Share Storage 7TB
- Archive Storage 4TB

- Shelter/HVAC
- Power Gen & Distro
- Tables/Chairs

- (25) Workstations
  - 25 HD each NW
- H3L (X/Ku)
- (20) IP Phones
- (1) 40” LCD
- (3) Color Printer

- CAPSET 5 is not a stand alone system
- Provides additional seats, phones, and monitors to a NETC2(V)2 configuration

All tented configurations can also be set up in buildings on local power

Note: Support provided by NAVFAC for items highlighted in blue.

Technology Insertion / Refresh

Funded across FYDP

Next Generation (NG) Baseband

Deliverable: *Common baseband that serves as common building block for scalability*

Benefit: *Enhances modularity, scalability*

(Prod: FY2017)

JIE Secure Thin Client

Deliverable: *Configured software capability for current/future baseline. Integration, configuration, access processes*

Benefit: *Eliminates need for classified client hard drives, reduces storage and handling concerns*

(R&D: FY2016/Prod: 2017)

SATCOM Unified Net-Centric System (SUNS)

Deliverable: *Upgraded convergence transport gateway services for EXP users.*

Benefit: *Support tactical user with the GATEWAY consolidated service rather than Teleport/DISN)*

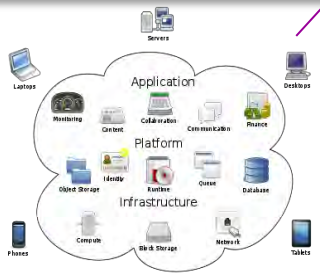
(R&D: FY2017/Prod: 2018)

Commercial solutions for Classified (CSfC)

Deliverable: *Commercial solutions and user processes to meet expeditionary encryption needs for tactical users.*

Benefit: *Allow tactical users to establish communities of interest as needed.* (R&D: FY2017/Prod: 2018)

PMW 790 working closely with Warfighters to identify / provide capabilities they need …



Joint Information Environment (JIE) & Multinational Info Sharing

Deliverable: *JIE-aligned architecture changes*

Benefit: *Supports Joint initiatives, Joint interoperability*

(R&D: FY2016/Prod: 2017)

Enclave Portability

Deliverable: *Minimize differences between garrison & deployed system environments*

Benefit: *Increases operational usability and availability, and decrease training time.*

(R&D: FY2016/Prod: 2017)

C2CDE

Deliverable: *Integrated anti-jam communication capabilities and user configuration options*

Benefit: *Improved capabilities for expeditionary systems to provide contingency communications in a DIL environment.*

(R&D: FY2017/Prod: 2018)

Overview

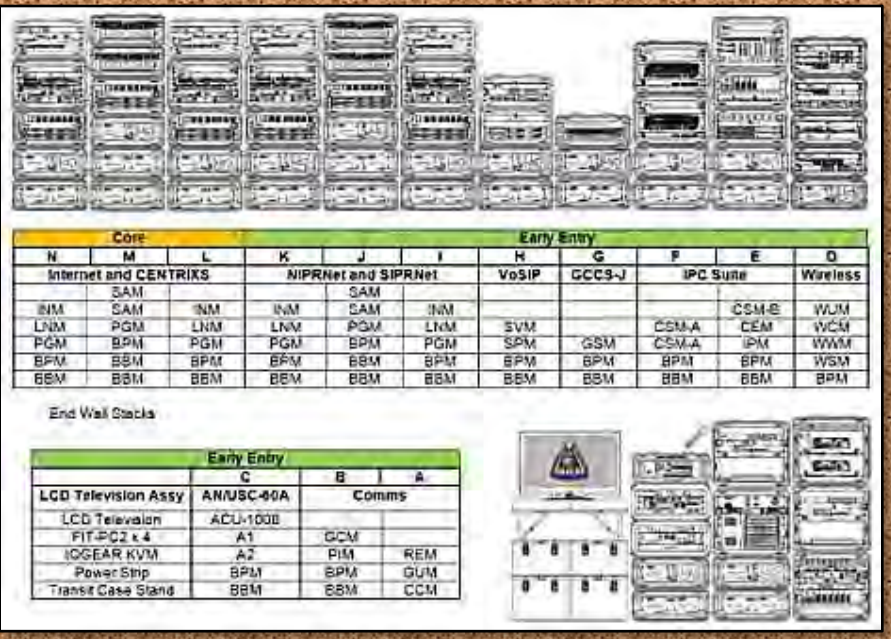
- TI funded to insert high priority, mature new technologies into system to meet emergent Warfighter needs
- TR funded to address system/component obsolescence
- TI/TR fielded in spirals

Expeditionary Hyperconvergence

Footprint Reduction

RDT&E tasks over the years are leading Joint and Navy Expeditionary down a path toward major footprint reduction

Current Core Footprint

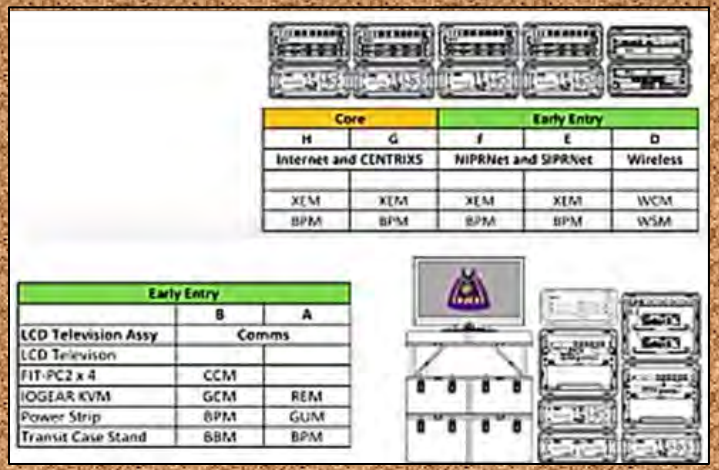


Core			Early Entry							
N	M	L	K	J	I	H	G	F	E	D
Internet and CENTRIXS			NIPRNet and SIPRNet			VoSIP	GCCS-J	IPC Suite		Wireless
	SAM			SAM						
INM	SAM	INM	INM	SAM	INM				CSM-E	WCM
LNM	PGM	LNM	LNM	PGM	LNM	SVM		CSM-A	CEM	WCM
PGM	BPM	PGM	PGM	BPM	PGM	SPM	GSM	CSM-A	IPM	WWM
BPM	BSM	BPM	BPM	BBM	BPM	BPM	BPM	BPM	BPM	WSM
BBM	BBM	BBM	BBM	BBM	BBM	BBM	BBM	BBM	BBM	BPM

End Wall Stacks

Early Entry			
	C	B	A
LCD Television Assy	AN/USC-60A	Comms	
LCD Television	ACU-1000		
FIT-PC2 x 4	A1	GCM	
IOGEAR KVM	A2	PIM	REM
Power Strip	BPM	BPM	GUM
Transit Case Stand	BBM	BBM	CCM

Target Core Footprint



Core		Early Entry		
H	G	F	E	D
Internet and CENTRIXS		NIPRNet and SIPRNet		Wireless
XEM	XEM	XEM	XEM	WCM
BPM	BPM	BPM	BPM	WSM

Early Entry		
	B	A
LCD Television Assy	Comms	
LCD Television		
FIT-PC2 x 4	CCM	
IOGEAR KVM	GCM	REM
Power Strip	BPM	GUM
Transit Case Stand	BBM	BPM

Healthy RDT&E line will enable the technology evolution toward the target footprint of Deployable C2 configurations

Hyper-Convergence Challenges at the MOCs

Core Baseline

BA/SA Tools
- C/JMTK v10.2
- DEIP
- Halo COP (C2RPC)
- Magic Mirror (C2RPC)
- MTC2 SOA
- GCCS-M v4.1.1
- GCCS-J v4.3
- GCSS-J v7.4.2
- C2PC v8.0
- AIS-MSSIS
- CAMTES
- NITES IV
- STK v10
- BDS/Video Distro
- ENMS Lite
- Cyber Core
- Cyber Alliance
- ADSI v15.0 (theater)
- ADSI v15.0 (coalition)
- Radiant Mercury 5.0.1

INTEL/ISR Tools
- DCGS-N Inc 1 Blk 1/2
- Analyst Notebook v8.7.9
- CMMA
- JDISS/DODIIS
- GCCS-M SCI v4.0.2

Planning/Collaboration
- TBMCS–Remote v1.1.3
- JADOCS v1.0.5.2
- CAS
- Sharepoint
- ISPAN Web Access

COMMS
- C2OIX
- RF Comms/SATCOM
- VOSIP
- VTC - Unclas/SEC/SCI
- Chat / MAKO v1.x/2.x
- NAVMACS II
- VOIP SCI
- VOIP
- DRSN - Classified POTS

NETWORKS
- C2 Classified LAN
- TS/SCI Network
- SCI Networks – JWICS, NSANet
- STONEGHOST
- SECRET Network – C2 Classified LAN, NGEN (SECRET), ONENet (SECRET)
- SECREL Network – CENTRIXS-M
- NIPR – NGEN (UNCLAS), ISNS (UNCLAS), ONENet (UNCLAS)
- Non-Classified Network - NCN
- CND – HBSS

Mission Builds

IAMD
- AMP v4.0.2
- MIPS Inc 1
- C2BMC Planner/ Web Client/ EWS v6.4 (all)
- LMMT (BMD)
- JTT-M v6.1.1

PWR PROJECT
- TBMCS-Host v1.1.3
- TC2S v4.3
- CSEL

C2 of Cyber
- MADSS (near future)

Regional/MNIS Tools
- BISON - PAC/3/7FLT
- PASS-K – PAC/3/7FLT
- NSWAN – 6FLT
- USBICES – 4/6FLT
- SEAGULL – 6FLT

CB/MB 16.1 12 Jan 2015

MOC CB/MB 17 under OPNAV N2/N6 Review

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Transport Transformation

***Current:** *3 transport technologies (TDM / ATM / IP) supporting 5 ADNS variants*

ADNS

Inc I/II → **Inc IIa/b** → **Inc III**

TDM

ADMS

Provides multiplexed ship-to-shore circuit (Retirement – 2019)

ATM

HSGR

Provides dedicated backbone for shore site-to-site connectivity (Retirement – 2016)

IP

Navy implementation of Cipher Text (CT) transport (Today)

NTWAN

DISA provided assured transport (Beginning – 2013+)

Joint IP CT Transport

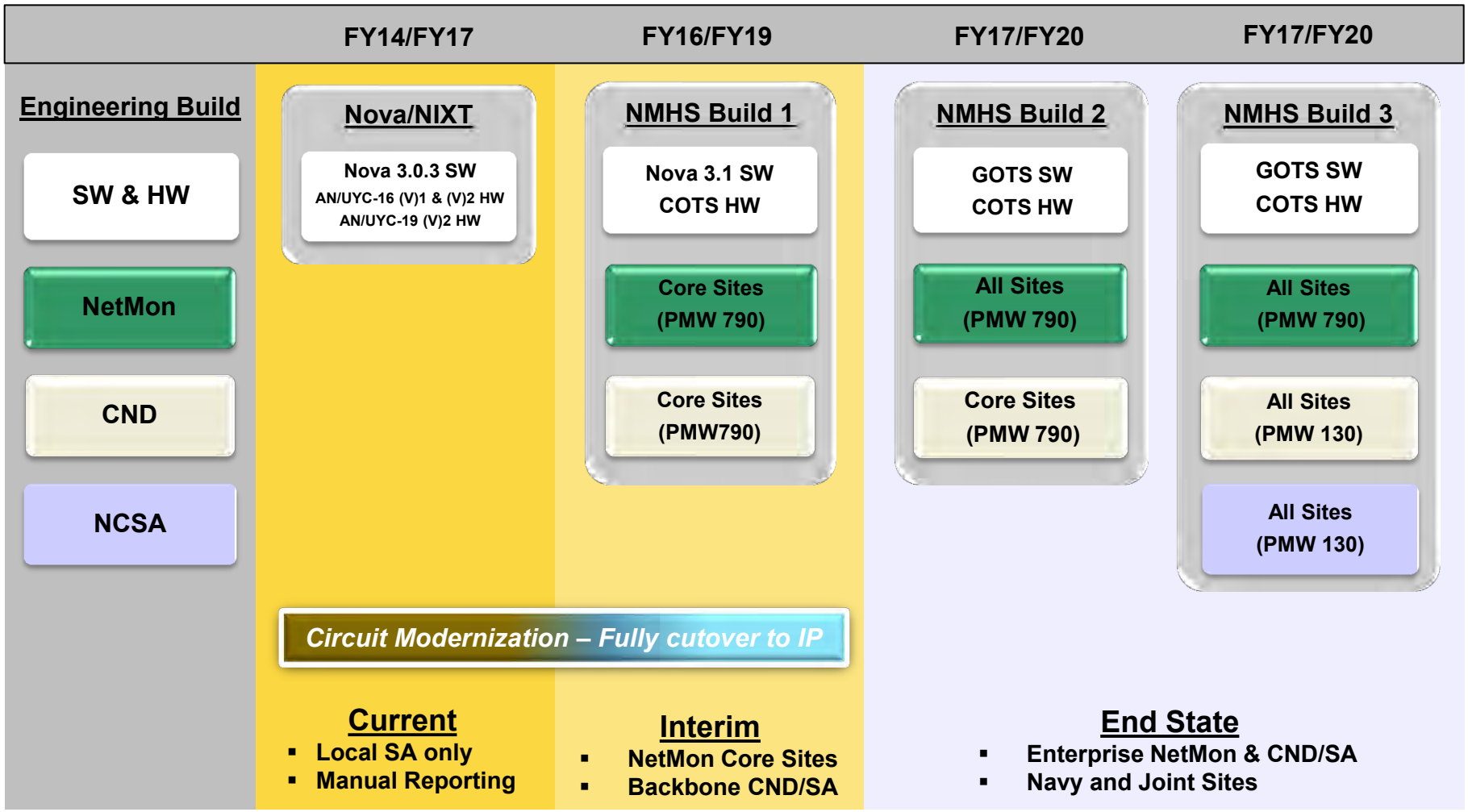
Goals:

- Single, interconnected network
- Increased scalability
- Supports multiple platforms terminating at NCTAMS
- COOP capability
- Leverages DISA infrastructure & services

Circuit Centric → Navy Net-Centric → Joint Net-Centric

TDM/ATM Retirement Dependent on ADNS Inc. III

NC3 NMHS Modernization Roadmap



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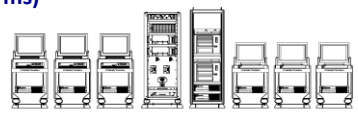
Reduction of Afloat Systems
NAVMACS II AN/SYQ-26(V)7

1 Single-rack Variant Eliminates 10 Multi-rack Variants

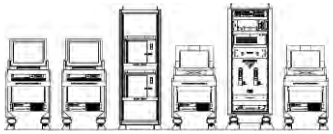
AN/SYQ-7A (21 Platforms)

CG (8)
DDG (11)
LHD (2)



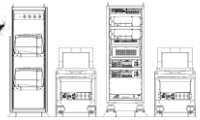
AN/SYQ-7B (1 Platforms)

T-AH (1)



AN/SYQ-7B PC (6 Platforms)

CG (1)
DDG (3)
LPD (1)
LSD (1)



AN/SYQ-26(V)1 (10 Platforms)

CVN(1)
LHD (1)
LPD (8)

AN/SYQ-26(V)2 (50 Platforms)

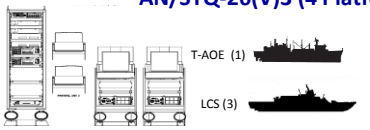
CG (11)
DDG (19)
LSD (3)
LHA(1)
AS (1)
T-AKE (14)
T-AOE (1)

**AN/SYQ-7(V)2, Not Shown, Multiple Racks (3 MSC Platforms)*

- **Total Navy Reductions (Afloat):**
  - **HVAC Savings……..15.8B BTUh/yr**
  - **Power Savings……..4.6M kWh/yr**
  - **Weight Savings…..108.72 tons**
  - **Modern Operating System**
  - **Graphical User interface (GUI)**

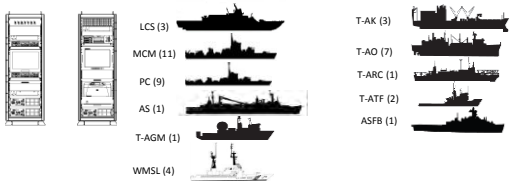
AN/SYQ-26(V)3 (4 Platforms)

T-AOE (1)
LCS (3)



AN/SYQ-26(V)4 (43 Platforms)

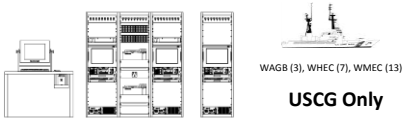
LCS (3)
MCM (11)
PC (9)
AS (1)
T-AGM (1)
WMSL (4)
T-AK (3)
T-AO (7)
T-ARC (1)
T-ATF (2)
ASFB (1)



AN/SYQ-26(V)5 (23 Platforms)

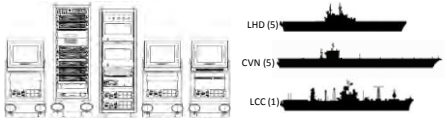
WAGB (3), WHEC (7), WMEC (13)

USCG Only



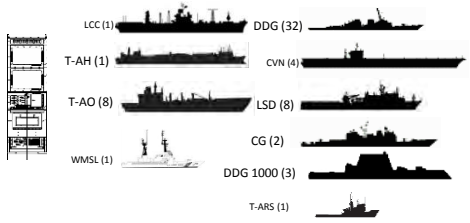
AN/SYQ-26(V)6 (11 Platforms)

LHD (5)
CVN (5)
LCC (1)



AN/SYQ-26(V)7 (61 Platforms)

LCC (1)
T-AH (1)
T-AO (8)
WMSL (1)
DDG (32)
CVN (4)
LSD (8)
CG (2)
DDG 1000 (3)
T-ARS (1)

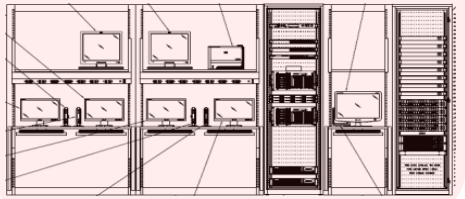


6/22/2016

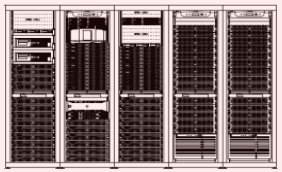
Shore Messaging Modernization

Legacy NCTAMS LANT Messaging Systems

GENSER Nova

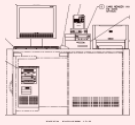


SIPR NREMS

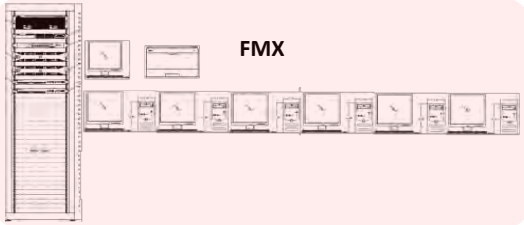


NICE

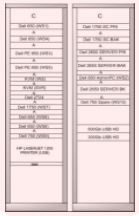
CAW
10 workstations



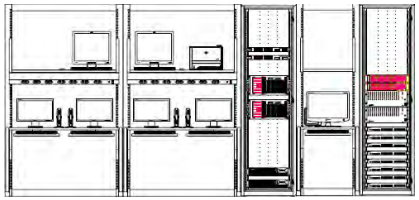
FMX



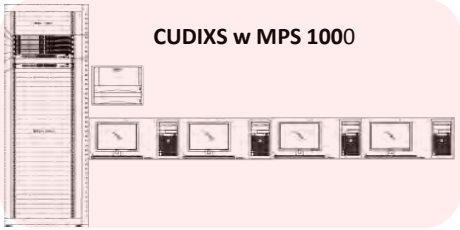
FSM



NC3 Nova



CUDIXS w MPS 1000



Tech Refresh Shore Messaging Systems

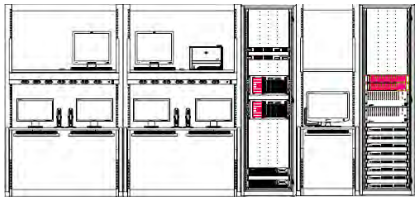
NIPR and SIPR C2OIX on FLTNOC
UARNOC and PRNOC

- C2OIX as a service hosted in a Virtualized FLTNOC environment on NIPR & SIPR enclaves

TS C2OIX System
At NCTAMS LANT and NCTAMS PAC

- TS C2OIX System providing Fleet Broadcast and CUDIXS functionality

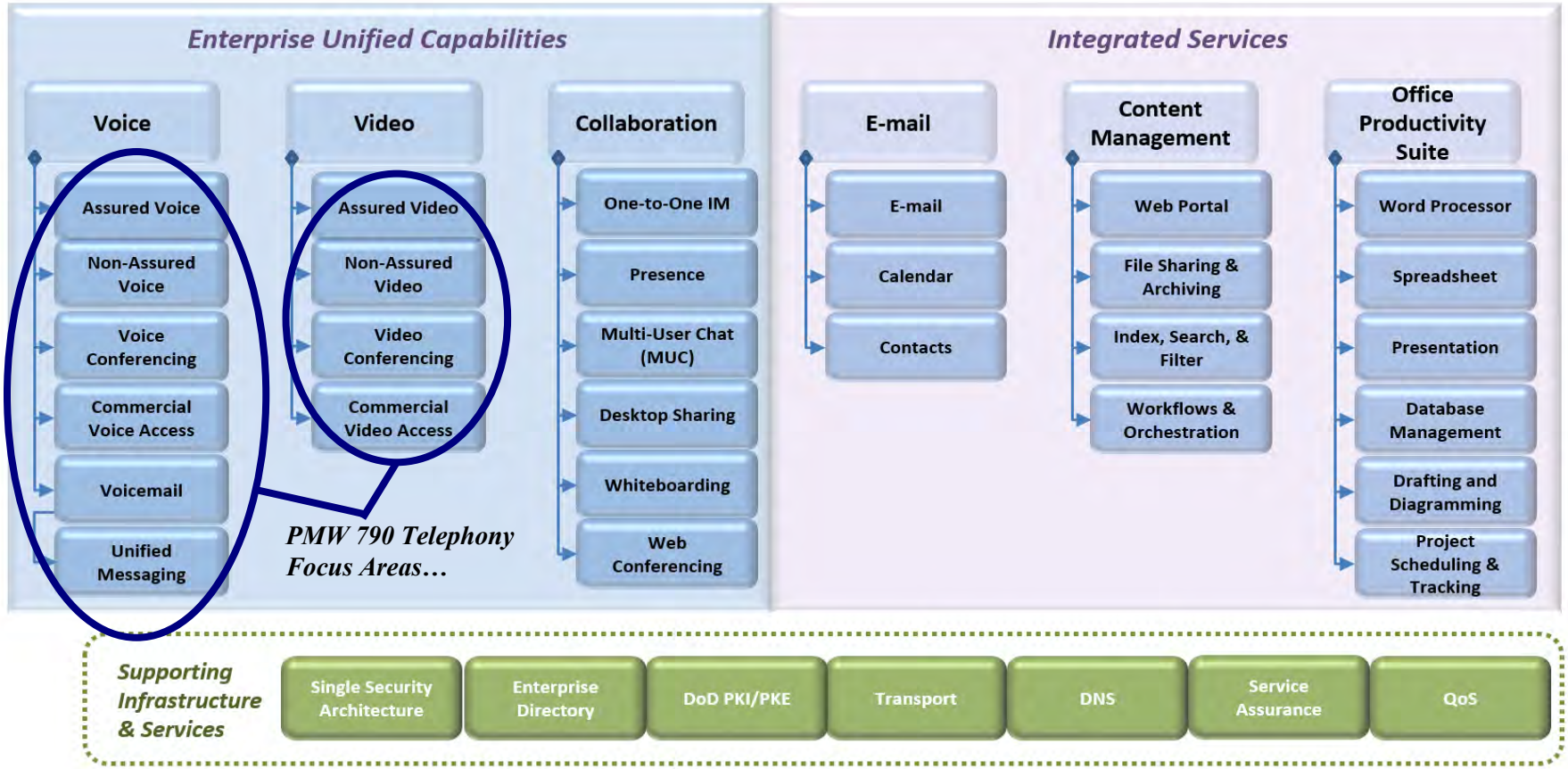
NC3 Nova (EAM Only)



Reduction of Shore Messaging Systems, Reduced Cost and Complexity

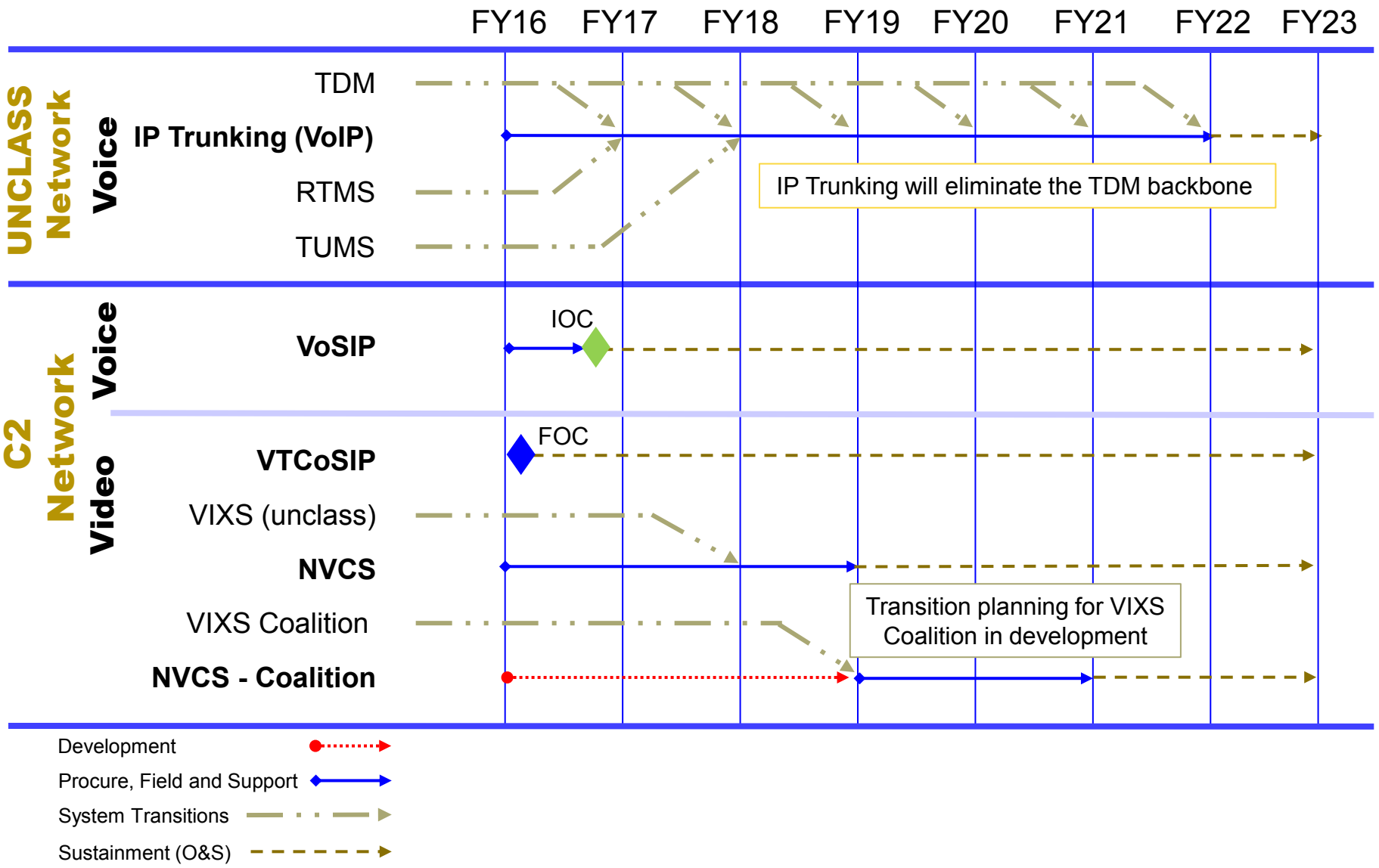
Unified Capabilities (UC)

Capabilities and Services



Unified Capabilities: *"The integration of voice, video, and/or data services delivered ubiquitously across an interoperable, secure, and highly available IP network infrastructure, independent of technology, to provide increased mission effectiveness to the warfighter" (DoD CIO MasterPlan)*

Telephony Capability Convergence



Outline

- PMW 790 Overview, What We Do…
- Major Programs and Projects
- Focus Areas
  - C2 as a Service (C2aaS)
  - Commonality Alignment
  - Science and Technology (S&T)
- Small Business Engagements
- Future Solicitations

S&T Activities & Gaps

- **Small Business Innovative Researches (SBIRs)**
  - Simple Profiler for Official Information Exchange (Phase II Option with Sonalysts)
  - NetOps Analytic as Service (NaaS) (Phase II with Intelligent Automation)
  - Voice, Video & VTC Cross Domain System (Phase II with Trident)
  - Expeditionary Solid Oxide Fuel Cell (Phase I with NexTech and Precision Combustion)

- **PEO C4I FY17 PMW 790 Capability Gaps for S&T**
  - Dynamic Cyber Defense
  - Tiered Enterprise Patch Management Solution
  - Highly Efficient Tactical HVAC to Reduce SWaP Requirements for Deployed Expeditionary JTF HQs
  - BW Efficient Data Synchronization
  - High Capacity Data Transfer from Small Austere Platforms
  - JMINI/IW CS Radio Reduction/Replacement
  - NetOps SA for Crypto, Communication and Networks Devices
  - Fleet Broadcast Replacement

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Small Business Engagements

- ImmixTechnology, Inc.
  - Analyst's Notebook (ANB) SW license renewals for MOC
  - 8(A) Small business set aside, DOD ESI
  - $18K Contract awarded 9/15/16
- Zibiz Corp.
  - H/W, S/W licenses, license renewals, warranty renewal
  - $747K Contract awarded; 8(A) Small business set aside
- VAE Inc.
  - H/W, S/W licenses, license and warranty renewal
  - $239K Contract awarded; 8(A) Small business set aside
- Impres Technology
  - S/W licenses, license and warranty renewal
  - $28K Contract awarded; 8(A) Small business set aside
- Four LLC
  - S/W licenses, license and warranty renewal
  - $26K Contract awarded; 8(A) Small business set aside
- Virtual Technology
  - S/W licenses, license and warranty renewal
  - $6K Contract awarded; 8(A) Small business set aside

Small Business Engagements (cont.)

- Crown Point Systems
  - Next Generation Enclave (NGE) Commercial-Off-The-Shelf technology components
    - Small business set aside
    - $28.8M contract awarded in 2016
- RedHawk IT Solutions LLC
  - Ancillary equipment IDR follow-on for Navy Expeditionary
    - 8(A) Small business set aside
    - $2.3M contract awarded in 2016
  - MacBooks and ancillary hardware and software
    - 8(A) Small business set aside
    - $574K contract
  - Tactical VTC warranty renewals
    - 8(A) Small business set aside
    - $120K contract
- BlueTech, Inc.
  - USCS (V)1 IP Trunking SD H/W, S/W, licenses
  - $351K Contract awarded in 2016
- Optivor Technologies, LLC
  - H/W, S/W licenses/renewals
  - $5.8M Contract awarded in 2016
- Cypher Analytics, Inc. (Crown Point)
  - H/W, S/W , Svcs
  - $72k Contract awarded 2016
- Gov Smart
  - NVCS Site Equipment
  - $484K Contract awarded 2016

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Future Solicitations

- Potential Small Business Opportunities
  - Approximately 22 hardware/software procurements planned for FY17
    - Procurements are with Telephony, Expeditionary, STACC, MOC in the Middle, DJC2
  - Details forthcoming on e-Commerce
    - https://e-commerce.sscno.nmic.navy.mil

Summary

- Foundational Program Office with both Product and Platform roles
  - Diverse stakeholder base
  - Responsible for "multi-platform" Shore and Expeditionary domain
- Aligned with today's Fleet requirements and driving Efficiencies
  - C2aaS product alignment in progress
  - Establishing Hyper-Converged infrastructures with common baselines
  - Driving Expeditionary convergence and modernization
  - Commonality alignment and variant reduction
- Challenges—increasing trend of interdependency and complexity
  - Robust, secure, efficient technology insertion needed at an affordable price
- Science and Technology
  - Multiple SBIRs to address technology gaps
- Multiple SB engagements with additional forthcoming in FY17

Product and Platform Integration for Shore and Expeditionary C4I

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