CENTRAL TECHNICAL SUPPORT FACILITY

An Approach to Service Level System of Systems Assessment

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Outline

• The Army’s tactical System-of-Systems (SoS) challenge
• The CTSF: SoS integration and testing
• Applying System Engineering (SE) to SoS
• CTSF-initiated SoS SE pilot
The Army’s Tactical System-of-Systems (SoS) Challenge

- Many individual Program Managers (PMs)
  - Geographically distributed across CONUS
  - Many systems that must interoperate: currently 80+
- Complex tactical network architecture
- Lack of Army-wide SoS engineering
  - Requirements and standards
  - Architecture
  - Documentation

Army cannot afford to defer discovery and remediation of SoS problems to final SoS baseline integration and test!
Testing SoS Interoperability: A Complex Challenge

Dissemination of Graphics & Overlays

See Notes for details

- EMAIL
- BCCS DATA QUERY
- JCR EPLRS/BFT GEO
- GLOBAL ADS
- PUB/SUB
- (K04.02, 4.03, 4.09, K05.17)

TOC

GCCS-A
CPOF DATA BRDG
DDS
MCS

TOC (BFT)
NRTS-MCS
DDS
BFA

TOC (EPLRS)
NRTS-MCS
DDS
BFA

JCR TSG
EXIT GW

JCR NOC

BFT Platforms

EPLRS Network
CTSF Vision

To become a customer valued organization ensuring the best interoperable net-centric C4I capabilities are available to US Army, Joint and Coalition Warfighters.

CTSF Mission

The CTSF provides a unique scalable environment, with skilled personnel, using qualified processes to support the DoD’s net-enabled strategic vision by executing configuration management, systems of systems integration, and interoperability certification testing for Army and Joint C4I providers.

Bottom Line: “Achieving Interoperability for the Army”
SOS Focused CTSF Process

Draft Army Alignment with GIG ES Governance

Business Mission Area (BMA)
DoD Lead: USD(C) | Army Lead: USA

Warfighting Mission Area (WMA)
DoD Lead: USD(A&S) | Army Lead: G-35/7

National Intelligence Mission Area
DoD Lead: USD(1) | Army Lead: G-2

Governance

CTSF
MDA
PEO-I
SIM
AVN
Fires
Others

Joint
LOG

Intel

Stakeholders/Customers

Strong Configuration Management

Developmental Testing & Integration

SOS Integration

ASA(ALT) Config Control Board

Test Fix Test

CRR #1

Test Report Certification

Field Support

Metrics / Entrance & Exit Criteria

Warfighter Support

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CTSF Core Missions

• Configuration Management
  – Maintains Land Warnet/Battle Command (LWN/BC) SW Baseline
  – Maintains CIO/G6 Certified Baseline
  – Configuration support to Program Managers
  – Standard process and control for distributed integration and testing

• Systems of Systems Integration Support
  – Network Engineering support to training and deployed units
  – Interoperability integration support to PMs SW development
  – Army Digital Interoperability Subject Matter Expertise
  – Current and future LWN/BC SW Integration facilities and labs

• Army Interoperability Certification (AIC) Testing
  – Certification testing of Information Technology/National Security Systems
  – Interoperability Capability & Limitations
  – Deployable Test Teams to customer test locations
Example: Agile Fires MAINEX Event
19 – 29 January 2010

CTSF, Ft Hood
ADSI (JREAP-C and Link-16)
BC Server
GCCS-A, C2PC
T AIS
TACP-CASS
TBMCS Client
Marine Digital Voice (MDV)
AMDWS
FAAD
JADOCS
AFATDS
InterTEC Tools Suite/C3Driver

SIMAF, WPAFB
Link 16 TMA
M ADL
IG/OG
FAST
JTAC
E-3/8/Sim
F-16
Link-16
InterTEC Tools Suite

Nellis AFB
JREAP-C/Link-16

WSMR
AFATDS

NGC, Bethpage, NY

PAX River
SDREN/Aggregate Router
Ryan Center,
Langley AFB
WWF SP III
TACP-CASS
Share Point
TBMCs
CAOC Central

SPAWAR
NAVY DEP/Link-16

Redstone Test Center (RTC), Huntsville
AFATDS
Non-Line of Sight-Simulation

46TS, Eglin AFB
F-15 E
E-3 OPFAC
E-8 OPFAC
JRE
Gateway
VOIP Call Manager
Time Server
TACP-CASS
InterTEC Tools Suite

Unclassified

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Applying SE to SoS: the SoS SE “V”
CTSF-Initiated SoS SE Process Pilot

• Assess the current tactical system baseline in light of the SoS SE guide:
  – Artifact Gap analysis
  – Process Gap analysis
  – Prototype artifacts for the SoS level

• Develop recommendations for ASA(ALT) and PEO SoS SE efforts
  – How could we improve the development of future SoS baselines?
  – How might CTSF be involved?

• Develop recommendations for refining the SoS SE guide based on the assessment and SoS integration experience
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