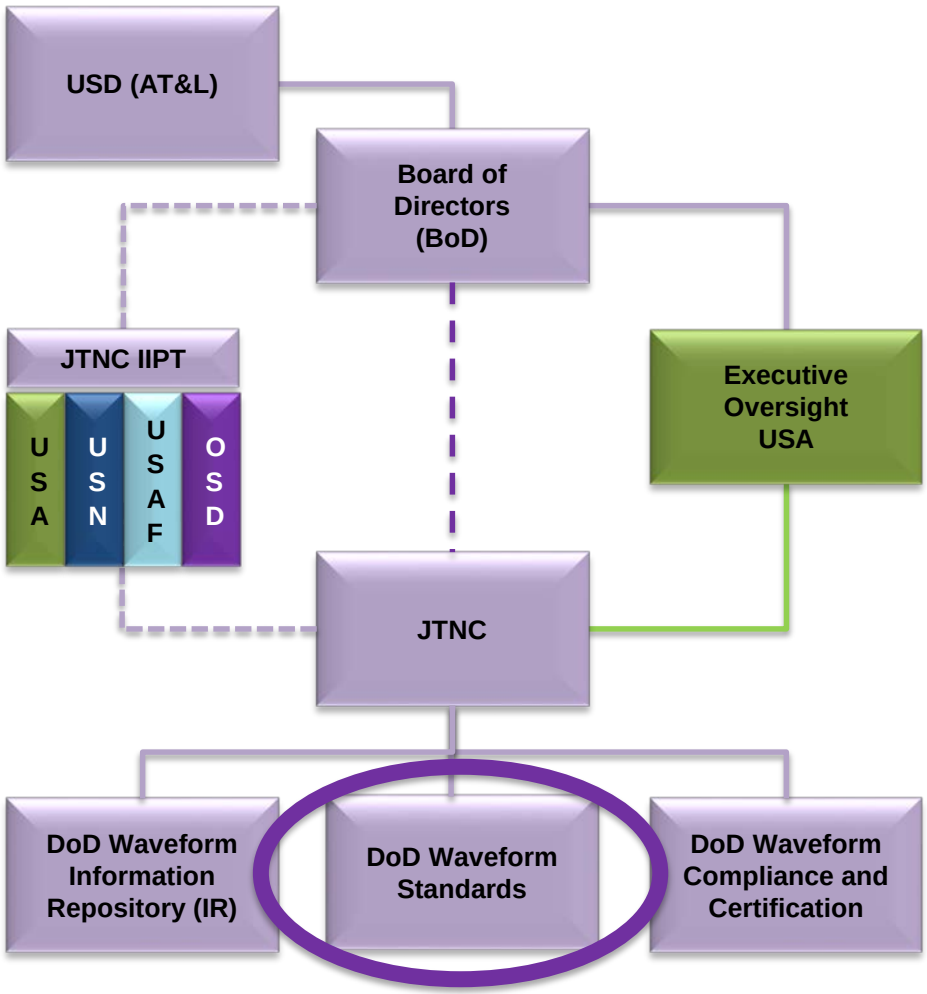
Joint Tactical Networking Center (JTNC) Standards

JTNC Standards
17 May 2017

Outline

- JTNC Overview
- Software Communications Architecture (SCA) 4.1 News
- SCA 4.1 Conformance Methods
- Look Ahead

JTNC Overview



JTNC Chartered Mission

To ensure interoperable, secure, and affordable waveform and wireless communications by recommending standards, conducting compliance and certification analyses in accordance with DoD policies, and maintaining a DoD Waveform Information Repository (IR)

JTNC Chartered Vision

Interoperable, secure, and affordable waveforms and wireless communications in support of Service, Multi-Service and Coalition forces

DoD Waveform Standards Core Functions

Provides a validated open systems reference architecture that separates waveform/network manager from the radio set

Permits common waveform software to be deployed across multiple vendors' radio sets

SCA 4.1 News

WInnF Project

SCA 4.1 Requirements Allocation, Objectives, and Verification Criteria Document Released by WInnF Compliance Project Task Group (March 2017)

Standards Alignment

The Open Group Future Airborne Capability Consortium (FACE) Signs agreement with the JTNC, the MOU includes a number of activities that support the harmonization of the FACE Technical Standard and the SCA (March 2017)

Proposed Phase 1 SCA 4.1 Conformance Methods

General SCA 4.1 Conformance Rules

- Objective conformance verification (i.e. pass/fail conformance)
- Conformance verified for all applicable SCA requirements
- Perform both Waveform Application (WFA) and Operating Environment (OE) conformance verification

Process (minimal automation)

- Compile and link SCA application in an SCA environment (WFA)
- Run R-Check (WFA, OE)
- Witness vendor testing (as-scheduled) (WFA, OE)
- Witness vendor operational demo (as-scheduled) (WFA, OE)
- Apply available Test Procedures (WFA, OE)

Objective is to determine SCA 4.1 conformance using the most efficient and cost effective test methods available

Proposed Phase 2 SCA 4.1 Conformance Methods

General SCA 4.1 Conformance Rules

- Objective conformance verification (i.e. pass/fail conformance)
- Conformance verified for all applicable SCA requirements
- Perform both WFA and OE conformance verification

Process (more automation)

- (Phase 1) Compile and link SCA application in an SCA environment (WFA)
- (Phase 1) Run automated tool/s like R-Check (WFA, OE)
- (Phase 1) Witness vendor testing (as-scheduled) (WFA, OE)
- (Phase 1) Witness vendor operational demo (as-scheduled) (WFA, OE)
- (Phase 1) Apply available Test Procedures (WFA, OE)
- Port SCA pseudo* application OE and exercise OE's SCA components that interface with SCA application ("sunny-day" scenario**) (OE)
- Port SCA pseudo* devices to OE and exercise OE's Core Framework (CF) components ("sunny-day" scenario**) (OE)

* Not full functionality; only for testing purposes

** Does not include testing of exception handling or boundary checking

Objective is to determine SCA 4.1 conformance using the most efficient and cost effective test methods available

SCA 4.1 Conformance Plan

- The JTNC continues open collaboration approach with industry (including international) via the WInnF to evolve SCA 4.1 conformance testing approaches
- Main focus of this effort is to make improvements to SCA 4.1 conformance testing
- Accepting feedback from WInnF, specifically regarding:
  - Ideas for how SCA 4.1 conformance can be verified faster and more cost effectively
  - Effectiveness and/or efficiency of test methods outlined herein

Look Ahead

- WInnF collaboration on SCA 4.1 Benefits article
- WInnF SCA 4.1 Test Procedures Project
- Beyond Modem Hardware Abstraction Layer (MHAL) and MHAL on Chip Bus (MOCB) for Waveform Signal Processing Portability
  - Field Programmable Gate Arrays (FPGAs), Digital Signal Processors (DSPs) and Graphics Processing Units (GPUs)
  - Bit Accurate Modeling?
  - OpenCL?

Questions

Thank You