SCA 4.1 Overview

Howen Fernando
DoD Waveform Standards
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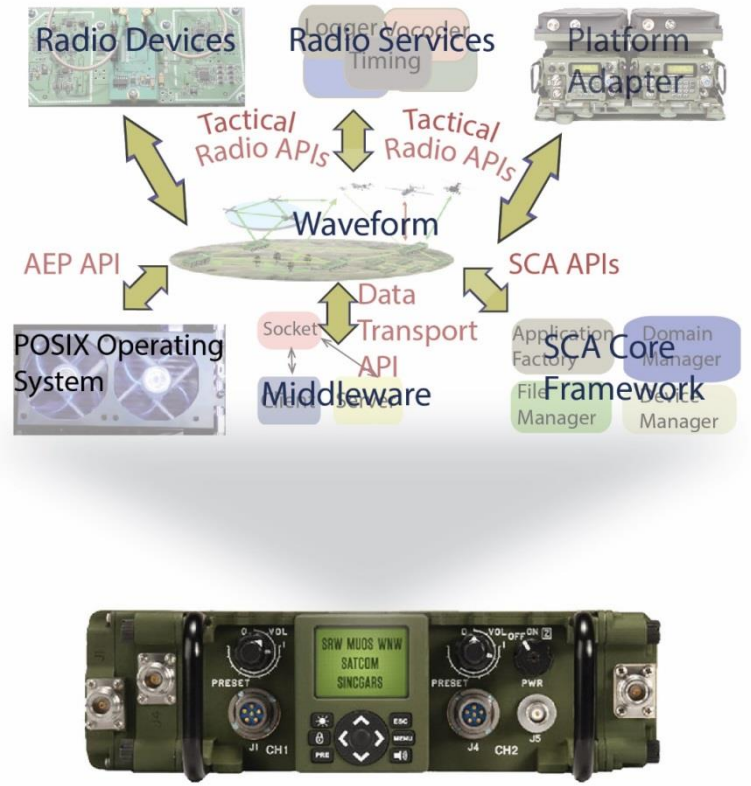
SCA 4.1 BLUF

- Technologies and features of SCA 4.1
  - Cyber Hardening
  - Performance
  - Scalability
  - Configurability
  - Future-proofing
- Commercial industry provided much of the technology and design of SCA 4.1
- SCA 4.1 is an emerging standard in the DoD IT Standards Registry (DISR) and SCA 2.2.2 is mandated

SCA Continues to Distinguish Itself from Competing Standards

- SCA provides a framework similar to iOS and Android but allows flexibility
- SCA is different from iOS or Android through the expression of waveforms in software
- The SCA isolates the waveform from the radio set, enabling portability of waveforms across radio missions and manufacturers
- The SCA is managed and controlled through an open systems standards body

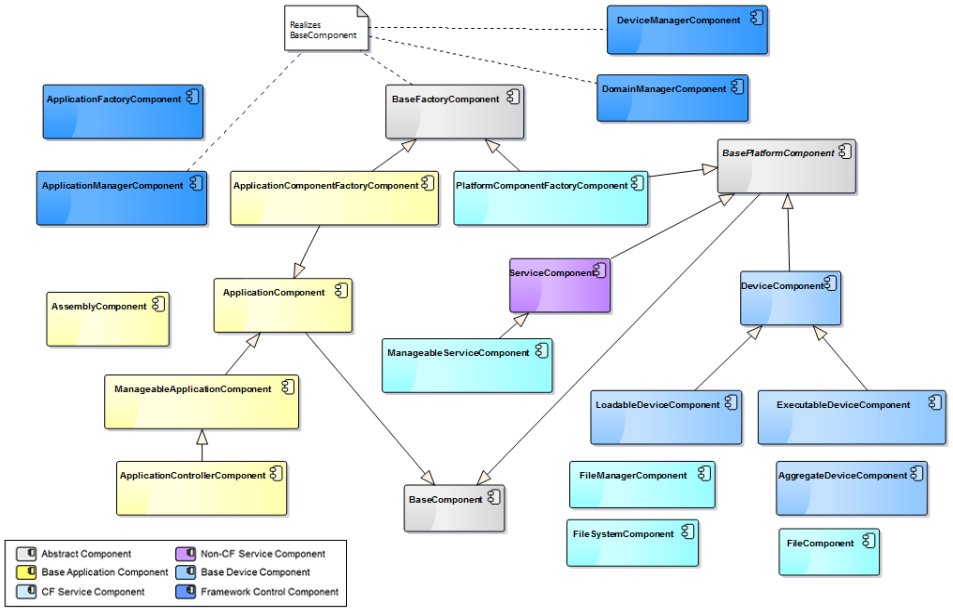


SCA Radios – In Widespread Deployment

- Handhelds such as AN/PRC-154, AN/PRC-152, AN/PRC-148 have been fielded in quantities of over 300,000
- Airborne, manpack, and multi-channel radios include MIDS-JTRS, HMS Manpack, AN/PRC-117G, FlexNet, Phoenix, Freedom 350, KOR-24, CRIIS, Talon, Sidehat, Sidewinder, and many more …

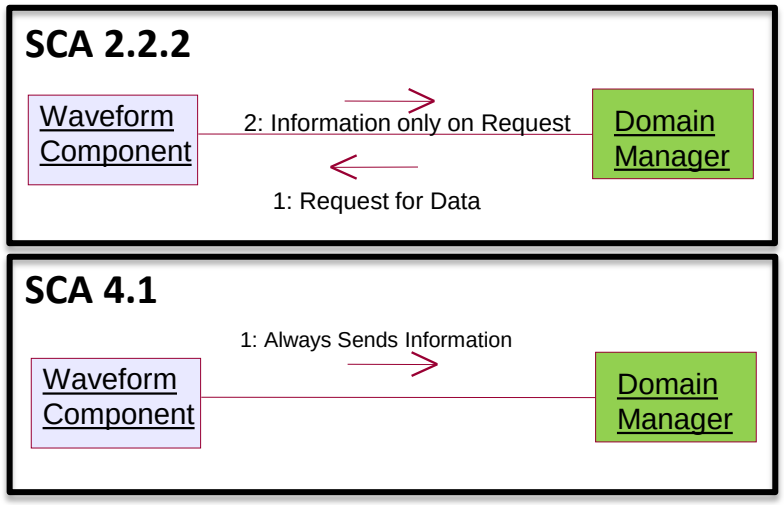
Architecture Changes in SCA 4.1

- SCA 4.1 introduces a single base component that is applicable for both platform and application software
- Earlier versions of the SCA had mixed components and interfaces, complicating the specification
- A smaller number of components are reused across the full radio domain
- The reorganization will streamline implementations and allow better software tooling for developers



Cyber Hardening in SCA 4.1

- Secure computing practices have evolved since the first SCA version
- Push model registration provides more secure communication between components
- As part of the architectural refactoring, the principal of least privilege was applied to all communication within the architecture
- Access and visibility of all software components has been reduced to only what is absolutely needed
- This minimizes system exposure to a ‘rogue’ software component within the radio



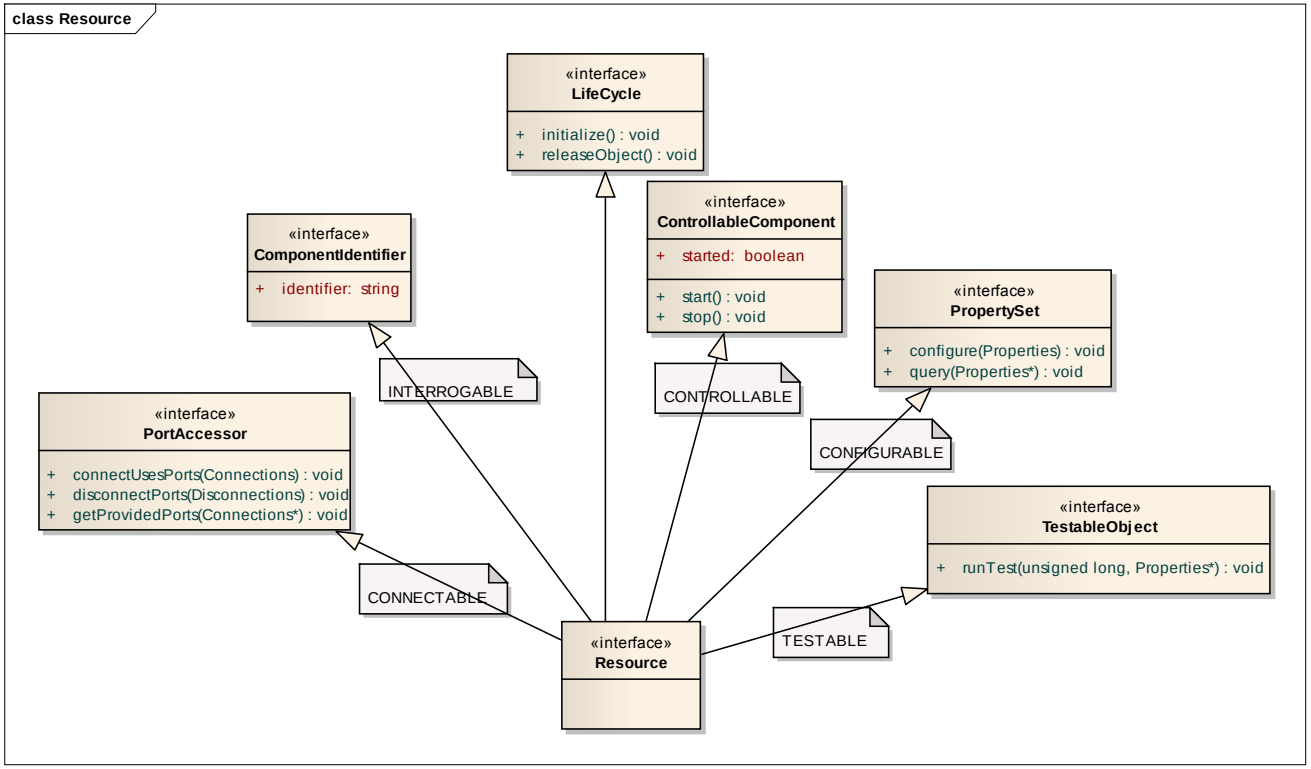
DomainManager

+ applicationFactories: ApplicationFactorySequence
+ applications: ApplicationSequence
+ deviceManagers: DeviceManagerSequence
+ domainManagerProfile: string
+ fileMgr: FileManager
+ identifier: string

+ installApplication(string) : void
+ registerDevice(Device, DeviceManager) : void
+ registerDeviceManager(DeviceManager) : void
+ registerService(Object, DeviceManager, string) : void
+ registerWithEventChannel(Object, string, string) : void
+ uninstallApplication(string) : void
+ unregisterDevice(Device) : void
+ unregisterDeviceManager(DeviceManager) : void
+ unregisterFromEventChannel(string, string) : void
+ unregisterService(Object, string) : void

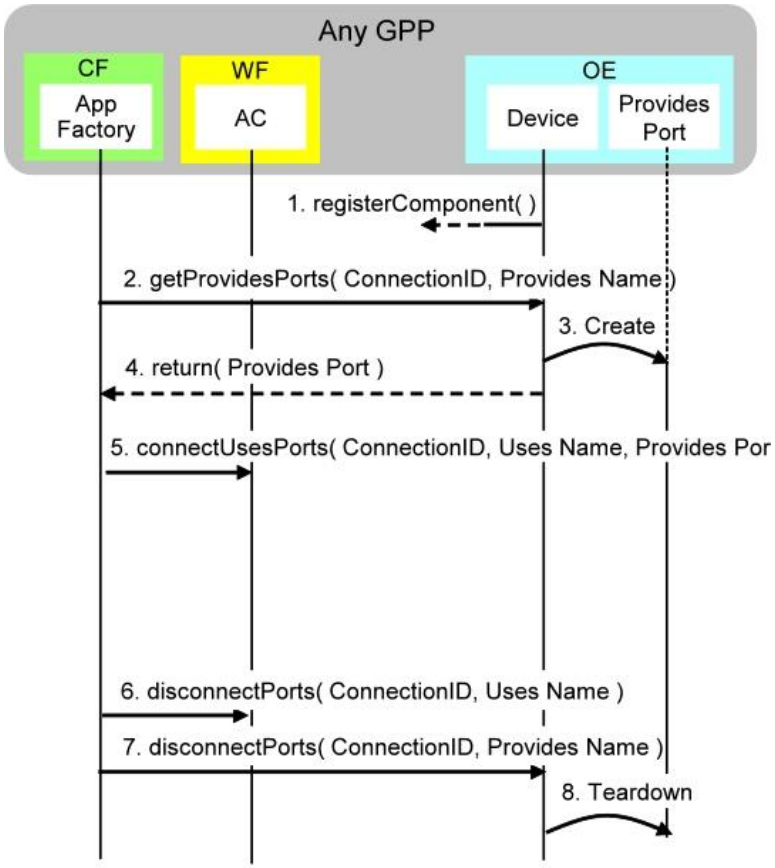
Reducing the Cost of the Radio – Scalability and Flexibility

- SCA 4.1 reduces software development and testing by tailoring functionality and interfaces not required for the radio's mission
- Earlier versions of the SCA had a one-size fits-all model
- In SCA 2.2.2, a component had to implement all of the interfaces whether they were specifically needed for the component or not



Improving Performance

- The SCA has little impact on waveform data throughput
- The software components of the waveform communicate among themselves without any SCA overhead or interference
- During startup, there can be substantial dynamic configuration and loading of software components
- The new port communication and push registration significantly reduce the time to boot the radio or launch a new waveform
- This extends battery life, reduces the processor size and resources necessary to perform the mission



Future-Proofing

- SCA 4.1 has been written as a modular specification, permitting new technology to be inserted into tactical radios
- As an example, there are emerging technologies to replace CORBA such as ICE or zeroMQ
- SCA 4.1 is written to allow new transports to be substituted for CORBA, which most SCA developers to date have preferred
- New to SCA 4.1 is multicore processor support

Benefits to the Warfighter

- Cyber Hardening
- Smaller Radios
- Longer Battery Life
- Faster Boot up
- Future-proofing
- Better Connections with External Devices such as Android

Questions?