

Adaptable and Extensible Networked Fire Control

BAE Systems

Land & Armaments, May 2012



Platform and Weapon System Provider



Objectives

- Modernize vehicles and weapon systems, develop new vehicles and weapon systems and field emerging technology more rapidly
- US Army generated common command and control system architecture that defined basic C4ISR/EW architecture
 - Open, flexible, adaptable to improve overall system of systems performance
 - Can be applied to a family of vehicles
 - Purpose
 - Reduce development time
 - Reduce costs
 - Reduce risks
- Other services have worked to address the same problems
- Extend this concept to the fire control system
 - Ground platforms
 - Surface weapon platforms

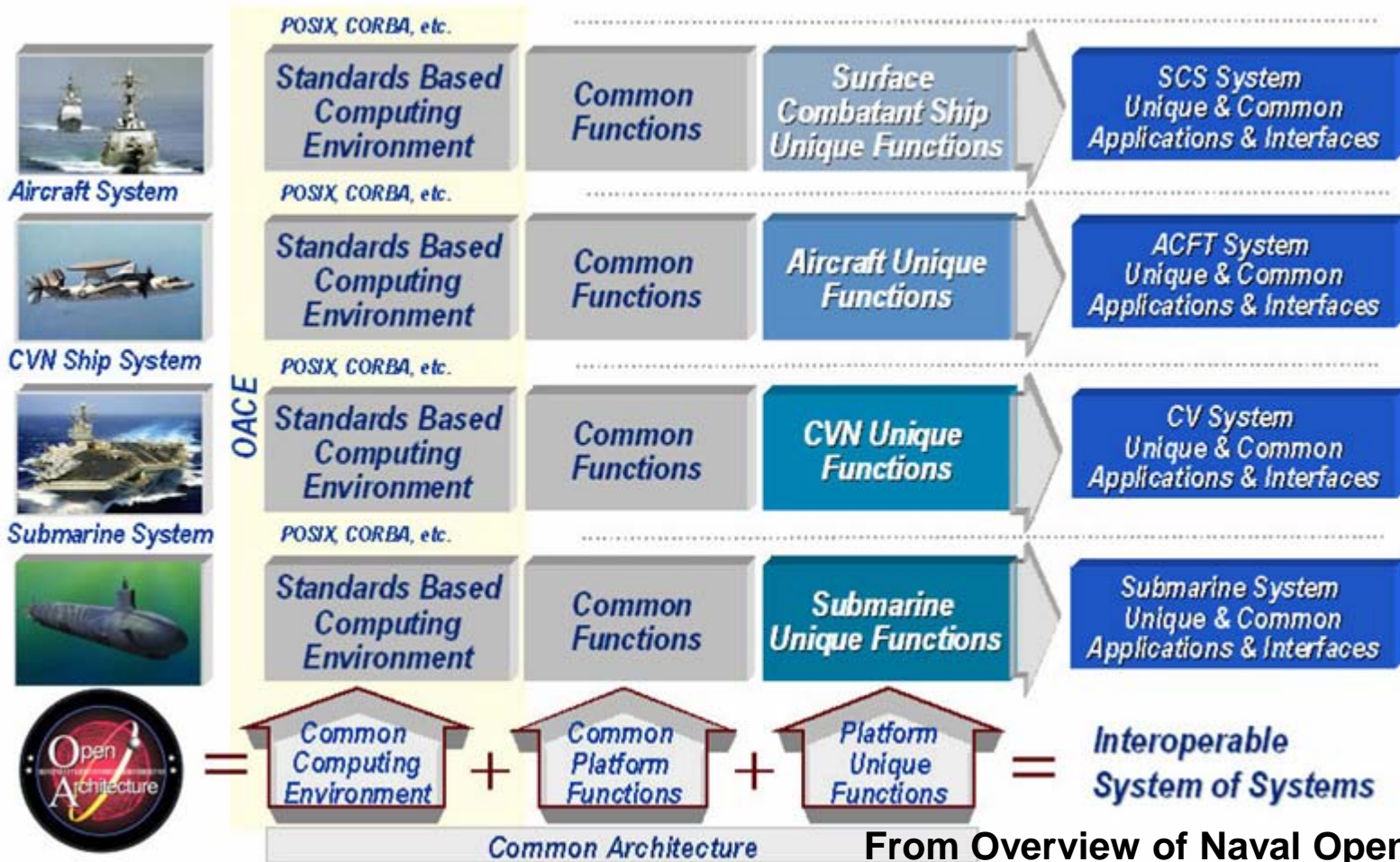
Motivation

- Open Standards facilitate development of new weapon systems
 - Lower life cycle costs
 - Technology obsolescence risks
- Previous Architecture Efforts
 - Provided descriptions of how to build and characterize systems
 - Computational and interface standards
 - Middleware
 - Common operating environment
 - Common computing environments
- Next Steps
 - Standardized combat system component interfaces



Commoditized Components (mouse, printer, display, network card) similar to personal computers

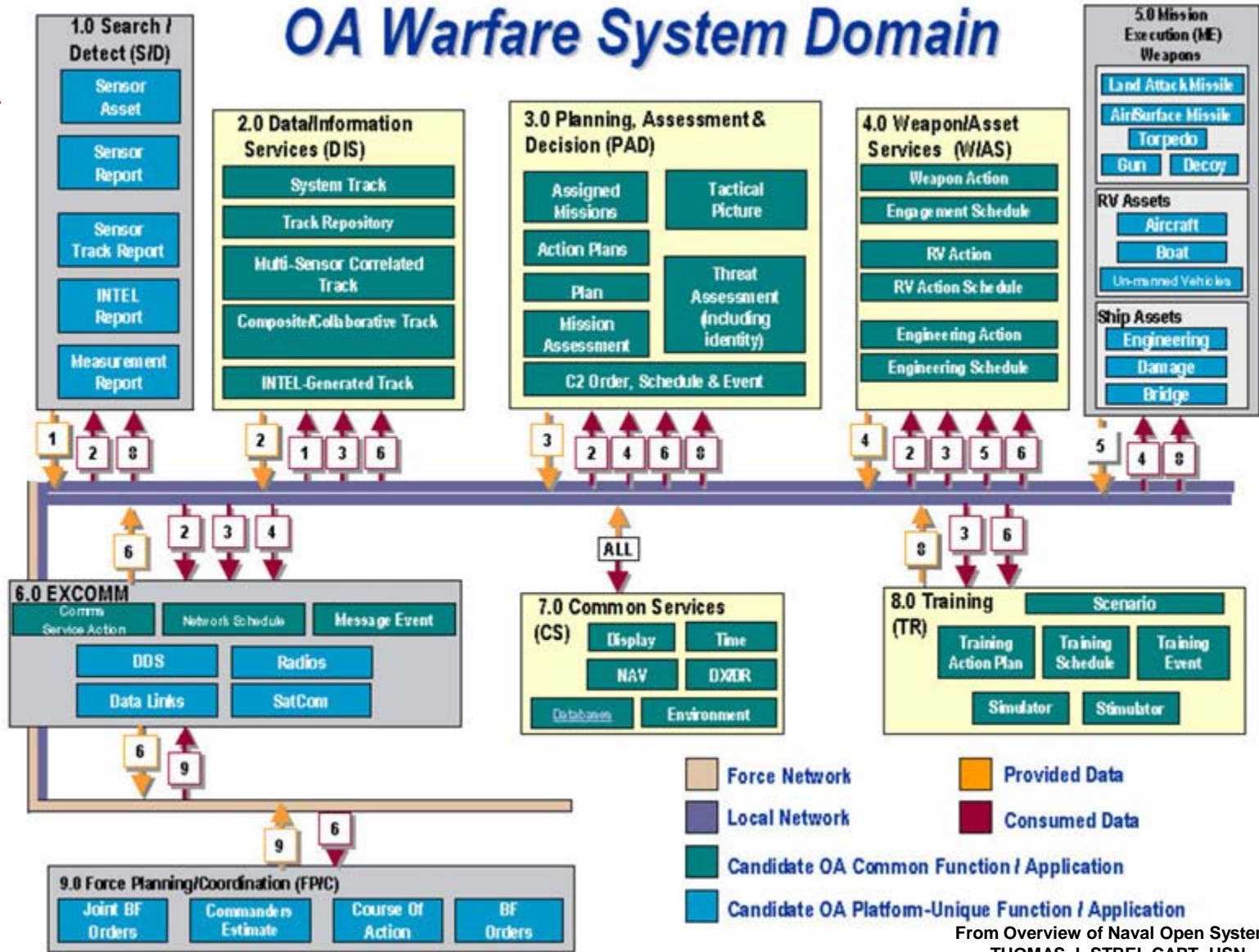
Open Architecture Example – Naval Open Systems



From Overview of Naval Open Systems

THOMAS J. STREI, CAPT, USN
 PROGRAM EXECUTIVE OFFICE, INTEGRATED WARFARE SYSTEMS
<http://sstc-online.org/2004/PDFFiles/TJS6252.pdf>

OA Warfare System Domain

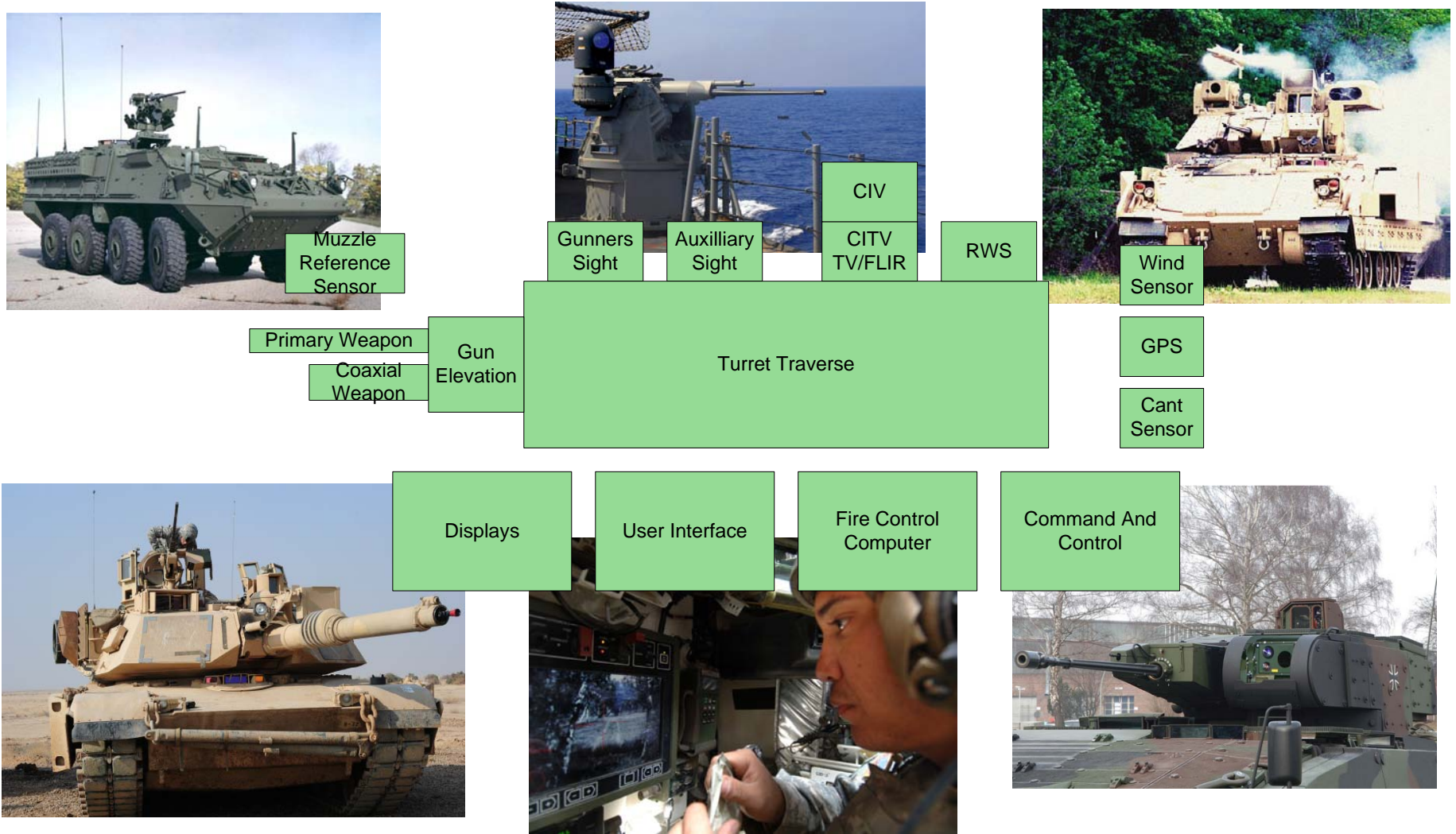


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Representative Fire Control System Components



Approach

- Establish common fire control system development framework
 - Generated a reference architecture for fire control systems
 - Generated reusable and adaptable software
 - Implemented a reusable development and test environment
 - Developed reusable software processes and tools

Results

- Reference Architecture based on components that is open, flexible and adaptable
- Improves fire control system performance and integration into systems of systems
- Supports network-centric fire control systems
- Supports stand alone fire control systems
- Uses Open Standards
- Uses Design Patterns
 - Support different computing environments
 - Support technology evolution
- Adaptable, common interfaces for common components
- Facilitates supply chain enhancement
- Facilitates component technology improvement

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