Agile Coalition Environment (ACE)
"Freedom within a Framework"

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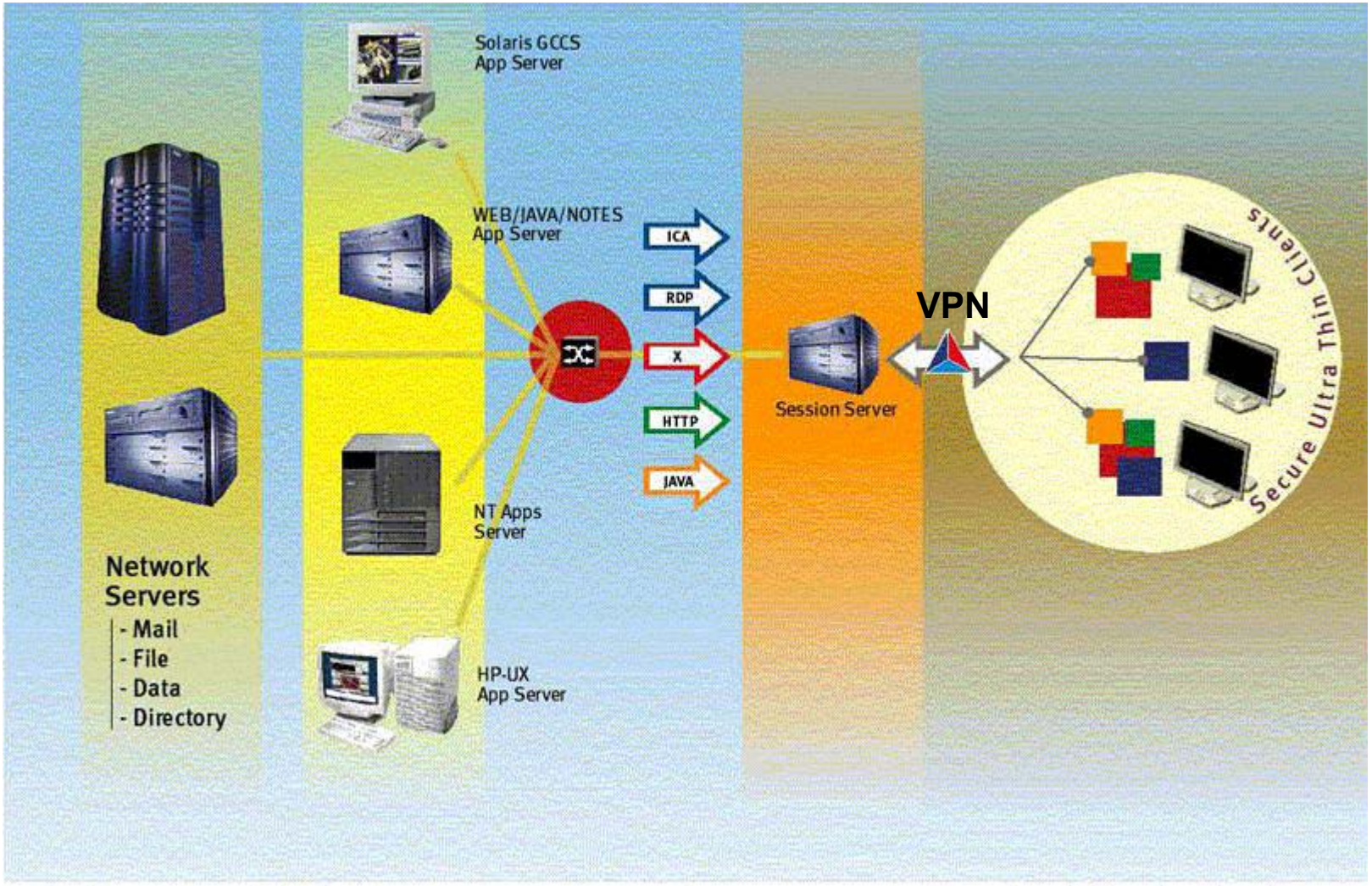
Overview

- Background
- Joint Warrior Interoperability Demonstration (JWID)
- ACE Overview
- ACE Architecture
- ACE Capabilities
- Summary & Questions

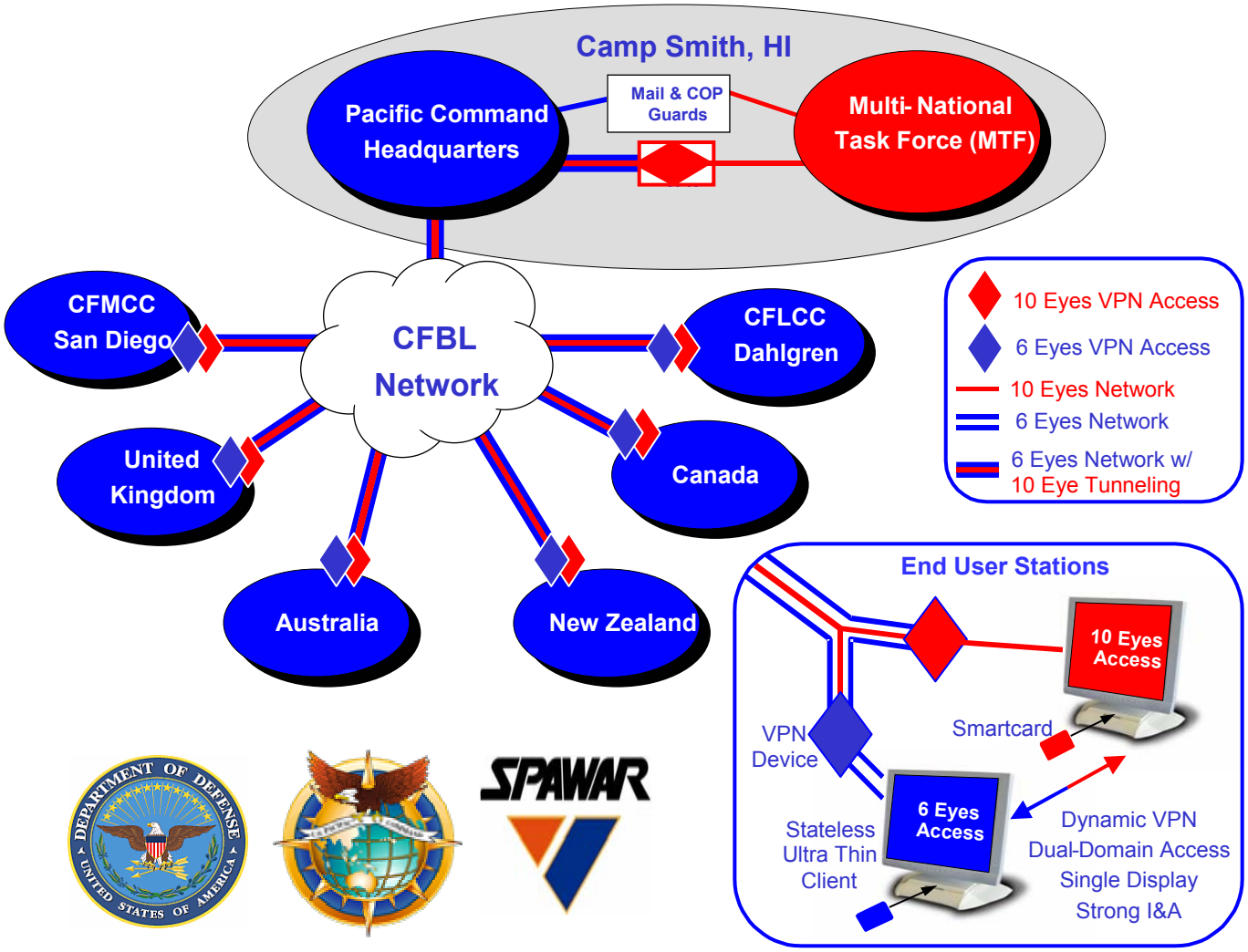
Background

- Technology evolved during 5 years of development & experimentation
  - Network Centric Q-70 Tech Insertion Program w/ Naval Sea Systems Command
  - Space and Naval Warfare (SPAWAR) System Center San Diego Lab
  - USS Coronado Sea Based Battle Lab (SBBL)
  - Fleet Battle Experiment India (FBE I)
  - Joint Warrior Interoperability Demonstrations (JWID) in 2000, 2001, and 2003.
    Pacific Theater Initiative 2002
  - U.S. Pacific Command (PACOM)
    ACE Architecture Development
- Currently in Spiral Development/ Operational Experimentation Phase

Basic Architecture Overview



Experimentation - JWID 03



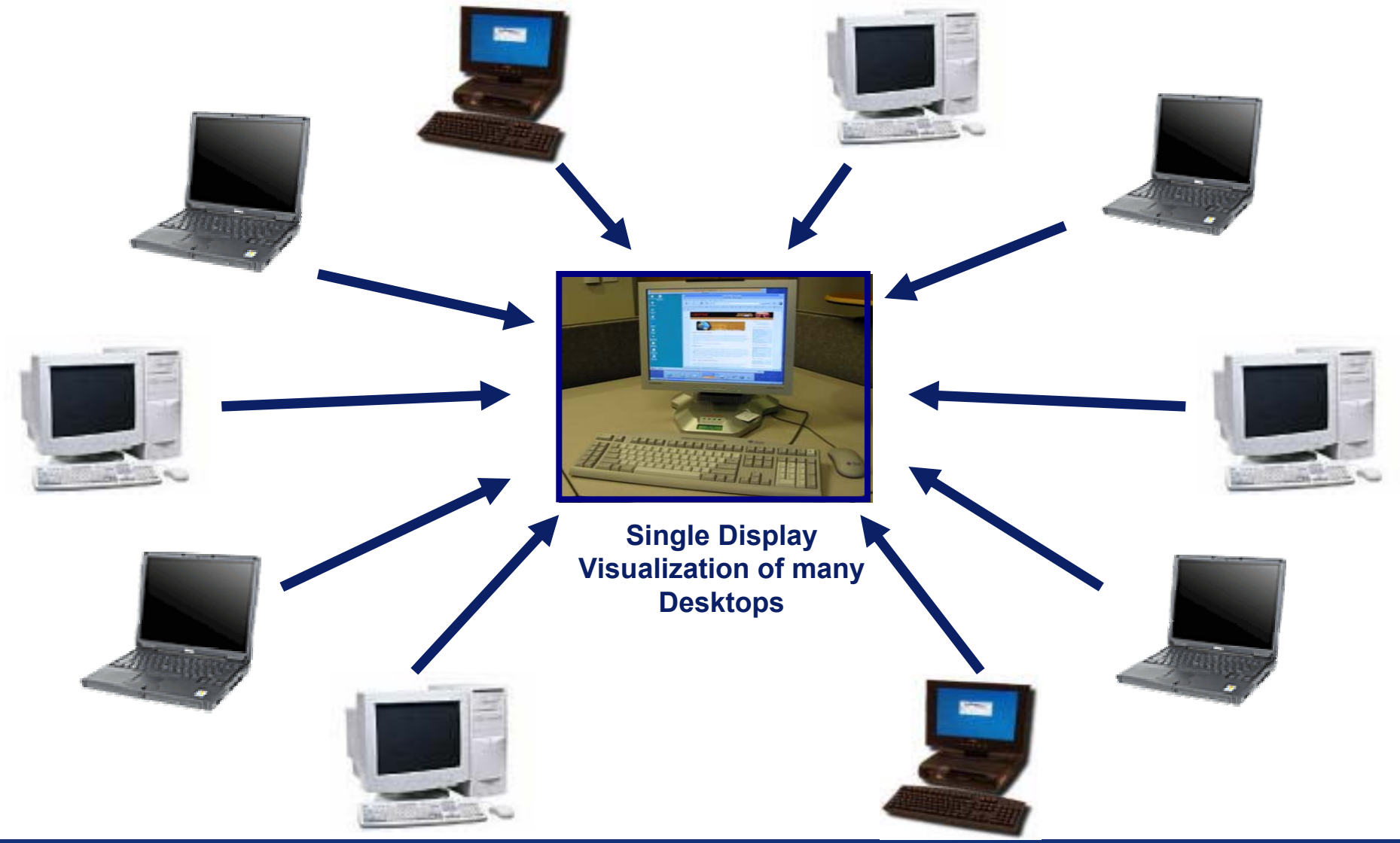
JWID 2003
Benefits & Results

- Benefits:
  - Eliminated need for Type 1 devices for data separation
  - Stateless seats coupled to Enhanced Assurance Level (EAL) 4 certified Virtual Private Network (VPN) devices allow access to multiple domains
  - Server-centric construct used to build centralized and manageable Communities of Interest (COIs)
  - Centralized network management with dynamic re-configuration in near real-time
- Results:
  - Successfully demonstrated data sharing between two domains across 7 sites
  - Successfully provided Coalition Interoperability
  - Successfully provided information sharing between Coalition partners
  - Successfully demonstrated ability to rapidly reconfigure COIs
  - Successfully demonstrated user access control to the network

Agile Coalition Environment

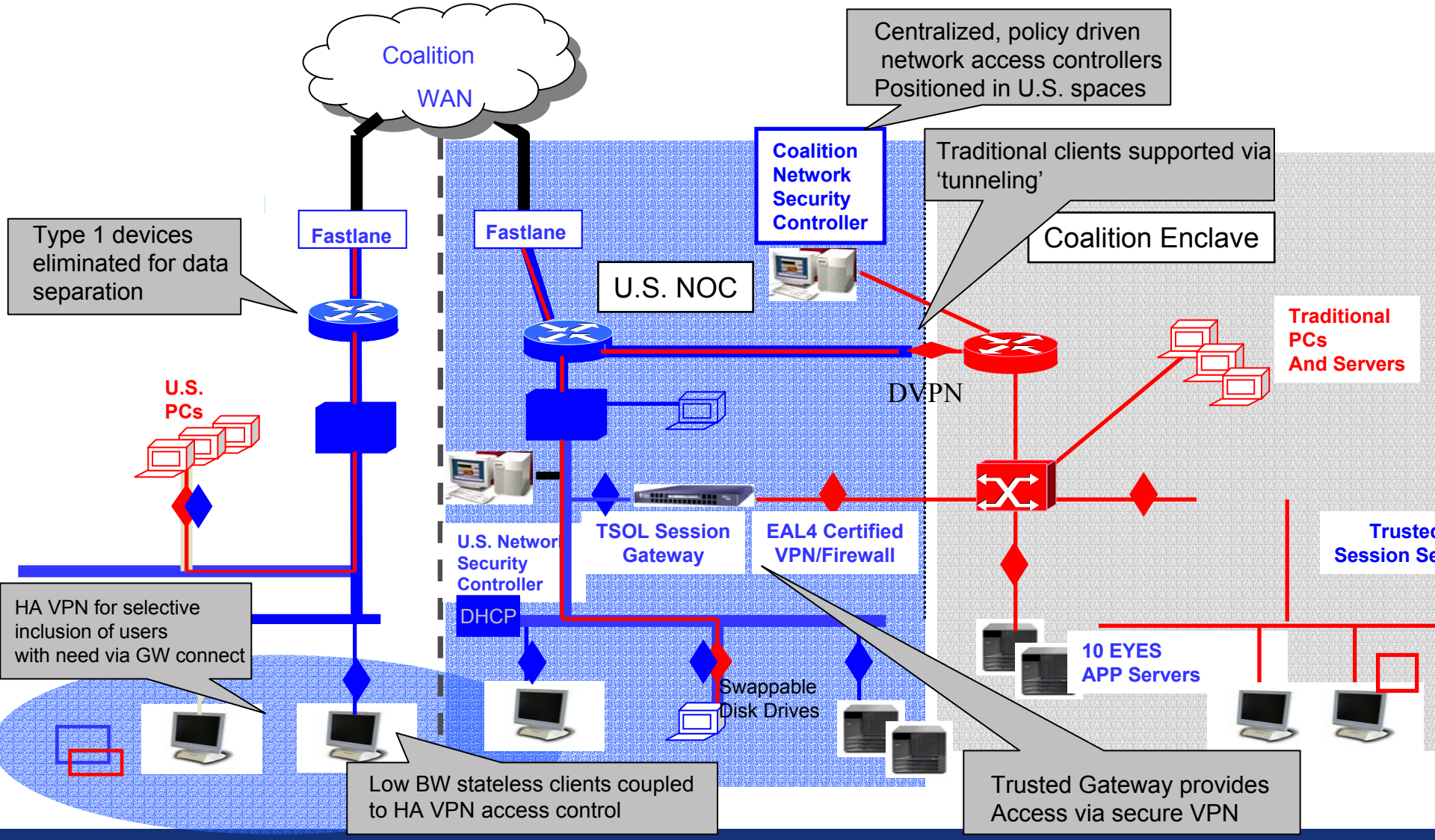
- Technology successfully demonstrated during previous JWIDs
- Network Centric Computing (NCC) plus VPN's & Trusted Solaris (TSol) to consolidate networks & enhance flexibility for rapid reconfiguration
- Integrate High Assurance VPNs onto existing, ubiquitous networks
  - Data domain separation
  - Centralized, policy driven network access control tied to strong 2-factor Identification & Authentication (I&A)
  - Appropriate data encryption for separation vs. confidentiality: Type 2 where appropriate and Type 1 where necessary

Consolidation & Simultaneous Visualization



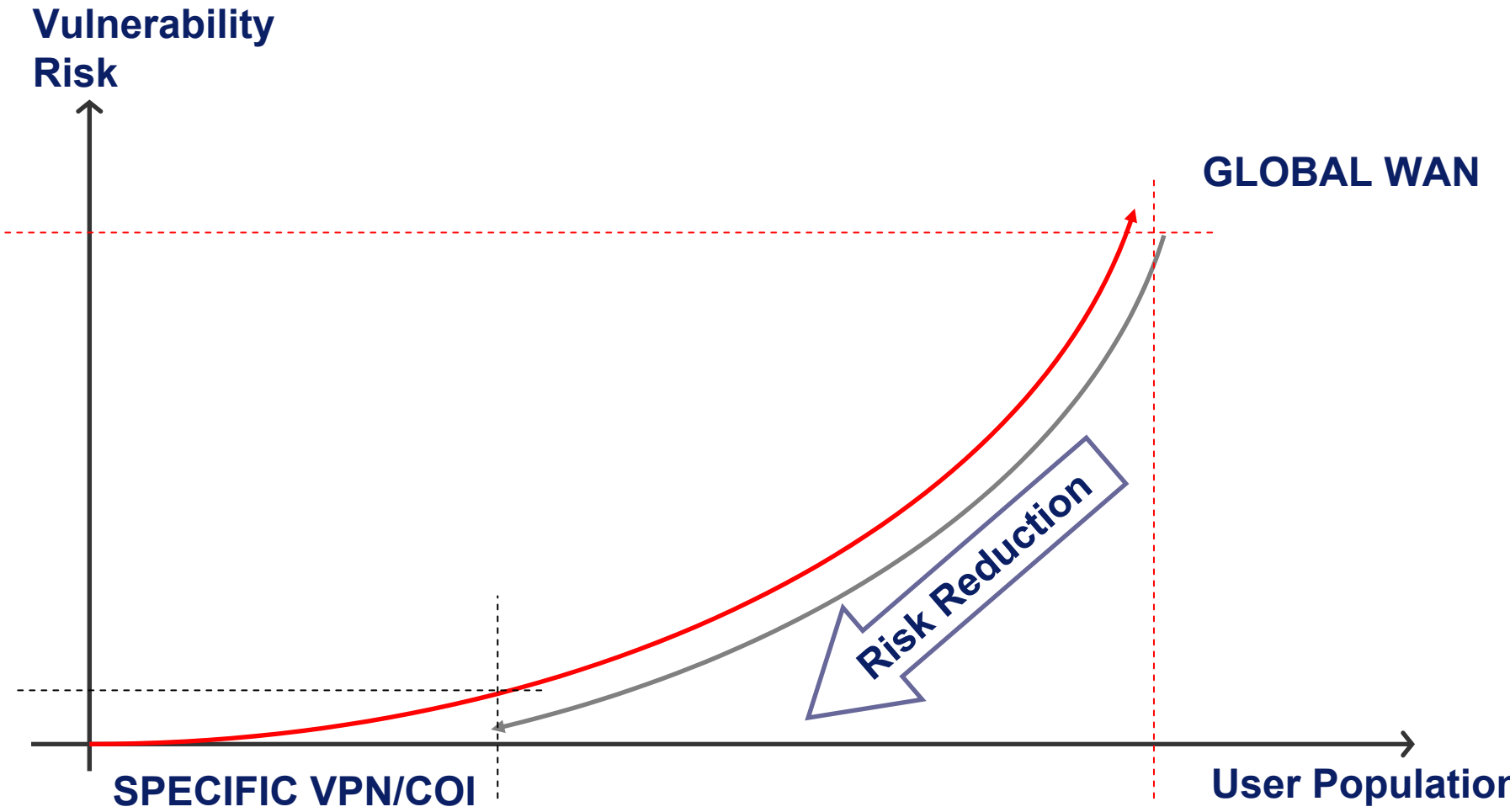
Single Display
Visualization of many
Desktops

ACE Architectural Direction

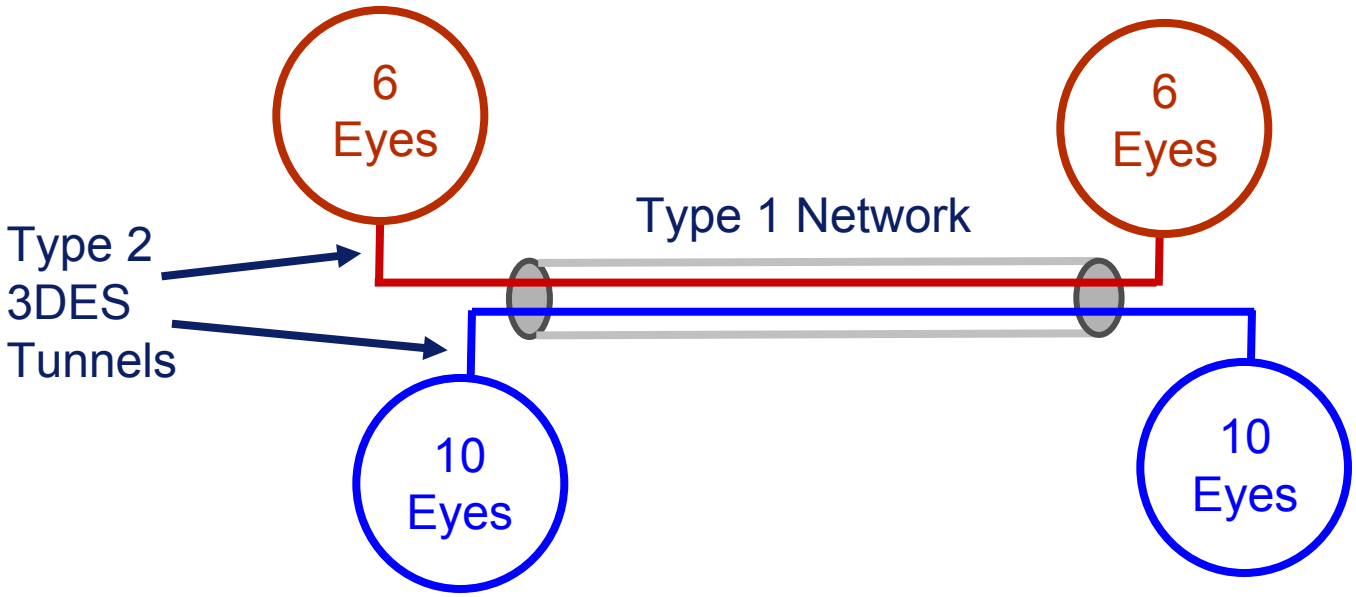


Risk Reduction: Global WAN

STEP 1



Data Separation on Network



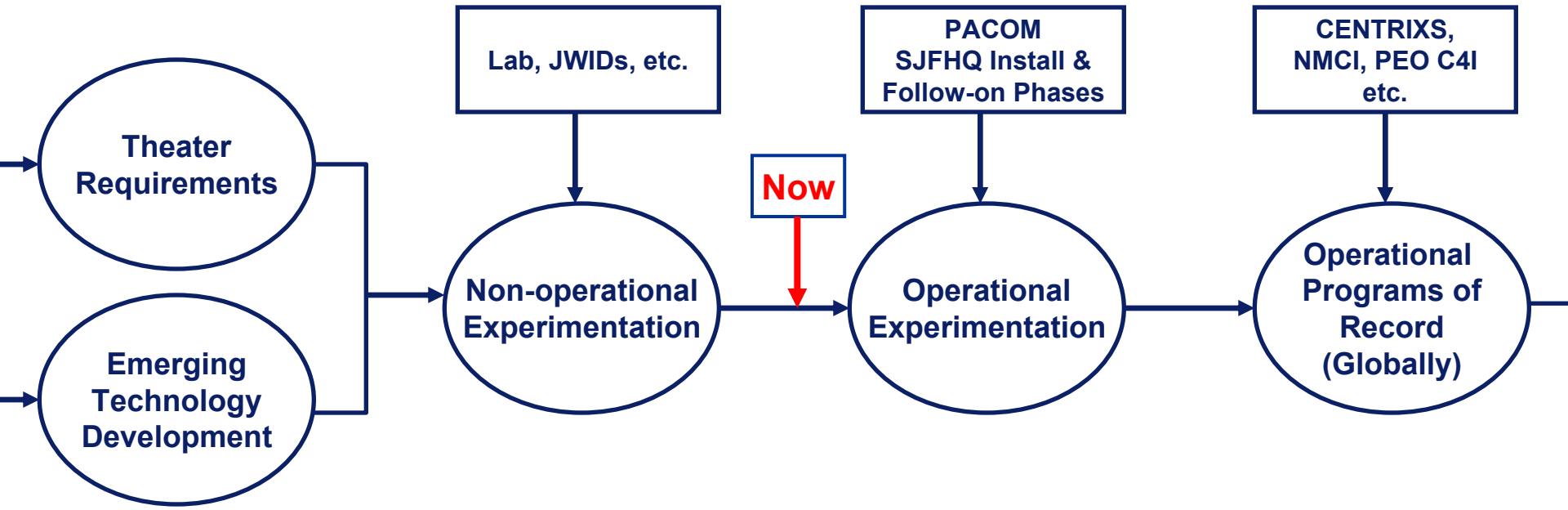
- Concept introduced in Global Information Grid (GIG)
- Tested at Joint Interoperability Test Center & SPAWAR, SSC SD
- Accepted by Coalition Partners
- EAL4 VPN subjected to 6+ months of internal NSA testing and evaluation – NSA approved for JWID Proof-of-Concept

High Assurance VPN Objectives & Benefits

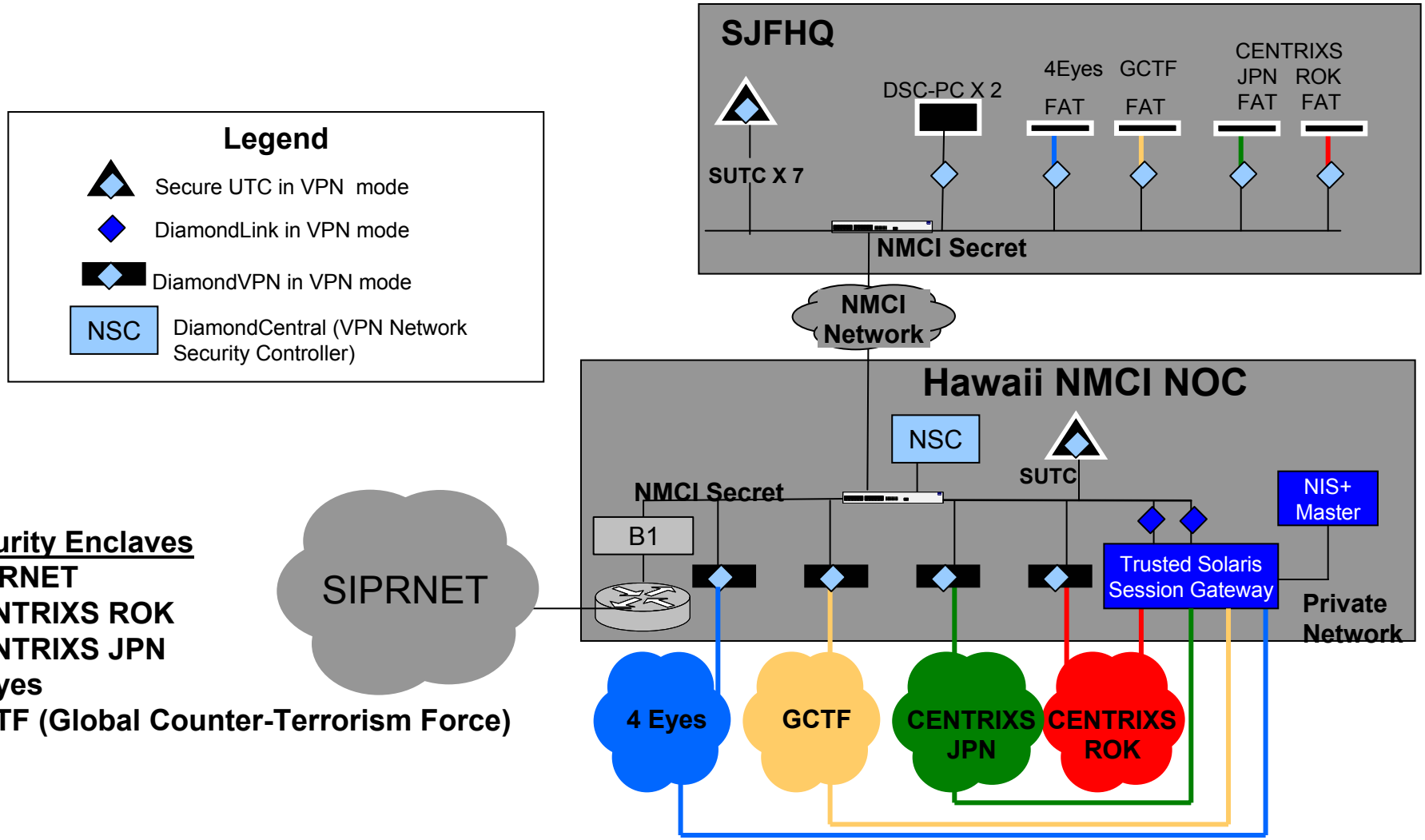
- Objectives:
  - Integrate High Assurance (HA) VPNs onto existing, ubiquitous networks
  - Data domain separation
  - Centralized, policy driven network access control tied to strong 2-factor Identification & Authentication (I&A)
  - Appropriate data encryption for separation vs. confidentiality
    - **IAW CJCSM 6510.01, DEFENSE-IN-DEPTH: INFORMATION ASSURANCE AND COMPUTER NETWORK DEFENSE**
- Benefits:
  - Secure VPNs provide risk reduction on global WAN
  - Selective inclusion of finite number of nodes
  - Medium robustness encryption for data domain separation within security level
  - Optimizes use of Type 1 encryption for data confidentiality and separation of security levels
  - Very tight network access control
  - Also supports secure access from legacy ‘state’ seats
  - Allows Concept of Operations (CONOPS) to maximize benefit of stateless clients for space, weight, power

Current ACE Status

- Warfighters, R&D & Acquisition conducting ***coordinated Spiral Development***



ACE Standing Joint Forces HQ (SJFHQ) Architecture

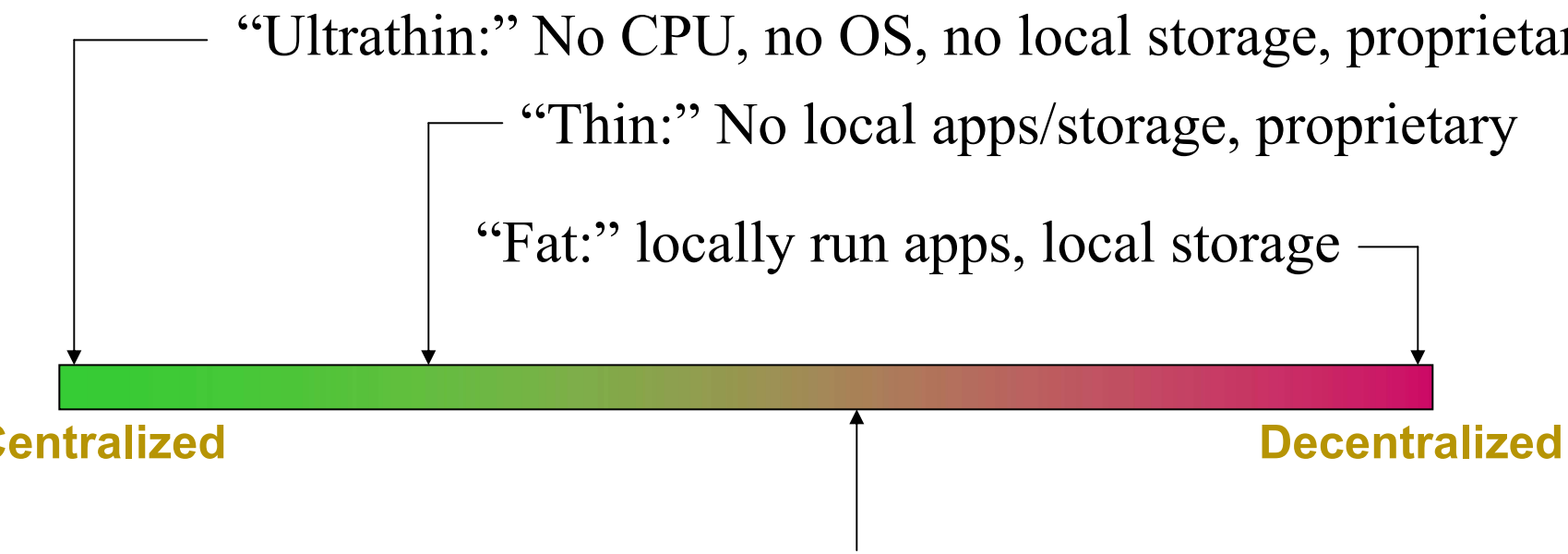


Security Enclaves
- **SIPRNET**
- **CENTRIXS ROK**
- **CENTRIXS JPN**
- **4 Eyes**
- **GCTF (Global Counter-Terrorism Force)**

Secure Ultra Thin Client (SUTC)

- Integration of SunRay and secure VPN technology
- Smartcard maintains user profile for access to network & applications
- Model designed for low-bandwidth ops over WAN
- Lessons learned from JWID 2003 being incorporated
- Inexpensive, multiple purpose and secure seat for global coalition ops
- Simple to manage and operate

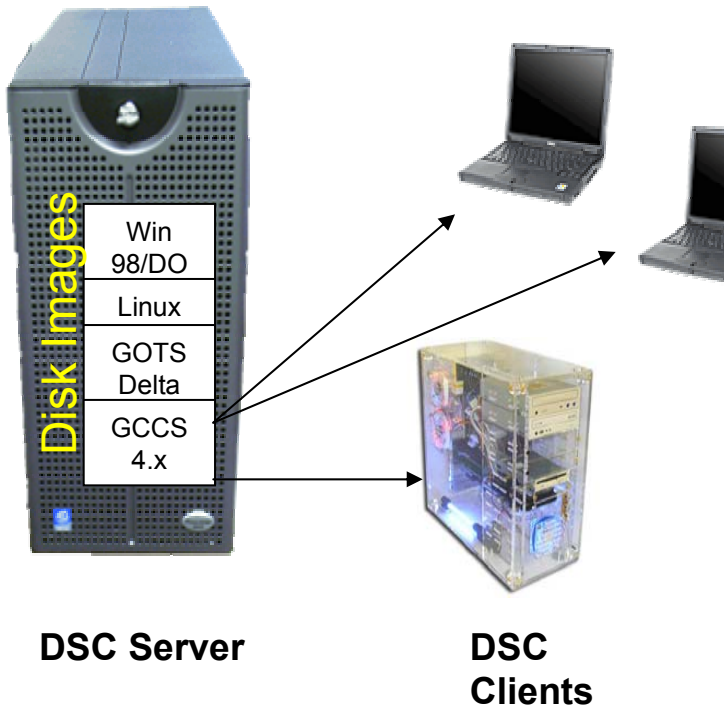
Client Seats



Diskless Stateless Clients (DSC)
Locally run apps, no local storage
Non-proprietary Technology

Diskless Stateless Client (DSC-PC)

- Network load of OS on boot from single VPN domain
- No hard drive locally; uses network-attached storage device at servers
- Local OS for local processing such as audio collaboration
- Use Common Access Card (CAC) card for authentication and for email PKI Certifications
- Provides access to one security enclave at a time
- Allows server-centric management and flexibility to host JAVA based applications such as GCCS-4.x or IWS requiring lots of CPU and memory
- Hardware VPN Provides EAL4/FIPS certified from seat to server gateways



ACE Capabilities Provided to the Warfighter

- Provides improved means to share data, provide situational awareness & collaboration simultaneously
- Provides a single seat solution for
  - Multiple COIs
  - Multiple Operating Systems & Applications
- Provides ability to rapidly reconfigure network globally and in near-real time
  - Dynamic Encryption & Data Labeling
  - Strong I&A
  - Network Centric Computing (NCC) Architecture

ACE Capabilities Provided to the Warfighter

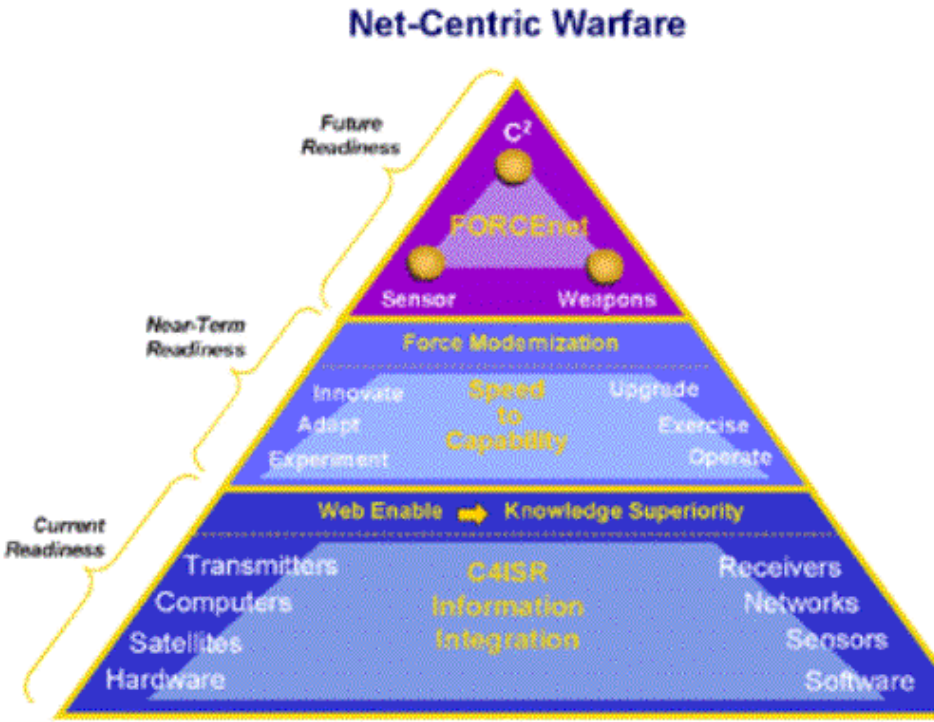
- Reduced Total Ownership Costs (TOC)
- Ease of Scalability to Meet Operational Requirements
- Provides Right Information to the Right Person at the Right Place at the Right Time to Make the Right Decision

Current ACE Status

- Have received Secret and Below Information (SABI) Ticket #
- Cross Domain Appendix (CDA) has been reviewed and approved by NETWARCOM and PACOM
- System Security Authorization Agreement (SSAA) in Draft form
- Have started Pre-CT&E (Certification Test and Evaluation)
- Two groups at NSA have started to review overall architecture and individual component documentation

Summary

- ACE team will continue development & implementations based on:
  - Warfighter Requirements
  - Enhancing Coalition Warfare Capabilities
  - Network Centric Warfare Concepts
  - GIG Standards
- Cross-Theater/Organization/Agency Information Sharing
- Provide the right information, to the right person, at the right place, at the right time to make the right decision



??? Questions ???