

DII COE: A Good Concept That's OBE?

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Disclaimer

- Not an official SPAWAR position
- Not an official CIPO position
- Not an “expert” DII COE opinion
- Not professing answers; topics for consideration and discussion

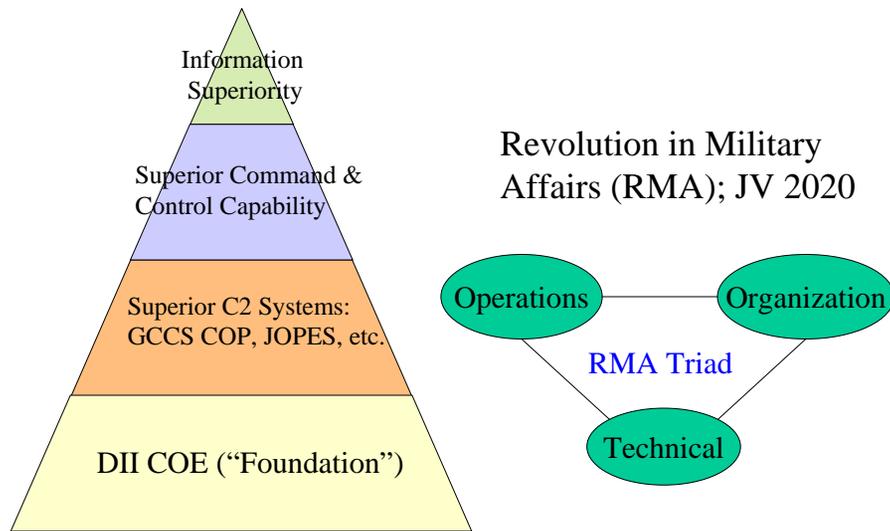
About the Title...

- COE is a Good concept
 - Visionary in many ways
 - Perhaps idealistic; requires paradigm shift in DoD and contractor thinking
- OBE?
 - Concept is not OBE
 - Reality vs. Perception
 - Goals & implementation re-examination

Outline

- COE Background
- Current Status
- Issues/Questions
- Final Thoughts & Recommendations

From a strategic perspective...



DII COE: Origins

- Roots tied to GCCS as replacement for WWMCCS
 - Requirements went beyond WWMCCS capability
 - Monitor execution of TPFDD
 - Monitor tactical execution
 - Goals:
 - Interoperability
 - Compatibility
 - Portability
 - Scalability
 - Consistency
- Accomplished via "Common Software" across different implementation levels

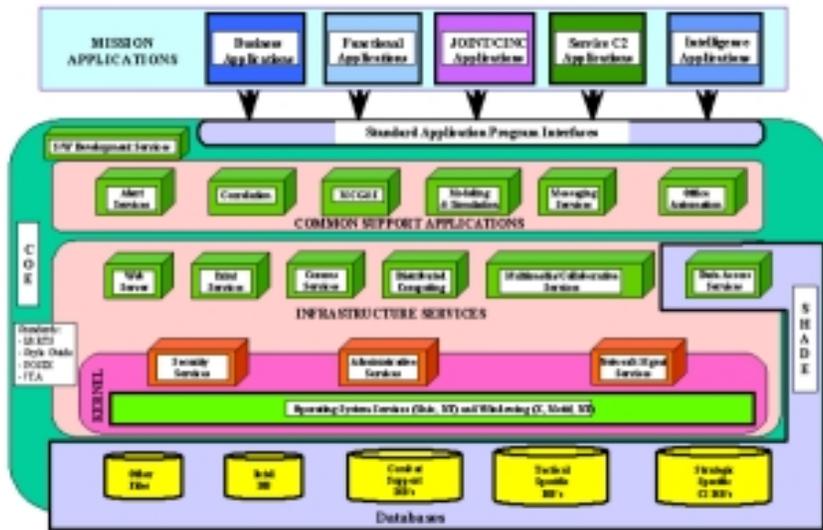
DII COE: Origins (cont'd)

- ASD Compliance Mandate (23 May 1997):
 - "The DII COE defines eight progressively deeper levels of integration for the runtime environment. These levels are directly tied to the degree of interoperability achieved."
 - Desired end state focused on interoperability
- Is Interoperability still the primary objective?
 - Level 8 does not guarantee interoperability
 - Do levels truly tie to degree of interoperability?
 - COE "indirectly" responsible for interoperability

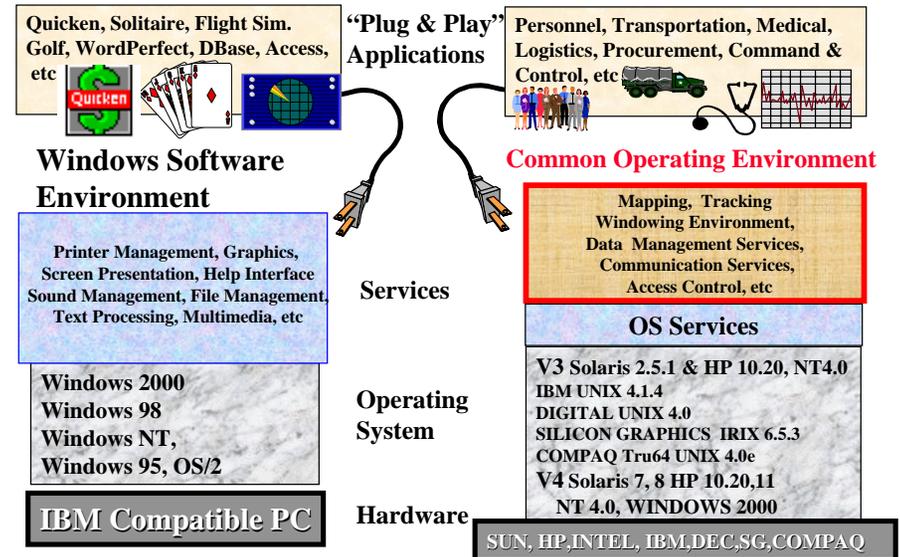
What is DII COE?

- Set of standards?
 - OS (Unix, Windows NT, etc.)
 - Software stds (POSIX, Motif, X Windows, etc)
 - Architecture (JTA)
- What environment?
 - Runtime environment
 - Application environment
 - Shared Data Environment
- Set of common application components
- "The DII COE is not a system; it is a foundation for building an open system." -I&RTS

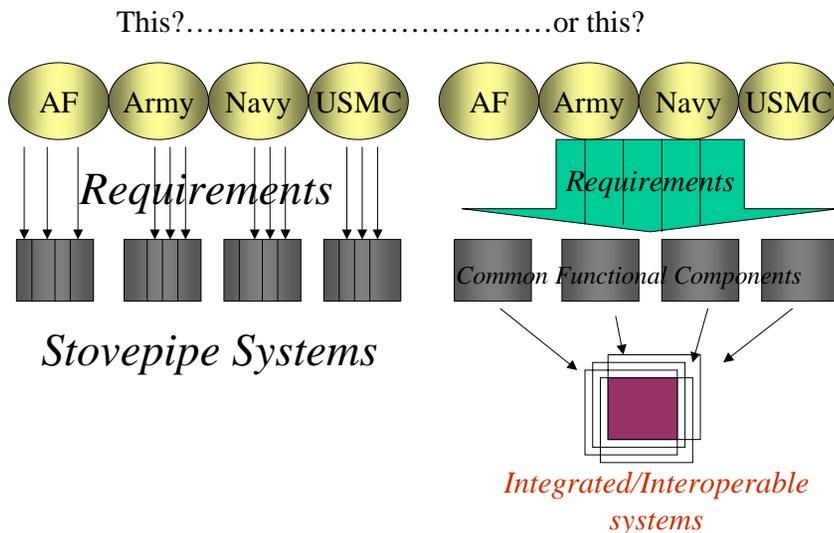
DII COE Functional Taxonomy



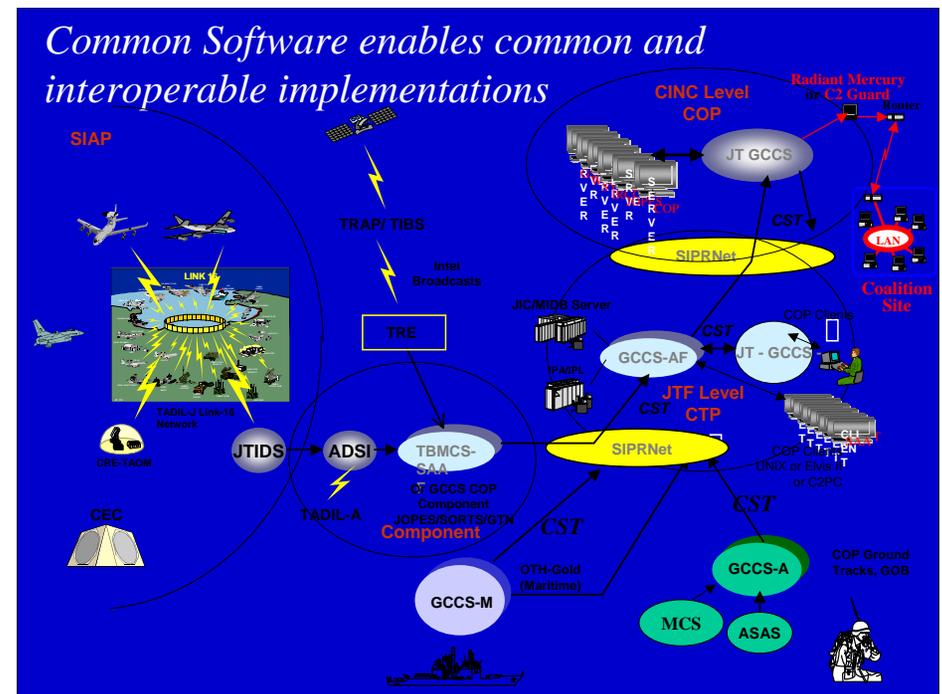
What is COE? The Microsoft Analogy



Common Software to fulfill common requirements



Common Software enables common and interoperable implementations



Interoperability Still the Goal?

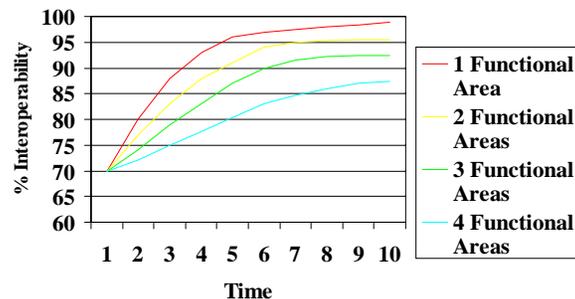
- Then how much have we improved over pre-COE level of interoperability?
- What are our metrics to evaluate performance?
 - If they are mostly subjective, then evaluation is open to variance based on reality vs. perception
 - 2 systems could be perfectly aligned with COE precepts yet unable to effectively communicate
- Do the benefits reaped wrt interoperability justify the cost to implement the mandate?
- Could we be at this same point via commercial product evolution?

Interoperability is still the goal, however...

- Perhaps we still need to redefine the current goals and scope of DII COE
 - Level 5: Intraoperability; peaceful coexistence of apps
 - Level 7/8: Interoperable/Full Compliance
- Perhaps the mandate needs to be reconsidered
- This definition needs to be clearly communicated throughout the DoD
 - Reality vs. Perception: Improved understanding should minimize perception variance

Interoperability & Cost

Interoperability vs. Time (incremental \$)



- Greater interoperability gains can be achieved by applying \$ resources at single functional area than spreading across many
- Gain is of most benefit by focusing on areas with largest degree of commonality or greater priority

NOTE: Notional diagram for illustration purposes only (ie not based on true data points)

COE Issues

- Applicability
 - Breadth: C4I, Finance, Logistics, etc?
 - Depth: NCA, CinCs, JTF, “foxhole”?
- Measuring & Enforcing Compliance
- Legacy Migration
- Component Reuse
- Multi-vendor HW/SW support
- Service GCCS implementation
 - GCCS, GCCS-M, GCCS-A, etc.

Service GCCS Variants

- Perception: There are service-variant GCCSs based on COE kernel modifications
- Reality: Services disabled some 3.x runtime capability for security requirements

COE & Industry

- Leading Edge vs. Bleeding Edge
- COE rate of change not at industry's pace
 - This can be a good thing
 - DoD priorities are very different from industry
- Business model shift for DoD vendors
 - Vendors have traditionally provided system-level, hardware solution
 - COE strips common software out of system “ownership”

COE Implementation

- Dependent upon services' respective funding, priorities, or other constraints
 - Common tools may be fielded at different times
 - “Plug n Play” concept may be jeopardized
 - Operators encounter “seams” in architecture
 - COP Sync Tools Example
 - Navy implementation lagged DISA and other services
 - Bandwidth constraint prevented implementation
 - Necessitates “work-arounds” from user perspective
- Ideally, joint GCCS should be implemented for all common requirements; service-specific segments should be add'l apps running on this platform

COE: The Bright Side

- GCCS COP
 - Navy, AF, Marines, & some Army users have 24/7 common operational picture
 - Center of gravity for superior C2 capability
- GCCS I³
 - 100% out-of-the-box reuse of 48 Intel & Imagery mission application segments across Navy, AF, MC, and DISA
 - Enabled joint reqmts and funding process to support this community of interest

COE: The Bright Side

- 3D Mapping Tool
 - SRMT (Surv. & Recon. Manager Tool)
 - Used COE for all functions except 3D mapping
 - Used toggle feature to switch between 2D & 3D mapping capability
- Naval Fires Control System (NFCS)
 - Utilized COE core COP track management and mapping functions
 - Applied maximum resources to NFCS-specific mission applications

COE: Another view...

- LINUX
 - Aligns with many COE principles
 - Open Source (Remember I&RTS COE definition)
 - Additional OS option
 - Nothing inherently limiting
 - Too open?
 - Modify code to desired security level
 - Services are already locking down NT runtime capability for security reasons
 - No applications?
 - May be because it's not on compliance list
 - Accountability?
 - DoD could take ownership of DoD version
 - Current process may impede LINUX from getting equal consideration
 - Innovation won't happen by magic; DoD must establish environment which nurtures innovation

Final Thoughts

- “Is DII COE OBE?” may not be the right question
- DoD implementation might be more appropriate focal point
- It's a matter of reality vs. perception
 - In reality, many folks in COE community are doing very good things
 - However, perceptions vary regarding implementation effectiveness; problems are unjustly attributed to COE
- Focus more on Operations & Organizational Changes (recall the RMA Triad)
 - Tendency to rely on technology to overcome these shortcomings; COE necessary but not sufficient
 - Best bang for buck might be in these areas
 - Information Superiority is a function of all three!!

Recommendations

- LINUX Advisory Group chartered under AOG and linked to DISA (precedent is NT scenario)
- COE Technology Assessment Group
 - Fosters innovation
 - Representation ???
 - Promising technologies move into “advisory group” for further consideration