DCTS Certification – Levels and Requirements

An objective look at the three levels of DCTS interoperability testing (system, component and enhancement) and their significance to the buying decision for collaboration products.

The Defense Collaboration Tool Suite (DCTS) is a suite of commercial, off-the-shelf products endorsed by the Office of the Secretary of Defense and Joint Staff (OSD/JS) that provides collaborative services including audio, video, chat, whiteboard and application sharing. By Department of Defense (DoD) mandate, all collaborative products not included in DCTS must have been certified as "interoperable" with DCTS by October 1, 2003, or are "not authorized on DoD networks."

This mandate produced a rush of vendors announcing their certification of interoperability with DCTS. However, there are three levels of certification, system, component and enhancement, each with dramatically different profiles in terms of usability and marketability. Understanding the certification process and levels is critical to making informed decisions when acquiring collaboration technology.

This White Paper explores the certification process and delineates the certification levels and their significance for those evaluating collaboration technologies.

First Virtual Communications

Background

DCTS dates back to a 1999, when Congress instructed the DoD to address the lack of interoperability between collaborative tools then in use by various branches of the DoD. In response, the DoD formed a Collaboration Tiger Team (CTT) comprised of members from the Commanders in Chief (CINC) (unified commands), Services and Agencies (C/S/A).

Initially, the CTT worked with the C/S/A to define a set of core functional requirements for a collaborative tool suite. The CTT then asked the Joint Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) Battle Center (JBC) to assess collaborative tools at the Joint Task Force (JTF) level and identify the most cost effective system that met all core functional requirements.

The JBC assessed fifteen candidates comprised of systems from both single and multiple vendors and ultimately tested four systems. In March, 2001, the JBC announced that the Collaborative Tool Suite, comprised of products from First Virtual Communications (then CUSeeMe), Sun Microsystems, Envoke, and Microsoft, rated highest in their tests. The JBC recommended the Collaborative Tool Suite as the standard collaboration tool and renamed it the Defense Collaborative Tool Suite.[1]

Briefly, DCTS presents all users with a common dashboard that enables voice and video conferencing, document and application sharing, instant messaging and whiteboard functionality. Users in disparate locations are automatically and transparently linked through a network of servers with both synchronous and asynchronous communications.

The DCTS rollout began in April 2002. By April 2003, DCTS was installed in 95 sites worldwide, with 52 additional sites scheduled to be installed in 2003.[2]

DoD Interoperability Standards

On November 1, 2002, John P Stenbit, the CIO for the DoD, issued a memorandum designed to bring all collaborative tools sold into the DoD in line with DCTS. The memorandum states that all "collaboration products used by the Department must demonstrate interoperability and compliance with DoD collaboration interoperability criteria."

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Stenbit named the Joint Interoperability Test Command (JITC) the sole testing and certification authority, and mandated that "By October 1, 2003, collaboration solutions that are not JITC certified are not authorized on DoD networks." [3]

The JITC later defined three levels of interoperability, which are:

- **System:** A system is a tool or a collection of tools bundled as a product that provides all of the services that are identified in the requirements.
- **Component:** A component is a tool or a collection of tools bundled as a product that fulfills one or more, but not all, of the requirements and passes all of the required criteria identified in the component certification criteria matrix. A component will demonstrate full interoperability with its equivalent tool or product in DCTS.
- **Enhancement:** An enhancement is a tool or a collection of tools bundled as a product that fulfills one or more, but not all, of the requirements, but has one or more enhanced functions not based on the reference standards profile. An enhancement may not be able to demonstrate full interoperability with the equivalent reference standard for its enhanced capability, but it will demonstrate a method of interoperability with the appropriate service(s) and it will pass all of the required criteria identified in the enhancement certification criteria matrix.[4]

The JBC assessed fifteen candidates … [and] announced that the Collaborative Tool Suite, comprised of hardware and software from First Virtual Communications, Sun Microsystems, Envoke and Microsoft, rated highest in their tests.

Essentially, products certified as systems can replace the entire DCTS, while a component can replace one or more components of DCTS. With products certified as a system or component, users still access all collaborative components via a unified interface and can seamlessly communicate via all of the available mediums – voice, video, application sharing, text chat and whiteboard, with all others logged onto the DCTS system.

In contrast, an enhancement is any tool that can interoperate with a DCTS system via one or more of the DCTS tools. This is a broader definition that incorporates a much broader range of products, each with a potentially different usability profile.

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For example, many collaborative environments that attain enhancement certification don't directly communicate with other DCTS clients. Instead, they use Microsoft NetMeeting for critical functions like audio and video conferencing, application sharing,[5] whiteboard and file sharing. In some instances, this means that all users don't share the same unified interface and that communications are far from seamless.

To a certain degree, the "enhancement" definition of interoperability is a license to coexist on the same network as DCTS, addressing the practical reality that DoD departments couldn't immediately discard their investment in collaborative programs that did not meet either the "system" or "component" interoperability requirements. However, before upgrading or buying software that meets only the "enhancement" requirement, organizations should consider the following issues:

1. Most programs that achieve interoperability as "enhancements" use a different interface to communicate with DCTS systems. This would be bad practice in a sedate business setting, but could have critical negative implications in a field of battle.

Like DCTS, most collaboration systems have their own unique interfaces for communicating with other system users, and for storing and sharing documents. Within DCTS, for example, a single web page serves as the digital dashboard for all communications between logged-in users. Communicating via voice, text chat or videoconferencing with one or more users requires only a few mouse clicks with the ability to quickly establish ad hoc conferences with multiple users in disparate locations. Transferring documents within DCTS is a simple drag and drop operation.

Consider the following scenario: five users of an "enhancement" system are conferencing via text chat and whiteboard, and sharing documents.

- To conference-in a DCTS user, all enhancement users would have to leave their proprietary environment and join a NetMeeting conference.
- To send documents to the DCTS user, the enhancement user would have to retrieve the document from their proprietary system, and transfer it via NetMeeting.
- Any whiteboard notations made during the initial session in the enhancement system would have to be either copied into the NetMeeting conference, or reentered.
- Any text chat occurring before conferencing in the DCTS user would have to be copied into the NetMeeting conference, or reentered.

Obviously, these requirements are extremely inefficient and hamper, rather than promote, collaborative activities between enhancement and true DCTS systems. In most non-combat situations, this inefficiency is tolerable, but in-combat consequences could be quite harsh.

2. "Enhancement" systems that rely upon NetMeeting may be less bandwidth efficient than true DCTS solutions, limiting the modes available for collaboration and the quality and speed of collaboration.

Note also that the type of ad hoc NetMeeting conferences used to achieve "enhancement" interoperability may place much of the bandwidth

1 The Joint Collaboration Tools Assessment Report, JBC, March 2001.
2 http://www.disa.mil/pao/products/dcts.html
3 November 1, 2002, DoD Memorandum - http://www.jitcwashops.disa.mil/download/SCE_V3.doc.
4 See Appendix I for a complete list of original and certified DCTS products.
5 See, for example, the interoperability matrix for InfoWorkspace - http://www.infoworkspace.com/iwsdocs-v251/infoworkspacev251_jul.pdf
6 http://www.zdnet.com.au/newstech/communications/story/0,2000048620,20262109,00.htm

requirements for the collaboration activities on the user initiating the conference, which could seriously degrade all communications. For example, a conference initiated by an enhancement user connected to the network via dial up, cellular or other low bit rate connection may not have the bandwidth to support audio or video transmissions or to quickly transfer text, files or whiteboard annotations.[6]

In contrast, the decentralized DCTS system places the communications burden at the server level, where high speed connections can easily handle the load. This means that true DCTS systems can handle more modes of communication faster, and at higher quality levels than many enhancement systems.

None of these comments should be construed as a blanket criticism of NetMeeting, which is an invaluable DCTS component. However, NetMeeting works best as a client with full support from DCTS servers. Enhancement products that rely upon NetMeeting for connectivity with DCTS clients are essentially running "along side" NetMeeting on a client PC rather than truly integrating NetMeeting into the heart of the solution.

3. With DCTS, the DoD is moving towards standards-based interoperability and away from proprietary systems. Continuing to invest in a proprietary system is a questionable economic decision.

DCTS is about using interoperable, standards based, commercial off-the-shelf technology to meet the DoD's collaboration requirements. Products certified as systems or components present additional choices for DoD buyers without the usability and performance negatives of "enhancement" products identified above.

In addition, collaboration software developers seeking to sell into the DoD will increasingly focus on system or component interoperability with the core DCTS products. Compatibility with enhancement products will obviously be a much lower priority, inevitably decreasing the interoperability of these products.

Perhaps more to the point, some systems that achieve DCTS interoperability as "enhancements" represent proprietary systems and are the clear antithesis of DCTS. Looking forward, the mere existence of DCTS portends the immediate shift away from and ultimate demise of these proprietary systems. This makes continued investments in enhancement systems increasingly difficult to justify.

Evaluating Collaborative Technology Going Forward

A series of relatively simple questions will help identify the strengths and weaknesses of DCTS Certified Technologies. Here is a suggested list:

1. What level of interoperability did the product achieve?
2. If component, which DCTS component(s) does it replace?
3. If enhancement:
    a. How does the enhancement product interoperate with DCTS?
    b. How seamless is the interaction? For example, will a single directory in the proprietary system enable one click connection to the DCTS user or will there be a totally separate directory for DCTS users? What are the practical limitations of getting documents and previous text and whiteboard communications from the proprietary system into the new DCTS conference?
    c. What are the bandwidth implications of the interaction? Are bandwidth requirements centralized around the enhancement user initiating the DCTS contact, or somehow passed back to the server level?

Conclusion

The Defense Collaborative Tool Suite (DCTS) is a tightly knit, integrated product suite that has delivered superior performance and usability in both labs based testing and in thousands of installed seats. Given the DoD's clear mandate towards DCTS, most developers of collaboration products will be seeking to have their products certified as interoperable with DCTS.

However, there are three levels of certification, with dramatically different levels of integration and usability. It is imperative that organizations evaluating these products learn the level of interoperability.

If enhancement level, these organizations should identify exactly how the product will interact with DCTS and discover any potentially negative implications. Given the standards-based future that DCTS portends, they must also question the continued investment in proprietary technologies that can't achieve either system or component level interoperability.

Appendix I: Incumbent DCTS Companies	Product	Company
SERVER SOFTWARE		
Digital Dash Server		
	Infomentum Active File, v2.2	Infomentum
	Adobe PDF IFilters, v4.1	Adobe Systems Incorporated
	ASPSmartSecurity, v2.00	ADVANTYS
	ASP WaitFor, v1.0	ServerObjects Inc.
	MS PowerPoint or Office 2000	Microsoft Inc.
	Software's IP*Works (ASP Edition, v5.0.0.551)	/n software inc.
SQL Server		
	Microsoft SQL 2000 Server w/ Service Pack 2	Microsoft Inc.
Multi-Point Control Unit (MCU)		
	FVC's CUSeeMe Conference Server, v6.0.4.43	First Virtual Communications
Global Awareness and Instant Messaging		
	ENVOKE Server v1.1.4	Asynchrony Solutions, Inc.
Integration Components		
	Databases & code to access vendor APIs, v1.2.12	DISA
CLIENT SOFTWARE		
	Net Meeting (v 3.01 patch 4.4.3385)	Microsoft
	Internet Explorer (v 5.5)	Microsoft
	Sun Forum (v 3.1)	Sun Micro Systems
	Netscape (v 6.23)	Netscape
	Envoke Client (v 1.1.4)	Asychrony

Source: http://www.jitcwashops.disa.mil/download/DCTS%20v2%20software%20list.xls

Appendix II: JITC Testing Status

Vendor	Product	Type of Certification	JITC Testing Status
CMO	DCTS Version 2 Phase 1	System	Testing Completed
			Certification Letter Completed
			Final Report Completed
Groove Networks	Groove Workspace	Enhancement	Testing Completed
			Certification Letter Completed
			Final Report Completed
Advanced Reality	Presence AR	Enhancement	Testing Completed
			Certification Letter Completed
			Final Report Completed
Ezenia!	IWS	Enhancement	Testing Completed
			Certification Letter Completed
			Final Report Completed
Webbe	Webbe	Enhancement	Testing Completed
			Certification Letter Completed
			Final Report Completed
Documentum	eRooms	Component	Testing Completed
			Certification Letter Completed
			Final Report Completed
IBM/Lotus	Sametime V3.0	System	Testing Completed
			Final Report Completed
CMO	DCTS Version 2 Phase 2	System	Awaiting Test
OpenText	Livelink MeetingZone	Enhancement	Testing Completed
			Final Report Completed
Bantu	Bantu IM	Enhancement	Testing Completed
			Final Report Completed
VCON	ViGO, MXM, MCU	Component	Awaiting Test

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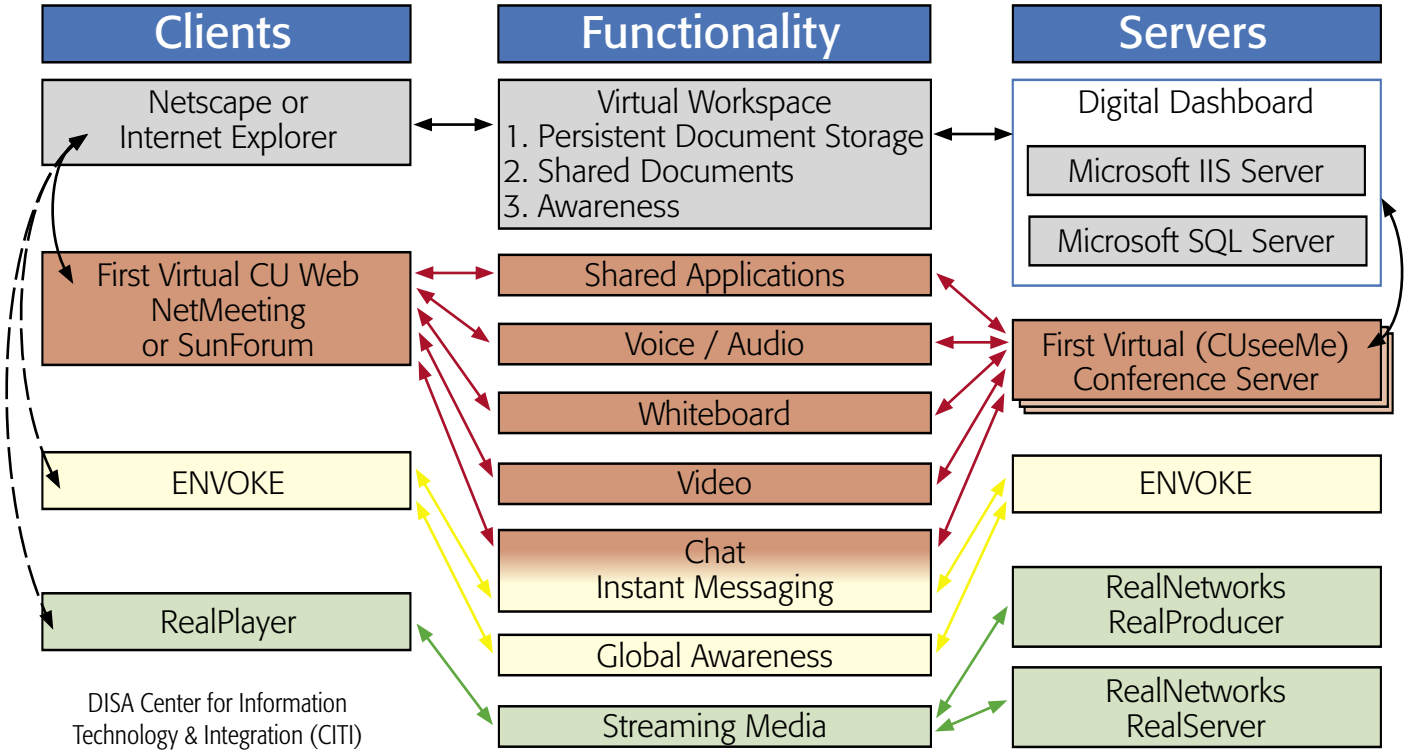
Vendor	Product	Type of Certification	JITC Testing Status
Centra Software	Centra Universal Client	System	Testing Completed
IsoSpace	IsoSpace	System	Testing Underway
Radvision	GW, MCU and GK, DCS (Data Collaboration Server for T.120)	System	Awaiting Test
Microsoft	Microsoft Secure Collaboration Environment	System	Awaiting Test
Tandberg	Tandberg 1000	Component	Testing Underway
NSWC Dahlgren Division	Common Collaboration Environment (CCE)	Enhancement	Awaiting Test
Polycom	ViewStation FX System IPower 9800 System Accord MGC 50 Polycom WebOffice Polycom Via Video II Conferencing Server (MCU) Conferencing Client	Component	Awaiting Test
WebEx	WebEx Enterprise Edition	Enhancement	Awaiting Test
First Virtual Comm.	Click to Meet Express	Enhancement	Awaiting Test
Latitude Communications	MeetingPlace	Enhancement	Awaiting Test
Collabworx	Secure Realtime Collaboration (SRTC)	Enhancement	Awaiting Test
Ball Aerospace & Technologies Corp.	KnowledgeKinetics	Enhancement	Awaiting Test
NAWC-AD	Collaboration at Sea	System	Awaiting Test
EDS	EDS PLM	System	Awaiting Test

Source: http://www.jitcwashops.disa.mil/projects/jtcb_dcts_test_status.htm (This document is current as of 10/21/2003).

The DCTS Solution



DCTS provides Collaborative Services to:

- Allow Joint Crisis Action Planning, Deployment, and Targeting
- Allow Collaboration from and among all CINCs, Services and Agencies

DCTS supports core Distributed Collaborative Planning (DCP) services for DoD and Coalition partners

- Deployed as Core DCP for JWID '01
- Deployed as Core Infrastructure for JWID '02
- Selected by NATO and ANZUS as standard DCP tool
- Fielding to CINCs FY '02 (CENTCOM, EUCOM, PACOM, JFCOM)

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