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WHITE PAPER

Delivering an Integrated Solution Based on Sun Java System Platform and Architecture for the United States Army Accessions Command

Sponsored by: Sun Microsystems, Inc.

The Decision: Part One of a Three-Part Deployment Review and Analysis

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OVERVIEW

Working with Sun Microsystems, Inc. (Sun), the United States Army Accessions Command (USAAC) is implementing the iRecruiter portal infrastructure that will provide role-based access and personalized information aggregation for the U.S. Army. The portal is designed to create a collaborative environment and to integrate command and control of the recruiting of volunteers, their initial testing and training, and their assignment to units. In this document, IDC examines the business drivers and technology challenges for the development of this integrated portal infrastructure. Part two of IDC's review and analysis will focus on the architecture design and initial deployment of the new infrastructure. Part three will pinpoint measurable results and summarize lessons learned.

THE ORGANIZATION

USAAC is responsible for transforming volunteers into soldiers and officers for the U.S. Army. Recruitment in high schools and colleges and training programs for skills, fitness, and leadership are the major activities of USAAC. A 2002 reorganization within the U.S. Army charged USAAC with primary command and control over recruiting and training operations in seven other U.S. Army organizations.

THE SITUATION

In 2001, USAAC designed and implemented a document management solution based on a technology platform from Documentum Inc. and Sun to improve efficiencies while reducing costs. Chief of Web Applications and Technologies Gary Bishop determined that an integrated portal solution would help lower operational and administrative costs while improving the productivity of personnel. The new charter of USAAC also meant that it was responsible for external communications via the GoArmy.com portal.

THE DECISION

USAAC determined that deploying an integrated portal infrastructure would provide intelligent provisioning of content to its varied user constituencies based on roles and policies. USAAC wanted to avoid a proprietary solution and thus sought a technology solution based on open standards and commercial off-the-shelf (COTS) components.

SUN'S CONTRIBUTIONS

To help USAAC make decisions related to the technology platform for its integrated portal solution, Sun Services delivered a series of workshops focused on content provisioning, network identity management, and systems integration. Bishop and USAAC ultimately determined that the Sun Java System platform and architecture (formerly Sun Open Net Environment [Sun ONE]) would form the basis of its integrated portal solution. USAAC decided to engage Sun Services for direction in architecture design and implementation. In particular, before embarking on the architecture design and implementation of the enterprise portal infrastructure, Sun and USAAC deployed a smaller version of the portal architecture for the Junior Reserve Officer Training Corps (JROTC).

INTRODUCTION

The primary mission of the United States Army Accessions Command (USAAC) is to transform volunteers into soldiers and leaders for the U.S. Army. In February 2002, USAAC was charged with the responsibility of integrating the activities of several other U.S. Army recruiting organizations. While focused on aspects of the U.S. Army's human resource needs, these separate organizations share a common pool of prospective recruits, some of whom will eventually enlist as soldiers or officers in the active, reserve, and National Guard branches of the U.S. Army.

"We are responsible for recruiting — from the first handshake to the first unit assignment," said Gary Bishop, Chief of Web Applications and Technologies for USAAC. "Our strategic goal is to provide the right soldier, at the right time and place, with the right competencies for that first unit of assignment. Doing so means that we need to coordinate with a wide variety of activities within the U.S. Army and with other branches of the U.S. Armed Services. We also must communicate with and keep track of the status of a large number of potential recruits."

CONSOLIDATING THE ACCESSION PROCESS

Locating, recruiting, testing, and training hundreds of thousands of recruits and potential recruits each year are daunting tasks. Over the years, the U.S. Department of Defense (DoD) and the U.S. Army have approached these tasks with multiple organizations addressing parts of the overall challenge. The U.S. Army Cadet Command, for example, is home to the U.S. Army's ROTC programs that are attached to many American colleges and universities. Complementary operations at the U.S. Army Recruiting Command support hundreds of U.S. Army recruiters who visit high schools in cities and towns across America. In contrast, the U.S. Military Entrance Processing Command is responsible for assessing the physical and mental competencies of recruits to all branches of the U.S. Armed Services. Table 1 lists the member organizations of USAAC.

Several factors drove the decision to make USAAC the umbrella organization. An all-volunteer enterprise must market itself in a congruent manner and present information consistently about the requirements and opportunities for those who join the U.S. Army. Information gathered from prospective U.S. Army recruits must be shared with different U.S. Army organizations, and promises made to recruits about specific job opportunities must be recorded and tracked. In addition, all of the information that accrues during the accession process must be handed over to the unit to which the soldier is first assigned.

"Prior to our IT initiatives at USAAC, information sharing with recruits was paper based," Bishop explained. "Our recruiters provided prospects with printed information about the U.S. Army. There was no way for a recruit to gather more information about our programs, except to visit our office or be visited by our representatives. And, increasingly, our recruits were quite familiar with the Internet."

TABLE 1

MEMBER ORGANIZATIONS OF THE UNITED STATES ARMY ACCESSIONS COMMAND

Member	Mission
Recruiting Command Fort Knox, Kentucky	Direct recruitment organization with 12,000 recruiters staffing 1,800 recruiting stations organized into 41 battalions and 5 brigades serving regions of the United States
Cadet Command Fort Monroe, Virginia	Recruitment of officers with primary program being the U.S. Army Reserve Officer Training Corps (ROTC) programs at 257 American colleges and 1,457 satellite colleges and universities
U.S. Army Training Center (ATC) Fort Jackson, South Carolina	Basic training in U.S. Army values, physical fitness, communications, first aid, map reading, military weapons, and combat skills
Officer Candidate School (OCS) Fort Benning, Georgia	Officer training conducted over a period of 14 weeks focused on general leadership skills and skills specific to a U.S. Army assignment
Drill Sergeant School Fort Benning, Georgia	Noncommissioned officer training for drill sergeants who provide leadership for initial entry training units
Recruiting and Retention School Fort Jackson, South Carolina	Recruiter and career counselor training for those who seek recruits for the U.S. Army
Warrant Officer Candidate School Fort Rucker, Alabama	Highly specialized training for the technical experts (warrant officers) who understand, maintain, and deploy complex battlefield systems

Source: USAAC, 2003

NEW IT REQUIREMENTS FOR USAAC

Refurbishing USAAC's IT infrastructure began with a strategic analysis of current IT technologies and how they might be better deployed to lower costs, improve efficiencies, and better support the mission of USAAC. Although USAAC is a public sector entity, its strategic planners liken their organization to a commercial business in the private sector. For example, USAAC planners asked, "How do commercial businesses reach out to communicate with customers and prospects dispersed across a large geographical area?"

"We quickly found that thinking about the charter of USAAC in terms of a private sector business model led to best-practices solutions to many of our problems," Bishop explained. "Since retailers have been successful in reaching widespread audiences over the ubiquitous Internet, we put that on our list of outreach technologies. Similarly, customer relationship management [CRM] software has proven useful in tracking customers and tailoring information to their needs. We identified that category of packaged software as having functionality that we would probably need."

Four major initiatives arose from USAAC's strategic planning exercise. As shown in Table 2, the initiatives were formulated to provide IT infrastructure in support of the most common recruiting processes. GoArmy.com, the external component of the iRecruiter portal, will deliver information about opportunities and benefits of joining the U.S. Army and enable recruits to apply for enlistment electronically. The iRecruiter portal will also dynamically provision content and services to the various individuals and groups involved in different stages of the recruiting process. The Army Recruiting Information Support System (ARISS) initiative supplies recruiters with up-to-date information in real time. The Business Intelligence initiative provides ongoing access to research relevant to the recruitment process. Guidance Counselor Redesign charts a path to paperless collection and sharing of each recruit's personal data.

IT and Budget Planning in the U.S. Army

Fiscal year budgets for the U.S. Department of Defense (DoD) are set three years in advance. Accordingly, the U.S. Army's planning cycle is considerably longer than the planning cycle for nongovernment, nonmilitary enterprises. For example, in FY00, planners and accountants made all final changes to the U.S. Army's FY03 budget. In FY03, plans are finalized for FY06. Like the final budgets of traditional enterprises, however, the U.S. Army's *final* budget may eventually be funded at less than 100%.

A three-year planning cycle presents both opportunities and challenges when considering information technology (IT) investments. Steady price/performance improvements in IT products have led planners to assume that in three years budgeted dollars will buy approximately three times to four times the capacity and performance that those dollars could buy today.

On the other hand, planners are challenged when estimating the maturity of new technologies. For example, how prevalent will wireless public network products and services be in three years? Will wireless access be popular for the United States Army Accessions Command's (USAAC's) audience of potential recruits in 2006? If so, then USAAC will need to prepare to supply information to wireless networks.

TABLE 2

USAAC MAJOR INITIATIVES AND TECHNOLOGIES

Initiative	Purpose	Technology Solution
iRecruiter Portal	Interactive portal for prospective recruits and their family members and friends to learn about U.S. Army opportunities and to apply for admission; intranet and extranet portals for individual personnel and groups to access various services and content	Web-based access to documents and services; personalization technologies to tailor information to visitors returning to GoArmy.com and to USAAC personnel accessing extranet and intranet portals
Army Recruiting Information Support System (ARISS)	Provide recruiters with access to current information on U.S. Army career opportunities and recruiting procedures	Client/server architecture with database and application development tools
Business Intelligence — Data Warehouse	Strategic and tactical support to USAAC organizations; ongoing study of demographics, retention rates, and so forth	Web-based access to business intelligence, with relational database storing underlying information in a data warehouse
Guidance Counselor Redesign	Electronic processing of recruiting information	Web-based access to forms stored in a document management system

Source: USAAC, 2003

"We have spent the past decade building infrastructure and automating our business processes," Bishop said. "The next decade is about exposing those business processes to our customers so that they can interact with these business systems. That is what the GoArmy.com portal is all about."

FORMULATING THE IT DECISION AT USAAC

"We knew we couldn't do everything at once," Bishop explained. "Budgets could not sustain a 'full-throttle' approach, and neither could our organization. We decided that a complete vision of where we wanted to go was crucial. Against that backdrop, we could then plot a path with incremental, affordable steps. We would need to schedule the deployment of storage infrastructure before launching Web-based data capture, and this is a simple example of the sequential dependencies that we investigated."

USAAC identified three key subsystems of its IT infrastructure:

- A consolidated storage subsystem implemented as a storage area network (SAN) with an initial capacity of 6TB and the ability to scale as business requirements grow (The SAN must be designed for high availability and include tape storage for archiving data.)
- Multiple secure IP networks, including Internet access for recruits and prospects, extranet access for recruiters and associates who are not a part of the U.S. Army, and intranet access to U.S. Army and other U.S. Armed Services personnel
- Applications to be fielded in a Web services architecture (Supported by a relational database management system, the applications will be implemented and integrated using Web services protocols [e.g., ebXML, SOAP, UDDI] and uniformly accessible to users by a Web browser.)

USAAC'S TECHNOLOGY SPECIFICATIONS

"Standards played an early and important role in USAAC's technology planning," Bishop said. "We understood that if we chose the right set of standards and disciplined ourselves to maintain them, we would enjoy benefits reported by other IT organizations. By adhering to industry standards and leveraging COTS products, we expected faster development cycles, the need for fewer tools, lower development and operational costs, and a standard look and feel across our applications."

Key standards adopted by USAAC include Java 2 Platform, Enterprise Edition (J2EE) technology for custom programming, eXtensible Markup Language (XML) for content management, Lightweight Directory Access Protocol (LDAP) for access control and security, Unified Modeling Language (UML) to express software designs, and Structured Query Language (SQL) for data access.

For mission-critical systems, USAAC also set a prerequisite that high availability would be required of all hardware systems and that system monitoring procedures support continuity of operations. Other quality-of-service requirements included scalability and flexibility to adjust system resources in support of shifting workloads and robust security to manage different categories of access for several user groups.

Based on their commitment to standards, USAAC strategic planners identified seven technology objectives that would aid in choosing appropriate suppliers of hardware, software, networking, and services. Those seven objectives are shown in Table 3.

TABLE 3

USAAC OVERALL TECHNOLOGY OBJECTIVES

Objective	Design Requirement
Support accessible, real-time enterprise information systems	Web services architecture, business activity management
Adopt a standardized components-based architecture	Multitier architecture with services broken into separate layers, including separation of presentation, application, and data logic
Build a common integrated portal environment	Uniform navigation to USAAC resources
Use business intelligence software	Leverage accumulated data for strategic and tactical planning
Choose a single database vendor	Migration to a standardized, normalized data model for uniform storage of content
Consolidate hardware and software systems	Colocated processors at fewer sites, lower maintenance and facilities costs
Use commercial off-the-shelf (COTS) products with enterprisewide licensing of products that are built to industry standards	Leverage the advantages of multivendor solutions integrated by industry standards

Source: USAAC, 2003

THE USAAC DECISION

USAAC applied its requirements criteria to proposals from suppliers and over a period of months chose a constellation of tools and standards, as shown in Table 4. The organization obtained much of the technology from Sun.

"Our decision to move forward with a Sun Java System platform and architecture for the iRecruiter portal was based on several factors," Bishop explained. "First, we had experience working with Netscape Web servers dating back to 1995. When Sun acquired that Netscape product and began to evolve it to support the functionality we needed, we continued with the product. Extending our successful architecture and optimizing the existing skill sets of our staff supported our decision.

"As our other initiatives, such as ARISS and Guidance Counselor Redesign, moved forward, we created an infrastructure that was based on UNIX and commercial off-the-shelf products whenever possible. Both Sun's technology and focus of its services organization on delivering solutions based on industry standards were important decision factors.

"Adhering to open standards is an important matter to us," Bishop emphasized. "The Defense Information Systems Agency [DISA], a part of the U.S. Department of Defense, has highlighted the importance of open standards and interoperability in [its] Joint Technical Architecture [JTA]."

The final factors that played a role in USAAC's decision to engage Sun were the maturity and functionality of the Sun Java System software platform. "The disparate roles and privileges of individuals and groups, from USAAC personnel to external entities ranging from family members of recruits and potential recruits to the actual recruits and potential recruits, require highly personalized access," reported Bishop. "We sought a technology solution, as a result, that would allow us to dynamically provision services and content based on individual and group identities."

TABLE 4

USAAC PRODUCTS AND STANDARDS

Technology	Product/Supplier	Technology	Product/Supplier
Database	Oracle9*i*	*Application Server*	BEA WebLogic Server
Interactive development environment (IDE)	Sun ONE Studio	*Enterprise portal*	Sun ONE Portal Server
	J2EE Technology		Sun ONE Identity Server
	BEA WebLogic Workshop		
Business intelligence	Brio Performance Suite	*Network hardware and security architecture*	Sun ONE Directory Server
	Brio Metrics Builder		Cisco Routers
	NetIQ Business Intelligence Suite		Nortel Alteon Switches
	Hyperion Business Intelligence Platform		
Network identity management	Sun ONE Identity Server	*Document and Web content management*	Documentum Enterprise Content Management
	Sun ONE Directory Server		
	Tivoli Identity Manager		
Standard operating system	Solaris 9 Operating Environment	*Standard server hardware*	Sun Fire 15K, V880, V480, and V120 servers
			Sun Enterprise 10000 server
Network monitoring and management	SunSpectrum Platinum agreement	*Storage technology*	Sun StorEdge 3960 systems (migration to 9980 system planned)
	Computer Associates – Unicenter		Sun StorEdge L700 tape libraries
			Sun StorEdge Utilization Suite with SAM-FS
			Sun StorEdge Availability Suite

Source: USAAC, 2003

ANALYSIS AND EPILOGUE

The IT initiatives at USAAC are particularly interesting because they provoke thinking about the similarities and differences between commercial enterprises and military organizations. In particular, Bishop's analogy that associates recruits with customers is a critical step in linking USAAC's information system needs to existing product functionality. In addition, Bishop and his organization began infrastructure refurbishment at USAAC with a virtual clean sheet because there were few legacy IT investments, especially in the case of the iRecruiter portal. Moreover, USAAC is fortunate to be launching this initiative at a time when the component technologies it needs have been in the marketplace and maturing over several years. While USAAC is innovative and sophisticated in its IT strategic planning, it also remains a safe distance from volatile leading-edge technologies.

The USAAC decision to choose Sun as the primary supplier was based on standards, continuity, and innovation — namely, Sun products are designed around open standards as required by DoD mandates. The experience of Sun Services in designing and implementing sophisticated functionality requirements was also in purview. In part two of this case study life-cycle series, IDC will continue its conversations with Bishop and his team as they work with Sun to design an architecture and build an implementation plan to launch the integrated iRecruiter portal. In part three, IDC will identify measurable results of the portal and enumerate the lessons learned when deploying the portal. IDC will provide analysis of the achievements of the USAAC initiative, particularly with regard to their implications for both public and private sector customers.