

Identity Management: Technology Cornerstone of the Virtual Enterprise

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Table of Contents

Executive Summary	1
Opportunities and Challenges in the Virtual Enterprise	1
The Role of Identity Management	1
Business Benefits of the Virtual Enterprise	2
Technology Challenges Associated With the Virtual Enterprise	4
Integration	4
Security and Compliance	4
User Experience	5
Cost Control	5
How Identity Management Supports the Virtual Enterprise	6
Interoperability	6
“Inclusionary” Security	6
Consistent Delivery of High Levels of Service	7
Ability to Scale and Flex Cost-Effectively	7
Sun Identity Management: Uniquely Suited to Virtual Enterprise Challenges	8
Integrated, Comprehensive Approach to Identity Management	8
Fully Integratable Set of Identity Management Solutions	9
Federation: Open Standards in Action	9
Sun Identity Management in the Virtual Enterprise: Two Real-World Examples	10
Conclusion	12

Chapter 1

Executive Summary

From Web-based joint business ventures (such as travel and consumer finance sites) to collaborative corporate vendor portals, evidence of the virtual enterprise is rapidly becoming so pervasive that it is easy to forget that this phenomenon has only been a part of the business and technology landscape for a relatively short time. In just a few years, the virtual enterprise has defined entirely new opportunities for companies to do business online with growing numbers of consumers, vendors, partners, and others.

Opportunities and Challenges in the Virtual Enterprise

The opportunities that the virtual enterprise affords for business growth and operational efficiency are extraordinary. They are matched only by the challenges it presents for operating *openly* yet *securely* across a potentially infinite number of systems.

For example, an online consumer finance site can provide the opportunity to deliver unprecedented levels of customer service. Using the Internet, consumers can access bank accounts, pay bills, make investments, and perform other financial transactions from just about anywhere. But such a site also raises the challenge of bringing together a multitude of disparate processes — in many cases integrating operations from multiple departments and business segments or even entirely separate enterprises, all of which have their own uniquely functioning technology infrastructures already in place. These systems and processes must interact seamlessly. And, of course, the integration of all the systems and processes must be done in a way that secures the information in these systems and protects consumers' sensitive information as they negotiate across the systems.

In other words, the virtual enterprise must achieve the seemingly impossible: To open and protect systems equally effectively. Without this balance between accessibility and security, the virtual enterprise can never achieve the full promise of its potential.

The Role of Identity Management

This paper identifies the specific technology challenges presented by the virtual enterprise and makes the case for identity management as the cornerstone of any technology infrastructure with which to meet those challenges.

Chapter 2

Business Benefits of the Virtual Enterprise

The virtual enterprise is growing and evolving as organizations identify new goals for it and build and refine the technological infrastructures to support it. This growth and evolution are driven by the ability to integrate business processes in ways that allow more productive and profitable relationships than ever before. Following are just a few examples of what is possible within the context of the virtual enterprise.

Manufacturing: More Efficient Supplier Relationships

- Being able to integrate supplier operations with manufacturers' internal information systems creates new opportunities for cost efficiencies in areas such as inventory control. A key materials supplier, for example, can access information about a customer's supply of a particular material to schedule reordering and delivery at the optimal time. Previously, this would have been done through an expensive proprietary electronic data interchange (EDI) network. But today's services-oriented architectures make it possible for systems to work together in the virtual enterprise through secure, flexible Web services.

Consumer Services: Expanded Revenue Opportunities

- The virtual enterprise enables multiple business entities to join together to offer consumers anywhere-anytime access to a variety of related services through one convenient portal. The multiple entities may be completely independent businesses, such as airlines, hotels, and car rental companies on a travel Web site, or business segments of the same organization, such as banking and investment arms of a financial services company.

Government: Streamlined Services and Operations

- Diverse agencies within federal, state, or local governments can integrate operations to make it easier and more efficient to deliver services to constituents. Simplifying services delivery for multiple agencies in areas such as health and human services creates opportunities to simultaneously improve the user experience and control administrative costs. The virtual enterprise can also serve to streamline IT and operational administration when multiple agencies are working together toward a common goal, for example, homeland security.

Enterprise Operations: Lower Administrative Costs

- In the virtual enterprise, employees can connect with, for instance, insurance providers or other human resources (HR)-related entities via self-service interfaces. Or outside vendors can access information about purchase orders and payment schedules online. A high level of self-service across enterprises drives down the costs of administering employee programs and vendor relationships.

These are just a few examples of how the virtual enterprise can transform operations and benefit organizations in a variety of industries. New opportunities are being recognized daily; their fulfillment hinges on realizing the process transformations and technological shifts required to support these opportunities.

Chapter 3

Technology Challenges Associated With the Virtual Enterprise

The online consumer sites and corporate portals that are so prevalent today represent just the tip of the iceberg; many more opportunities are poised to emerge. The key is addressing the technology challenges associated with creating the open yet secure environment to support the virtual enterprise. These challenges consist of:

- Integrating disparate applications, processes, and people
- Achieving security and compliance within increasingly open environments
- Ensuring the best possible user experience
- Controlling the cost to create and maintain the virtual enterprise

Integration

As one industry reporter recently observed about enabling the virtual enterprise, “Internal or external integration has always added complexities for organizations. What is different now is that the amount of integration needed to compete is greater than ever before.”¹ To support the unprecedented levels of integration that the virtual enterprise requires, IT infrastructures must be built on open standards that support multiple technology platforms. They must also support integration that is dynamic rather than static, in environments in which partnerships and user relationships with the business are constantly changing.

Security and Compliance

Traditional exclusionary security models will not work in the context of the virtual enterprise. “Inclusionary” alternatives must focus on extending secure access across processes, applications, and organizations. As DuPont Fellow John Taylor noted, “With the growing need for business users to access the Internet from inside the private network, the protections we once associated with security — firewalls, bastion hosts, DMZs — are no longer effective.”² Security solutions for the virtual enterprise must rise to the challenge of protecting sensitive information in a range of diverse environments and across multiple security domains. Today’s solutions must also reflect the need to comply with security-related regulatory and legislative mandates. Under the Sarbanes-Oxley Act of 2002, for example, compliance requires controlling access to sensitive financial information, and a company’s executives can be held directly responsible for failure to comply.

1. InfoWorld, *Radical organizational changes, updated integration tools fuel the virtual enterprise*, Maggie Biggs, April 24, 2004
2. Information Security, *Security for the Virtual Enterprise*, John Taylor, March 2003

User Experience

In a highly competitive environment, a positive user experience is the key to increasing a company's competitive advantage. And delivering the best possible user experience becomes more important as the definition of users extends further and further to growing numbers of customers and business partners. The challenge is that as the number of users and the types of information and services they receive grow and change, it can become more difficult to keep service levels high. This is particularly true when users are increasingly accessing business-critical applications, which must be consistently reliable and available. Technology supporting the virtual enterprise must be capable of ensuring that the user's experience with these applications remains positive — regardless of how users and services change.

Cost Control

A critical issue in shaping the virtual enterprise is not just whether it can be done, but whether it can be done cost-effectively. In a large, dynamic virtual environment, supporting technology that increases total costs by requiring additional staff and other resources for ongoing management can easily offset the benefits of increased revenue or greater operational efficiency.

Chapter 4

How Identity Management Supports the Virtual Enterprise

With its directory-driven technology foundation and its role- and rule-based user and access management functions, identity management is uniquely well-suited to enabling an effective and cost-efficient technology infrastructure for the virtual enterprise. Identity management specifically provides for several key enablers of the successful virtual enterprise.

Interoperability

Identity management solutions that support open standards make it possible to integrate disparate business processes and support multiple technology platforms — capabilities that are essential to building the virtual enterprise. The foundation for interoperability can be found in identity management solutions that:

- Support open standards and provide cross-platform support
- Provide a standards-based, federated framework for managing identities within and across organizations
- Secure a services-oriented architecture (SOA) infrastructure for services delivery
- Are built on noninvasive architectures that work with companies' processes and workflows rather than requiring significant change

“Inclusionary” Security

Unlike traditional exclusionary security models, security that leverages identity management can enable the virtual enterprise to allow flexible access to diverse systems and security policies — access in which policy determines who has access to which systems and at what level. Within this inclusionary model, identity management reduces risk by:

- Improving policy enforcement through automated and consistent application
- Eliminating security loopholes (such as accounts that remain active after users are gone)
- Providing logging, auditing, and reporting capabilities that are essential for regulatory compliance
- Replacing one-off security models built into every application with one common security architecture that can be leveraged across all applications and services

Consistent Delivery of High Levels of Service

The same identity management capabilities that help keep costs under control in the virtual enterprise can also help ensure a high quality of service for users. Automated provisioning, for example, enables users to start accessing information more quickly. Self-service functions empower them to manage their own accounts and processes without having to wait for help from anyone. And single sign-on (SSO) eliminates the need to learn and remember a multitude of passwords for a constantly changing set of available services and resources. Single sign-on also enables users to access many different sites without the inconvenience of being asked for credentials at every step along the way.

Ability to Scale and Flex Cost-Effectively

Identity management solutions that fully exploit process automation enable flexible, cost-efficient responses to changes in the virtual environment. These capabilities include:

- Automated provisioning services in which slow manual methods for adding or changing access privileges for users are supplanted by rapid, automated processes
- Self-service functions that allow users to reset passwords and manage profiles themselves on an ongoing basis
- Single sign-on across applications, eliminating the need to create and manage new access mechanisms for every additional service or resource that becomes available through the virtual enterprise
- Identity data synchronization — in which changes to information in one source of data are automatically propagated to their systems — to ensure data consistency, accuracy, and reliability

Chapter 5

Sun Identity Management: Uniquely Suited to Virtual Enterprise Challenges

Sun identity management solutions are uniquely suited to meeting the challenges of the virtual enterprise. Sun delivers a highly integrated set of solutions, and supports the highest levels of integration for inter-enterprise environments and their multiple technology platforms.

Integrated, Comprehensive Approach to Identity Management

Sun identity management solutions address every aspect of identity management with a complete portfolio of products that together deliver comprehensive identity management that is both integrated and integratable. This provides the virtual enterprise with the end-to-end infrastructure necessary to achieve extended reach and range securely, efficiently, and cost-effectively.

Sun Java™ System Identity Manager

- User provisioning
- Password management
- Identity data synchronization services
- Identity auditing and reporting

Sun Java System Access Manager

- Web single sign-on (SSO)
- Access control
- Federation services
- Access auditing

Sun Java System Directory Server Enterprise Edition

- Directory services
- Security/Failover
- Active Directory synchronization

Open and integratable, these solutions are designed expressly to reduce integration cost and complexity in the virtual enterprise.

Fully Integratable Set of Identity Management Solutions

Multiplicity is a defining characteristic of the virtual enterprise, making the ability to work with multiple platforms and technologies essential. This is why Sun has taken a leadership role in developing open standards, and why the company's identity management solutions are built on open standards. Sun solutions specifically support:

- Leading Web services standards such as the eXtensible Markup Language (XML), Simple Object Access Protocol (SOAP), and Java
- Liberty Alliance specifications for open, federated, single sign-on identity solutions
- The Lightweight Directory Access Protocol (LDAP) standard for accessing information directories
- The Security Assertion Markup Language (SAML) standard for single sign-on to multiple Web sites
- The Service Provisioning Markup Language (SPML) industry standard for exchanging and administering user access rights and resources information across heterogeneous environments

Sun solutions also provide an SPML toolkit that enables third parties to SPML-enable their applications and management platforms.

Federation: Open Standards in Action

Sun has been instrumental in the drive to implement a standards-based federated identity framework to enable business relationships in the virtual enterprise. Within such a framework:

- Organizations can collaborate together without using cost-prohibitive proprietary approaches that may limit the ability to extend access to a virtually infinite number of partners
- Collaborating organizations can achieve interoperability across multiple security domains, technology infrastructures, and application environments
- Businesses can leverage a well-defined framework for managing regulatory matters associated with issues such as privacy and compliance
- The single sign-on ideal becomes a reality for the participants in the virtual enterprise
- Users can reap the benefits of new offerings that result from the collaborative efforts of the entities that form the virtual enterprise

Chapter 6

Sun Identity Management in the Virtual Enterprise: Two Real-World Examples

Two large organizations in the financial industry rely on Sun identity management solutions to enable very different kinds of virtual enterprises.

Financial Services: Driving Customer Loyalty With Integrated Services

The Opportunity: By bringing together a wide range of account services — both its own and that of its partners — for online delivery, a highly diversified financial services company is able to provide a consistently positive user experience for its growing customer base. Thus, the company increases customer satisfaction and loyalty through expanded and increasingly convenient online banking service offerings.

The Challenge: The company needed a way to bring together not only disparate applications across its own organization, but also to integrate other services from external partners in its online offering. The technology to support this would have to ensure repeatability in the customer experience regardless of growth in the number of customers or types of services offered.

The Solution: Java System Access Manager provides the company with a secure solution that enables federation across its partners and single sign-on for its customers using multiple services. As a result, the company's customers can easily access multiple applications — to view accounts, manage investments, pay bills, and handle other financial functions — without multiple logins.

The Technology: Access Manager delivers federation services that enable seamless transitions from application to application online through a multistep process of gathering and indexing identity information that is entirely transparent to the customer. Compliance with the SAML 1.1 specification is key to enabling this process. In fact, Sun's leadership in driving identity management and federation standards was central to this organization's selection of a Sun solution.

The Benefits: Enabling customers to access a variety of services without logging into multiple sites with different passwords provides a distinct competitive advantage. In addition, because Access Manager is a standards-based solution, it supports growth by making it easy to ramp up business relationships with new partners. It also scales to accommodate an extremely large and growing user population.

Financial Management: Building a Diverse, Scalable Client Portal

The Opportunity: Using an online portal infrastructure to deliver services enables one of the world's leading financial management and advisory companies to deliver its branded services not only to its own direct clients but also to those of its partners and OEM subscribers as well.

The Challenge: The company needed to manage identities across a large and varied user base comprising millions of identities. The key to success in such circumstances is to be able to extend branded services delivery to potentially millions of users while at the same time minimizing the security and economic risks of such a large-scale endeavor. The company understood from the outset the importance of including an integral identity management component in its effort.

The Solution: In their selection process, Java System Identity Manager was the only identity management solution to support the SPML standard for generating portal provisioning requests across and within organizations. Support for this and other standards allowed the company to easily integrate identity management capabilities as its portal-based offerings continue to develop. Using a standards-based solution also meant that the company can embed identity as an integral part of its own portal as well as enable branding of the user experience in other environments. And finally, the company recognized that Identity Manager could accommodate its need to ultimately support millions of identities.

The Technology: Identity Manager is built on a standards-based architecture with a role-based access control (RBAC) framework and support for open standards, including SPML, Workflow Management Coalition (WFMC), and SOAP. This flexible, open architecture easily accommodates customization, new business models, and rapid and frequent scaling to accommodate a growing base of users and services.

The Benefits: Consolidated identity management via the company's online portal ensures high levels of service for users and easier management for administrators. At the same time, the high security levels enabled by the Sun solution drive consumer confidence and limit business exposure for the company.

Chapter 7

Conclusion

The virtual enterprise is becoming a reality, bringing with it new opportunities for strong competitive advantage, increased revenue, and more efficient operations, as well as new challenges. Sun provides a set of identity management solutions that make it possible to meet the challenges and reap the benefits of this exciting new era in collaborative business.

Open and integratable, Sun identity management solutions work with and protect existing technology investments. They make it possible to identify and closely track users and activities in the virtual enterprise, a critical requirement for complying with auditing and reporting demands today. And they lead the industry in federated identity services, allowing identity information to be exchanged within and across traditional business boundaries. With Sun identity management solutions, everything is virtually possible.

To learn more about identity management and the virtual enterprise, or to request additional information about Sun identity management solutions, visit sun.com/identity_mgmt.

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Sun Microsystems, Inc. 4150 Network Circle, Santa Clara, CA 95054 USA Phone 1-650-960-1300 or 1-800-555-9SUN Web sun.com



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