



IT Security: People, Processes and Products

Identity and access management. Data integrity. Platform hardening. Network privacy. Monitoring. These are the five key elements that a security solution must offer.

When it comes to running your business today, IT security is just about everything. It controls access to your sensitive applications and data, enables online transactions between your company and its partners and suppliers, and protects your most valuable asset—your intellectual property. It can also help prevent failures resulting from inadvertent or deliberate abuse, which makes it essential to the operational availability and reliability of your IT infrastructure. Properly designed and implemented, security is a key business enabler that can help both you and your customers gain competitive advantage.

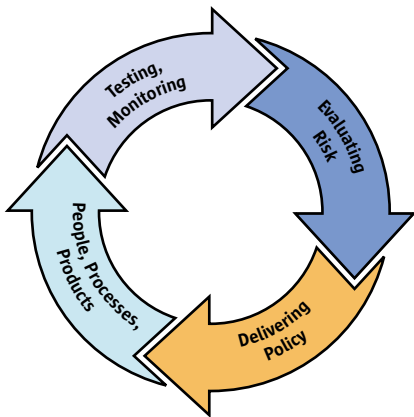
Sun Microsystems delivers the premier security offering—hardware, software, and services—from a single provider. Through superior product integration, Sun™ security solutions offer optimal performance and

functionality. Plus, key partnerships enable tailored solutions that can meet a wide variety of needs. All of this results in comprehensive security functionality that is interoperable, scalable, and easy to manage, and that works with your existing environment.

As a leading supplier of hardware, software, and services that power the Internet, Sun offers the people, products, and processes to integrate IT security into your business. Through a pervasive and seamless security infrastructure, your company will be able to create and benefit from new levels of trust and confidence with your customers, partners, and suppliers.



Security Goals



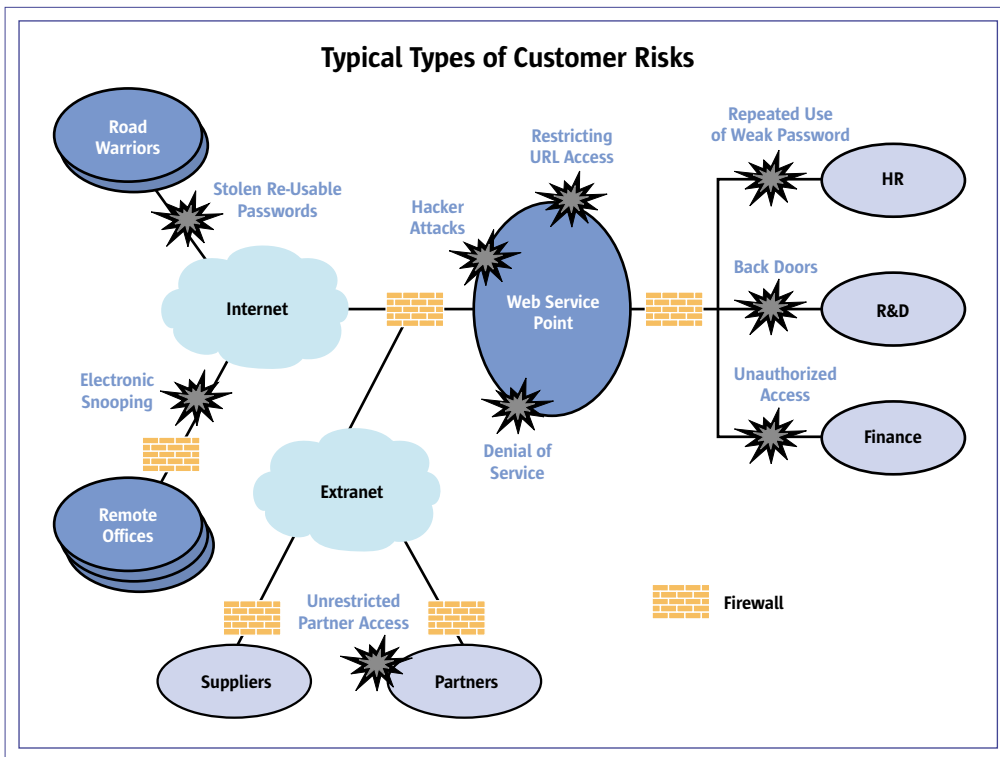
Security is a continuous process

No single product or service can comprehensively address the possible security threats to your business. Maintaining effective security is a continuous process that identifies valued assets, analyzes potential threats, and determines acceptable levels of corporate risk. Strong, enterprise-wide security demands solutions and technologies made from many robust components.

Designed and implemented by seasoned professionals using best industry practices, Sun security products and services can be tailored to your company's unique requirements, while also meeting the overall goals of a comprehensive security solution.

To be successful, a comprehensive security solution must include the following five core capabilities:

- **Identity and Access Management:** With an expanded community of users — employees, partners, suppliers, customers — it is critical to properly identify and efficiently manage the people and systems that access your IT resources. Authentication and access control solutions are necessary for managing the risk of enabling services to a large and diverse user base. Identity management provides the ability to protect reusable passwords from theft or misuse.
- **Data Integrity:** Modifications to systems configurations or data files — either accidental or intentional — can lead to increased downtime, reduced revenue, intellectual property loss, or damaged customer relations. Quick detection of any changes enables a fast response and recovery, with minimal impact to system and business operations.
- **Platform Hardening:** Enhancing the security of the IT platform provides a strong foundation for your overall environment. Platform hardening includes removing unneeded applications and files from the operating environment, enabling stricter access controls, and implementing best practices for available services. Platform hardening addresses the risk of attacks against your IT assets.



- **Network Privacy:** Maintaining information privacy as it travels beyond your servers is essential. Data — such as Web, NFS, and e-mail traffic — moving over the network represents another possible exposure of sensitive information. Firewall products control what data is allowed through your corporate gateway, while encryption capabilities offer protection from unintended users.
- **Monitoring:** Logging activity can help maintain compliance with your security policy or trace events leading to a system compromise. Tools are required to help administrators analyze large amounts of log data, effectively monitoring how your IT infrastructure is used. Security monitoring can help reduce the risk of denial of service attacks.

The result of a properly implemented security solution is increased availability of your IT operations — business-critical systems are accessible and usable to those who need them. Sun can help you reduce the risk of unplanned downtime by providing protection, procedures, and controls for essential systems.



The People

Sun starts with an understanding of your business objectives and security requirements, then works with your staff to implement the appropriate security solutions for the unique issues facing your business. We provide the services to help customers evaluate, architect, implement, and manage the security capabilities appropriate for your business's current requirements—all within a framework that will encompass future needs.

- Sun Professional Services specializes in assessing, architecting, implementing, and managing a secure infrastructure appropriate for your business. Using our field-proven methodologies and best practices, our consultants can design and implement the right technologies, tools, and policies, from the platform to the application layer of your IT operation.
- Sun Educational Services offers training options and an extensive curriculum that can be tailored to your company's needs. With a comprehensive offering that includes educational needs analysis, skill assessments, and development, you can be assured that your personnel will have the knowledge they need to keep your systems secure as they grow and change over time.

- In over 170 countries, Sun delivers the proactive services, responsive support, and technical expertise to help your company get the most of Sun technologies. SunSpectrum™ support offerings cover your entire Sun environment, including hardware, the Solaris™ Operating Environment, and other Sun software at levels that best meet your business requirements. Through formalized agreements with other business-critical IT vendors, the SunVIP™ program delivers fast and seamless resolution of complex interoperability issues.
- Sun resellers offer worldwide consulting and integration capabilities. They combine their own value-added expertise with Sun's best-in-class products and services to provide customers with total solutions.

The Process

Sun security solutions are designed to deliver what companies need for their business operation. As a leader in Internet and e-commerce deployment, Sun Professional Services consultants provide field-proven expertise in the design, implementation, and ongoing operation of your systems. They will assess your IT environment, create a security plan, and help build a solution customized for your unique security requirements.

Expertise on specific configurations is available through the Sun BluePrints™ program, which offers technical write-ups that document best practices based on research, development, and proven field development. The Sun BluePrints program offers detailed information on applied methodologies—derived from practical experience—that result in the best solutions for a well-defined problem. The Sun BluePrints topics include database tuning, performance enhancements, naming services administration, security, and other enterprise computing concerns.

Sun Software Security Solutions

Sun[™]ONE
Open Net Environment



iPlanet[™]



The Products

Enterprise-wide security demands proven components for a solid, reliable foundation. Sun offers both standalone products and an integrated line of products that enhance the native security found in the Solaris Operating Environment. We deliver a scalable, available, manageable, and secure platform to meet business needs—from small start-ups to Fortune 1000 enterprises.

Software Products

The Solaris Operating Environment is the established leader for availability, manageability, scalability, and security in the Internet age. It offers integrated end-to-end security, and is designed to meet the stringent security and auditing standards required by international federal governments, banks, and IT organizations.

The Solaris Operating Environment includes a vast array of features that have helped it to become the number one UNIX[®] operating system¹, including:

- **User Authentication:** In a business-critical environment, you need to ensure that only authorized users can access specific systems and services. Solaris software provides a flexible set of tools for strong user authentication that can be used out

of the box or integrated into applications as service-specific security features. These include enterprise technologies such as smart cards, Kerberos, and single sign-on capabilities.

- **Encryption:** Data on the network or at the server is secure using the encryption features in the Solaris platform. You can assure privacy by using a number of different encryption technologies, such as VPN, Public Key Infrastructure (PKI), SSL, IPsec, and Secure Shell.
- **Role Based Access Control:** RBAC helps protect against vulnerabilities caused by human error. By assigning rights to individual users, administrators can delegate specific actions to individual users or system resources.
- **Application Integrity Support:** This free service ensures that you are using a true version from the official binary distribution, and not an altered file that could compromise system security.
- **Firewall:** Firewalls control the flow between two networks, according to security policy rules. Business can connect their intranets to other networks while controlling the users and services that can access their IT resources.

1. D.H. Brown Associates, Inc., 2001 UNIX Function Review, March 2001



- **Auditing:** By tracking security-related events, the Solaris Operating Environment helps administrators to determine the cause and source of any problems.
- **Information Separation:** Architected to meet strict international auditing and security standards, the Trusted Solaris™ Operating Environment offers an enhanced level of security. It is designed for deployments where separation of information and data is a business necessity. Trusted Solaris software is binary compatible with standard Solaris software, so your existing applications can be deployed in a system that enforces separation of information between devices, groups, customers, and others.
- **Open Standards Support:** Solutions from Sun offer a standards-based approach to your security needs. We support a number of industry standards, and are committed to open interoperability of our products and technologies. Supported standards include: IPSec, SSL, Kerberos, POSIX, Common Criteria certification, Generic Security Services API (GSS API), RSA, DES and Triple DES, and others.

In addition to the native security found in the Solaris Operating Environment, Sun offers other security software solutions. The iPlanet™ Unified User Management Services provides comprehensive centralized user management services. This scalable and powerful software portfolio facilitates

global authentication and authorization procedures using a highly scalable directory. In addition, packages are also available that help administrators manage digital certificates, and enforce authentication and access controls.

Sun offers Java™ technology tools that support comprehensive security capabilities for Java environments, from portable and handheld devices up through enterprise-class server environments. Java technology is built from the ground up to enable platform-neutral, e-commerce solutions. Security capabilities are integrated into virtually every aspect of the Java environment, including:

- Java Authentication and Authorization Service
- Java Card™ technology
- Java Cryptography Extensions
- Java GSS-API (Generic Security Services API)
- Java Secure Socket Extensions

In addition, the Java platform features a strongly typed architecture, byte code verification, runtime safety checks, class loaders, security managers, and frameworks for Java technology-based cassettes, wallets, and shopping carts.

Hardware Products

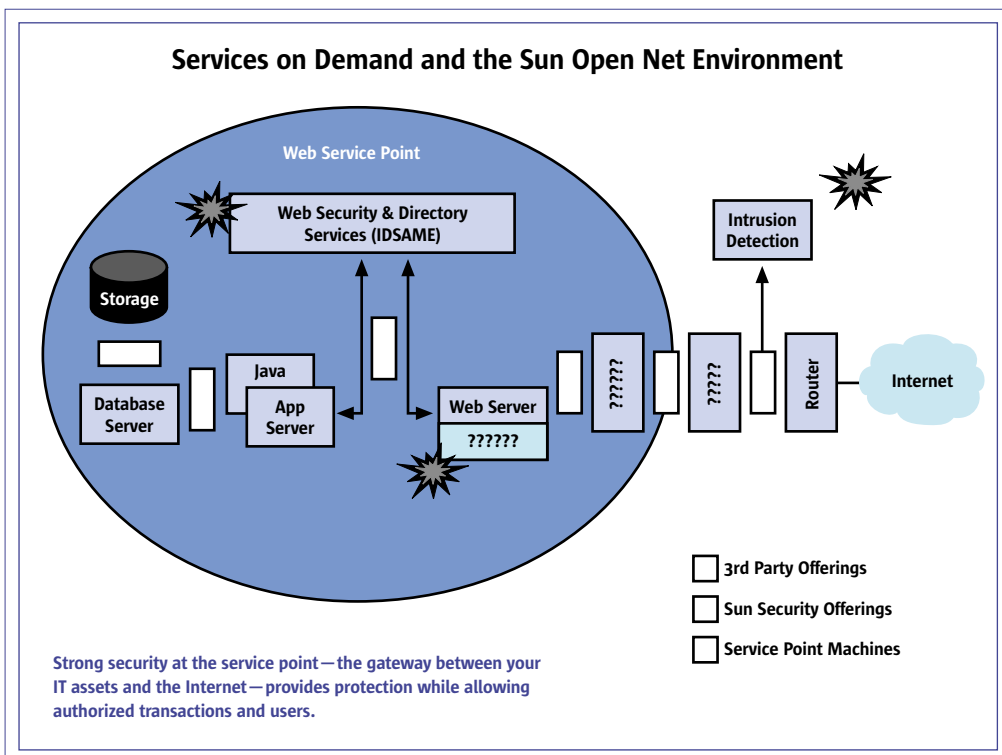
Hardware-based security offers both high-performance and flexibility. Cryptographic accelerator cards can encrypt Web-based traffic, enabling encrypted communication across the intranet and out to the Internet. Dynamic System Domains, offered on midrange and high-end servers, bring mainframe-style partitioning to an IT environment. Engineered to remain logically isolated from each other within the system, Dynamic System Domains provide a highly secure and reliable environment for running

multiple functions simultaneously. Data center computing resources can be shared across multiple departments and users—without compromising security.

Services on Demand and the Sun Open Net Environment

The Web has emerged as a versatile platform for delivering high-value solutions. It's an inherent part of business, not just as a sales channel, but also as the medium for running your core business. Using a Web-based approach extends Web functionality to you business, enabling you to integrate your business functions, and deliver timely information and services to your customers, partners, suppliers, and employees.

With such a wide audience, developing and implementing a comprehensive security framework is essential. You need to be able to ensure that your applications and services are delivered specifically to the people and organizations that require them—when and where they need them. Optimizing your security architecture, and integrating it with a Web-based model, can maximize your application and service productivity. Which in turn can enable you to reduce service delivery costs, streamline operations,





and reach new markets at a global level—in a safe and secure manner.

Today, businesses use a variety of applications and services to run their operations.

- Local applications run on dedicated PCs, or are hosted on a large server within an enterprise.
- Web applications run over the Web, and are typically dedicated, single-function programs, that often require dedicated client software.
- Web services run over the Web and can combine with other services to create a more useful or powerful solution.

Sun uses the term *Services on Demand* to describe all of these.

Services on Demand are how enterprises use their IT environment to transact and report business operations and to communicate with others. They offer businesses a way to improve efficiencies in business software usage. The Services on Demand vision delivers a comprehensive framework that encompasses traditional Net-based services, such as security, authentication, and directory, along with more advanced capabilities, such as virtualized storage and composite services—those created by combining separate services. Using Services on Demand not only delivers value and productivity today, but also prepares your IT infrastructure for tomorrow.

The Sun Open Net Environment—Sun ONE—is based on the concept of Services on Demand, and enables organizations to create, assemble, and deploy Services on Demand. Simply put, Sun ONE is Sun's vision, architecture, platform, and expertise to enable the Services on Demand of today and tomorrow. In fact, it's the delivery platform for Services on Demand.

Designed around open Internet standards, Sun ONE offers a comprehensive platform that works with your existing systems and provides superior scalability, manageability, flexibility, security, and reliability. As the premier, robust, scalable services platform, Sun ONE can meet your emerging Services on Demand needs—in providing any type of service, to any device, anytime, anywhere—while at the same time protecting your current technology investments. Sun ONE is comprised of a number of products and solutions that are designed with compatibility and integration in mind, and security is a core component of Sun ONE. Sun security products and services are used throughout this architecture to protect user data, service transactions, enforce roles and policies, provide identity services, and more.

Just What You Need

Security is critical to your company and your business. Which is why you don't want to trust it to just anyone. Sun offers a number of proven security solutions designed to enhance and extend your current computing environment. Sun products and the Sun Open Net Environment deliver the superior capabilities and functionality you need to secure your business in today's e-world.

To learn more about Sun security products, visit www.sun.com/security. And for information on the Sun ONE platform, go to www.sun.com/sunone.

Sun ONE is Sun's vision, architecture, platform, and expertise to enable the Services on Demand of today and tomorrow.

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