



sonoa

# ServiceNet Appliance Technical Brief

---

Sonoa ServiceNet manages the unique security, interoperability, and scalability challenges of customer-facing Web services.

## Overview

In today's Web-driven economy, enterprises use Web services to create new revenue opportunities with specialized business services offered to their customers and partners. Yet customer-facing Web services present unique complexities and risks. Unlocking sensitive business data to a large number of customers across the firewall presents access control complexities and the risk of exposure and compliance issues. Connecting with hundreds of customers and partners, many with unique requirements, can create bottlenecks to adding revenue. And as the usage of Web services increases with successful adoption, critical operational and performance problems can arise.

With the ServiceNet network appliance, Sonoa Systems enables enterprises to offer customer-facing Web services with secure data protection, flexible access control and interoperability, and significantly enhanced performance. Enterprises can now confidently work with their customers and partners to drive competitive advantage, enter new markets, and create additional revenue opportunities.

## Overcoming challenges in service-based environments

Operational challenges can be major barriers to realizing the full benefits of innovative, services-based applications. Key challenges include

- Security - Enabling secure, flexible access control to manage a large number of customers and clients, without the risk of excessive complexity or sensitive data exposure
- Visibility and Compliance - Monitoring service level agreements (SLAs) and ensuring regulatory compliance with flexible audit and logging per service, customer, client or by business condition.
- Interoperability - Enabling diverse customers and clients to quickly connect across protocol, versions and security schemes.
- Performance - Reducing load on service providers and support infrastructure and improving response times for clients

Today, these challenges are often addressed with point products or hand-coded software layers that are expensive to build and maintain. Neither approach yields an economically viable solution for dealing with the problems typically found in services-based application environments. ServiceNet offers a simple, high-performance approach for overcoming these challenges.

## Benefits of Sonoa's appliance approach

**Security** - flexible, fine-grained access control ServiceNet reduces the risk and complexity of securing and managing access for customer-facing Web services, with a flexible, policy based approach to access control. Policies can be quickly configured and applied broadly or with fine-grained control on a specific service, operation, or client. ServiceNet is open and designed to work with existing profile and security assets.

**Interoperability** - mediation with configuration, not code ServiceNet dramatically reduces the time and effort required to add new clients, even those with different protocol or security requirements. ServiceNet mediates across versions to reduce complexity and service upgrades in a services environment. These transformations and mediations are configured without requiring code.

**Scalability** - network-based, high-performance policy enforcement ServiceNet processes policies at network speed and is architected as a network device. ServiceNet's dual-plane architecture separates data processing from control tasks and policies are applied seamlessly as data is processed in a non-blocking, streaming manner at network speed.

## The benefits of an appliance

Use of an appliance eliminates the cost and complexity of building, deploying, and maintaining software hosted on multiple servers, thereby saving development resources and lowering the total cost of ownership. And with simple network plug-and-play installation and policy-based management, the ServiceNet appliance speeds the deployment of applications, accelerating time to value. Organizations enjoy the following benefits:

- Complete functional and operational management capabilities via a single appliance.
- Policy-based management that is flexible and scalable.
- Secure control for development and operations alike through a central management console.

# Feature overview

---

## Security

Feature	Description
Authentication	<ul style="list-style-type: none"><li>• Client credential format support<ul style="list-style-type: none"><li>-Http Basic Auth</li><li>-WS-Security 1.0/1.1 Username Token Profile</li><li>-WS-Security 1.0/1.1 SAML Token Profile</li><li>-WS-Security 1.0/1.1 X509 Token Profile</li><li>-WS-Security 1.0/1.1 Kerberos Token profile</li><li>-Custom credentials from XPATH, Header</li></ul></li><li>• Authentication provider support<ul style="list-style-type: none"><li>-LDAP – Oracle Internet Directory, Active Directory, Open LDAP, Sun One Directory Server, Tivoli Directory Server, Open DS</li><li>-Oracle Access Manager Tivoli Access Manager, RSA Cleartrust, CA Siteminder</li><li>-Pluggable authentication Provider</li></ul></li></ul>
Authorization	<ul style="list-style-type: none"><li>• Rules Specification<ul style="list-style-type: none"><li>-File based</li><li>-LDAP group based</li><li>-Custom authorization via LDAP attributes</li><li>-Custom authorization via message con text attributes (http headers, IP address, etc.)</li><li>-Custom JAAS Provider</li></ul></li></ul>
Credential Mapping	<ul style="list-style-type: none"><li>• Target credential format support<ul style="list-style-type: none"><li>-Http Basic Auth</li><li>-WS-Security Username Token</li><li>-Signed X509</li><li>-SAML Assertion</li><li>-Userid and Password in Custom Format</li><li>-Custom Token via pluggable providers</li></ul></li></ul>
Data Protection	<ul style="list-style-type: none"><li>• One-way and two-way Secure Sockets Layer (SSL) to client and/or target</li><li>• XML Encryption and Signature</li></ul>
XML Firewall	<ul style="list-style-type: none"><li>• Malicious Code Injection – SQL/XPATH/ Custom Regex</li><li>• Message Tampering</li><li>• Replay Attacks</li><li>• XDOS Attacks</li><li>• Wellformedness and Schema validation</li></ul>
Auditing	<ul style="list-style-type: none"><li>• Content<ul style="list-style-type: none"><li>-Request/response messages</li><li>-Http Headers</li><li>-SOAP Headers</li><li>-Custom fragment selection via XPath</li></ul></li><li>• Destination: Local disk, NFS Server, JMS queue</li><li>• Log Format : XML, CSV or any custom format</li><li>• Mode: Asynchronous(non-blocked) and Synchronous (blocked)</li></ul>

## Service Management & Performance

Feature	Description
SLA Monitoring	<ul style="list-style-type: none"><li>• SLA monitoring and alerting based on response time, error rate, request rate etc.</li><li>• Client or User specific SLA</li><li>• Alerting to SMTP , NFS, Syslog, Administration Console and JMS destinations</li></ul>
Load Balancing	<ul style="list-style-type: none"><li>• Homogenous Load Balancing</li><li>• Session aware or Sticky load balancing</li><li>• Preferential/Heterogeneous load balancing</li><li>• Weighted round-robin</li></ul>
Rate Limiting	<ul style="list-style-type: none"><li>• Client or Profile Specific Request &amp; Request Weight based Quota Support</li><li>• Service Class Based Rate Limiting</li><li>• Spike Arrestor &amp; Concurrent Connection limits for Target Server Protection</li></ul>
Response Caching	<ul style="list-style-type: none"><li>• Caching the response message</li><li>• Conditional Caching and invalidations</li><li>• Compression &amp; Decompression</li></ul>

---

## Service Interoperability

Feature	Description
XML Protocol Mediation	<ul style="list-style-type: none"><li>• REST to SOAP 1.1/1.2</li><li>• SOAP 1.1/1.2 to REST</li><li>• SOAP 1.1 to SOAP 1.2</li><li>• SOAP 1.2 to SOAP 1.1</li><li>• XML to JSON</li><li>• JSON to XML</li></ul>
Transport Mediation	<ul style="list-style-type: none"><li>• JMS to HTTP</li><li>• HTTP to JMS</li><li>• Supports WebLogic, WebSphere, Jboss, Tibco , SAP Netweaver Application Server JMS providers</li></ul>
Lightweight Data Mediation	<ul style="list-style-type: none"><li>• Insert, delete, and replace functions</li><li>• Custom message templates via service callout</li><li>• Custom SOAP fault generation</li></ul>

---

## Integration with Oracle Products

Product	Integration Description
Oracle Access Manager	<ul style="list-style-type: none"><li>• JAAS login module created using Access manager's SDK is deployed in ServiceNet's Authentication framework</li><li>• User authentication using Password credentials. Including HTTP-Basic Authorization header, WS-Security 1.0/1.1 username token profile, Custom HTTP Header or Custom XPATH from request message.</li><li>• Integration also supports caching of credentials in the ServiceNet for high performance</li></ul>

## Feature overview cont.

---

### Integration with Oracle Products (cont.)

Product	Integration Description
Oracle Internet Directory	<ul style="list-style-type: none"> <li>ServiceNet integrates using the LDAP protocol</li> <li>Retrieval of user and non-user attributes from the directory server including single &amp; multi-valued attributes of various data types.</li> <li>Retrieval of user's user, group &amp; role information</li> <li>User attribute caching functionality of ServiceNet increase the performance and reduce the load on Oracle Internet directory</li> </ul>
Enterprise Manager	<p>ServiceNet integrates using Http fetchlets to provide:</p> <ul style="list-style-type: none"> <li>Provide Service statistics and performance details like Response time, Error/Fault Rate, Request Message, Message Size, policy violations, SLA alerts</li> </ul> <p>Integrates using SNMP fetchlets &amp; JMX fetchlets to</p> <ul style="list-style-type: none"> <li>ServiceNet and its cluster availability</li> <li>CPU/Memory/Network usage</li> <li>Health of critical process/subsystem</li> </ul>
WebLogic server	<ul style="list-style-type: none"> <li>ServiceNet interoperates with JMX and web services</li> </ul>
Oracle Service Registry	<ul style="list-style-type: none"> <li>Integrates using UDDI</li> <li>ServiceNet can proxy services in the registry, update the target end point and any associated policies</li> </ul>

### ServiceNet Platform

Feature	Description
Delivery Channel	<ul style="list-style-type: none"> <li>High Performance Hardware Appliance</li> <li>Virtual Machine – VMPlayer, VMServer and ESX support</li> <li>Amazon EC2</li> </ul>
Administration	<ul style="list-style-type: none"> <li>Web-based console for service policy application deployment, configuration, and monitoring</li> <li>Web-services API for externally managed application deployment, configuration, and monitoring</li> <li>Command Line Interface (CLI) for system configuration</li> <li>Integration with UDDI to facilitate service governance</li> </ul>
Development	<ul style="list-style-type: none"> <li>Eclipse-based plug-in for full range of service policy application development</li> <li>Web-based policy enforcement tools for ease of use</li> </ul>

### ServiceNet Platform (cont.)

Feature	Description
RAS	<ul style="list-style-type: none"> <li>Active-standby or Active-Active configuration with automatic failover for continuous availability</li> <li>Cluster Manager(SMS) to manage cluster members</li> </ul>
Performance	<ul style="list-style-type: none"> <li>Dual-plane architecture modeled on network routers</li> <li>Streaming, non-blocking message processing</li> <li>Credential caching to avoid overloading LDAP servers</li> </ul>
Extensibility	<ul style="list-style-type: none"> <li>Service callout for data enrichment</li> <li>Web services-based management API</li> <li>Endpoint provisioning from UDDI</li> </ul>

---

### ServiceNet Hardware

Feature	Description
Models	<p>ServiceNet is available in 2 hardware models</p> <ul style="list-style-type: none"> <li>SN5000 – 8 cores, 16 GB RAM</li> <li>SN3000 – 4 cores, 8 GB RAM</li> </ul>
Availability	<ul style="list-style-type: none"> <li>RAID 1 with hot-plug hard drives</li> <li>Hot-plug redundant power</li> <li>Redundant management network ports</li> <li>Redundant data network ports (inbound and outbound)</li> <li>Redundant cooling</li> <li>ECC memory</li> </ul>
Power	<ul style="list-style-type: none"> <li>2 x 670W hot-plug power supply</li> <li>Auto-switching universal 110/220 Volts</li> </ul>
Chassis	<ul style="list-style-type: none"> <li>1U Rack-mountable chassis</li> <li>30.4" (77.2 cm) D x 16.7" (42.6 cm) W x 1.67" (4.26 cm) H with bezel attached</li> <li>Rack Weight 35.8 lbs (16.3 Kg), maximum</li> </ul>
Ports	<ul style="list-style-type: none"> <li>Rear: 2 x USB 2.0 ports, 1 x video connector, 1 x serial connector, 2 x RJ-45 connectors for 10/100/1000 Ethernet management ports, 4 x RJ-45 connectors for 10/100/1000 Ethernet data ports</li> <li>Front: 2 x USB 2.0 ports, 1 x video connector</li> </ul>
Rack support	<ul style="list-style-type: none"> <li>4-post static Rapid and Versa Rails, 4-post Rapid/Versa Rail with Cable Management arm and 2-post rails</li> </ul>

## Feature overview cont.

---

### Feature

Environmental

### Description

- Operating Temperature: 10° C to 35° C (50° F to 95° F)
- Storage Temperature: -40° C to 65° C (-40° F to 149° F)
- Operating Relative Humidity (non-condensing twmax=29C): 20% to 80% non-condensing
- Maximum humidity gradient: 10% per hour, operational and non-operational conditions.
- Storage Relative Humidity: 5% to 95% non-condensing (twmax=38C)
- Operating Vibration: 0.26G at 5Hz to 350Hz for 2 minutes
- Storage Vibration: 1.54Grms Random Vibration at 10Hz to 250Hz for 15 minutes
- Operating Shock: 1 shock pulse of 41G for up to 2ms
- Storage Shock: 6 shock pulses of 71G for up to 2ms
- Operating Altitude: -16 to 3,048m (-50 ft to 10,000 ft)
- Storage Altitude: -16m to 10,600m (-50 ft to 35,000 ft)

### Feature

Regulatory

### Description

- FCC (U.S. only) Class A
- ICES (Canada) Class A
- CE Mark (EN 55022 Class A, EN55024, EN61000-3-2, EN61000-3-3)
- VCCI (Japan) Class A
- BSMI (Taiwan) Class A
- C-Tick (Australia/New Zealand) Class A
- SABS (South Africa) Class A
- CCC (China) Class A
- MIC (Korea) Class A
- UL 60950 - 1
- CAN/CSA C22.2 No. 60950 - 1
- EN 60950 - 1
- IEC 60950 - 1

---

For more information or sales inquiries, contact [sales@sonoasystems.com](mailto:sales@sonoasystems.com).

#### About Sonoa Systems

Sonoa Systems is a leading provider of enterprise appliance solutions that offer security, scalability, and interoperability for Web services via real-time policy enforcement for SOA, Web 2.0, and SaaS.

Copyright © 2009 Sonoa Systems, Inc. All rights reserved.



**s o n o a**

Sonoa Systems  
2380 Walsh Avenue  
Santa Clara, CA 95051  
(866) 99 SONOA (866. 997-6662)