

# SUN SECURE APPLICATION SWITCH–N2000 SERIES

## KEY FEATURES

### HIGH-PERFORMANCE APPLICATION DELIVERY WITH UNPRECEDENTED WEB-BASED SECURITY

- Integrated attack protection, application switching, load balancing, and SSL acceleration
- Advanced security—full port 80/443 proxy and inspect
- High-performance SSL—up to 10,000 CPS and 2 Gb/sec crypto throughput
- Virtual switching technology
- Up to 3 Gb/sec of high-performance L4-L7 application switching throughput
- Up to 9 Gb/sec L2-L4 switching
- Flexible management interfaces for ease of use
- Help dramatically reduce capital and operating expenses
- High-availability configurations via active/hot-standby topology
- Up to 250,000 L4-L7 CPS for high-performance applications
- Bidirectional application inspection for improved server health checking

*Oracle's Sun Secure Application Switch–N2000 Series allows enterprise networks to cost-effectively deliver critical applications with the required levels of security, performance, and availability. Oracle leverages innovative hardware to help drastically improve the efficiency of delivering essential load balancing and Secure Sockets Layer (SSL) services, while protecting against attacks and security breaches. The Sun Secure Application Switch–N2000 Series provides gigabit-scaled TCP termination and policy processing, with an architecture that includes high-performance network processing elements and customized software.*



**The Sun Secure Application Switch–N2000 Series protects against attacks and security breaches while providing more efficient load balancing and SSL services.**

### High Performance, High Security, and Virtual Switching

Oracle offers two base systems: The Sun Secure Application Switch–N2040 and the Sun Secure Application Switch–N2120 models. Oracle also offers a “V” option that adds virtual switching technology. This technology enables the creation of multiple virtual switches from one physical switch. All of the services in the switch can be virtualized, including routing, application switching, security services, and management capabilities, creating multiple secure network domains. Virtual switches can be dynamically added, removed, and configured as needed by network administrators, further enabling data center optimization and flexibility.

The Sun Secure Application Switch–N2000 Series is designed for deployment at all tiers of today’s data center. The flexibility of the switches allows them to be used from the distribution layer to the server rack. And with virtual switching technology, the Sun Secure Application Switch–N2040V and the Sun Secure Application Switch–N2120V models can function in multiple tiers of the data center simultaneously. The result is increased resource management, improved price/performance, and the ability to enjoy the benefits of a virtualized network environment.

### Sun Secure Application Switch–N2000 Series Specifications

<b>Performance</b>
<ul style="list-style-type: none"> <li>• 64 Gb/sec nonblocking switch fabric</li> <li>• Up to 3 Gb/sec application switching throughput</li> <li>• Up to 2 Gb/sec cryptographic throughput</li> </ul>
<b>Virtual Switches (Option)</b>
<ul style="list-style-type: none"> <li>• 10 virtual switches per system</li> <li>• Switch resources dynamically into secure partitions</li> </ul>
<b>Application Switching/Load Balancing</b>
<ul style="list-style-type: none"> <li>• Up to 250,000 new L4-L7 connections/second</li> <li>• Up to 2 million concurrent L4-L7 connections/second</li> <li>• Application switch bidirectionally on HTTP headers, URI, cookie, payload, content</li> <li>• Client stickiness with client source address and port and switch-managed cookies</li> <li>• Load-balancing algorithms: round-robin, weighted round-robin, least connections, source address hashing</li> <li>• Load balance transparent caches</li> </ul>
<b>SSL Acceleration</b>
<ul style="list-style-type: none"> <li>• Up to 10,000 new connections/second</li> <li>• Up to 240,000 concurrent connections/second</li> <li>• Up to 2 Gb/sec symmetric key SSL crypto throughput</li> <li>• SSL 3.0, TLS 1.0</li> <li>• Client-side and server-side support</li> <li>• Re-encryption for end-to-end security</li> <li>• X.509 certificates</li> </ul>
<b>Access Control Lists</b>
<ul style="list-style-type: none"> <li>• L3-L4: filter by protocol, IP address, port</li> <li>• L5-L7: filter by URI, headers, content</li> <li>• Separate rule sets for each virtual switch</li> </ul>
<b>High Availability</b>
VRRP combined with the Sun Virtual Services Redundancy Protocol (VSRP) provides instant failover

<b>Common Attack Protection</b>	
<ul style="list-style-type: none"> <li>• URL filtering to stop HTTP worms</li> <li>• Rate and connection limiting to reduce flooding</li> <li>• Frame filtering for poison data: filter frames for any “poison” or unexpected data</li> <li>• SYN flood attack mitigation</li> <li>• “SMURF” attack nullification</li> <li>• “FRAGGLE” attack nullification</li> <li>• Land attack</li> <li>• IP packets with multicast or broadcast source IP address</li> </ul>	<ul style="list-style-type: none"> <li>• TCP server resource release</li> <li>• Filter TCP traffic with SYN and FIN bits set</li> <li>• Source/destination IP is a loop-back address</li> <li>• “Ping of death” attack</li> <li>• Fragmentation reassembly errors</li> <li>• Source spoofed frames</li> <li>• SYN cookie support to suppress programmatic TCP static attacks</li> </ul>
<b>Management</b>	
<ul style="list-style-type: none"> <li>• SNMP v1/v2c/v3</li> <li>• HTTPS</li> <li>• Telnet, SSH</li> <li>• Industry-standard command-line interface</li> </ul>	<ul style="list-style-type: none"> <li>• Configuration logging</li> <li>• Multiple images</li> <li>• Multiple syslog servers</li> </ul>
<b>Security</b>	
<ul style="list-style-type: none"> <li>• Oracle’s Solaris Secure Shell V2.0</li> <li>• Secure Shell file transfer protocol</li> <li>• TACACS+</li> <li>• Radius</li> </ul>	
<b>System Interfaces</b>	
<ul style="list-style-type: none"> <li>• N2040: 40 10/100Base-T ports, four SFF pluggable GbE ports</li> <li>• N2120: 12 SFF pluggable GbE ports</li> <li>• Management interfaces: DB-9 serial port, RJ-45 10/100 Ethernet</li> </ul>	
<b>Power</b>	
<ul style="list-style-type: none"> <li>• Input current: 10 A at 115 V AC; 5 A at 230 V AC</li> <li>• 90 V to 135 V / 180 V to 265 V AC automatic select</li> <li>• 47 Hz to 63 Hz</li> <li>• Redundant power supply and power cord</li> </ul>	
<b>Weight</b>	
Fully configured: 35 lb.	
<b>Dimensions (HxWxD)</b>	
<ul style="list-style-type: none"> <li>• 3.5 in. x 17.4 in. x 26.0 in. (8.89 cm x 44.2 cm x 66.0 cm)</li> <li>• 2RU enclosure; two- or four-post, rackmounted STD EIA/NEMA rack</li> </ul>	
<b>Environmental</b>	
<ul style="list-style-type: none"> <li>• Operating temperature: 32°F to 104°F (0°C to 40°C)</li> <li>• Storage temperature: – 22°F to 176°F (– 30°C to 80°C)</li> <li>• Operating humidity: 0% to 95% relative humidity, noncondensing</li> <li>• Maximum heat dissipation, fully populated: 2,050 BTU/hr.</li> </ul>	

Certifications	
<ul style="list-style-type: none"> <li>• FCC Part 15, Subpart B, Class A limits</li> <li>• Industry Canada ICES-003, Class A limits</li> <li>• VCCI Class A</li> <li>• EN 60950</li> <li>• EN 55022 Class A</li> <li>• EN55022:1998/CISPR-22 Class A</li> </ul>	<ul style="list-style-type: none"> <li>• CE</li> <li>• UL60950 UL/CUL</li> <li>• IEC60950</li> <li>• CSA-C22.2</li> <li>• EN55024:1998</li> <li>• FIPS 140-2 certified cryptographic algorithms: SHA-1, SA, DES, 3DES</li> </ul>

### Warranty

Visit [oracle.com/sun/warranty](http://oracle.com/sun/warranty) for Oracle's global warranty support information on Sun products.

### Services

Visit [oracle.com/sun/services](http://oracle.com/sun/services) for information on Oracle's service program offerings for Sun products.

### Contact Us

For more information about Oracle's Sun Secure Application Switch–N2000 Series, please visit [oracle.com/sun](http://oracle.com/sun) or call +1.800.786.0404 to speak to an Oracle representative.



Oracle is committed to developing practices and products that help protect the environment

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