

## ORACLE SOLARIS 10 NETWORKING

### REALIZE EXTREME NETWORK PERFORMANCE

#### KEY FEATURES

- Throughput approaching “wire speed” at 10 Gb/sec with reduced CPU overhead
- Open, programmable network stack, fully compatible with existing applications
- Linear performance scaling with the number of CPUs and connections
- Enterprise and telecommunications IPv6 deployment-ready
- Innovative design features that map to technology advancements in network devices
- Visibility into and control of network traffic in virtualized environments

*Accelerating trends are driving the evolution of networking in the Oracle Solaris operating system (OS). Millions of new users connect to the internet every week through increasingly sophisticated wireless devices, PCs, and even automobiles. Service providers are building out their networks and providing new services such as IPTV. State-of-the-art network capabilities are essential not just in these networks but also in the datacenters that process data and deliver content and services to these burgeoning new markets. Networking features in Oracle Solaris 10 address performance, scalability, security, and protocol support.*

#### Networking Features

Oracle Solaris 10 delivers state-of-the-art networking features, including

- Enhanced TCP/IP, UDP/IP, SSL, and packet forwarding performance—highly efficient, optimized stack greatly enhances network throughput while reducing the load on the CPU
- Leveraging of Oracle Solaris CoolThreads technology for increased throughput and optimal performance with Oracle’s multithreaded 10 Gigabit Ethernet (GbE) network devices
- Network virtualization through IP instances—enables a discrete network stack for each virtualized OS instance
- IPv6—next-generation protocol provides increased address space, end-to-end security, and autoconfiguration features
- Berkeley Internet Name Domain (BIND) 9—the latest internet domain name server
- Quagga open source routing protocol suite
- IP Filter—IPv6-enabled, integrated open source firewall
- Standards-based link aggregation for increased throughput
- IP Multipathing—high availability of network connectivity and services through end-to-end redundancy
- Support for Stream Control Transmission Protocol (SCTP), Session Initiation Protocol (SIP), Multicast Listener Discovery (MLDv2), Open Shortest Path First (OSPFv2)
- Comprehensive support for gigabit, 10 Gb, and InfiniBand adapters from Oracle and other vendors
- Internet SCSI (iSCSI) initiator and target support

## Oracle Solaris 10 Networking Benefits

New features in Oracle Solaris 10 deliver the performance and scalability innovations that are necessary in today's evolving marketplace.

### Extreme Network Performance

Oracle Solaris 10 introduces a highly scalable and enhanced networking stack that lowers overhead by reducing the number of instructions required to process packets. This efficiency also increases scalability, allowing more connections and enabling server network throughput to grow linearly with the number of CPUs or threads and network interface cards (NICs). The enhanced stack is tuned for 10 Gb/sec Ethernet, wireless, and offloading technologies and provides the foundation to add protocols without affecting the network stack's performance or scalability. This feature facilitates the integration of emerging protocols under development in standards bodies such as the Internet Engineering Task Force (IETF).

Oracle has concentrated on improving the performance of key server workloads that have a significant networking component. Customers save time and money from the improvements in network throughput, connection setup and teardown times, first-byte latency (for transaction performance), connection and CPU scalability, and efficient use of resources. In addition, redesigned Web caching technology provides ease of use and operability with technologies such as Oracle Solaris Containers.

### Next-Generation IP Protocol for Quality, Mobility, and Security

The IPv6 protocol is designed to meet the global demand for network connectivity. It leverages the design of IPv4—the current IP protocol—and extends it by providing a very large number of addresses that enable the vision of a vast global network of many different types of devices. With IPv6, the internet connects not only people and computers but virtually any kind of electronic device that can take advantage of internet connectivity and flexibility.

Oracle Solaris supports current IPv6 specifications and APIs and provides full integration with the IPsec implementation, including the Internet Key Exchange (IKE). This enables encrypted and authenticated network access between systems. Oracle Solaris provides the ideal foundation for a high-performance, secure, and robust IPv6-based Web services infrastructure.

To make it easy to transition to IPv6, Oracle also provides a dual network stack with tunneling tools. Additionally, many tools and services support IPv6 such as IP Filter, Simple Network Management Protocol (SNMP), management information base (MIB), and Dynamic Host Configuration Protocol (DHCP) client.

### Improved Network Availability and Routing Protocols Support

Oracle Solaris 10 adds Network Layer 3 redundancy, providing the ability to implement high-availability network solutions for more-resilient services and innovative new applications. Layer 3 multipathing (MP) enables end-to-end redundancy ensuring greater protection from network failures. This standards-based MP feature is implemented via a combination of virtual IP address selection and OSPF-MP. Virtual IP address selection enables system administrators to specify IP source addresses for packets on a per-network basis. OSPF-MP employs the protocol to route traffic around failed network interfaces. Oracle Solaris 10 also includes OSPFv2 and BGP4 routing protocols, making it easier to administer complex routing policies.

Recent updates have added policy-based routing, which provides a means to set routing policy for individual connections.

### Telecommunications

Oracle Solaris 10 includes in-kernel support for SCTP and SIP protocols, making it an ideal development and deployment platform for Voice over IP and other telephony applications. SCTP provides reliable transport over IP and is excellent for high-availability deployments such as telephony and Signaling System 7 (SS7), which require more-reliable network connections.

SIP establishes, modifies, and terminates calls over IP networks and is most often used for Voice over IP. The Oracle Solaris SIP server implementation is supported on a wide range of industry-standard platforms and interoperates with clients on a range of OSs, such as Microsoft Windows and Linux. This makes Oracle Solaris 10 ideal for development projects that seek to exploit these new capabilities.

### Datacenter and Beyond

The network capabilities in Oracle Solaris are pivotal for extracting the most value from systems and network infrastructure deployed in the datacenter. Lower CPU overhead and reduced network latency provide advantages in grid-based, compute-intensive applications. Resilient high-speed networking is an essential element of productive Network File System (NFS) and iSCSI storage networks. In addition, the inclusion of technology for network virtualization provides new paradigms for deployment of virtual appliances, where, for example, bandwidth can be allocated to a virtualized OS instance.

### Contact Us

For more information about Oracle Solaris 10 Networking, visit [oracle.com/solaris](http://oracle.com/solaris) or call +1.800.ORACLE1 to speak to an Oracle representative.



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