Oracle Switch ES1-24
Frequently Asked Questions

Overview

10 GbE Market

The need for greater networking throughput; the emergence of converged networks (the blending of LAN and SAN traffic over a common backbone); and fast access to storage for database, online transactions, backup and recovery, and virtualization are key drivers guiding the adoption of 10 GbE in the data center. Today's data center challenges require accelerated business performance, optimization of asset utilization, lower system acquisition and operational cost, and reduced IT complexity. Enterprise customers want to reduce IT spending while at the same time improving services available to their customers or productivity of their employees. IT managers have the challenge of addressing and solving these seemingly irreconcilable requirements.

Throughput

As the number of sockets and cores has been increasing, so has the required number of Ethernet connections from each server. Typically Ethernet ports are "aggregated" to form bigger pipes, but this consumes too many switch ports and is typically ill-suited to blade architectures. A single 10 GbE uplink provides a natural progression by replacing as many as 10 discrete 1 GbE connections.

Storage (bigger pipes, more IOPS)

Storage servers, like Oracle's Sun ZFS Storage Appliance, benefit from 10 GbE connectivity by eliminating traditional bottlenecks and reducing cable sprawl. Storage systems that combine flash and SSD technology require significantly larger pipes to balance increased IOPS with network bandwidth.

Virtualization

Server virtualization effectively brings the networking edge deep into the server kernel where physical network interface cards (NICs) are abstracted and presented to virtual machines (VMs) as virtual network interface cards (VNICs). In 1 GbE data centers, a typical server might require five NICs in support of virtualization due to the bandwidth limitations of Ethernet pipes. 10 GbE NICs provide ample bandwidth that can be effectively shared among multiple VMs, while offering converged services to sharply reduce the number of required cables and drive down operational expenses.

What is Oracle Switch ES1-24?

Designed to harness the full capabilities of Oracle's server systems and 10 GbE NICs, the Oracle Switch ES1-24 brings advanced 10 Gb Ethernet top-of-rack (ToR) switching to data center customers. This ToR switch delivers full Layer 2/3 features and wire-speed performance to accelerate virtualized applications, and simplifies your data center by eliminating the networking bottlenecks and reducing costs. In a compact half-width 1U with 20 RJ45 ports of 1/10GBase-T and 4 ports of 1/10 GbE SFP+, it enables easy migration from a 1 Gbps to 10 Gbps infrastructure by reusing existing copper cabling. It provides for redundant architecture in 1U rack space using two adjacent units and rapid failover with logical link aggregation capability.

Customer Benefits

Cost-competitive full Layer 2/3 and wire-speed top-of rack access switch for Oracle servers and storage

The switch expands Oracle's 10 Gigabit Ethernet switch portfolio and is designed specifically as an access switch without incremental licensing cost for Layer 3 features.

High performance and investment protection

The switch provides wire-speed 10 GbE on all ports and coexist with 1 GbE re-using existing twisted pair copper cabling (Cat 5/6/7) for ease of migration to 10 GbE.

Ideal for rack space-constrained high-availability environments

The switch with its compact half-width 1U size is well suited for redundant architecture in 1U rack space using two adjacent units and rapid failover with logical link aggregation capability.

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Simplification of management

The switch is tightly integrated with Oracle's standard server management interface, Oracle Integrated Lights Out Manager (Oracle ILOM) for initialization and physical management within Oracle Enterprise Manager Ops Center. This gives customers the ability to seamlessly manage their network and server systems with the same interface.

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Why is this switch the most cost effective in the market?

The switch size of 24 ports allows a cost-effective use case for a smaller fabric. Two of these half-wide switches can be placed adjacent to each other in 1U for high availability, saving scarce rack space. The switch is optimized for cost-effective scaling with Oracle's 72 port switch—Sun Network 10 GbE Switch 72p. The required Layer 2/3 software is included without additional software license fees. The switch is fully tested with Oracle networking cards, operating systems, servers, storage, and Oracle Database Appliance, providing single support for hardware, software, and networking, and reducing the support cost.

For what kind of applications is the switch best suited?

Network-intensive enterprise clusters requiring 10 GbE network:

- Web services

- Application services

- Database access and backup

- Network storage including NAS and iSCSI

- Virtualized deployments with live migration

- High-throughput multicast applications

- Technical computing

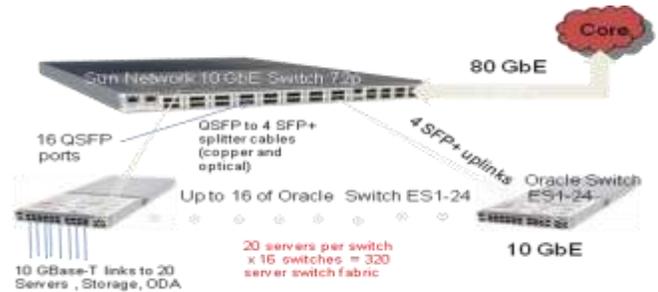**The switch has 24 ports—how do I scale to a larger switching fabric?**

Figure 1

Oracle's Sun Network 10 GbE Switch 72p with 16 QSFP and 8 SFP+ ports is used as an aggregation switch with the Oracle Switch ES1-24 as a ToR switch. Users can connect 20 10GBase-T ports from the switch to the Oracle servers, storage, and Oracle Database Appliance since they already have on their system 1/10Gbase-T ports. Four SFP+ ports of the switch are used as uplink to one of the 16 QSFP ports on Oracle's Sun Network 10 GbE Switch 72p. Twenty servers/storage per switch and 16 switches connected to Sun Network 10 GbE Switch provide a high-performance and cost-effective 10 GbE switching fabric for up to 320 servers/storage as shown in the above Figure 1.

What are the marketing part numbers for the switch, rack rail kit, supported transceivers, and cables?

Refer to the data sheet on Oracle.com for updated information.

What additional transceivers and cables are supported for connectivity to QSFP port of the Sun Network 10 GbE Switch 72p?

1) QSP to 4 SFP+ copper splitter cables:
X2125A-1M-N	QSFP to 4SFP Copper	Splitter Cable, 1M
X2125A-3M-N	QSFP to 4SFP Copper	Splitter Cable, 3M
X2125A-5M-N	QSFP to 4SFP Copper	Splitter Cable, 5M

2) QSFP to 4 SFP+ optical splitter cables:
X2127A-10M	MPO to 4 LC Optical Splitter Cable 10 meters
X2127A-20M	MPO to 4 LC Optical Splitter Cable 20 meters
X2127A-50M	MPO to 4 LC Optical Splitter Cable 50 meters

Note: For optical splitter cable:
Use x2129A-N SFP+ SR transceiver for the LC end to plug

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into the Oracle Switch ES1-24.
Use X2124A-N QSFP SR transceiver to plug into the MPO end of the cable to plug into the QSFP port of the Sun Network 10 GbE Switch 72p.

Is there an additional license fee for the Layer 2/3 software?

No. Layer 2/3 features are included with the switch without additional software license fees.

What other Oracle products connect to the switch and what are the connectivity options?

Twisted pair cables to connect 10GBase-T ports on the switch

- •CAT 6A and CAT 7 cables supporting 100 meters

- •CAT 5e and CAT 6 cables supporting 55 meters

Above cables are not provided by Oracle since they are industry standard and mature in interoperability.

Oracle servers

- Onboard or NIC with 1/10GBase-T ports: Connect with CAT 5/6/7 cables

- NIC with SFP+ ports: Connect with SFP+ transceivers or direct attach TwinX copper cables

Oracle's Sun ZFS Storage Appliance

- Oracle storage uses SFP+ NICs (X1109A-Z-N) and SFP+ transceivers (X2129A-N) that can be connected to the four SFP+ ports of the switch. Check the specific version of the storage product for support of the less expensive SFP+ TwinX copper cables (eliminating expensive transceivers). Use 10GBase-T ports as uplink to the customer network if all four SFP+ ports are used for ZFS connectivity.

Oracle Database Appliance

- Oracle Database Appliance has onboard 10Gbase-T ports. Use existing twisted pair cables (Cat 5/6/7) to connect to the 10Gbase-T ports on the switch. SFP+ ports of the switch can be used as uplinks if the customer has fiber network infrastructure.

Oracle's Sun Blade 6000 Chassis and Sun Netra 6000 Ethernet Switched NEM 24p 10 GbE

- SFP+ Ports: Connect with SFP+ transceivers or direct attach TwinX copper cables

- QSFP Port (only one): i) Connect with QSFP to 4 SFP+ copper splitter cable, or ii) QSFP transceiver, QSFP to 4 SFP+ optical splitter cable (MPO to 4 LC), and SFP+ transceiver

Sun Blade 6000 Chassis and Sun Netra 6000 Virtualized 40 GbE NEM

- SFP+ Ports: Connect with SFP+ transceivers or direct attach TwinX copper cables

- 1GBase-T pass-through ports: CAT5e cables

ExpressModules (EM) in the Sun Blade 6000 Chassis and Sun Netra 6000 Modular System

- EM with 10GBase-T ports: Connect with Cat 5/6/7 cables EM with SFP+ ports: Connect with SFP+ transceivers or direct attach TwinX copper cables

Sun Network 10 GbE Switch 72p

- SFP+ ports: Connect with SFP+ transceivers or direct attach TwinX copper cables

- QSFP port (only one): i) Connect with QSFP to 4 SFP+ copper splitter cable or ii) QSFP transceiver, QSFP to 4 SFP+ optical splitter cable (MPO to 4 LC), and SFP+ transceiver

Is it supported to mix SFP+ SR transceiver, direct attach TwinX copper cable, and LR transceiver among the 4 SFP+ port of the switch?

Yes, any combination can coexist.

If I want to use third-party transceivers and cables, will they work with the Oracle Switch ES1-24?

The transceivers and cables that directly plug into the Oracle Switch ES1-24 and are supplied by Oracle are compliant to the industry standards for SFP+ solutions (SR, LR, TwinX copper). Though standards-compliant, third-party

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SFP+ solutions "should" interoperate with Oracle Switch ES1-24, Oracle does not qualify third-party solutions with the switch and does not know whether they will work or not work and therefore does not support them. If a customer chooses to use third-party SFP+ solutions and encounters an issue that cannot be isolated to the Oracle Switch ES1-24, the customer must replicate the issue with an Oracle qualified solution before Oracle can triage the issue.

Transceivers that directly plug into third-party switches should be purchased from the third-party switch suppliers and not from Oracle.

Do Oracle's SFP+ direct attach TwinX passive cables work with Cisco or other third-party switches?

Oracle does not certify Oracle's direct attach SFP+ TwinX passive cables with third-party switches. If the third-party switches support industry-standard SFP+ solutions, then Oracle would expect them to interoperate with the Oracle cables.

When do I need a separate SFP+ transceiver for TwinX copper cabling?

If copper cabling is acceptable based on available lengths and deployment logistics, then NO additional SFP+ transceivers are required. The copper direct attach cable includes mechanical connectors that fit directly into the SFP+ ports.

Does the TwinX copper cable plug directly into the NIC and the switch?

Yes, the copper cable has an SFP+ connector on both ends of the cable that directly plugs into the SFP+ ports of the switch and NIC.

What is the distance supported by the SFP+ SR transceiver?

The supported distance is up to 300 meters depending on the quality of the multimode fiber (MMF) used by the customer. Quality of MMF is listed as OM1 (up to 50 meters), OM2 (up to 80 meters), and OM3 (up to 300 meters). Check with the supplier for the cable distance supported.

Does Oracle offer a MMF (850 nm) cable for SFP+ SR transceiver?

No, Oracle does not offer and does not plan to offer the MMF cables for the SFP+ SR transceiver. These cables are industry standard and widely available or existing in the customer environment.

What is the advantage of SFP+ TwinX copper cable?

It is a low-cost option for shorter distances up to 5 meters. Active TwinX copper cables allow for longer distances up to 10 m.

How do I use the SFP+ ports for 1000BaseT?

You need to purchase Oracle's adapter SFP+ to 1000BASE-T, copper SFP+/RJ45, part number x2123A.

How do I use the SFP+ ports for 10GBaseT?

Oracle does not offer such adapter.

Do the SFP+ optical transceivers support 1 GbE operation?

Yes, they support 1 GE and 10 GE dual rates and can be configured for 1 GbE.

Will the SFP+ optical transceivers auto-negotiate between 1 GbE and 10 GE?

Auto-negotiation is not supported between the 10 GE and 1 GE speed. The transceiver must be manually configured to operate at 1 GE speed.

System Specifications / Installation Data

How do I choose the cooling airflow direction for the switch?

When the switch is mounted in the server/storage rack: Servers and storage have the I/O ports in the rear and airflow for cooling is from front-to-rear; whereas, the switch has I/O ports in the front. In order to get switch ports close to the server I/O ports, the switch is mounted backwards. Therefore, the switch

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should have rear-to-front airflow to have the cooling in the same direction as the servers.

When the switch is mounted in the network rack with other switches: All switches have the I/O ports in the front (or in the same orientation). In that case, the airflow should be from front-to-rear so the cooling is in the same direction as other switches.

How is the management Ethernet interface on the switch used?

Command-line interface (CLI) provides an interface to the switch for configuration and management (status, performance, monitoring). Customers familiar with industry-standard CLI for network management will require minimal training to use the Oracle Switch ES1-24. See the CLI user guide for more details.

What is the role of the embedded Oracle ILOM agent on the switch?

Oracle ILOM is used to manage all Oracle servers, both SPARC and x86 as well as blade servers and Ethernet switches. Oracle ILOM is designed to proactively monitor all aspects of the managed platform including power, fan health, and temperature measured at multiple sites inside the system chassis. Oracle ILOM also supplies a unified enterprise-wide agent that is discovered and managed from Oracle Enterprise Manager Ops Center. Other management agents embedded in the switch include:

- SNMP

- Industry CLI

- SSH

- Web interface for Oracle ILOM

- IPMI

Is the switch interoperable with other switch suppliers?

Yes. The switch is compliant with the industry standards for Layer 2 and 3 features as detailed in the data sheet. It

interoperates with other third-party Ethernet switches that support industry standards for these features. The CLI management interface of the Oracle Switch ES1-24 is similar to the CLI available on other third-party Ethernet switches.

Where do I find software updates for the switch?

Software updates for the switch, just like all other Oracle products, are found on My Oracle Support.

Where do I find installation, troubleshooting, and configuration guides for the Oracle Switch ES1-24?

They can be found at http://www.oracle.com/goto/ES1-24/docs

Where do I find a complete list of supported L2 and L3 features?

Refer to the data sheet for up-to-date information on L2 and L3 features.

How many Oracle Switch ES1-24s can I install into an Oracle rack?

We are not aware of any limitations on the number of switches in a single rack. We have tested six switches in a single rack for EMI compliance.

What is cut-through switching?

Cut-through switching begins forwarding arriving bits as soon as the destination is determined (Ethernet Destination MAC address received), without waiting for the whole frame to be received. The entire packet is rarely buffered.

Do I need to configure VLANs on the switch?

VLANs are configurable on the switch per application need.

Does the switch have FCoE software?

No. The switch does not have FCoE software.

Is there a plan to provide FCoE software?

There is no plan to provide FCoE software.

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Software, Firmware, and Operating System

What are the systems management and security options for the Oracle Switch ES1-24?

- CLI provides an interface to the switch for configuration and management. Customers familiar with industry-standard CLI for network management will require minimal training to use the switch.

- Integration with Oracle ILOM for initialization and physical management. The switch is managed as a chassis component in a manner consistent with the servers.

- Simple Network Management Protocol or SNMPv3 (v1, v2, v3) for management with standard network management solutions. The switch can be managed with standard off-the-shelf network management solutions. The switch ships with dozens of enterprise and proprietary Management Information Bases (MIBs).

- Support for access control lists (ACLs) for creating fine-grained policies for network security. ACLs are the fundamental building blocks to network security and allow customers to create fine-grained policies to protect servers and the network from aberrant traffic which is intentionally or anecdotally malicious.

- Port-based authentication, IEEE standard 802.1X, provides authentication control and security to devices connecting to each physical port.

- Port mirroring for troubleshooting and network management. Port mirroring is an essential troubleshooting tool for server and network administrators. Port mirroring is considered a best practice for network management.

- The remote network monitoring (RMON) runs entirely on the switch and is controlled either by the command-line interface (CLI) or remotely by a RMON management system. RMON-like port mirroring is an essential troubleshooting tool used by network administrators to troubleshoot network issues. RMON is designed to offload system monitoring from a centralized management host by performing polling of critical functions as an embedded function.

What OS does the Oracle Switch ES1-24 support?

The switch is agnostic to server OS.

What firmware (FW) version is available for the switch?

As of July 9, 2013, firmware version 1.3 is available.

What new features are included in the firmware 1.3?

Refer to the data sheet on oracle.com for the full list of the features supported. Below is a brief description of some of the features supported.

Logical link aggregation

Logical link aggregation (LLA) enables link aggregation from servers to terminate at two physical switches. This provides an increase in capacity and redundancy with an active-active deployment model. Failover can occur rapidly as there are no L2 or L3 protocol delays. In LLA, a pair of switches is connected through an interswitch link (ISL), a special trunk group between the two switches. The ports connected to the servers are called LLA ports. Both switches maintain their identity as separate L2/L3 switches with different addresses. Servers use bonding (Linux) or link aggregation (Oracle Solaris) to take advantage of the higher bandwidth and seamless failover. LLA provides the following benefits:

- Link-level approach to high availability

- Active-active sever connections for higher bandwidth

- Fast failover in case of link or device failure

Data center bridging (DCB) feature

DCB is a term commonly used to describe Ethernet enhancements to improve Ethernet networking and management in data center environments. DCB is a framework that defines the enhancements that are required for switches and endpoints and includes the following features:

- The priority grouping (PG) specification also known as enhanced transmission selection (ETS) provides bandwidth management as well as a scheduling algorithm for various traffic classes on a converged link.

- Priority flow control (PFC) is an enhancement to the existing Ethernet pause protocol. This feature allows "no-drop" packet delivery for certain traffic classes.

  Oracle Switch ES1-24 currently supports two versions of DCB: CEE version and IEEE 802.1Qaz

Edge virtual bridging

Edge virtual bridging (EVB) is an IEEE standard that allows coordinating configuration and management of virtualized networking environment between an end station (server) and the external bridge (Oracle Switch ES1-24). EVB defines protocols for an end station to exchange configuration information about its virtual NICs to Oracle Switch ES1-24, which helps in automating configuration; i.e., it avoids the need to configure VNICs on an end station and also manually configure the external bridge appropriately (typically these are administered by different admins).

VM to VM communication over a port can happen in two ways:

- Packets can be looped back within the host—virtual Ethernet bridge (VEB)

- Packets can be sent to the external switch and looped back—virtual Ethernet port aggregator (VEPA).

The current implementation of Oracle Switch ES1-24 supports VEB and does not support VEPA.

Reflective relay

Reflective relay technology is used in VEB and VEPA. Reflective relay allows the packet from a device to be returned back from the same downstream port that delivered the packets. The most common use case is when the same interface is used to transmit and receive packets.

When aggregated packets are received on the switch, reflective relay must be configured on the switch, as some of the packets may have to be sent back to the same server, destined to another virtual machine residing on the same server. Reflective relay will return those packets to the original device using the same port that delivered the packet to the switch.

The features listed below are supported in Oracle Switch ES1-24, the Sun Network 10 GbE Switch 72p, and the Sun Blade 6000 Ethernet Switched NEM 24p 10GbE.

IPv6 switching and routing

Multicast listener discovery

Multicast listener discovery (MLD) works with IPv6 to control the reception of multicast data in a network. MLD functions similarly to internet group management protocol (IGMP), which manages multicast groups for IPv4. The MLD snooping (MLDS) function supported in this release enables switches to forward multicast data only to hosts that need to receive the data, rather than to all ports. MLDS enables a switch to snoop or capture information from MLD packets that are being sent back and forth between hosts and a router. Based on this information, the switch adds or deletes the multicast addresses from its address table, thereby enabling or disabling multicast traffic that is flowing to individual host ports.

Note: Refer to the Sun Ethernet Fabric Operating System MLDS Administration Guide for more information about this feature. Find it at the following URL: http://www.oracle.com/goto/ES1-24/docs

Open Shortest Path First

Open Shortest Path First version 3 (OSPFv3) adds support for IPv6 in the OSPF protocol. As described in RFC 2740, the fundamental mechanisms of OSPF (flooding, DR election, area support, and SPF calculations) remain unchanged in OSPFv3. However, some changes to OSPF were made to handle changes in protocol semantics between IPv4 and IPv6 and increased IPv6 address sizes.

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Note: Refer to the Sun Ethernet Fabric Operating System OSPFv3 Administration Guide for more information about this feature. Find it at the following URL: http://www.oracle.com/goto/ES1-24/docs

Routing Information Protocol next generation

Routing Information Protocol next generation (RIPng), supported in this release, adds support for IPv6. It functions similarly to RIP in IPv4 and offers the same dynamic route learning benefits. RIPng enhancements for IPv6, as detailed in RFC 2080, include support for IPv6 addresses and prefixes and the use of an all-RIP-routers multicast group address as the destination address for RIPng update messages. The IPv6 RIPng local routing table (RIB) contains a set of IPv6 RIP routes learned from all its neighboring networking devices.

Note: Refer to the Sun Ethernet Fabric Operating System RIPng Administration Guide for more information about this feature. Find it at the following URL: http://www.oracle.com/goto/ES1-24/docs

Protocol Independent Multicast v6

Protocol Independent Multicast v6 (PIMv6) adds support for IPv6 in the PIM routing protocol. PIM is designed to provide scalable interdomain multicast routing across the internet. PIM is a collection of multicast routing protocols, each optimized for a different environment. PIM provides multicast routing and forwarding capability to a router that runs IP along with Internet Group Management Protocol (IGMP). PIM depends on IGMP for multicast group membership information. PIM routes the multicast data packets independent of any unicast routing protocol.

Note: Refer to the Sun Ethernet Fabric Operating System PIMv6 Administration Guide for more information about this feature. Find it at the following URL: http://www.oracle.com/goto/ES1-24/docs

PVRST+

For an Ethernet network to function properly, only one active path must exist between two stations. Multiple active paths between stations in a bridged network can cause loops in which Ethernet frames can endlessly circulate. Spanning tree protocol (STP) can logically break such loops and prevent looping traffic from clogging the network. The dynamic control of the topology provides continued network operation in the presence of redundant or unintended looping paths.

Rapid spanning tree is a link management protocol that provides path redundancy while preventing undesirable loops in the network, such as multiple active paths between stations by forcing redundant paths into a standby or blocked state. PVRST+, which is supported in this release of the switch, is an enhancement of RSTP, works in conjunction with VLANs to provide better control over traffic in the network. A separate spanning tree is maintained for each active VLAN in the network, providing load balancing through multiple instances of the spanning tree, fault tolerance (because failure of one spanning tree instance does not affect other spanning trees), and rapid reconfiguration support through the RSTP.

Note: In PVRST+ spanning tree mode, the interface trunk encapsulation type ISL is not supported.

Refer to the Sun Ethernet Fabric Operating System PVRST+ Administration Guide for more information about this feature. This guide can be found at the following URL:http://www.oracle.com/goto/ES1-24/docs

Note: When using the PVRST+ feature, create the entire configuration from scratch to avoid possible conflicts with features from an existing configuration saved from the previous release of the product.

Exclusive VLAN

In a traditional VLAN, the VLAN represents an L3 broadcast domain or a subnet. Exclusive VLAN (XVLAN) provides a discrete isolation of ports belonging to a traditional VLAN. Therefore, one host in an XVLAN can communicate with some of the hosts in the XVLAN, while another host cannot do the same even though they are in the same XVLAN and configured in the same subnet.

Note: Refer to the Sun Ethernet Fabric Operating System XVLAN Administration Guide for more information about this feature. For information about supported XVLAN commands, refer to the Sun Ethernet Fabric Operating System CLI Base Reference Manual. These documents can be found at the following URL:
http://www.oracle.com/goto/ES1-24/docs

Internet Group Management Protocol

The Internet Group Management Protocol (IGMP) (RFC 4604) implementation is used to learn and proxy the group membership information of the hosts connected to a router. Multicast routing protocols, like Protocol-Independent Multicast (PIM), use this information to forward multicast packets that are received by the router.

An IGMP proxy learns group membership and forwards multicast traffic based on this information. It does not need to run any multicast routing protocols. IGMP proxy substitutes the information to upstream router interface, based on the requirements of IGMP hosts.

Protocol-Independent Multicast

Protocol-Independent Multicast (PIM) is a multicast routing protocol designed to provide scalable interdomain multicast routing across the internet. There are two main PIM protocols, PIM Sparse Mode (PIM-SM) and PIM Dense Mode (PIM-DM). This release provides support for PIM Sparse Mode (RFC 2362).

Q-in-Q

Q-in-Q tunneling expands the VLAN space in the service provider network. This feature enables the service provider to assign a VLAN ID to each customer, without losing the original customer VLAN IDs within the service provider network (tunnel).

Server load balancer

Server load balancer (SLB) provides traffic load distribution functionality for this release of the switch firmware. Load distribution can be performed at Layer 2 or Layer 3 of the networking protocol stack.

SLB at Layer 3

When used at Layer 3, load balancing gateways (LBGs) consist of server members identified by Layer 3 protocol (IP) addresses. Server members are next hop targets of a targeted equal cost multiple path (ECMP) route. The LBG is identified by a virtual IP address prefix (VIP), which is used to represent a virtual server. From the clients' point of view, the virtual server is a highly available server entity with expandable resource. Load distribution is performed through the routing hash function of the switch. Load distribution policies are based on the contents of the L3/4 packet header. Failover is supported at the server members' level. A failed member within a LBG is replaced by another server member that is part of the same group. Health check is performed by the switch through an ICMP ping.

Note: Refer to the Sun Ethernet Fabric Operating System SLB Administration Guide for more information about this feature. This guide can be found at the following URL:
http://www.oracle.com/goto/ES1-24/docs

Note: When using the SLB feature, create the entire configuration from scratch to avoid possible conflicts with features from an existing configuration saved.

What Oracle ILOM 3.0 features are supported?

Supported features are listed below.

TACACS+

Terminal Access Controller Access-Control System Plus (TACACS+) is an access control protocol for routers, network access servers, and other networked computing devices. TACACS+ provides separate authentication, authorization, and accounting services.

LDAP/LDAP-SSL

Oracle ILOM supports LDAP authentication for users, based on the OpenLDAP software. LDAP is a general-purpose directory service. A directory service is a centralized database

for distributed applications designed to manage the entries in a directory. Thus, multiple applications can share a single-user database. LDAP/SSL offers enhanced security to LDAP users by way of SSL technology.

How do I update the Oracle Switch ES1-24?

Detailed directions on how to update the switch are in product notes, which you can find at:
http://www.oracle.com/goto/ES1-24/docs

Service and Support

What kind of service and warranty is offered on the Oracle Switch ES1-24?

The warranty is one year, second business day.

Where can I find more information on services and professional services at Oracle?

For more information on Oracle services and professional services, please refer to the following URL:
http://www.oracle.com/us/support/systems/premier/index.html

Additional Technical Documentation

Where can I find technical documentation for Oracle Switch ES1-24?

http://www.oracle.com/goto/ES1-24/docs

The documentation includes product notes, installation, and service guide, software configuration guide, and deployment best practices guide.

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