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LS2300 LIGHTSTAR 2300 SERIES SWITCHES

L2/L3 aggregation switch with 24 SFP+ 10GigabitEthernet ports

Lower CAPEX

Small form factor

High performance

Comprehensive feature set

The Lightstar 2300 (LS2300) series switches are high-performance and cost efficient 10 GigbitEthernet switches. The LS2300 can be used in fiber to the home broadband networks as an aggregation switch, or in datacenter and enterprise environments where high-speed switching of servers and infrastructure is required.

The LS2300 architecture supports line-speed operation on all ports and has an extensive feature set that includes advanced QoS, redundancy protocols, and even Layer 3 routing.

Furthermore, the LS2300 has a compact form-factor – only 36 cms deep – with pluggable power modules and replaceable fans for front-to-back airflow. In addition, an envolving MPLS feature set enables the LS2300 to function as an edge router in new and exciting services that offer simplified management.

The LS2300 is ideal for aggregation of Layer 2 networks, both in campus and enterprise environments, as well as residential broadband access networks. The high density of 10Gbit/s SFP+ ports allows connection of both local and remote access nodes, or clusters of access switches, that support typical architectures such as double-tagging, multicast distribution, and fast convergence using ERPS or spanning-tree protocols.

With its support for standard link-aggregation/ether-channel features, the LS2300 also fits into multi-chassis LAG deployments.

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SITE AGGREGATION IN FTTx AND BROADBAND DEPLOYMENT

Deployment of fiber to the home and other broadband technologies often means numerous points-of-presence locations with access nodes spread over a wide geographical area. The LS2300 provides a cost efficient aggregation layer to many different types of access nodes.

The high density 10Gbit/s port of the LS2300 allows a single unit to cover a large number of access nodes, and enables redundant uplink connections. With redundancy protocols, the LS2300 can connect to the network core in ring topologies as well as star-topologies.

The high performance switching also allows the LS2300 to serve as the core switch in networks with many thousands of subscriber connections.

Layer 2 aggregation

In a typical Layer 2 aggregation topology, the LS2300 switches are deployed in a ring architecture to provide redundant paths for connected access nodes in case of link-failures in the aggregation layer. Figure 1 shows a dual ring, that uses link-aggregation and redundancy-protocols between the LS2300 to achieve high reliability. (See figure 1)

The access-nodes can also be connected in redundant topologies if they are further distributed throughout the local geographical area. Another common architecture, as shown in figure 1, is to have point-to-point connections from the LS2300 to the access nodes in a standard star topology. This solution reduces costs and complexity when the access nodes and L2300 switch are located in the same physical location.
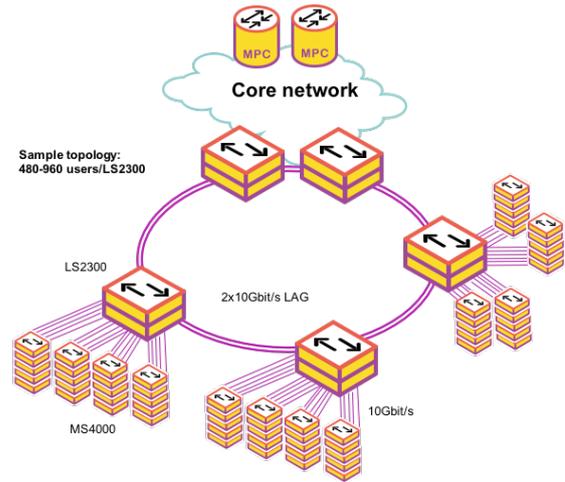

Figure 1: Layer 2 aggregation.

Cost efficient 10Gbit/s copper or short range fiber links within the installation rack can connect the access nodes to the LS2300. The LS2300 supports the full VLAN-range, i.e. one VLAN per customer port in the access node. Using double-tagging in the LS2300, the connected access nodes can support thousands of access ports for connecting subscribers.
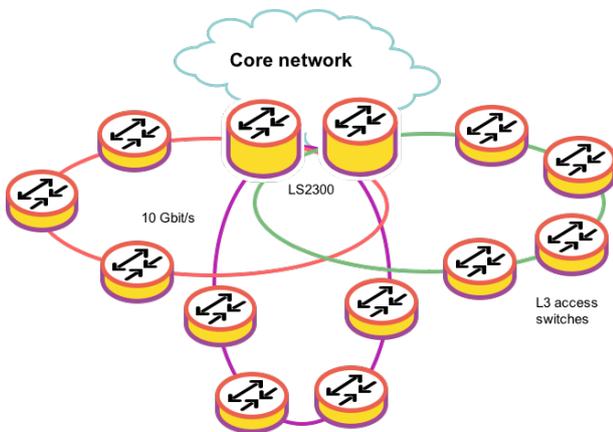

Figure 2: Layer 3 distribution.

Layer 3 Distribution

In some networks, access nodes provide routed uplinks. Ring topologies using routing protocols such as OSFP provide fast convergence and enable redundant paths with load sharing to be deployed. Daisy chains of multiple access nodes as shown in figure 2 makes efficient use of the Layer 3 routing solution and simplify troubleshooting, network aggregation and network. (See figure 2)

The LS2300 supports standard routing protocols with up to 8,000 IPv4 routes in internal tables. In many networks, this is more than enough to support thousands of subscribers because access nodes combine many subscribers into a few IPv4 prefixes. With IPv6 support also included in the LS2300 platform, access nodes can connect dual stack clients.

Extensive feature set

The LS2300 has an extensive Layer 2 and Layer 3 feature set that supports a variety of needs across operator- and enterprise networks. A comprehensive list of L2/L3 redundancy protocols allow the LS2300 to be used in mission-critical, high-availability deployments.

Fast convergence on Layer 2 networks using ERPS or standard spanning-tree with support for OSPF and BGP, allows the LS2300 to fit into demanding network environments. Security features such as DHCP snooping, ARP
inspection, and IP source guard prevent spoofing and denial-of-service attacks from end users. A broad selection of multicast related functions makes the LS2300 ideal in networks deploying TV services on multicast.

The LS2300 can operate an onboard DHCP server, or work together with a network DHCP server for IPv4 and IPv6, thereby adding vital DHCP options for maximum user traceability.

BENEFITS

Lower CAPEX

Up to 50% cost savings compared to other brands

Small-form factor, high performance

480Gbps switching / 360Mpps throughput

1RU, 36 cm depth, 24x10Gbit/s SFP+

1+1 AC/DC power, front-to-back cooling

Extensive feature-set

L2 and L3 redundancy options

Security to protect the network

Comprehensive multicast features

Flexibe power options

Redundant hot-swappable power supplies support either 220V AC or -48VDC power feeds. This allows the LS2300 to be deployed in any facility and to work with UPS solutions for Telco systems using AC and DC.

In addition, the system is cooled by three hot-swappable that enable front-to-back cooling thereby meeting the requirements of modern data centers and installations.

High capacity and high performance

The LS2300 is built around high performance circuits, that support line-rate speed on all ports. The total throughput of the system is 480Gbit/s. The system can handle up to 360 million packets per second.

CAPABILITY TABLE	
MAC address table size	128,000
VLANs	4,096
L3 Multicast	4,096
IPv4 routing table	8,000
IPv6 routing table	8,000
IPv4 host table (ARP)	2,000
Link aggregation groups	31

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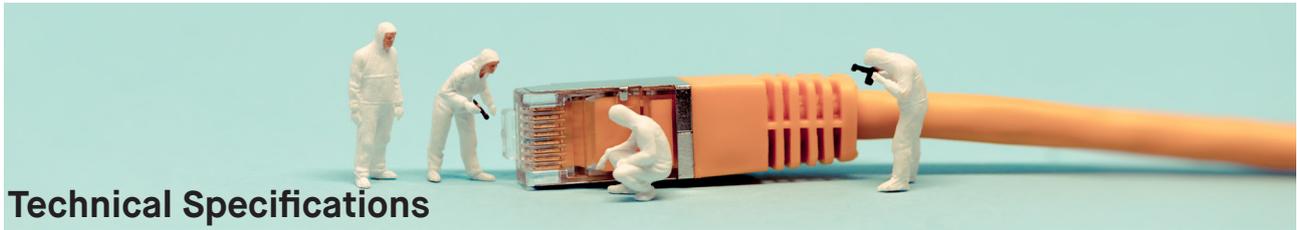
Technical Specifications

HARDWARE DATA
Power consumption <130W
Redundant 1+1 PSU (AC or DC option)
Dimensions: W 44 cm H 4.4 cm D 36 cm
Support 10G/2.5G/1G interface speed

DHCP
DHCP relay with option-82
DHCPv6 relay with option 18/37
DHCP server
DHCP option-60 parsing

SECURITY
Port isolation
DHCP/DHCPv6 snooping
IP/IPv6 source-guard
ARP spoofing protection
CPU rate-limiting
Anti-fragment DoS
Anti-DHCP DoS
Storm control
Port security

MAC ADDRESS TABLE
Static, dynamic and black hole MAC address entries

MANAGEMENT
Telnet/SSH CLI
Web interface (reduced)
Local user authentication
RADIUS for user authentication
TACACS+ for user authentication
Access list for access control
Virtual cable test
SFP diagnostics (DDM)
SNMP version 1-3
SNTP client
PPPoE intermediate-agent option
File transfer FTP/TFTP
Utilization alarm
Syslog logging
sFlow
IEEE802.1ag Connectivity Fault Management (CFM)
IEEE802.3ah Ethernet First Mile (EFM)
LLDP
UDLD
Stacking

BRIDGING
Static, dynamic, and black hole MAC address entries
Q-in-Q and Selective Q-in-Q
LACP (up to 8 port members, also 8+4 backup)
Blackhole MAC-address
IEEE802.1x

VLAN
Port-based VLAN
MAC-based VLAN
Protocol-based VLAN
IP-subnet-based VLAN
SuperVLAN/SubVLAN
GVRP
VLAN translation N:1, 1:1

REDUNDANCY LAYER 2
Spanning-tree
Rapid spanning-tree
Multiple spanning-tree
GSTP, spanning-tree remote-loop detect
ERRP
ERPS
Flexlink
VPRB (VLAN port redundancy)

ROUTING LAYER 3
Static routing
RIP
OSPF with BFD
BGP
Policy based routing
VRRP

MULTICAST
IGMP/MLD snooping
IGMP/MLD fast-leave
IGMP max-groups
IGMP/MLD querier
Multicast VLAN
IGMP/MLD join-filter
IGMP proxy
IGMP SSM-mapping
GMRP
PIM-SM/DM
PIM-SSM

IP
IPv4/IPv6 routing
ARP proxy

MIRRORING
Port mirroring
Access-list based mirroring
RSPAN

ACL/RATE-LIMITING/QoS
Access lists for packet filtering L2-L4
Time-based access lists
Access list based classification
TrTCM policing
Strict priority
Strict priority + WRR
Remark of 802.1p priority and DSCP priority

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Service and Support

Waystream provides several different support options with a customized Service Level Agreement (SLA) to give you the mix of technical support and hardware replacement services that best suits your needs. We are committed to help you protect your investment and our Technical Assistance Center team, or approved Partners, are ready to handle all your support issues.

Through our support web site, we provide software updates and upgrades, and an extensive documentation library and knowledge base for both general network topics and product specific questions. You will also find release notes, product specifications and other useful information to help you achieve the best results with our products.

Training

Waystream offers on-site and online training programs to enhance the skill and knowledge of your network engineering teams. For further details, please contact sales@waystream.com

Purchase your LS2300

To find out how you can join the growing number of networks using the LS2300, please contact your local partner or sales@waystream.com

ABOUT WAYSTREAM

Waystream develops and sells high-quality and advanced digital infrastructure, such as routers and switches. With our products and expertise, we make it possible for telecom operators, service providers and city networks to offer reliable and user-centric network services with the best features. Our products are smart, simple to configure and maintain, and are designed to create the best end user experience.

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Because end users matter