3902 SERVICE DELIVERY SWITCH

Features and Benefits

- Uses Ciena's SAOS:
  - MEF EPL, EVPL and E-LAN
  - Encapsulations: 802.1Q, Q-in-Q
  - Provides comprehensive and consistent management at all customer demarcation points
- Features sophisticated OAM capabilities:
  - IEEE 802.3ah link layer OAM
  - IEEE 802.1ag Connectivity Fault Management
  - ITU-T Y.1731 Performance Monitoring: Delay, Jitter, Loss
  - RFC 2544 Reflector for Performance Measurement
- Enables a wide variety of applications:
  - Intelligent Ethernet Demarcation Device
  - Inter-Carrier Demarcation Device
  - Media Conversion Device
  - Aggregation Platform Extension Device
- Provides flexible deployment via desktop or wall-mount
- Enables ease of craft access via provided RJ-45 port or remote telnet session for configuration and management functions

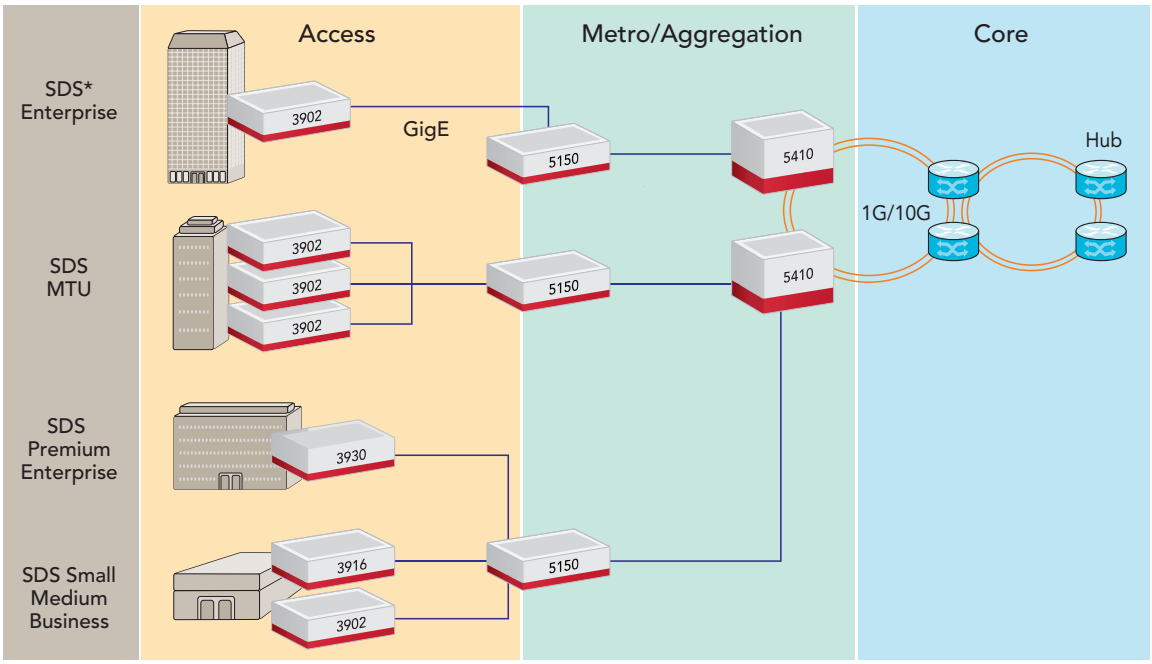
Ciena's 3902 Service Delivery Switch is an advanced cost-effective, single port Ethernet business demarcation device in a compact form factor. Positioned at the Ethernet demarcation point in the customer premise, the low cost 3902 offers advanced service creation, standards-based Operations, Administration and Maintenance (OAM) tools and performance monitoring.

The 3902 is based on Ciena's field-proven True Carrier Ethernet® technology which has been deployed worldwide by hundreds of network operators. The 3902 software architecture is based on a common Service-Aware Operating System (SAOS) used in all Ciena service delivery and service aggregation switches to provide operational efficiency and consistent system and service attributes. With the 3902, operators can now deliver the wide range of carrier-class services enabled by True Carrier Ethernet and SAOS to a growing market of small and medium business customers at an attractive price point and with quick payback.

The 3902 offers a single 1 GigE Network-to-Network Interface (NNI) and a single 10/100/1000Base-TX User-to-Network Interface (UNI) in a small form factor (5.9"D x 5.96"W x 1.21" H) with front access to all power and data interfaces for easy desktop or wall-mount scenarios. The 3902 provides silent operation, enabling desktop operation. The fanless design eliminates noise and reduces power consumption to reduce energy costs.

Low-Cost Solution for Carrier Ethernet Service Delivery and Management at the Edge

Business and entertainment services are more and more frequently being run over packet-based infrastructures. MEF E-Line (EPL/EVPL) and E-LAN (EP-LAN and EVP-LAN) services, video conferencing and streaming, and data center and storage networks are all now carried over Ethernet and IP/MPLS business access links, and



* SDS = Service Delivery Switch

these must maintain the carrier-grade features, Service Level Agreements (SLAs), and Quality of Service (QoS) expected in metro and core networks.

Ciena's 3902 provides a single-box solution for access, service delivery, and in-depth management. Positioned at the customer demarcation point, the 3902 allows service providers to efficiently create, deploy, manage and maintain the services their customers expect, all while reducing capital expenditures.

For business and/or wholesale services, the 3902 can transport 1 Gb/s of end-user throughput and provide sophisticated and consistent OAM controls and management, including:

→ IEEE 802.3ah link layer OAM

→ IEEE 802.1ag Connectivity Fault Management

→ ITU-T Y.1731 Performance Monitoring: delay, jitter, loss

→ RFC 5618 TWAMP Responder, Receiver, Sender

→ RFC 2544 Reflector for Performance Measurement

→ ITU-T Y.1564-compliant architecture

Applications include:

→ Intelligent Ethernet Demarcation Device

→ Inter-Carrier Demarcation Device

→ Media Conversion Device

→ Aggregation Platform Extension Device

Customer Benefits

The small and slim design enables the 3902 to be deployed in a variety of indoor environments (desktop, wall-mount, closet, etc.) with ultimate flexibility in supporting business customers whether in single-tenant or MTU/MDU scenarios.

The comprehensive OAM and Ciena SAOS on the 3902 enable network operators to create and manage scalable service offerings that leverage the cost-effectiveness of Ethernet technology to generate maximum revenue, at any or all endpoints in the network.

Technical Information

Interfaces

1 x 1000M SFP NNI port
1 x 10/100/1000M RJ-45 UNI port
1 x Console Port (RJ-45, EIA-561)

Ethernet

IEEE 802.3 Ethernet
IEEE 802.3u Fast Ethernet
IEEE 802.3z Gigabit Ethernet
IEEE 802.1D MAC Bridges
IEEE 802.1Q VLANs - Including .1p Priority
IEEE 802.1ad Provider Bridging (Q-in-Q) VLAN full S-VLAN range
VLAN tunneling (Q-in-Q) for Transparent LAN Services (TLS)
Per-VLAN MAC Learning Control
Per-Port MAC Learning Control
Jumbo Frames to 9216 bytes
Layer 2 Control Frame Tunneling

Carrier Ethernet OAM

IEEE 802.1ag Connectivity Fault Management (CFM)
IEEE 802.3ah Ethernet in the First Mile (EFM)
IEEE 802.1AB Link Layer Discovery Protocol (LLDP)
ITU-T Y.1731 Performance Monitoring
RFC 2544 Performance Benchmarking Test Reflection
ITU-T Y.1564-compliant architecture
RFC 5618 TWAMP Responder and Receiver
TWAMP Sender
TWAMP +/- 1ms timestamp accuracy

Quality of Service

8 Hardware Queues per Port
Committed and Excess Information Rate (CIR and EIR)
Classification based on
IEEE 802.1D priority
VLAN, source port, destination port, TCP/UDP port
IP Precedence and IPDSCP
Layer 2, 3, 4 Quality of Service
Ingress metering per-port
Ingress metering per-port per-CoS
Ingress metering per-port per-VLAN

Up to 64 Ingress Meters per-port
Up to 512 Ingress Meters per-system
C-VLAN Priority to S-VLAN Priority Mapping
S-VLAN Priority based on C-VLAN ID
Per-VLAN Classification, Metering, and Statistics
Per-port, per-VLAN QoS with CIR and EIR traffic on Egress Queues

Multicast Managment

RFC 2236 IGMPv2 Snooping
IGMP Domains
IGMP Message Filtering
IGMP Inquisitive Leave
Broadcast/Multicast Storm Control
Unknown Multicast Filtering
Well-known Protocol Forwarding

Network Managment

Enhanced CLI
CLI-based configuration files
SNMP v1/v2c/v3
SNMPv3 Authentication and Message Encryption
RFC 1213 SNMP MIB II
RFC 1493 Bridge MIB
RFC 1643 Ethernet-like Interface MIB
RFC 1573 MIB II interfaces
RFC 1757 RMON MIB - including persistent configuration
RFC 2021 RMON II and RMON Statistics
Per-VLAN Statistics
RADIUS Client and RADIUS Authentication
TACACS + AAA
RFC 2131 DHCP Client
RFC 1305 NTP Client
RFC 1035 DNS Client
Telnet Server
RFC 1350 Trivial File Transfer Protocol (TFTP)
RFC 959 File Transfer Protocol (FTP)
Secure File Transfer Protocol (SFTP)
Secure Shell (SSHv2)
Syslog with Syslog Accounting
Port State Mirroring
Local Console Port
Comprehensive Management via Ethernet Services Manager
Remote Autoconfiguration via TFTP, SFTP
Software download/upgrade via TFTP, SFTP

Service Security

Egress Port Restriction
Layer 2, 3, 4 Protocol Filtering
Broadcast Containment
User Access Rights
Per-port or per-VLAN Service Access Control
Hardware-based DOS Attack Prevention
Hardware-based Access Control Lists (ACLs)

MAC Address Table Capacity

16,000 MAC addresses

Power Requirements

AC Input: 100V to 240V AC
AC Frequency: 50 to 60 Hz
Maximum Power Input: 7 W

Agency Approvals

Agency Marks:
- NRTL (Canadian Standards Association)
- European Union, CE mark (Declaration of Conformity)
- Australia C-Tick

Emissions:
- FCC Part 15 Class B
- Industry Canada ICES-003 Class B
- VCCI Class B
- ACMA AS/NZS CISPR 22: 2006
- EMC Directive 2004/108/EC
- EN 55022 (CISPR 22): 2006 +A1:2007
- EN 55024:1998 + A1:2001 and A2:2003

Environmental:
- RoHS 2002/95/EC; WEEE 2002/96/EC

Immunity (EMC):
- EMC Directive 2004/108/EC
- EN 55024:1998 +A1:2001 and A2:2003

Environmental Characteristics

Operating Temperature:
32°F to +104°F (0°C to +40°C)
Storage Temperature:
23°F to +140°F (-5°C to +60°C)
Relative Humidity:
15% to 85% (non-condensing)
Laser Safety
FDA 21 CFR 1040.10
IEC 60825-1

Physical Characteristics

Mounting:
Wall, desktop
Dimensions:
5.9" (D) x 6.0" (W) x 1.2" (H);
150mm (W) x 151mm (D) x 31mm (H)
Weight:
0.56 lbs; 0.3 kg

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