



SN 16000 Intelligent Optical Switching Platform

The Ultimate in Flexibility and Efficiency for Core Networks

Cost-Efficient Core Foundation

For service providers, technology choices being made now will impact long-term network costs, service differentiation, and revenue growth. Effective network solutions should leverage existing infrastructure to quickly expand service possibilities – yet provide an open path forward. The SN 16000 does both, empowering service providers to determine the pace of change.

Sycamore's flagship platform sets the industry benchmark for optical switching power, delivering high-density multiservice aggregation, highly modular architecture, and unmatched capacity (up to 2.5 Terabits) in 3 bays. Consolidating multiple functions (ADM, BB-DCS, OXC, DWDM) in one compact switching platform meets a range of applications – from metro core and inter-office facility to wireless backbone and optical core – with maximum flexibility and efficiency. From day one and in any topology, the ASON/GMPLS-compliant SN 16000 reduces operational cost and complexity, supports interworking with other technologies and vendors, and creates a robust and scalable foundation for next-generation networks and services.

Unmatched Scalability and Modularity

Configuration options ranging from a single chassis 64 x 64 (160 Gbps) to the industry's largest 1024 x 1024 (2.5 Tbps) multi-chassis form a resilient, highly scalable architecture. Interchangeable SONET/SDH and high-speed Ethernet interfaces and in-service pluggable transport optics – on a single Universal Service Card – allow unprecedented network design flexibility and pay-as-you-grow deployments. Industry-leading Ethernet port densities offer a compelling alternative to packet-over-SONET/SDH interfaces for scaling IP/data networks. From chassis configuration to service interfaces and transport optics, the SN 16000's modularity enables service providers to precisely tailor the switch to the location – today and tomorrow.

Seamless Integration, Efficient Evolution

The SN 16000 delivers all the cost savings and operational efficiencies of intelligent optical switching without disrupting existing systems and procedures. Product features based on SONET/SDH and Ethernet networking standards, and a choice of OSS interfaces, ensure seamless integration, carrier-class restoration, and high network availability.

At the same time, the SN 16000 extends support for traditional performance metrics into hybrid and mesh architectures, and allows for both automated and manual provisioning in all network topologies. Service providers can add bandwidth or turn up automated features selectively and non-disruptively, at a pace dictated by service and capacity demand. Equally important, the SN 16000's intelligent architecture enables cost-effective technology evolution, gracefully incorporating new developments in line with changing network standards, including ITU-T OTN/G.709.

Features and Benefits

- Unmatched Capacity and In-Service Scalability
- Interchangeable SONET/SDH, Ethernet Interfaces
- Highly Modular, Pay-as-You-Grow Architecture
- Ring and Mesh Protection Options, Interworking
- ASON/GMPLS-Compliant Optical Control Plane
- Foundation for End-to-End Intelligent Bandwidth Management



Intelligent Bandwidth Management

The SN 16000 is powered by Sycamore's industry-leading BroadLeaf® networking software and SILVX® network management system, which comply with and augment ITU-T ASON, IETF GMPLS, and OIF UNI/NNI interoperability standards. BroadLeaf advanced optical routing and signaling underpins rapid service provisioning, multiservice aggregation, and diverse protection and restoration options, including ring and mesh interworking.

SILVX provides the end-to-end optical network management and real-time capacity monitoring needed to create and control dynamic services, and a rich set of security features to protect network integrity.

Ethernet Packet Intelligence – intelligent policing and packet-to-circuit mapping – builds on the efficiency and interoperability enabled by ITU-T Ethernet standards (VCAT, LCAS, GFP) to deliver exceptional manageability. Together, intelligent bandwidth management and Ethernet Packet Intelligence increase provisioning flexibility, improve network resiliency, and allow the most efficient use of network resources.

When used in combination, the interoperability of Sycamore's edge-to-core portfolio of intelligent optical switching platforms (SN 16000, SN 9000, SN 3000) further ensures seamless, end-to-end manageability.

For more information about our intelligent networking products and solutions, please contact your Sycamore Sales Representative.

SPECIFICATIONS HIGHLIGHTS

System

- Fully redundant system hardware and software
- Fully non-blocking SONET/SDH grooming switch
- Grooming to STS-1/AU-3 granularity
- Matrix sizes from 64 x 64 (160 Gbps) to 1024 x 1024 (2.56 Tbps) – In-service hitless chassis upgrade from 320 Gbps to 2.56 Tbps
- Ethernet Private Line Services
- Ethernet Virtual Private Line Services
- Intelligent Ethernet policing and packet-to-circuit mapping

Service Interfaces

- SONET/SDH (OC-3/STM-1, OC-12/STM-4, OC-48/STM-16, OC-192/STM-64)
- Gigabit Ethernet and 10 Gigabit Ethernet
- OTN OTU-2 with integrated tunable transponder

USC Line Interface Modules and Pluggable Optics

- 4 x OC-48/STM-16 LIM with SFP optics (SR, IR, LR, DWDM)
Per USC: 2 LIMs (8 ports total)
- 1 x OC-192/STM-64 LIM with XFP optics (SR, IR, LR, DWDM)
Per USC: 2 LIMs (2 ports total)
- 10 x GigE LIM with SFP optics (SX, LX, ZX) - Per USC: 2 LIMs (20 ports total)
- 1 x 10 GigE LIM with XFP optics (SR, LR, ER) - Per USC: 2 LIMs (2 ports total)
- 1 x OTU-2 LIM with full C-band tunable wavelength and FEC/EFEC support

Network Architecture and Protection Switching

- Linear, Ring, Mesh, and Hybrid
- Per port software configurable
- 1+1 Linear APS/MSP
- UPSR/SNCP
- 2- and 4-fiber BLSR/MS-SPRing
- 1+1 Path Protected
- Dynamic Mesh Restoration
- Gateway between SONET and SDH
- IP-based and OSI-based DCC interoperability

Fault and Performance Management/Monitoring

- Local network element alarm indication
- Autonomous alarm forwarding
- Automatic laser shutdown
- Threshold crossing alerts
- Full suite of diagnostics: loopbacks, test access, on-demand, bridge and roll

BroadLeaf® Networking Software

- ASON/GMPLS-compliant control plane software
- Standard OSPF-based routing and MPLS-based signaling
- Automatic topology discovery
- In-band/out-of-band control plane
- Manually defined or automated path/circuit route selection and provisioning
- Multi-vendor, multi-layer internetworking
- OIF UNI/E-NNI capable

SILVX® Management Software

- Node management: SilvxSource®
- Network management: SilvxManager®
- Network design & planning tools: SILVX InSight®
- Northbound interfaces: TL1, TMF CORBA, XML, SNMP (alarms) SilvxOSS®
- Full TMN FCAPS functionality
- Network and capacity planning applications
- Layered services provisioning and management
- Real-time network and service views

Regulatory and Standards Compliance

- ITU-T: G.957 Optical Interfaces (SDH), G.7041 Generic Framing Procedure (GFP), G.707 Virtual Concatenation (VCAT), G.7042 Link Capacity Adjustment Scheme (LCAS)
- IEEE 802.3
- Telcordia Technologies™ OSMINE processes (TIRKS, NMA)
- NEBS Level 3 (GR-63-CORE)
- Bellcore GR-1089-CORE
- EN 300 386 / EN 55024 / EN 55022
- CSA listed to UL/CSA 60950
- Worldwide Homologation

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Sycamore Networks, Inc. (NASDAQ: SCMR) is a leading provider of intelligent bandwidth management solutions for fixed line and mobile network operators worldwide. From multiservice access networks to the optical core, Sycamore products enable network operators to lower overall network costs, increase operational efficiencies, and rapidly deploy new revenue-generating services.

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