



Intelligent Ethernet Transport for Multiservice Networks

Connection-Oriented Ethernet Solutions Simplify Network Transition

Going Beyond Cost Reduction

Versatile Ethernet connectivity enables metro/regional and core networks to handle the explosive growth of high-capacity applications (e.g., mobile broadband, digital multimedia, and on-demand video) more efficiently. Sycamore's approach to connection-oriented Ethernet meets the challenges of bursty traffic and huge bandwidth requirements and smoothes the transition from circuit-based to packet-based services. Leveraging existing infrastructure to create more dynamic, scalable networks maintains support for revenue-generating TDM and circuit traffic and ensures carrier-class availability. Intelligent Ethernet transport solutions help fixed line and mobile network operators reduce operational cost and complexity while addressing IP-centric service requirements and gradually evolving their infrastructure.

Connection-Oriented Ethernet Solutions

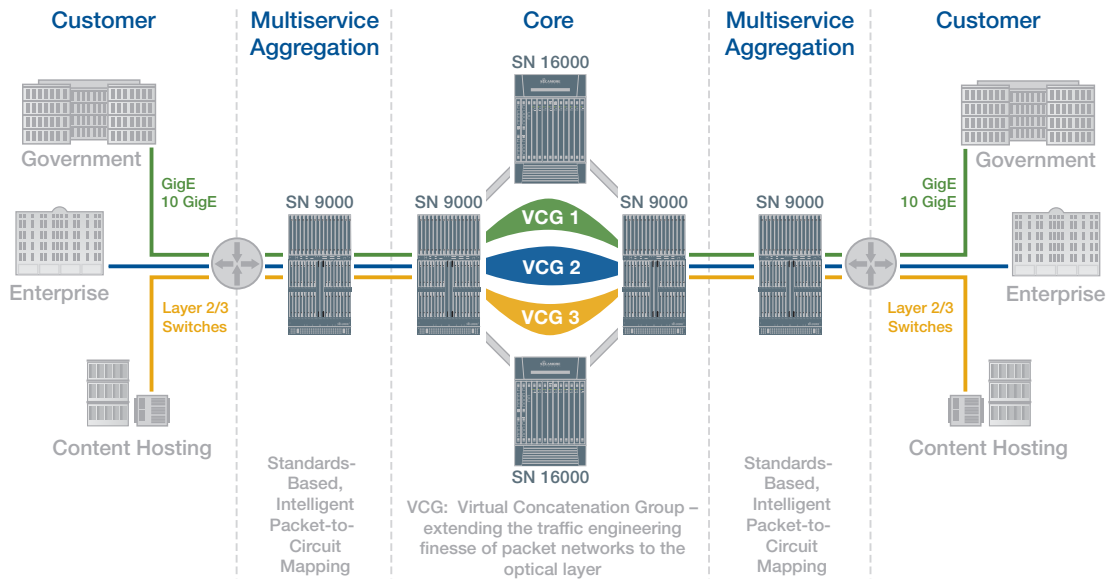
Sycamore multiservice switches combine flexible, multirate Ethernet connectivity and SONET/SDH reliability with the end-to-end provisioning simplicity empowered by our industry-leading BroadLeaf® optical control plane. The result is diverse, cost-efficient Ethernet services, leveraging intelligent, multirate interfaces from 10/100/1000 Mbps to 10 Gigabit Ethernet (GigE). These interfaces are independent of the SONET or SDH layer on which they ride, configurable in either environment, and extend from the multiservice edge to the high-capacity optical core. Standards-based packet-to-circuit mapping and highly efficient policing schemes allow prioritization of Ethernet traffic into appropriate VCAT groups (VCG).

Sycamore intelligence in the multiservice network ensures quality of service (QoS) for Ethernet connections across the underlying transmission systems. Support for ITU-T Generic Framing Procedure (GFP), Virtual Concatenation (VCAT), and Link Capacity Adjustment Scheme (LCAS) standards, and all four MEF service classes, optimizes capacity utilization, alleviates chokepoints, and improves service resiliency.

Tightly integrating the optical and service layers brings the advantages of intelligent multiservice and optical switching (e.g., simplified end-to-end provisioning, mesh survivability, enhanced performance management) to connection-oriented Ethernet. And, like all Sycamore solutions, intelligent Ethernet transport interoperates smoothly with existing infrastructure, standards, and management systems – while forming a foundation for greater service flexibility and competitive differentiation.

Features and Benefits

- Optimize Circuit/Packet Convergence
- Improve Bandwidth Agility and Utilization
- Empower Multiservice Manageability
- Enhance Network and Service Resiliency
- Increase Scalability and Reduce Costs



Connection-Oriented Ethernet Solutions

Intelligent Ethernet transport efficiently maps Ethernet flows to right-sized optical transport, with a choice of protection options, from metro/regional multiservice aggregation sites to the optical core. Standards-based, multirate Ethernet solutions support diverse applications, from connecting remote offices to a central corporate facility, to disaster recovery – any situation requiring distributed, protected services.

Exceptional Control and Manageability

Sycamore Ethernet solutions enable seamless circuit/packet convergence in rapidly evolving multiservice networks. They support next-generation data applications and traditional voice services across the network, from metro/regional sites to the optical core. Efficiently aggregating and grooming multirate Ethernet, packet, and circuit traffic – with hierarchical protection and mesh restoration added to multiservice flexibility – forms a versatile, reliable end-to-end solution that enhances bandwidth utilization while simplifying provisioning and operations.

Ease of connectivity and manageability are critical to non-disruptively expanding Ethernet and IP communications across traditional, TDM-based networks. SILVX® management software enables network operators to securely deliver a range of resilient Ethernet services, including TLS, VPLS, EPL and EVPL. In combination with SILVX, VCAT and LCAS allow hitless on-demand bandwidth adjustments for time-of-day and scheduled bandwidth services. SILVX also simplifies VCG and constituent circuit management with user-friendly displays of Ethernet and Layer 2 performance statistics.

For network operators, the enhanced provisioning, flow control, protection mechanisms, and performance management features of SILVX and BroadLeaf software – shared across Sycamore multiservice switching platforms – add up to easier customization and assured delivery of connection-oriented Ethernet services.

Multiservice Flexibility

Intelligent Ethernet transport supports multiservice traffic flows and makes it possible to map high-priority traffic to specific VCGs. Precisely mapping Ethernet flows to right-sized optical transport, with a choice of protection options, ensures optimal capacity utilization, improves network resiliency, and allows service customization to accommodate varying bandwidth and SLA requirements. High-availability Ethernet solutions support diverse applications, from connecting remote offices to a central corporate facility, to disaster recovery – any situation requiring distributed, protected services.

Most installed network elements use service-specific interface cards, which offer limited scalability and increase operational cost and complexity. Trying to address a broad spectrum of services with these cards leads to stacked chassis and escalating power and space challenges. In contrast, Sycamore multirate Ethernet solutions include any-service-on-any-port configuration flexibility. The ability to modify services without physically changing end port connections alleviates sparing issues and stranded ports; streamlines new service introductions and upgrades; and makes it easier to optimize node configurations when service mixes continually change – all of which substantially reduce operating costs.

Unmatched Scalability

Sycamore high-capacity, multiservice switches provide non-disruptive, in-service scalability: up to an unprecedented 2.5 Tbps capacity at the network core with the SN 16000 Intelligent Optical Switch, and ranging from 80 to 320 Gbps through innovative capacity licensing on the SN 9000 Intelligent Multiservice Switch. Fully non-blocking, service-agnostic switch fabrics and modular architectures support a flexible mix of multirate Ethernet and SONET/SDH interfaces, and pluggable WDM optics. Network operators plug in only what they need, when and where they need it – often via software.

Sycamore Ethernet solutions also offer an affordable, scalable alternative to costly packet-over-SONET/SDH (PoS) or best-effort IP-over-DWDM approaches. Packet-to-circuit mapping on high-capacity multiservice switching platforms is a more efficient way to provision, fill, and optimize MPLS trunks. Aggregating multiple Ethernet streams onto a single 10 Gigabit Ethernet interface for hand-off to a router maximizes utilization of expensive router ports and DWDM capacity, and minimizes the need for complex Layer 3 protection schemes.

Simplified Evolution and Expansion

Fixed line and mobile networks can now scale gracefully, cost-effectively, and on a just-in-time basis to accommodate high-bandwidth, multiservice traffic growth. Sycamore SN 9000 and SN 16000 switches with intelligent Ethernet transport help network operators:

- Meet rapidly changing service delivery needs
- Extend network and market reach
- Enable cost-effective convergence strategies
- Simplify operations to reduce the total cost of ownership

Resilient support for a mix of traditional and emerging voice, data, and video services turns the challenge of meeting fluid, unpredictable capacity demands into a reliable and highly manageable multiservice network – and a revenue-generating opportunity.

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

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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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