

## SURPASS Multi-Service Optical Networks

Add flexibility for emerging services while migrating smoothly to all-IP and optical networks

SURPASS Multi-Service Optical Networks by Siemens meets the demand of a complete IP-optimized solution for regional and metropolitan areas. Data and Ethernet functions plus integrated Storage Area Network capabilities are added to the full set of classic transport features for TDM services. Both the existing and the new services are managed by one single network and service management system.

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# Modernize your infrastructure with advanced and re

## Staying on top of the trends

SURPASS Multi-Service Optical Networks supports LifeWorks@Com, the Siemens vision and strategy for the future of telecommunications. This solution opens the door to the world of next generation networks with its attractive applications and smooth migration towards all-IP and optical networks.

Over the last decade, through the combination of telecommunication market deregulation, economic globalization, and the Internet revolution, we have been witnessing the emergence of a range of new and novel communication services for both residential and enterprise customers. In fact, because of the universal application and deployment of IP technology, the "traditional" border between enterprise and public communications has been blurred and is slowly disappearing.

IP-based applications and the deployment of IP technology not only established the basis for greater transmission speeds but also increased the demand for new communication services.

Yesterday's focus on transmission was purely on circuit provisioning with SDH and DWDM. The data world was based purely on connectionless Ethernet switching and IP routing. However, the trend in data services, stretching out of the local area into the metro and regional transmission domain, is changing the requirements for switching and routing platforms, for example with the introduction of protocols and mechanisms for traffic separation and circuit orientation (VLAN technology and MPLS).

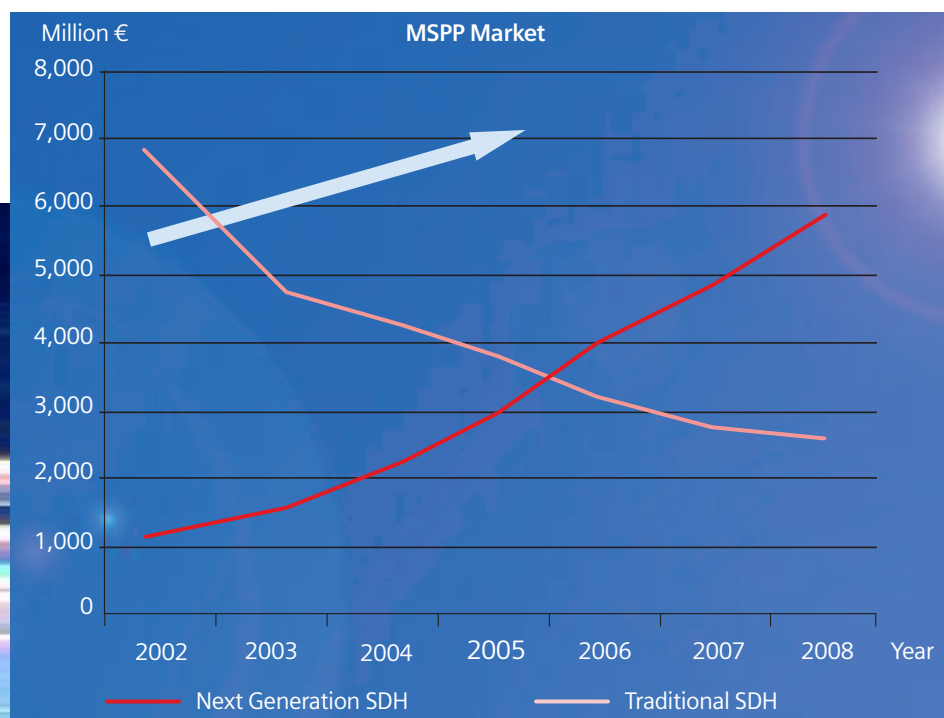
Transmission networks and systems are therefore also evolving to include mapping of multiple service and signal types into the Synchronous Digital Hierarchy as well as multipoint connectivity and statistical multiplexing for enhanced traffic concentration. Tomorrow's transmission networks must therefore efficiently manage both types of services – provisioned point-to-point circuits and switched multipoint data services – simultaneously in one platform. Investment is reduced by having only one converged network managing both traffic types, ultimately leading to lower operational expenditures.

## The need for a multi-service provisioning platform

In the WAN, with its dense wavelength division multiplexing (DWDM) systems, capacity in many networks is abundant. Regional and metropolitan area networks, however, remain bottlenecks for capacity upgrades and new customer subscriptions. These networks must therefore efficiently manage all types of service simultaneously on one platform to reduce costs. Savings are achieved by having only one converged network transporting all traffic types, with ultimately fewer optical interfaces, and only one network must be operated and maintained.

## Profit through bringing your data and transmission communities together

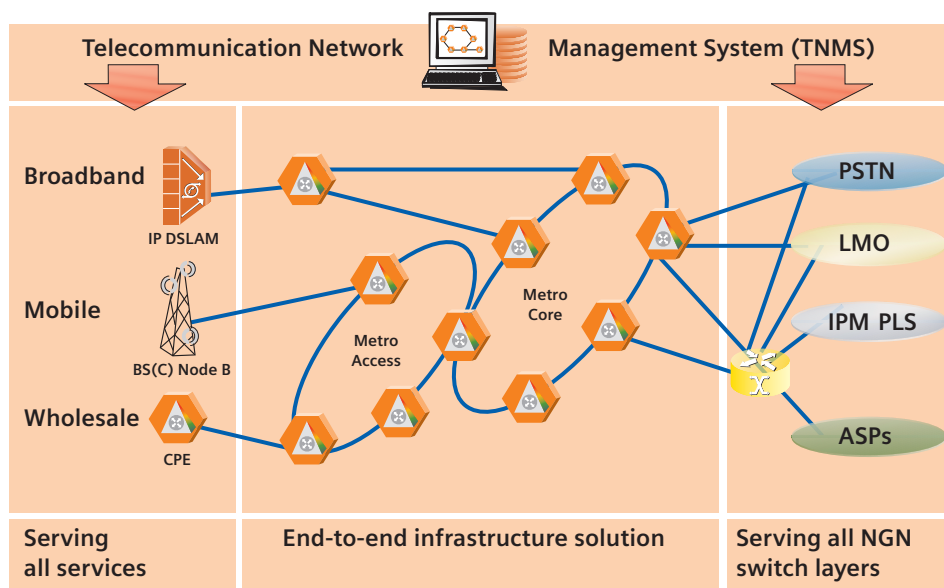
The transmission and the switching/routing communities, from their specific perspectives, address separate technology-driven scenarios to enable multi-service provisioning for regional and metropolitan area networks. SURPASS Multi-Service Optical Networks, however, is a blend of transmission and switching technologies.



# liable technology

It addresses the requirements of a single common minimum-cost platform from an inter-community perspective. It follows a new and unique design for multi-service provisioning. Instead of squeezing different capabilities out of one technology, SURPASS Multi-Service Optical Networks integrate the right amounts of Ethernet and SDH functionality and provide a dedicated fabric for each technology, guaranteeing optimum performance of this truly converged platform.

Business case studies assuming a mix of classic leased lines, Ethernet point-to-point and multipoint services prove this concept. Single-technology approaches addressing this area cannot compete with Multi-Service Optical Networks because they are optimized for one part of the service only. Moreover, the complexity of service provisioning is significantly improved with SURPASS Multi-Service Optical Networks as all the different service types can be provisioned and maintained by a single and integrated OAM system. Beyond being a minimum-cost provisioning platform, there are further benefits from a functional point of view. A variety of Storage Area Network connections present themselves as an additional source of revenue for large and medium-sized business customer applications.



SURPASS Multi-Service Optical Networks can also provide these types of service. The enabling technology for these benefits is that virtually all types of signals can be mapped into SDH. This mapping is performed according to the Generic Framing Procedure (GFP) ITU standard. The key benefit of SURPASS Multi-Service Optical Networks is that through this generic mapping, all types of services can be transported across legacy and multivendor SDH networks.

In addition, this GFP mapping permits variable Service Level Agreements through policing of a provisioned bandwidth in MBit/s steps. The Link Capacity Adjustment Scheme (LCAS) is another component of flexible bandwidth provisioning in SURPASS Multi-Service Optical Networks. Virtual private network (VPN) and customer management features extend added-value service offerings to business customers.



# Our strengths – your gain.

- You can now address the connectivity requirements of broadband Internet, mobile and wholesale services with one infrastructure that supports them all. In addition, you benefit from the stability of highly reliable field-proven technology while leaving behind high implementation costs and inflexible service delivery.
- You will profit from both smooth integration into your existing environment and seamless interworking based on well-defined and mature standards.
- SURPASS Multi-Service Optical Networks permits you to modernize your infrastructure now and add flexibility for new emerging telecom services.

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There are a number of compelling reasons why SURPASS Multi-Service Optical Networks is the perfect answer to the challenges carriers face in the evolution of their metro and regional platforms:

**True Multi-Service Provisioning** supports both classic leased lines and new, switched Ethernet services simultaneously on one common minimum-cost platform.

**Existing investment is safeguarded** since utilization of the existing network infrastructure is vastly improved by applying standard technology for IP-optimized transport solutions without affecting legacy solutions.

**Investment and operational costs are reduced** by blending transmission and Ethernet technologies in a common minimum-cost platform.

**Plug & Play Commissioning** in SURPASS Multi-Service Optical Networks solutions, a comprehensive set of plug & play features including automatic card detection and topology discovery, simplifies operations dramatically – thus reducing operational expenditures.

**Operation is optimized** with TNMS, the Siemens network management solution that provides centralized control and supervision of the entire optical network.

## Abbreviations

ASP	Application Service Provider
DWDM	Dense Wavelength Division Multiplexing
GFP	Generic Framing Procedure
IP	Internet Protocol
ITU	International Telecommunication Union
LCAS	Link Capacity Adjustment Scheme
LMO	Last Mile Operator
MPLS	Multi-Protocol Label Switching
OAM	Operation Administration & Maintenance
PSTN	Public Switched Telephone Network
TDM	Time Division Multiplexing
TNMS	Telecommunication Network Management System
VLAN	Virtual Local Area Network
VPN	Virtual Private Network
WAN	Wide Area Network

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