

AGILECORE™ transparent photonic switch TPX 1000

The AgileCore focus is to deliver capital savings and scalable backbone infrastructure while simplifying and expediting network operations. Enabling optical pass-through at OADM and multi-directional nodes with automated point to any point wavelength turn up is essential to providing these values. The TPX 1000 integrates traditional wavelength mux/demux functions with advanced cross-connection capability in a single, automated platform. Combined with the DLS 1000, the system enables express wavelengths to be managed through the node without the use of back-to-back DWDM transceivers, resulting in more than 90% cost savings on pass-through traffic. On top of the capital cost savings, nodal scalability is simplified as modular upgrades allow incremental growth of each individual node.

CAPITAL EFFICIENCY THROUGH NODAL COST REDUCTION

Transparent switching enables the bypass of opto-electronic interfaces on express connections at all network nodes. Wavelengths passing through intermediate nodes experience 90% lower cost when compared to conventional solutions that require OEO transitions between line systems. In today's core networks, more than 70% of cost resides in the network nodes due to the line efficiencies gained with modern DWDM systems through reduced

regeneration and amplifier costs. Managing the wavelength traffic that passes through major nodes (nearly 75% of the total) with transparent photonic switching dramatically reduces nodal costs, resulting in network savings of up to 50% relative to alternative next generation DWDM solutions.

SIMPLIFYING NETWORK SCALE

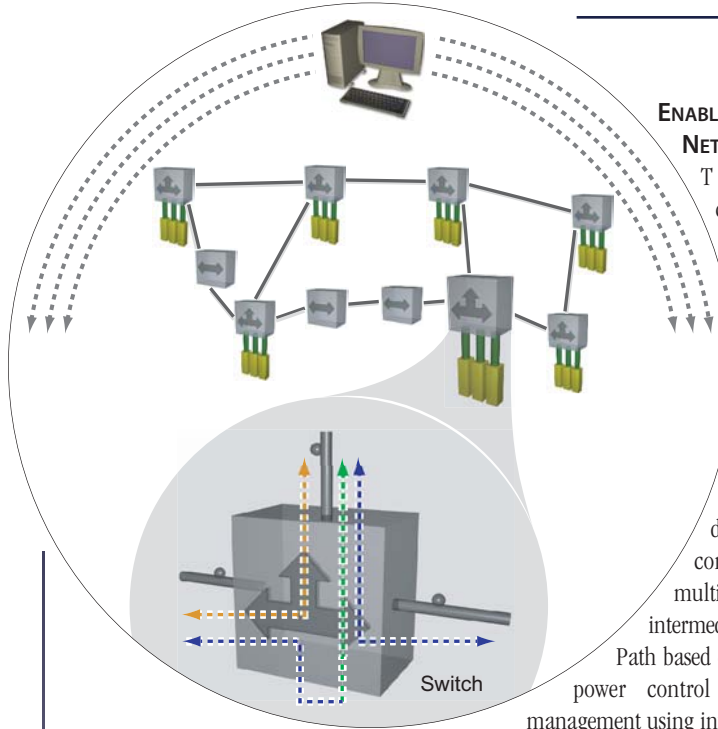
As with cost, scaling to Terabit capacity puts significant strain on the cost and facilities required at the network's hubs. The TPX 1000 interfaces at the multiplexed section and switches at the individual wavelength level; this means cabling for pass-through wavelengths is eliminated and results in 70-95% net reduction of intra-office cabling. For what cabling is required, embedded connection trace capability creates intelligent patch cords that enable automated connection management and troubleshooting as part of the automatic self-test and turn-up tool-kit. Nodal scale can be realized with switch scaling up to 32Tb/s with a density of 4 Tb/s per NEBS rack. Power requirements are 70% less than that required by OEO switches. Switch scalability is non-intrusive and is performed with simple module and shelf addition to the in-service elements.

KEY FEATURES

- In-service scalable from a single terminal up to 32 Tb/s with modular upgrades
- Automatic per-wavelength switching, power control and management ensures flexible connectivity of wavelength paths across the network
- Integrated de-multiplexing and multiplexing prevents the need for per wavelength patch panels on pass-through traffic
- 100% add/drop capability at any site offers a seamless solution for ultra-high capacity sites and protects against unforeseen growth
- Colorless DWDM™ technology complements transparent networking economics with ease of planning and operations
- Enhanced operations capabilities enable automatic self-test and turn up capability



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ENABLING NETWORK FLEXIBILITY

The TPX 1000 combines advances in photonic switching with intelligent optical signaling technologies. To network a wavelength requires the ability to accommodate various path-based degradations for connections traversing multiple fiber spans and intermediate switching nodes.

Path based compensation adjusts power control and pass-through management using integrated knowledge of propagation effects of the line system. The switches' inherent low insertion loss and distortion minimizes the impact on pass-through wavelengths. The colorless nature of the TPX 1000, coupled with flexible connectivity, eliminates the risk of stranding resources, and allows the full add/drop capacity to be used from any line incident to a node.

BALANCING TECHNOLOGY PLATFORMS

By performing wavelength level switching photonically, a nodal hierarchy is created where only those wavelengths which require

electrical-level functions drop down to the layer served by their networking device (cross-connects, routers and add/drop multiplexers). Layering the networking in this fashion alleviates the scaling burden on the networking appliances and allows them to be optimized around performing higher order functions (grooming/muxing, routing, switching, protection/restoration, etc.).

The AgileCore TPX 1000 automates the core network and dramatically reduces network capital and operation expenditures, while providing rapid bandwidth delivery anywhere in the core.

INNOVANCE NETWORKS

delivers a portfolio of agile, intelligent photonic networking solutions that enable service providers to build profitable, next-generation core optical networks. The Innovance Networks solution offers 'Just-in-Time' capacity and accelerates the deployment of services through the core, simplifies the network and reduces the cost of operations, while addressing the network scalability challenges beyond providing raw capacity.

APPLICATIONS

TRANSPARENT NODE:

- Photonic bypass for end-to-end wavelengths

TERMINAL UPGRADE:

- Evolve from a point-to-point link to a multi-directional switch site

PHOTONIC GATEWAY:

- Colorless DWDM™ networking at any location

CONFIGURATIONS

TANDEM SWITCH:

- Couples with DLS 1000 to enable photonic bypass between up to 16 unique line systems

SYSTEM SPECIFICATIONS

CAPACITY:

- Line: 2 to 16 Tb/s, with built-in upgrade port
- Termination: 0 to 16 Tb/s

SWITCHING GRANULARITY:

- Per wavelength (10/40 Gb/s)

FIBER TYPES:

- NZ-DSF (LEAF, TrueWave, LSF, G.655), NDSF (SSMF, G.652), DSF (G.653)

LINE INTERFACES:

- 1+ Tb/s DWDM cross-section

CLIENT INTERFACES:

- 10/40 Gb/s DWDM wavelengths

OPERATIONS INTERFACE:

- TL-1 (Bellcore)

CRAFT INTERFACE:

- Window™ GUI using 100Base-T

DIMENSIONS:

- H: 455mm; W: 496mm; D: 300mm; sub-rack mountable in 23" NEBS or 600mm ETSI rack

CAPACITY DENSITY

- Up to 4 Tb/s tandem capacity in a single NEBS rack

POWER CONSUMPTION:

- 4 Tb/s core: 1675W

ENVIRONMENTAL:

- Temperature: 5°C to 40°C
Humidity: 5% to 85%



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