

AGILECORE™ dynamic line system

DLS 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 building the next generation core. To support optical pass-through requires the ability to network wavelengths across multiple line systems where each wavelength within the fiber may have a different origin and destination. The DLS 1000 couples ultra-long reach DWDM technologies with automated per wavelength intelligence and control to adapt to the variable power, noise and non-linear effects associated with variable optical path lengths. In addition to the capital savings, operational savings are also generated because lengthy engineering and provisioning cycles are automated as each wavelength can be monitored and controlled 'on-the-fly'.

EXTENDING NETWORK FLEXIBILITY WITH AUTOMATED DWDM

Capital cost reduction provided by reach and capacity needs to be complemented with flexibility and operational simplification to build a scalable optical backbone network in an environment of increasing constraints on total cost and time. AgileCore combines advances in DWDM transport with intelligent optical signaling technologies to

allow service providers to add and reconfigure core bandwidth while eliminating traditional engineering processes from the cycle.

MAXIMIZING TRANSPARENCY WITH NETWORKED REACH

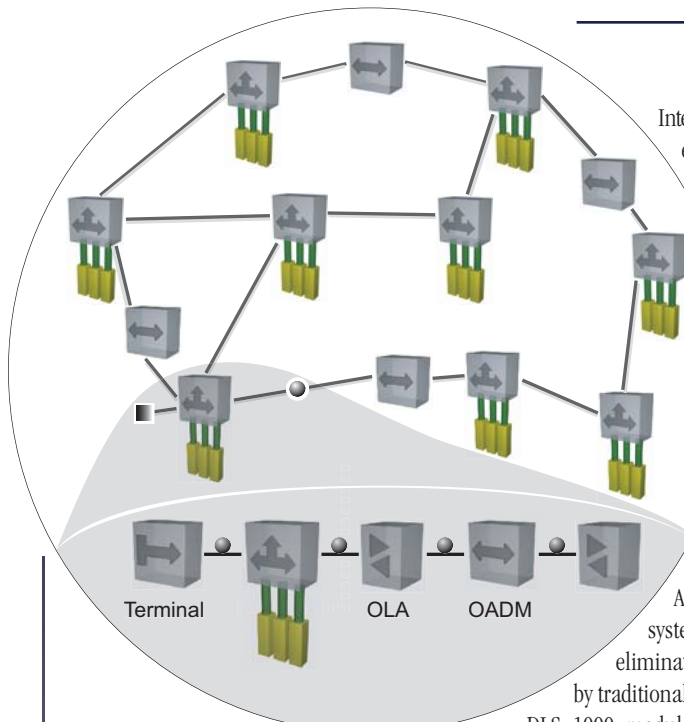
The economic benefits of optical pass-through using optical add/drop multiplexers (OADM) has gained acceptance in the industry, however the current generation of fixed-wavelength architectures has limited their usefulness. The DLS 1000 introduces a fully-flexible OADM that provides access to any wavelength at any location, using full-range tunability (Colorless DWDM). This eliminates complex pre-engineering of capacity and channel plans, allowing cost scalability without the risk of stranding line capacity. Coupled with the AgileCore TPX 1000 transparent switch, OADM-like pass-through benefit can be extended to network junctions and hubs. Enhancing this transparency capability is the ability of the DLS 1000 to provide networked reach, optimizing system cost and performance capability to the A-Z optical path lengths. Additionally, where necessary, the system can dynamically configure a regeneration or conversion point on an end-to-end wavelength path, but does not force regeneration on any individual connections not requiring further reach extension.

KEY FEATURES

- 3000+ km networked reach minimizes regeneration across the network
- 10 & 40G transport options provide up to 2 Tb/s scalable capacity
- Remotely configurable wavelength OADM eliminates the need to pre-plan capacity, aligning costs with revenue growth on a "build to order" network
- Modular amplifier architecture allows cost optimization across a variety of fiber types and hut spacing
- AgileCore™ Network Operating System maintains 'in-skin' measurements and real-time network awareness facilitates automated wavelength turn up
- Enhanced network monitoring and auto-discovery simplifies deployment and operations
- Colorless DWDM™ simplifies engineering and eliminates provisioning bottlenecks
- Integrated control with AgileCore™ Tunable Photonic Gateway enables end-to-end remote wavelength turn up and allows dynamically configured 3R regeneration along a path
- Open interfaces deliver wavelength connections between sub-wavelength technology platform



INNOVANCE NETWORKS



AGILECORE™ DYNAMIC LINE SYSTEM (DLS)

Intermediate nodes may be equipped as OADM or Transparent Photonic Switch (TPX 1000) sites, while Terminal sites can be upgraded in-service to a TPX 1000 to incrementally grow the network.

REAL-TIME DEPLOYMENT OPTIMIZATION SIMPLIFIES OPERATIONS

A fundamentally different system design approach eliminates the constraints applied by traditional system link budgets. The DLS 1000 modular amplifier architecture uses building blocks such as Raman, EDFA and slope-matched dispersion compensation to accommodate a wide range of actual inter-site distances and fiber types. The system performs 'in-skin' measurements of both component and fiber parameters to drive advanced photonic control that automatically adjusts power along a link, allowing compensation for a wide degree of variance due to plant characteristics, repair and ageing. Further, enhanced connection

trace capability creates intelligent patch cords that further ease physical connection management and enable automatic self-test and turn-up.

The AgileCore Dynamic Line System helps service providers to automate the core network, providing rapid bandwidth delivery and unparalleled savings, scalability and operational simplification.

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 NETWORKING:

- Any to any-point wavelength networking enabling photonic bypass

FLEXIBLE OADM:

- Networked secondary add/drop sites

CONVENTIONAL:

- Point-to-point DWDM, in-service scalable to transparent network

CONFIGURATIONS

OPTICAL LINE TERMINAL:

- Link demarcation, signal conditioning and enhanced dispersion management

FLEXIBLE OADM:

- Access to any wavelength, up to 65% term.

OPTICAL LINE AMPLIFIER:

- Raman & EDFA, dispersion management, automatic power control

SERVICE TERMINAL:

- Fully tunable lasers; ultra-long reach; flexible plug-in client utilizing AgileCore Tunable Photonic Gateway

SYSTEM SPECIFICATIONS

CAPACITY:

- >Up to 2 Tb/s

WAVELENGTH SPACING:

- 50GHz ITU-T compatible, 100 channels @ 10G, 50 channels @ 40G

FIBER TYPES:

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

LINE INTERFACES:

- 10/40 Gb/s

CLIENT INTERFACES:

- SONET OC-192/SDH STM-64 (SR, VSR)

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 in a single rack

POWER CONSUMPTION:

- Optical Terminal: 800W
Flexible OADM: 900W
Optical Line Amplifier: 800W

ENVIRONMENTAL:

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



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