RBNi GigaEdge 8200™
RBNi GigaRegen 8100™

- simple, cost-effective, carrier-class CWDM transport

Small and simple yet flexible and powerful, your cost-effective Service Network transport solution for metro and access.

KEY FEATURES

Lower capex

- ◆ Modular design - just enough capacity, just in time
- ◆ Low first-in cost for economical initial deployments
- ◆ Four multi-protocol service ports in 1RU chassis
- ◆ Single fibre working – reuse existing fibre infrastructure
- ◆ Retain and augment existing legacy systems

Lower opex

- ◆ Simplified network design and installation – "plug and play" for faster service provisioning
- ◆ All management and diagnostics remotely accessible
- ◆ No regularly scheduled hardware maintenance
- ◆ High availability, carrier-class solution
- ◆ Same platform deployable anywhere – building basements, street cabinets (OSP), computer rooms, riser systems and telephone exchanges
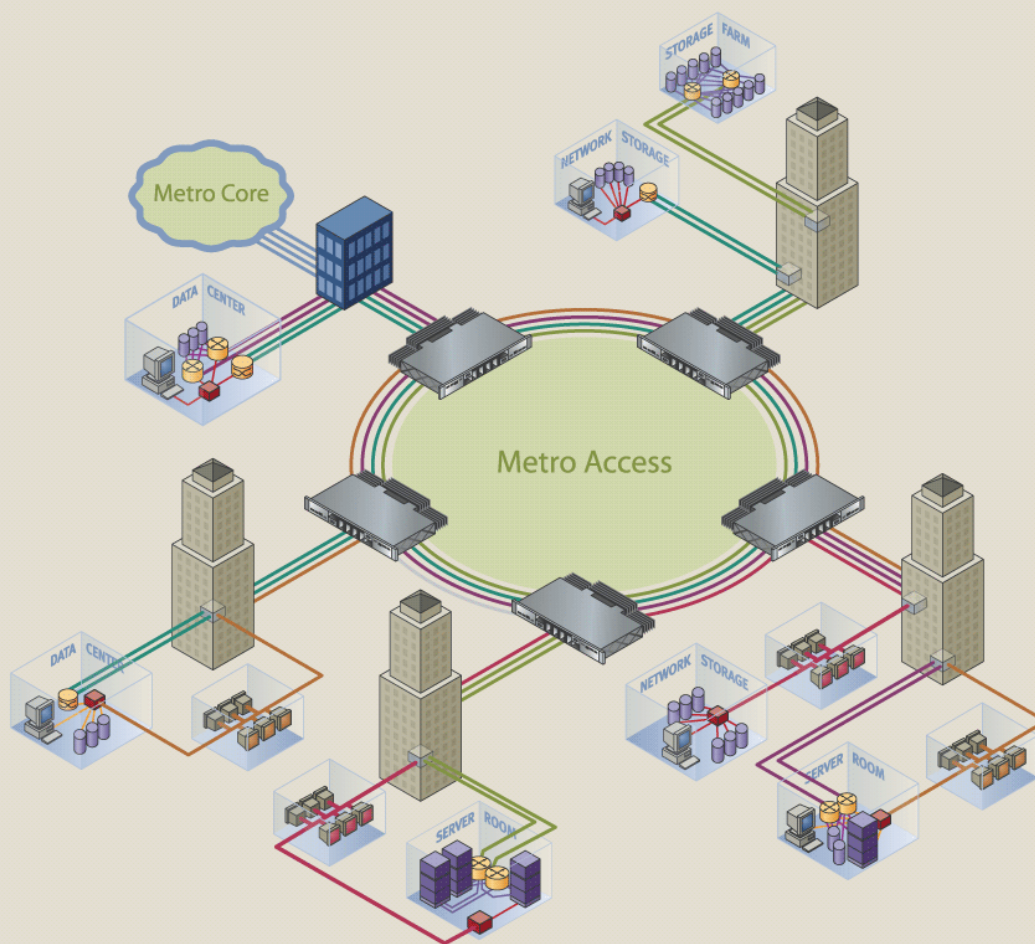- ◆ Small size, low power consumption

The RBNi GigaEdge 8200 is a carrier-class reconfigurable optical add/drop multiplexer (ROADM) designed for simplicity and flexibility of use. Its "plug and play" WDM design, small form factor, and low power usage all contribute to lowered operational expenses, while its modular design enables low first-in costs, with cost of ownership scaling in line with your revenue generation.

The RBNi GigaEdge 8200 is your Service Network solution - a multi-protocol system for integrated transport of voice, video and data. It adds value to and extends the lifetime of existing infrastructure for SAN, GbE, SONET or SDH. Capacity can be expanded without the need for forklift upgrades and the RBNi GigaEdge 8200's flexibility, simplicity and compact 'deploy anywhere' design make it suitable for a variety of cost-effective solutions. With up to 30 dB of link budget it is suitable for incremental capacity expansion between central offices, yet its ability to operate in outside plant conditions make it equally suitable for upgrading digital loop carrier networks at the very edge of the optical network.

When the RBNi GigaEdge 8200 is used in conjunction with RBN's carrier-class optical regenerator, the RBNi GigaRegen 8100, point to point distances and ring perimeters of several hundred kilometres are achievable. RBN is the first to offer a 3R regenerator for a CWDM system, enabling low-cost CWDM to be deployed in extended links or in metro networks where extremely high fibre losses limit the applicability of all-optical WDM solutions.

The RBNi GigaWave 8000-series has very simple design rules, a simple installation procedure and a very low spares requirement. With no wavelength dependant modules and remotely configurable channel connectivity, the RBNi GigaEdge 8200 offers the power of WDM without its usual complexity.

The element control, monitoring and alarm features of the RBNi GigaWave 8000-series are seamlessly handled by the RBNi GigaCraft 1200 or easily integrated with an existing Network Management System using industry standard open interfaces.

RBN

Features

- Four bidirectional channels on a single fibre

- Single fibre point to point, linear OADM or ring configurations

- Small footprint – 19″ x 12″ x 1.75″ (1RU)

- Configurable protection options

- Wide range of interfaces supported: OC-1/3/12/48, STM-1/4/16, 100BaseFx, GbE, ESCON, FICON, Fibre Channel (1G & 2G) & DVB-ASI Video

- Wavelength-independent modules reduce spares holdings

- Carrier-class optical regenerator option (RBNi GigaRegen 8100) for extending reach

- Standards-based SONET (GR-253/GR-820), SDH (G.829/G.784) and data performance monitoring statistics allow carriers to support client SLAs

- Link by link optical performance monitoring enables rapid fault diagnosis and cable break isolation

- Remote configurability and diagnostic loopbacks

- Low power consumption – less than 60W for a fully configured system

Adding services, performing maintenance and upgrading software can all be done in service and non-disruptively

RBNi GigaEdge 8200

— Existing SONET / SDH ADM Ring
(Frame Relay, ATM and PoS)

— Gigabit Ethernet LAN Extension
(Private Network #1)

— Gigabit Ethernet LAN Extension
(Private Network #2)

— ESCON SAN (Point-Point)

— Fibre Channel SAN (Point-Point)

Applications

The RBNi GigaEdge 8200 CWDM platform enables carriers to provide and support metro and access network applications including:

- Point to point interconnection of traffic between central offices

- Aggregation of TDM, IP, digital video and Storage Area Networking (SAN) traffic over a common infrastructure

- Fibre to the Curb upgrade for delivery of broadband services (VDSL, FTTP, digital video) from fibre-fed remote cabinets

- Disaster Recovery/Business Continuity —support of high-capacity SAN solutions for enterprise customers

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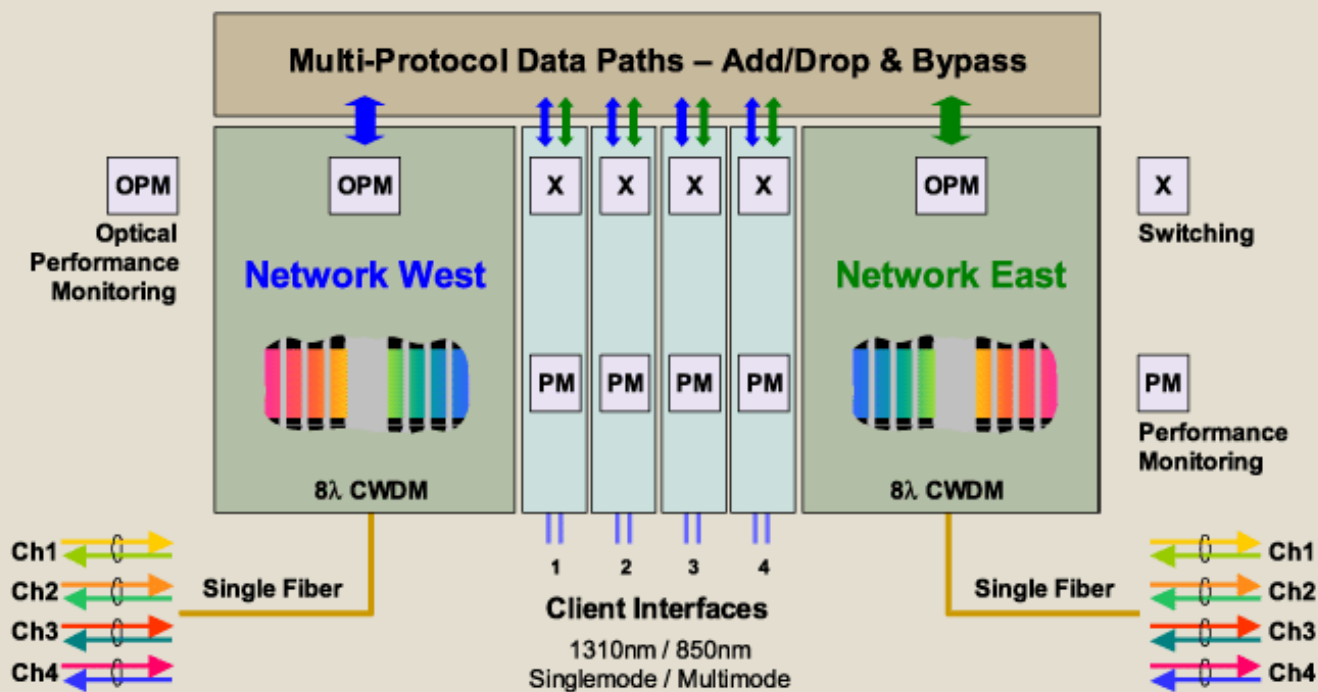
System Architecture

In a single rack unit, an RBNi GigaEdge 8200 node houses CWDM optics and customer interfaces sufficient to support four protected services. The Network Interface Modules (NIMs) contain the CWDM optics, management processors and integrated switching components. The RBNi GigaEdge 8200 has been designed for bidirectional transmission of eight wavelengths over a single fibre. The east and west variants of the NIMs transmit and receive on opposite wavelengths, enabling a Single Fibre Working (SFW) design that supports up to four duplex channels. For carriers experiencing fibre exhaust or for enterprises who pay high fibre lease costs, an SFW design can make a huge difference to initial and ongoing costs.

The Tributary Interface Modules (TIMs) provide standards-based connectivity to customer interfaces. There are several multi-rate TIMs variants including a performance monitoring option. Any TIM will fit into any of the four TIM slots in an RBNi GigaEdge 8200 chassis and can be connected to any NIM channel via the electrical backplane.

The simplicity and flexibility of the RBNi GigaEdge 8200 CWDM platform arise from its innovative design. Unlike most competitive products, the RBNi GigaEdge 8200 is based on an OEO architecture. There are several benefits to this approach:

- All signals are 3R regenerated at each node, thereby simplifying network design rules and enabling total transmission distances of >80km.
- Protection switches on the TIMs enable protection switching to be configured on a per client signal basis

- Reconfigurable NIMs enable traffic to be added, dropped or to bypass a node.
- The RBNi GigaEdge 8200 can be remotely reconfigured — there are no front panel fibre cross connects that need to be altered because TIMs are connected to NIMs via the electrical backplane.
- Diagnostic loopbacks on either network channels or tributary interfaces can be remotely configured.

The RBNi GigaEdge 8200 supports a range of network topologies – from simple unprotected point to point links to metro rings of up to 16 nodes with 80km spans between adjacent nodes. The RBNi GigaRegen 8100 can be installed on longer links (>80km) at nodes where traffic does not need to be dropped, but where 3R regeneration is required.

Carrier-class

The RBNi GigaEdge 8200 and RBNi GigaRegen 8100 are carrier-class products providing a completely redundant architecture consisting of:

- Working and protection paths
- Power - A and B feeds, front or rear cabling
- Dual management processors and memory
- Management ports:10BT or RS-232
- Redundant Alarm outputs
- Availability of 99.999% on protected services

Both the RBNi GigaEdge 8200 and RBNi GigaRegen 8100 have no single point of failure and are fully CE marked and NEBS level 3 certified.
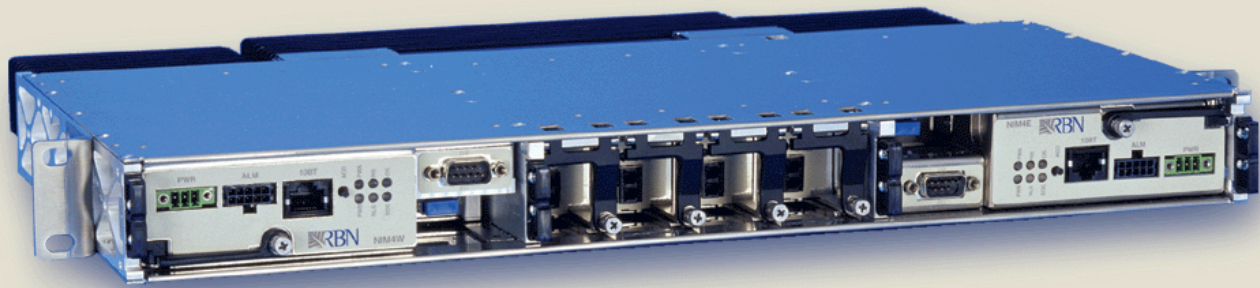
RBNi GigaEdge 8200 & RBNi GigaRegen 8100

SYSTEM

Maximum Capacity (single-fiber ring)	4 protected optical channels 8 unprotected optical channels
Node Capacity	1 to 4 protected or unprotected optical channels
Link Budget	Up to 30 dB
Client Interfaces*	OC-1 to OC-48, STM-1 to STM-16, Gigabit Ethernet, 100BASE-FX, 2 Gig FCh, FCh, FICON, ESCON, DVB-ASI video
Network Topologies	Point-to-point, linear and single-fiber ring
Supported Traffic Demands	Hubbed, peer to peer, drop and continue, wavelength re-use, and hair-pinning
Maximum number of Nodes	16
Shelf Dimensions	19" x 1.75" x 12" (1RU)
Remote User/CO Alarms	Alarm outputs for critical, major and minor alarms
Power Input Options	–48 V DC (A and B feeds)
Power Consumption	60 W per fully provisioned unit (above 0 °C)

OPTICAL

Client-Side Optical Interfaces*	1310 nm intermediate reach 850 nm short reach
CWDM Optical Interfaces	ITU-T G.694.2 & G.695 compliant
Safety	Class 1 laser product

MANAGEMENT

Craft Interface	TL1, RBNi GigaCraft 1200
OSS Interfaces	TL1, SNMP alarm & event traps
Supervisory Channel	In-band

ENVIRONMENTAL

Environmental Specs	Compliant with: UL 1950, CSA C22.2 No. 950, IEC 60950:1991 with amendments 1-4, FCC Part 15, Class A, EN 300 386:2001 (Class A), SR-3580 NEBS Criteria level 3 GR-63-CORE Criteria [74], GR-63-CORE Criteria [76], GR-63-CORE Criteria [110-111], GR-63-CORE Criteria [114-115], GR-63-CORE Criteria [125], GR-63-CORE Criteria [126-7], GR-63-CORE Criteria [128], GR-63-CORE Section 4.4.1.1 Outside plant hardened (-40 °C to +65 °C)

NETWORK OPERATIONS

Dynamic add/drop	Fully reconfigurable from remote location
Protection Options	Optical dedicated path protection ring 1+1 transponder protection
Upgradeability	In-service migration for all capacity upgrades and configuration changes
Performance Monitoring	In-traffic performance monitoring (ITU-T G.829/G.784 + Telcordia GR-253/GR-820 + 8B/10B)
Diagnostic Ability	Built in diagnostic loopbacks

* RBNi GigaEdge 8200 only

Please contact RBN for further product information

743-000-007/3

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