

## Metrobility® R861

Next Generation Services Line Cards



The Metrobility® R861 Services Line Cards for Ethernet by Telco Systems provides an intelligent optical Ethernet demarcation point for service providers who are deploying Ethernet in the First Mile. As a carrier-class device, the R861 Services Line Cards are specifically designed to maintain the maximum isolation between the public and private network while supporting the OAM requirements defined by both the Metro Ethernet Forum (MEF) and the IEEE.

The R861 Services Line Cards supports delivery of E-Line services. Traffic belonging to each service is classified by, and tunneled over, pre-determined VLANs for segregation and transport across carrier networks. Controlled at the Services Line Cards, VLANs identify and segregate the specific ISP-access or corporate-access E-Line service.

The R861 Services Line Cards extend baseline VLAN technologies to enable delivery of multiple, converged services across the first-mile, optical access network. These services include transport (link-specific) OAM, interconnectivity (network-specific) OAM, and services (applicationspecific) OAM.

Multiple management schemes are supported to meet the needs of the services provider who may need to manage a remote device via SNMP using an IP address today but may want to migrate to a more robust, secure, scalable and flexible proxy-based management framework.

### Direct Internet-Standard Management using SNMP and IEEE802.3ah

As an intelligent CPE demarcation point, the R861 Services Line Cards offer the Operations, Administration and Maintenance (OAM) aspects of the IEEE 802.3ah standard. OAM management features provide loopbacks, MIB statistics, errored frame events, and "Dying Gasp" capabilities. These features allow keep-alives for transparent service monitoring.

Additional features include sophisticated management access control which protects the system and network connections from a denial of service attack from the user's network. Management access control automatically discards unauthorized traffic received over the user port making the device impervious under all traffic conditions and all traffic patterns.

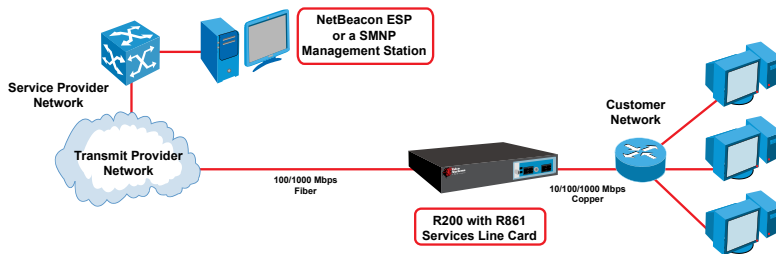
### Proxy-based Management via NetBeacon® ESP Element Manager

NetBeacon® ESP Element Manager is a carrier-class element management framework that consists of a GUI-based element management system and an element management proxy to achieve the highest level of manageability. The Metrobility NetBeacon ESP provides intuitive, graphical management of hundreds of remote sites creating a robust and secure management scheme which improves performance through IP and managed object aggregation. Because an IP address is not required at every access point, this solution scales extremely well for a large metro access service deployment which otherwise would require the management of countless IP addresses.

- Dual speed 100/1000M fiber
- Tri-speed 10/100/1000M copper
- Advanced VLAN aware bridging
- QinQ
- MEF 9 and 14 certified
- Provisioning and granular rate limiting (1Mbps up to 1Gbps)
- Jumbo frame support up to 10K bytes
- Intelligent management access control makes the device impervious to denial of service attacks
- Extensions to 802.3ah OAM
  - Real-time statistics to enable Quality of Line monitoring
  - Remote real-time monitoring of optical power levels
- Remote loopback testing
  - Hard loopback
  - IEEE 802.3ah loopback
  - Logical Services Loopback
  - cNode Level 1 Agent loopback function
- Full signal retiming, reshaping, and reamplification (3Rs)
- Supported distances up to 120km
- Console port provides local access for configuration and upgrades
- SFP Optics support CWDM and BWDM options

# Metrobility® R861

## Gigabit Services Line Cards



### Key Applications

- Ethernet-based Demarcation between Service Provider and Enterprise Networks
- E-Line (point-to-point) Multi-Service Delivery
- FTTx: Enterprise/SMB/Home Business
- High-performance Private-LAN and Private-Line
- Ethernet VPN and Transparent LAN Service (TLS)

### Specifications

#### Standards and Certifications

MEF 9: EPL and MEF 14: EPL  
 IEEE 802.1D Forwarding Aspects  
 IEEE 802.1Q VLAN Bridge Forwarding Aspects  
 IEEE 802.3-2002  
 IEEE 802.3ah OAM

#### Interfaces

##### Flexible Ethernet combo-port interfaces

- Dual-speed (100M and 1000M) fiber interfaces
- Pluggable optics, including BWDM and CWDM
- Tri-speed (10/100/1000M) copper interfaces

##### Jumbo frames up to 10K bytes

##### Console management ports

#### Layer 2 Features

##### IEEE 802.1D, 802.1Q, 802.1ad Bridging

- Transparent LAN Service (TLS): Q-in-Q-based
- 4095 system-wide VLAN space
- 8K MAC address forwarding table
- Port-based VLANs and Super VLANs

##### Layer Two Control Protocol (L2CP) Tunneling

##### Per-port, flexible MAC-based loopbacks (MAC swap)

#### Traffic Management Features

Eight system-wide traffic classes with flexible hybrid scheduling. Classification by:

- Ingress interface, or port
- Source and/or destination MAC address

#### MEF Networking Features

##### Ethernet Service Definition and Attributes

- E-Line (EPL) services
- Flexible CE traffic bundling options: one, some, few, all
- Service multiplexing: 1 EVC (IEEE 802.1ad S-Tag) per subscriber/access port
- Point-to-point topologies

##### UNI Type 1

#### Security Features

##### Secure management protocols

- SNMPv3

##### Access control lists: Layer-2 denial of service prevention

##### Management VLANs

##### RADIUS, IEEE 802.1X authentication

#### Management and OAM Features

##### Element management systems

- NetBeacon ESP; WebBeacon

##### Multiple management access protocols and tools

- SNMPv1/v2c/v3; CLI, Telnet, TFTP
- DHCP (client)

##### Direct IP-based management mode

##### RMON Group 1

#### General

Operating Temperature: 0°C to 50°C

Operating Humidity: 5% to 95% non-condensing

Storage Temperature: -25°C to 70°C

#### Safety and EMC Compliance

UL, CSA, CE, CB

EN55022 Class A (emissions)

EN60950 (safety)

FCC Part 15 Class A

DOC Class A (emissions)

IEC 825-1 Classification (eye safety)

Class 1 Laser Product (eye safety)

Australia/New Zealand: A-Tick/C-Tick

#### EMC:

CFR Title 47 FCC Part 15 Subpart B, Class B

ICES - 003, Issue 4, Class B

CNS - 13438, Class B

VCCI V - 3/2005.04 and V - 4/ 2003.04

EN 55022: 2006, Class B

ACMA AS/NZS CISPR 22 : 2006, Class B

#### Immunity:

EN 55024: 1998 + A1: 2001 + A2: 2003 + IS1: 2007

EN 61000 - 4 - 2

EN 61000 - 4 - 3

EN 61000 - 4 - 4

EN 61000 - 4 - 5

EN 61000 - 4 - 6

EN 61000 - 4 - 11

### Ordering Information

Part Number	Description
R861-1S	10/100/1000BASE-T RJ-45 to 100/1000BASE-X LC SFP
R861-SS	100/1000BASE-X LC SFP to 100/1000BASE-X LC SFP
* SFPs not included. Call for options.	
Chassis Options	
R5000-17HS	17-slot platform with two bays for optional AC/DC power supplies
R1000-xx	2-slot platform with AC or DC front or rear-facing power supplies
R400-2HS-1A	2-slot platform with single external AC power supply
R200-xx	1-slot platform with single internal AC or DC power supply



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