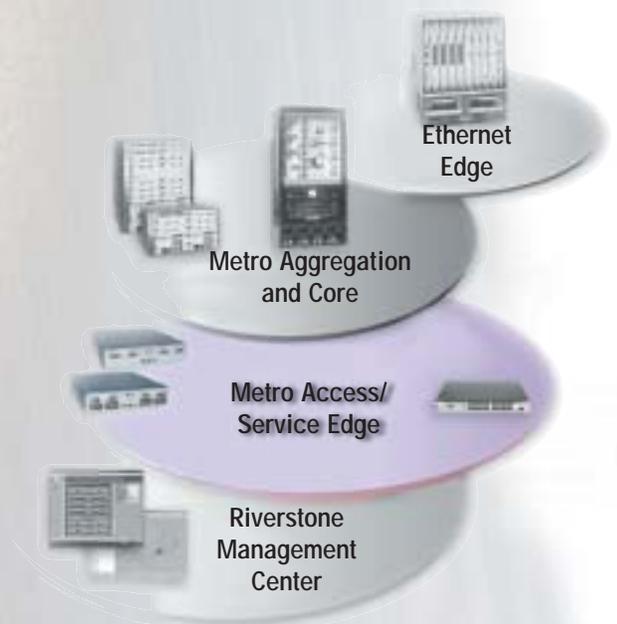## Metro Access Routers:
RS 1000/1100 and
RS 3000/3100/3200

Riverstone's RS 1x00 and 3x00 access routers extend Ethernet/IP service delivery to the metro access, feature MPLS, high-performance routing and switching, and dynamic on-demand bandwidth provisioning. At the same time, their combination of a compact form factor and high port density saves operational costs and improves service provider margins.

The key to the product family's popularity is its unique ability to deliver Ethernet/IP services over Ethernet, TDM, ATM, CWDM or SONET/SDH networks. The RS 3000 and 3100 feature two flexible linecard slots and 32 10/100BaseTX fixed RJ-45 ports. The RS 3200 features two flexible linecard slots and 32 SFP based 100BaseFX ports. The RS 1000 and 1100 feature two flexible linecard slots for lower density applications.

KEY APPLICATIONS
- Extend Ethernet/IP/MPLS services to the metro edge
- Create VPLS, E-line & E-LAN services
- Enable Fiber-To-The-Premise triple-play services (video, voice and data)
- Deliver Ethernet services over copper or optical infrastructure - Gigabit and 10/100 Ethernet, T1/E1, T3/E3, ATM, CWDM and Packet-over-SONET/SDH

Ethernet
Edge

Metro Aggregation
and Core

Metro Access/
Service Edge

Riverstone
Management
Center

Metro Access Routers: RS 1000/1100 and RS 3000/3100/3200

CUSTOMER CHALLENGES AND SOLUTIONS	
Challenge	**Solution**
Rapidly establish Ethernet services over existing infrastructure	Broad complement of TDM/ATM/SONET/SDH interfaces combined with full function routing and switching
Offer profitable tiered services without compromising performance	Implement hardware-based traffic classification, filtering and accounting, with advanced Quality of Service (rate limiting and rate shaping) Enable MPLS to offer scalable services using VPLS
Deploy Fiber based Ethernet access solutions	Offer enhanced services over 100BaseFX or 100BaseBX technologies with an optical last mile

Platform Features:

Service Enablers
- IP routing - OSPF, IS-IS, BGP
- LSR and LER MPLS support in hardware
- RSVP-TE and LDP label distribution and signaling
- MPLS traffic engineering
- Multicast
- Security (ACLs, L2 filters)
- Hardware-based QoS - rate limiting, rate shaping, WFQ, SPQ
- Diffserv
- Jumbo Frame support
- VLAN Translation
- Hierarchical service bundles with the Advanced Services Module

System, Software and Hardware Fault Tolerance
- Redundant power supplies (RS 1100, 3000, 3100 and 3200)
- Spanning Tree Protocol, Rapid STP, Per VLAN STP
- VRRP
- Link Aggregation, Smarttrunking
- Loop detection
- BGP and OSPF restart

Extensive Management
- SNMP
- RMON / RMON 2
- SSH v1 and v2
- RADIUS
- TACACS+
- RS-232 (out-of-band management)
- Command Line Interface (CLI)
- Riverstone Management Center

Interfaces
- 16 port 10/100 Ethernet (TX , FX and BX)
- 2 port Advanced Services Module - Gigabit Ethernet
- 2 port Gigabit Ethernet
- 2 port MPLS-enabled Gigabit Ethernet
- 2 port MPLS-enabled Packet over SONET/SDH OC3c
- 4 port T1/E1
- 2 port DS3/E3
- 2 port ATM DS3/E3/OC3

Capacity and Performance
- Up to 4,096 VLANs
- Up to 130,000 routes
- Up to 20,000 security/access control filters
- Up to 256,000 Layer 2 MAC addresses
- MTBF > 200,000 hrs (predicted)
  - **RS 1000:**
    - 12 Gbps non-blocking switching fabric
    - Up to 4.6 million packets per second routing throughput
  - **RS 1100:**
    - 12 Gbps non-blocking switching fabric
    - Up to 5.9 million packets per second routing throughput
  - **RS 3000:**
    - 20 Gbps non-blocking switching fabric
    - Up to 9.5 million packets per second routing throughput
  - **RS 3100/3200:**
    - 20 Gbps non-blocking switching fabric
    - Up to 10.7 million packets per second routing throughput

Standards Support
- For a complete list of standards supported, including RFCs and MIBs, please refer to http://www.riverstonenet.com/rs_stds.shtml

Physical Specifications:

Dimensions:	Height:	3.4 in. / 8.7 cm (2 RU)	
	Width:	17 in. / 43.2 cm	
	Depth:	18.5 in. / 47 cm	
Weight :		20 lbs / 9.1 kg	

Environmental Specifications:

Altitude:	10000 ft (3000 m) maximum
Operating Temperature:	0° to +40°C (32° to 104°F)
Non-Op. Tempperature:	-40° to +70°C (-40° to 158°F)
Operating Humidity:	10 to 90% (non-condensing)
Non-Op. Humidity:	5 to 95% maximum (non-condensing)
Shock and Vibration:	Telcordia GR63

Power Specifications:

AC Power
- Input Current: 1.5 - 3.0 A
- Input Voltage: 100-240 V
- Frequency: 50-60 Hz

DC Power
- Input Current: 8 A
- Input Voltage: -48 to -60 V

Agency Standards and Specifications

Safety: Meets the requirements of UL1950, CSA C22.2 No. 950, EN60950, IEC950 and 73/23/EEC.
Electromagnetic Compatibility: Compliant with the requirements of FCC Part 15, CSA C108.8, EN55022, VCCI, EN50082-1 and 89/336/EEC.

Ordering Information

Part No.	Product Description
G10-B128	RS1000 Base Unit with 128 MB memory, 2 expansion slots and single AC power supply, Includes RapidOS
G10-B128-DC	RS1000 Base unit with 128 MB memory, 2 expansion slots and single DC Power supply, Includes RapidOS
G11-B256	RS1100 Base Unit with 256 MB memory and dual AC power supplies, Includes RapidOS
G11-B256-DC	RS1100 Base Unit with 256 MB memory and dual DC power supplies, Includes RapidOS
G30-B256	RS3000 Base Unit with 256 MB, 32 Ports 3rd Generation 10/100 BaseTX, 2 expansion slots with redundant AC power supplies, Includes RapidOS
G30-B128-DC	RS3000 Base Unit with 128 MB, 32 Ports 3rd Generation 10/100 BaseTX, 2 expansion slots with redundant DC power supplies, Includes RapidOS
G31-B256	RS3100 Base Unit with 256 MB, 32 ports 5th Generation 10/100 BaseTX, 2 expansion slots with redundant AC power supplies, Includes RapidOS
G31-B256-DC	RS3100 Base Unit with 256 MB, 32 ports 5th Generation 10/100 BaseTX, 2 expansion slots with redundant DC power supplies, Includes RapidOS
G32-B256	RS3200 Base Unit with 256 MB, 32 ports 5th Gen. SFP-based 100 BaseFX/BX, 2 expansion slots with redundant AC power supplies, Includes RapidOS
G32-B256-DC	RS3200 Base Unit with 256 MB, 32 ports 5th Gen. SFP-based 100 BaseFX/BX, 2 expansion slots with redundant DC power supplies, Includes RapidOS

Also available with a light encryption option, to comply with US export laws and in NEBS compliant versions. Please contact Riverstone Networks for details. For availability and complete ordering information, including specific modules, contact your Riverstone Representative at (408) 878-6500. You may also visit our website at www.riverstonenet.com

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