NetPerformer™ Satellite Routers:
SDM-9606, SDM-9220 & SDM-9230 Integrated Access Routers
SDM-8400 Serial Port Extender

WAN Optimization

SDM-9606

SDM-9220/9230

SDM-8400

Overview

The NetPerformer Satellite Routers combine the functionality of a data router, a multiplexer and a voice gateway in a single device, enabling users to create converged networks and transport any type of traffic over satellite or terrestrial links.

Designed to provide maximum network performance and reliability in low-bandwidth environments, the NetPerformer reduces network infrastructure costs and simplifies WAN connectivity for mission-critical applications. The NetPerformer's voice and data compression technology, prioritization and multiplexing capabilities and the ability to route all traffic over a highly efficient cell-relay based protocol, make it the product of choice for converged voice and data applications over satellite. The NetPerformer provides a safe migration path from legacy TDM or Frame Relay networks to IP-centric networks. It includes support for the latest VoIP (SIP) standards and robust IP/Ethernet QoS, with eight classes of service and 16 levels of prioritization to ensure that mission-critical applications always receive sufficient bandwidth. In addition, specialty features are available for handling the particulars of radar, voice push-to-talk (PTT) and VHF voice applications common to Air Traffic Control and military networks.

The SDM-9220, SDM-9230 and SDM-9606 Integrated Access Routers maximize network performance and provide superior convergence capabilities to ensure efficient and secure transport of multiple communications services. With support for up to five expansion slots, the NetPerformer protects your investment, ensuring network scalability that matches your expansion requirements.

The SDM-8400 Serial Port Extender enables SDM-9220, SDM-9230 or SDM-9606 users to increase serial port connectivity allowing those products to scale linearly with either 4 or 8 port extenders. The SDM-8400 supports all the same protocols and capabilities as the SDM-9220, SDM-9230 and SDM-9606 Integrated Access Routers.

Its ability to support legacy protocols, specialty voice applications and IP data make NetPerformer ideal for government, military, oil and gas, civil and military aviation authorities, industrial and multi-service VSAT applications.

Together with our Vipersat Management System and Modems or our SkyWire product, the NetPerformer is the best solution for building integrated, feature-rich, lowest OPEX, multi-service and reliable satellite networks.

Benefits

SDM-9220 & SDM-9230
- Delivers the services you need, wherever you need them
- Alleviates bandwidth constraints & maximizes quality of service and reliability
- Supports multiple services
- Lowers capital expenditures and operating costs

SDM-9600 chassis
- Dual -48 VDC feed 5 slots chassis for hot swappable SDM-9606 blades

SDM-9606 blade
- SDM-9606 blade is equivalent to a SDM-9230 equipped with 6 E1
- Use 50% less rack space than stacking equivalent SDM-9230 units

SDM-8400
- Delivers up to 8 serial ports either on SDM-9220 or SDM-9230 Integrated Access Routers
- Provides unlimited port extension through IP daisy-chains
- Offers multiple connectivity options and simple network integration

Features

Efficient and teliable t PTT communication: t

High quality transmission of Push-to-talk (PTT) interface provides complete transparency and supports a variety of analog T and digital VHF systems deployed today. The signaling information can be handled either in-band, as FSK tones, out-of-T band through a V24 serial interface, or directly processed from the E&M lead signals. TSupport of PTT is essential in civil or T military air traffic and coastal authorities, and other industries. T

Switched (any-to-any) Voice Support: t

Supporting both analog and digital interfaces with standard protocols (ISDN, QSIG, MFCR2, DTMF), NetPerformer allows T interconnection to any PABX or PSTN. While supporting both VoIP and VoFR with integral voice routing plans, T NetPerformer allows calls to be placed from anywhere in the network to any other site. T

IP Support: t

Supporting new applications and traffic growth: TNetPerformer's solution has the right built-in feature set to address new IP-T based applications. Featuring a state-of-the-art IP routing protocol suite (including NAT, dynamic and static virtual routing T groups and IP tunneling), the NetPerformer platform guarantees IP data transport. T
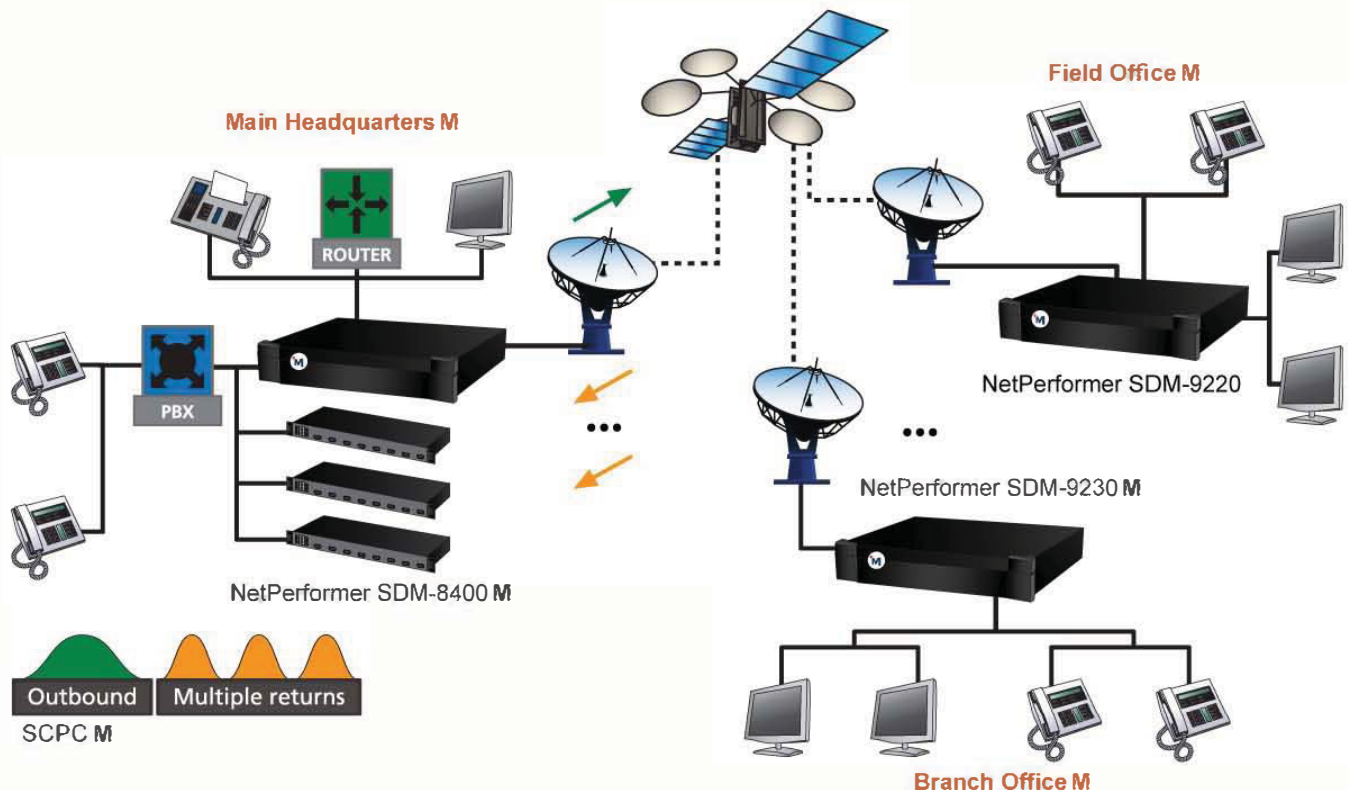
Serial Support: t

In addition to supporting industry standard recognized protocols such as X25, Frame Relay, HDLC and PPP, the T NetPerformer also support, with QoS, serial bit transparent interface over packetized network. This is particularly effective T when dealing with low speed links which are particularly delay sensitive. T

Increase teliability: t

NetPerformer offers 1+1 system redundancy using a standard SNMP controlled A/B switch. The backup system can take T over primary system(s) in the event that a system or bearer interface(s) should fail. T

Point-to-Multipoint Satellite Links

Field Office M

Main Headquarters M

NetPerformer SDM-9220

NetPerformer SDM-9230 M

NetPerformer SDM-8400 M

Outbound | Multiple returns

SCPC M

Branch Office M

IPSwitch WUP (WhatsUp Professional) Network Management and Reporting p

With the introduction of the web server interface, the NetPerformer can now be managed via any standard etwork management system (NMS) platform that supports device links to a web browser. Therefore, the NetPerformer now supports an SNMP-based NMS toolkits based on IPSwitch's WUP (WhatsUp Professional). This is possible by the product customization for the Memotec NetPerformer – adding SNMP MIBs, icons and device types to WUP. This solution enables an operator to build a NetPerformer network supervision, fault and performance monitoring application. Combining WUP and the NetPerformer web interface provides the tools that help monitor telephony and data traffic, configure nodes and expansion cards, upgrade software, configure systems, view maps, call detail records and management reports, and monitor the health of your overall network.

Benefits of using the WUP with NetPerformer
- Maximizes ROI with seamless integration to WUP management systems
- Converges monitoring and configuration of voice and data services into a single, integrated network management solution.
- Provides a detailed network view via a user-friendly Web interface

Specifications p

		NetPerformer SDM-9220	NetPerformer SDM-9230	NetPerformer SDM-9606	NetPerformer SDM-8400
Capacity v	Telephony C channels C	Up to 8 FXS/FXO or E&M C channels per unit C	Up to 12 FXS/FXO or E&M, C or 120 T1/E1 CAS/PRI C digital channels per unit C	Up to 120 T1/E1 CAS/PRI C digital channels per SDM-C 9606 blade, up to 600 per C SDM-9600 chassis C	Not Applicable C
	Data channels C	Up to 3 serial data ports, or C 1 serial and 4 T1 or E1 data C interfaces (up to 124 logical C ports) C	Up to 3 serial data ports, or C 1 serial and 6 T1 or E1 data C interfaces (up to 124 logical C ports) C	Not Applicable C	Available in 4 or 8 serial port C extensions C
Link vort v	Speed C	• With data compression C disabled: 8 Mbps/1 C port, C 2 Mbps/other ports C • With data compression C enabled: Up to 2 Mbps C *Maximum speed is protocol dependent*	• With data compression C disabled: 8 Mbps/1 C port, C 2 Mbps/other ports C • With data compression C enabled: Up to 4 Mbps C *Maximum speed is protocol dependent*	• With data compression C disabled: 8 Mbps per C blade C • With data compression C enabled: Up to 4 Mbps C *Maximum speed is protocol dependent*	• With data compression C disabled: 8 Mbps/1 C port, C 2 Mbps/other ports C • With data compression C enabled: Up to 2 Mbps C *Maximum speed is protocol dependent*
	ATM (optional C license C required) C	Not Available C	T1/E1 full or fractional, C WAN over AAL5 UBR using C up to 32 PVCs, RFC1483 C Multiprotocol Encapsulation C over AAL5, RFC2364 PPP C over AAL5, FRF.8 Service C Interworking, AAL0 C transparent transport C	T1/E1 full or fractional, C WAN over AAL5 UBR using C up to 32 PVCs, RFC1483 C Multiprotocol Encapsulation C over AAL5, RFC2364 PPP C over AAL5, FRF.8 Service C Interworking, AAL0 C transparent transport C	Not Applicable C
hysical v	System C Details C	• Auto-sensing power C 100-240 VAC, 50/60 C Hz, 65 W maximum C • -48 VDC C • 1 serial port (user or C link), DTE or DCE, C HD26F connector, C compatible with RS-C 232/V.24, V.35, C X.21/V.11, RS-C 449/V.36, C RS-530, C internal/external C clocking C • 2X 10/100Base-T C Ethernet (RJ-45 C connectors) C • 1 DSP connector per C unit C • 2 expansion slots C	• Auto-sensing power C 100-240 VAC, 50/60 C Hz, 65 W maximum C • -48 VDC C • 1 serial port (user or C link), DTE or DCE, C HD26F connector, C compatible with RS-C 232/V.24, V.35, C X.21/V.11, C RS-449/V.36, RS-530, C internal/external C clocking C • 2X 10/100Base-T C Ethernet (RJ-45 C connectors) C • 1 DSP connector per C unit C • 3 expansion slots C	SDM-9600 Chassis C • Hot swappable fan tray C with independent air C filter C • Dual -48 VDC feed C • 300 W maximum C SDM-9606 blade C • SDM-9606 blade C occupying one front C slot C • Hot swappable C • 2X 10/100BaseT C Ethernet (RJ-45 C connectors) C • 1 DSP connector per C blade C • One console port RJ-C 45 female connector, C autosensing DTE/DCE, C maximum speed C 115.2 kbps	• Auto-sensing power C 100-240 VAC, 50/60 C Hz, 30 W maximum C • 4/8 serial port (user or C link), DTE or DCE, C HD26F connector, C compatible with RS-C 232/V.24, V.35, C X.21/V.11, C RS-449/V.36, RS-530, C internal/external C clocking C • 1X 10/100Base-T C Ethernet (RJ-45 C connectors) C
	hassis C	Stand-alone base unit, 19" C rack mount C	Stand-alone base unit, 19" C rack mount C	19" rackmount modular C SDM-9600 chassis - 5 slots C for SDM-9606 blades C	Stand-alone base unit, 19" C rack mount C
	Dimensions C (height x width C x depth) C	3.5" x 16.8" x 12.2" C (89 x 427 x 310 mm) C	3.5" x 16.8" x 12.2" C (89 x 427 x 310mm) C	8.72" (5U) x 19" x 16.3" C (221 x 482 x 414 mm) C	1.75" x 16.8" x 8" C (44 x 427 x 205 mm) C
	Weight C	9.9 lbs (4.5 kg) C	9.9 lbs (4.5 kg) C	33 lbs (15 kg) C	5.9 lbs (2.7 kg) C
Environmental v	Operating C Temperature C	0° to 50°C / 32° to 113°F C	0° to 50°C / 32° to 113°F C	0° to 50°C / 32° to 113°F C	0° to 50°C / 32° to 113°F C
	Storage C Temperature C	-20º to 65ºC / -4° to 149°F C	-20º to 65ºC / -4° to 149°F C	-20º to 65ºC / -4° to 149°F C	-20º to 65ºC / -4° to 149°F C
	Relative C Humidity C	0% to 95%, non-condensing C	0% to 95%, non-condensing C	0% to 95%, non-condensing C	0% to 95%, non-condensing C
Software Option		SkyPerformer, TCP/IP C acceleration, SIP, IP C Header Compression and C Link Delay Compensation C (LDC) C	SkyPerformer, TCP/IP C acceleration, SIP, IP C Header Compression, Link C Delay Compensation (LDC) C and ATM C	SkyPerformer, TCP/IP C acceleration, SIP, IP C Header Compression, Link C Delay Compensation (LDC) C and ATM C	SkyPerformer, IP Header C Compression and Link C Delay Compensation (LDC) C

Optional Interfaces/ Modules	Analog telephony	• 2 and 4-port FXS and FXO modules with on-board DSP (software controllable impedance, RJ-11 connector) • 4-port E&M module with on-board DSP (2 or 4-wire, types I II, or V 600 ohms, RJ-48 connectors) • 4-wire Push to Talk (PTT) option available	Not Applicable	Not Applicable
	Digital	• Single & dual port T1/E1 (software configurable, RJ-48 connectors, adapter cable required for BNC E1-75, NT/TE)	Six T1/E1 ports per SDM-9606 blade (software configurable, RJ-48 connectors, adapter cable required for BNC E1-75)	Not Applicable
	Data	• 2-port universal serial WAN interface (user or link), DTE or DCE, HD26F connector, interface compatible with RS-232/V.24, V.35, 21/V.11, RS- 449/V.36, RS-530, internal/external clocking	Not Applicable	Not Applicable
	DSP (Internal)	DSP modules supporting up to 120 voice channels		Not Applicable
Network		• Network topology: Mesh, hierarchical, star, point-to-point, satellite point-to-point/multipoint • Automatic node discovery and rerouting with least cost metric routing • Automatic load balancing, bandwidth on demand (over leased line), dial back-up, time-of-day connect • QoS: 8 classes of service, 16 priority weights, association to 802.1p and DiffServ TOS bits		
Data		• Sync: PPP, BDLC, HDLC, SDLC, X.25, X.25 over Frame Relay annex F/G • Legacy Sync: COP, BSC, VIP, IBM/RJE, Uniscope, Poll/Select, Siemens Nixdorf, JCA, Zengin • Frame Relay: RFC-1490, UNI-DTE, UNI-DCE • Asynchronous: ENQ/ACK, XON/XOFF, transparent		
Telephony		• Voice compression algorithms (5 channels per DSP): ACELP-CN (8 K/6 K), LDCD (16 K), G.711, G.723.1, G.726, G.729 and G.729a • FAX Relay: Group 3 FAX, Super G3 configurable to pass through or fallback to G3, Group 4 FAX and other non-voice bearer ISDN channel at 64 K • Modem Relay: V.32bis demodulation up to 14.4kbps, STU-III secure phone, modem pass through (G.711) for other modems • Network signaling: Transparent point-to-point and any-to-any switching, including end-to-end QSIG/ISDN • Analog telephony channels: ▪ FXS - loop and ground start, forward disconnect, caller ID and local billing tone generation ▪ FXO - loop start, forward disconnect and caller ID detection ▪ E&M - immediate and wink start, custom • Pulse, DTMF and MF tone dialing • Voice traffic routing with alternates destinations and digits manipulation using local mapping tables, locally switched TDM calls (hairpin)	Not Applicable	
LAN		• Two IP address per Ethernet port • Ethernet interfaces: Ethernet II and IEEE 802.2, 802.3, SNAP • Standards: IP RIP V1/V2 or Static, OSPF, NAT, IP Multicast IGMP V1/V2 PIM-DM, BootP/DHCP relay, DHCP client, IPX RIP and SAP, LLC2, 802.1p/q prioritization and VLAN, 802.1D Spanning Tree Protocol (STP), MAC Layer • Filter criteria: Based on protocol, address (source, destination or SAP), TOS bit/diffServ or custom filtering		
Digital Telephony		• ISDN and QSIG T1/E1 PRI and BRI signaling: Euro ISDN/ETSI, National and Japan • T1 signaling: robbed bit signaling, CCS transparent, SS7 transport with idle filtering and spoofing • E1 signaling: CAS, CCS transparent, SS7 transport with idle filtering • Digital CAS Signaling types: Immediate, Wink, FXO, FXS, FXO ground, FXS ground, E1/R2 (compelled, semi-compelled, DTMF), PLAR, custom (9230 only) • Mu-law or A-law coding	Not Applicable	
Compliance and Agency Approval		Complies with or has obtained regulatory agency approval at least the following standards: • EMC - Emission FCC Part 15, Class B EN 55022:1998 + A1 + A2, AS/NZS CISPR22 • EMC - Immunity EN 55024:1998 + A1 + A2 • Safety IEC 60950-1, EN 60950-1, UL 60950-1 CSA C22-2 N°60950-1, AS/NZS 60950 • Telecom - Digital FCC Part 68 + TIA-968-A, IC CS-03 Issue 9 - Part 2 and Part 6 AS/ACIF S016, AS/ACIF S038, TBR 1 + TBR 2 TBR 3 TBR4, TBR 12 + TBR 13 • Telecom - Analog FCC Part 68 + TIA-968-A, IC CS- 03 Issue 8 - Part 1 AS/ACIF S002, TBR 15 + TBR 17, TBR 21		
Network Management		• SNMP management via IPSwitch WUP (WhatsUp Professional) for Windows • Menu driven async console port (VT-100) via RJ-45 connector, auto-sensing DTE/DCE, speed up to 115,200 bps • Remote Telnet access to command port • Traps, traces and extended statistics • Web server interface for local or remote web browser access		