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Fluent in the Future™

NetPerformer™ Satellite Routers

SDM-9140 & SDM-9120 Integrated Access Routers & SDM-8400 Serial Port Extender

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) and Eurocae WG67 ED-136/137 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-9140 and SDM-9120 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 four expansion slots, the NetPerformer protects your investment, ensuring network scalability that matches your expansion requirements.

The SDM-8400 Serial Port Extender enables SDM-9140 or SDM-9120 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-9140 and SDM-9120 Integrated Access Routers.

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

Together with Comtech Satellite Modems, the NetPerformer is the best solution for building integrated, feature rich, lowest OPEX, multi-service and reliable satellite networks.

TYPICAL USERS

- Civil Aviation Authorities
- Government & Military
- Enterprise (Oil & Gas, Mining)

COMMON APPLICATIONS

- Push to Talk Voice Applications
- Multi-service Convergence

BENEFITS

SDM-9120 & SDM-9140

- 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-8400

- Delivers up to 8 serial ports either on SDM-9120 or SDM-9140 Integrated Access Routers
- Provides unlimited port extension through IP daisy-chains
- Offers multiple connectivity options and simple network integration

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FEATURES

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

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

IP Support:
Supporting new applications and traffic growth: NetPerformer' solution has the right built-in feature set to address new IP-based applications. Featuring a state-of-the-art IP routing protocol suite (including NAT, dynamic and static virtual routing groups and IP tunneling), the NetPerformer platform guarantees IP data transport.

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

Increase Reliability:
NetPerformer offers 1+1 system redundancy using a standard SNMP controlled A/B switch. The backup system can take over primary system(s) if a system or bearer interface(s) should fail.

POINT-TO-MULTIPOINT SATELLITE LINKS
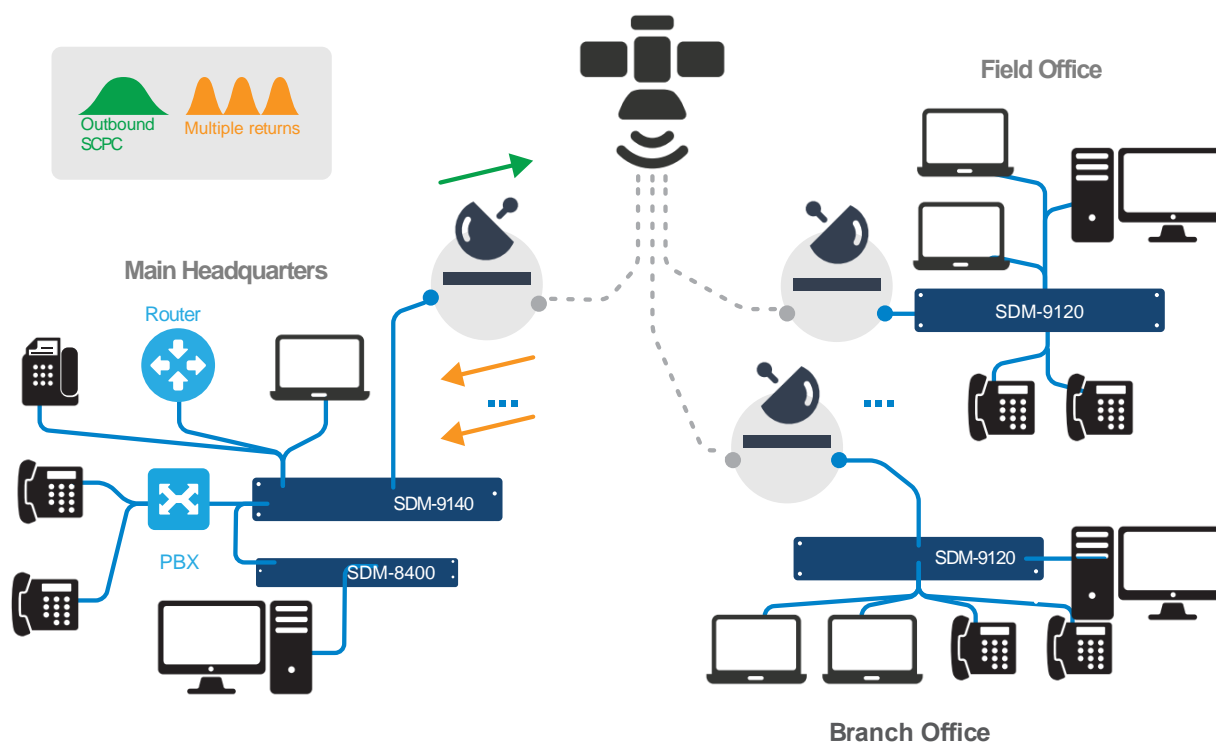
IPSWITCH WUG (WHATSUP GOLD) NETWORK MANAGEMENT AND REPORTING

With the integration of a web server interface, the NetPerformer can be managed via any standard network management system (NMS) platform that supports device links to a web browser. Also, the NetPerformer supports an SNMP-based NMS toolkits based on IP-Switch's WUG (WhatsUp Gold). This is possible by the product customization for the Comtech NetPerformer – adding SNMP MIBs, icons, and device types to WUG. This solution enables an operator to build a NetPerformer network supervision, fault, and performance monitoring application. Combining WUG 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 WUG with NetPerformer:

- Maximizes ROI with seamless integration to WUG 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

		NetPerformer SDM-9140	NetPerformer SDM-9120	NetPerformer SDM-8400
Capacity	Telephony Channels	Up to 16 FXS/FXO or E&M, or 120 T1/E1 CAS/PRI digital channels per unit	Up to 8 FXS/FXO or E&M, or 60 T1/E1 CAS/PRI digital channels per unit	Not Applicable
	Data Channels	1 serial data port and 8 T1 or E1 data interfaces (up to 124 logical ports)	Up to 3 serial data ports, or 1 serial and 4 T1 or E1 data interfaces (up to 124 logical ports)	Available in 4 or 8 serial port extensions
Link Port	Speed	• With data compression disabled: 8 Mbps/1 port, 2 Mbps/other ports • With data compression enabled: Up to 8 Mbps *Maximum speed is protocol dependent	• With data compression disabled: 8 Mbps/1 port, 2 Mbps/other ports • With data compression enabled: Up to 4 Mbps *Maximum speed is protocol dependent	• With data compression disabled: 8 Mbps/1 port, 2 Mbps/other ports • With data compression enabled: Up to 2 Mbps *Maximum speed is protocol dependent
Physical	System Details	• Auto-sensing power 90-264 VAC, 50/60 Hz, 65 W maximum • -48 VDC • Optional redundant power supply • 1 serial port (user or link), DTE or DCE, HD26F connector, compatible with RS-232/V.24, V.35, X21/V.11, RS-449/V.36, RS-530, internal/external clocking • SDM-9140s: 2 x 10/100/1000BaseT Ethernet (RJ-45 connectors) • SDM-9140e: 8 x10/100/1000BaseT Ethernet (RJ-45 connectors with 2 ports with SFP option) • On board DSP (0,1, 2, 3 or 6) • 4 expansion slots	• Auto-sensing power 100-240 VAC, 50/60 Hz, 65 W maximum • 1 serial port (user or link), DTE or DCE, HD26F connector, compatible with RS-232/V.24, V.35, X.21/V.11, RS-449/V.36, RS-530, internal/external clocking • 2 x 10/100Base-T Ethernet (RJ-45 connectors) • 1 DSP connector per unit • 2 expansion slots	• Auto-sensing power 100-240 VAC, 50/60 Hz, 30 W maximum • 4/8 serial port (user or link), DTE or DCE, HD26F connector, compatible with RS-232/V.24, V.35, X.21/V.11, RS-449/V.36, RS-530, internal/external clocking • 1 x 10/100Base-T Ethernet (RJ-45 connector)

		NetPerformer SDM-9140	NetPerformer SDM-9120	NetPerformer SDM-8400
Physical	Chassis	Stand-alone base unit, 19" rack mount	Stand-alone base unit, 19" rack mount	Stand-alone base unit, 19" rack mount
	Dimensions (height x width x depth)	1.75" x 17" x 14" (44 x 431 x 355mm)	1.75" x 17" x 12" (44 x 431 x 305 mm)	1.75" x 17" x 10" (44 x 431 x 254 mm)
	Weight	9.9 lbs. (4.5 kg)	4 lbs. (1.8 kg)	5.9 lbs. (2.7 kg)
Environmental	Operating Temperature	0° to 50°C / 32° to 113°F	0° to 50°C / 32° to 113°F	0° to 50° C / 32° to 113°F
	Storage Temperature	-20º to 65ºC / -4° to 149°F	-20º to 65ºC / -4° to 149°F	-20º to 65ºC / -4° to 149°F
	Relative Humidity	0% to 95%, non-condensing	0% to 95%, non-condensing	0% to 95%, non-condensing
Software Option		SkyPerformer, TCP/IP acceleration, SIP, SIP+ (ED-137 enhancements), IP Header Compression, IPv6 and Link Delay Compensation (LDC)		SkyPerformer, IP Header Compression, IPv6 and Link Delay Compensation (LDC)
Optional Interfaces/ Modules	Analog telephony	▪ 2 and 4-port FXS and FXO modules with on-board DSP (600/900 ohms software controllable impedance, 300-3400 Hz, RJ-11 connector) ▪ 4-port E&M module with on-board DSP (2 or 4-wire, types I, II, or V, 600 ohms, 300-3400 Hz, RJ-48 connectors) ▪ 4-wire Push to Talk (PTT) and FSK tones signaling support		Not Applicable
	Digital	▪ Single and Dual port T1/E1 (software configurable, RJ-48 connectors, adapter cable required for BNC E1-75, NT/TE)		Not Applicable
	Serial Data	Not Applicable	▪ Single universal serial WAN interface (user or link), DTE or DCE, internal/external clocking	Not Applicable
	DSP - Digital Signal Processors (Internal)	Supporting up to 120 voice channels	Supporting up to 60 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 over Frame Relay annex F/G, Passthru (Circuit Emulation) ▪ 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 (8K/6K), G.729 (8K), LDCD (16K), G.711 (PCM 64K), G.723/G.723.1 (5.3K and 6.4K), G.726 (ADPCM 16k, 24k, 32K and 40K) and MELP (2.4K)
		▪ 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

	NetPerformer SDM-9140	NetPerformer SDM-9120	NetPerformer SDM-8400
LAN	▪ Six 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, VRRP, IP Multicast IGMP V1/V2 PIM-DM, BootP/DHCP relay, DHCP client, DHCP server, 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 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 ▪ 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 SDM-9120: (Class A) FCC Part 15, EN 55032:2012/AC:2013, AS/NZS CISPR 32, ICES-003 ▪ EMC– Emission SDM-9140 + SDM-8400: (Class B) FCC Part 15, EN 55032:2012/AC 2013, AS/NZS CISPR 32, ICES-003 ▪ EMC – Immunity: EN 55024:2010 ▪ Safety: IEC 62368-1:2014 (2nd Edition), UL 60950-1, CSA C22-2 N°60950-1, AS/NZS 60950-1 ▪ SDM-9120/9140: Telecom – Digital: FCC Part 68 + TIA-968-A/B, IC CS-03 Issue 9 - Part 2 and Part 6, AS/ACIF S016, AS/ACIF S038, TBR 1 + TBR 2, TBR4, TBR 12 + TBR 13, TBR 3 ▪ SDM-9120/9140: Telecom – Analog: FCC Part 68 + TIA-968-A/B, IC CS- 03 Issue 9 - Part 1, AS/ACIF S002, TBR 15 + TBR 17, TBR 21 ▪ SDM-8400: TBR 1 + TBR 2		
Network Management	▪ SNMP management via IPSwitch WUG (WhatsUp Gold) 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		

ABOUT US

Comtech Telecommunications Corp. is a leading global technology company providing terrestrial and wireless network solutions, next-generation 9-1-1 emergency services, satellite and space communications technologies, and cloud native solutions to commercial and government customers around the world. Our unique culture of innovation and employee empowerment unleashes a relentless passion for customer success. With multiple facilities located in technology corridors throughout the United States and the world, Comtech leverages its global presence, technology leadership and decades of experience to create the world's most innovative communications solutions.

Comtech Satellite Network Technologies Corp.

2500 Alfred Nobel Blvd. Suite 401, Saint Laurent (Montreal), QC, Canada

Voice: + 514 695 8728

www.comtech.com