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Dual Ka-/Ku-band high-performance broadband satellite router

The Hughes HN9200 is a high-performance, dual Ka-/Ku-band broadband satellite router designed to cost-effectively satisfy a wide range of high-speed connectivity requirements for consumer, small office/home office, enterprise, and government markets. Fully compatible with the Hughes HN System family, the HN9200 incorporates advanced modulation and coding among other performance and efficiency-enhancing features to deliver even the most demanding bandwidth-intensive applications affordably.

Compliant with IPoS/DVB-S2 including Adaptive Coding and Modulation (ACM), the world's leading industry standard, the HN9200 also supports the legacy DVB-S standard. When running in the DVB-S2 mode, the HN9200 achieves excellent efficiency on the outbound or forward channel with rates up to 121 Mbps. The inbound or return channel is scalable up to 3.2 Mbps, and features adaptive MF/TDMA coding which results in superior return channel efficiency. The HN9200 seamlessly coexists in networks with prior generations of HN and DW modems and routers.

To enable superior end-user performance, the HN9200 includes a full set of integrated Wide Area Network (WAN) optimization features. Accelerated TCP and HTTP performance, including HTTP pre-fetch (objects are locally cached on the HN9200) along with DNS caching, enable fast Web browsing. Integrated header and packet payload compression both conserves bandwidth and further contributes to high performance.

IP routing and addressing features implemented in the HN9200 include the RIPV2 and BGP routing protocols, virtual router redundancy protocol (VRRP) with policy-based routing, DHCP server or relay, as well as network address translation (NAT) and port address translation (PAT). The HN9200 also handles end-to-end VLAN tags complying with the 802.1P and Q standards, and each VLAN may be configured with its own Quality of Service (QoS). Government and enterprise users can be confident that the information running over the HN9200 is secure, as the HN9200 uses a hardware-based conditional access system and, optionally, AES 256 encryption for user traffic.

Operations are made easy as the HN9200 features an integrated Web server supporting a Web browser interface for commissioning and troubleshooting. Full-featured, built-in diagnostics provide historical information about network performance or error conditions. An integrated LAN sniffer eliminates the need for on-site presence during troubleshooting. The HN9200 is centrally managed for software configurations and downloads.

On-Demand Streaming

The HN9200 supports the Hughes On-Demand Streaming feature that, when enabled by the operator, allows the HN9200 to act as a SIP call proxy so that Constant Bit Rate (CBR) bandwidth is allocated per individual call, resulting in very high-quality voice traffic.

Hughes Network Systems, LLC (Hughes) is the world's leading provider of satellite broadband for home and office, delivering innovative network technologies, managed services, and solutions for enterprises and governments globally. HughesNet® is the #1 high-speed satellite Internet service in the marketplace, with offerings to suit every budget. To date, Hughes has shipped more than 2.5 million systems to customers in over 100 countries, representing over 50 percent market share. Its products employ global standards approved by the TIA, ETSI, and ITU organizations, including IPoS/DVB-S2, RSM-A, and GMR-1. Headquartered outside Washington, D.C., in Germantown, Maryland, USA, Hughes operates sales and support offices worldwide, and is a wholly owned subsidiary of EchoStar Corporation (NASDAQ: SATS), a premier global provider of satellite operations and digital TV solutions. For additional information about Hughes, please visit www.hughes.com.

Features

Full-featured Network Services

- High Throughput and Capacities
  - Up to 60 Mbps multicast
  - Up to 45 Mbps UDP
  - Up to 15 Mbps TCP
- Local Router with
  - Static and dynamic addressing
  - DHCP server or relay
  - Full RIPV1, RIPV2, and BGP routing support
  - Multicasts to the LAN by using IGMP
  - NAT/PAT
  - 802.1P and 802.1Q for end-to-end VLAN support with configurable QoS per VLAN
  - Firewall support through integrated access control lists
- WAN Optimization and Acceleration
  - Integrated Performance Enhancement Proxy (PEP) software to accelerate throughput performance by optimizing the TCP transmission over the satellite, delivering superior user experience and link efficiency
  - Integrated Hughes TurboPage® software to accelerate HTTP traffic for fast browser access
  - DNS caching
- Differentiated Service
  - Inbound Quality of Service (IQoS) plans for allocation of bandwidth to a group or terminal
  - Choice of Return Channel bandwidth assignment methods, including CBR, Best Effort, and CBR On-Demand for voice traffic managed by an integrated SIP call proxy
  - Choice of Forward Channel bandwidth assignment methods, including CBR and Best Effort
  - Traffic prioritization based on IP addressing, ports, or DSCP values
- Secure Network Transmission with bi-directional IPSEC and AES-256 encryption (optional)

Reduce Network Operations Cost and Increase Network Availability

- Industry-leading bandwidth efficiency and network availability with
  - Forward Channel DVB-S2 with Adaptive Coding and Modulation (ACM)
  - Return Channel with adaptive coding and frequency hopping
  - Return Channel using MF-TDMA and variable burst size
- Bi-directional IP header and payload compression, including TCP, UDP, and RTP compression

Technical Specifications

Physical Interfaces

One 10/100BaseT Ethernet LAN RJ45 port

Satellite & Antenna Specifications

Outbound transmission format:	DVB-S2
Information Rate: (Receive or Outbound Channel)	Up to 121 Mbps
Information Rate: (Transmit or Inbound Channel)	Up to 3.2 Mbps
Symbol Rate (Receive):	1 to 45 Msps (in 1 Msps steps)
Symbol Rate (Transmit):	256, 512, 1024, 2048 ksps
Encoding (Receive):	DVB-S2 LDPC/BCH
Encoding (Transmit):	Turbocode FEC 1/2, 2/3,and 4/5
Frequency Range:	Ka-/Ku-band
Modulation (Receive):	QPSK, 8PSK, 16APSK
Modulation (Transmit):	OQPSK
Bit Error Rate (Receive):	10^{-10} or better
Bit Error Rate (Transmit):	10^{-7} or better
Antenna:	74 cm, 89 cm, 98 cm, 120 cm, 180 cm
Radio:	1 and 2 watt Ka- or Ku-band

Mechanical & Environmental

Weight:	1.6 lb (.73 kg)
Dimensions:	8.0" H x 1.6" W x 9.0" D (20.3 cm H x 4.1 cm W x 22.9 cm D)
Operating Temperature:	0º C to 50º C
Input Power:	90 to 264 VAC; 50 to 60 Hz
DC Power Supply (Optional):	12 to 24 VDC

Simplify Network Operations

- Software updates, configuration, status monitoring, and commissioning centrally controlled via the Network Operations Center (NOC)
- Remote terminal management via the Hughes Vision® Network Management System and SNMP
- User-friendly LED display indicating terminal operational status
- Integrated local Web interface for status, troubleshooting, and diagnostics
- Universal power supply supports international voltage ranges and frequencies and has a detachable power cord

For additional information, please contact Hughes at globalsales@hughes.com or visit www.hughes.com.

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