# NetCrossing™ Gateway

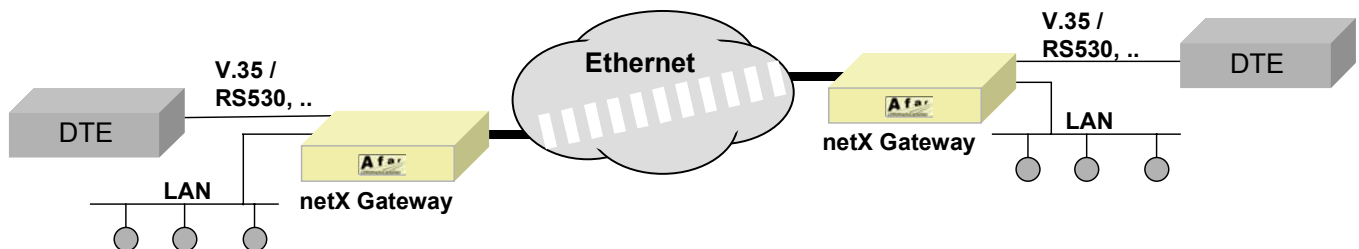**NET CROSSING**

**Technology**

- **Carries synchronous data streams across an IP or Ethernet packet switch network**

- **Fully configurable data port:**
  - **Speeds up to 2048 kpbs or 8192 kbps**
  - **Multiple electrical interfaces (RS232, RS449, RS530, V.35, X.21)**
  - **Multiple clock source configurations**

- **Additional User Ethernet port with transparent bridging and configurable rate limits**

- **Selectable encapsulation: Ethernet only to cross a single network, or full IP/UDP to cross multiple networks**

- **Independent Type of Service (ToS) settings for both streams over the IP network**

- **Automatic scan mode finds a peer gateway across the Ethernet**

- **Low end-to-end latency**

- **Easy configuration**

- **Remote management through Telnet, SNMP or "Afar Ethernet Console"**

- **Remote software updates**

- **Adapted for wireless applications**
  - **Provides power to the radio**
  - **Synchronizes RF transmissions allowing deployment of large number of co-located radios**

## Applications

The Afar NetCrossing™ gateway breaks a continuous serial data stream into fixed size packets, adds the Ethernet or IP framing, and sends them over a packet switch network to a remote gateway. At the remote end, the gateway removes the Ethernet or IP framing and reconstructs the original data stream. The gateways regenerate the clocks and keep both ends synchronized with no bit slips.

The receiving NetCrossing™ gateway buffers a number of incoming packets in order to compensate for the packet delivery jitter introduced by the network. The size of this buffer is configurable to accommodate different amounts of expected jitter. The unit collects statistics of the network jitter, and can automatically optimize the buffer size for minimal link latency.

If the application is to cross a single Ethernet network, the gateways create packets using simple and very efficient SNAP encapsulation. Or you may configure the units to perform full IP/UDP encapsulation, which allows crossing multiple networks.

When crossing a single network the gateways can automatically scout for an unconnected peer and establish a point-to-point connection with minimal configuration required. Configuration and monitoring is performed using a terminal connected to a front panel console port or through the LAN port using Telnet, SNMP or the Afar Ethernet Console program.

In addition to the serial data stream, the gateways include a user LAN Ethernet port. This port implements a transparent learning bridge which only forwards to the remote peer the packets addressed to stations on the remote LAN. You can set a limit on the cumulative throughput offered to the network. In this case the gateway gives priority to the serial port and allocates to the user LAN the remaining bandwidth. This is useful if the network port has a throughput limitation imposed by, for example, a radio link.

For wireless applications the NetCrossing™ gateway is designed to work seamlessly with the Afar Wireless Ethernet radios. The gateway provides data, control and power to the radio through a single CAT5 cable. The radio is enclosed in a waterproof enclosure allowing outdoor deployment for improved system performance. In addition, if your application requires multiple wireless links emanating from the same location, the NetCrossing™ gateways can synchronize the transmissions of all the radios such that they do not cause self-interference. This is achieved by simply daisy chaining the SYNC ports of all of the NetCrossing™ gateways. Refer to the Afar Radio literature for more information on this feature.

## Specifications

- **Network Port (WAN):**

  10/100 Base T, full/half duplex, auto-negotiate

  "Switch" connector: RJ45 for direct connection to switch or router

  "Radio" connector: RJ45 for direct connection to Afar Radio

- **Serial Port:**

  Connector: DB25 female (DCE)

  Speeds: 3 kbps to 2048 kbps (model NX-2048)

  3 kbps to 8192 kbps (model NX-8192)

  Interface: RS232, RS530, RS530A, RS449, V.35, X.21

  Clock Source: Internal, External, Remote, Hybrid

- **User Ethernet Port (LAN):**

  10 Base T, full/half duplex

  Connector: RJ45

- **Synchronization Port:**

  Connectors: 2 RCA audio (for synchronization of co-located radios)

- **Console Port (front panel)**

  Connector: DE9 female (DCE)

  Interface: RS-232 / V.24

  Baud Rate: 9600 to 115.2 Kbaud

- **Power:**

  Input Voltage: 8 to 28 Volts DC
  110 to 220 VAC (external supply)

  Consumption: 3.3 Watt

- **Environmental:**

  Operating Temperature: 0 to 55 deg C
  32 to 130 deg F

  Humidity: up to 90% non-condensing

- **Physical:**

  Dimensions: 9" (W) x 6" (D) x 1.5" (H)
  22.8 x 15.2 x 3.8 cm

  Weight: 1.0 lb, 0.45 kg

Specifications subject to change without notice
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