Afar communications

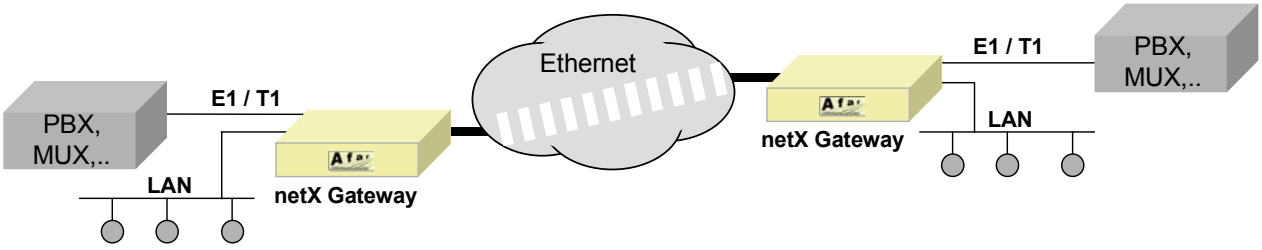
"We Go The Distance …"

NetCrossing™ Gateway

2xE1/T1

- **Carries two T1 or E1 lines over an IP or Ethernet packet switch network**
- **Unframed or user configurable channel selection for fractional E1/T1 operation**
- **Balanced or unbalanced E1 line interface**
- **Selectable encapsulation: Ethernet only to cross a single network, or full IP/UDP to cross multiple networks**
- **Optional data encryption**
- **Additional User Ethernet port with transparent bridging and configurable rate limits**
- **Remote management through Telnet, SNMP or "Afar Ethernet Console"**
- **Low end-to-end latency**
- **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



- **Carry telephone tie-lines across private data networks**
- **Backhaul of voice channels from cellular base stations to MTSO**
- **Rural telephony transmission systems**
- **Private E1/T1 line over IP network**
- **Bypass international telephone tolls**
- **Couple with Ethernet radios for a wireless E1/T1 link**

The NetCrossing™ Gateway transparently carries E1 or T1 formatted TDM circuits across a packet switch network and reconstitutes it on the other side with minimum latency.

This is NOT "Voice-over-IP" but a fully transparent circuit which maintains all signaling of the TDM frame, therefore supporting high-speed modems, FAX and voice channels with no loss of quality.

The Afar NetCrossing™ gateway breaks the E1 or T1 serial data streams 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 T1 or E1 data stream.

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 capacity of the packet switch network is abundant, you can transport two full E1 circuits. If the capacity is limited you can specify a subset of channels from a combination of the two E1/T1 lines. The link capacity that is not used by the TDM circuit(s) can be used for Ethernet bridging through a LAN port on the unit. The gateway gives priority to the TDM data, and measures out a limited amount of LAN data traffic that will fit beside the TDM channels within the declared network capacity. This is useful, for example, if the network is a radio link with limited throughput.

For wireless applications Afar offers the AR24027 Ethernet bridge radio which provides an extraordinary interference-resistant link of up to 1.024 Mbps (half E1) over distances of up to 50 miles (80 Km). The NetCrossing™ gateway is designed to work seamlessly with the AR24027 providing data, control and power to the radio through a single CAT5 cable. 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.

The NetCrossing™ gateway can also be paired with third party Ethernet high speed radios to deploy E1 / T1 wireless links for a fraction of the cost of an equivalent microwave transmission system.

Model NX-2E1/T1-U shown above. Model NX-2E1/T1-B has two RJ48 instead of four BNCs

Specifications

- **Network Port (WAN):**
  10/100 Base T, full/half duplex, auto-negotiate
  "Switch" RJ45 for connection to switch or router
  "Radio" RJ45 for direct connection to Afar Radio
- **E1 / T1 Interface:**

	NX-2E1/T1-B	NX-2E1/T1-U
Connectors:	Two RJ48	Four BNCs
Impedance:	120, 100 Ω	75 Ω

  Framing: Unframed, MF CRC4/CAS, ESF
  Coding: HDB3, B8ZS, AMI
  Standards: ITU G.703
- **User Ethernet Port (LAN):**
  RJ45, 10 Base T, full/half duplex
- **Console Port (front panel)**
  DE9 female (DCE), RS232, up to 115.2 Kbaud
- **Synchronization Port:**
  RCA connector for synchronizing co-located radios.
- **Power:**
  Input Voltage: 8 to 28 Volts DC
  110 to 220 VAC (external supply)
  Consumption: 3.6 Watt
- **Environment:**
  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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