

Satellite Backup for Voice/Data Circuits Using The Nx 2205D

While terrestrial networks are vulnerable to outages due to natural or man-made disaster at any time, implementing automated backup for full or fractional T1/E1 voice/data circuits is an expensive proposition for most operators. However, using new compression technology from Netrix which is field proven by the US Military and a major international carrier, toll quality voice can now be maintained over low speed satellite and terrestrial networks, making these viable backups to standard telephone T1/E1 network connections.

The new Netrix Network Exchange (Nx) 2205D from NSGDatacom offers operators a cost effective way to automatically monitor and backup critical T1/E1 voice/data circuits that may be subject to outage due to intermittent or catastrophic failure. In the event of failure, the Nx2205D automatically compresses and routes toll quality voice and data over an alternate low speed network connection, automatically switching back to the primary link when it is re-established. This helps operators maintain customer service levels, and minimize potential revenue losses during unplanned network outages. More importantly, it can eliminate critical delays in re-establishing communications to an area suffering from hostile activity or natural disaster.

The Nx2205D is optimized for use with Satellite networks and operates seamlessly with DAMA systems where bandwidth is available from a pool on an as-needed basis. With a Nx2205D installed at both ends of a terrestrial T1/E1 link, the satellite bandwidth required during normal operation is minimal. In the event of a terrestrial link failure the voice/data traffic is compressed and rerouted via the IP connection (serial or Ethernet) over the satellite link. The DAMA system automatically detects the increase in traffic and additional bandwidth is allocated to the satellite connection for as long as needed. When the primary T1/E1 connection is re-established, traffic is gracefully removed from the backup connection back on to the primary connection.

The Nx2205D utilizes advanced Digital Signal Processing (DSP) voice compression techniques, which greatly exceed standard VoIP compression. For example, SIP systems cannot easily be used for efficient backup due to the high overhead and relatively low level of overall compression achieved. However, the award winning Netrix compression algorithms, which retains PSTN quality voice, only require 128Kbps to restore a fully utilized T1 (G.711) voice trunk with signaling, and only 192Kbps to restore a full E1 voice trunk with signaling. The signaling channel data is packetized with local acknowledgements, which also minimizes traffic sent over the link when there is no call activity. These bandwidth requirements translate to a high cost saving for the redundant path, such that many organizations now consider permanently provisioned circuits viable for backup.

Automated T1/E1 Backup

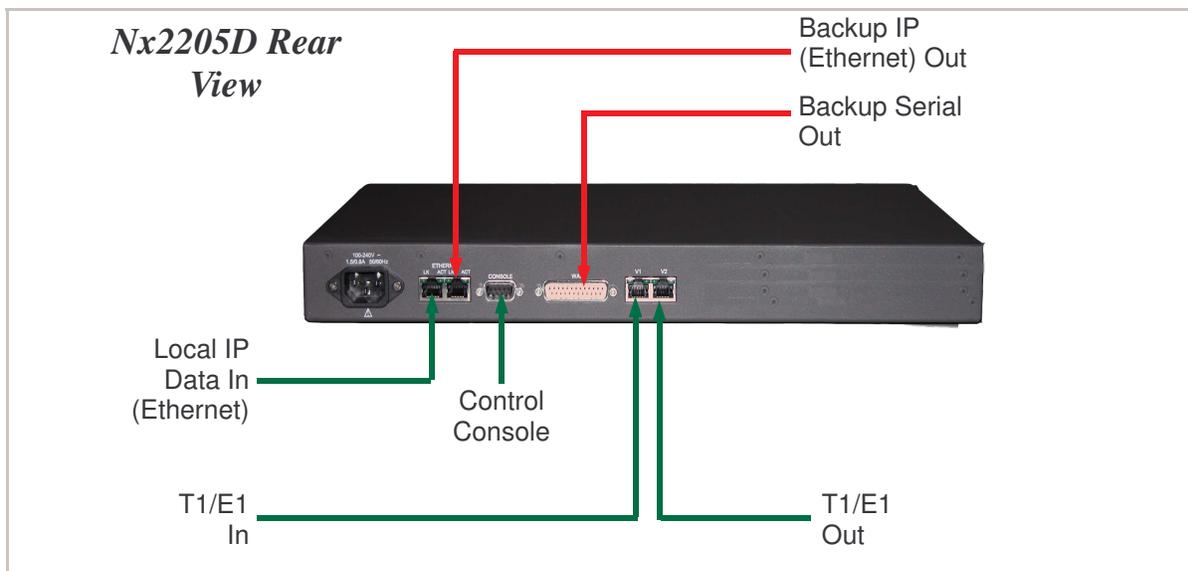
Toll Quality Voice Compression

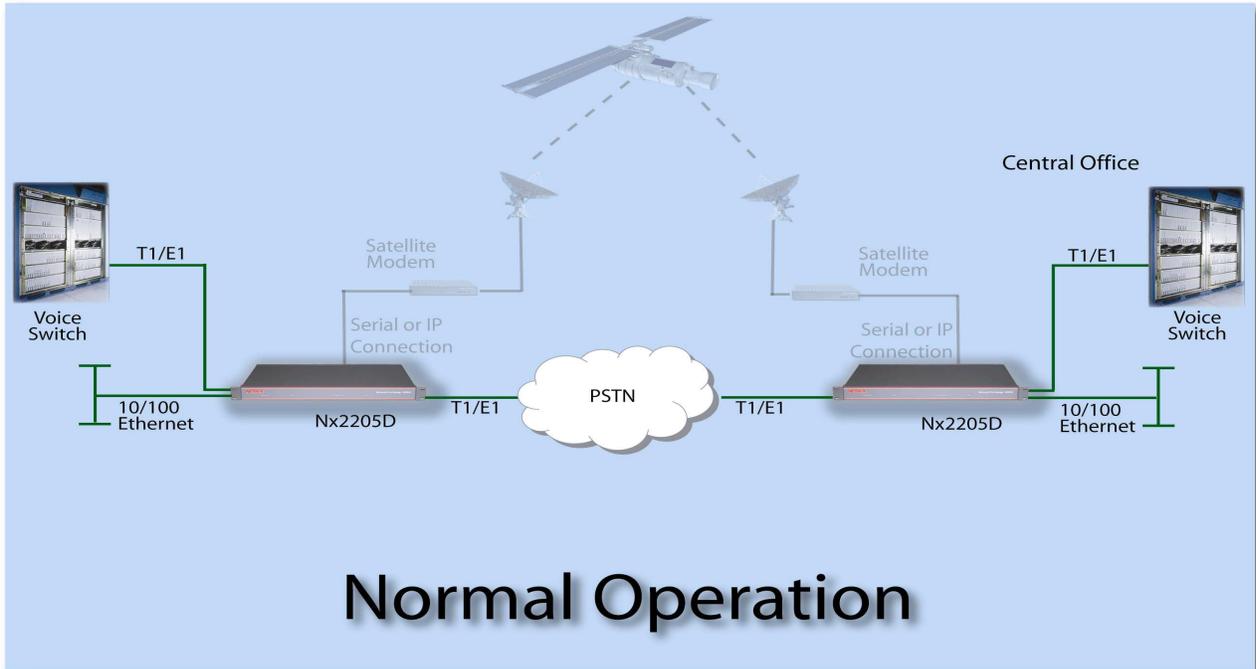
Backup Full T1 Using Only 128 Kbps

Backup Full E1 Using Only 192 Kbps

Field Proven Design

Backup via IP or Serial Connection





Other benefits provided by the Nx2205D include fractional backup (using proportionally less bandwidth), anti-bounce for channel/circuits prone to brownouts, activity logging and alarming.

With fractional backup an operator can choose to protect only certain channels, or a certain number of channels within the T1/E1, thereby limiting the bandwidth required during backup. Some circuits may have to be backed up for “brownout” rather than complete failure. Since this condition results in frequent short duration outages, brownouts could cause a circuit to “bounce” between the primary and back up path, which would in turn cause repeated dropping of calls in progress. The anti-bounce mode of operation in the Nx2205D mitigates this problem during short-term interruptions by not switching calls in progress between the primary and backup circuits until they are hung up.

Comprehensive activity logging guarantees that operators can check the quality and usage of both primary and back up path for SLA certification. Extensive remote Configuration, Monitoring and Alarm functions are provided by the NetrixView NMS system, along with a comprehensive suite of other Management and Diagnostic tools.

The Nx2205D provides a proven, cost effective, and highly reliable solution for backing up your voice and/or data network, particularly suited to situations where there is a likelihood of intermittent or catastrophic failures in the network. The Nx2205D is optimized for operation over satellite networks but is equally effective for backing up T1/E1 voice/data links over low speed terrestrial networks. VPN security is also available for protection of sensitive communications.