# Netrix Voice/Data Aggregation Products
Enterprise Application

NSGDatacom has a long history and solid reputation as a provider of leading edge voice compression technology to the Military and major Carriers (ref: VoIP Application Note – Ideal Solution for Bandwidth Challenged Environments). NSGDatacom offers new enterprise solutions that merge internal voice and data systems onto a single IP-based communications network. Major savings are gained routing telephone and fax calls between locations over an IP connection. Expensive long distance charges can be eliminated using our toll quality voice compression technology which connects to both the PSTN and IP networks and determines the most cost effective route for each call. Our data switching technology can be used to merge IP traffic and also connect "legacy" host/terminal type systems onto the same IP network, eliminating leased line costs, reducing delays and contrary to most alternative solutions, improving data throughput performance while maintaining high quality voice communications.

The Netrix Network Exchange (Nx)2205 series products are voice compression switches and data routers for converging voice/data LAN and Wide Area Network (WAN) applications. The Nx2205A directly connects up to 8 analog devices and the Nx2205D connects 2 or 4 full or fractional T1/E1 voice circuits. Individual voice channels are compressed and merged with other data streams for transmission over public or private packet-based networks including Frame Relay or IP.

A typical enterprise application illustrating some of the functions and benefits of the Nx2205 products is shown below. In this application the headquarters location (A) is connected to the PSTN via a full or fractional T1/E1 through a Nx2205D. The Nx2205D automatically routes calls made from the headquarters PBX either though the IP connection or directly out to the PSTN based on pre-programmed routing criteria. For example, certain dialed numbers may be forced over the IP connection regardless of whether the full or an abbreviated string is dialed. Alternatively, off-site locations may be assigned local extension numbers with calls to those locations routed over IP, thereby providing extended PBX functions.
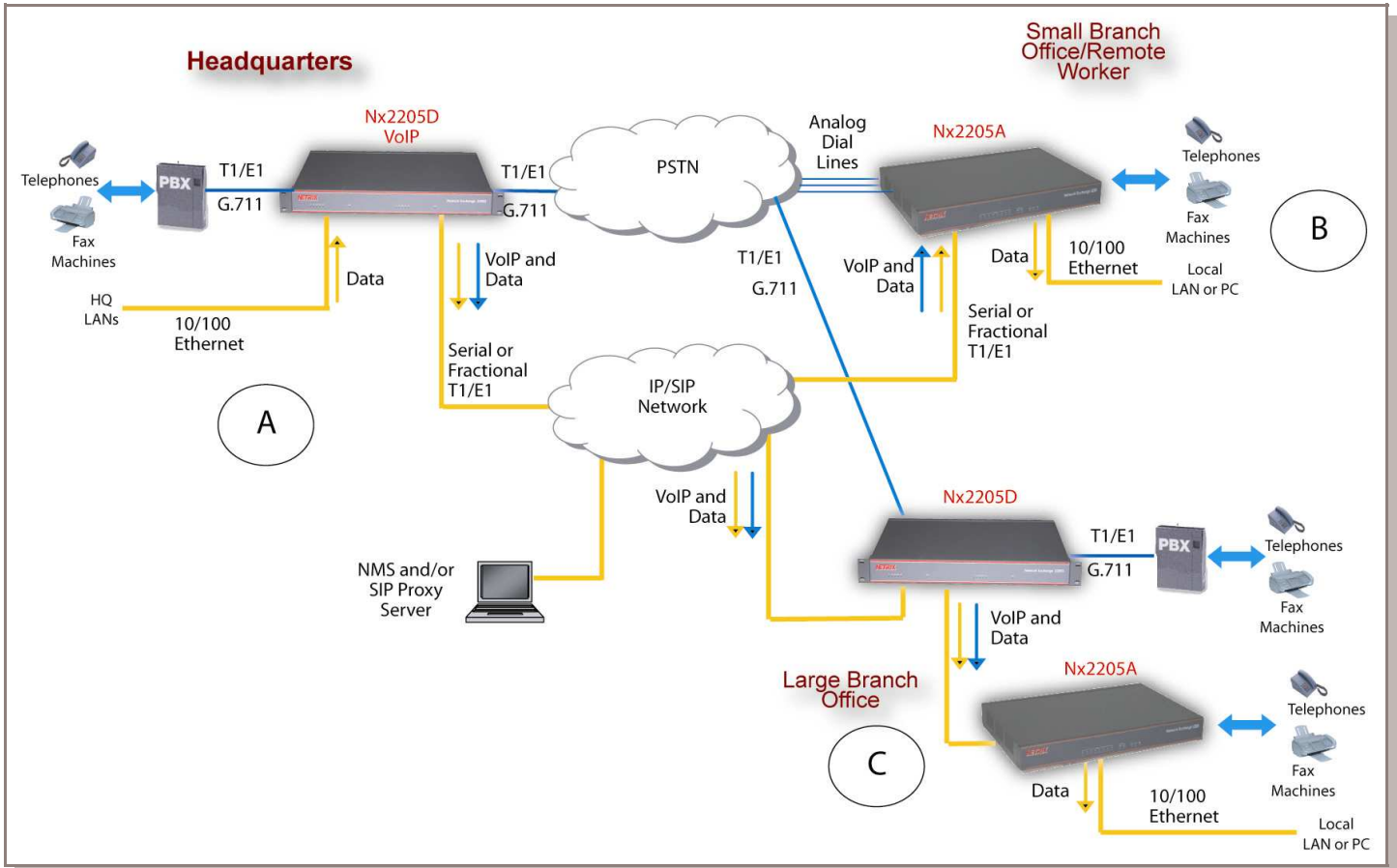
The dual T1/E1 ports of the Nx2205D allow non-blocking, DS0-level digital cross connect with drop and insert on incoming and outgoing circuits. This provides the ability to groom or mix G.711 voice circuits with fractional T1/E1 packet data. The T1/E1 network interfaces may be independently defined as N x 64/56Kbps voice circuits plus a fractional T1/E1 circuit dedicated to IP traffic. Alternatively a separate high speed serial WAN port or Ethernet connection may be used for aggregated VoIP plus IP data as shown in the diagram. The interface to the PBX may be defined as a full or fractional T1/E1 circuit, scaled independently from the network interface to accommodate the aggregation of both PSTN and IP voice calls.

If required the Two T1/E1 connections can both be allocated toward a common direction, e.g. both towards the PBX, or both towards the network, and/or independently defined as T1 or E1, (full or fractional).
One of the dual switched 10/100Mbit Ethernet interfaces are shown connected to a local Ethernet LAN segment. The compression and routing functions of the unit work together to create an aggregated VoIP/LAN data stream for transmission over a primary and/or backup network connection. The primary network connection may be defined as an Ethernet port, a full or fractional T1/E1 port or the high-speed serial WAN port (as shown). When connected to dual external IP networks the Nx2205D can be configured to use a primary IP connection with automatic backup routing. Voice channel availability and routing can also be defined and managed based on circuit loading and time of day. Sophisticated quality of service functions ensure the highest possible voice quality is maintained even over relatively poor connections such as the Internet.

IP voice calls may be compressed using standard compression techniques that allow interoperation with SIP or H.323, soft-switch systems. However, for point-to-point and private network connections, many Carriers favor Netrix proprietary algorithms. These algorithms have been independently tested and verified to provide toll quality voice connections in bandwidth as low as 5Kbps per call.

At branch office locations a Nx2205A is used for direct connection of analog lines (B), and a Nx2205D is used where a fractional T1/E1 connection is required. Often a combination of the two may be needed to attach both digital and analog circuits as shown (C). The Nx2205's combine compressed voice and IP data, routing voice calls over the PSTN or the IP network based on the dialed digits. The Nx2205A allows configuration of analog voice ports as FXS, FXO or E&M signaling for connection to the PSTN, standard analog handsets, a local PBX or fax machines.

Toll Quality Voice over IP

Extensive Voice Feature Set

Advanced QOS Mechanisms

Superior Interoperability- H.323 v2 & SIP Compliant

Soft Configurable Voice Ports

Nx2205D

Nx2205A

About NSGDatacom

www.nsgdata.com

NSGDatacom designs, manufactures, sells and supports a wide range of voice and data products focused on real world business communication needs. Combining key strategic acquisitions with its own core development team, NSGDatacom utilizes a wide range of proven, stable technologies. NSGDatacom creates solutions with these technologies to maintain and preserve organizations' network investments and mission-critical applications while enabling a smooth migration to newer technologies.

NSGDatacom products are deployed worldwide in corporate, financial, government, utility, carrier, satellite, and cellular networks.

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