# Cost Savings for Banks using Integrated Voice/Data IP Solutions

NSGDatacom has a long history and solid reputation for building reliable and secure data switching systems for banking applications. In the USA over 70% of all Point of Sale Transactions pass though NSG systems daily, and many international banks use our solutions for critical communications world-wide. NSG is also a provider of leading edge voice compression technology to the Military and Carriers world-wide (ref: VoIP Application Note – Ideal Solution for Bandwidth Challenged Environments).

Combining these technologies, NSGDatacom now offers Banks the opportunity to merge their internal voice and data systems onto a single IP-based communications network. Major savings are gained by routing telephone and fax calls over an IP network. 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. Additional savings are possible by using our data switching technology to connect POS, ATM and other "legacy" host/terminal based systems onto the same IP network, thereby eliminating leased line costs. Contrary to most alternative solutions, our systems reduce delays and improve transaction throughput performance.

The NSGDatacom Netrix Nx2205 and TURBO series products are leading edge voice compression switches and data routers designed for converging voice, Point of Sale (POS), ATM and other host/terminal-based banking applications onto IP LANs and common Wide Area Network (WAN) connections.

The Nx2205A directly connects up to 8 analog voice/fax devices and the Nx2205D connects 2 or 4 full or fractional T1/E1 voice circuits for headquarters or branch telephone and fax communications. Individual voice/fax channels routed through Nx2205's are compressed and merged with data from the Turbo products for transmission over public or private packet-based networks such as Frame Relay or 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 customers favor Netrix proprietary algorithms. These algorithms have been independently tested by Carriers and verified to provide toll quality voice connections in bandwidth as low as 5Kbps per call.

Our Pac III TURBO and Pico TURBO products are multi-protocol data routers and switches which support native mode implementations of all common protocols used in the banking environment for POS, ATM and "legacy" back office functions. They interface to a wide variety of host/terminal systems converting the backbone transport to IP, and operate transparently to the host/terminal system. TURBO capacities range from just one to hundreds of serial terminal or host ports per unit. Each serial port can support a wide range of software-defined protocols (such as SNA, Bisynch, Burroughs, NEC, X.25, Asynch and many more) in point-to-point or in multi-drop configurations. Connection to bank host systems may be by multiple serial ports or Ethernet LAN. The native mode protocol implementations supported by the TURBO products avoid the normal pitfalls associated with running legacy systems over IP networks. Bandwidth efficiently is improved by the elimination of end-to-end polling, which also avoids Host time-outs. Transaction reliability is enhanced with automatic error detection and correction, and VPN security.

*Toll Quality Voice/Fax over IP*

*HQ PBX functions Extended to Branch Locations*

*Lowest cost routing of all calls*

*Integrated Host/Terminal System support over IP*

*Improved POS, ATM Transaction Throughput*

*Simple Installation, Operation, and Management*

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www.nsgdata.com

A typical banking application illustrating some of the functions and benefits of the NSGDatacom 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 the lowest cost route, through the IP connection if possible, to provide extended PBX functions at branch locations. A PAC III TURBO is shown connecting to multiple host systems and provides POS, ATM or other legacy banking services to the branches though the Nx2205D onto the same fractional T1/E1 (or other) wide area, point to point or generic IP network connection.

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 that includes IP LAN traffic and data from the host/terminal systems. Alternatively a separate high speed serial WAN port or Ethernet connection may be used for combining VoIP with LAN IP data plus host/terminal data, as shown in the diagram. The compression and routing functions of the units work together to create an aggregated voice/data stream for transmission over primary and/or backup network connections (which may be different for voice and data). The primary network connection(s) may be defined though an Ethernet port, a full or fractional T1/E1 port or the high-speed serial WAN port (as shown) with automatic backup routing on any other connection. Sophisticated quality of service functions ensure the highest possible voice quality and host/terminal data integrity is maintained even over relatively poor connections such as the Internet.

At branch 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 (C). The WAN port on the Nx2205's can be used to connect to DSL, Wireless, ISDN or any other type of serial network connection. A Pico Turbo is used to connect to local POS, ATM or other bank terminals in each case and provides host emulation and/or protocol conversion to IP. The units combine compressed voice, terminal data and IP data for transmission over public or private IP network connections. 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. The Pico TURBO allows individual ports to be software configured to different host emulation modes so it can be seamlessly connected to a variety of different banking terminals in one location. All units are simple to install and can be remotely monitored and managed from anywhere on the network via the SNMP based Network Management System (NMS).