



**VoIP**  
**High Quality Voice**  
**Ideal Solution for Bandwidth Challenged Environments**

- **Award-winning voice clarity**
- **Design and field-proven for harsh environments**
- **Scalable and Flexible**
- **H.323 & SIP compliant**
- **Combined Voice and Data over any infrastructure**
- **Standards compliance ensures superior interoperability**
- **Soft configurable voice ports**
- **WAN support via Frame Relay over high-speed serial interface**
- **Low power budget**



Voice over IP (VoIP) offers organizations substantial benefits, including reducing the cost of business communication. For end users, the ability to merge all voice and data onto a simplified system has powerful appeal. For service providers, the ability to provision and maintain a single network for both voice and data provides a significant operational advantage.

Unfortunately, there can be a shortcoming with VoIP, the amount of bandwidth required to provide the desired voice quality can be higher than anticipated. Organizations are often forced to choose between sacrificing voice quality in order to realize the cost savings, or forego the cost savings in order to maintain quality.

Netrix Network Exchange Nx2200 gateway products from NSGDatacom provide the solution to this dilemma. The product family was developed by the inventors of packetized compressed voice and leaders in quality, bandwidth-efficient voice solutions. The Nx2200 product line utilizes both standard and patented voice compression technologies (12:1 voice compression) to deliver high quality voice over a variety of fixed-line, wireless, and satellite links at efficient data rates. Toll quality voice is achieved while realizing bandwidth efficiency by use of sophisticated queue buffer, jitter buffer and echo cancellation mechanisms built into the product. Additionally, the Netrix products are field-proven to operate in harsh environments.

NSGDatacom products are deployed worldwide in corporate, financial, government, military, carrier, satellite, and cellular networks. The following applications are examples of Netrix solutions that were chosen by customers wanting to take advantage of the benefits of VoIP in environments where high quality voice was crucial and bandwidth was at a premium.

**Communication solutions from**  
**NSGDatacom**

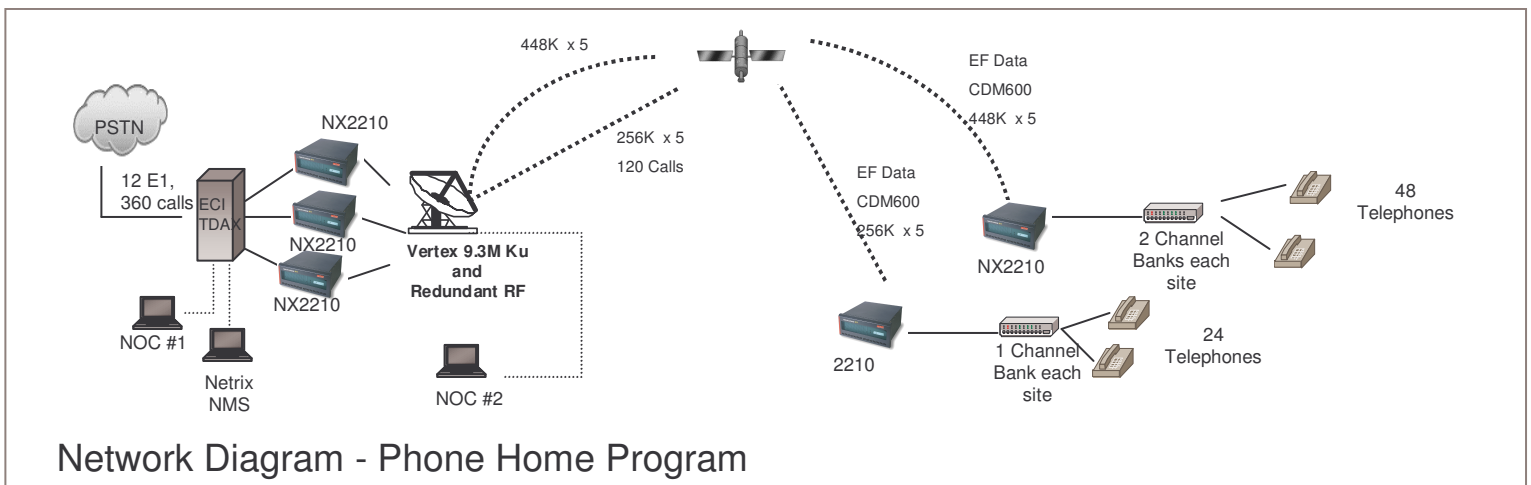
**extend. evolve. innovate.**

## US Military – Phone Home Program

Quality of voice calls was of particular interest to a major USA interexchange carrier for a high profile VoIP service. Military personnel stationed in the Middle East rely on Netrix voice products to call loved ones back home. Voice quality is extremely important to soldiers connecting with family members on the opposite side of the globe, regardless of whether these calls are placed over satellite hops and/or congested links.

Netrix Nx2200 VoIP gateway products were selected because they established

calls faster, used significantly less bandwidth, were easy to deploy, were highly reliable, and provided excellent voice quality for the telephone calls using packetized voice and clear channel communications over satellite. Furthermore, the Netrix products are field-proven to operate in harsh environments, including a deployment in Afghanistan where climate shifts can be extreme. In one situation it was discovered that the product still operated normally even with sand inside the unit!



Network Diagram - Phone Home Program

## SES-Americom

### Clarity of voice essential for satellite control

Although SES-Americom wanted to save money on terrestrial circuits, using the satellite undergoing the planned operational change. Because a network of Nx2214s and Nx2201s at earth stations in Europe and the Americas for VoIP communications initially utilized both a terrestrial data network and a voice network, they have managed to achieve both.

At each earth station, they use PADS Voice Terminal Units (VTU's) supplied by XteQ to provide patchable, hoot-and-holler circuits to other earth stations. This is necessary since controllers at one earth station must be in contact with controllers at another while performing satellite operations such as orbit correction. Before any operation can be performed, it must be discussed and agreed upon by all of the controllers.

However, the voice path for this inter-controller communication cannot

traverse a satellite link since it might save money on these voice circuits. After careful evaluation of products from many vendors, the Nx2210 and Nx2201 products were selected for the VoIP network because they allowed operators to communicate reliably via telephone handset and overhead speaker without degradation of voice quality. This was the most critical criterion in product selection, as any breakdown or loss of signal could result in course corrections not being implemented.

Since most of the data network traffic was IP running over a router network, VoIP became a possible means of saving money on these voice circuits. After careful evaluation of products from many vendors, the Nx2210 and Nx2201 products were selected for the VoIP network because they allowed operators to communicate reliably via telephone handset and overhead speaker without degradation of voice quality. This was the most critical criterion in product selection, as any breakdown or loss of signal could result in course corrections not being implemented.



**Only Netrix provides the VoIP quality that is essential to us when controllers are speaking between ground stations. If they can not recognize the other controller course corrections can not be made.**

**NSGDatacom Customer**

## ***Polylink– VoIP with SIP***



Polylink—a premiere provider of Carrier Services to the Asia Market—currently carries voice traffic for China Telecom, China Unicom, China Netcom (CNC), and China Railcom. They also provide a 24x7 Network Operations Center to ensure the highest levels of quality and availability. With the implementation of SIP into the well-respected Nx2200 product family, Polylink can now easily expand the use of our VoIP gateway products into applications for the SME/SOHO Services markets.

Polylink selected the Nx2200 because of the Network Management system, which their engineers find extremely user friendly, and the product family's impressive voice quality and bandwidth efficiency, especially for VoIP applications over satellite networks as well as for packetized voice over International Private Leased Line, Frame Relay and IP networks. With the addition of SIP, Polylink can merge the existing VoFR/VoIP networks with the new SIP network.

## ***UPS Supply Chain Solutions***



Fritz—a freight forwarder and customs broker with operations in 120 countries—was acquired by UPS in the late 1990s. Prior to the acquisition, Fritz deployed the Netrix solution to reduce communication costs between many of their major locations around the world but did not want to sacrifice voice quality.

The Netrix solution continues to provide

excellent quality voice with cost savings. Fritz station managers have deemed the quality to be better than the regular public network.

Additionally, the Netrix implementation supports a simplified company dialing plan that utilizes a unified numbering scheme for all phone extensions.

## ***ATMB***

### ***Modernize Airspace Management System***



The Air Traffic Management Bureau (ATMB) under the General Administration of Civil Aviation of China (CAAC) was seeking to build a network that was reliable for the transmission of their highly critical operations such as voice, radar, telex, hotline, and various administrative and maintenance applications. A dramatic increase in air traffic over recent years made it necessary to modernize the airspace management system to both support the current level of activity and to provide for anticipated future growth.

The Nx2210 was selected as the building block for the network between all the airports in this region, including Hong Kong SAR and two of the four busiest airports in China: Guangzhou and Shenzhen. The topology chosen for the network was a redundant star, with the hub at Guangzhou Bai Yun Airport and spokes running over terrestrial and satellite circuits to the other airports.

Like many organizations facing the dilemma of how to efficiently and reliably provide both voice and data services, the Southern Region ATMB Controller decided to create a combined voice and

The Nx2210 provides many benefits to the ATMB such as combined voice and data over both frame relay and IP, guaranteed delivery of data, flexible voice support including “hoot and holler” circuits, industry leading voice quality, and a flexible and scalable solution.

## Quality with Bandwidth Efficiency

At NSGDatacom, we understand that the drivers for implementing VoIP solutions are to take advantage of bandwidth cost savings and to realize the operational benefits emanating from the consolidation of voice and data networks. Our gateway products, renowned leaders in quality, bandwidth-efficient voice solutions, allow our customers to realize these benefits without having to sacrifice voice quality.

Our superior, proven technology allows our products to use significantly less bandwidth than our competitors for VoIP applications. When using the Netrix 8Kbps toll quality compressed voice, only 40Kbps of bandwidth is needed for four voice calls. Even less bandwidth can be provisioned when the silence suppression technology is also utilized.

Standards-based VoIP requires a centralized call router, with every call having to be established by this call router. If the path to the call router fails so do all the voice calls, which has serious implications for both reliability and bandwidth usage. NSGDatacom products do not have this requirement as all calls are setup locally, with no recourse to any centralized system. This provides a high level of reliability while minimizing bandwidth requirements.

## Members of Netrix VoIP Family

### Nx2201



- 4 analog ports or
- 1 T1 digital (24 ch) or
- 1 E1 digital (30 ch)
- 1 Ethernet port

### Nx2210



- Up to 32 analog
- Up to 7 T1 digital
- Up to 6 E1 digital
- 4 Ethernet ports

### Nx2205A



- 4-8 analog ports
- 2 Ethernet ports
- 1 Serial WAN port

### Nx2205D



- 2 T1/E1 voice or data
- 2 Ethernet ports
- 1 Serial WAN port

### Nx2214



- Up to 32 analog
- Up to 7 T1 digital
- Up to 6 E1 digital
- 4 Ethernet ports
- Dual PSU AC/DC

# NSGDatacom

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