A Microsoft® Qualified Solution for Lync™ Survivability at the Branch Office

Introducing NET’s UX2000 Real Time Services Platform

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Microsoft’s® Lync™ is a revolutionary development in enterprise unified communications (UC) that will seamlessly integrate the full range of enterprise communications options with Microsoft Office. The innovative communications capabilities incorporated in Lync™ promise to move enterprise communications to the next level and truly deliver the productivity advantages of UC. Securely extending those Lync™ enabled communications capabilities throughout the enterprise will require gateway devices that can interconnect the Lync™ environment with the full range of IP and legacy network services. With the full complement of protocol and codec mediation functions required for a Lync™ deployment, the high performance UX2000 can fully address the survivability requirements of branch locations with up to 1000 users.

The Unified Exchange (UX) 2000 Survivable Branch Appliance is the first in a new line of multifunction mediation platforms for real time communications from NET, one of the pioneers in Microsoft UC networking. Designed and qualified to work with Microsoft’s® Lync™ solution, the UX2000 is a modular communications appliance that can extend those UC capabilities reliably and securely across the enterprise. Based on high-performance silicon and a modular configuration, the UX2000 is a single box platform that can provide any-to-any communications in a Microsoft Lync™ environment. Regardless of whether the solution calls for access to TDM-based PRIs, traditional analog services or a session border controller for SIP trunking, the modular UX2000 can be cost effectively configured to support the configuration. With its intuitive, secure user interface for remote configuration and management, the UX2000 is ideal for branch offices with minimal IT support.
Reliability is a key factor in voice and other real time communications. In centralized VoIP deployments, services at branch offices depend on a WAN connection to the central data center. If WAN connectivity is lost, the branch could be left without intra-site, local, long distance, or 911 access. With support for Microsoft’s Survivable Branch Appliance software, the UX2000 can maintain local, wide area, and emergency communications using any combination of analog, digital, or SIP-based network services.

To deliver the best Lync™ experience, Microsoft has partnered with a number of device manufacturers to provide the elements needed to extend Lync’s™ revolutionary communications capabilities in the widest range of possible deployments. As a Microsoft Gold Certified Partner, NET has a long history of supporting Microsoft UC products. NET’s VX and Quintum products provided gateway functions for Lync’s™ predecessors, Office Communications Server (OCS), and OCS Release 2. After an exhaustive evaluation process, the UX2000 was qualified as a survivable branch appliance for Lync™ deployments.

As customers move to Lync’s™ innovative communications capabilities, the UX2000 appliance will provide a reliable, scalable mediation platform to support the full range of Lync™ deployments. With its modular architecture, the device can cost effectively support just the capabilities the application requires on a high-performance processor platform that can scale with your requirements. With its highly functional remote management interface, the UX2000 can reduce operational expenses and make your Lync™ deployment a success.

**Supporting The Move to Unified Communications**

The enterprise communications market is in the midst of a major realignment with the advent of UC. This transition began with the move to all-IP based communications. While IP PBX systems were the first step in that process, those legacy architectures based on stand-alone voice, video, IM, and email systems are being supplanted. Forward-looking organizations recognize that traditional voice is just one element in how users communicate and collaborate. UC-based solutions can integrate all of the user’s communications voice, email, text, and conferencing capabilities into a single integrated interface they can access from either their desktop or their mobile device. With UC, enterprise communications is truly moving to a whole new level.

Based on their strength in the desktop environment, Microsoft has taken a lead role in driving that change with their groundbreaking Lync™ UC solution. In their 2010 *Magic Quadrant for Unified Communications* Gartner placed Microsoft at the highest position in the coveted leaders-visionaries quadrant. Lync™ extends the networking capabilities of Microsoft Office, Exchange and SharePoint by integrating all of the user’s communications capabilities into every application.

However, UC is being deployed in an evolving communications environment. Core networks are transitioning from traditional TDM to IP-based network services, but there is still a significant base of analog devices like fax machines and modems to contend with. Integrating Lync™ into this mixed environment and extending it throughout the enterprise will call for mediation platforms that can support any-to-any communications with the full suite of codec and signaling mitigation functions. To support that environment, mediation platforms need to be flexible enough to handle the full range of requirements, modular so that they can provide those services cost effectively, and built on a high performance platform to ensure they can grow with requirements.

The UX2000 has been architected to complement that environment, and provide a secure, reliable, and manageable platform on which to grow your network. As you bridge the gap between the legacy networks of the past and the revolutionary capabilities of UC, the UX2000 can provide the capabilities you need to move effectively into UC.
Product Overview

The NET Unified Exchange 2000 (UX2000) Survivable Branch Appliance is a multifunction mediation platform appliance that is architected from the ground up to provide security, high performance and high reliability in all branch deployment scenarios. The key feature of the UX2000 is its modular design that allows customers to choose only those applications they need, thereby allowing the most cost effective configuration for every requirement. That modular design in conjunction with a secure remote management interface ensures that the UX2000 can minimize both capital and operating expense even in branch locations with minimal IT support.

To deliver on that promise, the UX2000 is built on a high-performance Intel Core i7 processor with a hardened Windows Server operating system to ensure expanding capabilities will not outgrow the platform. The UX2000 incorporates Marvell’s latest generation Ethernet switch that can forward up to 35 million packets per second. A single unit can be configured with up to 6 digital signal processors (DSPs) supporting 100 fully encrypted calls each. The modular design supports up to 8 T1/E1 spans making it an ideal solution for branch locations with up to 1000 users. The UX2000 supports 10M, 100M and GigE copper and fiber SFP LAN interfaces, and integrates with Active Directory and LDAP for easier installation and configuration.

As part of the overall platform, the UX2000 incorporates a router, firewall, session border controller, along with a traditional voice communications gateway all in a single box, and the integrated applications server uses the Intel Core i7 processor to support a number of third party applications including the Microsoft Survivable Branch Appliance software.

Core Capabilities

To be effective, a mediation platform must support the richest set of mediation services. For voice services, the UX2000’s can translate between Microsoft’s RTAudio and G.711 (µ-law and A-Law), G.729, and G.723 voice coding. On packet interfaces it can support voice activity detection with comfort noise injection, along with signaling and media encryption. From an interface standpoint, the UX2000 can support T1 and E1 PRI links, and T1/E1 QSIG as well as analog FXS. It can also support T.38 fax over IP (FoIP) and modem pass through.

With its modular design and remote management capabilities, the UX2000 can reduce both capital and operational expenses. Ideally suited for branch office deployments, the UX2000 uses a single box form factor for voice and data. That modular architecture allows customers to choose only the options they need, allowing them to keep their existing routers or to replace multiple devices with a single appliance.

Management/Monitoring Interface

The UX2000 is a highly configurable device, but it is equipped with a highly intuitive Web-based management interface. It can be configured and managed locally or over a secure remote interface making it ideal for branch locations with minimal IT support. With its fully integrated architecture, the management interface will allow the operator to configure all of the functions of the Survivable Branch Appliance. The operator can view the hardware configuration, and configure interfaces, routing protocols, calling routes, and digit translations.

The UX2000 uses a Web-based management system with Syslog and Simple Network Management Protocol (SNMP) monitoring capabilities to simplify day-to-day management and operations. The ASM is also monitored, and checked periodically with the help of “keep alive” messages that confirm that critical functions are operating. If the ASM fails to respond, critical alarms are sent to the network operator and problems can be diagnosed remotely.

As the UX2000 uses standard SNMP MIBs and syslogs, it can be monitored by third-party management systems like SCOM and HP OpenView/NNMi.
Security
Security is a key concern in VoIP applications, and the UX2000’s capabilities address the full range of threats and concerns. To begin, UX2000 incorporates a full complement of integrated port security and Layer 2 security features to defend against ARP spoofing, man-in-the-middle, and denial of service attacks. The configuration hides the internal topology and uses rate limiting techniques to mitigate denial of service attacks. In the Session Border Controller (SBC) or gateway modes, the UX2000 encrypts both SIP signaling and media. Media encryption is done in the DSP modules and uses Secure Real Time-transport Protocol (SRTP) as defined in RFC3711 with AES-based encryption if required.

Integrated Applications Services Module
The other distinguishing feature of the UX2000 is an Integrated Application Solutions Module. Fully integrated in the overall system architecture, the ASM uses the high-performance Intel Core i7 processor and ECC memory providing the ability to host several third party applications simultaneously. With storage provided through a serial ATA drive, the ASM allows users to consolidate applications servers reducing both server count and IT management complexity.

Use Cases
The flexibility and modular design of the UX2000 allows it to be used in a number of customer applications. The modular architecture is such that users can cost-effectively purchase only those elements as are required for their particular application, and with the Intel i7 core processor, there is no fear that the application will grow beyond the UX2000’s capabilities.

- Survivable Branch Appliance: The move to centralized telephony architectures has brought the requirement for survivable branch solutions to the forefront. When a branch’s communications are provided through a remote call processing agent, the loss of WAN connectivity can leave branch offices with neither internal (i.e. station-to-station) or external communications capabilities. One of the core capabilities of the UX2000 is to support the Microsoft Lync™ Survivable Branch Appliance application. Provisioned with its own network interfaces, a branch-based UX2000 will provide reliable communications even when connectivity to the central Lync™ servers is lost.
If a WAN failure occurs, existing connections are maintained and user stations are reregistered with the Microsoft Survivable Branch Applications function in the UX2000. They can then continue to make and receive intra-branch voice calls and maintain IM sessions. With its full array of mediation services, UX2000 users can also reestablish inter-branch communications, voicemail, and 911 access over the PSTN via analog, PRI, or SIP trunking interfaces.

The UX2000’s ability to reestablish communications in the event of a WAN failure in a Lync™ environment has recently been verified by Miercom®, an independent test lab specializing in IP communications.

- **Session Border Controller**: The move to all-IP telephony has brought with it a drive to all-IP telephony and SIP trunking. Interfacing to SIP trunking services brings with it the requirement for Session Border Controllers (SBC) to provide media translation, signaling compatibility, and most importantly, security. Along with its basic telephony gateway functions, the UX2000 incorporates a full SBC capability with the complete range of media and signaling mitigation functions.
- **On the security front**, the UX2000’s SBC function can encrypt both signaling and media streams and can provide denial of service mitigation as well as voice firewall functionality. To ensure excellent voice quality, the UX2000 supports call admission control and enforce user-defined policies to enable service level agreements.
Along with the basic SBC functionality, the UX2000 includes advanced routing and control scenarios including least cost routing, quality based routing, and intelligent routing based on Active Directory integration. Most importantly, the UX2000 includes these functions in one box, eliminating the cost and complexity of a separate SBC device.

- Psuedo Wire Gateway: City-wide or nationwide deployments of Microsoft Lync™ can allow all sites to be interconnected with one integrated system allowing calls or conferences to be arranged among all sites as easily as if all users were in the same building. In support of that configuration, carriers are offering Ethernet and MPLS-based network services in addition to traditional frame relay, ATM or T1/E1 Private lines.

Using Virtual Private Wire Services (VPWS) or Pseudo Wire Emulation (PWE) capabilities, the UX2000 can allow all sites to be cost effectively interconnected over a shared backbone using those new carrier offerings for a seamless Lync™ deployment.

**Product Roadmap**

The UX2000 is the first offering in NET’s next generation of multifunction mediation platforms, taking a major step forward from the VX and Quintum lines. The product plans call for a series of devices based on this core architecture scaling up and down to address a wider range of user requirements. All of these devices will utilize the same software base, the same highly intuitive user interface and management capabilities. The result will be the ability to provide full consistency across the product line regardless of the application.

The UX2000 was conceived with that idea of full consistency regardless of scale or application. Your training investment is protected and the UX2000 comes with the assurance of further expansion on the platform going forward. That plan is geared toward extending the Microsoft Lync™ experience across the enterprise regardless of the network services being used. The UX2000 can protect your existing telecom investments while providing a flexible, modular solution designed to support the widest range of network configurations.

Unified communications is coming, and the UX2000 can help you to prosper.
1 Gartner 2010 *Magic Quadrant for Unified Communications*, Bern Elliot and Steve Blood


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