

Key Success Factors for Microsoft UC Implementation:

Ensuring Alignment of VoIP Infrastructure
with Business Needs



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EXECUTIVE SUMMARY

Microsoft Unified Communications (UC) is a powerful platform for improving staff productivity, speeding responsiveness to business problems and opportunities, and reducing operating costs. By making it easier than ever for employees to quickly communicate with anyone any time via voice, email, chat, or video – while sharing documents and files as well – UC can provide significant competitive advantages and help boost bottom-line business performance.

VoIP hardware greatly enhances Microsoft UC offerings by providing voice services that connect internal staff to each other and to the outside world. Such hardware can also play a crucial role in ensuring that a company can fully leverage its existing telecom infrastructure – and thereby avoid any disruption of its business – rather than having to commit to significant infrastructure upgrades in support of its Microsoft UC implementation.

Different types of projects will naturally have different technical requirements. An organization's choice of VoIP hardware is therefore contingent upon its specific business needs.

A variety of requirements will typically affect an organization's decision about which VoIP hardware to use in conjunction with their Microsoft UC implementations. These requirements include:

- Interoperability with existing/planned telecom infrastructure
- Remote office support and survivability
- Security
- Call processing performance
- Special routing and administration needs

Companies implementing Microsoft UC can achieve substantial gains in business performance as a result. But, without the right gateway

architecture, they can also run into problems that limit those gains. NET's VoIP switches and gateways minimize those problems and enable companies to fully leverage Microsoft UC's rich functionality for maximum business benefit.

CHALLENGES FOR MICROSOFT UC IMPLEMENTATION

Microsoft has built on its dominance of the corporate desktop to become the world's leading provider of business productivity solutions – including Word, Excel, and Outlook. The introduction of Microsoft UC continues this strategy by enabling customers to now integrate voice and video into the desktop environment. This integrated environment can offer a wide range of potential benefits, such as accelerated collaboration and improved decision-making.

Many IT departments supporting Microsoft software are familiar with the deployment hurdles that come with integrating new servers and other typical data applications. Bringing voice into a typical Microsoft implementation has a different technology focus. Organizations may therefore face a variety of challenges when implementing Microsoft UC:

VOICE CONNECTIVITY BETWEEN THE IP NETWORK AND TELECOM INFRASTRUCTURE

Microsoft UC passes VoIP traffic between desktops without requiring any other modification to the corporate IP network. It does not, however, provide any connectivity to PBXs and/or external service provider networks. Its connectivity to IP PBXs and IP-based service providers is also limited to a small number of vendors and require specific recent releases of those vendors' products.

Few companies want to completely overhaul their entire telecom infrastructure – and potentially disrupt their day-to-day business – to support a Microsoft UC rollout. On the other hand, it makes no sense to have users make internal calls one way and external calls another, either. It is therefore necessary to implement a third-party VoIP solution that integrates Microsoft UC into existing non-Microsoft telecom infrastructure.

VOICE CONNECTIVITY BETWEEN MICROSOFT UC USERS AND NON-MICROSOFT UC USERS – ESPECIALLY DURING PHASED ROLLOUTS

Companies don't typically convert every single desktop to a new voice infrastructure like Microsoft UC over a single weekend. On the contrary, Microsoft UC is typically first implemented in a particular targeted area of the business where it will deliver the greatest ROI – and then rolled out to other areas in successive stages. This is another reason that some sort of VoIP hardware is required between the IP network and legacy telephony infrastructure.



VOICE CONNECTIVITY BETWEEN MICROSOFT UC USERS AND OTHER SIP END-POINTS

Network planners at many organizations have to connect Microsoft UC end-points to SIP phones and other SIP end-points. The Microsoft UC implementation currently only allows SIP devices that support all the Microsoft UC SIP functions. This means the pool of devices is small, so other provisions must often be made for more universal SIP connectivity.

FLEXIBLE SWITCHING OF MICROSOFT UC VOICE TRAFFIC TO MULTIPLE NETWORKS

Some voice traffic from Microsoft UC users may need to be routed over the corporate IP network. Some may need to be passed via the PBX or direct to a connection with a TDM carrier. Some may more cost-effectively be handled by an IP service provider – which may be optimally done by switching it to that provider before it hits the PBX. And, as providers compete with each other and offer different pricing incentives, the rules about which voice traffic goes where will likely change over time. Companies therefore need a way to flexibly switch voice traffic originating from Microsoft UC users to multiple networks as required at any given time.

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REMOTE OFFICE SUPPORT

Network planners also have to devise the most cost-effective way of extending Microsoft UC voice service to remote offices. A primary cost consideration is the installation of Mediation Servers at each location. This can be particularly problematic for companies that have a large number of smaller remote offices and/or those that want to provide voice support for home offices and mobile workers.

REMOTE OFFICE SURVIVABILITY

Microsoft UC does not currently support survivability of remote offices. If the network connection to a central server fails – users in remote offices will lose their ability to make phone calls with either Microsoft UC or their SIP phones. This is unacceptable for voice users, since such a total loss of voice service can seriously impact the business. Also, remote offices must always have a way of contacting local 911

emergency services. Network planners therefore need to implement survivability measures that ensure the availability of voice services in remote offices, even in the event of a server or network problem.

SECURITY

VoIP presents special security challenges, since it is a service that connects to the outside world without restriction. Risks associated with spoofing, illicit access to media, and other exploits in conjunction with VoIP include eavesdropping on phone conversations, toll charges for fraudulent calls, exposure of personal data (such as names and phone numbers), and – perhaps most important – vulnerability to denial-of-service attacks. These risks make it critical for network planners to be extra-cautious about protecting VoIP traffic.

CALL PROCESSING PERFORMANCE

Not all VoIP hardware is created equal when it comes to call processing performance. In fact, in high-volume settings such as customer service call centers and outbound telemarketing, it is critical that the hardware infrastructure supporting Microsoft UC be capable of reliably handling the large numbers of calls that are likely to occur during periods of peak traffic. Speed of call setup is also critical – since the difference between a half-second of setup time and two seconds or more can be extremely significant in automated high-volume environments.

SPECIAL ROUTING AND ADMINISTRATION NEEDS

Many companies have additional special routing outside the scope of Microsoft UC. For example, Microsoft UC clients can't identify themselves by name to end-users on Cisco Call Manager or similar systems. The routing of faxes to appropriate Outlook email addresses can also be problematic. Some companies want to route voicemails to users' Outlook mailboxes even when callers call their cell phones. Companies with may also need to streamline overall management of moves, adds, and changes by administering Microsoft UC users and non-Microsoft users in a common manner.

These are just a few of the issues that network planners must consider as they prepare for Microsoft UC implementation – and as they select their VoIP hardware infrastructure. The wrong infrastructure can fail to meet business requirements, needlessly drive up deployment and on-going ownership costs, and/or limit adaptability to changing conditions. The right solution, on the other hand, can ensure a smooth transition to a converged environment – while keeping costs low and flexibility high.

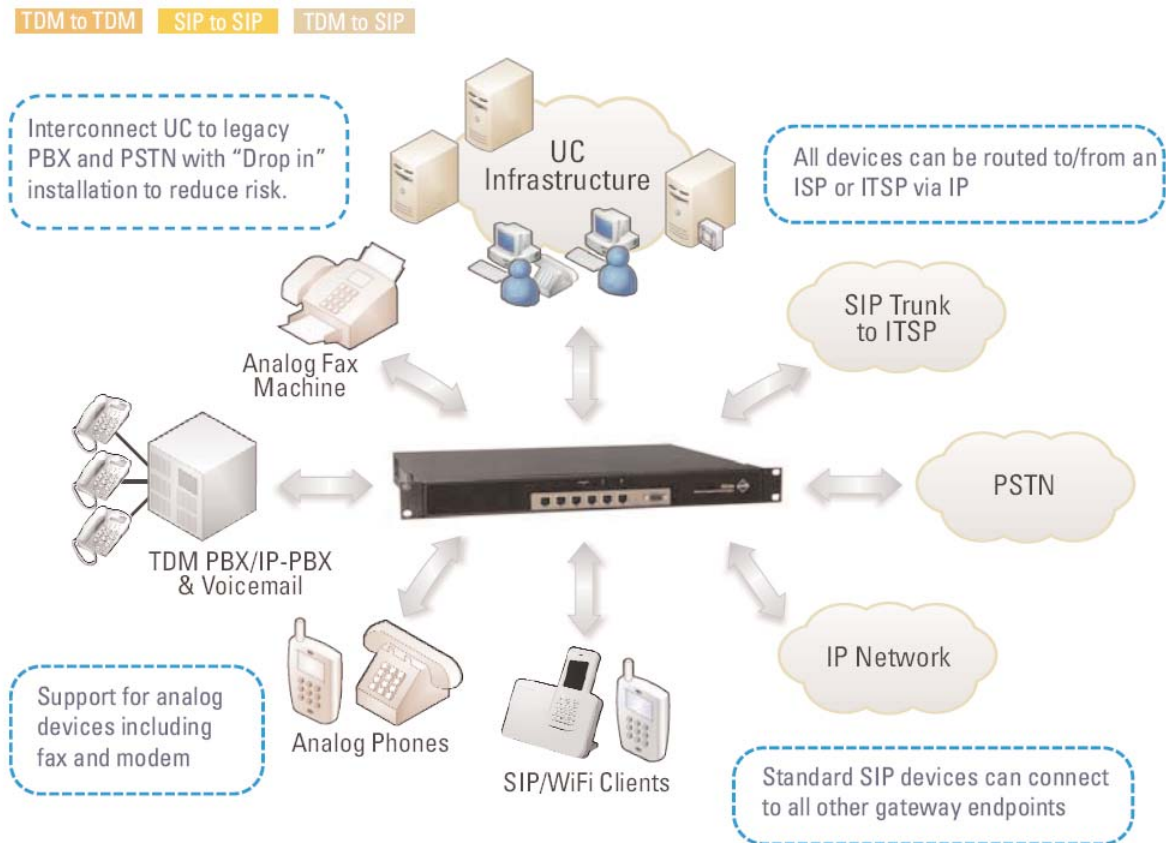


Figure 2: VX Series' Any-to-Any MultiPath architecture

The VX Series' Any-to-Any MultiPath architecture (along with its built-in SIP to SIP mediation) provides full connectivity between Microsoft UC users on an IP network and any other telecom infrastructure – including PBXs and IP PBXs – without requiring additional hardware or reconfiguration of existing devices.

MICROSOFT UC AND NET'S VX SERIES SWITCHES

NET's VX Series switches are significantly differentiated from commodity VoIP gateways in ways that make them particularly suitable for the challenges associated with Microsoft UC implementation. Key attributes of the VX Series solution include:

SUITABILITY FOR DIVERSE TELECOM ENVIRONMENTS

The VX Series' Any-to-Any MultiPath architecture (along with its built-in SIP to SIP mediation) provides full connectivity between Microsoft UC users on an IP network and any other telecom infrastructure – including PBXs and IP PBXs – without requiring additional hardware or reconfiguration of existing devices. By providing a "single box" solution for interoperability between IP, SIP, H.323 and TDM-based systems, the VX Series uniquely meets the needs of large enterprises with mixed environments – allowing all calls for the PSTN, IP-PBXs, conventional PBXs, and SIP trunks to be routed on the same node.

REMOTE OFFICE SUPPORT

By providing gateway services for all remote offices, the VX Series can eliminate the need to install separate Mediation Servers at all remote offices. VX switches also allow Microsoft OCS servers to connect to multiple gateways by "masking" the presence of multiple gateways

from the OCS server. This allows multiple gateways to be installed at remote offices and/or a central location without requiring additional Microsoft Mediation Servers.

REMOTE OFFICE SURVIVABILITY

NET VX Series switches include built-in SIP survivability functionality that ensures continuity of basic calling functions on SIP phones in remote offices even in the event of an Office Communicator Server failure – or in the event that IP network connectivity to a UC server in a central location fails. This safeguards critical voice services across the enterprise from any single point-of-failure, although Microsoft UC client desktops themselves will obviously not be able to make or receive calls. NET VX Series can also be configured to automatically call a single number or a mobile phone number in the survivable mode to ensure incoming calls reach a person.

VOIP SECURITY

VX Series switches fully secure all aspects of VoIP. They implement a full range of encryption protocols, including TLS for signaling security and SRTP for media security – as well as IPSec, SCIP, and MD5 Auth. And unlike other hardware solutions that compromise performance when using encryption, VX Series switches encrypt at wire speed. VX Series switches also provide "rogue packet" ejection that detects



malicious streams and ignores them, while notifying personnel about potential intrusions.

CALL PROCESSING PERFORMANCE

VX Series switches deliver significantly differentiated call processing performance, setting up as many as 20 calls per second – as opposed to typical gateways that average around four. They can also support up to six STIX four-port T1/E1 cards and 24 T1/E1 ports per system. This enables sites to provision capacity for up to 720 simultaneous TDM calls and 1000 calls overall (including IP to IP, TDM to IP, and TDM to TDM). Multiple switches can be used to increase this capacity incrementally as required.

ACTIVE DIRECTORY INTEGRATION

VX Series switches allow programmable call control to be driven by telephony data from Microsoft Active Directory and LDAP servers. This provides IT administrators with a single point-of-control for user moves, ads, and changes. AD integration also supports a variety of other call-routing scenarios. For organizations in transition to UC, for example, it allows the VX switch to determine whether a call should be routed directly to a user's phone or via an OCS Server to a UC desktop. It allows the names of Microsoft UC callers to be displayed on non-Microsoft phones, so that they don't appear to be calls from outside the company. It enables calls to cell phones to be switched to UC mailboxes when voicemail prompts occur. In fact, AD integration opens up a universe of possibilities for rules-based call routing – including the programming of failover scenarios that direct calls to users' cell phones in the event that LAN/WAN connections to UC desktops are down.

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NET VX Series switches provide many other capabilities that make them especially suitable for Microsoft UC deployments – including link quality management, support for consolidation of UM voice mailboxes, and music/message-on-hold functionality. This rich feature set makes the VX Series the most sophisticated VoIP hardware infrastructure solution available today for Microsoft UC environments – enabling organizations to reap maximum business benefits as they migrate towards full convergence on the corporate desktop across the enterprise.

PROVEN ADVANTAGES FOR MICROSOFT UC ADOPTERS

Businesses of all kinds are under tremendous competitive pressures today. These pressures are a driving force behind Microsoft UC implementations. By implementing Microsoft UC, companies expect to enhance staff productivity, improve responsiveness to customers needs, and streamline critical business processes.

IT organizations, however, have to ensure that investments in Microsoft UC technology in fact deliver these benefits – and that such benefits are achieved as resource-efficiently as possible. In this context, NET's VX Series switches offer indispensable advantages for Microsoft UC adopters. These advantages include:

LOWER INITIAL AND ONGOING INFRASTRUCTURE COSTS

VX Series switches greatly simplify the implementation of Microsoft UC by allowing companies to leverage whatever telephony infrastructure they already have in place. They also reduce both initial capital equipment costs and total ongoing infrastructure ownership costs by reducing the number of devices required in the enterprise environment. Plus, the directory integration they provide reduces lifetime ownership costs for converged environments.

SMOOTHER TECHNOLOGY TRANSITION AND GREATER LONG-TERM FLEXIBILITY

Few companies do a "forklift" overhaul of their telecom infrastructure. Instead, they typically progress through various stages of transition from legacy PBXs and TDM to IP PBXs and VoIP. In addition, companies are often unable to fully anticipate the changes they will have to accommodate in the future. Because VX Series switches interoperate with all types of legacy and convergence technologies, they are ideal for ensuring a company's ability to successfully navigate staged technology migrations and unexpected shifts in technology direction – without disruption to the business.

REDUCED PROJECT RISK

Certain risks are inherent in any technology migration. These risks include failure to factor in some technical or business requirement – or the need to modify the company's convergence roadmap in light of new business, budget, or technology concerns. VX Series switches greatly mitigate these risks for Microsoft UC adopters by providing the flexibility to accommodate a wide range of unexpected project requirements.

REMOTE OFFICE SUPPORT AND SURVIVABILITY

With NET's VX Series switches, Microsoft UC adopters can more easily and cost-effectively extend converged services to remote users. They

can also cost-effectively ensure that SIP phones, analog devices, and other telephony end-points will be able to stay in service even in the event of a server or network failure.

IMPROVED ABILITY TO USE VOIP AND VOIP-BASED SERVICES TO CUT TELECOM COSTS

The telecom industry is in flux. Incumbent and alternative service providers continue to offer new ways for companies to reduce costs and improve business communications. By making it easy to selectively switch different types of voice traffic to any type of service provider at any time, VX Series switches uniquely enable Microsoft UC adopters to take advantage of the best deal available – without additional investments in new hardware or costly PBX re-configuration.

GREATER IT SECURITY

Deployment of Microsoft UC can create a new set of security exposures that existing security and hardware may not fully address. By using VX Series switches, IT organizations can gain a significantly greater level of protection from known and emerging VoIP-based threats.

HIGHER ROI

VX Series switches substantially increase ROI for Microsoft UC implementations in several ways. First, they lower the total cost of implementation by enabling companies to use the infrastructure they already have in place. Second, they provide the performance necessary to leverage Microsoft UC across the entire enterprise –

including demanding call center environments. Third, the adaptability they provide “future-proofs” Microsoft UC to extend its useful life in an ever-changing technology environment. For these reasons and others, VX Series switches significantly increase the total business value companies can receive from their Microsoft UC investments in both the short term and the long term.

Microsoft UC has the potential to positively and radically transform the way companies do business. For companies that want to reap the full potential benefits of convergence, the right VoIP infrastructure solution is absolutely essential. And, for Microsoft UC implementations with special connectivity, security, and/or scalability requirements, *NET's VX Series switches are often the best – if not the only -- solution.*

ABOUT NETWORK EQUIPMENT TECHNOLOGIES, INC.

For nearly a quarter of a century, Network Equipment Technologies, Inc. (NYSE: NWK) has provided voice and data communications equipment for multi-service networks requiring high degrees of versatility, interoperability, security and performance. NET solution are purpose-built for mixed-service, multi-protocol networks; bandwidth-sensitive site communications; high-performance, security-sensitive transmissions; and converged communications. Quintum, a subsidiary of NET, delivers VoIP access solutions that bring the reliability and voice clarity of public telephone networks to Internet telephony.

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