

VX Solution Brief

Extended UC Feature with NET's VX Series Gateway



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INTRODUCTION

Today's distributed, decentralized organizations demand reduced complexity and cost of managing networks. Server proliferation and ongoing datacenter consolidation initiatives are driving the need for reducing infrastructure cost and complexity at branch offices and remote sites while ensuring that critical voice services are available at all times.

Microsoft OCS R2 is typically implemented in a centralized model. All the required OCS R2 and Exchange 2007 UM servers are installed in a datacenter. Branch offices and remote sites usually only have analog phones, fax machines, and Microsoft Office Communicator clients, VoIP devices such as SIP phones, etc. connected to the data center using a high bandwidth private WAN or an Internet connection.

Microsoft OCS R2 solution has many server roles some of which can be collocated. One of the several OCS R2 servers is a Mediation Server role that runs on a standard server. The Mediation Server directs signaling and call flows between OCS R2 and non-OCS networks such as the PSTN network. The Mediation Server however cannot actually communicate with PSTN networks because it lacks TDM interfaces. Therefore, in addition to a Mediation Server, a Media Gateway is also needed to interconnect with the PSTN network. Hence, every branch office and remote site that needs both OCS and PSTN connectivity will likely need both a Mediation Server and a Media Gateway.

BUSINESS CHALLENGE

In order to reduce the number of servers, Microsoft allows some server roles to be collocated. However, a Mediation Server cannot be collocated with another server due to performance reasons. Hence, a Mediation Server requires separate hardware.

Since most branch offices need PSTN and OCS connectivity, it is possible that every branch office will need a Mediation Server leading to increased costs. For example, a typical mediation server that supports up to 92 calls needs a single processor, dual core, 2GHz with 2 GB RAM and 2 x 1 GBit NIC for a 4 T1 capacity server. The approximate cost of this server is \$1,700 per site. Additionally, a typical support contract may cost about \$1,000 for a three year support contract

The hardware acquisition, maintenance, and ongoing IT support costs represent one of the major hurdles to successfully implementing OCS in branch offices and remote sites. Most OCS implementations do not feature branch office voice availability when there is a WAN infrastructure failure. It is expensive to install redundant WAN infrastructure. If building out redundant WAN infrastructure is not an option, branch offices and remote sites will lose voice service availability which is another hurdle for organizations to implement OCS in branch offices. The current version of OCS does not feature providing location information for emergency services when users call 911. Finally, a single Mediation Server can only scale up to 480 simultaneous calls.

The VX gateway from NET overcomes these challenges by removing the need to install a Mediation Server. The VX gateway is a single appliance that needs no additional IT resources to maintain on a daily basis. With its intelligent routing and Any-to-Any switching, the VX gateway offers branch office voice availability and extends the value of Microsoft OCS R2 with features like 911 and High Availability.

SOLUTION DESCRIPTION

The VX gateway is a fully integrated multi-service voice switch that provides high-performance secure VoIP communications for enterprise OCS deployments. It secures both signaling and the media through standards protocol. The in-built firewall capabilities further extend the security by protecting networks from denial of service attacks.

The VX gateway interoperates with all leading PBX and IP-PBX vendor protocols, while offering rapid deployment, ease of installation, and lower maintenance.

A single appliance simplifies OCS deployments at the branch office. It provides encryption using SRTP and TLS, translates SIP over TCP/UDP to SIP over TLS, connects clients outside the network with internal users, and provides PSTN connectivity (Please see figure 1).

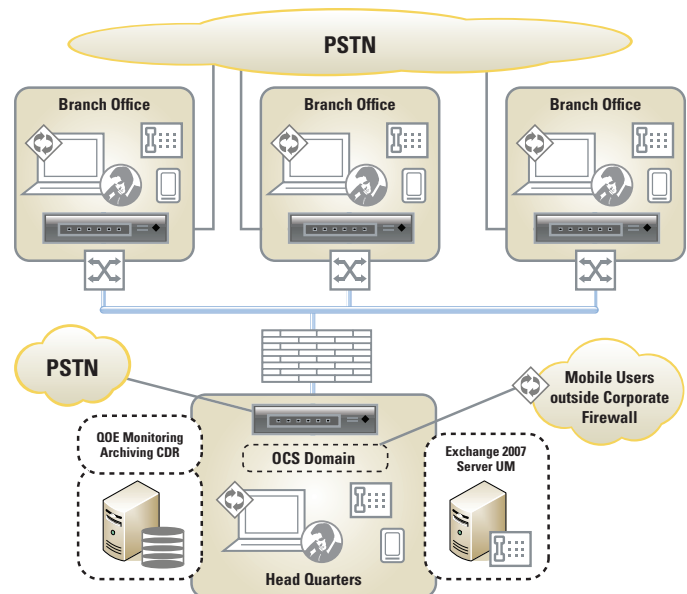


Figure 1: Simplified deployment with no mediation server role

SOLUTION BENEFITS

Reduces Acquisition and Operating Costs

VX gateway with Extended UC features lowers the total cost of ownership by removing the need for a separate Mediation Server at every branch and remote site (Please see figure 1). Therefore, the initial acquisition cost and ongoing maintenance of the Mediation Server is eliminated.

End users do not have to be retrained as they can continue to use the same numbering plan they are used to with existing PBXs.

Simplifies OCS R2 Network Topology for Branch Office and Remote Site Deployments

Branch offices and remote sites now only have one appliance behind a router to provide connectivity to Microsoft OCS which reduces network complexity in remote sites. Furthermore, since there is no need for a separate Mediation Server in the network, the resiliency of the network is improved as there is one less point of failure in the network.

Provides Branch Office Voice Availability

Every business needs its voice services running at all times. The VX gateway allows business phone service to continue without disruption in the event of network failure. It provides alternate routing to ITSP or PSTN. Callers within the branch can still communicate using SIP/Wifi phones registered on the VX gateway. Administrators can also configure the VX to route calls to an alternate number like a user's cell phone when the IP network is down. Many other survivability options can be programmed very easily using the powerful scripting language. The VX gateway also uses Active Directory to obtain information for dynamic call routing.

Supports Advanced Functionality

Supports Location Profiles and Normalization

The VX gateway can perform full digit manipulation and apply normalization rules before the calls are routed to OCS using regular expressions. At the time the VX gateway is configured, it registers with the OCS domain and starts processing the site specific location profile without a need for an additional Mediation server in branch offices and remote sites. In addition to number normalization, the VX gateway can perform calling name and number translation.

Extends Emergency 911 Service to OCS Users

Emergency personnel can locate callers within a building when users dial 911.

The VX gateway can be programmed to preempt normal calls to allow 911 calls to get through when there is resource congestion on the VX due to high call volumes.

Allows PSTN to MOC Calls when MOC is Outside the Firewall

The VX gateway will allow PSTN users to call remote or roaming MOC users who are located outside the enterprise networks. The VX gateway will negotiate authentication credentials on behalf of the PSTN user to reach MOC users. Additionally, the VX gateway enables PSTN-originated calls to communicate with MOC clients located in private networks.

Extends OCS R2 High Availability Beyond a Single OCS Pool

The VX gateway supports a meshed, high availability OCS network. The gateway can monitor the availability of OCS pool and route calls to an alternate OCS pool if any failure is detected.

Improves Audio Quality

The VX gateway removes the need to do additional transcoding from G.711 to RT Audio. PSTN calls are directly transcoded to RT Audio without a need for intermediate step of transcoding PCMU to G.711 before transcoding to RT Audio (Please see figure 2).

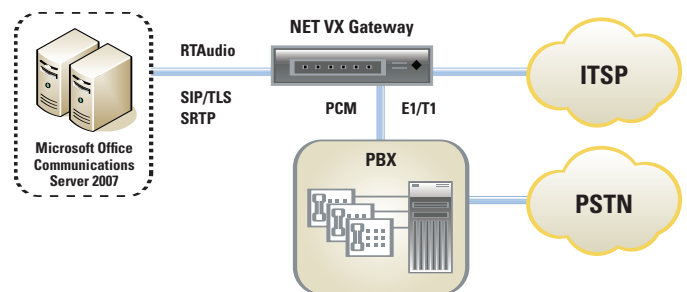


Figure 2: NET VX Gateway directly transcodes PCM to RT Audio requiring fewer transcoding steps

The VX gateway can automatically detect if the calls are on the local LAN or on a WAN. G711 codec is automatically used for providing better voice quality for calls on the LAN while the codec is switched to Microsoft proprietary codec called RT-Audio for calls going over the WAN. Using this network auto-detect functionality, the VX gateway will always ensure that the right codec is automatically negotiated providing users with the best audio quality possible for any network condition.

Provides Highly Secure Communication

The VX gateway supports SRTP and TLS for encrypting media and signaling.

Reports PSTN and PBX Call Quality Metrics to Microsoft QoE Server

The VX gateway can monitor quality metrics for TDM originated and terminated calls. The reports are sent to Microsoft QoE servers so administrators can manage and monitor the quality of all calls including the PSTN and the PBX calls.

Provides High Call Capacity

The VX gateway provides native support for RT-Audio which is optimized to use fewer resources on VX platforms. Depending upon the network conditions, a VX gateway can provide up to 600 simultaneous conference callers on a single box.

Since conferencing requires the same media to be sent to multiple recipients, encrypting and decrypting media packets can cause performance related issues. In order to improve conferencing server performance, Microsoft requires that the conference calls use the proprietary SS RTP (Scale Secure RTP). The VX gateway supports SS RTP for conference calls.

Allows Any Voice Network to Interoperate With Microsoft OCS R2

The VX gateway supports virtually all legacy TDM PBXs and offers interoperability with Microsoft OCS R2. The VX gateway is certified with several SIP Trunking service providers and complements service providers qualified by Microsoft.



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