

# Cost Efficient Migration to Microsoft Lync Unified Communications and Collaboration

WHITE PAPER

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# **Executive Summary**

In today's business climate, organizations must increase their workforce productivity in order to enhance and defend their competitive advantage through ever more efficient operations both internally and across their supply chain, inclusive of enabling markedly improved customer intimacy. Plenty has been written on the financial implications and benefits of moving to Unified Communications. The recent introductions of Microsoft Lync Server 2010 and Microsoft Exchange Server 2010 have opened up a tremendous opportunity to meet this challenge. The burning question is how can I get to a Microsoft UC platform from where I am today? As always, the devil is in the details. If an optimal tradeoff of business requirements for enhancing individual and business process productivity, interoperability with legacy infrastructure and total cost of ownership (TCO) is to be achieved, the design and implementation of a UC solution must be targeted to each enterprise's unique needs.

So far the migration hasn't been happening as quickly as the vendors and many of the predictors would have liked. Many have cited the economy and the cautiousness of new technology investments as the reasons for slower than expected adoption. The reality is, however, that most enterprises have been waiting for effective migration plans to transition smoothly from today's operating environment to tomorrow's, with as little disruption as is possible. AudioCodes' solutions play key roles in facilitating this migration.

To successfully deploy a new UC solution for an enterprise, you will need appropriate combinations of gateways, Session Border Controllers (SBCs) and Survivable Branch Appliances (SBAs). These "connectors" are required whether the new UC solutions come from Avaya, IBM, Cisco, IBM or Microsoft, etc. SBCs and SBAs are required due to the different protocols, formats and signaling mechanisms used by the new equipment likely differs from that used by the PSTN (which virtually all connections still traverse), the existing legacy voice solution (likely TDM), the enterprise's WAN and the new SIP trunks, implemented to reduce networking costs. No communications, be it simple point-to-point voice calls nor complex multi-point telepresence meetings, can occur without effective connectors as enablers and managers/controllers. Furthermore, to enable truly cost-effective migration from the legacy enterprise telephony network to the UC environment, the enterprise grows, whether organically,by M&A, or when the UC vendor releases future versions that introduce new gateway architectures.

This whitepaper will give you the GPS coordinates to successfully navigate through the migration challenges to a Microsoft UC architecture ensuring efficient and reliable integration of Microsoft UC into both your business's existing communications infrastructure and your service providers' networks. Along the way, proof points will be established supporting AudioCodes as your integration partner of choice. AudioCodes is a Microsoft Gold Unified Communications partner with over 17 years of product development experience. They have focused on VoIP network products and technologies that address and resolve the complexity and challenge that Unified Communications and Collaboration (UC&C) brings.

## Plan the Work, Then Work the Plan

The design and implementation of a UC solution must be targeted to each enterprise's unique needs if an optimal tradeoff of benefits and costs is to be achieved. The best way to get from here to there is with a plan. It's been said many times that, "No plan survives contact with the enemy." Whichever plan you create will not be the one you will ultimately implement. Nonetheless, having a plan is better than not having one. Having a collective understanding of business context and intentions will enable your team to select and communicate alternate directions knowledgeably and quickly.



#### Once you select an approach, there are three UC migration strategies you can take:

- 1. Build out the voice platform with IM/presence, conferencing, mobility and CEBP (likely in this order). This is fine in those companies or company areas where there are a high number of voice calls and conferencing and is primarily for meetings rather than collaboration. Retail stores, retail financial services, construction, education, and field sales are some examples. If you're talking and desktop sharing you will need a different platform.
- 2. Build out the desktop platform in those companies or company areas which are highly focused on email and document-centric operations where sharing a desktop to collaborate on a document is key. Think of pro services, HR, finance, and development. Those thinking of expanding their desktop platform will want to talk to the email management people and those managing the desktop images. They will be focused on their directory, email and collaboration tools, such as SharePoint. You would likely deploy IM/presence first. Now you can click to have an IM session or a peer-to-peer (P2P) VoIP and/or video session. The next thing you can do is to first add conferencing, then enterprise telephony, and finally CEBP.
- 3. Lastly, you can embed UC functions in your applications software. Think of manufacturing, distribution, logistics, and healthcare. Here the goal is to add communications to PC and smartphone interfaces.

There is no one size fits all either across businesses or across departments within a business. The one constancy, though, is the need for gateways to enable the connection of Microsoft Office Communication Server (OCS) / Lync Server to different embedded/installed PBXs and/or service providers networks (PSTN or SIP Trunking), as well as support for branch office survivability.

Another critical planning step for enterprises that are adopting Microsoft UC platforms is to carefully consider and plan how UC will play with their LAN and WAN infrastructures. Everything from bandwidth considerations, to firewall topology, to end-user habits and experiences must be taken into consideration. Bandwidth requirements for all branch office voice connections should be evaluated and WAN links redeployed as required. However, it's fair to say that Microsoft's RTAudio codecs and features such as Forward Error Correction (FEC) may compensate for less-than-optimal network conditions or constraints frequently allowing enterprise deployment of OCS / Lync telephony voice without any major configuration changes to LAN or WAN environments. But, one needs to be aware of the issues and invest enough due diligence to be assured of the adequacy of the deployed networking and bandwidth.

The above considerations are critical to your plan and will affect how your capabilities and competitive advantage grows through effective deployment and use of UC&C technology throughout your business. We can't sufficiently emphasize that an evolutionary approach is superior to rip and replace. And by the way, find a partner. Don't do it alone. Focus internally on where you can make a world class contribution and then leverage the development risk, investment and reward with others who can bring their complementary skills, resources and capabilities to the party.

In the remaining sections of this whitepaper we introduce you to: (1) The migration challenges that enterprises and their solution integrators face in their effort to ensure efficient and reliable integration of Microsoft UC servers into both a business's existing communications infrastructure and its service provider's networks; and (2) Proof points supporting AudioCodes as your integration partner of choice. AudioCodes has a proven track record of interoperability with a significant number of legacy and IP Telephony vendors. Its channel partners have the skill sets and experience to guide you through your planning, deployment, implementation and integration of Microsoft UC applications with your current legacy environment whatever that may be.

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# Successfully Navigating Through the Challenges of a Microsoft UC Architecture

Enterprises face a migration challenge not only at the time of initial deployment of the Microsoft UC network, but also at subsequent upgrades of the Microsoft software versions where once again they wish to reduce migration expenses and protect their infrastructure investment. Clearly the enterprise's goal in the UC version upgrades is to acquire the added functionality by performing only software upgrades, thus avoiding hardware replacement – a minimum CAPEX strategy.

Case in point, with Lync Server Microsoft having replaced the "Basic" Gateway, of OCS, with the "Enhanced" Gateway. And "Survivable Branch Appliance" (SBA) has replaced the "Basic Hybrid" Gateway. In total, Microsoft has defined five types of gateways: IP Gateway for Microsoft Exchange Server 2007 & 2010, Basic Gateway and Basic Hybrid Gateway for Microsoft OCS 2007 R1 & R2, and the Enhanced Gateway and Survivable Branch Appliance for Lync Server 2010.

AudioCodes has closely collaborated with Microsoft to provide enterprises a smooth migration path from the world of separated telephony and IT environments to the world of UC. As a Microsoft Unified Communications Gold certified partner with over 17 years of product development experience, AudioCodes has focused on VoIP network products and technologies that address and resolve the complexity and challenge that UC&C brings. Their UC convergence equipment investment is future-proofed. It doesn't have to be replaced at later stages when the enterprise grows, whether organically or by M&A, or when Microsoft releases future UC software upgrades that introduce new gateway architectures. AudioCodes gateways utilize a robust and stable embedded and upgradable software design, support modularity and interface flexibility.

AudioCodes enables the integration of Lync Server 2010, OCS 2007 and Exchange Server 2007 & 2010 with:

- Existing TDM and IP telephony systems
- SIP Trunking Providers
- Legacy devices such as analog phones, fax machines and modems

• Affordable SIP phones and mobile clients from AudioCodes and other vendors, and Survivable Branch Appliances permitting the branch location to continue delivering internal directory calling and a lifeline connection into the PSTN if the WAN connection to the enterprise network fails.

#### **Need for Media Gateways**

Microsoft UC deployments must support PSTN connectivity of established enterprise networks of IP-PBXs and IP phones, together with their legacy TDM PBXs, digital and analog phones, and fax machines. The majority of legacy equipment is not natively supported by, or cannot be connected directly to the Microsoft UC servers. That's where the media gateways come into play.

Gateways convert transmission protocols from, generally one standard to another, such as SIP to TDM, to traverse the public network. Gateways also encode fax messages, with its analog circuit switched protocol and its complex handshaking, to be managed and successfully transmitted over IP connections. And, just because both UC-element and SIP-trunk vendors use SIP, interoperation between them is not assured without a gateway that has been successfully tested to facilitate such interoperation.

The advantage of AudioCodes Media Gateways being fully interoperable and certified by Microsoft as well as by most telephony equipment vendors in the market makes it ideal to use for fast-and-easy integration of Microsoft UC with almost any existing telephony equipment at the enterprise. AudioCodes Media Gateways have also been certified and deployed by many PSTN and SIP Trunking service providers worldwide, offering full interoperability – attributes that BT Global Services just happened to be looking for in an integration partner.

Being a leading global service provider, BT Global Services needed to provide their Multi-National Corporation customers with the ability to support PSTN connectivity, including local PSTN requirements within the individual countries concerned.



"Taking into account the different bandwidth requirements of our enterprise VoIP services, we needed to support VoIP media streams using both uncompressed and compressed codecs," said Ollie Clapinson, Solutions Designer, BT Global Services UC. "AudioCodes' Mediant platform makes it possible to perform the transcoding at the customer's premises, simplifying the integration of OCS, and now Lync, with other enterprise telephony platforms, and with cloud-based SIP services, such as BT Onevoice. Because of the modular design of the Mediant 1000, we can also provide a seamless migration path from ISDN to IP-based voice services, on the same chassis, by simply enabling the E-SBC feature."

"We have qualified AudioCodes as our preferred Gateway vendor as they allow us to offer a solid migration path for our business customers from their existing telephony systems to Microsoft Office Communications Server 2007 R2 and Lync Server 2010", said Mr. Summerson. "Another important aspect in the selection of AudioCodes was their ability to provide the same user interface for their various gateway products, which enabled us to save on staff training and shorten the configuration and provisioning process. We are very happy with our choice and have been connecting customers to our network successfully."

#### Besting the SIP Trunking Challenges of VoIP Interoperability and Security

Connecting Microsoft OSC 2007 R2/ Lync Server 2010 to SIP Trunking service providers is easier said than done. VoIP interoperability between the two must be established and the new voice interface to the internet must be protected from a variety of VoIP Security threats. The Enterprise Session Border Controller (E-SBC) has evolved to fill these two roles at the enterprise point of demarcation, providing interoperability and security between the enterprise and service provider.

Enterprises using OSC / Lync Server are finding that many SIP Trunking service providers are not certified with Microsoft. Lync runs SIP on top of TCP (or TLS), and most SIP Trunking service providers run SIP on top of UDP, a different IP transport protocol. So even though both ends are compliant to the SIP specifications, they can't talk to each other. Further complicating matters, enterprise OCS / Lync Servers typically reside within a private network using an entirely separate IP address space than the SIP Trunking service provider. This means that the addresses that Lync populates in SIP messages are not meaningful beyond the Enterprise firewall, and while firewalls provide Network Address Translation (NAT) services for data sessions, they are typically not VoIP aware, meaning they don't possess the SIP protocol knowledge to modify the local addresses embedded in the SIP messages.

AudioCodes UcSIPT architecture resolves these issues through the use of an AudioCodes E-SBC. The E-SBC employs a Back-to-Back-User-Agent (often referred to as a B2BUA) which establishes independent SIP sessions in each direction – one to the Enterprise Lync Server and the other to the SIP Trunking service provider. In this fashion the Mediant Gateway's extensive interoperability established through years of SIP interoperability testing is leveraged, with the E-SBC functionality performing any adaptations required between one environment and the other. The E-SBC not only effectively eliminates the need for Lync Server to be certified with every SIP Trunking service provider, it also eliminates the need for a SIP Trunking service provider to be compatible with every SIP variant that might exist in an enterprise.

In summary, the E-SBC allows enterprises with Microsoft systems the ability to select the SIP Trunking service provider that's right for their organization regardless of the flavor of SIP it might use, and it allows SIP Trunking service providers to connect to a broad set of enterprises without having to worry about exactly what voice gear might be deployed.

In addition, an E-SBC helps protects the enterprise network from possible malicious or accidental attacks or overloads that originate both from the Internet and from within the enterprise's own network. These threats include eavesdropping, signaling and media manipulation, service theft/fraud, Denial of Service (DoS), SPIT (Spam over IP Telephony) and more. E-SBCs also provide Call Admission Control for incoming traffic via stateful packet inspection, access control Lists, topology hiding, and application layer firewall functions. Outbound traffic is secured using encryption and authentication for both signaling and media, providing voice with the same kind of security that has become standard for data sessions.



**STATE IN THE WARDER** 

The AudioCodes' Mediant 3000 and Mediant 1000 E-SBCs are the first products in the market to be certified with Microsoft Lync Server 2010 and OCS R2 for secured SIP Trunking into Verizon Business. By using the AudioCodes' E-SBC, enterprise customers can securely connect their Microsoft UC environment to Verizon Business' SIP trunking services, as well as to other SIP trunking service providers worldwide.

With AudioCodes Mediant platforms, customers can support PSTN and SIP Trunk interfaces in the same box, preventing forklift upgrades, and enabling gradual migration from costly PSTN circuits to SIP Trunking services, providing security and interoperability.

## Besting the Challenge of Redundancy and Survivability at Branch Locations

Redundancy and survivability are two of the foundations of Microsoft UC-based environments. Can a branch location survive a breakdown in connection to the HQ data center or to the carrier VoIP network? Fortunately, it can if Media Gateways are able to function as "Survivable Branch Appliances" (SBAs) to continue delivering internal calling and a lifeline connection to the PSTN. Microsoft Lync Server 2010 introduced the SBA role for just this purpose.

AudioCodes implements the SBA with Lync Server 2010 on its Mediant 1000 and 2000 gateways with the Basic Hybrid R2 image with a software-only upgrade. The upgrade creates the AudioCodes Mediant Survivable Branch Appliance and it can be managed by Microsoft's System Center Operations Manager (SCOM). SBA deployment on AudioCodes gateways offers several competitive advantages:

- Gateway Stability and Reliability Unlike most gateways in the market which encounter stability problems causedby running their gateway software and the Microsoft SBA software on a single general purpose server, AudioCodes Mediant 1000 and Mediant 2000 Media Gateways host the Microsoft SBA software on a separate AudioCodes Open Solutions Network (OSN) server, integrated in the Media Gateways that can easily scale up to support future, higher server performance and density requirements
- Interface Flexibility and Modularity AudioCodes Media Gateways offer a modular scalable design with a variety of interfaces including FXS, FXO, E1/T1, and BRI
- Acquiring UC version upgrades without the acquisition of new hardware is dead on target with CAPEX containment – a principal objective of an enterprise migration strategy!

Beiersdorf, a cosmetics company with a large presence in Germany, and over 150 affiliates worldwide , was searching for a migration partner offering the right Media Gateway solution required to connect the Microsoft OCS R2 environment to its existing PBXs, and to the PSTN in each of the enterprise locations.

"The selection of the right Media Gateway for the Microsoft environment was a strategic decision for us," stated Jochen Gertler, Beiersdorf Global Services. "After our testing we came to the conclusion that

the AudioCodes Mediant 1000 Media Gateway was the right choice. Other gateways were unstable and were offering fixed configuration only. The AudioCodes gateway utilizes a robust and stable embedded software design, and also supports modularity and interface flexibility. We feel very comfortable with the Microsoft and AudioCodes solution. It is standards based and very easy to manage. Microsoft provides us with IT-oriented unified communications solutions, and AudioCodes complements it with everything we want with regards to interfacing with legacy telephony."

#### Managing Through the Endpoint Barrier to Successful UC Migration

Enterprises considering migration to Microsoft UC face the price barrier of IP Phones, which can reach up to 70% of the overall system cost. Alternatively, enterprises without an existing installed base would want to deploy cost-effective IP Phones and avoid deploying expensive, Microsoft-compliant ones. AudioCodes has the solution for both cases.

AudioCodes SIP Phone Support (SPS) solution enables the integration of standard SIP phones directly into the Microsoft environment, using the SIP-to-SIP functionality that is embedded in AudioCodes' Media Gateways. The AudioCodes gateway translates between the standard SIP implementation used by most industry standard IP Phones and the Microsoft-specific protocol.



Legacy analog equipment does not need to be replaced either when migrating to the Microsoft UC environment. Instead, it can become a part of the Microsoft network, connected through Media Gateways. AudioCodes Mediant 1000 gateways may be configured up front or reconfigured later on with combined analog and digital interfaces which, together with the support of intelligent fax recognition and routing, offer the support of analog devices (including facsimile machines) in the new Microsoft UC environment.

Enterprises without IP Phones can reduce migration expenses to Microsoft UC, by deploying AudioCodes costeffective, high-quality 300HD series IP Phones, or alternatively, by integrating cost-effective IP Phones from other vendors into the Microsoft OCS / Lync environment. AudioCodes 300HD IP Phone family is designed to support many of the unique Microsoft features such as the Microsoft proprietary Codec – RTA narrowband and wideband, Microsoft presence information, and many more.

## **Gateway Selection Best Practices for Microsoft UC**

Selecting a Microsoft certified gateway, in and of itself, is not enough to make the ideal choice for your office network. Factors related to the choice of gateway vendor take precedence. Key best practices are:

- Find a vendor with a complete gateway portfolio. System Integrators or telephony/IT managers will benefit from having a single gateway vendor for the smallest branch phone/fax adaptor, as well as the data center/HQ "high availability" gateways.
- Make sure that your selected gateway vendor has the support for all gateway configurations and is also capable of protecting your investment by upgrading your existing gateway to future Microsoft releases. In other words choose a "Future Proof" gateway provider.
- Choose a gateway vendor with an extensive gateway interoperability list. The implied flexibility it provides is a significant advantage.
- Ensure that you select a gateway vendor that has a range of supported PSTN and SIP Trunk signaling protocol flavors and homologations supporting "Connectivity to any Network". But that's just half the story. You also need to protect your organization from malicious VoIP attacks with an E-SBC.
- Choose a gateway vendor that allows mixing and matching line modules (FXS, FXO, E1, T1, BRI), which assists in reducing stock and speeding up deployment. In addition, a "Pay-as-you-Grow" approach of adding line modules or increasing capacity by a software license can help you control your new gear investments in parallel with actual service ramp-up.
- Choose a gateway vendor that can protect your installed base of endpoints. This will help you achieve more cost effective and efficient UC migration.
- Select a Media Gateway that can support an extensive implementation of internal call routing tables, as well as an external standard interface to Active Directory and ENUM services. This allows easy migration from the existing TDM infrastructure to the Microsoft UC environment, while providing support for flexible call routing for survivability and redundancy.
- Does your business require high service availability, manageability of large-scale networks and high capacity on a single gateway (1000s of ports)? Many large enterprises and businesses of a critical nature often do. If your business fits this characterization choose a "Carrier-grade ready" gateway.
- Focus on gateways permitting flexible on-site programming of the gateway functionality, which is often required to meet specific dialing plans or advanced configurations. Availing yourself of a configuration tool for quick on-site modification offers better uptime and TCO than a gateway requiring vendor intervention if these parameters are "hard-coded".

## So Why Choose AudioCodes?

AudioCodes provides a broad set of solutions across the three main connector categories – gateways, session border controllers and survivable branch appliances. On the surface, its products appear to be very similar to those of the other connector companies. However, AudioCodes claims several areas of differentiation from its competitors:

# **S**AudioCodes

- 1. AudioCodes is the one Partner you can count on to ensure truly cost-effective and reliable integration of Microsoft UC servers into both your business's existing communications infrastructure and its service provider's networks, using certified Microsoft protocol interfaces. AudioCodes is your full service gateway vendor for the smallest branch phone/fax adaptor, as well as data center/HQ heavy duty gateways. UC convergence equipment investment is future-proofed. It does not have to be replaced at later stages when the enterprise grows, whether organically or by M&A, or when the Microsoft releases future UC software upgrades that introduce new gateway architectures. AudioCodes gateways utilize a robust and stable embedded and upgradable software design, support modularity and interface flexibility, and offer a wide range of supported PSTN and SIP Trunk signaling protocol flavors with worldwide homologations.
- 2. AudioCodes MobilityPLUS Solution directly connects with the company's OCS R2 or Lync Server 2010 UC systems, streamlining mobile collaboration for enterprise employees while saving on daily communications costs through utilization of Wi-Fi and cellular data services. The AudioCodes MobilityPLUS server takes care of Mobile clients SIP registration requests and is responsible to propagate them accordingly to Microsoft OCS R2 / Lync servers over SIP. MobilityPLUS servers also publish user presence to OCS R2 / Lync servers which then aggregates the present status of the Mobile users with all the other clients. The AudioCodes MobilityPLUS server can be offered as an appliance, running on the OSN server integrated in AudioCodes Mediant 1000, or alternatively, as a standalone server, running on Microsoft Windows Server 2008 R2 (64-bit edition) operating system.
- 3. In addition to gateways, AudioCodes has developed the SmartWORKS family of VoIP monitoring products offering VoIP recording components for call center and security markets. SmartWORKS blades enable application developers of enterprise VoIP call logging solutions to easily record existing VoIP and TDM-based voice circuits, while shortening time-to-market and providing high performance, passive recording capability to their applications easily and affordably.
- 4. AudioCodes makes its own chips which means, as opposed to many of its competitors, it does not need to await the development of capabilities of outside third-party merchant chip fabricators. This can provide time-to-market advantages for both new capabilities, scale (both up and down) and, potentially, price point advantages that can be passed along to its channels. In fact, several of its resale partners have indicated that they make greater margins selling AudioCodes than other solutions likely due, in part, to their in-house chip capabilities.
- Having a right-sized focused business that generates growing revenues (due to being in a growing market place
  – UC) and being consistently profitable, provides longer-term stability that instills confidence in procurements by
  users and sales by channels.
- 6. Experience in leading-edge implementations is a valued recommendation in and of itself. AudioCodes has been named as BT's gateway partner of choice for Microsoft OCS and Lync deployments. AudioCodes solutions were also bid as part of Microsoft's response to the VoiceCon IPT RFP in 2010 (and also bid by Microsoft/BT in its 2011 Enterprise Connect response).
- 7. AudioCodes products have been tested and work with UC solutions from major vendors such as Microsoft's Lync (as an approved SBA), IBM's Sametime Unified Telephony, Avaya's Communications Manager (AudioCodes is an Avaya DevConnect certified partner), Genesys' Contact Centers, as well as being a certified gateway for Skype Connect.

# **Further Reading**

For more information on AudioCodes' UC Migration with Microsoft Lync, visit: www.audiocodes.com/Lync



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Market Strategy and Analytics Partners custom designs marketing and sales strategies that are consistent with client core competencies, market focus and competitive environment, and coupled with operationalized go-to-market plans across the value chain to ensure elimination of bottlenecks and complete consideration of end-to-end financials. Our clients include equipment and software providers, service providers and information intense enterprises.

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#### **ABOUT AUDIOCODES**

AudioCodes Ltd. (NasdaqGS: AUDC) designs, develops and sells advanced Voice over IP (VoIP) and converged VoIP and Data networking products and applications to Service Providers and Enterprises. AudioCodes is a VoIP technology market leader focused on converged VoIP & data communications and its products are deployed globally in Broadband, Mobile, Cable, and Enterprise networks. The company provides a range of innovative, cost-effective products including Media Gateways, Multi-Service Business Gateways, Session Border Controllers (SBC), Residential Gateways, IP Phones, Media Servers and Value Added Applications. AudioCodes' underlying technology, VoIPerfectHD<sup>™</sup>, relies on AudioCodes' leadership in DSP, voice coding and voice processing technologies. AudioCodes High Definition (HD) VoIP technologies and products provide enhanced intelligibility and a better end user communication experience in Voice communications.

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Ref # LTRM-80031 09/12 V.2