

# Navigating the Multi-Vendor UC World With Unified Communications Software-Defined Networks



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Featuring research from

**Gartner**

*“Nectar automates the monitoring of networking infrastructures from multiple vendors, and provides end-to-end diagnostics when network problems occur. Given the importance of the network infrastructure for delivering high quality voice, video, and sharing, these capabilities can be incredibly valuable to Skype for Business customers.”*

**BJ Haberkorn, Director of Product Marketing, Skype**

## Introduction

By definition, Unified Communications (UC) technology is tasked with providing a consistent, unified user interface and user experience across complex global networks that are comprised of multiple devices, media-types, and applications platforms from many different vendors. It offers the assurance of improved user productivity and enhanced business processes – enabling individuals, workgroups, and companies to easily and effectively communicate and collaborate within a multifaceted, multi-vendor business environment.

Today, virtually every industry-leading vendor has entered the UC arena and is fervently touting the performance and cost benefits of individual UC products and services; unfortunately, few – if any – have solved the critical integration and interoperability issues that continue to impede UC deployment. It is this lack of platform integration, fear of vendor lock-in, and outright dread over potential ‘fork-lift’ upgrades that many analysts view as critical issues that must be addressed in order to make the promise of Unified Communications a reality.

This is why Nectar is leading the industry with the development of innovative software solutions that are designed from the ground up to deliver advanced, platform-independent UC management and monitoring. No matter if an Avaya/Nortel, Cisco, Microsoft Skype for Business/Lync or a blend of other UC network environments, with Nectar, IT Pros can achieve increased user productivity, business agility, and effective control of operational costs within a global, multi-vendor.

With years of experience and expertise in real-time UC management and monitoring, Nectar understands that, to be truly successful, UC technology must be deployed as a means to extend and add functionality to a company’s pre-existing communications investments – regardless of vendor and/or applications platform. This is why Nectar is leading the industry with the development of innovative software solutions

Interoperability – Enterprises wish to avoid “closed gardens” and vendor lock-in, while enabling intercompany B2B, business-to-partner (B2P) and business-to-consumer (B2C) federation. Additionally, many enterprises will find their needs best-served by using several vendors, either because of legacy investments or to enable a best-of-breed configuration.

**Gartner Magic Quadrant for Unified Communications August 4, 2014**

that are designed from the ground up to deliver advanced, platform-independent UC management and monitoring – so service providers and enterprise customers can achieve increased user productivity, business agility, and effective control of operational costs within a global, multi-vendor UC ecosystem.

Nectar is a qualified Microsoft IT Pro Tools Partner under the Skype for Business Program and a certified Microsoft Depth Partner under the Lync SDN API program. Nectar’s Unified Communications Management Platform (UCMP) completely integrates and takes advantage of the Microsoft Software Defined Networking (SDN) API, which, for Nectar, is at the core of monitoring Microsoft’s Skype for Business and Lync ecosystem. It is the company’s unique and complete API integration of its UCD module which allows even more insight and better guidance for customers using Skype for Business and Lync to achieve unprecedented quick problem identification and resolution. This paper will review further how Unified Communications Software-Defined Networking is playing a major role in finally enabling true open multi-vendor UC network environments to co-mingle and collaborate effectively and efficiently together.

Source: Nectar Services

## From the Gartner Files:

# Microsoft Lync (Skype for Business): What Do Adoption Trends Mean for Your Organization?

Gartner expects Microsoft Lync, as a telephony solution, to continue its rapid adoption rate, earning Microsoft a coveted top-three position as a global telephony provider by 2016. With insight into Lync telephony and usage trends IT planners can evaluate how to integrate Lync in future initiatives.

### Key Findings

- Steadily climbing the telephony market share ranks, Gartner research estimates in year-end (YE) 2013, that Microsoft attained just over 5% global share, up from 2.5% the previous year.
- Lync adoption will be steady but gradual. Most IT planners committed to Microsoft will continue to take a phased implementation approach to Lync telephony over the next two years.
- Most organizations opting to use Lync for telephony will maintain their legacy Internet Protocol (IP)-PBX environment in the near-term, often for a subset of users and functions.
- Microsoft is continuing investment in its Lync offering and is gradually narrowing the functionality gap in Lync telephony compared against functionality available in IP-PBX solutions.

### Recommendations

For enterprise IT planners:

- Filter through market hype to understand actual Lync voice adoption and PBX displacement in your organization compared with others. Lync voice adoption is increasing, but it is not uniform.
- Develop timelines and guidelines to establish how quickly Lync voice should be brought into the organization as part of a Lync implementation; and plan for how/when voice should be extended to user groups across the business.

- Actively set internal expectations with key stakeholders to position Lync voice capabilities and shortcomings. Proactively address key areas according to your unified communications (UC) vision and strategic road map.
- Evaluate the full range of IT costs to determine costs associated with Lync voice implementations including the costs of owning, maintaining and integrating legacy telephony equipment, with acquiring necessary Microsoft licenses to enable enterprise voice; getting the network ready to support Lync telephony, management costs associated with running the environment, as well as costs associated with obtaining new endpoints.

### Analysis

Today, Microsoft Lync represents a growing proportion of the enterprise telephony equipment market. Market interest in Lync (judging by inquiry volume from end users, as well as from technology and service providers) signals that an increasing proportion of IT planners are evaluating Lync and addressing whether Lync should be considered as part of their long-term telephony — as well as unified communications (UC) — plans (see Note 1). This report provides insight on where Lync telephony adoption is now and how we anticipate Lync voice adoption will unfold. Enterprise planners with existing Microsoft license agreements can use this insight to help gauge when and where Lync voice and telephony might be appropriate for their own organization.

Throughout this document, Gartner makes a distinction between Lync voice and Lync telephony:

- **Voice** is the broader term and encompasses both peer-to-peer within-Lync usage, Lync to Skype usage, and other modes of use that bypass the public switched telephone network (PSTN).

### Note 1. Unified Communications

The unified communications market includes four key areas:

- 1 **Voice and telephony.** This includes fixed, mobile and soft telephony, as well as the evolution of PBXs and IP-PBXs.
- 2 **Conferencing.** This area includes separate audio conferencing, videoconferencing and Web conferencing functions, as well as converged unified conferencing capabilities.
- 3 **Messaging.** This area includes voice mail and unified messaging (UM) in various forms.
- 4 **Presence and IM.** These play an increasingly central role in next-generation communications, enabling the aggregation and publication of presence and location information from and to multiple sources. This enhanced functionality is sometimes called “rich presence.”

- **Telephony** is a narrower term and applies to the usage of Lync for access to or from the PSTN, often in a more traditional PBX-like manner.

Lync telephony can be acquired through a Lync Plus Client Access License (CAL) which is an add-on to the Standard CAL. Lync server is also available via Microsoft partners as part of the Office 365 Enterprise E4 contract.

### Lync Traction Growing

Microsoft Lync voice adoption is accelerating and notably shifting the global telephony competitive landscape. According to Gartner estimates, at year-end 2013, Microsoft Lync represented about 5% of the global telephony market, representing a doubling of the company's market share during the year, as well as boosting Microsoft into the number 6 global telephony provider position for license shipments. Conversely, the five providers ahead of Microsoft — Cisco Systems, Avaya, NEC, Unify and Alcatel-Lucent — all suffered market share losses.

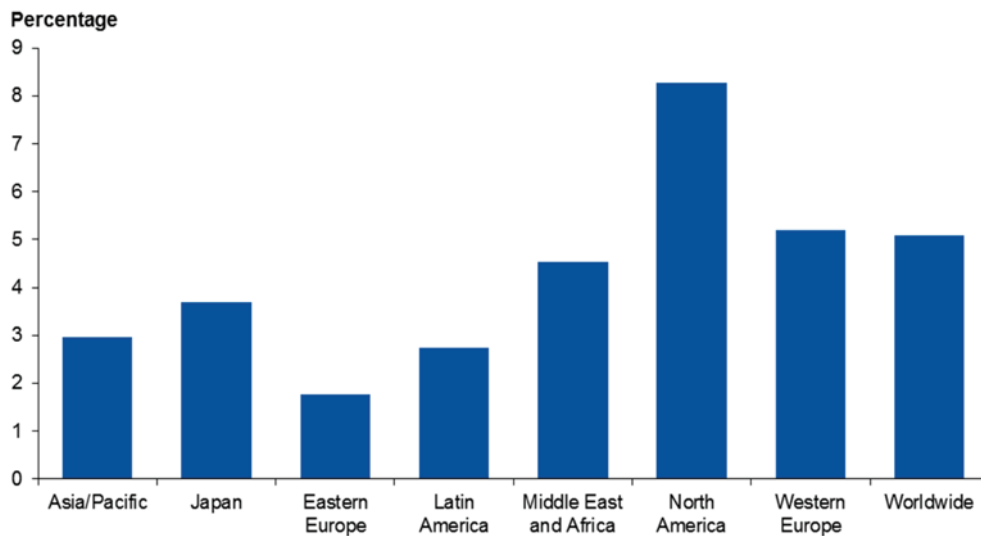
Microsoft Lync voice is gaining traction throughout the major theaters but adoption is displaying unique trajectories depending on the specific

region. According to Gartner estimates (see Figure 1, which shows Microsoft's enterprise telephony share at the regional level), while shipments to Japan represents less than 10% of the Lync voice shipments, the recent growth indicates a significant product and marketing push in the region. The Asia/Pacific, Middle East and Africa as well as Western European regions, also displayed notable growth. North America (representing approximately 45% of Lync voice shipments) and Western Europe (representing 25% of Lync voice shipments) have the highest saturation but still demonstrate significant investment momentum across organizations. While growth rates are steady, it's important to note Lync telephony adoption is starting from a low user base.

Find out how your peers are choosing between Cisco IP Telephony or Lync 2013. See the Peer Conversation.

**Recommendation:** *Scrutinize market hype to gauge actual Lync voice adoption and IP-PBX displacement. While Lync telephony adoption is rising, the scenarios and details of implementation are not uniform.*

**FIGURE 1** Microsoft Lync Voice Market Share by Region



Source: Gartner (January 2015)

There are three primary reasons for Lync telephony momentum.

- 1 Lync telephony is well integrated with other UC elements including IM, presence, mobility and Web conferencing — and as use of these elements gain momentum — telephony can be a pull-through application.
- 2 Many users are familiar with Microsoft desktop applications and have a Microsoft volume licensing agreement in place, so adding telephony is a natural fit. Microsoft already has a prominent position in enterprise IT environments with Microsoft Exchange, resulting in Microsoft's consideration in adjacent communications areas.
- 3 Microsoft has strong brand recognition for unified communications, creating a high level of UC consideration. The company is building a geographically dispersed base of Lync-certified channel partners, so multiregional UC brand recognition continues to expand.

In November 2014, Microsoft announced the rebranding of Lync to “Skype for Business,” coupled with new product updates to be rolled out during the first half of 2015. The move continues the path of bringing consumer-based Skype and enterprise-based Lync closer to parity (although stated plans indicate Microsoft intends to keep some features separate for its distinct consumer and business audiences). Skype for Business will incorporate a new client experience, with some icons from Skype (familiar icons for calling, adding a video and ending a call), a new server release, video calling and the Skype user directory making it possible to call any Skype user on any device. Gartner predicts that plans to add connections to SMS and non-real-time chat communications will also be unveiled. The move has broad implications as the gap between consumer and business communications narrows and Microsoft adds a larger base of addressable users — those familiar with Skype in their personal lives, but not yet accustomed to Microsoft in the enterprise voice arena.

### Lync Voice Usage Varies

IT planners are displaying unique implementation and usage patterns as they approach Microsoft Lync investments. Most frequently, planners

implement Lync using the solution initially for IM and presence capabilities. Next planners move audio conferencing to Lync and then as part of this migration will also take better advantage of its Web conferencing capabilities. Organizations will use the Web conferencing functions for internal collaborative sessions. Clients report that Lync Web conferencing works better for ad hoc smaller group meetings versus large-scale and managed sessions. Most organizations, especially large enterprises, will rely on cloud-based Web conferencing services (for example, Cisco WebEx or Citrix GoToMeeting) or other premises-based solutions for external facing or professional grade managed meetings instead of relying on Lync for full conferencing needs. Going forward, Gartner expects IT planners to implement a tiered approach to acquiring conferencing services, in which different use cases will warrant different tiers of conferencing features and at different price levels. The highest tier (for critical or external-facing conferences) will feature very high availability and reliability, with optional concierge-service characteristics. The middle tier (for important meetings/sessions) features high quality and high availability meetings that allow a moderator to manage the meeting (but it is a step down from the premium services). The lowest tier of services (for small teams and ad hoc collaborative sessions) features free conferencing services with basic functionality. This means most organizations will approach Lync as part of a multivendor, multifunction integration effort.

**Recommendation:** Actively develop plans for extending specific UC functions to user groups within the organization. Establish process guidelines for extending licenses to users and/or removing functions (for example, desktop phones) from users.

Currently, most Lync voice users employ a mix of endpoints — softphone/headset and desk phone. In certain implementations, the IT project management team will implement a softphone-only policy. Typically in these instances, only a small proportion of the user population possesses a desk phone. Policies allowing desk phone usage could be based on a specific use case requirement or medical (hearing impairment) necessity. Gartner expects the ratio of Lync users maintaining desk phones to gradually decline. In most instances, however, users will increase the number of devices they work with, instead of standardizing on a

## Acronym Key and Glossary Terms

### CAL

Client Access License

### IM

instant messaging

### IP

Internet Protocol

### IP-PBX

Internet Protocol-private branch exchange

### IT

information technology

### MAC

moves, adds and changes

### PBX

private branch exchange

### PSTN

public switched telephone network

### SBC

session border controller

### SIP

session initiation protocol

### SMB

small or midsize business

single endpoint. For example, an employee will use a desk phone, a mobile phone and a softphone to enable communications in various work scenarios. Microsoft Lync 2013 is compatible with a range of devices from Polycom, snom technology, Mitel (formerly Aastra), AudioCodes, HP and Spectralink.

Overall, Gartner estimates approximately one quarter of Lync implementations currently use Lync for at least a portion of their corporate telephony functionality. In these instances, the telephony capabilities are extended to about one-third of the users within that organization. In some cases, Lync telephony is fully replacing PBX functionality, but in most instances, only a proportion of the user base has Lync Plus CAL (voice) licenses while other worker types do not have Lync Plus CAL, instead relying primarily on the legacy PBX for telephony functionality. Desk-bound knowledge workers receive the most obvious value from integrated collaboration Lync functionality, so should be migrated to Lync telephony first. Most organizations plan on expanding Lync voice usage out across their user base, increasing the saturation of Lync voice users over time. As PBX systems reach the end of their useful life — or become more costly to maintain — Gartner expects a greater percentage of IT planners to decommission the PBX, shift the architecture from a legacy premises-based PBX to a centralized Lync architecture (upgrading networking requirements) and moving users across the organization to Lync voice. Gartner estimates that less than 10% of organizations who have implemented Lync for telephony currently have voice rolled out to all employees across the organization.

Gartner anticipates Lync voice implementations and usage will shift over the next two to three years. Based on inquiries and survey data, Microsoft Lync will increasingly be in the consideration set for UC, including telephony-oriented UC investment decisions. While Gartner expects many IT planners will continue to first use Lync for IM/presence and conferencing functionality, increasingly planners will acquire Lync Plus CAL licenses and architect environments to obtain voice functionality. Some of the requirements for voice (network sizing, mediation servers, among others) will be addressed when IT planners obtain dial-in conferencing functionality,

leaving fewer requirements when migrating to voice functionality. Penetration of Lync voice usage is anticipated to increase, expanding to a broader base of users across the organization over time, potentially reaching up to 30% to 50% of users who have installed a Lync Server by 2016. Based on Microsoft Lync voice shipment trending and assumptions relating to Lync usage, Microsoft Lync is on track to become a top-three global telephony provider by YE 2016.

## Lync Voice Technology Challenges

While Microsoft continues to enhance Lync voice functionality and Gartner reports an increase in the overall satisfaction of Lync telephony, the solution continues to pose challenges in a few key areas.

**Recommendation:** *Actively set internal expectations with key stakeholders to position Lync voice capabilities and shortcomings. Proactively plan to address key areas according to your UC vision and strategic road map.*

The following provides an overview of some key challenges associated with Lync voice:

- **Quality:** Lync voice quality (as a result of dropped calls, system outages and poor call quality) can be subpar, which negatively impacts the overall communications experience. While Lync technically supports call admission control, it's difficult to configure, which means if not appropriately configured, the number of calls coming over a link at the same time cannot be regulated. Furthermore, Lync users may flood the network with video and Web sessions. This means voice quality can be subpar if too many voice, video or Web calls are happening concurrently over a wide-area network (WAN) link.
- **Complex Integration:** Integration with other (existing) telephony equipment can be complex. While the partner network delivering Lync voice continues to grow, only a few partners have significant experience with complex voice implementations. Microsoft has added a "Communications Competency" in the Lync Partner Program, which will help IT planners identify partners with appropriate telephony capabilities.

- **Multivendor Requirements:** IT planners must work with multiple vendors to obtain certain communications elements including media gateways, session border controllers (SBCs), desktop phones and network monitoring.
- **Feature Set:** Lync's telephony capabilities can be more limited than traditional IP-PBX features, creating a failure to meet the expectations of some IT planners and users. The availability of certain phone features depends on the third-party handsets used. In some implementations limitations exist with music on hold, call recording and local intercom calling.
- Costs associated with ensuring the devices (including desktop phones, mobile devices, branch appliances and infrastructure such as gateways), as well as support services such as network monitoring applications, are qualified to work on the latest version of Lync and are upgraded when Lync is upgraded.
- Costs associated with upgrading certain operating systems (and obtaining the appropriate service pack release) to support Lync.
- Costs associated with reintegrating other communication systems already integrated with PBXs such as emergency notification and response systems and contact centers.
- The cost for moves, adds or changes (MACs) associated with Lync can be high due to the less than robust system administration tools and user interface.

### Lync Voice Costs

Many organizations are running Microsoft Lync or evaluating running Lync in parallel with installed PBX solutions. Microsoft Lync employs various license bundles for UC functionality — the Lync Enterprise CAL provides conferencing functionality, while the Lync Plus CAL provides voice functionality. Frequently, discounts (in the 20% range) can be obtained to add a Lync Plus CAL to a Lync Enterprise CAL.

**Recommendation:** Evaluate multiple factors when assessing the financial implications of running Lync voice and/or running Lync in parallel with a legacy IP-PBX solution.

- Integration costs associated with using a dual legacy IP-PBX and Lync solution to enable Lync telephony usage, including services costs associated with configuration.
- Costs and complexities associated with making software updates at different times (for hybrid systems).
- IT staff costs associated with running and managing on-premises Lync implementations or the costs associated with outsourcing the management of the solution.
- Costs associated with acquiring the underlying infrastructure servers, gateways, SBCs and network equipment to get the Lync functionality optimally running.
- Insight obtained from Gartner's end user wants and needs studies
- Gartner's Research Circle
- Gartner's primary research surveys
- Information obtained by supporting vendor and end-user inquiries

### Evidence

Information for this research was obtained using a multifaceted approach:

All market share figures are to be considered Gartner estimates.

Gartner Research Note G00260824, Megan Marek Fernandez,  
Bern Elliot, 20 January 2015

### Acronym Key and Glossary Terms (continued)

#### SWOT

strength, weakness, opportunity and threat

#### TCO

total cost of ownership

#### TDM

time division multiplexing

#### UC

unified communications

#### UM

unified messaging

#### WAN

wide-area network

#### YE

year-end

## How UC SDN and Nectar Speeds Adoption of Microsoft Lync/Skype for Business

*“Because Nectar’s software is completely integrated with the Lync SDN API, we can see an issue as it is happening, see the network traces, and even see a report that shows at what point in the network the issue has occurred. As a result of using Nectar’s monitoring tools, our time to resolution for Lync-related trouble tickets has dropped by 90%.”*

**Nathan Knaak, Advanced Diagnostic Engineer, NACR**  
Read [NACR UCD for Microsoft Lync Deployment Case Study](#)

As enterprise organizations continue to face new and complex operational challenges within their evolving UC landscape, Nectar is poised to deliver unparalleled business value by helping enterprise businesses and service providers maximize existing technology investments, manage multi-vendor network complexity, mitigate cross-platform security risks, and achieve quantifiable cost savings across global, unified communications systems.

### [Watch UCD Video](#)

With the deployment of Microsoft Lync – and now, Skype for Business – as the leading enterprise voice and video UC solution, the demands on network resources will continue to increase exponentially, along with the user’s expectation of quality. Currently, the Microsoft Skype for Business and Lync architecture presents a unique set of challenges for network professionals trying to identify problems and detect their root cause. Because of the unique way in which Nectar UCD software is integrated with Microsoft’s Software-defined Networking (SDN) API, Nectar’s service providers and enterprise customers are able to easily and proactively monitor and manage Microsoft Skype for Business/Lync environments. In fact, Microsoft selected Nectar as one of the few Depth Partners within the company’s SDN API program because the Nectar UC Diagnostics module assures the highest quality Microsoft Skype for Business/Lync deployment and user experience.

***“Microsoft recognizes the need for solutions that help enterprises and managed service providers efficiently and effectively monitor and manage the ongoing operation of a Skype for Business or Lync deployment,” stated David Giangano, CEO of Nectar. “We’re excited to be working closely with Microsoft to enhance the native Skype for Business IT Pro tools. With our unique monitoring and diagnostics technology, we provide critical insight for multi-vendor environments, thus supporting enterprises who are migrating from a legacy platform to Skype for Business over time. Nectar provides the ability to look across the entire Skype for Business UC ecosystem and correlate data in real-time, which is necessary in delivering the best-in-class enterprise UC service.”***

With Nectar UCMP, enterprise customers and their service providers can proactively monitor, manage, and measure the health and performance of their entire Microsoft Skype for Business/Lync ecosystem. Regardless of other vendor or technology platforms that may be operating within the same network environment, the UCMP solution can provide seamless insight, metrics, and root-cause analysis of issues that may affect user quality and the overall Skype for Business/Lync experience. It does this by utilizing fully integrated, purpose-built software solutions that enable:

### **Network Assessment**

During the planning and pilot phase, it is critical that a network assessment is completed. Nectar’s deep UC/VoIP expertise, in conjunction with its Perspective module for synthetic calling, enables enterprises and service providers to fully understand current network gaps, and provides alerts on any issue that could impact Microsoft Skype for Business/Lync performance.



### Multi-Vendor Health and Performance Monitoring

The Nectar UCMP solution provides complete visibility across the entire multi-vendor Skype for Business (S4B)/Lync ecosystem – significantly reducing the time it takes to isolate and resolve issues. Further, Nectar can monitor and report on nearly every segment of the Microsoft S4B/Lync ecosystem, including S4B/Lync servers, Quality of Experience (QoE) database, IP PBXs, SBCs, Voice Gateways, Routers, Premise Wi-Fi, etc.

### Diagnostics & Root Cause Analysis

For Skype for Business/Lync voice, video, and collaboration sessions, the ability to identify, isolate, and quickly remediate issues that may impact the Skype for Business/Lync user experience is essential. Nectar's tight integration with the Microsoft SDN API enables customers to measure real-time media quality by monitoring the path of the Skype for Business/Lync session across the routed network, thereby ensuring quick root-cause identification.

### Key Nectar Benefits for Microsoft Skype for Business and Lync

- Ability to provide more effective, usable data for trending and diagnostics
- Identification of incorrect network settings/utilization within the network
- Immediate notification on network events impacting Skype for Business/Lync
- Real-time media analysis of Skype for Business/Lync voice and video sessions
- Site-based performance trending and reporting for multi-tenant interfaces
- Unique insight into Skype for Business/Lync conferencing sessions and issues
- Ability to quickly bracket the source of performance problems
- Monitoring and reporting on client premise Wi-Fi networks
- Analysis of SIP signaling, ladder diagram utilization, etc.
- Root-cause analysis and alarm management capabilities
- Synthetic calling to test both wired and wireless networks
- Advanced analytics across multi-vendor UC platforms
- Dynamic drill-down and ad hoc reports for Skype for Business/Lync databases
- Ability to save customers time, resources, and money, thereby speeding the adoption of Microsoft Skype for Business/Lync deployments

Source: Nectar Services

## Looking Forward – Nectar Delivers Support for Cisco APIC-EM API



### Nectar Looking Forward – Nectar to deliver real time policy engine that monitors network performance and directs Cisco APIC-em to manage network infrastructure with SDN functionality

As the premier provider of fully integrated UC management and monitoring solutions, Nectar is uncompromising in its ongoing mission to deliver cutting-edge interoperability for multi-vendor applications and network platforms. Cisco's new Application Policy Infrastructure Controller (APIC) offers centralized control of all Cisco network infrastructure. As part of the company's continuing research and development efforts, Nectar plans to introduce advanced, 'self-healing' capabilities that will improve a user's quality of experience and network Quality of Service (QoS) when using as an example, Microsoft Skype for Business and Lync in a Cisco network environment. While self-healing networks are nothing new, bringing this capability to the network's edge is an advancement that few have achieved. Nectar is currently demonstrating its ability to combine Cisco's APIC-EM API features with the UCD's unique integration capabilities for the Microsoft Software-defined Networking (SDN) API, thereby putting real-time, self-healing power in the hands of service providers and enterprise customers.

By integrating UCMP management tools with Cisco's APIC-EM API, Nectar is able to solve common network QoS problems. For example, in a large conference call where problems affecting Quality of Service arise because applicable policies and standards are not properly configured, the Nectar UCMP solution can automatically adjust policies and restore proper classification and associated traffic marking in real-time, thereby 'healing' the network and increasing the overall quality of the call while the conference is taking place. Other vendor applications can only review and repair issues after the fact. In a situation where the network is configured properly, Nectar's UCMP capabilities enable pre-set, user-defined policy adjustments so that the system will automatically adjust in response to any spike or event that occurs during a call.

#### [View the Demo](#)

By integrating its unique Microsoft SDN API capabilities with Cisco's APIC-EM, Nectar's QoS Policy Engine capabilities are uniquely able to:

- Automatically configure QoS policy for both the Lync end-points and the network
- Detect calls with poor voice quality and take corrective action in real-time
- Remark verified calls by actively monitoring end-point registrations
- Adjust QoS policy for a specific call based on pre-defined call characteristics

No other vendor solution on the market today has the ability to see call problems as they are happening **and** automatically respond to and resolve issues that affect call quality and the user experience.

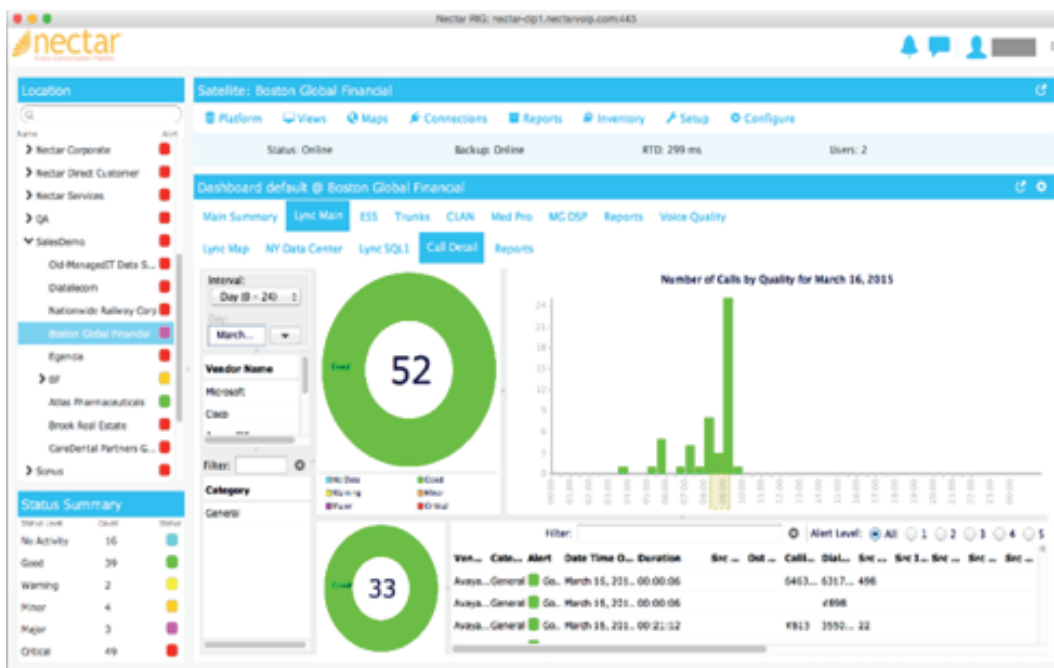
# Making Multi-Vendor UC Management & Monitoring a Reality



Nectar’s architecture-based, vendor-agnostic UC approach is revolutionizing the management of voice, video, and web collaboration applications, systems, and networks by providing a holistic infrastructure for inventory, monitoring, alarming, root-cause-analysis, capacity, and performance management, while enabling both remediation and remote programming support for global IP communications systems.

In fact, Nectar is the only vendor who can leverage the power of its fully integrated Unified Communications Management Platform (UCMP) to provide unprecedented ease of deployment across industry leading vendor platforms and technology, including Microsoft Skype for Business/Lync, Cisco and Avaya UC environments. Through its unique capabilities, Nectar’s UCMP solution can bring clarity to complex, multi-vendor UC interdependencies and business processes via centralized, cross-platform management and monitoring that delivers real-time visibility into the quality of each UC user’s experience, and provides actionable performance information to executives and technical resources – enabling faster resolution of service issues and interruptions.

**FIGURE 1** Unified Communications Management Platform (UCMP)

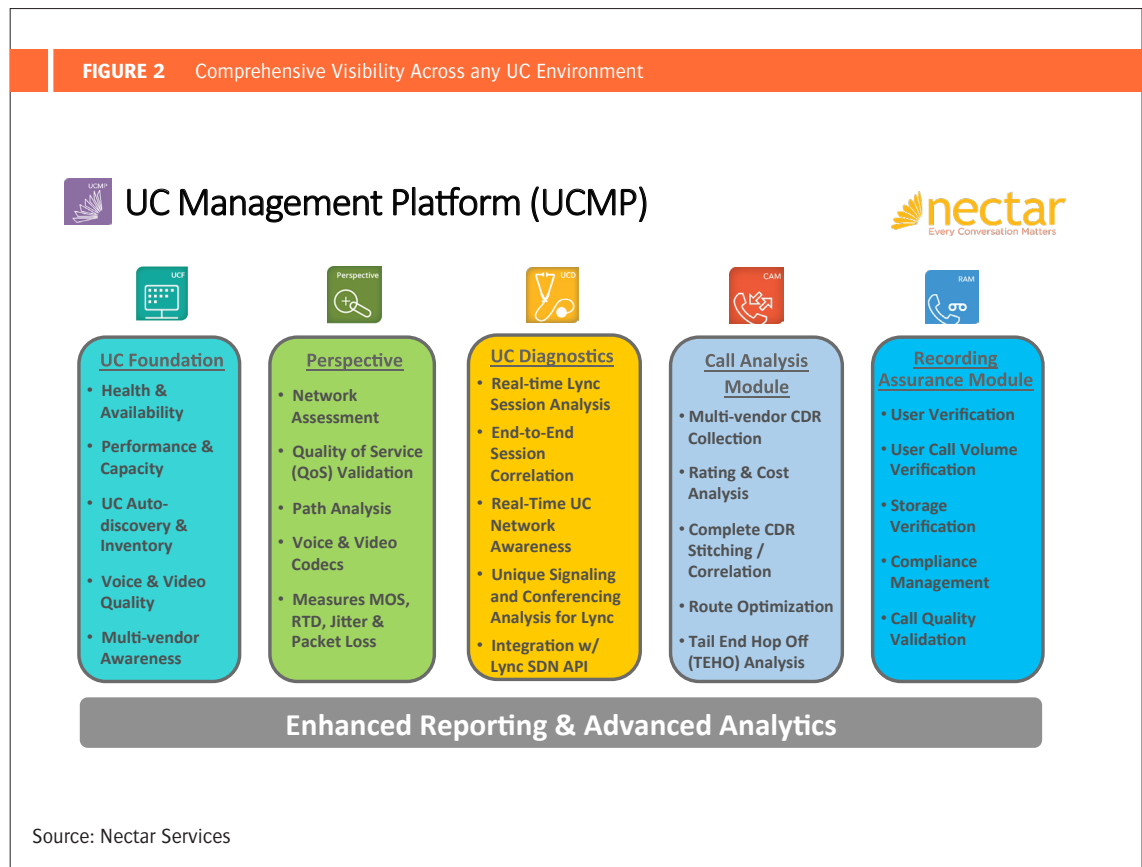


Source: Nectar Services



The UCMP architecture has been built from the ground up to account for a customer's various business units and how they use their company's converged communications assets – enabling economies of scale and IT collaboration while assuring an easy path for future technology needs and business growth. Service providers and enterprise customers alike, using any combination of industry-leading vendor platforms – like Cisco, Avaya, and/or Microsoft Skype for Business/Lync, for example – can easily and cost-effectively integrate new software and services from any other vendor, as well as efficiently manage these intricate, overlapping multi-vendor environments while reducing operational costs and maximizing their organization's total cost of ownership.

**FIGURE 2** Comprehensive Visibility Across any UC Environment



Regardless of the UC environment, Nectar can support each customer's unique business needs with a variety of customizable, mix-n-match software modules and services that ensure peak performance and optimum utilization of UC system resources.



## Unified Communications Foundation (UCF) for Health & Performance Monitoring & Management

At its core, the Nectar UCF module delivers exceptional system health and availability with a single 360-degree view of all voice and data assets. Nectar's approach is based on the principle of delivering centralized dashboard views and business-centric notifications to customers while presenting alarm and performance data to service responders in real-time. Dashboards can be customized to suit the needs of different users, including IT support personnel and/or executive staff.

Pre- and ongoing network assessment and UC monitoring is made possible via platform auto-discovery, a multi-tenant/NOC interface, root cause analysis, contextual monitoring, and at-a-glance troubleshooting. The Nectar architecture provides for enhanced performance by focusing on the entire UC ecosystem via integrated capabilities such as resource trending and utilization, capacity monitoring and planning, and comprehensive reporting and analytics.

Nectar UCF provides simple access to voice quality metrics that include trace route and IP network visibility, real-time media analysis, and immediate UC network awareness. Further, comprehensive troubleshooting tools enable synthetic call testing, remote access and call tracing, file transfer and secure chat capabilities, alarm management, and SLA

A component of UCF, Vendor Knowledge Modules (VKMs) provide broad, deep, dynamic polling and reporting functionality, with increased automated process capabilities. VKM's are designed to help an enterprise customer's UC network get up and running in minutes, instead of days or weeks.

The UCF module also utilizes Dependency Trees to provide a visual representation of all the components, services, and integration required to deliver an application to enterprise customers. It shows what is working, what is not, and which users and/or departments are affected. This context-sensitive display identifies any broken link in the chain, so remediation efforts can be completed in real-time

### Key UCF Benefits

- Auto/Active Discovery – Constant communication by the foundation module helps keep an up to date device list.
- Detailed Inventory – Automatic hardware/software/firmware discovery enables dynamic updates.
- System Dependency Hierarchy – The Nectar correlation logic maps elements and applications to individual business processes and creates dynamic dependency trees.
- Phone QoS – Manufacturer provided quality information and reporting.
- Performance & Capacity – Real-time and historical performance and trending and alerting.
- Dashboard Views – Multiple events and alarms are aggregated and presented in dashboards, which are easily customized to meet business and technical needs.



## Unified Communications Diagnostics (UCD)

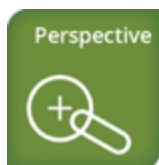
Integral to the UCMP platform is Nectar's Unified Communications Diagnostics (UCD) module. It provides real-time visibility into the overall quality and performance of the user experience by uniquely monitoring session signaling, media and corresponding network topology. The UCD monitors and collects comprehensive data related to packet loss, jitter, delay, MOS, and R-factor, for example, and provides complete IP network information correlation and comprehensive insight for fast resolution, a lower total cost of ownership, and a superior end-user experience.



This correlation allows a help desk agent to instantly associate specific user-reported complaints to events in any part of the network. Alerts and notification targets are configurable through interactive dashboards. Visualization of historical trends allows tracking, management, and decision making to improve the user's experience and anticipate operational requirements such as capacity planning. And, as the only UC Monitoring and Diagnostics solution Depth Partner within the Microsoft SDN API program, Nectar ensures the highest quality Microsoft Lync/Skype for Business deployment and experience.

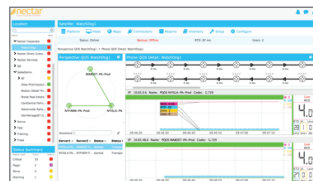
### Key UCD Benefits

- Real-time monitoring and management of Skype for Business/Lync QoS and User Experience
- Integration of Skype for Business and Lync into existing Avaya, Cisco and Nortel UC networks with a single monitoring solution
- Graphical depiction of all Lync performance data
- Ability to provide more effective, usable data for trending and diagnostics
- Identification of incorrect network settings/utilization within the network
- Immediate notification of network events impacting Skype for Business and Lync
- Ability to quickly bracket the source of performance problems
- Root-cause analysis and alarm management capabilities

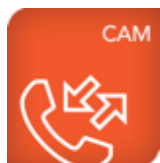


## Perspective

Perspective™ is a customizable software module that provides advanced capabilities for network pre-assessment and ongoing network monitoring, voice and video quality troubleshooting, and real-time problem identification and resolution. As a synthetic traffic generation engine, Perspective enables efficient monitoring of anticipated end-to-end voice and video sessions over IP.



Within a distributed, converged network, traditional packet flow can cross multiple paths based on their source and destination. This makes it impractical, if not impossible, for traditional vendor solutions to proactively monitor anticipated voice and video quality. The Perspective module solves this problem by leveraging the power of the UCMP real-time communications infrastructure with Perspective's distributed agent technology. This advanced technology enables network support staff to simultaneously monitor Quality of Service (QoS) from different locations within a distributed UC environment – enabling a consistent quality level based on an enterprise customer's unique corporate QoS design, such as: measure packet loss, RTD, jitter, and MOS, . Additionally, Perspective validates that packets are received in the proper sequence and also tagged properly. Perspective will alarm on each of these metrics should they fall outside or exceed established thresholds.



## Call Analysis Module (CAM)

The Nectar Call Analysis Module (CAM) is a highly sophisticated, multi-dimensional data warehouse and analytics platform that provides rating and re-rating functionality, carrier-billing verification, tail-end hop off (TEHO) analysis, and cost reallocation. The company's unique CDR collection capability enables the correlation of call records from multiple sources – PBXs, real-time CDRs, and Vendor Knowledge Modules (VKMs) – providing the ability to measure, analyze, and model calls in an easily customizable format. It provides a centralized system for loading all of the data from calls generated across multiple systems. Key benefits include:

**Scalability** – regardless of the number of calls generated on a daily basis, the storage and architecture specifications of the CAM solution can be customized to ensure that the rating engine and data warehouse functionality operates seamlessly. In addition, additional CDR sources can be easily added, as needed, to ensure future growth and avoid unnecessary costs.

**Significant Cost Savings** –utilizing a carrier grade rating engine, enterprise customers can effectively rate and re-rate calls for detailed analysis and reporting. Every call is rated for actual proof of potential cost savings, providing for detailed cost analysis and savings not available through traditional TEM (Telecom Expense Management) systems.

**Regulatory Compliance** – customizable rules specify how long data is retained, and user permissions restrict who is allowed to view information and what types of information may be viewed for any given record. CAM also integrates with third party authentication and authorization platforms to enable secure user sign on and detailed audit trails.

**Unparalleled Diagnostics** – superior diagnostic capabilities enable true end-to-end call flow analysis. Since outbound calls can generate a litany of CDRs, the CAM software is able to identify, at a detailed level, how a call has traversed multiple platforms to get from point A to point B. This unique feature provides greater efficiencies in troubleshooting and resolving complex call flow issues.



### Recording Assurance Module (RAM)

The Recording Assurance Module (RAM) is an advanced monitoring solution with comprehensive, multidimensional service checks to verify the functionality and performance of voice recording systems and the entire recording ecosystem. Key features include:

- Per user recorded call verification that compares the number of calls made to the number of call recorded;
- Storage verification that ensures media files are being stored on the call recorder by comparing the change in storage utilization to the duration of calls that should be recorded;
- User verification that ensures the call recorders are provisioned to record calls of all required users (Golden Source validation);
- Call quality monitoring of the media streams recorded by the call recorder; and
- Synthetic call generation which confirms that the audio is properly recorded and retrievable from the call recorders. It also allows the system to verify the calls are moved from the initial call recording storage to long-term archive storage.



### Enhanced Reporting and Advanced Analytics

Nectar's enhanced reporting and advanced analytics solution works across the UCMP architecture to provide advanced business intelligence and analytics. It operates across multiple platform databases and correlates with other data points – such as the SBC, Gateway, premise Wi-Fi, Microsoft Lync/Skype for Business, Avaya, and Cisco, for example – to provide robust trending and analysis, as well as performance reports during the pre-assessment phase.

In much the same way as their counterparts in business functions are challenged with making data-driven decisions easily and quickly, so too are IT professionals under pressure to gain insight into their own operations. With the enhanced reporting and advanced analytics, IT professionals can explore beyond standard operational dashboards to gain deep awareness into areas of concern, such as SLA performance analysis, network traffic optimization, root cause analysis, license utilization, and IT asset management.

The intuitive reports can provide user experience detail across voice, conferencing, video, and IM technologies. Key features include:

- A monitoring dashboard that provides administrators with a quick overview of their system health and system usage;
- Server performance detail that provides system usage information based on CDR data collected by the Lync Server;
- Call diagnostic reports that provide per-user information about failed peer-to-peer and conferencing sessions; and
- Media quality diagnostic reports with information about call quality, as well as diagnostic and troubleshooting information for failed calls.





### Event Management and Integration (IntelliQ)

Intelli-Q is an automated workflow engine that helps escalate and correlate issues using business rules. It can operate in multi-tenant or standalone mode, and provides enterprise customers and service providers with a central management console, skills-based routing for events, collaboration for engineers, alarm notification, and ticket system integration.

Intelli-Q streamlines business rules and client SLAs, providing the means to escalate, route and notify for each issue. By creating various service offerings that go beyond simple alarm receipt and forwarding, NOC team members can be assigned to queues based on product knowledge, job function, or service window. In conjunction with alarm notifications, issues are routed quickly and efficiently to the correct group, enabling faster response times and quick resolution of critical issues. Key features include:

- A central aggregation point that provides event management and 3rd party tool integration;
- Built-in secure chat capabilities that enable engineers to synchronize on shared views and provide collaborative troubleshooting;
- A flexible policy engine that assists with effective event management and service delivery;
- A mirror module that provides the ability to externalize database tables to a SQL Database; and
- Nectar API integration with 3rd party ticketing systems for automated ticket generation; the Nectar API also allows access to database table information via subscription.

Source: Nectar Services

## About Nectar Corp.

Within the industry's highly dynamic Unified Communications landscape, Nectar's UCMP architecture is continuing to transform the way in which voice, video, and web collaboration applications, systems, and networks are managed. The company's flagship offering – the Nectar Unified Communications Management Platform (UCMP), improves service delivery across integrated voice, data, video, and application solutions by providing critical, actionable performance information to both executives and technical resources. Nectar provides monitoring and diagnostics for millions of enterprise endpoints to over 1,100 enterprises in over 86 countries—including the largest global banking, search engine, healthcare, and manufacturing organizations in the world. Armed with this knowledge, IT Pros now have the foundation to align vital IT initiatives with key business objectives, thereby freeing up essential resources and transforming your company's infrastructure into a highly responsive business asset. Nectar – because every conversation does matter.



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