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Business Telephony:

The 2016 CIO Playbook

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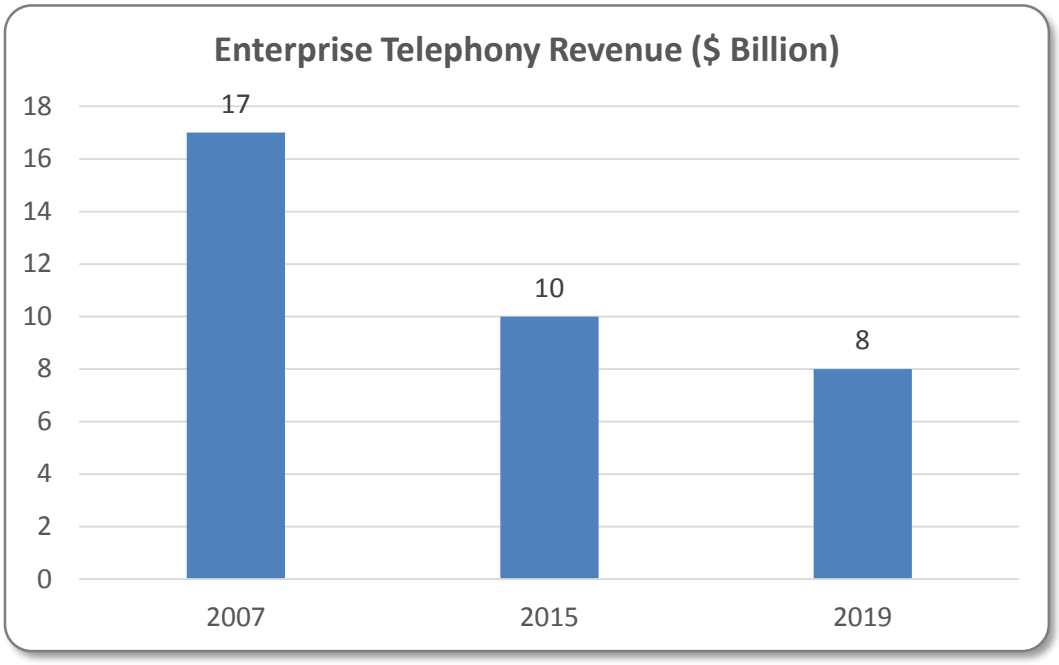
Business Telephony: A Story of Declining Costs and Increasing Capability

If there is one trend that defines business telephony in 2016 and the next few years, it is Unified Communications. Businesses have understood that all communication processes and technologies, within the business and with clients, collaborators, suppliers, dealers, regulatory authorities and anyone else, need to be unified into a common experience. The message is important; the medium isn't.

This unification is breaking silos and leads to a reduction in cost. This explains why we've been seeing a *reduction* in expenditure and, at the same time, an *improvement* in capability, for the past few years.



The enterprise telephony market hit a high of $17 billion in revenue in 2007. It declined to $10 billion in 2015 and is likely to reach $8 billion in 2019. Why? To the benefits of users, new telephony solutions are more powerful, efficient and cost effective: CIOs are finally in the position of giving some good news to their CFOs!

These cost reductions are also driven by the move of communication systems to the cloud.

With high processing power, improving bandwidths and availability of 3G/4G networks, communication is becoming easier and the distinction between on-premise and remote communication is lessening. Like all cloud-based enterprise applications, UC is becoming a service.

Unified Communications as a Service

Moving their communication infrastructure to the cloud has brought many benefits to businesses, and the rate of adoption of UCaaS is on the rise.

One of the major benefits of UCaaS is the ability to integrate various communication systems and services into a common platform. With businesses already using web-based email and instant messaging, adding services such as video conferencing and VoIP is natural.

Another reason driving the move to cloud-based UC is an increasing requirement to communicate with external parties, such as large-scale contracted manufacturing, widely deployed field service personnel, outsourced R&D, global sales and marketing, etc. In today's global world, a robust and flexible communication system is vital, and using cloud-based UC makes it easy to collaborate globally.

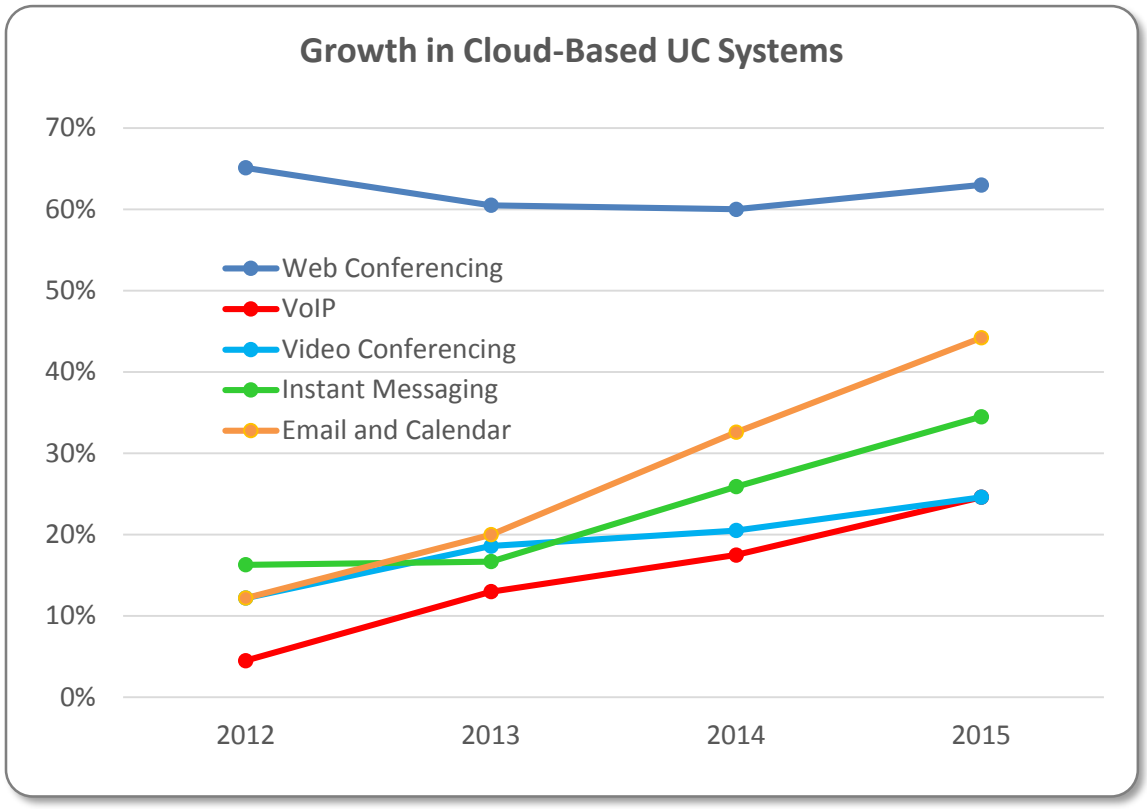
The table below shows the rate of adoption of cloud UC applications. It is not surprising to see that web conferencing leads the chart, but other applications are expected to catch up fast as users gain more confidence.

Unified Communications Applications – Cloud Usage (%)	
Web Conferencing	60%
Email and Calendar	33%
Instant Messaging and Presence	26%
Video conferencing	21%
Office Applications	20%
Cloud-based VoIP	18%

All decimals rounded off. Source: Nemertes research.

The surprise is in the low adoption of cloud-based IP telephony. Telephony is a critical function in any business, so this only means that CIOs are proceeding with caution when trusting the cloud with their business communications.

However, as shown in the graph below, the trend is clearly upwards and as more legacy systems come up for replacement, the business case to move to the cloud becomes more compelling.



Management of UC Services

Most Unified Communications solutions tend to be more complex than the legacy communication systems they replace. In addition, users frequently use components from different vendors to make up a solution, which creates challenges in integration and interoperability.

Legacy phone systems only comprised four elements: a PBX, phone devices, cabling and connectivity to the public network; and, they were much simpler to manage.

In a modern Unified Communications setting, the PBX is replaced by servers, physical or virtual, that are hosted locally or in the cloud; phones are of many kinds: IP phones, softphones, cell phones, video conferencing equipment, Wi-Fi phones or even analog devices; the network is more complex and needs to be managed closely; and many applications will run over the communications infrastructure. All of these add to the complexity, and require specialized management. There is often no single owner, so troubleshooting becomes complex and resolution is difficult.

The lesson to be learned is clear – if communications are going to be unified, then their management has to be unified as well. The emphasis now is no longer on monitoring individual services: modern software is robust and can self-heal, give out warnings and have fail-safe mechanisms and redundancies. However, managers need to monitor if components are working well together and if the user experience is smooth. This requires a different mindset and approach to managing Unified Communications. The approach is predictive, where deterioration in performance must be detected by the system before users begin to complain, and corrective action is taken without even realizing there was a defect in the first place.

Voice over Wireless LAN

With VoWLAN, sometimes also known as Wi-Fi telephony, users can access the complete functionality of the business phone system via a mobile device. VoWLAN also helps to decrease charges incurred by using cellular networks, improve employee mobility and increase productivity.

Voice over Wireless LAN allows users to make internal calls over the local area network at near-zero cost.

VoWLAN applications are especially cost effective and efficient in the following environments:

- Hospitals, where caregivers move around all the time, yet need to be able to reach other instantly
- Schools and universities
- Staff in large warehouses and retail stores
- People working on large construction sites
- Airport staff

Businesses looking to deploy VoWLAN need to plan comprehensively. Existing Wi-Fi access points are usually deployed to optimize the experience for data users. But, unlike data users, VoWLAN users tend to move and therefore can face varying signal strengths. In such an environment, voice quality and reliability become important issues. In areas where Wi-Fi signal coverage is patchy, data transmission can go through because the Internet Protocol caters to error checking and re-transmission; however, this approach will not work for voice applications. Therefore, a reorganization of Wi-Fi access points might be necessary to ensure good performance.

Fixed Mobile Convergence

Fixed mobile convergence (FMC) is the ability of communication systems to integrate their on-premise private phone networks (either wired or LAN-based) with the public cellular phone system. Two kinds of FMC technologies exist: cFMC and eFMC. The issues and differences are discussed below in brief.

Carrier-controlled FMC (cFMC): cFMC is the most practical solution, where the cellular service provider itself passes calls between the cell phone network and the internal

network. Generally, cellular companies are reluctant to offer this integration for obvious reasons.

Enterprise-controlled FMC (eFMC): eFMC is the alternative to cFMC. In its most basic form, an incoming call is routed to both the desk phone and the cell phone, and in case both are within range and ringing, the employee is expected to pick the desk phone that connects over the LAN (Local Area Network) and thereby save carrier charges. However, this relies on employees always using the correct phone. A more effective option is to provide employees with dual-mode phones that automatically select the cheaper network.

Previously, FMC capability was limited to voice calls alone. However, the state of the art is now moving towards giving FMC-equipped mobile users a mobile Unified Communication capability that handles all kinds of communications. This brings the benefits of the lowest possible costs with the full range of UC capabilities.

A large number of phone manufacturers have already released dual-mode phones. Most of these phones have seamless handing off between Wi-Fi and cellular networks. If your business has deployed WiMAX networks, there are several WiMAX phones in the market, as well.

WebRTC Matures

Web Real Time Communications – WebRTC – is an open-source project that is now close to becoming standardized. WebRTC requires internet browsers to follow standard protocols that enable real-time communication within the browser. Communication can be via voice, video or text without requiring any additional browser applications, code or plug-ins: users can simply click an icon on the webpage to place a call to the interested party.

Practically everyone in the communications chain gains from developments in WebRTC.

What end users gain:

- Real-time communication right out of the box without needing to install any additional software
- Improved communication security, as WebRTC enforces encryption over content and signaling

What businesses gain:

- Reduced costs
- Enhanced communications – users can have multiple communication options
- Closer interaction – users do not need to leave the web page to initiate a call
- Improved security even when employees work from home and remote locations

What service providers gain:

- Allow users to access VoIP services when on the move
- Create WebRTC gateways and route WebRTC calls to the business phone system without needing any additional equipment

A large number of software kits allow building powerful WebRTC applications using Javascript and HTML5. Any device that supports a browser can be WebRTC enabled; this extends to computers, smartphones, tablets and even TVs. A very large number of WebRTC-enabled applications are now disrupting the business communications market, and many more applications will emerge.

Social Media and Business Communications

There is considerable confusion about social media. Everyone understands that social media is a great communication tool. Who's really responsible for social media? Should it be marketing, customer care, sales or IT?

Our stand on the subject is that because social media is about conversations and communications, it should not be allowed to fall in a silo of its own. Whoever is responsible for communication systems in a business should also be involved in the business's social media.

> Conventional marketing wisdom held that a dissatisfied customer tells ten people. But… in the new age of social media, he or she has the tools to tell *ten million*.
>
> Paul Gillin, author of The New Influencers
> Quoted in Harvard Business Review

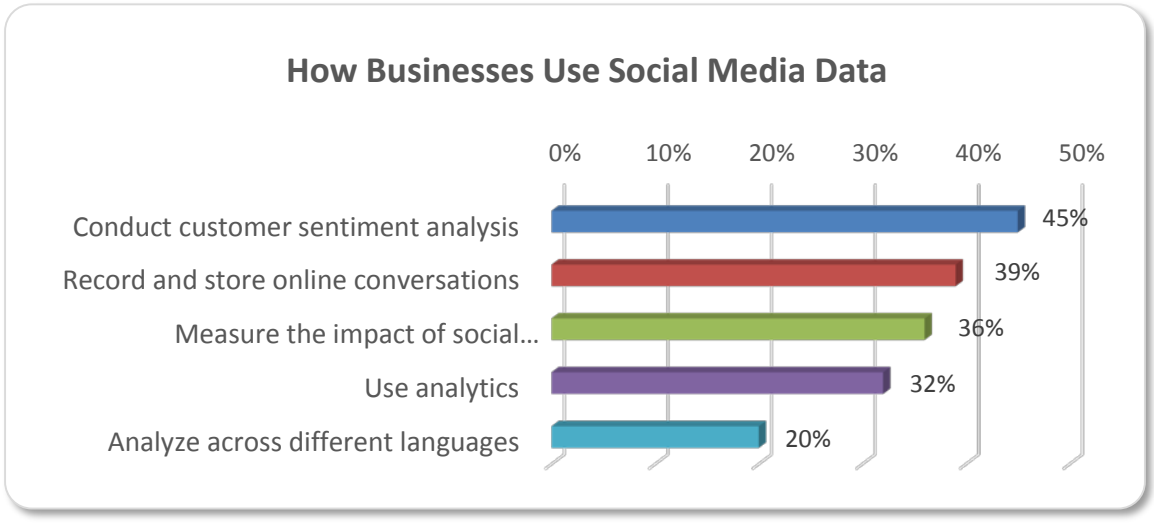
A survey conducted by Harvard Business Review polled 2,100 companies on their use and understanding of social media. The results of the survey were startling:

- 75% of companies did not know what their most valuable customers had to say about them.
- 31% did not measure the effectiveness of their social media outreach.
- Less than 25% used tools for social media analysis.
- Just 7% were able to integrate social media with their marketing efforts.
- Just 12% were satisfied with their social media efforts.

A McKinsey report on the social economy examined social media communication networks in four sectors of the economy: retail financial services, advanced manufacturing, consumer goods and professional services. The report found there could be *annual* productivity improvements of up to $1.3 *trillion* with better management of communications via social media. More than 60% of this improvement came from better communication and collaboration.

When companies use social media for their internal communication needs, stored messages become a searchable knowledge base. The advantages that accrue from communicating with customers are already well known.

CIOs have an opportunity here. It is not merely the communication capabilities of social media that add value; the analytics are even more important. This is an area where CIOs can contribute tremendously to their companies.



Security Cannot Be an Afterthought

While many modern communication systems bring exciting new capabilities to businesses, administrators can sometimes overlook security issues. All components of a modern business communication system are essentially software-based. By their very nature, they are exposed to various threats and need to be protected.

As you go about deploying a new system or managing an existing one, security cannot be an afterthought. While most threats will be general in nature, there are instances where specific businesses or users are targeted.

Some common threats are:

- Eavesdropping: compromised phones can have their microphones enabled, allowing conversations in a room to be monitored.
- Denial of service attack: the communication infrastructure can be swamped or crashed with a very large number of connection requests or messages.
- Platforms comprising the Unified Communication system can be compromised, hacked or infected with a virus.
- Toll fraud: the call manager can be fooled into “thinking” that a call is voice only, but actually using the session to transfer video or other high-value data.

Securing the UC infrastructure cannot be a piecemeal process. IT managers need to look at their infrastructure holistically and create a high-level plan to protect their hardware, networks, applications and end devices. Precautions that are standard to any IP network need to be taken – these include firewalls and intrusion detection systems, packet inspections and malware protection.

An important issue pertains to latency. Voice and video being real-time applications, security measures require careful evaluation and planning to ensure latency is kept to permissible values. A well-planned, multilayered defensive strategy is essential to keep systems running smoothly.

Summary

The business communication landscape is changing, and there is a clear trend to get all forms of business communication systems to work together without being bound into individual silos. Tremendous advantages accrue from this kind of communication fabric that binds the organization and all its stakeholders together. The boundary between web applications and communication systems is blurring. New standards are now allowing basic browsers to support voice and video calls from within web pages, and exciting new applications are emerging to leverage this technology.

Social media is providing another rich source of communication applications. Many businesses have begun to use social media applications for their own internal communications. Businesses that are more evolved are analyzing social media to get actionable insights about their businesses, the economy, competitors and customer choices. This is an area that is not yet completely developed, and CIOs can lead their companies to derive greater value from the millions of conversations taking place.

Since modern communication systems are largely specialized computer applications, they have areas of vulnerability that legacy systems did not have. Proactive CIOs need to understand these vulnerabilities and take timely steps to ensure risk mitigation and service continuity.

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