Communications technology has become a centerpiece of today’s business environment. Broadband links, wireless networking, electronic data, and the ability to connect with each other and with information has become so important that the CIO role has evolved from simply running IT to contributing to an organization’s overall strategy. Enterprise communications technology professionals must pay close attention to new developments in the communications environment if they are to serve their organizations strategically.

Three mega trends dominating the enterprise communications market today are:

- the death of traditional, static networks based on TDM technology;
- the explosion – and dominance – of mobile services and devices; and
- the emergence and adoption of cloud communications.

Combined, these three trends create a new reality for enterprise communications professionals that challenge well-established best practices in every segment of the communications lifecycle – from procurement and network engineering to expense control and policy management. And while the impact of cloud communications and the mobile boom on business – and, indeed, on the population at large – is no secret, what’s noteworthy here are some of the new considerations and side effects these trends portend for businesses today and in the near future.

This special CCMI white paper breaks down each trend to deliver a crystal clear look at how they will influence enterprise communications strategy during the next 24 to 36 months, and provides advice on how best to prepare your organization to harness and benefit from these profound changes.
The Death of TDM and the PSTN

Communications services traditionally have relied on networks based on time division multiplexing (TDM) technology, in which connections on the network are ‘nailed up,’ or dedicated, from one point to another. But the TDM era is coming to a close. Infonetics Research in June reported that spending on every type of service provider network equipment grew in 2011, with the exception of TDM voice, which the firm notes “continued its steep decline.”

Of course, TDM is still in widespread use today, but there are a variety of packet-based technologies and services that have followed in its path, some of which now are paving the way toward a new converged network that allows for more flexibility – in terms of the network itself and the applications it can deliver.

Frame relay and ATM were among the early developments in this direction, but they ultimately hit the wall due to their bandwidth limitations, complexity and cost. Ethernet, IP, SIP and MPLS quickly eclipsed frame relay and ATM. No wonder, as they offer greater affordability and flexibility compared to dedicated T-1 and other TDM-based connectivity options.

Carrier Ethernet already has had great success, with many service providers rolling out services based on this technology, and many businesses using such services to lower their connectivity costs and increase their bandwidth rates. Carrier Ethernet offers lower cost per megabit per second as compared with TDM-based options and delivers speeds as fast as 10 GPs.

The total worldwide market for business Ethernet services between 2009 and 2014 is forecast to exceed $162 billion, according to Vertical Systems Group, a Norwood, Mass.-based networking markets research firm. Carrier Ethernet adoption by large enterprises is driven mainly by applications like content distribution networks, enterprise business data and data replication, point-of-sale platforms and videoconferencing.

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Carrier Ethernet is poised to get even better as service providers introduce new services and features based on Carrier Ethernet 2.0, which adds support for standardized multiclass service, interconnection and new levels of manageability.

Another packet-based transport service, SIP trunking, also has taken off in a big way in recent years and is positioned to continue its ascent.

Campbell, Calif.-based Infonetics Research last year reported that SIP trunking experienced a 143 percent worldwide revenue increase in 2010. Forecasts suggest that SIP trunking will see 68 percent compound annual growth rate worldwide, reaching $5.6 billion by 2015. This kind of growth seems an obvious conclusion given that businesses already enjoy considerable savings with SIP trunking, and endpoints are moving quickly from being PSTN-based to being IP-based.

Not only do these new packet-based networks offer businesses the ability to realize significant savings, support multiple traffic types on single networks, and ratchet bandwidth services up and down as needs require, but they – and the emergence of a bevy of IP-based endpoints – also open the door to new unified communications capabilities and applications that leverage voice, video and/or data communications. Such applications promise to bring businesses new gains in worker productivity.

The conversation about unified communications in the workplace centers on IP PBX or specialized UC system functionality that enables workers to check voicemail, send and receive instant messages and otherwise manage their communications from their PCs. Of course, the uptake of these types of UC solutions is far from ubiquitous, but the popularity of smartphones is raising the bar on end-user expectations about what is possible with UC. At the same time, the mobile boom is bringing yet another device (or devices) and often another e-mail address into the mix, creating an even stronger argument for the need for solutions that can unify communications across multiple platforms and media types.

IP-based unified communications to date has seen the most success in terms of voice, data and IM. But video is an increasingly important strategic play for enterprises. Here again low-cost consumer offerings are driving interest and creating a new comfort level with this technology. The Millennial generation grew up being connected, and that is challenging the workplace to adopt new and more collaborative ways to do business. The fact that the industry seems to be moving forward in allowing for more interoperability between different video solutions is also an encouraging sign for the adoption of video.
But while decreasing price points around video communications and a new generation of tech-savvy workers have led to the democratization of video, the fact remains that many end users simply are not comfortable using video communications to interact with work colleagues. To help address that and drive engagement around next-generation collaboration solutions, avatars are moving into the picture. Avatars, and the larger trend of gamification, will lead the next evolution of unified communications and collaboration. Gamification leverages technology found in video games—like avatars, leaderboards and online rewards—to encourage specific behaviors in the workplace.

The widespread availability of wireline and wireless IP-based broadband networks also can further enhance an organization’s productivity.

By enabling contact-center representative to work at home, businesses open up the role of the rep to an entirely new population. That includes retirees who may have special knowledge in a specific vertical, the disabled and stay-at-home moms, to name just a few groups. It is still early days for the remote contact-center rep, but some major brands (like JetBlue) rely entirely on home-based call-center agents, and others are adopting this model at an increasingly rapid pace. According to At Home Customer Contacts, 15 to 20 percent of the total agent population in North America’s 60,000 contact centers work from home, and that number is expected to reach 30 percent by the end of 2013. This trend is likely to be helped along by the growing clamor to keep call-center jobs within the U.S.

As enterprises and consumers transition to more flexible IP networks, the policing of circuit-switched networks have fallen by the wayside. Indeed, the nation’s largest carriers have been replacing old-line TDM telco veterans with IP network technicians and lobbying regulators to sunset the public switched telephone network for some time now. For example, Verizon Communications announced it wants to eliminate 1,700 positions, or almost 1 percent of its workforce, through a buyout offer for technicians and call-center employees.

The Mobile Boom

The explosion—and dominance—of mobile services and devices is probably the most well-understood communications trend of the day. Or is it?

“Americans’ love for mobile products and services continue to grow,” notes Steve Largent, president and CEO of CTIA, in a statement made in April. “Our survey shows yet again that we are choosing to have more than one wireless device, including smartphones, tablets and e-readers, which is why the wireless penetration rate is almost 105 percent.”

But while businesses used to issue workers communications endpoints, which were closely controlled by IT staffs, we have seen the consumerization of the wireless device, meaning that workers are using their own smartphones and tablets for work. That’s great for businesses in terms of endpoint savings, but not so great for them in terms of device control.

That said, it’s not surprising that most businesses continue to grapple with the bring-your-own-device trend, and with how they can allow employees and their organizations to benefit from all the productivity perks of mobility while at the same time getting a handle on mobile device management and related security risks.

Most companies lack a formal mobility policy, says Forrester Research analyst Brownlee Thomas. She notes one reason why that might be: Mobile is not centrally provisioned at most companies.
But creating and policing mobile policy is no small task considering the variety of mobile devices, and the variation in operating systems and applications they run. And they continue to multiply. Worldwide sales of mobile devices totaled 428.7 million units in the second quarter of 2011, a 16.5 percent increase from the second quarter of 2010, according to Gartner. Seventy three percent of the global enterprise workforce will be mobile users this year, Forrester predicts. And IDC reports that the worldwide mobile worker population is set to increase from 1 billion in 2010 to 1.3 billion in 2015. That accounts for 37.2 percent of the workforce. That has led everybody (from consumer electronics company Samsung and virtualization company F5 Networks to Amtel and many, many others) in the communications space to introduce BYOD solutions for business customers. These BYOD solutions, which come in a variety of packages and footprints, typically enable businesses to control what applications mobile endpoints can access while on the corporate network, support business-specific mobile apps and app stores, and deliver security capabilities such as the ability to wipe mobile devices if a smartphone with corporate information is lost or stolen. Uptake for such solutions is sure to take off in the months and years ahead.

The Formation of the Cloud

After mobility, the cloud is probably today’s second hottest communications trend. And that’s for good reason. Adoption is already off to a great start, and it’s positioned to increase considerably in the next couple of years. IDC says cloud computing spending will grow four times faster than IT spending, hitting $36 billion this year.

“Cloud computing and hosted managed services will without a doubt become the primary method of IT delivery to organizations large and small,” says Keith Bates, chairman of the Cloud Computing Centre.

That growth is happening in terms of workloads and the number of businesses embracing cloud solutions. Morgan Stanley Research forecasts a 50 percent compound annual growth rate in public cloud-based workloads between 2012 and 2015. And an IBM study indicates 60 percent of 3,000 global CIOs intend to leverage cloud computing between 2011 and 2016. The same IBM study reveals that seven out of 10 CIOs in the U.S., Japan and South Korea, and 68 percent in China, identify cloud as a top priority. IBM alone expects to generate $7 billion from the cloud by 2015.

Hopes are high for cloud computing because they enable organizations to hand off infrastructure, software and services to communications specialists. As a result, capital expenses that in the past would be required for new routers, servers, software licenses or other infrastructure or software are eliminated. With cloud-based services, businesses avoid upfront capex (and the risk that goes with it), and invest in infrastructure and/or software and services on a pay-as-you-go basis. That’s an especially appealing proposition in any economic climate. Use cases for cloud solutions are all over the map. Many businesses are outsourcing the ownership and management of popular back-office business solutions such as Salesforce.com and human resources software to cloud service providers. The cloud also enables organizations such as the National Oceanic and Atmospheric Administration to more affordably distribute email and collaboration tools to its hundreds of facilities around the country. And retailer IKEA is leveraging the cloud to enable its designers and consultants to access and share large files during product development.

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says Keith Bates
Turning up cloud-based services has become so easy that people using such services typically are data analysts, marketing people and developers. Sometimes IT staff is not even aware these folks within their own organizations are using cloud services.

“Forrsights surveys and discussions with clients continue to show that the early adopters of cloud services are not I&O [infrastructure and operations] professionals, and this gap rose in 2011,” according to Forrester Researcher’s 2012 Top 10 IaaS Cloud Predications for I&O Leaderships.

“And the trend of empowered employees and developers not telling I&O about their use of cloud continued in 2011. Thankfully we saw more I&O leaders begin to proactively engage these leaders by demonstrating how I&O can make services more predictable and productive.”

However, while this trend clearly demonstrates the ease of using cloud services, it can heighten an organization’s risk of security breaches and increased costs. So savvy organizations are working to get a better handle on their cloud-based solutions. Forrester Research suggests that organizations worried about security risks relative to public cloud services should consider publishing cloud use policy documents and distributing them throughout their organizations.

For some businesses, that means operating private or hybrid clouds. However, the concept of the private cloud recently has been blasted by none other than cloud pioneer Salesforce.com. The company’s chief scientist at a recent confab said that the point of cloud computing is to share the costs, resources and risk of computing among multiple parties, negating the value of a private cloud. Expect this risk-versus-reward debate to continue.

While cloud computing is a disruptive technology that can provide organizations with great rewards, it also may involve significant risks and sometimes greater investment and culture change than anticipated.

Another sign of the immaturity of the cloud is the lack of standards in this arena. But industry groups are working to formulate specifications and we are likely to see the adoption of those specs in the next few years. That timing should coincide with a tipping point in cloud adoption.

Conclusion

As the old saying goes, no guts no glory.
The move to dynamic networks, manageable mobile communications and cloud computing offers a bevy of internal and external benefits for organizations big and small. In today’s hyper-competitive business climate, can your business afford not to take advantage of these benefits?

• Dynamic networks unleash communications in a variety of mediums that can include even far-flung employees and partners.

• Mobility enables on-the-move communications and a world of applications at your fingertips.

• And cloud services create new opportunities for savings by sharing resources among multiple users.

Going forward, expect to see greater uptake of services like Carrier Ethernet and SIP trunking. Meanwhile, functionality that allows for unified communications across mobile phones and work desk phones (think multiple ringing on both the mobile and desk phone and a single voicemail across all platforms) will become more prevalent.

Also expect to see companies create their own mobile app stores and app usage policies.

And in the cloud arena, organizations will have an ever-growing cornucopia of solutions from which to choose. That will include not just offerings that involve outsourcing of popular software and infrastructure, but also of solutions that have not yet seen wide adoption by businesses. For example, cloud technology will give videoconferencing – which has typically required expensive bringing gear – the push it needs to finally reach its promise.

Organizations that realize the greatest successes are not those that rest on their laurels and cling to the old ways. Rather, the most successful businesses identify and move on trends early, and figure out how to leverage those developments strategically.
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