

Eliminating Borders to Enable Any Place, Any Time, Any Device Access A Win-Win for Business, IT, and Users

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COMMUNICATION TECHNOLOGY THEN AND NOW

Technology advancements constantly drive down the cost and time in moving “stuff” around the world, whether it’s physical, moved by container ship and airplane, or information digitized and sent over communication networks. Communication technology has experienced especially rapid changes over a short period. Fewer than 20 years ago, e-mail was relegated to a select few business users, scientists, and students, with everyone else sending letters and making phone calls. Fast forward to 2010: Anyone can broadcast status updates to their entire circle of friends and acquaintances, even those hiking the Appalachian trail, with a few keystrokes and mouse clicks. This has had a world-shrinking effect; the end of the world doesn’t seem so far away if you can get there quickly, or check it out on Google street view.

Along with these advances, our expectations are changing. We expect communication and information exchanges to be instantaneous, interactive, and media-rich. Ten years ago it was nice to hear someone’s voice; today it’s nice to see that person in high definition video. We don’t know how we’ll be communicating in another 10 years, but if innovation maintains its current pace, it will be very different from today.

TECHNOLOGICAL ADVANCES ARE BRINGING RAPID CHANGE

Geography used to severely restrict where work could be accomplished. One had to be in the office to use a computer, access databases, or collaborate with colleagues. But technology advancements mean users no longer need to be at their physical desks or workstations to work. Today’s collaboration tools eliminate much of the need to physically be in the same location to achieve a result; a software demonstration can be done virtually via desktop sharing.

Successful businesses have eagerly embraced technological advancements, using them to their advantage to scour the globe for ideas, to move research, development, and manufacturing where expertise is high and costs are low, and to sell to customers wherever they are. This phenomenon isn’t restricted to private businesses. Governments are moving constituent services online to save money while improving citizen access to services, educational institutions are offering broader course selections via e-learning programs, and scientists are receiving real-time data from research vessels on the high seas.

Much of this is possible because of communication networks that span the globe and connect companies’ people and information, allowing them to tap into global opportunities and boost productivity. In turn, the ability to work from anywhere is contributing to greater usage of mobile and remote applications and technologies, creating a virtuous cycle.

Ironically, as businesses do exactly that, their networks are holding them back. Using a laptop to VPN back into the company network was a revolutionary step many years ago, but it hasn’t kept up with the pace of innovation. People use multiple devices and change locations frequently, but current architectures place many constraints on how users can access resources, which diminishes their value.

TODAY’S NETWORKS STRUGGLE TO KEEP UP

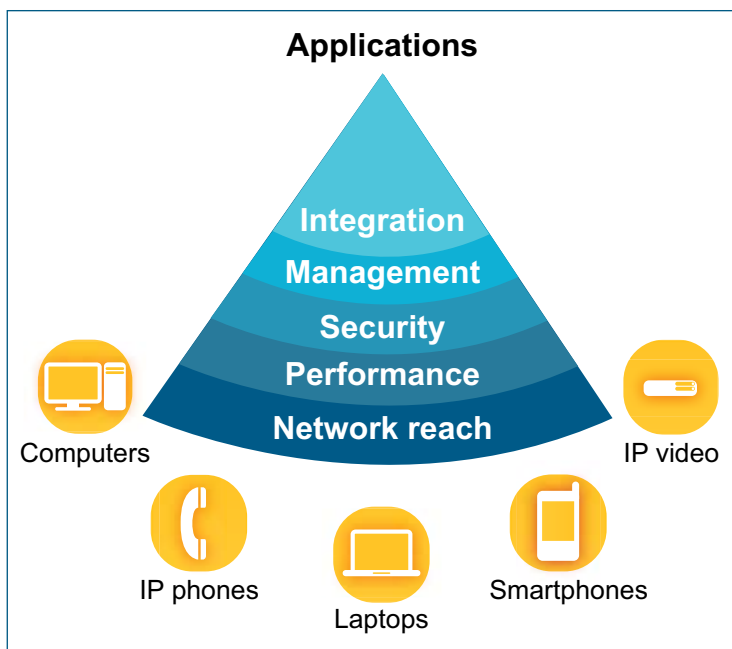
Many networks are the result of years of unchecked growth and one-off projects. Network administrators didn’t necessarily have a long-term vision and overarching networking and IT service delivery strategy, but instead added equipment, services, and applications on an as-needed basis, to support company growth (e.g., new locations, employees), a certain initiative (e.g., WLAN coverage), or to fix a problem (e.g., regulatory compliance, security). There isn’t anything wrong with this approach—it keeps expenditures to a minimum, and it works reasonably well as long as companies stay small and don’t change rapidly. But most organizations want to grow, and need to embrace change quickly to outsmart their competitors. That’s when a piecemeal approach doesn’t work so well. There is quite a difference between configuring a single wireless access point and configuring hundreds. Companies waste time and money separately managing and configuring various devices and network equipment, and maintaining consistent policies across them is next to impossible. Further, they know very little about what’s happening on their network—they lack a complete inventory of connected devices, application usage data, user data, and traffic patterns, information that could deliver valuable insight on how to take their IT strategy forward.

Not fully knowing what’s happening on the network also undermines security. If a user or department plugs an unprotected or weakly protected wireless access point into the network, it opens up the company network to unauthorized access by others. This is how hackers gained access to the sensitive customer data of major retailers, which got them in trouble with regulators and cost them the trust of their customers.

REMOVING BORDERS TO TAKE BACK THE VALUE OF THE NETWORK AND APPLICATIONS

To unleash the full potential of their IT infrastructure, organizations need to eliminate network and application borders, and provide users with access to any resource, via any device, wherever they are. This next generation of networking won't just be about feeds, speeds, and coverage, but also about intelligence and user experience. Because it opens up previously closed networks and applications, it has to be done in a controlled manner so organizations can keep their data secure. There are 5 major areas companies need to address to free their networks and applications:

COMPANIES MUST ADDRESS 5 AREAS TO FREE THEIR NETWORKS AND APPLICATIONS



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A Reliable, High Performance Network

Users' productivity suffers when they cannot reliably access applications (e.g., if connections time out, or if bandwidth is insufficient to support certain media, such as a video download). This has always been the case, even for near real-time and sporadic application usage, but is even more important as networks play host to real-time applications like voice, video, and desktop-sharing.

Ubiquitous Network Coverage

Users are on the move, roaming around their campus, visiting customers, working from home, and they need access to applications. Organizations must provide coverage beyond the traditional workspace—users' desks and workstations—by building out wireless LANs and tying in with third party networks, such as 3G cellular network while on the road, a WiFi hotspot at an airport, and a broadband connection from a hotel or home.

Network Security

To eliminate borders, the network and applications will be opened up beyond traditional locations, users, and devices. Users will access sensitive data over possibly unsecured third party networks, so security needs to be inherent in the network to prevent the spreading of viruses, unauthorized access, and loss of data. Devices and users need to be authenticated, data and communication sessions need to be encrypted, and devices need to be disabled if stolen.

Comprehensive Management and Policy

Network management is complex, and administrators need single-point management and a unified view to reduce repetitive tasks and improve visibility. They need management systems that can handle all their network equipment (switches, access points, security appliances, etc.), support the plethora of devices (PCs, laptops, smartphones), manage users, and be able to centrally set policies enforced by the network. Removing borders is a great concept, but it needs to be appropriate—you don't want to give the engineering team access to payroll records.

Integration Framework for Coupling Networks and Applications

Users' capabilities vary depending on where they are and what devices they are using. The experience on a desktop with a wired broadband connection is very different from that on a smartphone with a 3G cellular connection. The user experience can be vastly improved when the network or application understands session conditions, and automatically adjusts the interaction. For example, if bandwidth is limited, audio or video codecs could be adjusted instantaneously to match the available bandwidth; video content could be resized to fit a given device screen and bandwidth capacity.

A BORDERLESS STATE ENABLES WORKSPACE FLEXIBILITY AND BUSINESSES AGILITY

The power of a borderless network is its ability to set up ad-hoc connections from anywhere at any time, to connect whenever a connection is needed, and to have a secure and consistent experience.

When physical presence is no longer the overriding factor, it allows organizations to go beyond their traditional geographical boundaries, whether looking for a specific expertise or skill (e.g., a language skill) or seeking to lower talent cost. These examples have a hard ROI, but workspace flexibility can also have a positive impact on work-life balance, helping to attract and retain highly qualified employees and leading to a more productive workforce. This is difficult to measure, but there are companies with successful arrangements. For example, retailer Best Buy implemented a results-oriented work environment at their headquarters, allowing employees to work anywhere, and only evaluating their performance based on actual work done. It significantly reduced employee turnover, and more importantly, Best Buy survived the economic downturn relatively unscathed, whereas their #1 competitor did not.

Some organizations are taking this model to the extreme, and have become 100% virtual. This won't work for everyone, but almost any organization will be able to incorporate some aspects of workspace flexibility, offering it to certain employees or for certain tasks.

WORKSPACE FLEXIBILITY CAN BENEFIT SOCIETY

Infectious diseases pose a major, recurring threat to societies. In 2002–2003, the world dealt with the SARS outbreak, and in 2009–2010, the H1N1 virus is causing concerns. While H1N1 has affected many people, it hasn't lived up to the worst-case-scenario, thanks to aggressive quarantining policies by schools and employers. But they've had to make the difficult decision of sending seemingly healthy people home proactively, which is disruptive to business. Organizations that embrace a work-from-anywhere environment aren't faced with that disruption—they can err on the side of caution and keep people at home, while ensuring business continuity and productivity, not to mention the societal benefit of containing a disease outbreak.

This point is easily extensible to other areas, such as inclement weather. The latter has been a major problem in parts of North America and Europe during the winter of 2009–2010, making it difficult to commute. The Massachusetts state government already coordinates with large employers to keep employees at home during heavy snowstorms to improve public safety.

BORDERLESS NETWORKING APPEALS TO MANY VERTICALS

Many of the examples provided use work-from-home or work-from-anywhere scenarios. In many professions this simply isn't possible—for example, the workspaces of nurses, police officers, and cashiers typically are restricted to where their customers are. But they too can benefit tremendously from borderless network architectures.

Healthcare

Many healthcare providers offer nurse hotlines as a way to contain costs while improving access to services. Patients can call and describe their medical issues, and a nurse determines the appropriate course of action, which could be anything from “do nothing” to “get to the emergency room.” These hotlines extend medical expertise beyond the confines of the doctor's office, to remote regions and beyond regular office hours, and speed up access to services, while cutting down unnecessary emergency room visits. Yet phone hotlines are rudimentary, and diagnostic capabilities could be vastly improved if combined with multimedia (e.g., a picture to diagnose a rash or a video conference to evaluate a patient).

Retail

Large retailers have the challenge of being highly distributed, with multiple locations—headquarters, warehouses, retail sites, and a highly mobile workforce (purchasing agents meeting with vendors, employees roaming about the retail site restocking shelves and helping customers). A sales clerk cannot work from home, but they can be equipped with tools that improve customer interactions. For example, employees with tablet PCs can quickly help customers by identifying whether an item is in the stock room, at a nearby store, or on its way, by ordering an item online, or by identifying alternative products. Customers who browse the web on their smartphones to look for the best deal are seen as a threat by retailers. But it could be seized as an opportunity, alerting them to promotions via digital signage or sending them a coupon directly to their smartphone.

Public safety

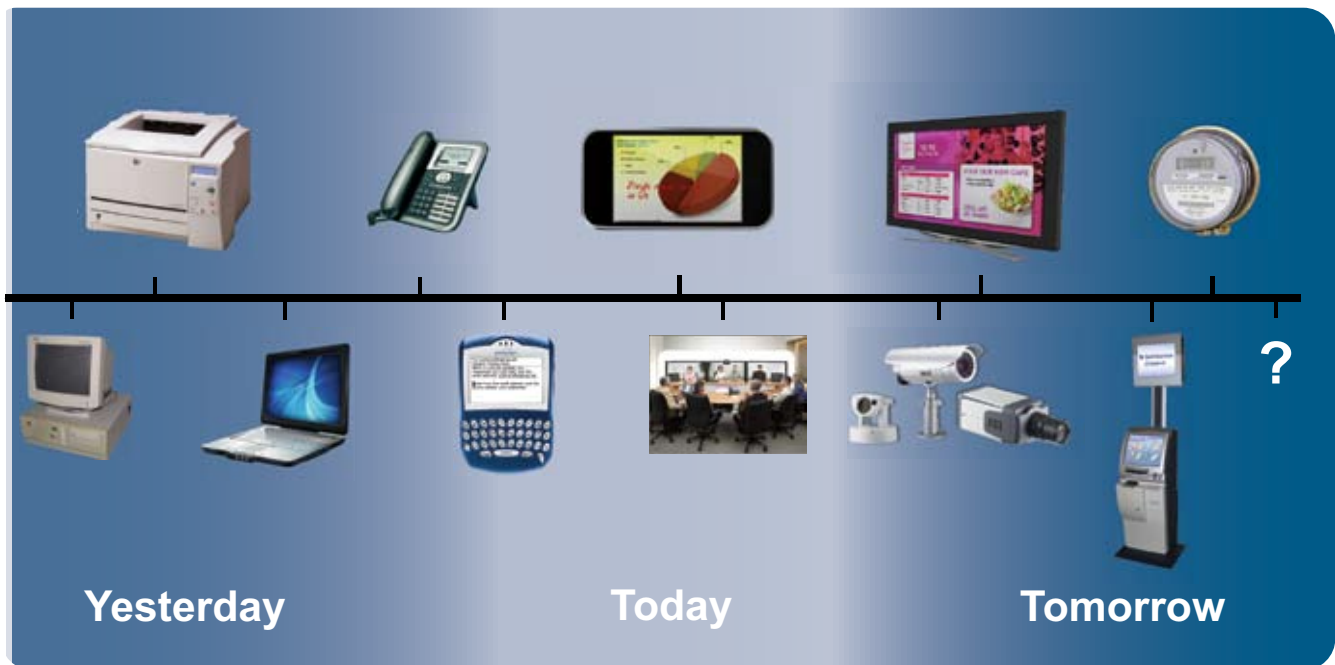
Any police officer making a routine traffic stop will run a vehicle's license plate number as a basic safety precaution to gauge the potential danger of the situation. But many potentially valuable tools (e.g., crime databases, video surveillance feeds) aren't available to officers in the field with mobile devices. For example, video feeds from nearby security cameras made instantly available to officers in the field could yield valuable information to crime scene investigators, helping them hone in on the right suspects and get statements from the appropriate witnesses.

A FLEXIBLE INFRASTRUCTURE POSITIONS IT FOR THE ROAD AHEAD

IT is constantly tasked with new things, such as voice services, which have been moved from telecom to IT with the advent of VoIP, or the increasing responsibility for video, including telepresence-type videoconferencing and IP video surveillance cameras. In the past, IT dictated what devices and applications would be supported, but users are now bringing their own productivity tools into the enterprise, such as hardware like iPhones and netbooks, or cloud-based collaboration and communication tools like Skype and AIM Pro. The rise of social media is another area of impact; some organizations fear it, but many others embrace it for communicating with customers and collaborating among employees. Here too, IT will bear the burden of a secure implementation.

The result is an ever-changing IT and network environment, and IT's responsibilities are certain to expand over the coming years, simply because networks touch so many areas. Convergence is looming between building management systems and IP networks, and between physical security and IT security. Imagine the day that air conditioners and lighting are network-connected, and user policies span IT and physical security. By adopting a flexible network architecture, IT and network administrators are positioning themselves for the changes ahead.

THE TYPES AND COMPLEXITY OF DEVICES CONNECTED TO COMMUNICATION NETWORKS CONTINUE TO EVOLVE



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WHERE SHOULD YOU BEGIN?

Before product and service decisions are made, IT and business decision-makers need to discuss how they envision their business and work environment evolving, and what role IT and networking can play: Will employees increasingly move outside their traditional surroundings, e.g., travel to customers, partners, and work from home more often? Could the organization benefit from a virtual presence or use new types of media and communication to reach out to customers? By plotting a long-term strategy, they can determine:

- Who/what will be accessing the network?
- Where do users need access?
- What applications will be used?
- What devices will be used to access the applications?

The answers to these questions will guide IT decision-makers on type, location, and amount of connectivity, device support, and application integration. It's important to point out that companies don't have to, and likely won't, eliminate borders overnight. Instead, their networks will evolve and gradually remove borders. By breaking a 'borderless' state into components, they can start by upgrading the performance of their network, add wireless coverage where needed, and enhance security, laying the foundation for the eventual goal of having applications and the network interact.

Organizations with a flexible IT and network infrastructure that removes unnecessary borders ultimately are more agile and can respond faster to inevitable change, giving them a leg up on the competition. But they need to start thinking now about the future and what role the network will play, and make sure their network and equipment suppliers are able to support it. ■

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Matthias Machowinski is a leading expert on enterprise voice and data technologies and end-user buying trends. He has been an analyst in the communications and data networking industry for 9 years, with extensive expertise in communication networks deployed by SMBs and enterprises at the desktop, wiring closet, and network backbone.

He tracks unified communication (UC), IP contact centers (IPCC), TDM and IP PBXs, Ethernet and application switches, enterprise routers, and wireless LAN and WiFi mesh equipment. He authors several quarterly market share and forecast reports and Continuous Research Service (CRS) research notes and surveys on enterprise data, voice, and UC, including a recent end-user survey on 2009 voice communication spending.

In addition to authoring regular market research reports, Matthias is a consultant to startups, service providers, manufacturers, and the investment community, identifying new market opportunities, providing due diligence, and advising on positioning, product development, business plans, and M&A activity.

An insightful thought leader, Matthias is frequently quoted in vendor press releases and trade and business publications, including BusinessWeek, eWeek, Network World, New Telephony, San Francisco Chronicle, and Telephony Magazine. He also contributes articles to networking publications such as Telephony Online, moderates webinars, speaks at industry events, and meets with vendors and carriers regularly.

Matthias has a BS in Psychology with a concentration in statistics, research methodology, and data analysis. He has been with Infonetics Research since 2001 and is based in their Boston Metro office.

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