Create A Customer Engagement Network For Your BT Agenda

by Andre Kindness, April 10, 2015

KEY TAKEAWAYS

Customers And Customer Experience Redefine Network Strategy

In the era of the mobile mind shift and empowered customers, networks have to do more than cater to the employee's needs. The business needs a network to it help win, retain, and serve customers, so you must add multiple customer elements to the network.

Customer Engagement Networks Emerge To Support The BT Agenda

Networks that face the business will evolve into a customer engagement network. The architecture and systems of engagement that the infrastructure delivers will be aligned to the customer's needs in a particular industry.

Network Segmentation Evolves To Match The Business

Gone are the days of networks being segmented by traditional IT areas such as the campus, data center, and branch office. Networking will support business processes and engage the customer.

Create A Customer Engagement Network For Your BT Agenda

Connecting Your Customer To The Business Requires A New Network Strategy

by Andre Kindness
with Christopher Voce, Glenn O'Donnell, Jeffrey S. Hammond, George Lawrie, Adam Silverman, Andrew Hewitt, and Vanessa Wegner

WHY READ THIS REPORT

As infrastructure and operations (I&O) leaders move to support a business technology (BT) agenda, they will come to the difficult realization that their current network infrastructure can't support this initiative. Why? The current network infrastructure is based on business processes and transactions. While this worked in the past, it doesn't hold up in today's age of the customer market where serving the customer is the primary focus. This report explores why I&O professionals must redesign some parts of their network infrastructure and introduces the customer engagement network, which can deliver systems of engagement to customers so the business can meet their expectations. This isn't a new or different network, but a network that serves the customer and the business.

Table Of Contents

Notes & Resources

Forrester interviewed Aerohive Networks, Aruba Networks, Bytelight, Extreme Networks, Hughes, Pertino, and Zebra Technologies.

Related Research Documents

Brief: Systems Of Engagement Take Center Stage

Customer-Centric Strategies Require Business-Centric Network Hardware

Top Technologies For The Infrastructure & Operations BT Agenda

ENOUGH NETWORK NAVEL-GAZING — IT'S TIME TO FOCUS ON CUSTOMERS

Today, organizations' only competitive advantage is an obsession with understanding, interacting with, and serving empowered customers; thus, they've started to shift their focus from budgets, people, and the business toward customer knowledge, relationships, and actions. Digitally empowered customers demand a customized experience, forcing firms that want their business to serve them in their mobile moments — those times when customers and employees pick up their smartphone to get what they want in their immediate context.[1]

Technology management organizations seeking to do this have started to shift their technology investments toward serving a BT agenda. A BT agenda delivers transformative business impact by focusing on customers' experiences throughout the life cycle (see Figure 1).[2] However, current network infrastructure initiatives and goals have been architected to serve an IT agenda — a well-intentioned, inside-out approach effort to support business processes and transactions that, in theory, should serve the customer.[3] This is especially true within networking — today's business process network initiatives are focused on:

- **Lowering total cost of ownership.** Networking built to serve an IT agenda focuses on reducing costs by either lowering capital expenditures or improving the efficiency of the technology management team.[4] I&O professionals will either create their own reports or use ones from vendors highlighting how much faster the team can deploy technology or how much the number of administrators per device is increasing by. While saving costs is important and frees up resources for investments, organizations that only focus on cost won't keep their business competitive in the age of the customer.

- **Segmenting the network-based IT agenda needs.** Network architectures and design goals center on either specific types of switches — like edge, distribution, and core — or on areas of the infrastructure such as the data center network, campus network, wide-area network, or branch office network. I&O pros use these types of segmentations because they align with IT agenda projects like creating a unique network solution for the data center to accommodate server virtualization or deploying Wi-Fi and refreshed edge switches because of laptops and now mobile devices. Such projects help infrastructure professionals and employees be more efficient, which improves customer experience. While these projects and network updates can benefit the customer, they can't directly help the business win, serve, and retain customers.

- **Creating an application-driven infrastructure.** Today, the networking market offers a variety of software-defined (SDN) solutions, network fabrics, and other products claiming to help networking organizations create a common policy-based operational model across the entire infrastructure based on an application's requirements. Network resources and priorities are decided on by an application — neither customer nor business perspectives factor into the decision.

■ **Indirect benefits to customers.** Common initiatives like improving network support for bring-your-own-device (BYOD) programs, collaboration tools, and guest access can all be important components of creating better customer experiences — but they still are a level removed from customers. Networking projects like these help employees do their jobs better and make the company more competitive but still yield only indirect benefits to the customer.
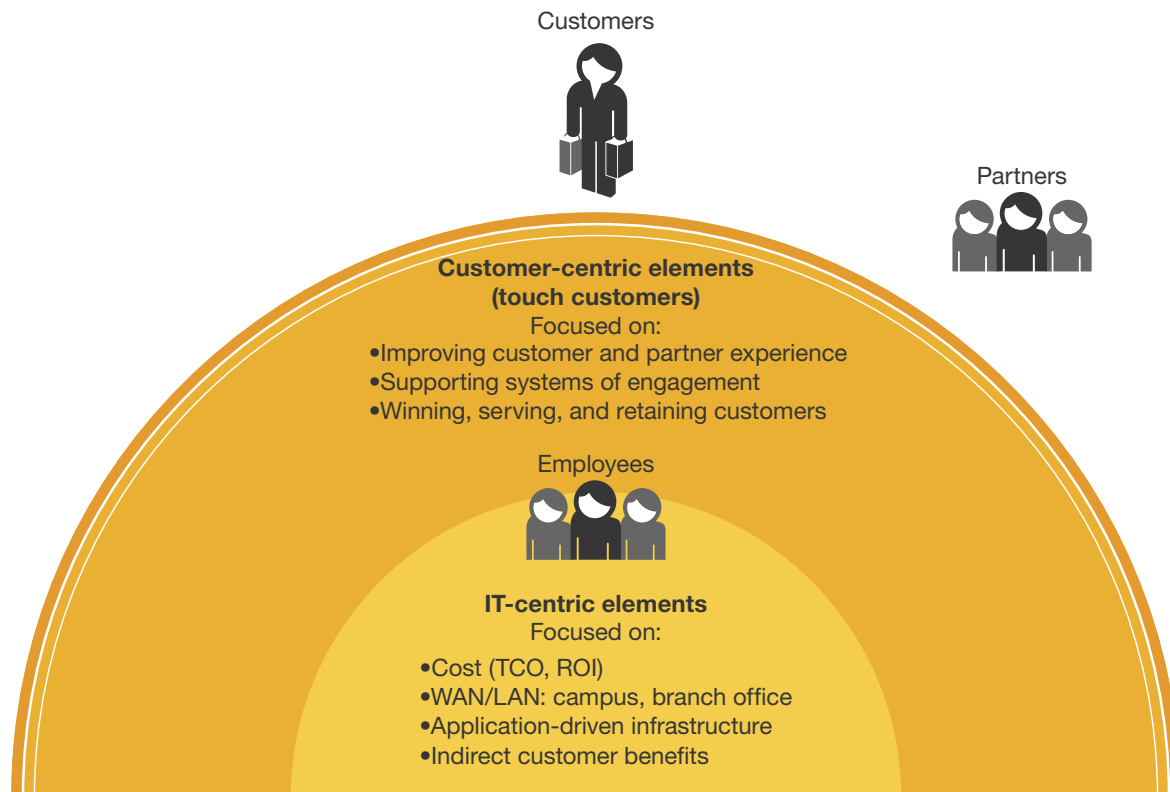
Figure 1 The Customer Life Cycle

Customers Must Be Front And Center In Your Network Strategy To Serve A BT Agenda

Delivering on a BT agenda means I&O pros must refocus their priorities on their business' customers — today's approach only has an indirect impact (see Figure 2).[5] Customers must be able to engage your business in any one of the life-cycle stages independent of an employee or a running application. Your network might be the first customer touchpoint. For example, in a hotel, the customer's experience might start with the connection of his mobile device to the hotel network as soon as he walks in the door. And that event can then trigger activity with connected devices controlling climate, curtains, lights, and the television — even the door lock can be sent the appropriate security code — thus thrusting the network from background technology into the forefront of a customer's make-or-break experience with your business.[6] This means I&O leaders must ensure that their networks:

- **Help win, serve, and retain customers.** Using their deep knowledge of networking, networking professionals can offer up ideas and concepts on the network that can enable the business to increase its revenue, improve customer experiences, and win over new customers. For example, stadiums have deployed Wi-Fi not just to offer basic guest Internet access but to improve fan experience by giving attendees information on specific stats and players. The stadiums can create an experience a customer couldn't get at home or a bar. Wi-Fi also gives the stadium information on its customers that it couldn't get through cell connections or ticket sales.

- **Deliver the best customer experience.** Employees are beholden to the business and might tolerate a less than satisfactory experience — but customers will not. Since the edge of the network can potentially be the first customer engagement moment, network goals and evaluations have to be based on the customer's expectations.[7] For example, networks should provide more than generic guest access. Customer access should be unique and differentiated, which is critical in industries that have loyalty programs, such as the hospitality, retail, and service industries. The network should seamlessly connect loyal customers, authenticate them, and deliver them a better experience than other customers. This kind of design insight comes from bringing in customer experience (CX) professionals and business teams to help plan for these touchpoints.[8]

- **Enable systems of engagement.** Systems of engagement (SoE) are multiple interwoven sets of applications and services that aggregate information from multiple service endpoints, package that information into a contextual bundle, and enable customers to take the most appropriate action.[9] Instead of spinning up network capabilities and services based on an application — a one-dimensional view — network infrastructures should mesh the right services together based on the customer's immediate need in the right context. This design point pushes I&O professionals away from simply adopting a single platform for a discrete area of the network to deploying a network based on the five tenets of Forrester's virtual network infrastructure (VNI) concept.[10]

Figure 2 Customer-Centric Elements Focus On SoE; IT-Centric Ones Focus On Systems Of Record

Customers

Partners

**Customer-centric elements
(touch customers)**
Focused on:
•Improving customer and partner experience
•Supporting systems of engagement
•Winning, serving, and retaining customers

Employees

IT-centric elements
Focused on:
•Cost (TCO, ROI)
•WAN/LAN: campus, branch office
•Application-driven infrastructure
•Indirect customer benefits

122043

CUSTOMER ENGAGEMENT NETWORKS REPRESENT A BUSINESS VIEWPOINT

A network infrastructure that delivers systems of engagement isn't a separate or different network — it's part of the same network that encapsulates Forrester's five VNI principles but adds in customer perspective — which we call the customer engagement network (CEN).[11] There is no specific demarcation line that defines where a business process network ends and begins; the closer that network infrastructure gets to the customer, the more the network must interweave network services and connections based on the customer's immediate need.

For example, a retail store can't rely on a simple guest portal logon for customers. Instead, I&O professionals should work with the mobile app team to have the device log in customers automatically if they have downloaded the store's mobile app and accepted appropriate terms and conditions: the mobile device connects, software firewalls get spun up on the access point, the app sends authentication information about the user, the user gets moved to a special loyal customer network, and the generic firewall gets extinguished.

Four Common Imperatives Anchor Every Customer Engagement Network

There are certain fundamental network guidelines that all I&O pros should follow when building a CEN:

1. **Take an Ethernet-first approach.** In the traditional network infrastructure, there are only a few remaining sections of the network not running Ethernet, such as storage. Traditional technology management has been won over by the value of IP-based networks. However, this isn't necessarily the case in the business or consumer world. For instance, Z-Wave is a wireless communications protocol designed for home automation — specifically for remote control applications in residential and light commercial spaces. The key is to create a business-wide policy that stipulates that new innovations and investments must leverage Ethernet and not some other protocols. Look no further than voice and video for inspiration. Companies and consumers now have new and flexible ways of consuming those services because of Ethernet.

2. **Converge to a single network.** As businesses deploy new interaction technologies, I&O professionals should push for connectivity that leverages the existing WAN and not separate transports and connections to outside services. For instance, some digital display companies offer their satellite connectivity and local connections. But while this may seem appealing because you don't need to interact with the networking organizations, it has been proven too many times that more parts and systems lead to more frequent failures, lower customer satisfaction, and higher costs.[12]

3. **Make Wi-Fi your primary connection.** The networking market offers a plethora of connection technologies (Bluetooth, wired, ZigBee, cellular, satellite, etc.), all of which have their advantages and disadvantages. Within a manufacturing site, hospital, or retail store, I&O organizations should employ a "Wi-Fi-first" approach. This doesn't mean organizations shouldn't use other technologies, but rather use them as backfill for where Wi-Fi doesn't meet the customer's needs. Wi-Fi is the most versatile, standardized, appropriate, and mature technology to connect touchpoints.

4. **Segment your network based on business and customer logic.** Current methods to identify parts of the network don't hold up with today's complex uses. For example, designing a network around traffic flows within a data center (DC) is no longer relevant, as application tiers can be spread across locations with hybrid cloud. Networking professionals shouldn't think of network segments by location but by the elements they serve, such as the business-centric (systems of record) and the customer-centric (systems of engagement).
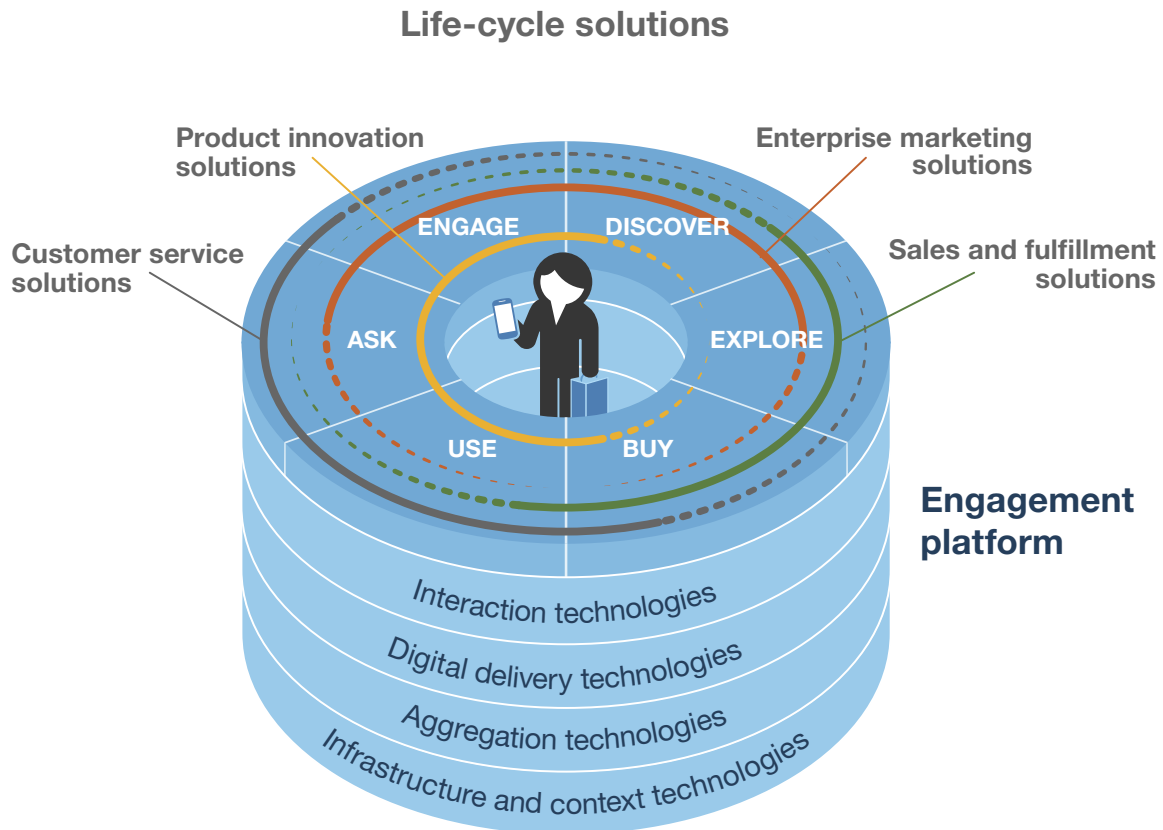
Customer Engagement Networks Underpin The Customer Life Cycle

Life-cycle solutions support the interactions your business has with its customers throughout the customer life cycle.[13] Your business' network can truly differentiate itself over competitors in support of sales and fulfillment solutions. This is so critical to customer interactions that exclusively digital

companies, such as Google and Facebook, are rolling out their networks to their customers.[14] By having the business engage the customer using its own network instead of a third-party provider such as a carrier, businesses can bolster customer engagement by using all four tiers in the engagement platform.[15] The network provides the following at each tier (see Figure 3):

- **Interaction technologies.** From digital signage to wearables to beacons and sensors, there's an unprecedented amount of innovation happening at the edge between the physical and digital worlds. These devices inject data into digital platforms that display information in new ways, but they are only as useful as the network connection. Many of our retail clients tell us that cell service is poor to non-existent in many of their retail locations. Interaction technologies depend on the business network to make innovations at the edge flourish and therefore many have or plan to roll out their wireless local-area network to make that happen.

- **Digital delivery technologies.** Your network is a critical component of the digital delivery layer. Digital delivery tools secure and optimize content for different devices, cache content for high-scale delivery, and support interaction technologies. After the business connects to the customer, outside network services and internal network infrastructure — built on Forrester virtual network infrastructure architecture — will interweave various connections and services for each user depending on the customer's context and need (see Figure 4).

- **Aggregation technologies.** Aggregation technologies map incoming requests for data to the underlying services that deliver it, filter context, and provide operational awareness that enriches customer engagement. Since the network infrastructure is the only technology or infrastructure that touches every part of the business, the network is the best location to mine customer data. For example, National Football League (NFL) teams capture Wi-Fi packets at their stadiums and feed their analytic tools to better understand their customers.

- **Infrastructure and context technologies.** This tier comprises a variety of internal and external resources, including cloud platforms that serve up software, software-defined infrastructures (SDIs) that help with enterprise resource planning, product suppliers that furnish product information, and public agencies that regulate industries. While network plays a key role in the SDI, the wide-area network service does the heavy lifting by connecting those internal and external resources with the network at the touchpoint.

Figure 3 The Four Tiers Of The System Of Engagement Platform

Life-cycle solutions

Product innovation
solutions

Enterprise marketing
solutions

ENGAGE   DISCOVER

Customer service
solutions

ASK   EXPLORE

Sales and fulfillment
solutions

USE   BUY

**Engagement
platform**

Interaction technologies

Digital delivery technologies

Aggregation technologies

Infrastructure and context technologies

122043   Source: Forrester Research, Inc. Unauthorized reproduction or distribution prohibited.

Figure 4 The Location Of The Customer Engagement Network And Business Process Network

Network segment designed to help/serve/retain customers, deliver the best customer experience, and deliver systems of engagement

Sales, marketing, or other professionals who serve retail's customer and/or only the retail business

I/PaaS can serve both SoR and SoE while consumer cloud resources are more aligned with the customer

Customer engagement network

Retail store

Branch office

XaaS

I/PaaS

MPLS

Internet

Consumer or enterprise cloud resources (Facebook, YouTube, etc.)

Retail data center 1   Retail data center 2

Systems of record

Systems of engagement

App traffic from DC to DC

Inventory data traffic (low-priority app) to corporate apps in private DC2

Employee traffic to corporate cloud apps

Backup storage traffic to the cloud

App traffic from DC to cloud

Customer and employee traffic to personal cloud apps

Employee-to-employee traffic

User traffic (high-priority app) to corporate apps in private DC1

No Two Customer Engagement Networks Will Be The Same

Not only will a CEN look and act differently from a traditional business-process-driven network, but it will be unique to each industry. Since each industry serves a different type of customer with unique expectations and goals, it only makes sense that the components, architecture, and goals for each industry's CEN will be different:[16]

- **Hospitality.** Hotels and other hospitality venues have recently shifted into overdrive to improve customer experience. Besides developing mobile apps to create a tighter bond with their customers and allow them to check in themselves, hotels have started to invest in smart building technology to improve their customers' experience: door locks that open with mobile phones, lighting and heating ventilation air conditioning (HVAC) controls that activate before the customer enters the room, and food that's delivered to wherever the customer is on-site.

  What's unique here? With self-service check-in, the network becomes the engagement point that connects the customer to the hotel facilities and services without any interaction with a hotel employee.

- **Manufacturing.** Process and manufacturing engineers — who build highly automated facilities — have been designing, purchasing, deploying, and managing their own networks for years, except these manufacturing networks weren't built on Ethernet. However, that has started to change based on the business benefits that were reaped by converging voice and video onto the same network as data. A similar trend has begun in the process and manufacturing world. Manufacturing engineers have started to leverage Ethernet to improve manufacturing costs and deployment of assembly lines and increase the speed at which changes can be made to manufacturing processes.

  What's unique here? The network setup, deployment, and management will be done exclusively by non-networking professionals within a plant. Manufacturing CENs will have to accommodate multi-tenant capability.

- **Healthcare.** Hospitals are one of the most challenging environments to design around. Due to the nature of medicine and patient health, customer expectations can be the highest relative to any other industry. In addition, customer engagement has to meet these other unique needs: create a resilient and secure connection for life-saving medical equipment; seamlessly and securely connect third-party doctors to patient information and hospital resources; and meet Health Insurance Portability and Accountability (HIPAA) requirements.

  What's unique here? Security and privacy services need to be based on the user, device, application, context, need, and health provider's policies. In addition, the connections between doctors, patients, the hospital, and medical equipment have to meet specific regulations that pertain exclusively to the healthcare industry.

■ **Retail.** Mobile applications, digital displays, radio frequency identification (RFID) tags, Bluetooth beacons, and other technologies have made their way into the retail store to win back customers from the web channel by offering unique physical experiences that a mobile phone or laptop display can't replicate. This requires network infrastructures to interweave these technologies with customers, stores, and products to improve the shopping experience, improve store operations, or alter the retailer's fulfillment capabilities.

What's unique here? The network must seamlessly interconnect all the aspects of the retailer's resources to persuade the customer to make a purchase at that moment and not online.

■ **Hyperscale companies.** Unlike generic enterprise businesses, Google, Facebook, and other hyperscale companies' main competitive differentiator is their DC. Such companies depend on offering a different value than what a business can get from its own enterprise data center or a competitor's DC. This means these companies have highly standardized environments with a limited set of options, but they don't offer the same value. Each hyperscale provider focuses on delivering a unique set of capabilities, so the architecture between each hyperscale has to be unique too.[17]

What's unique? Google's infrastructure isn't interchangeable with the infrastructure of Amazon, Facebook, or general enterprise. The same is true for Facebook and Amazon. Google builds hardware that supports OpenFlow, while Facebook has chosen the bare-metal switch and Linux architecture.

RECOMMENDATIONS
SIX TIPS TO CREATE A CUSTOMER ENGAGEMENT NETWORK

The customer engagement network isn't just a simple technology strategy — it's also a transformation of the networking organization and its mindset. Turning the networking team into a customer-centric group will be the hardest challenge, as it's a departure from longstanding practices — but those practices won't support a customer-obsessed business. As an I&O leader, it's up to you to lead your team through the transformation. Here's how:

■ **Develop a customer engagement network team for your industry.** Most organizations have a different team that manages the company's WAN and associated services. Make sure you have dedicated networking professionals who understand the business and can help application developers and business decision-makers wade through the complexity of connection and transport technologies.

■ **Include a customer experience professional as part of the customer engagement network team.** The language of the customer experience professional is often new to many technology management professionals, especially networking teams. Bringing in a CX professional

to influence customer engagement network designs will help pivot the tech management organization in support of customer experience. In our interviews, companies that embedded customer experience professionals into the technology teams more successfully transferred customer experience knowledge to technology professionals.[18]

- **Go out and sell the network.** While it seems weird and untraditional, networking professionals have to market and sell their value. Networking organizations have isolated themselves for too long and have potentially missed great opportunities to add value. Business leaders and other technology teams don't know what the network can do for them or how the network fulfills the BT agenda. Don't let those teams get ahead and go down the wrong track before they run into issues that networking organizations need to clean up.

- **Focus on empowering others.** As you've seen with cloud, impatient business managers and developers seek autonomy to procure and use the technology — and may have even cut you out of the picture. Manufacturing engineers, retail facility managers, and healthcare professionals have all started to roll out or procure technology that requires them to design, deploy, or manage parts of the network themselves. Look to vendors like BlueCat and others that can delegate control of functions like IP address management to groups outside of networking.

- **Align with partners who see the future, not answer to the past.** Networking professionals have historically bought from safe bets and gone with market leaders. Many of these market leaders aren't today's business technology leaders. For example, big web-scale companies whose data centers are their core differentiators have embraced smaller and more agile networking vendors or alternative strategies. Vendors such as Aerohive, Aruba Networks, and Hughes Networks have shifted to developing solutions and services to transform the network infrastructure into a customer engagement network.

- **Put up guardrails.** Networks are being built and managed by other teams — and there's nothing wrong with that when it's done within company guidelines and strategy. To help facilitate this, networking professionals should create guardrails to help these teams stay within company policies. Networking professionals should follow the guidelines and best practices outlined in Forrester's "Put Guardrails In Place To Drive Cloud Success" report, as cloud forced a similar change within tech management.[19]

- **Don't buy a solution that can't be automated or automate an old, manual process.** Networking resources are finite, and a customer engagement network is much more complex than a traditional network. Consequently, organizations should either buy solutions that are already automated or automate an existing capability before bringing in something new that isn't automated. Avaya and Alcatel leverage the IEEE 802.1aq Shortest Path Bridging (SPB) protocol to propagate policies throughout the network so administrators don't have to do this for each switch and link.

SUPPLEMENTAL MATERIAL

Companies Interviewed For This Report

Aerohive Technologies

Aruba Networks

Bytelight

Extreme Networks

Hughes

Pertino

Zebra Technologies

ENDNOTES

[1] The mobile mind shift is the expectation that your customer can get what she wants in her immediate context and moments of need. This shift means the battle for your customer's attention will be waged in mobile moments — any time she pulls out a mobile device. Because mobile devices are pervasive in life and work, mobile moments have a pervasive impact on your company. See the "Re-Engineer Your Business For Mobile Moments" Forrester report.

[2] Forrester defines BT as the technology, systems, and processes to win, serve, and retain customers. Information technology can be considered the technology, systems, and processes to support and transform an organization's internal operations.

[3] An IT agenda is focused on actions people decide to do to apply technology, systems, and processes to support and transform an organization's internal operations.

[4] "Put money back in your pocket. This simplified network virtualization solution eliminates cumbersome manual tasks, reducing IT operating expenses. Labor costs can be reduced by 85% with 25 times less network provisioning for deploying services. High-priority change requests can be made easily at the network edge rather than during off hours. Plus, a single-technology network that reduces complex provisioning of protocol overlays simplifies management and troubleshooting." Source: "Fabric Connect," Avaya (http://www.avaya.com/usa/solution/fabric-connect/).

[5] Your firm's customers, channels, and competitors are digital — which means that your company must use technology to differentiate. That's a chance for I&O leaders to drive innovation that wins, serves, and retains their firm's ultimate customers. But to seize this opportunity, I&O teams must prioritize agility and flexibility ahead of I&O's traditional top priorities of reliability, standardization, and cost reduction. This means that I&O teams and professionals must transform themselves. To learn more about the key components of the I&O transformation program, see the "Establish The Business Case For I&O Transformation" Forrester report.

[6] Today's customers don't have to do business with you — they have to want to do business with you. This dynamic forces your firm to understand and respond to their individual needs and expectations. To deliver on those end customer expectations, I&O leaders and their teams must adopt a dual agenda, consisting of business technology (BT) — the technology, systems, and processes to win, serve, and retain

customers — and information technology (IT) — the technology, systems, and processes to support and transform an organization's internal operations. See the "Establish The Business Case For I&O Transformation" Forrester report.

[7]   Many business from retail to healthcare offer Wi-Fi. Before a customer enters the building or meets an associate, most smartphones will alert the customer to the Wi-Fi connection.

[8]   A touchpoint is any point of contact between a customer and your brand. Some touchpoints involve products and services, such as when a customer uses a product or calls a customer service line for support. Browsing a web page for product information is another touchpoint. But touchpoints include things you may not think of such as billing invoices, mentions from friends, media articles, and advertising. Some touchpoints become "moments of truth," which have particular importance for the customer or the company. See the "Winning The Customer Experience Game" Forrester report.

[9]   Systems of engagement are different from the traditional systems of record that log transactions and keep the financial accounting in order: They focus on people, not processes. These new systems harness mobile, social, cloud, and big data innovation to deliver apps and smart products directly in the context of the daily lives and real-time workflows of customers, partners, and employees. The compelling notion of context — the sum total of what your customer has told you and is experiencing at the moment of engagement — is made possible with cloud delivery and predictive analytics applied to a blend of data from device sensors, social feeds, personal preferences, and systems of record. See the "Brief: Systems Of Engagement Take Center Stage" Forrester report.

[10] For more information, see the "Virtual Network Infrastructure" Forrester report.

[11] The five tenets of VNI include the ability to: 1) leverage virtualized and physical infrastructure; 2) act as a vertically integrated Layer 2 to Layer 7 module within the infrastructure; 3) creates a fabric of horizontally interwoven networking components; 4) automate and orchestrate the infrastructure to deliver the right services for each user; and 5) allow management by business units. See the "Virtual Network Infrastructure" Forrester report.

[12] "It is our belief that simplicity and clarity allows us to remove complexity and focus on delivering customer service and driving sales. In the past, customer service was defined as activity within the four walls of our brick-and-mortar environment. Today, we see customer service as multidimensional. Our business is inherently complex. So when we talk about keeping things simple, it is a necessary ingredient to provide improved customer service while delivering payroll productivity. As an example, our past process to purchase carpet was a very confusing and complicated process for our customers and our associates. We engaged two separate third parties, the customers had to make multiple visits to the store, and there was limited systems visibility. Today, this process has been reduced to three easy steps with only one store visit." (Marvin Ellison, EVP, US stores). See the "Brief: The Home Depot's Age Of The Customer Transformation" Forrester report.

[13] Life-cycle solutions that deliver specific phases of the customer life cycle are the key to winning, serving, and retaining today's empowered customers. And these solutions aren't just "customer relationship management (CRM)++" — they improve customer-facing business processes like sales, service, and marketing and drive engagement throughout the customer life cycle. See the "Top Technologies For The Infrastructure & Operations BT Agenda" Forrester report.

[14] Source: Alexei Oreskovic, "Facebook to use satellites, drones to spread the Internet," Reuters, March 27, 2014 (http://www.reuters.com/article/2014/03/27/us-facebook-internet-idUSBREA2Q27420140327).

[15] These technologies, including B2C and B2B commerce platforms, mobile commerce solutions, and mobile point-of-service technology, help your customers move from discovery through to buying They bolster customer engagement, lower store expenses, improve the efficiency of sales-related functions, and, ultimately, optimize the buying process for customers as they move across channels. Coupled with next-generation order management and fulfillment solutions, these tools can determine the best fulfillment location for a specific order (or order line item). Look for solutions from vendors like Hybris (SAP) and IBM that play well with existing back-office systems, adapt to rapid change, and meet the expectations of a new breed of connected shoppers. See the "Top Technologies For Your BT Agenda" Forrester report.

[16] The fragmentation of switching into multiple options isn't just occurring on the data center side of the network. Fragmentation within the wireless hardware vendors has started to appear as more enterprises build out their wireless networks. The applications, devices, and users connecting to petroleum, retail, or healthcare networks each have special and unique environments relative to the others. Since it is impractical for one solution to support Federal Information Processing Standards (FIPS), Health Insurance Portability and Accountability Act (HIPAA), Common Criteria, and Payment Card Industry (PCI) criteria, the wireless vendors have started to focus on three or four key vertical markets. See the "Customer-Centric Strategies Require Business-Centric Network Hardware" Forrester report.

[17] For more information on the fragmentation of networking hardware by industry please see the "Customer-Centric Strategies Require Business-Centric Network Hardware" Forrester report.

[18] At several companies we interviewed, the vice president of the customer experience portfolio reports to the CIO. And by embedding these IT teams alongside your organization's customer experience teams, you give your IT employees more opportunities to learn about customer experience. The IT Agile staff at Vanguard is typical of many we investigated: They are colocated with CX designers, sharing the same space and working on projects as a joint team — "you can't tell who is IT and who is in the business unit." See the "Winning The Customer Experience Game" Forrester report.

[19] For more information, see the "Put Guardrails In Place To Drive Cloud Success" Forrester report.

About Forrester

A global research and advisory firm, Forrester inspires leaders, informs better decisions, and helps the world's top companies turn the complexity of change into business advantage. Our research-based insight and objective advice enable IT professionals to lead more successfully within IT and extend their impact beyond the traditional IT organization. Tailored to your individual role, our resources allow you to focus on important business issues — margin, speed, growth — first, technology second.

FOR MORE INFORMATION

To find out how Forrester Research can help you be successful every day, please contact the office nearest you, or visit us at www.forrester.com. For a complete list of worldwide locations, visit www.forrester.com/about.

CLIENT SUPPORT

For information on hard-copy or electronic reprints, please contact Client Support at +1 866.367.7378, +1 617.613.5730, or clientsupport@forrester.com. We offer quantity discounts and special pricing for academic and nonprofit institutions.

Forrester Focuses On
Infrastructure & Operations Professionals

You are responsible for identifying — and justifying — which technologies and process changes will help you transform and industrialize your company's infrastructure and create a more productive, resilient, and effective IT organization. Forrester's subject-matter expertise and deep understanding of your role will help you create forward-thinking strategies; weigh opportunity against risk; justify decisions; and optimize your individual, team, and corporate performance.