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EXECUTIVE SUMMARY

The enterprise workforce is becoming borderless. It now extends beyond its employees to any user connected to the Internet, with cloud, social and collaboration technologies allowing organizations to tap into vast pools of human and virtual resources around the world. To succeed in today's rapidly shifting and increasingly virtual digital business environment, companies must adopt an "omnichannel" strategy of any time, any place, any device, any channel collaboration.

Accenture surveyed 2,000 business and technology executives and saw companies leveraging "SMAC" (social, mobile, analytics and cloud) to transform the way enterprises conduct their business in this new omnichannel work environment, with 62% of the respondents investing in digital technologies to successfully make the transition. These new "systems of engagement" have given rise to a growing market of cloud-based collaboration applications. Talkin' Cloud's "Top 100 Cloud Service Providers" shows collaboration applications in the top five Software-as-a-Service (SaaS) categories. As a result, applications such as Microsoft Office 365 and Citrix GoToMeeting are the top two SaaS applications offered by third-party service providers.¹

The digital workplace depends on these types of latency-sensitive applications and a superior user experience that require fast, low-latency interconnections among globally dispersed employees, offices, business partners and cloud services. Such interconnections cannot emanate from one or two corporate data centers over long-distance Internet virtual private networks (VPNs) or MPLS legacy networks. To achieve the low latency required for real-time collaboration and greater user productivity, interconnectivity must be deployed at the edge to shorten the distance between globally dispersed users, data, content, and collaboration and productivity applications.

Enterprises need to transform their IT infrastructures to deliver more efficient methods of collaboration for greater performance, and at the same time provide the reliability and security required to effectively increase user productivity no matter where they are or what device they are on. Service providers supporting enterprise collaboration efforts need to help companies enable collaboration environments that are more agile and cost-effective and can globally scale without increasing CAPEX or OPEX.

Creating a superior real-time collaboration infrastructure requires an Interconnection Oriented Architecture™ (IOA™). An IOA is a proven and repeatable engagement model that both enterprises and service providers can leverage to directly and securely connect people, locations, clouds and data. It provides a blueprint for becoming an interconnected enterprise that shifts the fundamental IT delivery architecture from siloed and centralized to interconnected and distributed.

By leveraging a leading direct and secure interconnection platform, such as Platform Equinix®, to implement their IOAs, interconnected enterprises and service providers can simplify the network to reduce latency and, in addition, immediately distribute data, content and collaborative apps out at the edge — closer to users and dense ecosystems of partners, cloud services and network providers. Localizing services allows them to achieve the fast and effective collaboration, innovation and time to market they need to maintain and enhance their competitive positions.

1. Talkin' Cloud, "Top 100 Cloud Service Providers," 2015.

MARKET DEMANDS FOR GREATER COLLABORATION AND PRODUCTIVITY

The workplace is evolving rapidly from a physical workspace with rigid boundaries to a borderless, global, digital collaborative environment. As a result, the enterprise collaboration market is booming and is estimated to reach more than \$70 billion by 2019.² In this new world, value is increasingly generated from systems of engagement that enable knowledge sharing and real-time collaboration, rather than static systems of record such as data repositories, customer relationship management systems and enterprise resource management platforms.

Although systems of record are still with us, they are slowly giving way in importance to systems of engagement where knowledge, ideas and decisions are exchanged among people, systems and “things” via a combination of social media, cloud and collaborative applications. Today, it is estimated that 65% of organizations’ infrastructure investments are focused on building systems of engagement rather than on maintaining existing systems of record.³

The reason? The information from traditional systems of record can now be combined with real-time systems of engagement that employ customer information and analytics to yield new insights. These insights are playing an increasingly central role in driving business decisions, spurring new customer product and service offerings and shaping how enterprises respond to rapidly shifting market conditions. For example, Pinterest enables consumers to participate in peer-to-peer sharing and collaboration on their purchasing decisions, while providing vendors with dynamic customer intelligence for targeted advertising and a marketplace for selling their goods and services.

Some of the trends that are shaking up the nature of how we work and driving the ubiquitous deployment of collaborative systems of engagement include the following:

The Virtual Workplace

Rather than working together in the same physical location during specific “working hours,” employees and others increasingly collaborate and work virtually from anywhere, on any device, at any time, using a variety of different virtual tools and applications. These range from unified communications to Web conferencing and social media, and include virtual desktop infrastructures and cloud-based office suites such as Microsoft Office 365. Today, mobile devices like smartphones and tablets are increasingly central productivity tools — versus the phone, meeting room, desktop and even laptop — and new generations of tools are yet to come. Collaborators may be anywhere on the planet, yet they expect a real-time user experience from whatever device, channel and collaboration tool they choose, a phenomenon that has been labeled the “omnichannel” user experience.

According to Accenture, advances in natural interfaces, wearable devices and smart machines will present new opportunities for companies to empower their workers through technology. Companies are jumping on these opportunities, with 62% investing in digital technologies, and 35% comprehensively investing in digital as part of their overall business strategy.⁴

The Blurring of Organizational and Physical Boundaries

The Deloitte Business Trends report “Business Ecosystems Come of Age” shows how the rise of business ecosystems has created new opportunities for competitive advantage and blurred the fundamental boundaries that have defined the relationships, interactions and possibilities of most businesses. Increasingly, collaboration transcends organizational boundaries to include employees, partners and even customers, who all work together to unlock knowledge and innovate across divides and silos.

2. MarketsandMarkets, “Enterprise Collaboration Market,” 2015.

3. IDC, “IDC Reveals Datacenter Predictions for 2015,” 2014.

4. Accenture, “Accenture Technology Vision 2015, Digital Business Era: Stretch Your Boundaries,” 2015.

Accenture reports that 81% of 2,000 global business and technology executives see industry boundaries blurring in the future as collaboration platforms reshape industries into interconnected ecosystems, emphasizing the increasing need for an interconnection-first approach. For example, an average financial services company uses more than 1,000 cloud services, with collaboration tools being the most popular type of application accessed.⁵

Spotlight on Microsoft Office 365

With more than 22 million subscribers and nearly 1 million new customers signing up each month, Microsoft Office 365 is now in 4 out of 5 Fortune 500 enterprises.* Office customers are leveraging the ability to access the same collaboration and productivity applications that they have built their businesses on, as a subscription service, using multiple user devices.

Microsoft is also coupling Office 365 with its OneDrive cloud-based cloud storage solution, adding another layer of data protection to the overall solution. As the leader in the collaboration and productivity application market, Microsoft is laying the groundwork for businesses to migrate these applications to the cloud.

*Source: Microsoft, FY2016, Q3 Earnings Release.

The Cloud

Increasingly, enterprises have transformed IT operations into a multi-cloud environment of private, public and hybrid services that work together to deliver applications, information services and most importantly, collaboration. IDC reports that 49% of collaboration application revenues are derived from the cloud.⁶ Everything from file syncing/sharing to social networks, Web conferencing, unified communications, email, team collaboration and productivity staples such as Microsoft Office 365 can be found running as a private, public or hybrid cloud service.

In fact, Microsoft Office 365 currently has the greatest penetration in the cloud-based collaboration and productivity market. After surveying more than 80,000 businesses on their cloud adoption strategies, Bitglass found that the adoption of Office 365 tripled between 2014 and 2015, leading the market with a 25.2% share.⁷ In fact, the average enterprise using Microsoft Office 365 collaborates with 72 business partners on Microsoft Office 365,⁸ more than any other collaboration platform. And 58.4% of sensitive data stored in the cloud is stored in Microsoft Office documents.⁹

Internet of Things and Intelligent Machines

As if collaboration and information exchange among people and systems weren't enough, the growing Internet of Things (IoT) is adding everything from refrigerators to jet engines to the collaboration and decision-making process. This means information must now be sent from anywhere in the world to vast data repositories where it is analyzed, discussed and acted on, often in real time.

In fact, 77% of Accenture's 2015 Vision survey respondents believe that within the next three years, companies will need to focus equally on training their people and machines, the latter via intelligent algorithms, machine learning and software. According to the report, "Companies are providing capabilities that enable their employees to collaborate productively with technology, and technology is starting to act as a real member of the workforce."¹⁰

Digital Collaboration as a Business Catalyst

We have entered the digital economy's interconnected era, in which enterprise business models are interdependent and companies forge advantage by collaborating in communities with other enterprises. This digital collaboration has not only increased industry supply-chain productivity in segments such as online payments, retail and media and entertainment, but it is also creating a new segment of the digital economy — the "collaborative economy." The collaborative economy has given rise to peer-to-peer access

5. Accenture, "Technology Vision," 2015.

6. IDC, "Worldwide SaaS and Cloud Software 2015–2019 Forecast and 2014 Vendor Shares," 2015.

7. Bitglass, "Cloud Adoption Report," 2015.

8. Skyhigh Networks, "7 Security Lessons When Migrating from On-Prem SharePoint to Office 365," 2015.

9. Skyhigh Networks, "Q4 Office 365 Adoption and Risk Report," 2015.

10. Accenture, "Technology Vision," 2015.

to goods and services, coordinated through community-based online services, the Internet and the cloud. Think Uber, which has transformed the ground transportation industry, and Airbnb, which has totally disrupted the hospitality industry. In 2015, there were 110 million North Americans participating in the collaborative economy, and by 2017, 8 in 10 Americans will be part of the collaborative economy.¹¹

What's driving all this sharing? Sharing equals savings for the consumer, as 82% of sharing transactions are at least partly motivated by price. But for those companies that are moving to a peer-to-peer economy, the real value lies in the opportunity to forge mutually beneficial partnerships that otherwise may never have happened.



Whether it is collaboration among employees, businesses, systems, clouds, things or consumers, interconnection is driving the growth of digital business. And for today's enterprises and service providers, there are still many challenges to overcome to become fully interconnected businesses.

11. Jeremiah Owyang and Alexandra Samuel, "The New Rules of the Collaborative Economy," 2015.

INTERCONNECTION CHALLENGES FOR ENTERPRISES AND SERVICE PROVIDERS

As collaboration trends evolve and new solutions and ways of working are brought to market, they put immense stress on the legacy architecture of individual long-distance, corporate-centric Internet VPN and MPLS connections, both staples of many enterprise and service provider network infrastructures.

Enterprise Challenges

Legacy network architectures are ill-suited to the collaborative enterprise for the following reasons:

Performance – Users want the same experience accessing collaborative applications in the cloud as they do locally from their desktops. With the global dispersion of enterprise users, partners, systems, content, data, clouds and all things requiring real-time interactions and interconnectivity, the centralized paradigm of networking can no longer deliver in terms of performance. As more businesses rely on collaboration for revenue, instantaneous responsiveness of their interconnections is critical to maintaining competitive leadership. The problem is not simply bandwidth, but high latency, as even the highest bandwidth connection cannot accelerate the time it takes to get network packets from source to destination and back.

Reliability – Shared connections such as Internet VPNs are inherently unreliable, as performance at any time depends very much on network congestion and routing. The added traffic from many systems of engagement sources, such as mobile and the cloud and IoT devices, only exacerbates these issues.

Agility and Cost – Working with one or a few network providers to build an individual long-distance connection is a slow, costly endeavor. Vendor lock-in reduces flexibility and agility and inherently leads to higher network costs. New connections can take weeks or months to provision, and lack of provider choice makes it difficult to allot the best, most effective connection for each purpose. Greater bandwidth requirements for increased access to cloud services such as Office 365 or Cisco Unified Communications also may represent an increase in costs.

Security – With the growing barrage of high-profile and highly damaging data breaches, it has become apparent that sending anything sensitive over a shared Internet, even via VPN, is inherently risky. In addition, backhauling data from remote locations to a centralized data center opens up the door for information to be compromised along the way.

Service Provider Challenges

Cloud and network service providers, including content delivery networks, also need to take their interconnection capabilities to the next level to support the enterprise's growing requirements for high-performance, reliable, agile and secure collaborative infrastructures. They also need to create unique, value-added services in a commodity cloud market that enable greater flexibility, agility and revenue opportunity. For example, VoIP, unified communications, WebRTC (real-time communications), mobile technology and collaboration applications have enabled service providers to create a new market called "unified collaboration" that marries telecommunications technologies with collaboration apps such as Cisco Spark, Microsoft Office 365 and Google Apps.

By doing the following things, service providers can overcome barriers that impact their success not only in the collaboration market, but in many other critical enterprise application markets as well.

Increase Global Reach – Service providers need to deliver their cloud and network service offerings worldwide to optimize collaboration among the growing number of global enterprise employees, partners and locations that reside at the edge of the corporate network.

Bring New Services to Market Quickly – The competitive nature of this fast-growing market, with hundreds of new product offerings coming online each year, requires service providers to speed access to the most popular cloud-based collaboration apps and services.

Help Enterprise Customers Overcome Their Interconnection Issues – To improve or meet high service levels and customer expectations for performance, security and reliability and be able to offer them a choice of services and vendors for more competitive pricing, service providers need to enhance their interconnection capabilities and increase access options to the broadest number of cloud, network and content services possible.

Keep Collaboration Running Smoothly – Service providers need to be positioned to deliver more accurate reporting, rapid problem resolution, attractive service level agreements and tangible cost reductions to their customers. To get there, they need to forge more proximate, direct and secure interconnection between customer and network data and analytics to increase insight into usage patterns and performance bottlenecks.

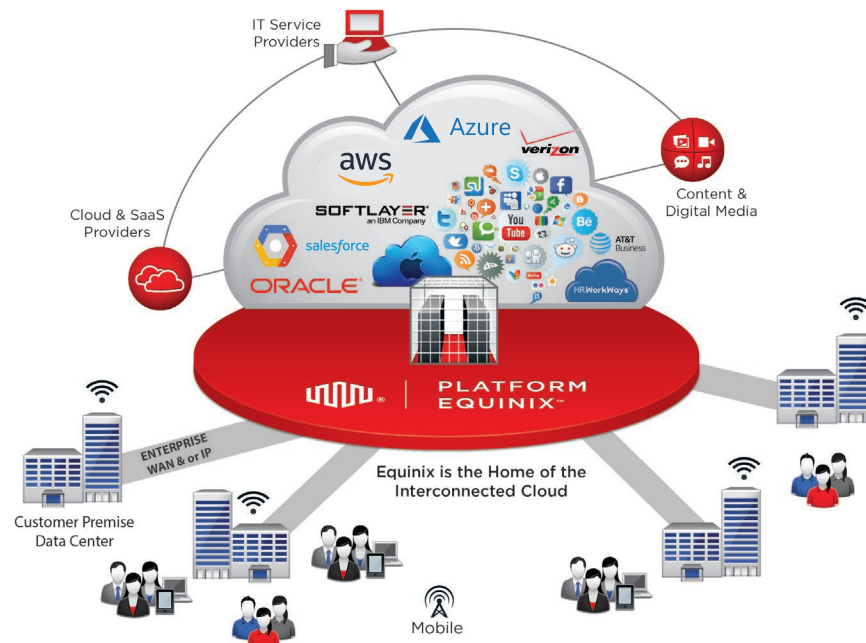
IOA FOR A BETTER WAY TO COLLABORATE

To retool their IT infrastructures for competitive global collaboration, many enterprises and service providers are transitioning from the centralized, corporate-centric connectivity of yesterday to a more flexible and agile Interconnection Oriented Architecture.

An IOA is a proven and repeatable engagement model that both enterprises and service providers can leverage to directly and securely connect people, locations, clouds and data. It provides a blueprint for becoming an interconnected enterprise that shifts the fundamental IT delivery architecture from siloed and centralized to interconnected and distributed.

Harnessing an IOA enables an enterprise to interconnect its employees, partners and customers to what they need, in the right context, using the devices, channels and services they prefer. Service providers can leverage an IOA to help their enterprise customers gain more direct and secure access to clouds, networks and collaboration, and productivity apps and services. This powerful level of direct interconnection empowers businesses to react in real time, adapt quickly to change and leverage digital ecosystems (e.g., supply chains, peer-to-peer sharing, clouds) to create new value and growth.

An IOA hub-based approach enables enterprises and service providers to build collaboration infrastructures that are globally distributed and proximately interconnected with dense ecosystems of employees, business partners, customers, and cloud and network services. By moving systems, applications, content and data to the edge, next to users/customers, companies can achieve the performance and low latency that only direct interconnectivity can deliver. And by placing their IT infrastructures within dispersed ecosystems of colocated network and cloud providers, organizations can eliminate network hops and harness direct, secure, proximate interconnections supporting industry-leading speeds, as needed, for a positive, real-time user experience.



An Interconnection Oriented Architecture Strategy – A Distributed Hub-based Architecture

Accelerating Collaboration: Deploying IOA on Platform Equinix

Leveraging Platform Equinix to implement an IOA empowers enterprises and service providers to bring greater value to market faster by instantly interconnecting their users/customers to a choice of rich cloud, network, content and collaboration application ecosystems. It also “shortens the distance” between collaboration services and users/customers via high-speed, secure and reliable connections that significantly enhance the collaboration experience. Through Platform Equinix, enterprises can increase collaboration productivity between users, partners and customers and service providers are able to better differentiate themselves and their cloud-based collaboration offerings, while delivering increased user satisfaction and lower costs. In addition, scaling collaboration infrastructures to enterprise-class service levels requires interconnection to an agile, global platform, such as Equinix.

An Equinix-driven IOA has several foundational components that can be tailored to meet the needs of individual enterprises and service providers creating collaboration infrastructures and services.

- **Platform Equinix** provides the critical building blocks and services required for enterprises and service providers to implement an IOA. The vendor-agnostic platform directly and securely interconnects a company's communications, ecosystems, clouds and data, providing virtual control and transparency across the world's most globally interconnected data centers and the largest provider-neutral marketplaces. Building an IOA on Platform Equinix allows enterprises and service providers to optimize their collaboration infrastructures by directly and securely interconnecting with dense cloud, network and business ecosystems.
- **Equinix IOA Nodes** are a customizable set of interconnection hubs within Platform Equinix that enable essential interconnection use cases, such as hybrid cloud, on-demand file sharing and storage access and disaster recovery. IOA nodes can be tailored to meet a business's unique requirements for securely interconnecting people, locations, clouds and data to enrich collaboration.

IOA nodes are placed in physically strategic locations — in proximity to customers, networks, clouds and business partners — for lower latency and network bandwidth consumption. This creates a high-performance and scalable collaboration environment capable of supporting the evolving collaboration demands of today's enterprise customers and service providers.

Shorten the Distance

Placing IT and interconnection at the edge, closer to where shared data and content is created and distributed, and where users/customers can access it, is critical to the success of companies requiring a global, enterprise-class collaboration infrastructure. Direct, high-speed and low-latency connections are essential to increase enterprise performance, collaboration and productivity.

- **Communications Hub (Equinix Performance Hub™):** High-performance collaboration can only be achieved if interconnection is at the edge of the corporate network. Communication hubs, such as the Equinix Performance Hub, extend an enterprise's access to users, content, data, and network and cloud services over high-throughput, low-latency connections. These connections bypass the public Internet to provide direct and secure interconnection that optimizes and enhances the user experience. Performance Hub delivers the proximity and global access needed to remove obstacles to performance, security and compliance. It also powers high-availability collaboration solutions via multiple, geographically dispersed interconnection hub locations.
- **Ecosystem Exchange (Equinix Cloud Exchange Fabric™):** With collaboration applications making their home in the cloud, businesses need to be able to directly and securely access those applications via one or multiple cloud services. The Equinix Cloud Exchange Fabric (ECX Fabric) is an API-based, automated Layer 2 (Data Link) and Layer 3 (Network) interconnection solution that provides secure, low-latency, high-speed one-to-many or many-to-many virtualized connections to multiple clouds via a single

physical port. The Cloud Exchange Fabric API and Developer Portal help service providers bring cloud and network services to market quickly and allow enterprise customers to easily migrate collaboration and productivity applications to cloud services. The Cloud Exchange Fabric's direct connections enable access to multiple cloud-based collaboration services on a pay-as-you-go basis, moving costs from a CAPEX model to a more cost-effective OPEX model. Hybrid cloud infrastructures combine the security required for accessing sensitive data and content with the agility, flexibility and scalability that only public cloud collaboration services can provide. Redundant clouds can also be configured for business continuity, backup and disaster recovery robustness.

- **Data Hub (Equinix Data Hub™):** Collaboration applications are often dependent on critical data repositories. An extension of the Performance Hub, the Equinix Data Hub interconnects organizations to “data capacity housing” by colocating data, analytics and clouds for improved real-time data interactions and insights. Data Hub provides the larger footprint and higher density today's businesses need to secure scalable storage capacity and enable more proximate access to users, applications, analytics and clouds. With Data Hub, organizations are able to gain greater insight into their customers and operational requirements and allow all collaborating parties to make more informed decisions based on the most up-to-date intelligence.

IOA and Platform Equinix: Changing the Way We Collaborate

When it comes to maximizing real-time collaboration, an IOA deployed on Platform Equinix provides tremendous business benefits to both enterprises and service providers, including:

- **A superior real-time, omnichannel user experience** delivered by fast, low-latency, direct and secure interconnections.
- **Increased global collaboration** for less cost and less risk, enabled by access to dense digital ecosystems made up of global business, cloud, network and content partners.
- **Enhanced productivity** and speed to market via systems of engagement that enable faster and higher-quality customer interactions and real-time business analytics.
- **Flexible and scalable connectivity** using a vendor-neutral interconnection architecture and platform that enable access to multiple network and cloud services.
- **Greater competitive differentiation** via a repeatable interconnection platform that can be customized to meet evolving enterprise user and customer collaboration requirements.

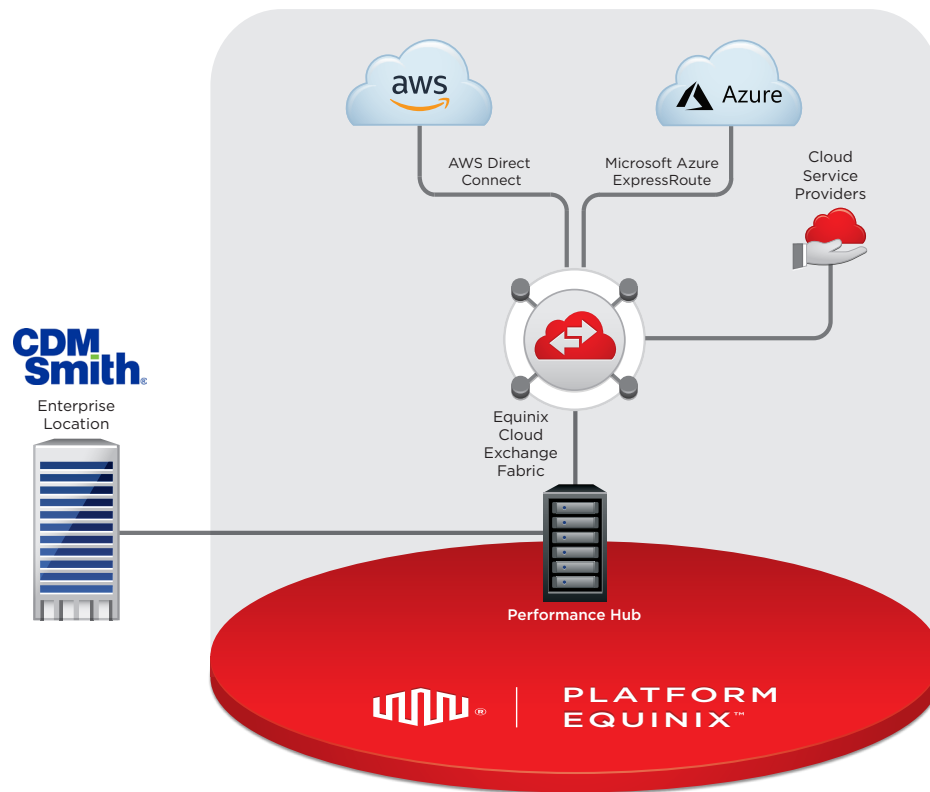
Digital Ecosystems

Digital ecosystems are communities of interest that directly and securely interconnect within Equinix. Once there, they create vertical ecosystems of industry markets (e.g., financial services, media and entertainment) that accelerate and amplify value and horizontal ecosystems of industry segments (e.g., cloud, network, IoT) that create gravity for other segments.

Interconnected Enterprise Success Story

Many global enterprises are already seeing significant collaboration and productivity gains by implementing Interconnection Oriented Architectures on Platform Equinix to become an interconnected enterprise. For example, CDM Smith, a major global consulting, engineering, construction and operations firm, deployed an IOA using Platform Equinix to interconnect unified communications applications and Microsoft Office 365, enabling real-time collaboration among globally dispersed teams and partners. This shift allowed the firm to achieve a 24-hour workplace model that accelerated its ability to create client solutions to complex environmental and infrastructure challenges.

The company achieved fast, effective collaboration by connecting locally to nine strategically located colocation and interconnection data centers across EMEA, the Americas and Asia-Pacific. These data centers provided direct, secure, high-speed interconnections to ecosystems of colocated multi-cloud services, including Microsoft Azure on Platform Equinix. The firm's transformation into a global, interconnected enterprise has delivered a superior user experience and the ability to launch and expand new office locations quickly and securely. The organization estimates that by harnessing hybrid clouds, it has accelerated project completion and time to market for new offerings. It has also gained a more competitive and lower-cost network that saved 25% in annual TCO, enabled it to lower latency by 38% when interconnecting to the cloud and reduced costs by delivering 2.5 times more bandwidth per employee at the same OPEX.



Enterprise Hybrid Cloud Architecture Based on Platform Equinix

SUMMARY

Organizations that need to compete in a world of global digital collaboration and omnichannel access can no longer build their futures on legacy networking infrastructures. High-performance and scalable interconnection is critical to succeed in the digital economy, an environment where collaboration is foundational to every business function, model and relationship.

Success in this dynamic environment requires a move to an Interconnection Oriented Architecture implemented on a vendor-neutral interconnection platform, such as Platform Equinix. This shift provides the real-time access to employees, partners and customers, as well as ecosystems of network, cloud, content and collaboration application providers, that traditional enterprises need in order to become interconnected enterprises.

With an IOA and Platform Equinix powering their journey, today's businesses will equip themselves to deliver the performance, security, scalability and superior user experience they need in order to be collaborative, productive and competitive in a new interconnected era.

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About Equinix

Equinix, Inc. (Nasdaq: EQIX) connects the world's leading businesses to their customers, employees and partners inside the most interconnected data centers. In 52 markets across five continents, Equinix is where companies come together to realize new opportunities and accelerate their business, IT and cloud strategies.

In a digital economy where enterprise business models are increasingly interdependent, interconnection is essential to success. Equinix operates the only global interconnection platform, sparking new opportunities that are only possible when companies come together.