ITPro Today

Fortifying IT Against Disruption

During disruptive times, we tend to put off long-term planning until the crisis is over. But what if that time is slow, or entirely fails to arrive? Enterprises need a strategy that will guide them in making critical technology investments while simultaneously evolving to meet the needs of ongoing disruptive events.

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We live in a time of constant disruption.

In the past decade, natural disasters alone cost the global economy nearly $3 trillion — up from $1.8 trillion during 2000 to 2009, according to insurance industry statistics.[1]

And climate-related disasters are only the tip of the iceberg. Just a fifth of the way into the new century, we've already seen the puncture of the dot-com bubble, the Great Recession, the SARS and Ebola epidemics, the European debt crisis, major geopolitical shakeups and the coronavirus pandemic.

Disasters can hit anywhere and affect any business sector. But despite the steady stream of disaster-related news, many companies still aren't prepared when disaster hits home.

Take the COVID-19 pandemic, for example, where 72% of companies were not technologically prepared for the sudden transition to remote work, according to a Vanson Bourne survey.[2] And while 82% of companies say employees will be returning to offices in the next 12 to 18 months, nearly half are considering making working from home a permanent option for some employees.

To cope with crises of this sort, companies must have continuity plans in place that include being prepared to divest or acquire business units or move personnel to new job functions, and optimizing cash flow, ROI and vendor utilization.

In executing dramatic responses such as these, however, business agility makes all the difference. According to McKinsey, agile companies outperform those that respond more slowly to events.[3] These resilient companies were more flexible – both operationally and financially – and were further along in the digitalization journey.

This whitepaper highlights digital transformation areas that businesses must consider in order to continue providing goods and services during disruption, and to position themselves for future success.

The Effect of Disruption on Key Verticals

Global economic growth will decline at least 6% in 2020, according to The World Bank and the Organization for Economic Co-operation and Development.[4] And that doesn't account for a second wave of COVID-19. If the virus isn't brought under control, the global economy could fall by 7.6% or more. KPMG calculates the global GDP fell by 11% during the first half of this 2020.[5]

A crisis can affect any vertical. But during the COVID-19 pandemic, some were hit harder than others—namely healthcare, retail, finance, manufacturing, education and government. Regardless of vertical, however, it is clear that organizations that successfully transform their technology and operations to meet crises will then also be better positioned to meet the challenges of future disruptions.

Healthcare

COVID-19 has stressed healthcare provider systems to the breaking point. With more patients on the emergent care side and a lack of patients on the ambulatory side, hospital budgets have dropped far into the red. This is due to unpredicted twists: Patients were no longer able to attend in-person visits; nonemergency procedures were postponed or canceled; healthcare providers themselves began falling ill; supply chains collapsed; and cybercriminals maliciously stepped up their targets of these already vulnerable organizations with ransomware attacks.

Healthcare organizations were forced to quickly adapt to cope with shrinking revenues, significantly higher expenses and massive disruptions in both staffing and supply chains – all while rolling out new telehealth platforms or dramatically increasing the use of existing ones. Fueled by disruption, the convenience of telehealth is now here to stay. In fact, Frost & Sullivan

suggests telehealth in the US will grow 64.3%.[6] Combine that with the increased use of Artificial Intelligence (AI) for research, chatbots, and diagnostics, as well as ongoing and increasingly complex cybersecurity concerns, healthcare illustrates the dire need for interoperability, greater security, and more scalable infrastructure.

Retail

Many organizations suffer during crises, but the COVID-19 pandemic and related lockdowns have caused widespread bankruptcies in the retail sector. Retailers that have managed to stay solvent are suffering from significantly lower revenues and increased costs. For these companies, the future is highly uncertain.

To survive, retailers like brick-and-mortar stores, supermarkets and restaurants were forced to move orders online, while at the same time offering new services like curbside pickup and delivery. According to McKinsey, this shift to online ordering was already growing in most categories, led by a 65% increase in online purchases of over-the-counter medicine, and a 40% increase in purchases of groceries and household supplies.[7]

For retailers, this accelerated and more pronounced shift to online ordering offers an opportunity to increase market share, as 75% of consumers report trying new shopping methods or brands when they shop online since the pandemic's onset. To capitalize on this trend, businesses must reposition investments to ensure they are providing the best online experience and that technologies, data and insights work together seamlessly to deliver the best possible shopping experience.

Finance

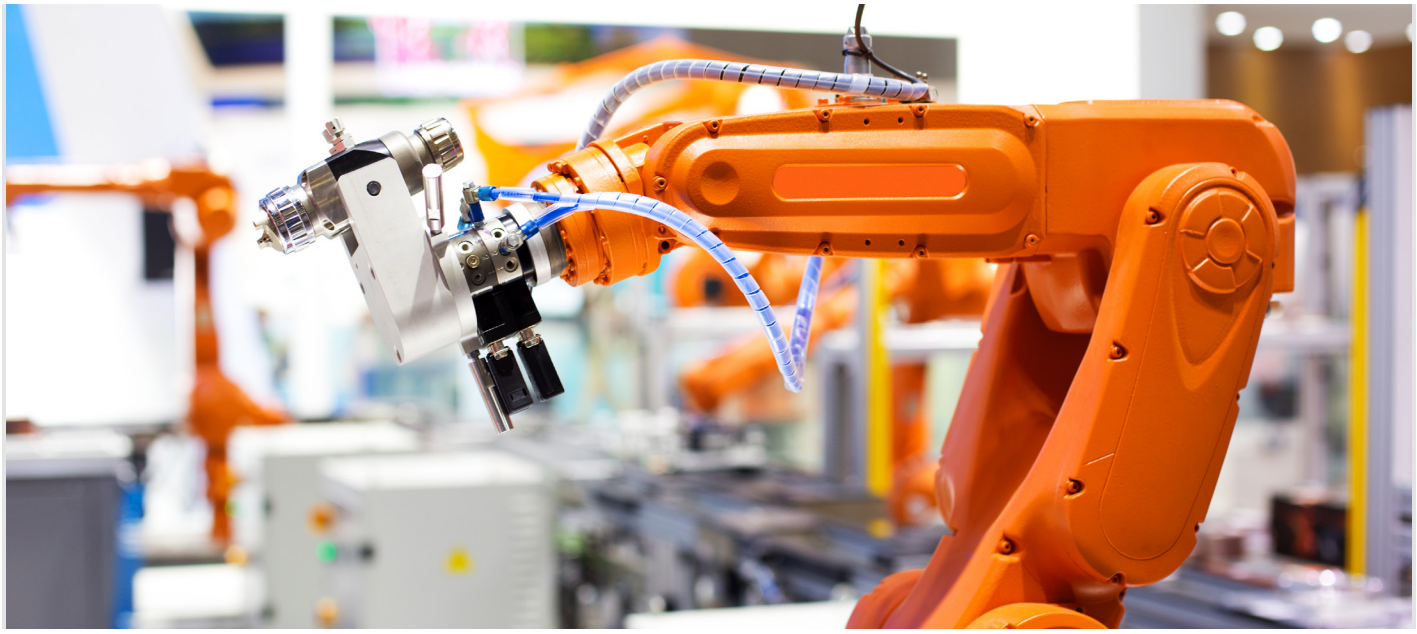
Financial services have slowly but steadily moved toward digitalization, with each crisis nipping at the heels of anyone falling behind. The COVID-19 pandemic has bit the hardest, with customers and employees unable to travel to physical locations. For many of these companies, the current disruption has accelerated digital transformation, requiring new investment in digital infrastructure at a time when bankruptcies, repossessions, layoffs and other negative factors are pressuring revenues.

In a recent survey by The Economist, 66% of bankers said new technologies are significantly impacting the sector, up from 42% the previous year.[8] This continued emphasis on technology – centered around AI and machine learning – fuels the move to a digital-first strategy.

Manufacturing

During a crisis, manufacturers are often called on to respond quickly to change production or reconfigure supply chains. The COVID-19 pandemic added further stressors of supply chain disruption, the need to keep employees safe and radical changes in consumers' buying patterns. As a result, the UN's Industrial Development Organization reports an average loss of 18-24% in global production.[9]

While cost-cutting measures are a reality for manufacturers, this sector is prioritizing the need to provide a safe work environment for frontline employees. This includes, but is not limited to, exploring the use of automation and robotics on the assembly line floor, deploying internet of things (IoT) sensors and leveraging the cloud to gain agility and flexibility. Smart factory technologies could very well accelerate the path to recovery.



Education

The COVID-19 pandemic was unusual in that the global education sector was significantly and broadly impacted at all levels. Overnight, more than 1.5 billion students, faculty and staff could no longer interact physically in areas under lockdown. Schools scrambled to implement distance learning platforms with minimal training, insufficient bandwidth and little preparation – often resulting in poor user experiences for teachers and students. A recent Pearson survey shows 91% of parents think their schools needed to be better prepared to switch to virtual learning.[10]

With a second wave of infections hitting the U.S. and other countries around the globe, the damage will continue. In the U.S. alone, the expected drop in undergraduate enrollment will cost colleges and universities up to $19 billion in revenues this fall, according to McKinsey.[11]

Many schools will start the next school year with an all-remote or hybrid attendance approach. This will require schools to provide devices and access to the internet, online learning management systems and online curriculum as well as live streaming and video platforms. This digital transformation can open the door to improved disaster preparedness (e.g., weather-related school closures), permanent incremental learning opportunities and access to specialized instruction from thought-leaders or other leading institutions around the world.

Government

During crises, governments often face short-term requirements for disaster relief services, healthcare, law enforcement, national security and other public services. One example is the Federal Emergency Management Agency (FEMA). Since the beginning of 2020, there have been 187 FEMA disaster declarations, including fires, floods, hurricanes and the COVID-19 pandemic.[12]

When disaster occurs, responders must establish ground-zero communications to their command posts to set up logistics. From there, they create communications outposts wherever necessary. Establishing these reliable communication lines is mission-critical and must be achieved in hours, not weeks.

During uncertain times, government IT leaders need infrastructures that can scale at speed via edge IT and network outposts. Slow-moving government bureaucracies can't cope, and agencies lack appropriate agility and scalability to provide needed services, let alone ensure cybersecurity during these particularly vulnerable times. Governments are learning how to optimize and virtualize IT and protect their digital resources in more distributed ways. They are also future-proofing their IT infrastructures and leveraging data intelligence to streamline logistics.

Three Strategies to Enable IT Resilience

During times of disruption, companies must be able to provide the best application experience for users, address ongoing challenges and meet the need for more resilient, scalable and optimized infrastructure.

According to IDC, companies will need to create a dynamic work model and be able to deliver innovative services and experiences reliably, globally, consistently and at scale.[13]

Three IT strategies are critical to help fortify businesses against times of disruption:

- Right-sizing networks to deliver experiences with greater agility.
- Using edge technology to improve application performance by building at the digital edge.
- Improving interconnectivity across necessary ecosystems of partners and providers.

Let's explore each in detail.

1. Network Right-Sizing

According to Flexera's recent State of the Cloud report, 93% of enterprises now have a multicloud strategy, and 59% of companies expect their cloud usage to be higher than expected due to the pandemic.[14] As a result, clouds and cloud connectivity are now part of the traditional network core. Traditional hub-and-spoke architectures built on single networking topologies face significant changes in the current climate.

Many factors drive organizations to rethink how they utilize networking technologies. These include pure cost-cutting, enterprise resource planning (ERP) upgrades, the drive to agile technologies and current events. To build a solid foundation that can support application workloads, network right-sizing aims to match current and future networking demands. Technologies supporting a hybrid architecture include MPLS and ethernet, broadband, wireless broadband, Wi-Fi and recent innovations such as SD-WAN and cloud-based managed service offerings.

The idea behind right-sizing is to employ a "site typing" methodology that focuses on choosing the right connection for each business-location need, then matching application requirements and usage to the right networking technology. For example, a hospital moving large digital files with sensitive patient health information across a campus setting has different requirements than does a small retail store without a cloud-based security solution. Many global manufacturers employ all of these technologies based on each location's function, employee base and throughput needs. Each requires very different networking topology, and often hybrid requirements unique to their physical deployments.

Considerations include balancing bandwidth, performance, scalability, redundancy and security that results in an optimized customer experience at the best possible cost structure.

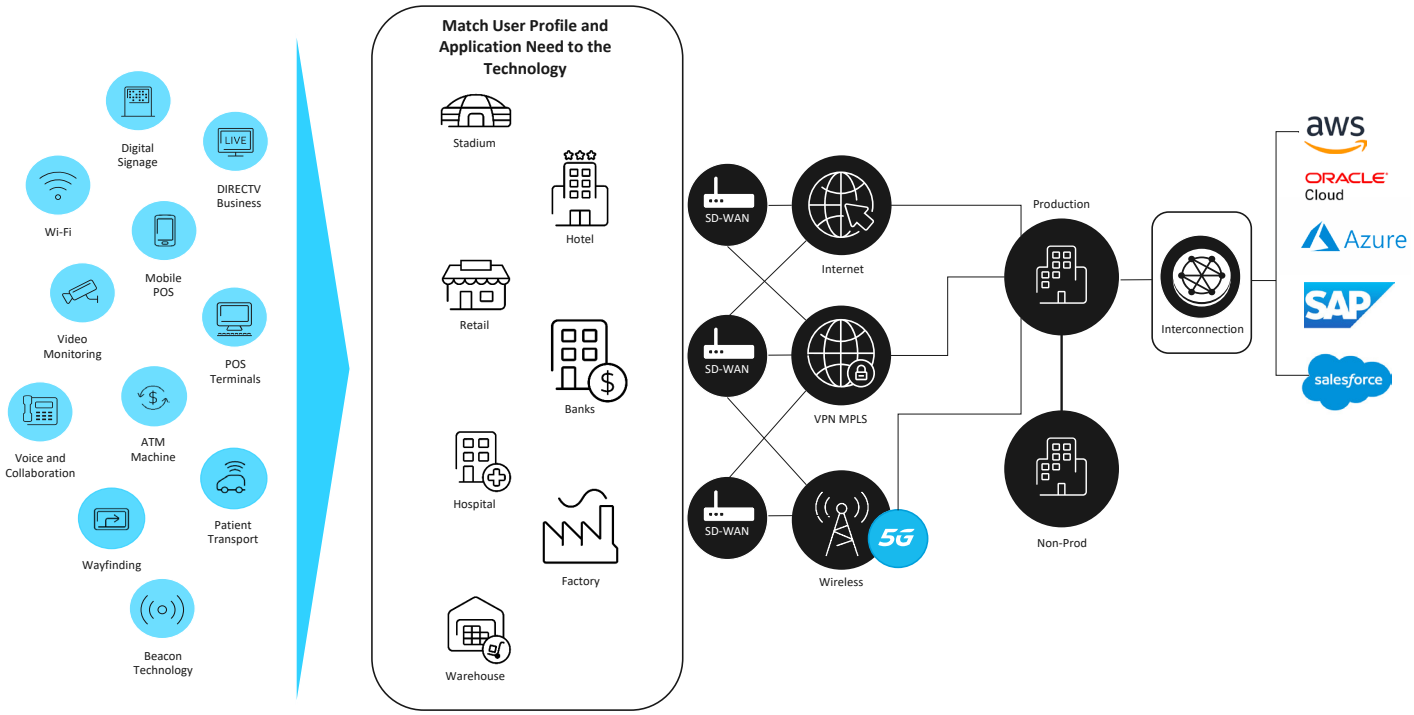


Figure 1 - Network Right-Sizing Example

2. The Digital Edge

As the world continues to digitize, interactions move to the edge — closer to population centers, to where the digital and physical worlds meet, and to where businesses come together to exchange information and services. This is the digital edge.

Companies moving systems to the periphery of their networks deliver improved digital experiences with greater agility. The digital edge helps solve performance, scale and flexibility challenges by distributing digital infrastructure across a fabric of hubs. Removing the distance between data, applications, clouds, suppliers and users is a powerful tactic to reduce latency.

When organizations strategically distribute their infrastructure adjacent to dense concentrations of clouds and networks, they gain the scale, performance and flexibility of a next-generation, multicloud architecture with global reach. This type of rearchitecture is integral to delivering appropriate digital experiences for employees and customers, and greater agility during times of disruption.

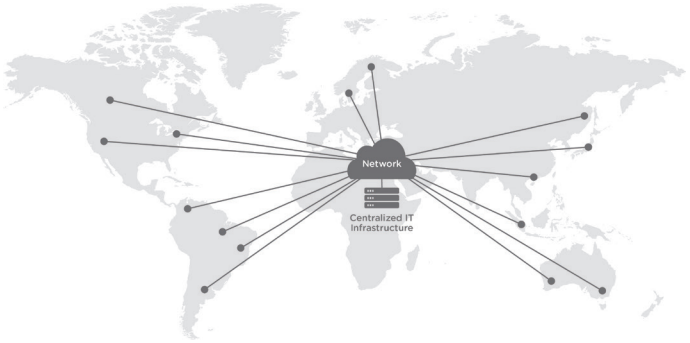


Figure 2 – Before: Centralized IT Infrastructure with constrained, point-to-point connectivity, backhauling user traffic to a central data center.

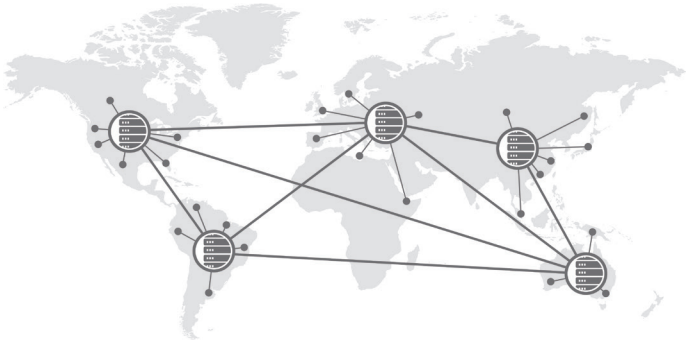


Figure 3 – After: Optimized, multipoint connectivity via direct, private traffic exchange points between users and local services.

3. Interconnection

Interconnection helps businesses accelerate growth and gain agility across ecosystems by linking numerous discrete entities and making them capable not only of uniting with each other in digital ecosystems, but also connecting as a unit.

Deploying direct, private connections at the digital edge propels both application performance and user experience, allowing companies to leapfrog competitors.

Interconnection bandwidth is the total capacity provisioned to privately and directly exchange traffic with counterparties and providers, at distributed IT exchange points inside carrier-neutral colocation data centers. By 2022, installed interconnection bandwidth capacity is expected to exceed 13,300 Tbps with a 51% compound annual growth rate worldwide, according to the 2019 Equinix Global Interconnection Index.[15] Interconnection has become essential to digital growth.

Cloud computing is a key piece of the interconnection puzzle and allows companies to replace CAPEX with OPEX, helping companies better adjust both spending and resources as needed. It also allows companies to react quickly to shifting infrastructure deployments, such as edge computing and IoT, as well as to a workforce and customer base that may be accessing systems from different locations due to quarantines, social upheavals or adverse weather events.

According to a recent IDC data, cloud-based IT infrastructure revenues rose 2.2% in the first quarter of 2020 compared to the same time last year, while investments in traditional, noncloud infrastructure plunged by over 16%.[16]

IDC expects spending on cloud IT infrastructure to increase throughout the year as well as over the long-term, with a predicted five-year compound annual growth rate of 9.6%. Meanwhile, noncloud infrastructure will continue to shrink. However, these numbers are expected to change with the effects of the COVID-19 pandemic.

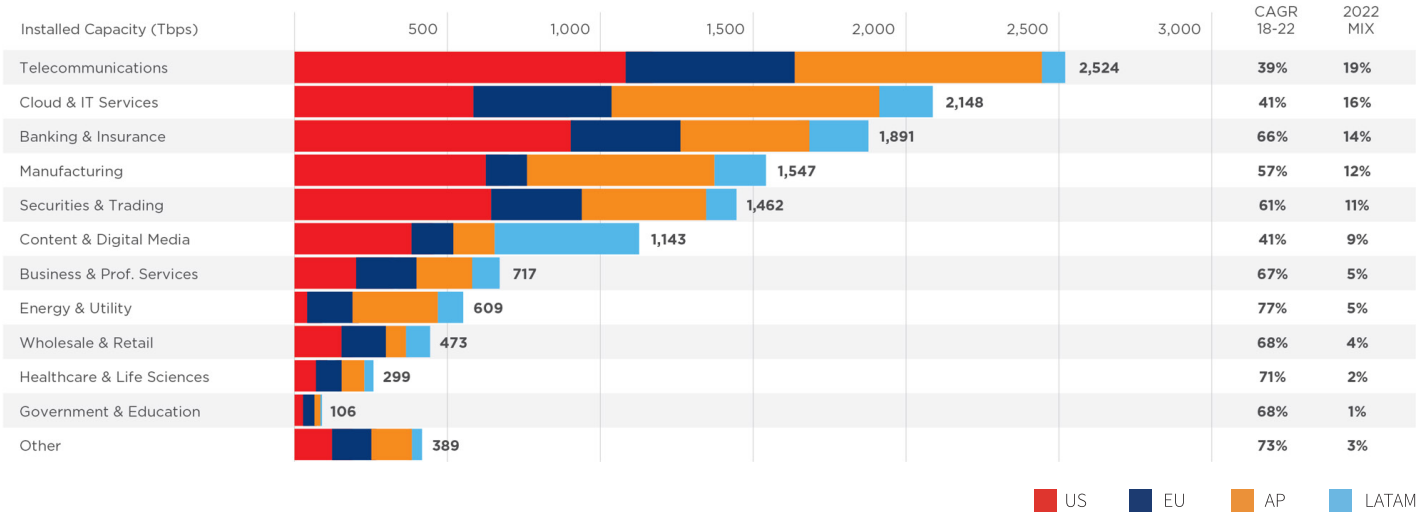


Figure 4. Forecast of installed interconnection bandwidth capacity worldwide. (Source: Equinix Global Interconnection Index Volume 3).

How AT&T Business with Equinix Can Help

AT&T Business and Equinix have worked together ever since the founding of Equinix in 1998 as a neutral hub where networks could physically exchange traffic, quickly scale and maximize the performance of the internet. Since then, AT&T Business has established direct on-net networking in most of Equinix's International Business Exchange™ (IBX®) data centers in the US, as well as key network capabilities around the globe.

Over the last several years, this collaboration has grown increasingly valuable for customers that need integrated solutions to help reduce latency, increase flexibility and improve overall network performance. Customers experience accelerated deployment and simplified contracting by purchasing Equinix through AT&T Business, utilizing their existing AT&T Business master service agreements.

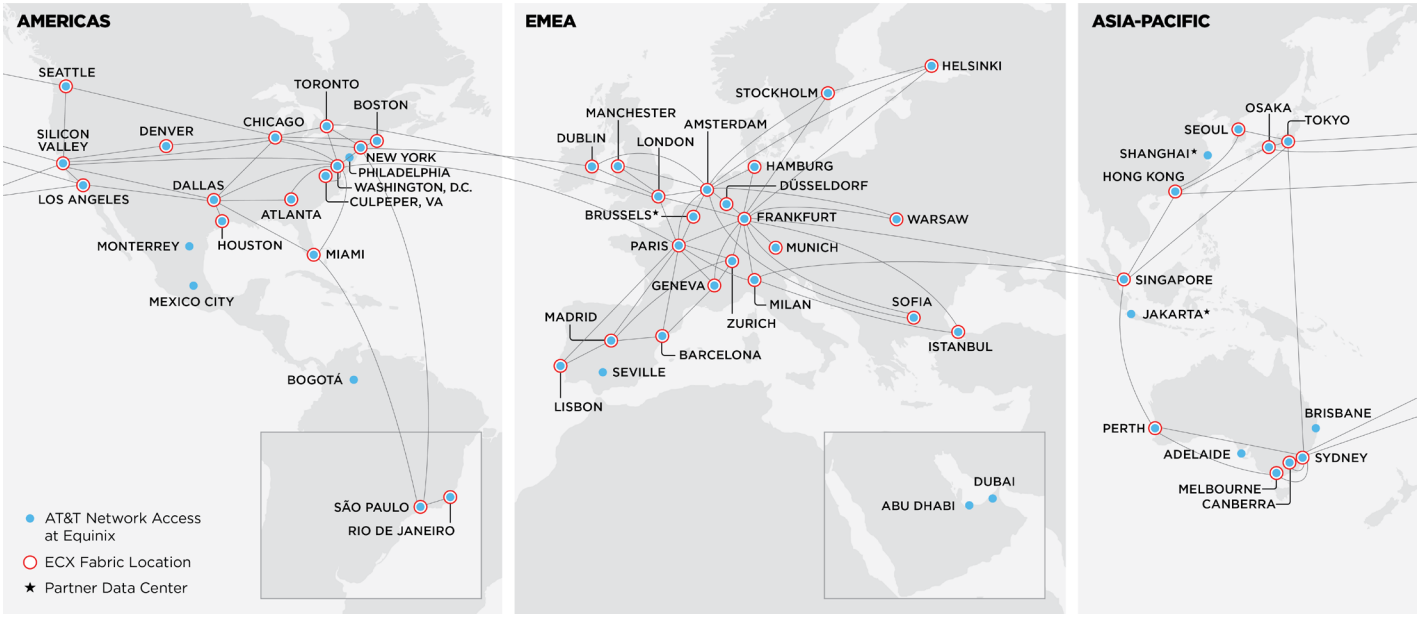


Figure 5 - AT&T Network access within Equinix global locations

Right-Sizing Offerings

AT&T's Intelligent Networking portfolio delivers the network right-sizing that today's customers need. Many customers combine several networking solutions to achieve their objectives—for example, traditional MPLS technologies in combination with ethernet between data centers, or with broadband and dedicated internet to a remote site. Switched and dedicated ethernet flavors are available based on the intended use and bandwidth volumes that customers require. SD-WAN in conjunction with MPLS and broadband for regional and remote offices are becoming commonplace as well. The goal is often to match proprietary traffic with MPLS back to HQ while using broadband and dedicated internet for non-proprietary traffic loads. Also, locations close

to cell towers may be able to use wireless broadband as an option for either primary or backup functions. Additional solutions include Session Initiation Protocol (SIP), local VPN aggregation and integrated cloud connectivity.

While many customers have unique requirements based on industry functions, the ability to use both providers' services in a coordinated manner to meet many of those needs is a unique value proposition. AT&T Business and Equinix drive repeatable and consistent innovation for our customers while delivering a premium experience during the solutioning and implementation phases through the life of the contract.

Customer Goals

- **Expand** presence with Azure China and interconnect with AWS in the U.S.
- **Securely** connect to Oracle in the U.S. (dual instance)
- **Reduce** internal data center OPEX by moving to commercial, globally interconnected data centers offering repeatable interconnection solutions
- **Create** a globally consistent, repeatable and flexible network fabric (MPLS, EPLS, internet and cloud)
- **Rapidly** scale against the requirements of the business, reducing complexity and increasing speed to market

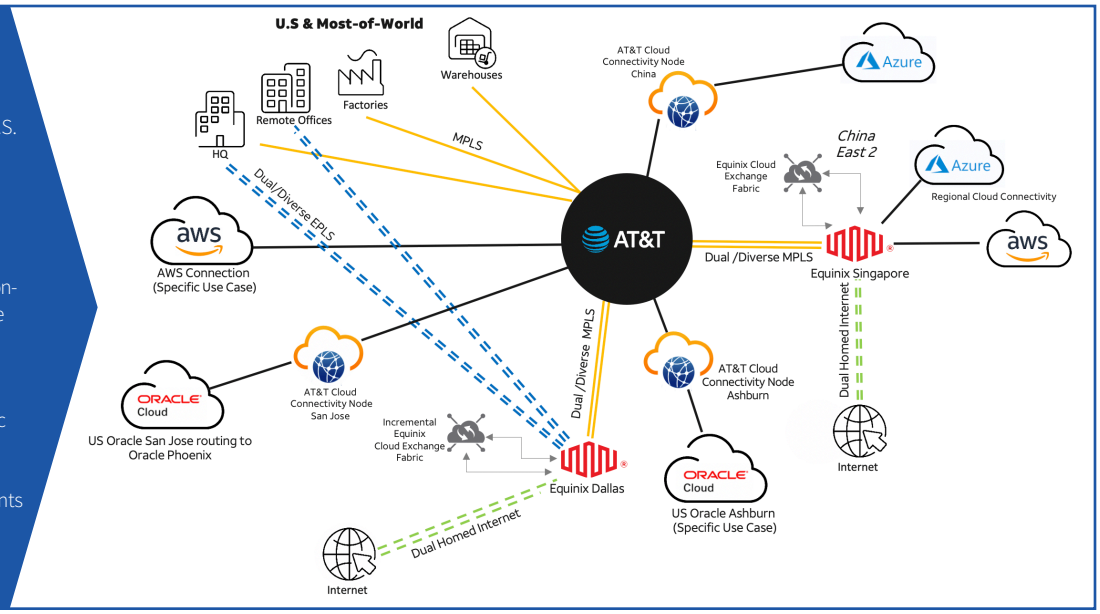


Figure 6 - Real World Customer Example of Network Right-Sizing, Digital Edge and Interconnection

Digital Edge Offerings

Platform Equinix® is the world's largest global platform of interconnected data centers and business ecosystems, supporting companies and industries in markets across the globe. It offers direct access to prebuilt AT&T ethernet, including AT&T Switched Ethernet (ASE), AT&T Switched Ethernet On-Demand and AT&T Dedicated Ethernet (ADE) with speeds up to 100G and all AT&T WAN services including EPLS-WAN, AT&T Virtual Private Network and AT&T Dedicated Internet.

The AT&T Business and Equinix alliance, and the substantial AT&T infrastructure inside Equinix facilities, allow enterprises to change geographic locations of computing resources quickly and cost-effectively, and scale up and down as needed. Our joint solutions also can accelerate

deployment times, with lower install and monthly fees, because AT&T infrastructure is already available for customer access.

Interconnection Offerings

AT&T Business with Equinix provides a suite of interconnectivity options that allow businesses to connect to hybrid and multicloud environments, as well as to global customer, partner and service provider ecosystems.

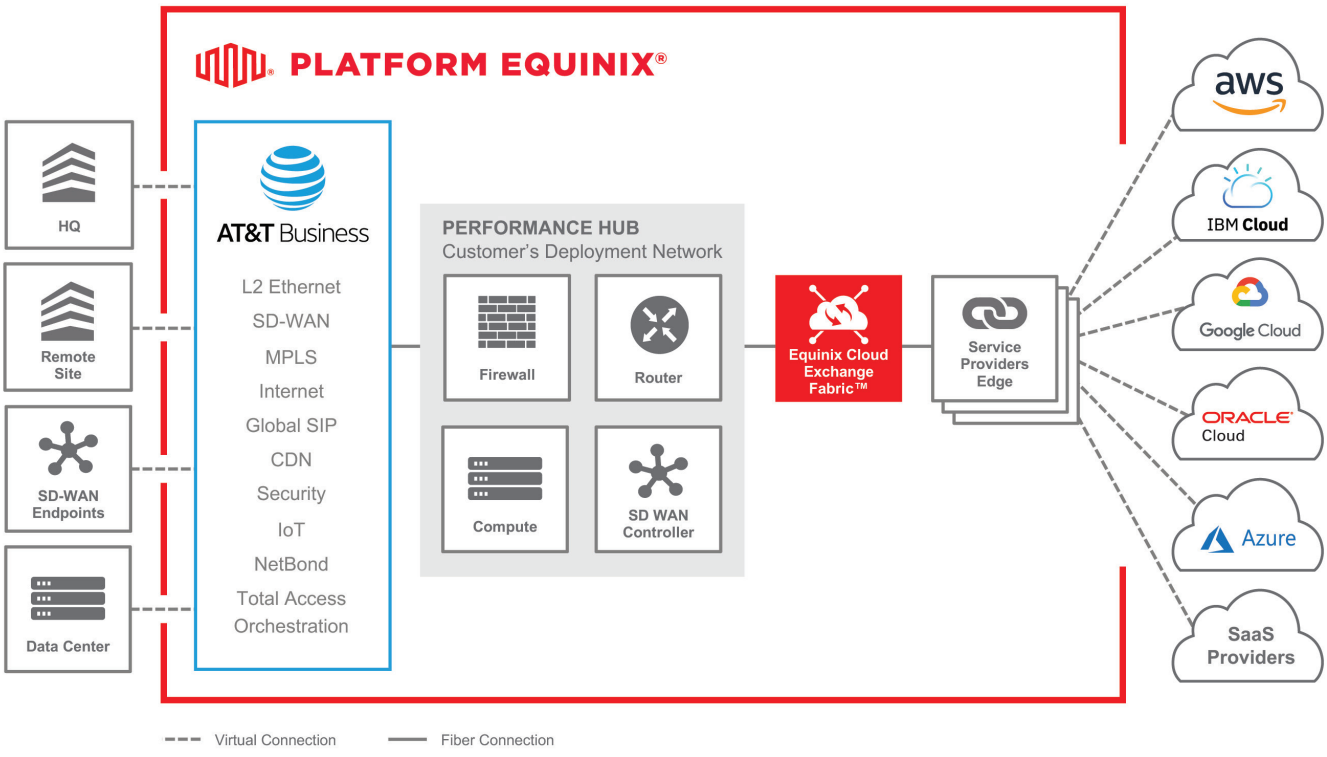


Figure 7 - AT&T Business with Equinix interconnection platform

Companies looking for high-performance, private, physical connections have the choice of running cross connects to parties within the same Equinix IBX data center or campus, and metro connects within a metro area. Customers can also deploy at one IBX data center to a partner, customer or themselves at a different IBX in the same metro.

Companies that require global, software-defined interconnection have the option of AT&T NetBond® for Cloud, which supports direct connections to a number of leading cloud service providers. Also, Equinix Cloud Exchange Fabric® (ECX Fabric®) offers the highest number of native cloud on-ramps and is available in more than 56 locations worldwide, with new markets added every year.

Use Disruption to Fuel Innovation

Disruptions such as natural disasters, economic crises and health emergencies are the new normal. While disruption is uncomfortable, it can open the door for new ways to do business, optimize user experiences and drive companies to become more competitive in a world with constant disruption.

Companies need flexibility and resilience to succeed during such times. Right-sized networks, edge computing and interconnectivity are strategies that can address these goals while positioning companies for future success.

For years, AT&T Business and Equinix technical consultants have provided customers with globally consistent, unified and repeatable solution offerings. They have the global and vertical expertise to help you build a network blueprint for digital transformation success now and for the future.

Ready to get started?

To schedule a digital edge strategy briefing with AT&T Business and Equinix, contact us at ATT@equinix.com or submit this form.

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