# Creating the agile and flexible hybrid network

Learn how organizations can distribute infrastructure in interconnected colocation facilities for fast, secure access to data, and applications.

# Table of Contents

# 1. Introduction

**We live in a time of constant disruption.**

In the past decade, natural disasters alone cost the global economy nearly $3 trillion.[1] And climate-related disasters are only the beginning.

Just a fifth of the way into the new century, we've seen the puncture of the dot-com bubble, the Great Recession, the SARS, Ebola and COVID-19 epidemics, the European debt crisis, major geopolitical shakeups, and historic climate and weather-related events.

To cope with constant disruption, companies need continuity plans that allow them to continue to deliver products or services at pre-defined acceptable levels even if a disruptive incident occurs. Vast digital transformation initiatives that enable enterprises to remain agile and flexible in the face of these unforeseen demands are fast becoming table stakes to doing business.

As many IT leaders have discovered, the network is the foundation for digital transformation, as it determines how data is transported, stored, and utilized and how well applications perform. In fact, 58% of IT leaders surveyed see network interconnection as a key facilitator of digital transformation—up 9% from the previous year.[2]

Of course, architecting the optimal hybrid IT environment will be unique for each business. Variables such as performance, security, and sustainability requirements will guide many infrastructure decisions. However you choose to optimize your network, the end-goal of network optimization is generally the same: to provide the best possible user experience in a cost-effective manner.

In today's interconnected, digital-first world, owning your own data center may not be cost effective. That's why in addition to utilizing on-premises data centers and public cloud infrastructures, organizations are distributing digital infrastructure in colocation facilities at the edge, adjacent to users, providers, and clouds to deliver the best possible user experience.

This whitepaper highlights the key digital transformation areas businesses should consider when optimizing their networks with the goal to thrive in an uncertain future.

# 2. Three strategies to enable IT resilience

To establish IT resilience, companies must be able to provide a great user experience, address ongoing challenges and meet the need for more resilient, scalable, and optimized infrastructure.

**Business achieve these goals with the following three strategies:**

| 1 | 2 | 3 |
|---|---|---|
| Right-sizing networks to deliver experiences with greater agility. | Using edge technology to improve application performance by placing infrastructure as close to users as possible. | Leveraging interconnectivity across vibrant, relevant 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, 92% of enterprises now have a multi-cloud strategy, a rate of adoption that only continues to accelerate.[3] In fact, Gartner® predicts by 2023, 40% of all enterprise workloads will be deployed in cloud infrastructure and platform services and by year-end 2023, 20% of installed edge computing platforms will be delivered and managed by hyper-scale cloud providers.[4] 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 multiprotocol label switching (MPLS) and ethernet, broadband, wireless broadband, Wi-Fi, and recent innovations such as software defined wide area network (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 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.
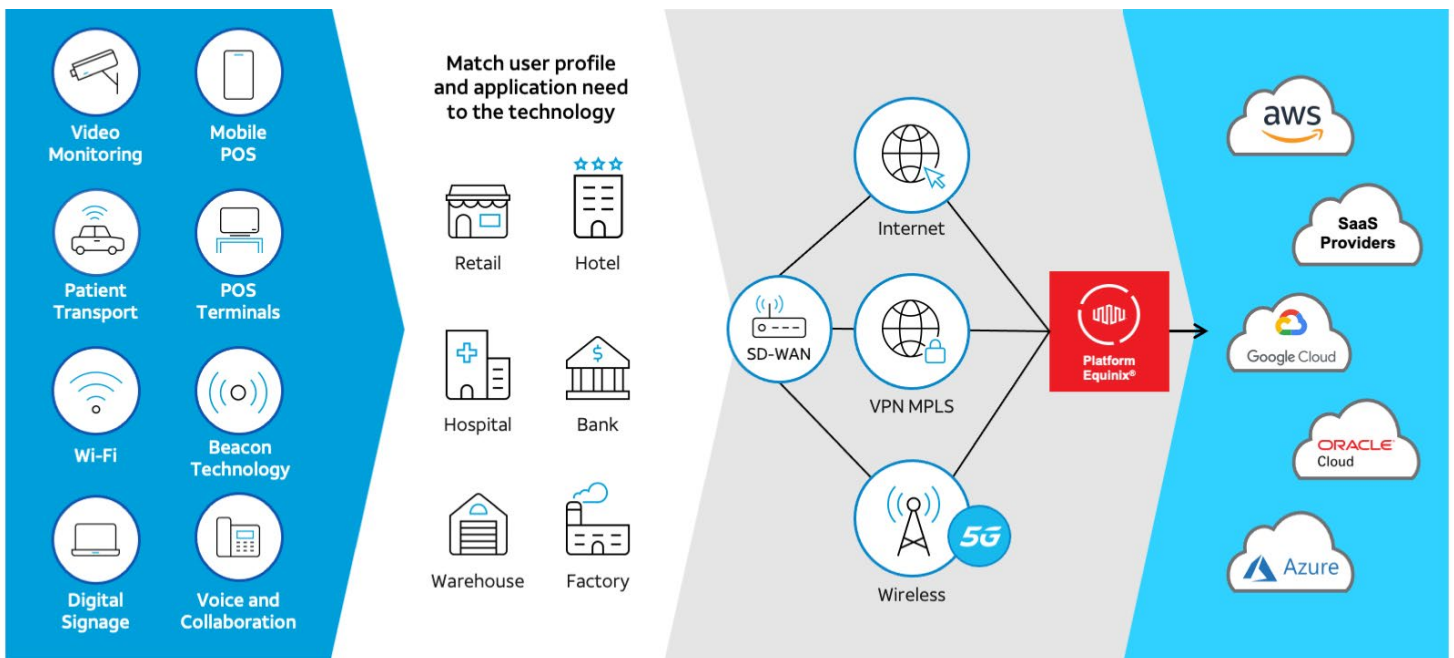


Figure 1: Network right-sizing example

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, multi-cloud 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.
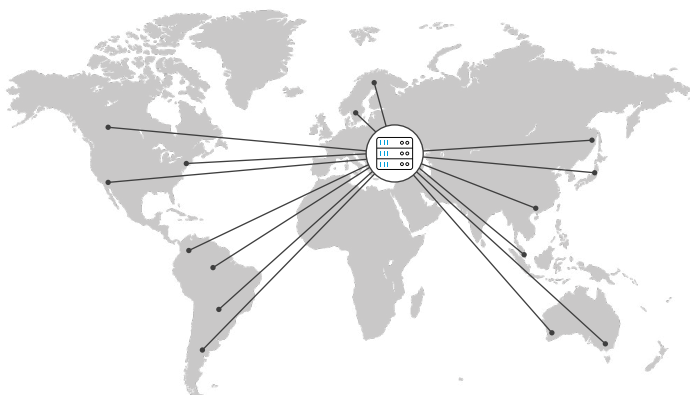
Figure 2: Before: Centralized IT infrastructure with constrained, point-to-point connectivity, backhauling user traffic to a center data center.
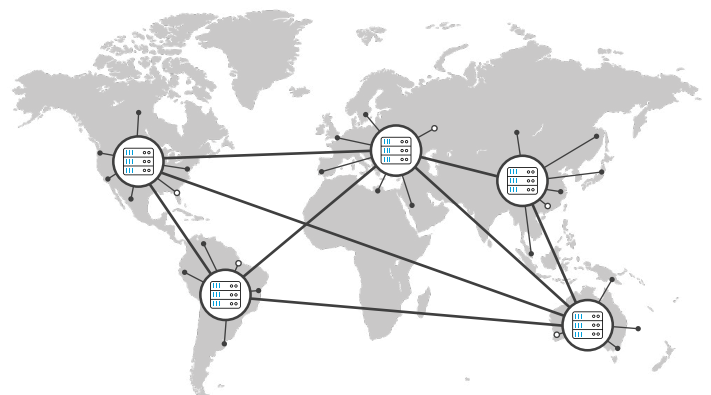
Figure 3: After: Optimized, multipoint connectivity via direct, private traffic exchange points between users and local services.

# 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. According to the Equinix Global Interconnection Index, today's digital-first economy continues to drive worldwide interconnection bandwidth with a forecast compound annual growth rate (CAGR) of 44% by 2024.[5] Interconnection is now essential to digital growth with financial services making up 18% of the global Enterprise bandwidth slightly ahead of the manufacturing sector, but all sectors can leverage interconnection to form ecosystems that help members accelerate each other's digital advantage.
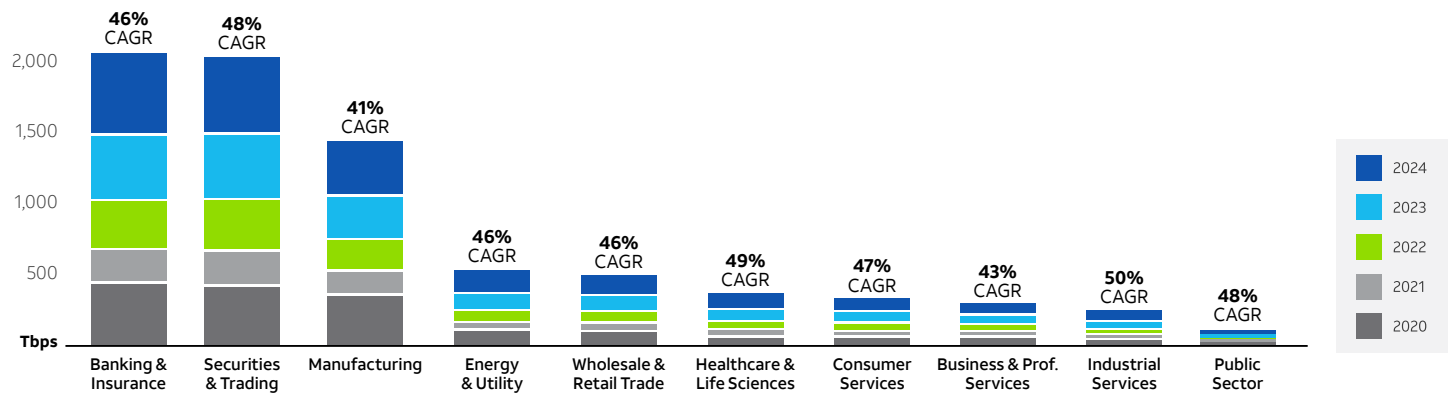
GXI Volume 5
### Global Forecast: Enterprises



**Figure 4: Forecast of installed interconnection bandwidth capacity worldwide.**
Source: Equinix Global Interconnection Index, Volume 5

Cloud computing is an important ecosystem and key piece of the interconnection puzzle allowing companies to replace CapEx with OpEx, to adjust spending and resources as needed. It also allows companies to react quickly to shifting infrastructure deployments, such as edge computing and Internet of Things (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. Hybrid approaches to IT are often preferred for organizations looking to leverage the agility and economics of public cloud with the security and performance of on-premises IT.

IDC expects spending on compute and storage cloud infrastructure to have a compound annual growth rate (CAGR) of 12.4% over the 2020-2025 forecast period, reaching $118.8 billion in 2025 and accounting for 67.3% of total compute and storage infrastructure spend.[6]

# 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 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.



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○ Equinix Fabric Planned Expansion
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● Equinix Location Planned Expansion
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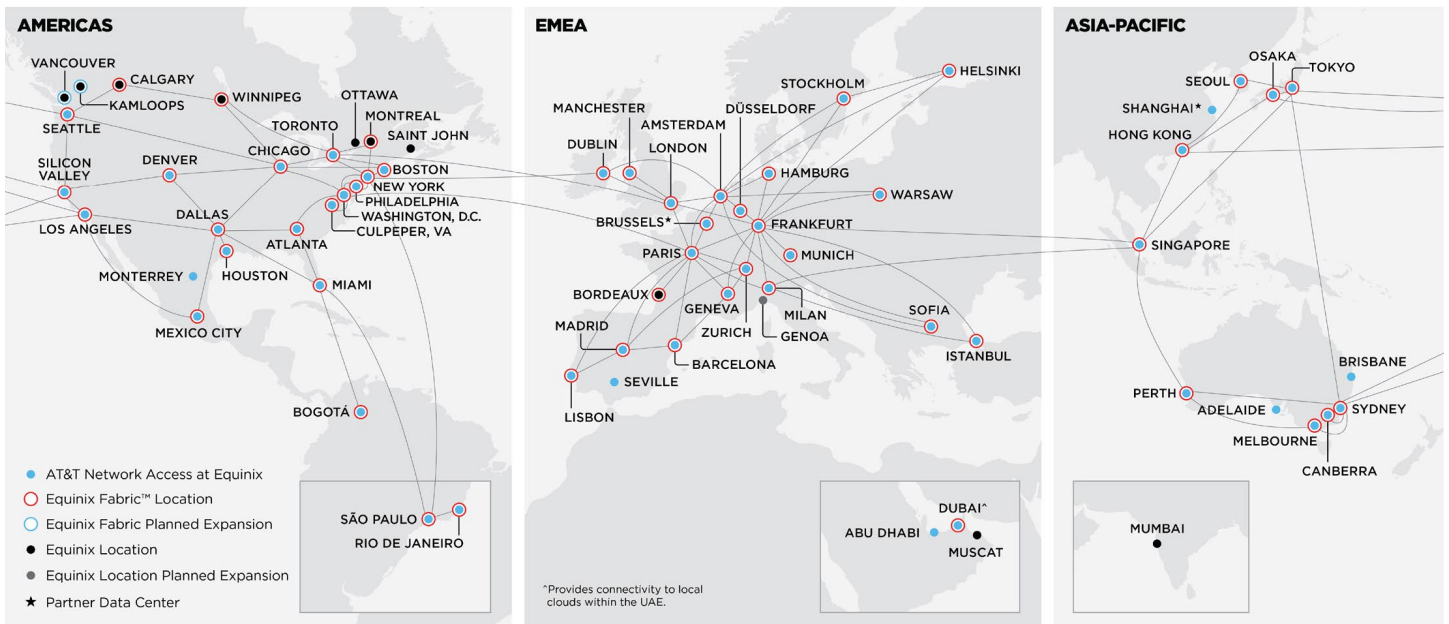SYDNEY
MELBOURNE
CANBERRA

MUMBAI

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

## Right-sizing offerings

The AT&T Business 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 multiprotocol label switching (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 headquarters 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 virtual private network (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.

In the use case below, a global manufacturer is right-sizing their connectivity options to maximize network investment and deliver balanced bandwidth and increased performance.  Placing infrastructure at the digital edge in Equinix data centers in Singapore and Dallas allow them to privately access multiple public cloud providers in-region increasing cloud resiliency and securely connecting workloads to both Oracle and SAP. Moving away from a centralized IT architecture reduces the cost and complexity of managing owned data center infrastructure. It also enables them to form an ecosystem of partners and providers that help create optimized and consistent customer experiences on a global scale.

### Customer goals

**Expand presence** with Azure China and interconnect with Amazon Web Services (AWS) in the U.S.

**Securely connect** to Oracle and SAP in the U.S.

**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
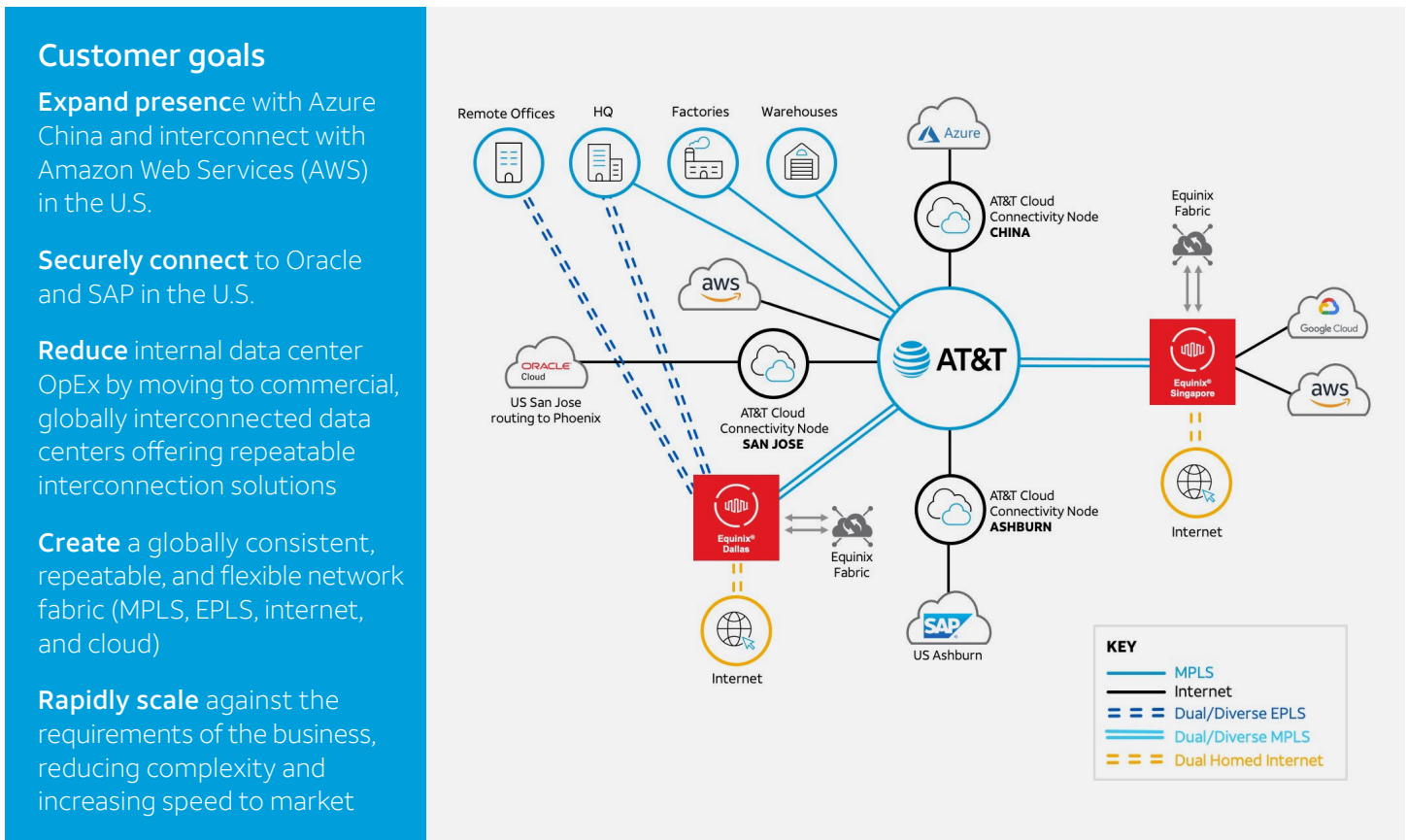


Figure 6: Real World Customer Example of Network Right-Sizing, Digital Edge, and Interconnection

## 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 wide area network (WAN) services including Ethernet Private Line Service-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.

When creating an agile, hybrid network, organizations need options for their digital infrastructure. Infrastructure such as routers, switches, firewalls, storage, and servers that may be owned and privately managed on-premises or within Equinix IBX facilities. Digital infrastructure may also be consumed in an OpEx model using Platform Equinix's latest offerings.

For customers needing to quickly deploy and scale their network, they may want to leverage Equinix's network function virtualization (NFV) solution called Network Edge. This allows customers to reduce CapEx by deploying virtual SD-WAN edge gateways, routers and firewalls from industry leading providers such as, Cisco, Fortinet, Juniper, Palo Alto Networks, VMWare, Velo, Aruba, Check Point and Versa in strategic Equinix locations.

To complement OpEx network functions, organizations may utilize Equinix Metal™, bare metal, on-demand infrastructure available quickly where and when needed. Organizations can deploy new hybrid public and private cloud infrastructure in minutes, not months with no forced virtualization and no multi-tenancy for enhanced security.
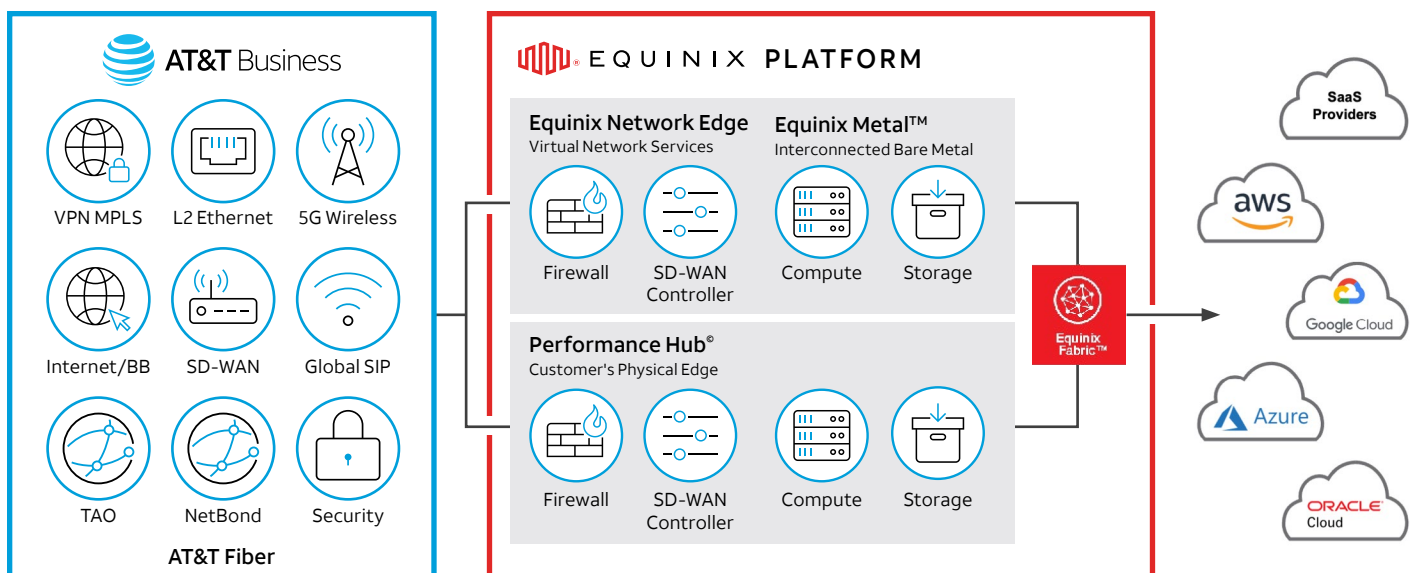


Figure 7: AT&T Business with Equinix interconnection platform

## Interconnection offerings

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

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 Fabric® offers the highest number of native cloud and service provider on-ramps and is available in more than 50 locations worldwide, with new markets added every year.  Network Edge, Equinix Metal, and AT&T NetBond for Cloud are all also natively connected to the Equinix Fabric which provides a rapidly deployable bridge to AT&T Business solutions.

Organizations experience accelerated deployment and simplified contracting by purchasing Equinix solutions through AT&T Business, utilizing their existing AT&T Business master service agreements.

# 4. Use disruption to fuel innovation

Disruptions such as natural disasters, economic crises, and health emergencies are now 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?

Schedule a complimentary technical strategy briefing with AT&T Business and Equinix

Contact us   or   Submit this form

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