



EQUINIX

WHERE OPPORTUNITY CONNECTS

2020 OUTLOOK:  
TOP 5 TECHNOLOGY TRENDS  
**THE FUTURE  
OF DIGITAL  
INFRASTRUCTURE**

EQUINIX WHITEPAPER



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# THE FUTURE OF DIGITAL INFRASTRUCTURE

What is 2020 going to look like for leaders in APAC? Equinix has compiled a key series of 2020 predictions that point towards the critical digital transformation that organizations are making to lead in the new digital era. Hybrid multicloud, artificial intelligence, cybersecurity, data regulation and sustainability will be key factors influencing how organizations undergo this transformation.

In this paper, we look at the top five predictions for the coming year.

## 1. Distributed infrastructure and edge computing will accelerate hybrid multicloud adoption

There is a seismic shift underway across many industries as businesses are embracing edge computing and hybrid multicloud architectures. Increasingly, businesses are moving computing from centralized data centers to a distributed infrastructure and toward the edge, where data exchange and interconnection between businesses and cloud services are growing at an exponential rate.

The advent of edge computing has also become a foundational enabler for other emerging technologies such as 5G mobile communications, which will allow internet of things (IoT) and other edge devices to take advantage of faster connectivity to data and compute resources with single-digit-millisecond network latency.

According to analyst firm IDC, by 2023, more than 50% of new enterprise infrastructure deployments will be at the edge rather than corporate data centers, up from less than 10% today. And by 2024, the number of apps at the edge will increase 800%. The IDC report says to prepare, businesses must modernize IT to become virtualized, containerized and software-defined to support the edge. And they should also consider new data center partners that can bolster edge build-out and prioritize infrastructure optimization and application communication costs.

As a result, in 2020, Equinix anticipates edge computing as a key driver in accelerating hybrid multicloud adoption across every business segment worldwide. The third annual Global Interconnection Index (GXI), a market study published by Equinix, estimates that between 2018 and 2022, private interconnection between enterprises and cloud & IT service providers will grow annually by 112%. The report predicts that traditional cloud computing architectures, which are highly centralized, will shift as enterprises look to extend cloud computing to the edge to solve for challenges introduced by the highly distributed nature of modern digital business applications.

The key challenges that the combination of edge computing and hybrid multicloud adoption will solve include:

- **Lower latency and bandwidth savings**—Proximate high-speed, low-latency connections (<60 – <20 milliseconds) are necessary for companies to materially close the “distance gap” between their application and data workloads and cloud service providers (CSPs). With agile and scalable cloud environments closer to the users at the edge, data access and application response times can be faster and cost savings from reduced data transport can be realized.
- **Enterprise consumption of hybrid multicloud**—Enterprises generally determine which cloud platform to place their applications on by which CSP delivers the best service for a specific workload. This freedom of choice makes it easy and practical for IT organizations to experiment with different cloud platforms to see which delivers the best quality of service (QoS) at the best price. Additionally, more than ever before, enterprises require the flexibility of retaining control and securely running business-critical applications in-house and want the flexibility of leveraging both private and public hybrid cloud environments, depending on specific use cases.
- **Political and regulatory factors**—With more frequent and complex incidents of security and privacy breaches, many countries are regulating where and how data can be used. These privacy and data sovereignty compliance requirements will lead to more distributed data centers and cloud services that keep data local to a specific geographic region or country.

## **2. AI and IoT will drive new interconnection and data processing requirements at the edge**

Equinix predicts that enterprises will accelerate the adoption of AI and machine learning (ML) for a broader set of use cases, requiring increasingly complex and more real-time-sensitive processing of large data sets originating from multiple sources (sensors, IoT, wearables, etc.). An airplane with thousands of equipment sensors, an autonomous vehicle producing telematics data, or a smart hospital monitoring patients' well-being can each generate several terabytes of data a day. About 75% of enterprise AI/analytics applications will use 10 external data sources on average.

To meet the scale and agility requirements of the above, Equinix believes businesses will continue to leverage public cloud service providers, while most will likely find ways to use an optimal set of AI/ML capabilities from multiple CSPs—effectively deploying a distributed, hybrid architecture for their AI/ML data processing.

Yet Equinix believes for many use cases, an additional set of stringent requirements related to latency, performance, privacy and security will require that some of the AI/ML data and processing (both inference and model training) be proximate to data creation and consumption sources. Equinix predicts this will create an impetus toward new architectures and the increased adoption of vendor-neutral, richly interconnected, multicloud-adjacent data centers at the edge, which deliver improved control, auditability, compliance and security of AI/ML data, and low-latency connectivity to remote data and compute infrastructures.

Furthermore, Equinix predicts that greater interconnection and data processing capabilities will pave the way for new digital data marketplaces, where data providers and buyers can transact easily and securely at scale within vendor-neutral data centers at the edge.

## **3. The rise in cybersecurity threats will require new data management capabilities**

The World Economic Forum has ranked breaches in cybersecurity as one of the top risks facing our global community. No company or individual is immune to the cybersecurity challenges we face today or will face in the future. The financial loss attributed to cyberattacks continues to impact economies worldwide and is estimated to cost \$6 trillion USD annually by 2021.

With the increase in cybersecurity attacks and data privacy and protection regulations, most companies are now moving toward accessing cloud services over private networks and storing their encryption keys in a cloud-based Hardware Security Module (HSM) at a location that is separate from where their data resides. This HSM-as-a-Service model allows them to increase the level of control over their data, to strengthen resiliency of operations, and to support of a hybrid technology architecture.

In 2020, Equinix predicts that new data processing capabilities such as multiparty secure computation, fully homomorphic encryption (operating on encrypted data) and secure enclaves (where even cloud operators cannot peer into the code being executed by a cloud consumer) will move toward mainstream and will allow enterprises to run their computation in a secure manner.

## **4. Data regulation will influence enterprise IT strategies**

Today, many enterprises buy and sell data in order to get a competitive advantage, but these enterprises must adhere to government regulations for personal data privacy and protection. What started with the European Union's General Data Protection Regulation (GDPR) and is now transcending into other local regulatory frameworks such as the California Consumer Privacy Act (CCPA) among many others, and is putting more pressure on enterprises to ensure data compliance. In fact, there are 121 countries that have either already announced or are in the process of formulating data sovereignty laws that prevent the movement of their citizens' personal data outside the country's boundaries.

In 2020, Equinix believes we will see further complexity in protecting personal data as global trends toward stricter or new data privacy regulations continue to gain momentum, making it more difficult for global companies distributed across multiple markets to navigate.

In a recent survey commissioned by Equinix of over 2,450 IT decision-makers across the world, 69% of the global respondents listed "complying with data protection regulations" as a top priority for their business, while 43% of them reported "changing regulatory requirements around data privacy" as a threat to their company.

In 2020, Equinix predicts IT strategies will increasingly focus on data privacy, with continued application of the secure discovery, classification and encryption of personally identifiable information (PII). Equinix believes HSMs will be an integral part of a data security architecture and strategy for encrypting PII and providing an exceptionally high level of security for safeguarding data.

## **5. Digital transformation will provide a foundation for a more sustainable world**

According to an Equinix Survey, 42% of IT decision-makers agree that the “greenness” of a company’s suppliers has a direct impact on their buying decisions. Equinix anticipates that with increasing pressures on the world’s resources and the increasing desire by many companies to cut emissions, digital transformation could begin to set the world’s economy on a progressively sustainable footing.

In 2020, sustainability will likely be an initiative for world-class organizations as stakeholders increasingly look to digital businesses to lead and innovate in areas of environmental responsibility and sustainability. Equinix further predicts that digital and technology innovations will provide companies with the opportunity to overcome barriers, such as the geographic dispersion of supply chains to the complexity of materials and deconstructing products. Machine-to-machine and data analytics enable companies to match the supply and demand for underused assets and products. “The cloud,” in combination with mobile, can dematerialize products or even entire industries. Equinix anticipates that as businesses depend on data center resources to connect with customers and run many aspects of their operations, they will look to vendor-neutral colocation data center providers who are committed, vocal and proven champions for advancing environmental sustainability.

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<sup>1</sup> IDC FutureScape: Worldwide IT Industry 2020 Predictions

<sup>2</sup> Source: Cybersecurity Ventures

<sup>3</sup> APCO Global Insight survey of 2,485 IT decision-makers, Aug 2019

## FINAL THOUGHTS

As the pace of digital transformation continues to accelerate across almost every industry and as the innovative tools mentioned above become the de facto architecture of choice for leaders, we are approaching an exciting point in the journey of interconnection across the region. The ability to securely manage and process data at the edge, while having direct, secure and low-latency connectivity to partners and cloud ecosystems, is ushering new opportunities for organizations to create greater value to users and customers, and benefit society in new ways.

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## About Equinix

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Equinix, Inc. (Nasdaq: EQIX) connects the world's leading businesses to their customers, employees and partners inside the most-interconnected data centers. On this global platform for digital

business, companies come together across more than 50 markets on five continents to reach everywhere, interconnect everyone and integrate everything they need to create their digital futures.