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Top 5 Technology Trends to Impact the Digital Infrastructure Landscape in 2020

Equinix predicts hybrid multicloud, artificial intelligence, cybersecurity, data regulation and sustainability will be key factors influencing how organizations undergo digital transformation

REDWOOD CITY, Calif., Dec. 2, 2019 /PRNewswire/ -- Equinix, Inc. (Nasdaq: EQIX), the global interconnection and data center company, released its top five technology trend predictions for 2020, which point toward the critical digital transformation that organizations are making to lead in the new digital era. Equinix's expansive footprint across more than 50 global markets, and its position as a leading meeting and interconnection point for ecosystems of networks, clouds, enterprises and nearly 10,000 customers, give it a unique and holistic lens to view critical digital infrastructure trends.

Equinix's 2020 technology trend predictions include:

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.[1]

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.[2]

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 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.[3] 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.

Quotes:

Justin Dustzadeh, Chief Technology Officer, Equinix
"We are at an exciting inflection point in the history of interconnection, as the pace of digital transformation continues to accelerate and as cloud-native distributed infrastructure and hybrid multicloud deployments become the de facto architecture of choice. 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."

Additional Resources:

- Global Interconnection Index Vol. 3 – [report]
- Equinix Sustainability – [website]
- IDC- Rethinking Datacenter and Traditional Edge IT with Interconnection – [analyst report]

About Equinix
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. Equinix.com.

Forward-Looking Statements
This press release contains forward-looking statements that involve risks and uncertainties. Actual results may differ materially from expectations discussed in such forward-looking statements. Factors that might cause such differences include, but are not limited to, the challenges of acquiring, operating and constructing IBX data centers and developing, deploying and delivering Equinix services; unanticipated costs or difficulties relating to the integration of companies we have acquired or will acquire into Equinix; a failure to receive significant revenue from customers in recently built out or acquired data centers; failure to complete any financing arrangements contemplated from time to time; competition from existing and new competitors; the ability to generate sufficient cash flow or otherwise obtain funds to repay new or outstanding indebtedness; the loss or decline in business from our key customers; and other risks described from time to time in Equinix filings with the Securities and Exchange Commission. In particular, see recent Equinix quarterly and annual reports filed with the Securities and Exchange Commission, copies of which are available upon request from Equinix. Equinix does not assume any obligation to update the forward-looking information contained in this press release.

[1] IDC FutureScape: Worldwide IT Industry 2020 Predictions
[2] Source: Cybersecurity Ventures
[3] APCO Global Insight survey of 2,485 IT decision-makers, Aug 2019

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