Building the best of both worlds with the edge cloud

The IT industry has evolved in waves. Some waves focused on centralizing resources, such as the mainframe and cloud computing eras, while others emphasized decentralization, such as the PC and mobile computing eras.

Today's emerging environment does not fit neatly into these categories. We are centralizing and decentralizing all at the same time. The cloud migration continues. Yet, large-scale enterprises in many industries such as manufacturers, healthcare providers, content streamers and others have discovered the need for greater balance in placing their applications, content and data closer to the edge.

Challenge: Balancing the needs and benefits of the cloud with latency and cost concerns

Hyperscale cloud providers have built out massive data centers and structured their offerings so that enterprises can scale compute, storage and memory in the cloud to fit their needs. Cloud migration continues at a robust pace. Success, though, breeds new needs.

Many large enterprises are using multiple cloud providers. Coordination needs for those workloads are increasing. Meanwhile, growth at the edge is accelerating with Internet of Things (IoT) deployments. This promises not only more data produced, but more items needing some level of control.

At the same time, serving mission-critical applications from the cloud introduces latency that is not tolerable in many situations such as robotic control in manufacturing or massive medical applications for imaging that must be shared by several hospitals in a chain.

Those cloud datacenters may be located thousands of miles away from wherever the data is being captured or the applications are actually used. Transporting every bit of data – the background noise along with the important bits – can be costly. Facilities running applications close to the edge, such as in an on-premises data center, might get low latency but not the flexibility of the cloud.

Enterprises need to balance cloud migration with growth at the edge and the responsiveness required wherever applications drive action. Ideally, enterprises would extend the cloud from a preferred hyperscale cloud provider or multiple clouds so that the cloud computing capability is effectively distributed to achieve a desired performance, latency and cost.

Solution: Extend the cloud to the edge

The terms “edge computing” and “edge cloud” are sometimes used interchangeably. Intelligent Solutions from Lumen® Edge Computing integrates the consulting services, network and management services, hardware and software to architect and build an Edge Computing solution that brings the benefits of the cloud to more local resources.

Many cloud data centers from the major cloud providers are already on Lumen fiber networks. Lumen essentially expands data center functionality out into the network to put key resources where they need to be to optimize this virtuous cycle. Oftentimes, this is in one of our facilities or an affiliated colocation facility nearby, designed to deliver 5ms or less latency. These local facilities can also cache key data that needs frequent accessibility.

Because of Lumen partnerships and fiber connections, hyperscale cloud providers can extend their full stacks into these facilities so customers can work with the same tools at the cloud and edge. These edge cloud nodes become access points to larger cloud resources. A single colocation facility can connect to multiple clouds.

Lumen® Cloud Application Manager can aid in managing this hybrid environment, putting the right workloads in the right place for both the enterprise and the cloud provider. Lumen experts can help enterprises achieve the right application performance at the right cost for their mission-critical needs.

Results: Efficiency, security, lower costs

These architectures composed of Lumen Intelligent Solutions components, expertise and managed services can aid in balancing centralizing and decentralizing needs of today’s modern enterprises. Consider just a few effects of this edge computing infrastructure:

- Reduced latency for control applications
- Edge-based security for sensitive data
- Lower network costs from transporting only relevant data to the cloud
- Unification of tools and support for local and cloud resources

Edge computing complements both cloud computing and the IoT, creating a seamless, low latency virtuous cycle.

Edge computing approaches put data processing and storage closer to the network edge —where people, processes and items in motion reside.

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