Simplify Multicloud Connectivity & Operations

Problem

Individually connecting multiple clouds over WAN is operationally complex and costly, resulting in unreliable cross-cloud application interaction performance and poor visibility. Managing increasing volumes isn't solved by public internet offloading (risk) or expanding WAN usage due to physics (distance) that increase latency and reduce bandwidth.

Solution

Success in the digital economy depends on the flexible integration of multiple, cloud-based services or workloads into new digital business models. These microservices—comprised of many services orchestrated across a multitude of applications—are the future of competitive digital businesses. The traditional enterprise backbone connections to each cloud must be re-architected to an Interconnection Oriented Architecture where clouds are connected at secure distributed edge nodes that are vendor-neutral IT exchange points for clouds and networks. Direct, private, secure connectivity to an edge node enables one-to-many connections to all clouds at the node, reducing setup time and costs through vendor choice. Traffic flows are segmented at the edge to optimize inter-cloud traffic using SDN, reducing enterprise backbone congestion and cloud ingress and egress costs. Cloud resource management and monitoring services are leveraged through edge-based partner ecosystems, enabling cross-cloud brokering and cloud bursting.

Constraints

1. Traditional infrastructure architecture is based on network isolation with a perimeter around the enterprise; a move to cloud stresses that design.

2. Extending the existing network backbone to individually connect to various clouds limits network connectivity options and choice.

3. Resource costs and time required to install links, equipment purchases and contracts impedes speed to market and ROI.

4. Cloud-based workloads are traditionally considered islands of compute that limit the responsiveness and flexibility required to compete in the digital economy.

5. Operational management becomes more difficult across multiple, independent cloud connections outside the enterprise backbone (where each connection needs a test cycle) and visibility across components and clouds is limited.

Steps

1. Using the guidance from Steps 2 and 3 of the Network Blueprint, [Network 2, 3*], pick the target application workloads (COTS, SaaS or bespoke). Assess traffic bandwidth demands. Aggregate and segment network interconnections into each chosen public/private cloud, using SDN as needed.

2. Migrate bespoke applications to target clouds and establish an API registry. Employ container management to manage their life cycles.

3. Install and connect data caches at edge nodes to facilitate rapid cross-cloud interactions.

4. Employ policy-based acquisition of services including cloud resource monitoring and dynamic resource allocation, leveraging digital services ecosystems.

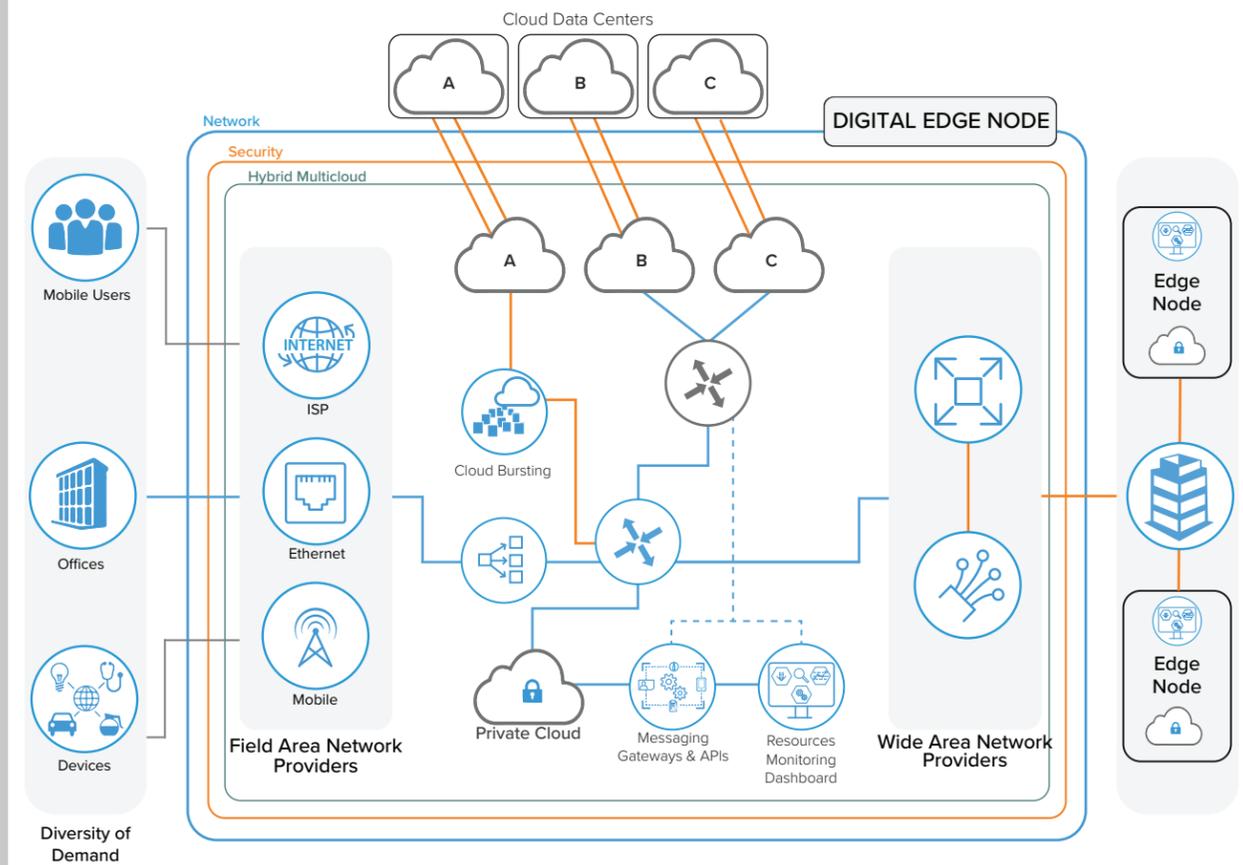5. Leverage cross-regional ecosystems to employ optimal partner services across clouds.

Forces

• A majority of enterprises (85%) employ multiple clouds with 58% being hybrid clouds—the base for digital economy platform construction.

• Hybrid multicloud connection complexity impedes adoption as cloud providers have a hard time managing bespoke connections, impeding economies of scale.

• Shadow IT continues to add cloud deployments, creating operational risk.

• The increase in mobile users has created interactions with more SaaS-based applications.

• The choice of SaaS drives cloud platform choice.

• Applications with many legacy enterprise application connections are being targeted for cloud deployment, creating security and performance challenges.

Results

Technical

• Cross-cloud connections are secure and segmented for traffic optimization with high bandwidth and minimal latency.

• Multicloud connection complexity is simplified—provisioning new connections takes hours, not weeks.

• Cross-cloud and operational visibility is improved by leveraging partner ecosystems' monitoring tools.

• Workload integration is optimized as required resource demand changes.

Business

• Increased flexibility and choice of cloud and network providers at the edge reduces cost.

• Consistently enhanced user experience based on local needs and customs.

• Enhanced business strategy, operations and execution in real time via new partner ecosystems enables new global business models, expanding reach.

Reference View

* Network Blueprint — IOAKB.com