



Problem

The growing number of partners dispersed across geographic regions creates an exponential increase in network traffic (and communications cost) that can't be managed centrally.



Solution

Control the reliability, efficiency, responsiveness and flexibility of network capacity as traffic volumes increase exponentially. Add capacity and redundancy strategically by distributing growing workload volumes (i.e., transactions, workflow, collaboration) across geographically dispersed, secure digital edge nodes near dense user populations. Mesh these nodes so they interconnect directly, providing secure, dynamically routed, resilient paths that adjust to spikes in demand and congestion in supply. Localize data requirements in the digital edge node, balancing protection with accessibility. Each node is tailored for local services at that location, enabling control of performance that scales on demand.



Constraints

1. More users with multiple devices at more locations create exponential growth in demand that consumes all available and planned-for network bandwidth.
2. Mobile device use creates added expectations for any multiparty coordination as user experience becomes more vital across devices.
3. Greater demand in more regions stresses conventional network cost models.
4. As more dispersed users are connected in different regions, traffic volumes sent back to central data centers consume all bandwidth, degrading user experience.
5. Traffic volumes that cross regions are typically sent through MPLS networks, which cannot guarantee quality of service (QoS) for jitter and latency.



Steps

1. Place digital edge nodes in new population centers, adding cloud interconnections and business interconnection opportunities.
2. Mesh nodes together and localize services to the nodes, which will offload network traffic to the edge mesh, relieving the need to expand bandwidth back to the centralized data center or through MPLS or public internet; therefore managing network volume efficiently.
3. Expand interconnections to new digital ecosystems leveraging service chains and SDN/NFV to manage volume distribution across the edge-to-edge mesh.
4. Implement a dispersed, self-healing disaster recovery (DR) strategy, where every digital node has multiple connections, preventing a single point of failure.
5. Add caching repositories to optimize data transfer based on policies.



Forces

- Growing in the digital economy requires expansion into new geographic markets.
- Expansion into new regions with new partners cannot wait months for standard IT deployments.
- Cost pressures require that more services get pushed to the cloud in more locations.
- The proliferation of devices and their expanding capabilities per user in a growing mobile workforce is unsustainable using traditional network architectures.
- Centrally planned capacity management cannot meet demand.



Results

- Technical**
- Demand is managed at the local level, alleviating global network congestion.
 - Dynamic routing enables self-healing in the case of local bottlenecks.
 - DR is more efficiently processed across the mesh.
- Business**
- Easier, faster expansion into new geographic markets.
 - Create partnerships to enable regionally tailored business models on a global scale.
 - High-quality user experience maintained across regions while cutting communication costs as volumes grow.
- Potential New Challenges**
- Local dispersion of volumes will need timely, regionalized regulatory compliance.

Reference View

