



Problem

It's difficult to deliver a positive user experience when the physics of network distance degrades collaboration responsiveness due to latency causing real-time interaction delays.



Solution

Control as much of the user experience as possible by shortening the distance to the edge where your users are. Provide a positive user experience for highly interactive workloads that require bi-directional real-time interaction (i.e., videoconferencing). Consolidate and interconnect network endpoints at a digital edge near a large density of users to localize, control and segment that traffic, greatly improving user experience. Place jitter- and latency-sensitive collaboration services at the edge by leveraging cloud-based SaaS. All local collaboration traffic will be routed through the digital edge node near those connected users. Introduce the required security services to guard against identity theft and attacks.



Constraints

1. Real-time collaboration software is highly sensitive to jitter, latency and response time.
2. SaaS-based collaboration services do not solve for the distance to the edge, creating response delays.
3. A good user experience can only be assured on the corporate network (that is often centralized), but the growing trend is for users to be mobile and remote (decentralized).
4. Cloud-based collaboration interaction across the internet is unreliable and insecure.
5. Investing in significant capital expenditures for bandwidth is not cost-effective. Increasing MPLS usage will not guarantee lower latency, which is critical in minimizing jitter.



Steps

1. Establish or leverage a geographic hub based on population and business intersection advantages for a region.
2. Solve the last-mile problem via Metro Ethernet instead of MPLS (T1, etc.).
3. Consolidate endpoint management for all traffic sources and types, including the internet.
4. Directly connect cloud services at the edge to enable responsive local collaboration for all nearby users.
5. Segment and control regional traffic at the edge, minimizing latency and response time.
6. Apply traffic management to load balance traffic across your network fabric.
7. Introduce security services at the edge to ensure data privacy and guard against theft and attacks.



Forces

- The number of users in different locations consuming large amounts of data is growing at an accelerated pace as new business models and collaboration requirements emerge.
- Improved employee engagement is becoming critical to business success and employee retention.
- A positive user experience is heavily dependent on effective, real-time engagement.
- The workforce is becoming more geographically dispersed with increasing numbers of participants and activities requiring online and real-time collaboration.
- The concept of "office" location is changing as more users become mobile and must collaborate from warehouses, factories, vehicles, the field, cafes and their homes.



Results

- Technical**
- Localizing traffic in the hub shifts latency from ~20 ms/~20 hops to <1 ms/hop (or wire speed) with unlimited local bandwidth.
 - Consolidation of communication closets in office buildings provides a shorter path to networks and cloud services, reducing cost and increasing performance.
- Business**
- Reduce cost with increased connectivity choices.
 - Consistent, reliable, positive user experience that minimizes jitter, optimizes bandwidth utilization, and amplifies and accelerates cloud-based service adoption.
- Potential New Challenges**
- Managing growing user populations.
 - Extending cloud-based collaboration features while balancing security and complexity.

Reference View

