Optimization of UCaaS on the Equinix Network Edge

UCaaS apps suffer from internet performance

Unified communications as a service (UCaaS) is a software-as-a-service offering that delivers voice, video, and collaboration from the cloud in the form of enterprise messaging, presence technology, online meetings, team collaboration, telephony and video conferencing. UCaaS typically relies on a managed cloud offering and internet transport to reduce the management and OpEx burden of the customer, which leaves it reliant on the best-effort quality of service delivered by the internet and vulnerable to issues such as packet loss, delay, and jitter.

Since the application servers are hosted in the public or private cloud of the UCaaS provider, customers do not have the ability to deploy their own SD-WAN on-premises at the UCaaS provider. For this reason, Versa has partnered with Equinix to offer private Versa cloud gateways as a network service over the network edge. Versa Secure SD-WAN can deliver an assured application experience for UCaaS by deploying private Versa cloud gateways on the Equinix Network Edge platform.

Application-aware networking optimizes routing

The primary goal of a secure SD-WAN is to improve the application experience via an access-agnostic overlay network. Versa Secure SD-WAN measures the path performance, Mean Opinion Score (MOS) and Versa Link Score metrics to steer the packets for each application over the best path. Versa Secure SD-WAN also accelerates the applications and applies network impairment mitigations to improve the application experience when the underlay networks are experiencing issues.

The typical business now has more than 100 applications crossing their network, with many large enterprises using multiples of this figure, with each type of application having different network requirements. For example, a real-time application such as video or voice may tolerate limited packet loss, but is extremely sensitive to delay and jitter. Finance transactions need a reliable and secure network with little delay. In order to provide the best application experience, Versa Secure SD-WAN deploys deep packet inspection technology to detect the applications being used in the network and automatically classifies the type of application. For each application, the network path is chosen which provides the optimal network experience, as defined by the relevant policy.

End-to-end monitoring plays an important role in ensuring application traffic is routed over the optimal path. The monitoring measures the IP performance between two SD-WAN edges across multiple paths in real time. Round-trip time (RTT), delay jitter and packet loss are important parameters which are measured in real time. These real-time metrics are taken into consideration to determine the application traffic path for each individual packet.

MOS-based traffic engineering makes use of codec-specific intelligence to choose the optimal route. For voice and video traffic, the MOS uses quality information to estimate the user experience. The MOS is much better at estimating how the current network performance impacts the user experience. Versa Secure SD-WAN measures the MOS for every individual voice and video session. Based on the MOS experienced on a path, the steering decision for voice and video packets is made.

Versa Secure SD-WAN implements forward error correction to improve the application performance by introducing redundancy into the flow. These additional packets allow the regeneration of dropped packets, thus reducing the percentage of dropped and delayed packets, and improving the voice and video quality. Packet cloning or replication has a similar effect by replicating the same packet on multiple access links.
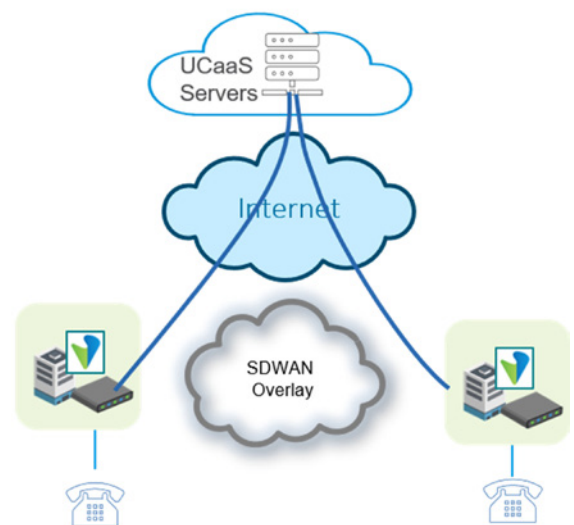

Figure 1 - UCaaS typically relies on internet transport and its best-effort quality of service, leaving it vulnerable to packet loss, jitter, and delay.

Private Versa cloud gateway in the Equinix Network Edge

Equinix Network Edge is a platform for virtual network services optimized to provide instant access to interconnections. The Equinix Network Edge platform leverages the ECX Fabric to provide interconnection between a multi-cloud environment and the secure SD-WAN overlay network.

UCaaS service providers provide private connectivity for enterprises via Equinix Network Edge. Enterprises can instantiate a private Versa cloud gateway on the Equinix Network Edge to create a private UCaaS acceleration node. This effectively extends the Versa Secure SD-WAN network all the way to the edge of the UCaaS servers nearest the user to ensure superior voice and video services, enabling an end-to-end secure SD-WAN connection..

Voice, video and other unified communications traffic originating in the branch is transported over the secure SD-WAN to the private Versa cloud gateway. Versa Secure SD-WAN application acceleration and performance improvement techniques such as SLA Monitoring, MOS-based traffic steering, forward error correction and packet cloning are applied between the branch and the private Versa cloud gateway and contribute significant improvement to the voice, video, and collaboration quality experienced by end users.
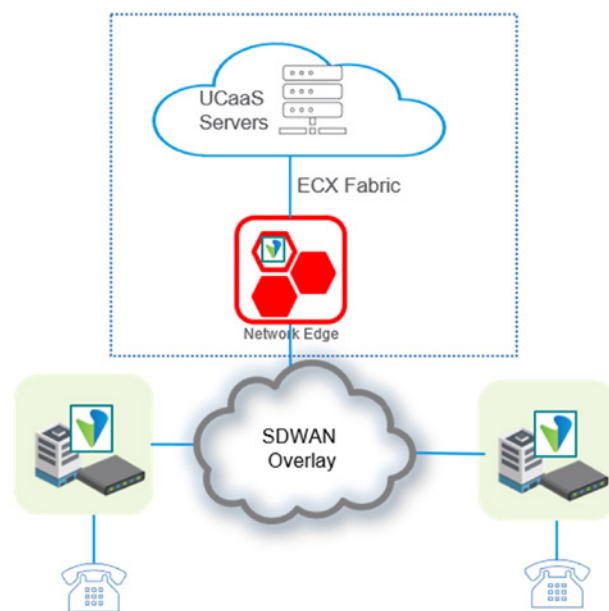

Figure 2 - Enterprises can instantiate a private Versa cloud gateway in the Equinix Network Edge and extend Versa's secure SD-WAN all the way to UCaaS cloud locations.

Private Versa cloud gateways in the Equinix Network Edge may be deployed in a geo-redundant configuration to ensure failover in case of failure of one of the Equinix Network Edge appliances. Versa Secure SD-WAN supports direct routing to the internet, thus ensuring application availability even in the event of a failure in the hub sites.

Ensure a high-quality user experience

Voice, video, and collaboration applications are business-critical, and providing a high-quality user experience for these cloud-hosted applications is an absolute requirement. Private Versa cloud gateways deployed in Equinix datacenters mitigate internet quality issues faced by UCaaS applications by extending Versa's secure SD-WAN all the way to the UCaaS cloud locations.