SD-WAN 2.0

All are Welcome !

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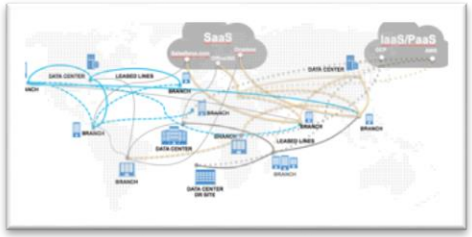
Businesses Blocked by WAN Challenges

Branch deployment
Complexity

X

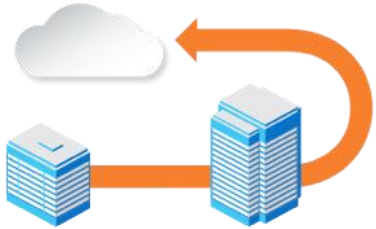


App Performance / Bandwidth
Expense & Constraint Issues

X

Cloud migration Not supported
by static architectures

X



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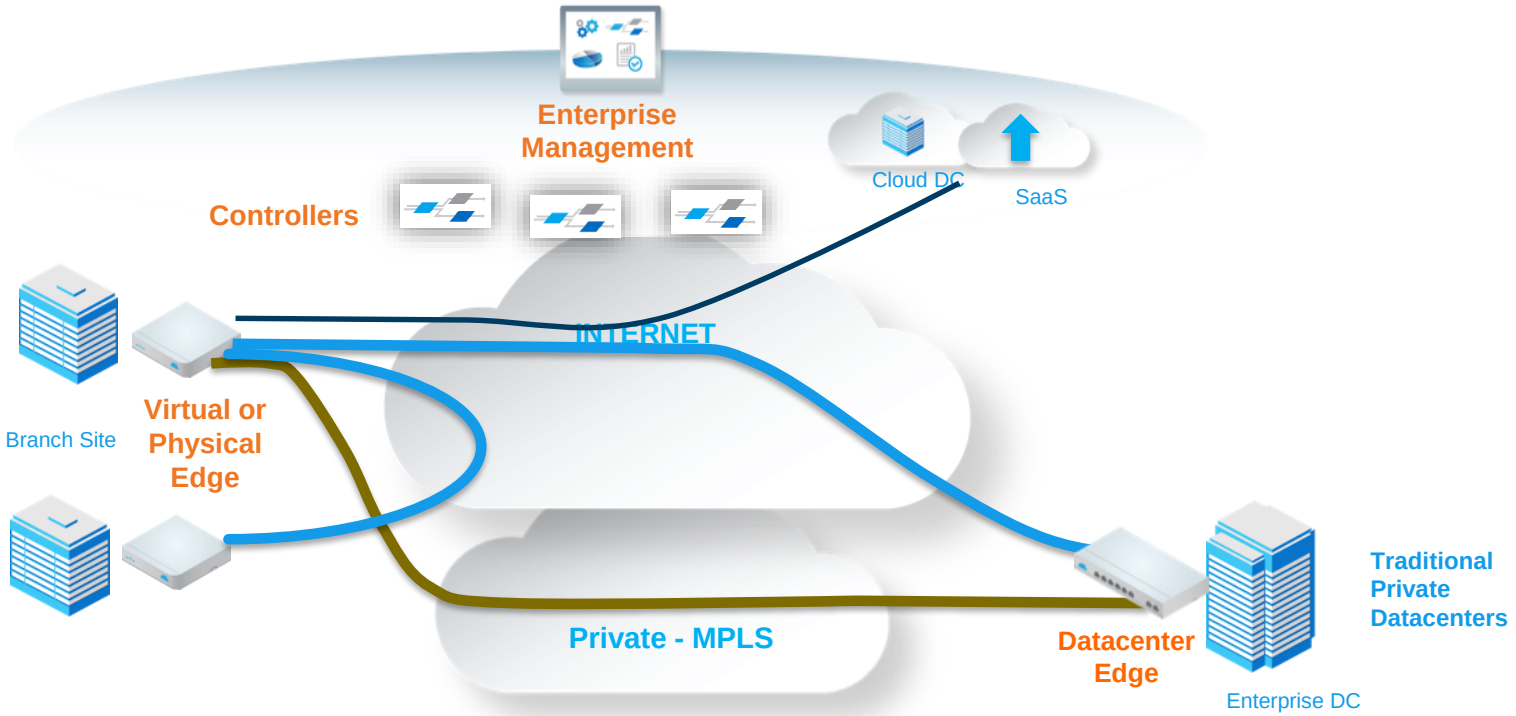
Why Software-Defined WAN

Requirement	
Simplicity & Manageability	• Simplify and expedite new branch rollouts, and configuration across large number of sites
App performance	• Ensure performance and availability of apps, especially real-time
Bandwidth & Transport cost	• Leverage economical bandwidth additions
Cloud migration	• Optimize access to multiple cloud destinations, with performance, security and manageability

SD-WAN 1.0

Private & Internet circuits for Enterprise



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SD-WAN 1.0 Goals

- End 2 End OTT
  - Building Overlay Tunnels across the WAN links between the CPEs
  - Using OAM mechanism for SLA monitoring
  - User defined Business Rule to select the optimal path.
- Provide connectivity to VPC as the option through Virtual Edge
  - Migration to the Public Cloud VPC
- WAN optimization with SD-WAN
- Target MNC Enterprise
  - Cost saving at the expense of revenue of service provider providing lease lines and international VPN to enterprises
- Target SP for Managed Service Provider

SD-WAN 1.0 – Reality Check

- Great Momentum in US and Lack of Adoption in APAC
- What's Wrong?
  - End to End OTT
    - Not possible to guarantee QoS in long haul – hot potato routing
    - Failover time in seconds or ten of seconds
    - Unpredictable QoS (latency, loss, and jitter) making the overlay over Broadband link unusable.
  - Provide connectivity to VPC as the option through Virtual Edge
    - Much more enterprises makes use of SaaS than IaaS.
  - WAN optimization with SD-WAN
    - WAN optimization (caching, deduplication, bundling) assumes lossless medium like MPLS/lease line and with no encryption which is not true in case running the service over internet and end to end encryption between enterprise and SaaS
  - MNC enterprise
    - Long haul connection over Internet is unpredictable. Impact on Enterprise Voice and ERP

Service Provider left out in the cold in SD-WAN1.0

Lack of Multi-tenancy Capability on the Control Plane

- One set of management system per enterprise is hardly scalable.

Lack of Multi-tenancy capability on the Forwarding Plane

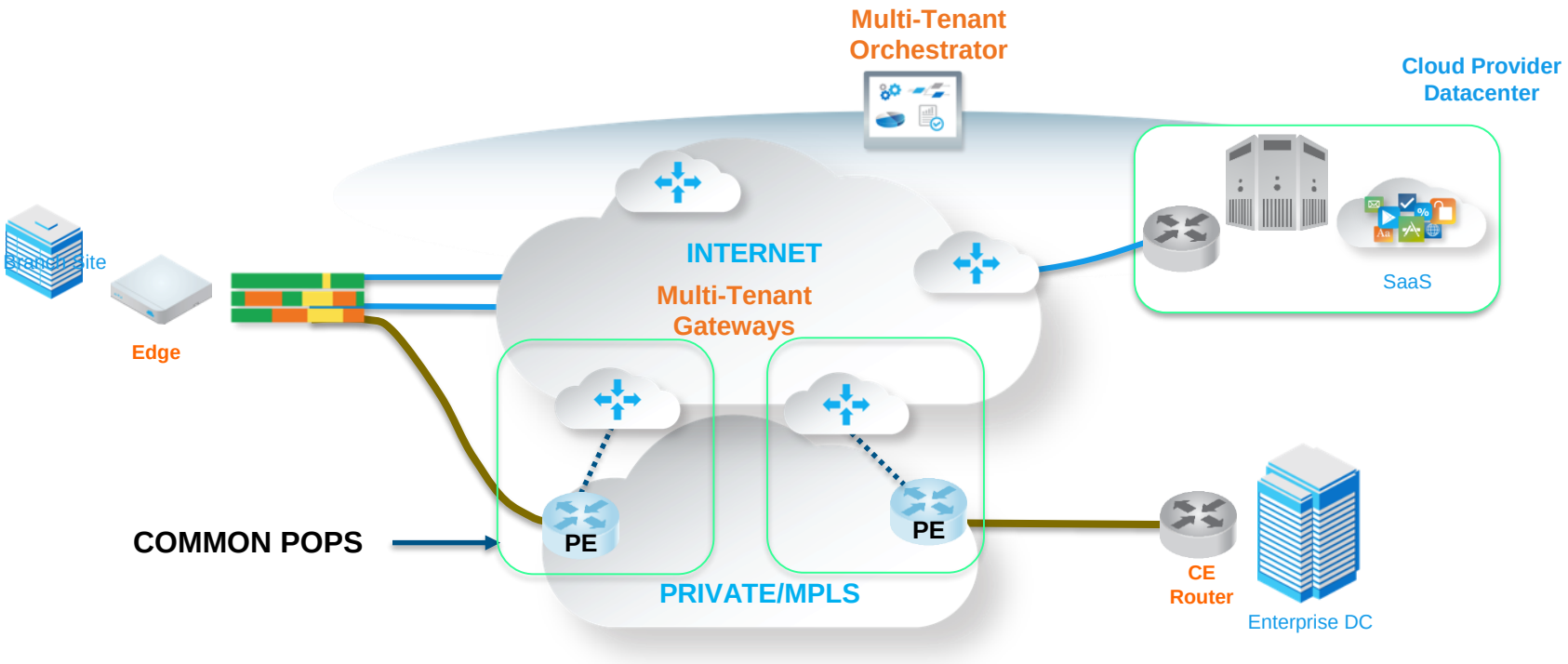
- No option to integrate with their SP DC and MPLS BB infrastructure

No QoS Guarantee

- Cannot sell easily as there is no tool to mitigate quality issue with the last mile.

Very little differentiation if everything is OTT and view this as the risk more than opportunities

SD-WAN 2.0
Hosted Gateways For Service Providers



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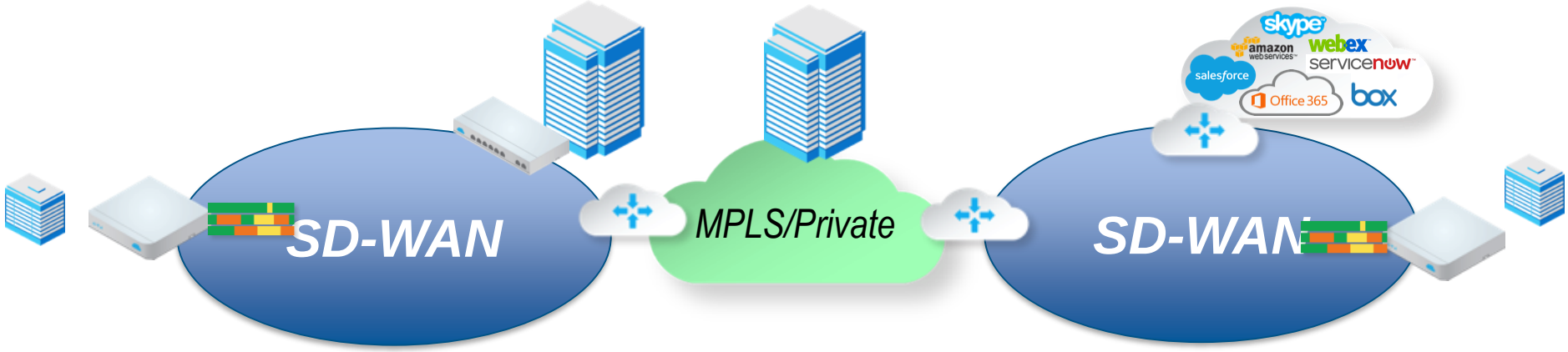
SD-WAN 2.0

- As an option, OTT only for last mile and MPLS backhaul for Mid to Long haul
  - Lower the cost of last mile and shorten the time to deploy making use of different access technologies
- Multi-tenancy Gateway deployed in the “Cloud”
  - To improve the connectivity to the SaaS from enterprise
- Service Guarantee with measures to enhance the reliable application delivery over internet
  - Enterprise can run voice and ERP application over internet with confidence.
- Multi-tenant Control Plane and Forwarding Plane
  - Do more with Less – a solution that can readily deploy

Hybrid “Regional WAN” Topology



- **Private network connects regional SDWAN domains**
- Branches cross regions via private net
- Dynamic branch to branch only within a region

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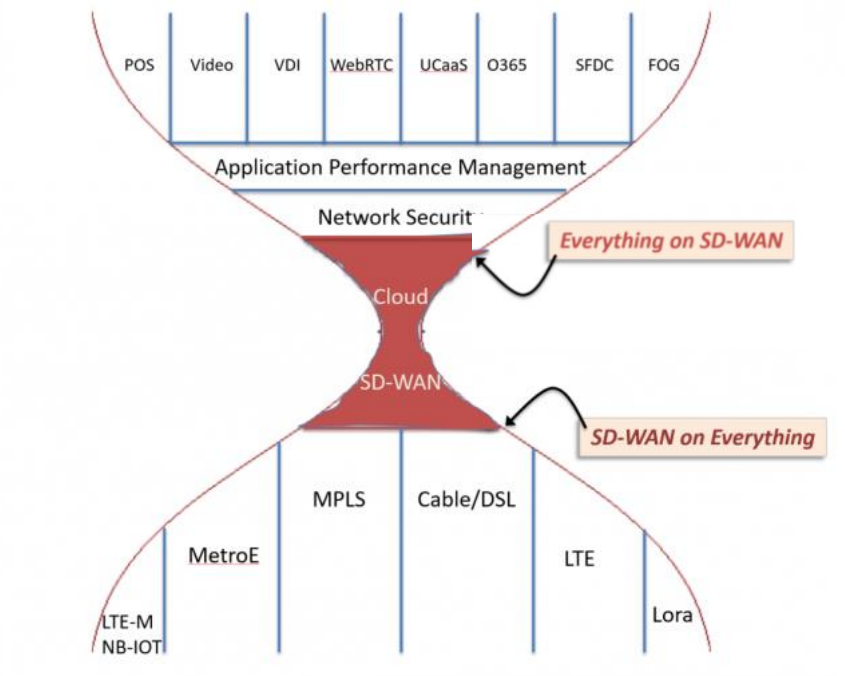
“Cloud is the Network” Architecture

- SD-WAN as the Platform
  - the specifics of how each transport (MPLS, Broadband, LTE, LPWAN…) operates is abstracted to provide a simpler control mechanism.
- *”X on Everything and Everything on X “*
  - *“IP on Everything and Everything on IP.”*
  - *“SD-WAN on Everything and Everything on SD-WAN.”*



Early Adopter for SD-WAN as the Platform

EarthLink is finding that its SD-WAN message is resonating as the competitive provider has deployed the solution for 41 customers across 1,706 locations.

The number of customers that have signed up for SD-WAN illustrate a rapid ramp and acceptance of a service that EarthLink only debuted in September.

EarthLink noted that 95% of these customers have opted for EarthLink SD-WAN, illustrating customers' growing interest in EarthLink's fully managed services that are built on personalized and proactive expert guidance.
A number of multi-location connectivity customers in various market segments, including Entertainment (672 locations), Restaurant (203 locations) and Building Materials (153 locations), have cited interest in SD-WAN.

One of EarthLink's key customer wins is a 400-restaurant contract with national restaurant chain TGI Friday's. EarthLink is providing a full suite of services to TGI Friday's including SD-WAN Concierge, MPLS, Cloud Express and Hosted Voice.
…
Earlier this year, EarthLink, in collaboration with Boston Retail Partners, debuted its Unified Communications as a Service (UCaaS) offering, which relies on SD-WAN to provide a fully managed, cloud-based communications platform with hosted voice.
…
The service provider told investors last year that it can use SD-WAN and Unified Communications as a Service (UCaaS) to potentially bolster the revenue-challenged SMB/CLEC business unit.

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Summary

- SD-WAN is gathering lot of tractions
- SD-WAN 1.0 has its major focus on “enterprises”, “automation” and “cost saving”.
- SD-WAN 2.0 enhanced the solution with focuses on delivering it “as a service” over internet “reliably” to the “cloud” through “managed service providers”
- What eventually SD-WAN means is the Network Re-architecture towards “Cloud is the Network” with SD-WAN acting as “Platform” to delivery Applications over different WAN technologies.

SD-WAN 2.0 – All are Welcome

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