



# China Unicom Global SD-WAN Product

# Content

- 1 Why Choose SD-WAN
- 2 Requirements from Customers
- 3 CUG SD-WAN
- 4 Usage Scenario of SD-WAN

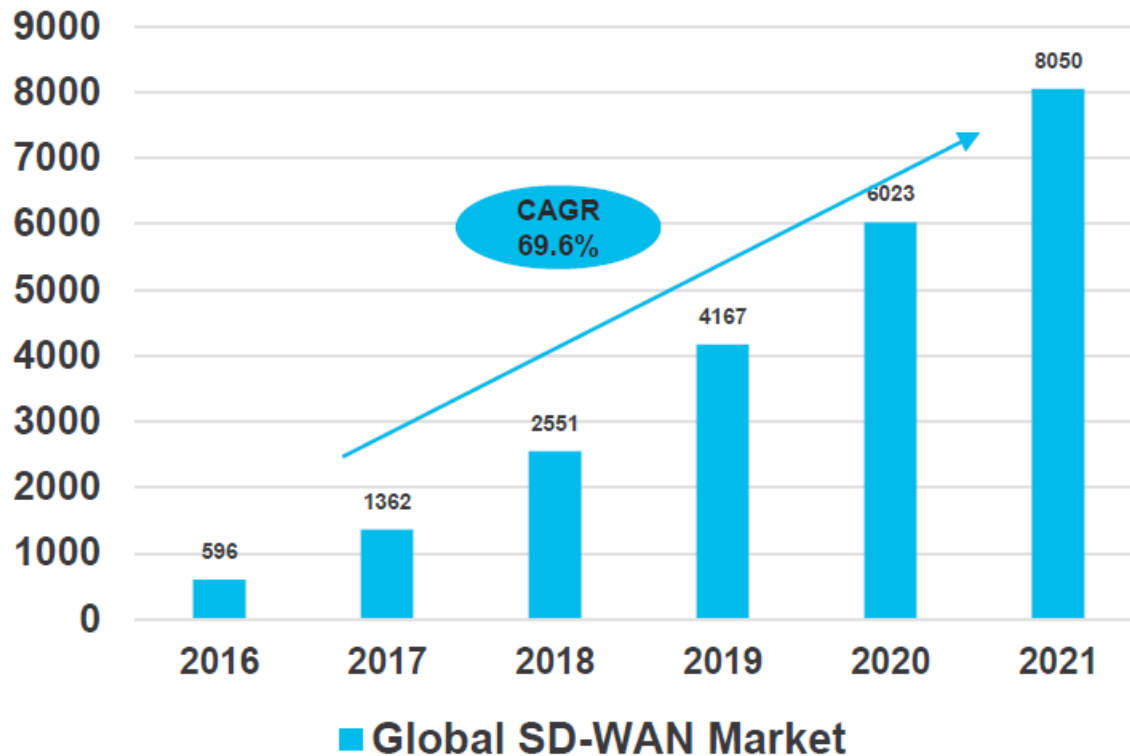
# **PART 01**

## **Why Choose SD-WAN**

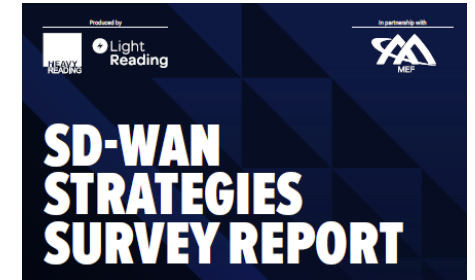
# Why Choose SD-WAN

From the market perspective, using SD-WAN has become a trend

2016-2021 Revenue(\$M) with CAGR

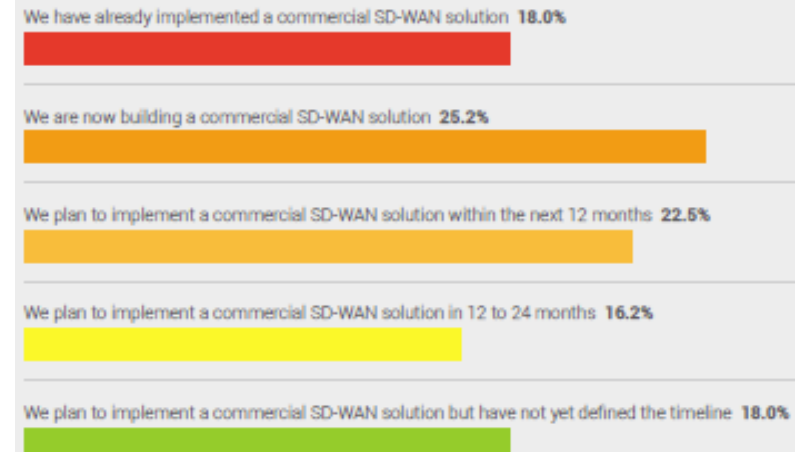


According to the report published by MEF and Light Reading after a survey to more than 100 telecom service providers:



- ❑ 18% have deployed commercial SD-WAN
- ❑ 25.2% are deploying SD-WAN
- ❑ 22.5% are planning to deploy SD-WAN in one year

Which of the following statements best matches your company's current position regarding SD-WAN?





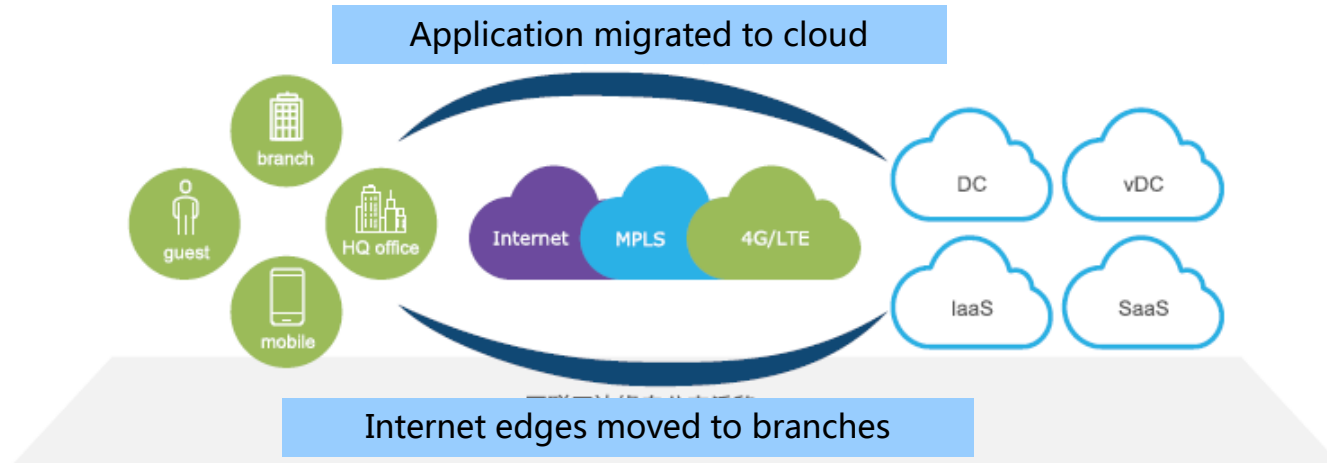
# PART 02

## Requirements from Customers



# Requirements from Customers

Conflict between new requirement and traditional architecture



**Simplify Setup & Maintenance:** Equipment can be set up automatically and managed in a centralized way, support flexible deployment policy.

**Lower Circuit Cost:** Integrate internet and leased line, improve bandwidth usage, substitute leased line with internet.

**Improve Bandwidth Usage:** Smart detection to key application, intelligent application-aware routing policy

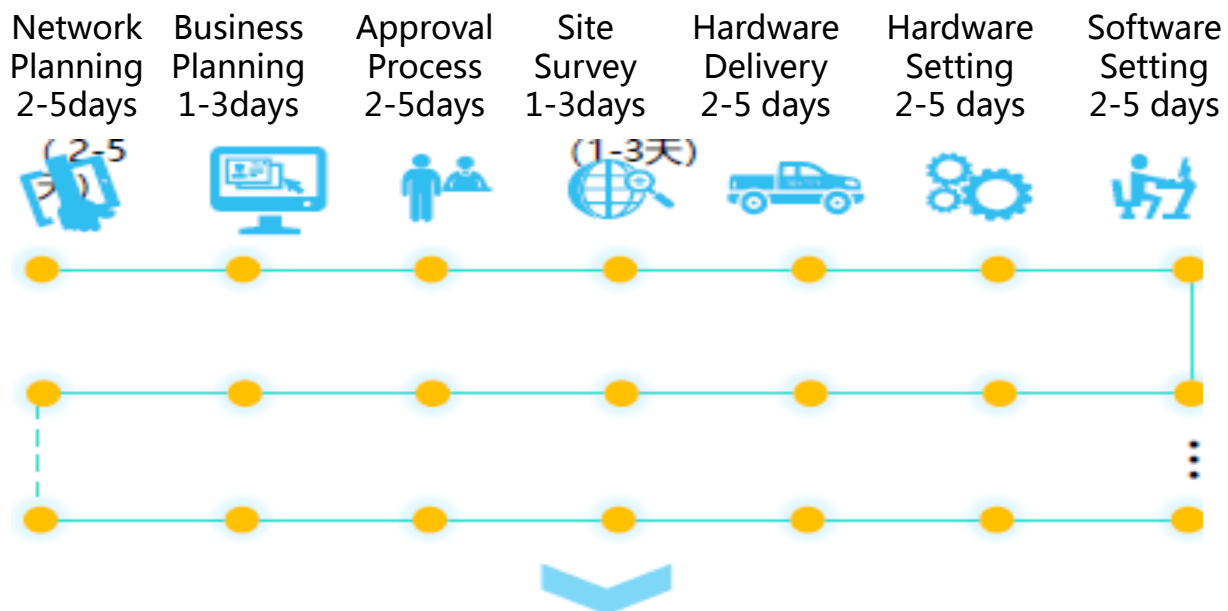
**Enterprise Moving to Cloud:** Enhanced cloud access experience, integration of public cloud and private cloud



# Requirements from Customers

## Simplify Setup & Maintenance

- Need on-site manual setup, usually take a long time to deliver
- Lack of IT technical manpower for branch offices (especially small branches)



- Remote setup, plug and play
- Very low IT technical requirement to enterprise staff



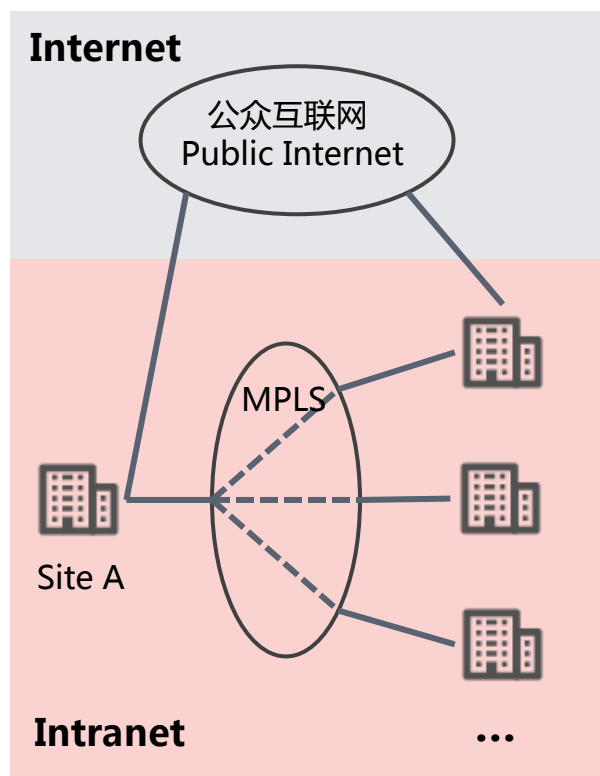
**SD-WAN:** delivery time can be shorter to one DAY.  
(Expect there already exist Internet connection)

# Requirements from Customers

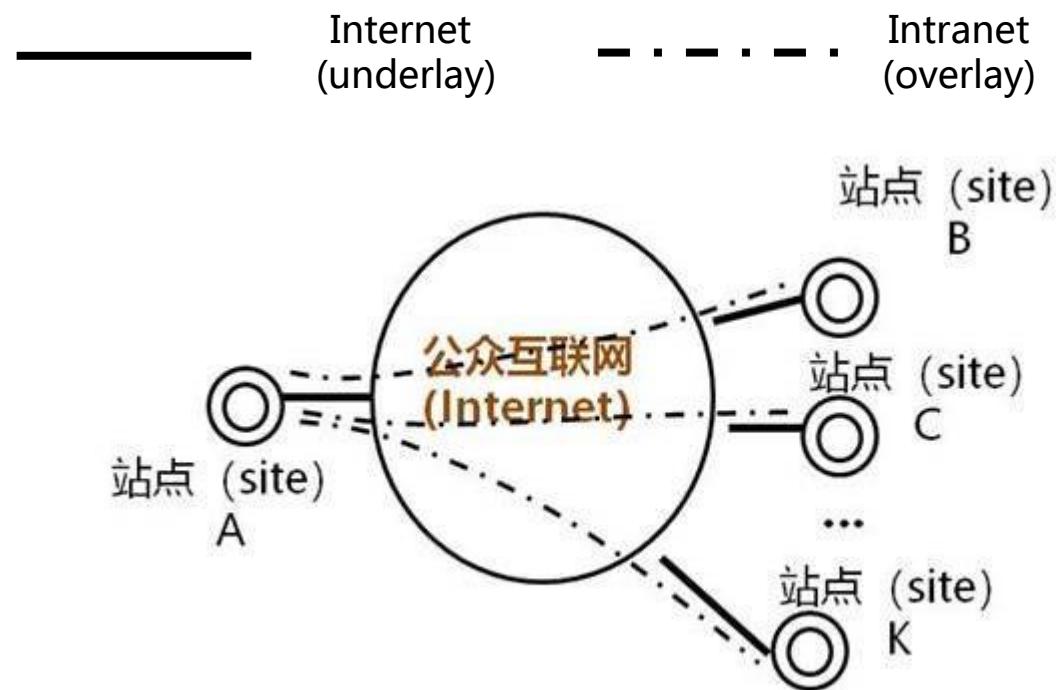
## Lower Circuit Cost

**Internet:** Internet access, internet surfing + accessed by internet users

**Intranet:** internal networking, interconnect internal sites and enterprise application systems



**In the pass:** broadband internet access + leased line interconnect



**From Now on:** broadband internet access + SD-WAN interconnect (will mainly use internet as underlain network )

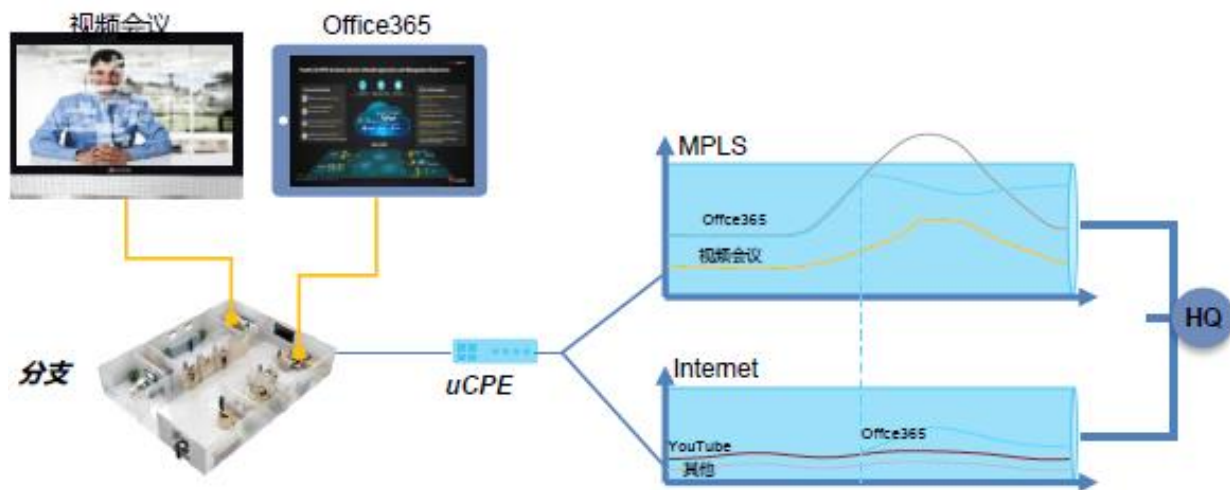


# Requirements from Customers

## Improve Bandwidth Usage

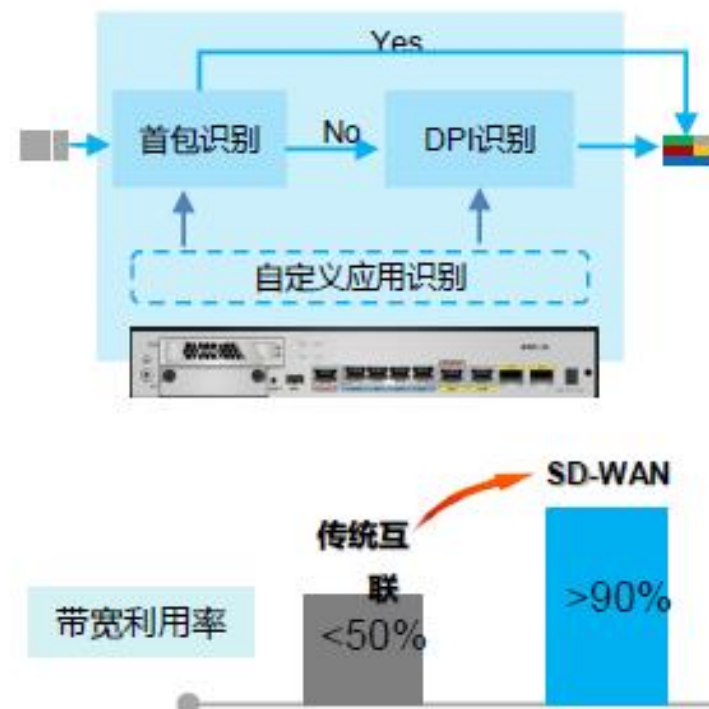
### Legacy Network:

During business peaks, it's hard to discriminate critical business application, bad user experience



### SD-WAN:

Intelligently identify critical application, application-priority load sharing and routing



# Requirements from Customers

## Enterprise to Access to Cloud

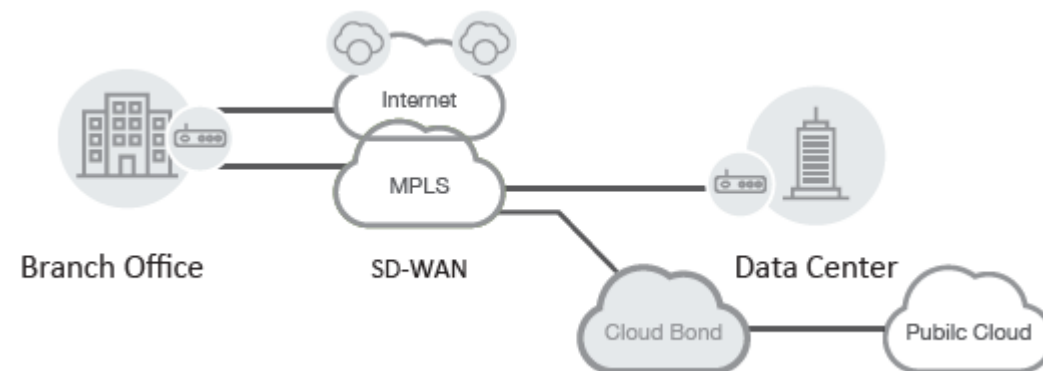
### Legacy:

Need to purchase leased lines to connect to their private cloud and public cloud; cost is high and bandwidth is rigid



### SD-WAN:

SD-WAN is compatible of hosting on cloud or it can work with CUG Cloud Bond, to address the last mile cloud access issue for all branch offices.



# **PART 03**

## **China Unicom Global SD-WAN**



# China Unicom Global SD-WAN

## SD-WAN Architecture

Assist in the automatic onboarding of the SD-WAN routers into the SD-WAN overlay

Responsible for central configuration and monitoring

Build and maintain the network topology and makes decisions on where traffic flows

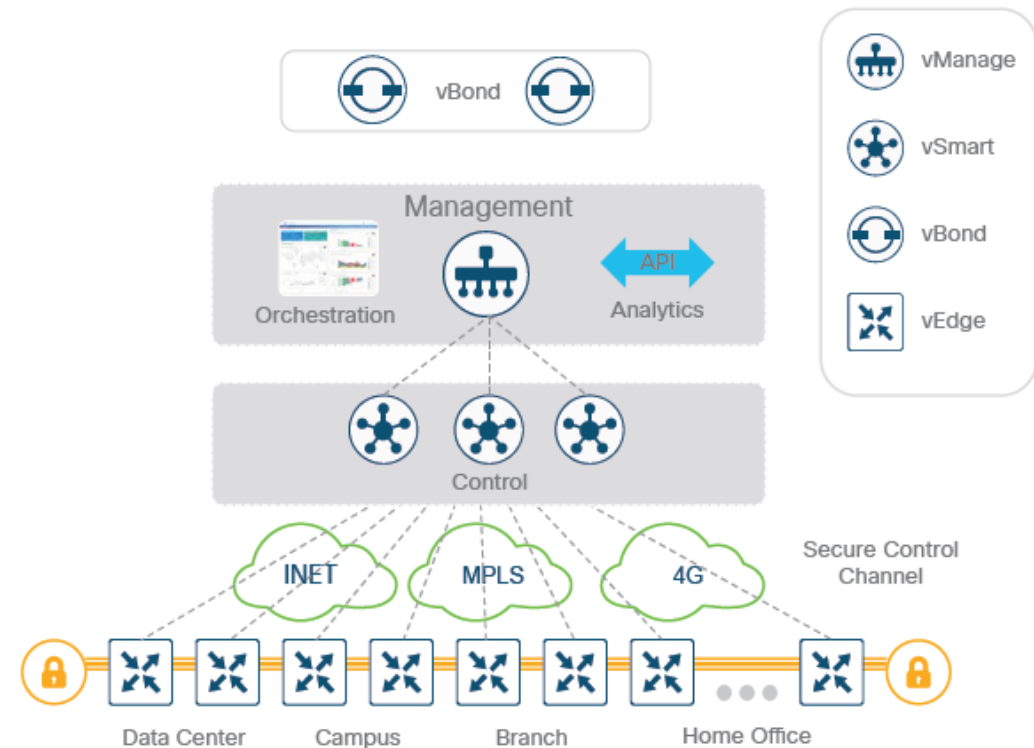
Responsible for forwarding packets based on decisions from the control plane

Orchestration plane

Management plane  
(Multi-tenant or dedicated)

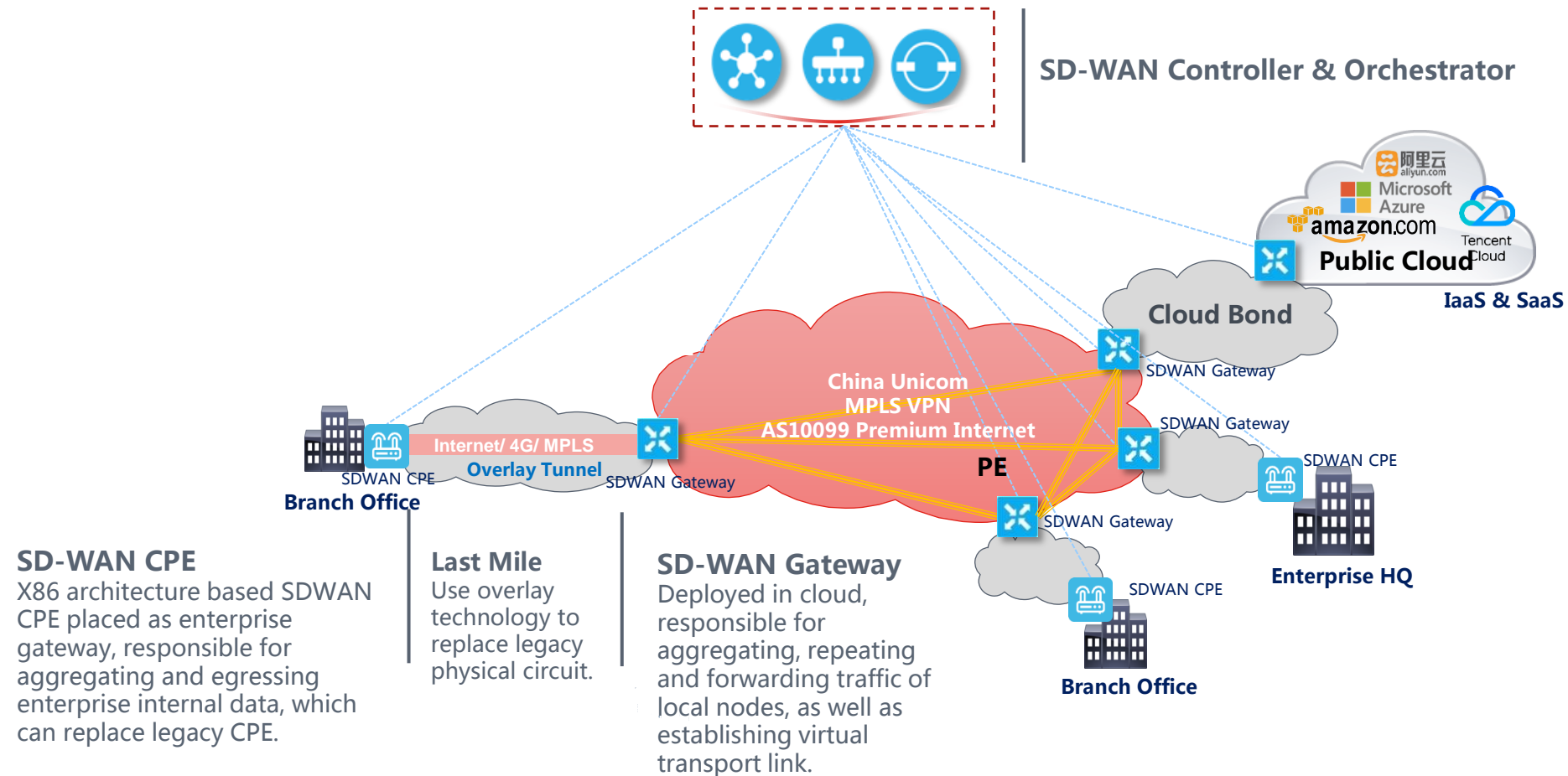
Control plane  
(Containers or VMs)

Data plane  
(Physical or Virtual)



# China Unicom Global SD-WAN

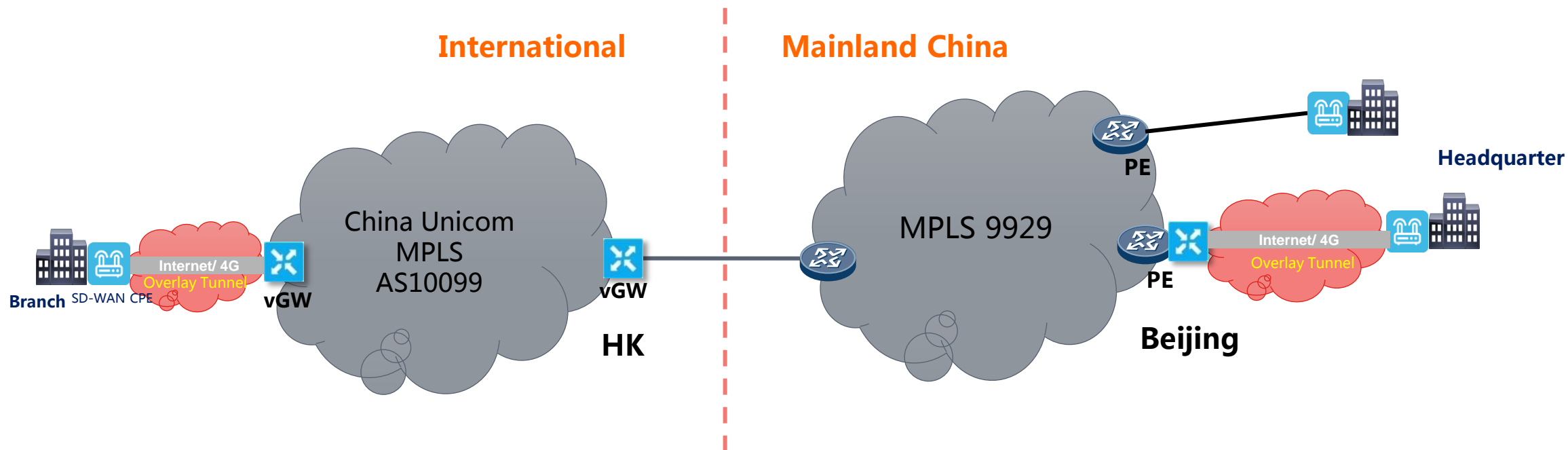
## China Unicom Global SD-WAN at a Glance





# China Unicom Global SD-WAN

## Cross Border SD-WAN Solution

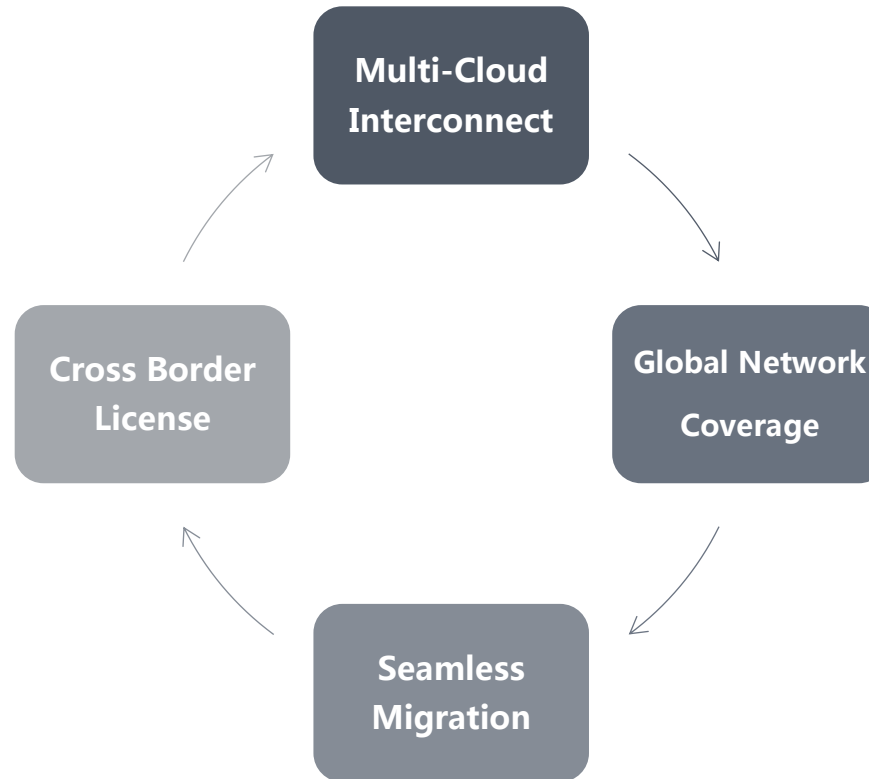


# China Unicom Global SD-WAN

## Our SD-WAN Differentiation

Integrated with China Unicom Cloud Bond, a cloud connection platform where you can access to multi-cloud environment.

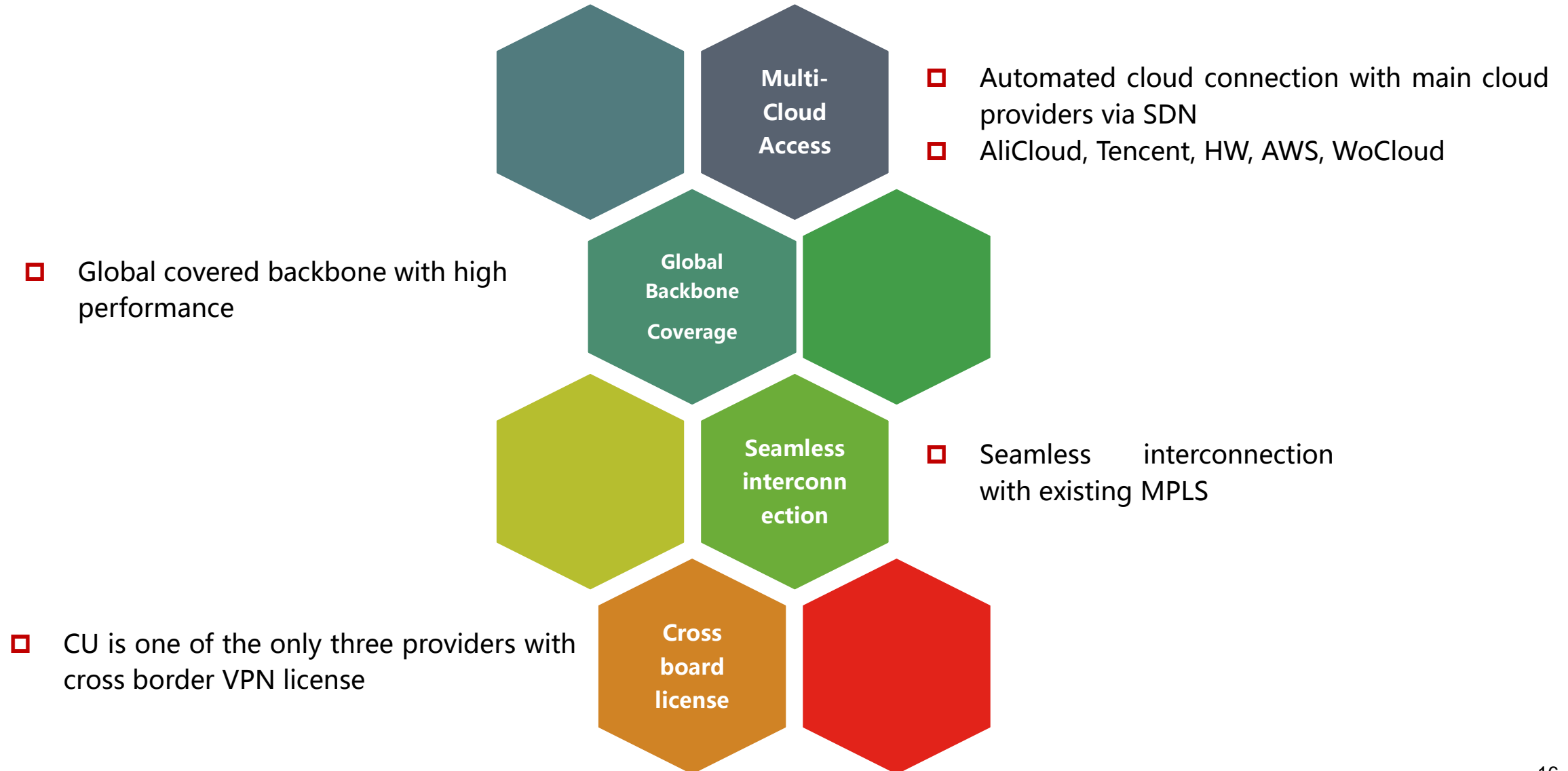
CU is one of the only three carriers with cross border VPN license who can provide regulatory compliance link between China and international.



Globally covered robust network infrastructure providing high performance connectivity

Seamless migration and compatible with existing MPLS/ broadband network

# Advantages of CUG SD-WAN



# China Unicom Global SD-WAN

## Global SD-WAN PoPs



# PART 04

## SD-WAN Usage Scenario

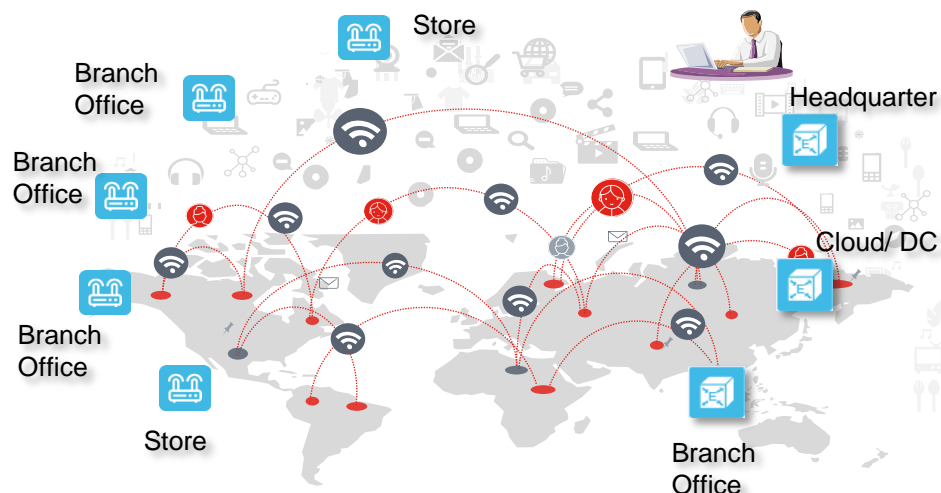




# SD-WAN Usage Scenario

## Enterprise Network Deployment

### 1 Scenario Description



There are 3 major types of users for network deployment:

- **Stores** – small size but large quantity
- **Enterprise Group** – large size with comprehensive requirement, some business hosted in cloud
- **Campus** – distributed closely, large quantity of enterprises, require isolation between tenants.

### 2 Pain Points :

- Legacy leased line requires a high cost and long delivery time (1-3 months), slow update circle.
- Cannot identify the traffic allocation situation, low bandwidth usage, complicated maintenance process.

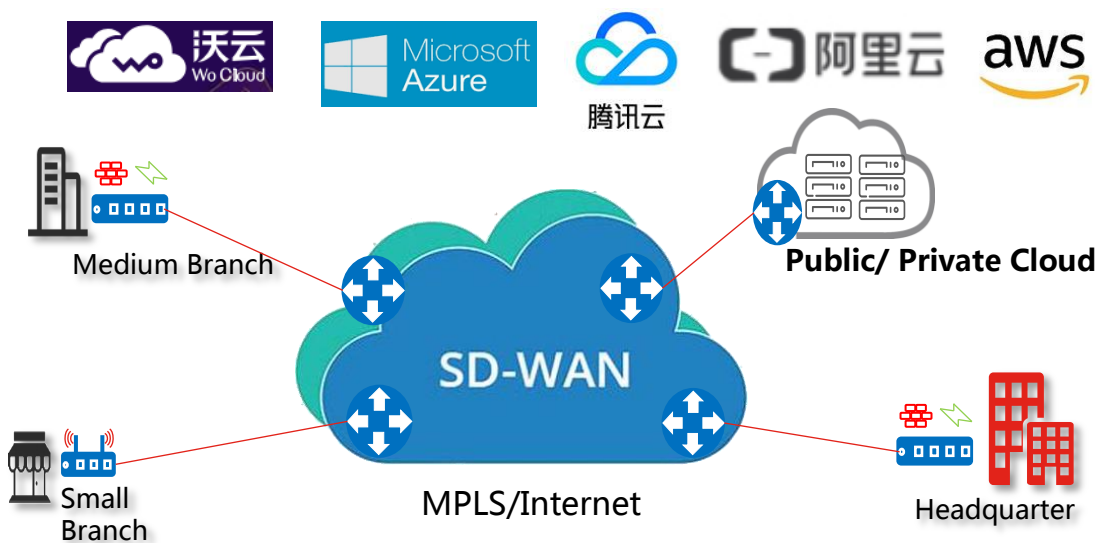
### 3 SD-WAN Solution Differentiation

- **Rapid Deployment** : Deployment time can be shorter from 1-3 months to half an hour compared with legacy leased line.
- **Centralized Management**: Visible to orchestration, centralized monitoring, accurate QoS, simplified maintenance.
- **Lower Cost**: 1/3 of the price of leased line, or even less.
- **Link Acceleration**: Acceleration to long distance/ international links, lower latency.
- **Flexible Bandwidth**: Branch Office bandwidth range can be 1Mbps-10Gbps.

# SD-WAN Usage Scenario

## Enterprise to Access Cloud

### 1 Scenario Description



- With the development of business, enterprises have increasing demand on flexible network and computing resources. More and more enterprises are hosting their applications to cloud environment.

### 2 Pain Points

- Enterprise to access to cloud requires manual configuration from professional technical staff, which could take a long time, not efficient, complicated to adjust
- There exist bottleneck to use legacy leased line to access cloud as dynamical and real time bandwidth adjustment will not be allowed.

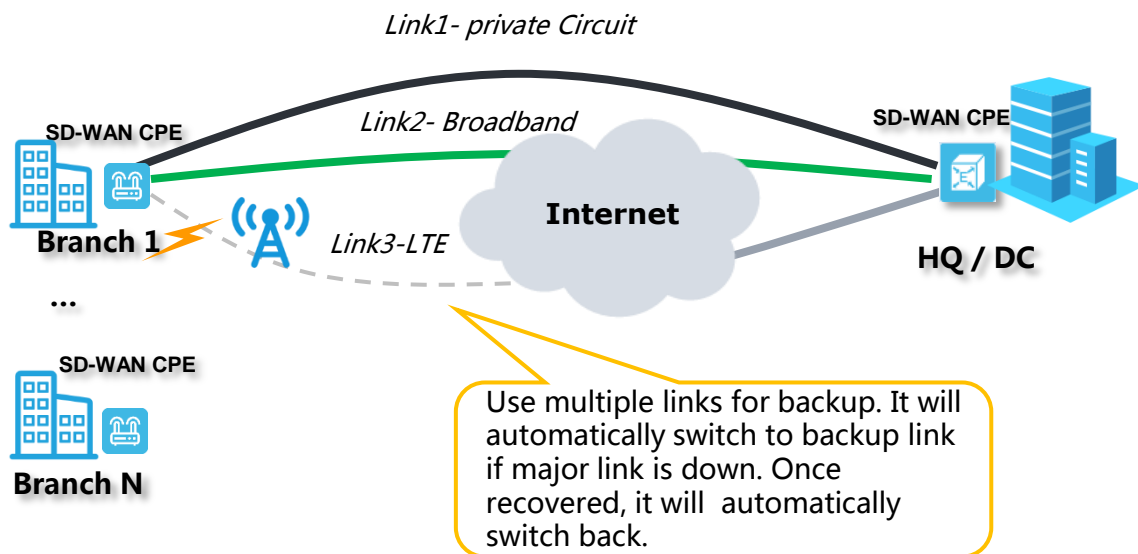
### 3 SD-WAN Solution Differentiation

- **Rapid Deployment:** Already integrated with Cloud Bond, branch office can use SD-WAN to address the last mile cloud access issue. Deployment time can be shorted to half an hour from 1-3 months compared with legacy leased line.
- **High Compatibility:** Compatible with all major cloud access solution, resting assured customers' concern.
- **Interconnect between Clouds:** High speed reliable interconnections are ready between public cloud and public cloud, public cloud and private cloud, private cloud and private cloud.
- **Multi-Cloud Access:** Support multiple public cloud access such as Alibaba, Tencent, Azure, AWS, Wo Cloud etc.

# SD-WAN Usage Scenario

## Use SD-WAN as Backup Link

### 1 Scenario Description



- Backup link are widely used in scenario where there requires interconnection between branches, as well as data transmission.

### 2 Pain Points

- There exist only one link per branch, once the link is down, the business will be interrupted and economy loss will occur.
- Using leased line as backup link can be very expensive; takes a long time to deliver and inconvenient to maintain
- Some sites may lack of network resource and not feasible to use leased line.

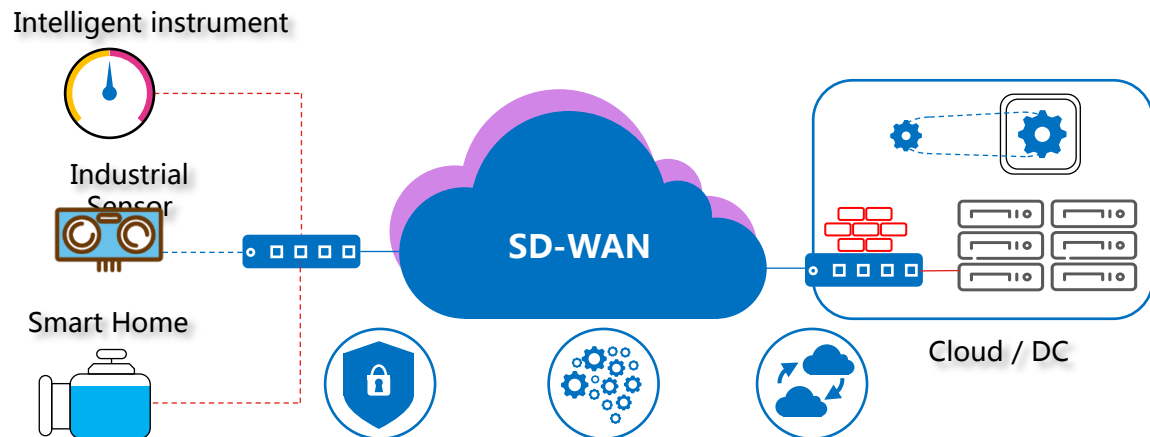
### 3 SD-WAN Solution Differentiation

- **Backup Link:** SD-WAN support multiple types of backup links including legacy leased line, broadband and LTE. Different links can backup with each other, achieving high availability.
- **Complementary Link:** LTE access type can be used as a complementary link for sites where there is not leased line resource.
- **Intelligent Routing:** Intelligently choose best rout according to different link quality, improving availability and reliability.

# SD-WAN Usage Scenario

## IoT Data Transmission

### 1 Scenario Description



- IoT customer need to transmit the collected data from IoT sensors to customer's IoT application platform using L2TP tunnel.

### 2 Pain Points

- Setting up a leased line tunnel could take a long time, expensive and not easy to maintain.
- The large amount of LNS equipment customer purchase lack of centralized management and not easy to maintain, limiting further development of IoT business.

### 3 SD-WAN Solution Differentiation

- Rapid Deployment:** Deployment time can be shorted to half an hour from 1-3 months compared with legacy leased line.
- Centralized Management:** Visible to orchestration, centralized monitoring, accurate QoS, simplified maintenance.
- Lower Cost:** 1/3 of the price of leased line, or even less.

# Thank You