Intelligent Policy Controlled Service Management
- Introduction of SUPA Use Cases
  (SUPA: Simplified Use of Policy Abstractions)

Ying CHENG
China Unicom
(1) policy manages and can adjust service behavior as necessary
(2) policy manages and can adjust resource behavior as necessary
(3) resource hosts service; changing resources may change service behavior as necessary
Use cases of SUPA

• **Applicability of SUPA** explores some typical use cases and demonstrates the applicability of SUPA policy models.
VPC (Virtualized Private Cloud)

- **Target**: Perform VM migration when user location changed and the network load between the DCs is low.

- **ECA Policy**:
  - Event: a VPC user's location is changed (near to another DC).
  - Condition: \( \text{network}_\text{load}(\text{DC}_{\text{old}}, \text{DC}_{\text{new}}) < \text{threshold} \).
  - Action:
    1. Migrate the VM to the new data center \( (\text{DC}_{\text{new}}) \).
    2. Update the VPNs connecting the user's services.

Cloud is referred to as a VPC

A public cloud operator can virtualize the cloud resources into multiple isolated virtualized private clouds and provide them to different tenants.

After the VM is moved to the new DC, the network related to the VM must be updated accordingly.
Instant creation of VPN

- CE should send authentication (with credentials) request to the PE, and PE should forward the request to the management system together with port/frame/slot on which the request is received, the PE ID etc.

- **Target:** Configure VPN for an enterprise customer to connect its enterprise network with VPC

- **ECA Policy:**
  - Event: service management system receive a CE request for VPN creation (forwarded by PE).
  - Condition: Authentication and Authorization results are OK.
  - Action: Configure VPN based on received request, including the user's grade and physical info (port/slot/frame/route id, etc, from which the request is received).

[Figure 8: Instant VPN]
Traffic optimization and QoS assurance on ISP DC

- **Target 1:** a DC has multiple external links. When the load on a link is over a threshold, perform traffic steering for a better bandwidth resource usage.

- **ECA Policy:**
  - Event: load on a DC link exceeds threshold or a VIP tenant needs bandwidth assurance.
  - Condition: DC has multiple external links.
  - Action: steer VIP's traffic to link with low load in a specific period

- **Target 2:** Tenants or users may have critical request on network QoS. When there is enough bandwidth along the link, perform resource reservation for VIP's traffic on specific links.

- **ECA Policy:**
  - Event: Tenants or users have critical network requests.
  - Condition: Resources along the link are enough for reservation.
  - Action: perform resource reservation for VIP's traffic on specific links.

- ISPs usually build DCs at the core network border, DCs have more than one uplinks to DC core network; In order to provide service assurance for import tenant, network administrators need to schedule the traffic in specific periods.

- When utilization of a link reaches a certain threshold, specific flows should be steered to a low load link according to IP address and AS number.

![Diagram of Traffic Optimization and QoS Assurance on ISP DC](Image)
Thanks for your attention!