QoE Assurance
for Enterprise Video Conference

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Background: video conference QoE assurance is a key requirement for modern enterprises

- Video conference often meets quality issues

  - Blurring

  - Stuttering

  - Connection lost

- Important meetings need strong QoE assurance

  - Vital internal meeting: project review, live leadership speech etc.

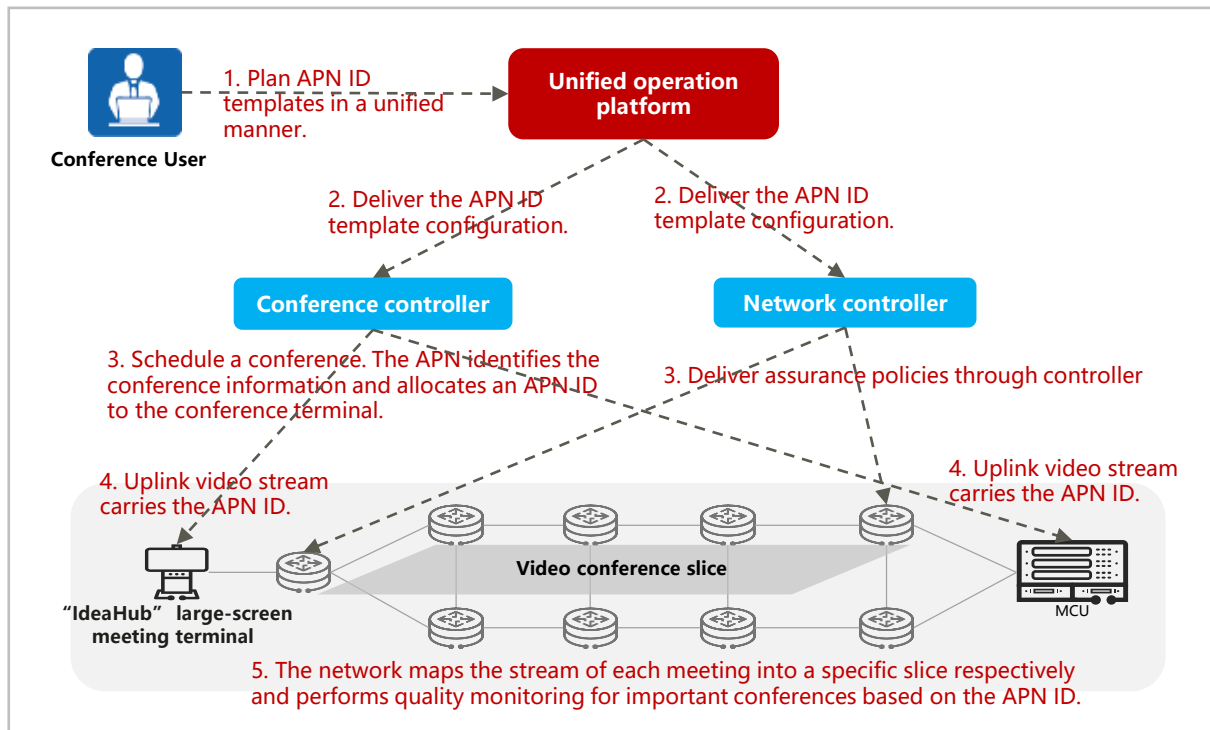 - Remote conference: SDO meetings, industry summits etc.

General Requirements for video conference QoE Assurance

- **Recognition**: traffic from high priority meetings could be automatically recognized by the network

- **Strong assurance**: the network could assure constant clear picture and zero stuttering through approaches such as resource reservation or queue scheduling etc.

- **Fault detection**: when failures happening, it could be automatically detected by the network

APN-based commercial deployment case in production network

Endpoint-Network collaborative video conference QoE assurance

Conference User

1. Plan APN ID templates in a unified manner.

Unified operation platform

2. Deliver the APN ID template configuration.

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Conference controller

Network controller

3. Schedule a conference. The APN identifies the conference information and allocates an APN ID to the conference terminal.

3. Deliver assurance policies through controller

4. Uplink video stream carries the APN ID.

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"IdeaHub" large-screen meeting terminal

Video conference slice

MCU

5. The network maps the stream of each meeting into a specific slice respectively and performs quality monitoring for important conferences based on the APN ID.

Problems:
- Frame freezing and blurring in 40% video conferences.
- Conference traffic is invisible, and O&M is difficult. The average fault locating time is hours.

Solution:
- Unified operation platform plans APN ID templates and delivers them to conference/network controllers
- Video conference controller sets the service level, stream type, and conference ID (after hash) according to the APN ID templates.
- Network controller deploys policies based on the APN ID, including OAM behaviors
- Network devices (routers) enforce policies and monitor the quality of important conferences.

Future Work

– More commercial deployment in various industries

– Extended APN use cases

- QoE assurance for other applications (collaborative working etc.)
- Fine-grained network access control

Thank you!