H.323 Videoconferencing Gateway

Project Code: TD4-03

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H.323 protocol has been employed in many videoconferencing applications. The audio and video quality is good as far as one to one videoconference is concerned. Since quality is directly proportional to the available bandwidth, it is inversely proportional to the number of participants.

In view of this disheartening situation, the introduction of high performance videoconferencing gateway between users seems to be a must. Our project developed a highly efficient videoconferencing gateway that supports H.323 multipoint videoconferencing. The gateway supports:

- Application Level Routing -- facilitates call making
- Bandwidth Management -- ensures stable bandwidth allocation
- Web-based Interface -- supports user-friendly configuration

Our system provides stable audio and video quality for multi users.
Components
- H.323 Library
  - Support H.323 protocol
- User Interface
  - Web-based interface
- Traffic Graphs
  - Provide the general network statistics of VCGW
- Connection Management
  - Connect and Disconnect to the terminals
- Linux Traffic Control
  - Limit the bandwidth of each connection
- Alias Name Translation
  - Enable users to call other users using their alias names instead of the IP addresses
- Application Level Routing
  - Routing connections through different VCGWs
- Registration
  - Support alias name translation and application level routing functions
Results

Step 1
When the users of Terminal A calls Terminal B by typing its name "B", Terminal A automatically sends a signal to inform VCGW A

Step 2
Based on the routing policy, VCGW finds the most suitable path to connect to Terminal B

Step 3
Connect to Terminal B

Assumptions:
1. Terminal A and Terminal B are running H.323 videoconferencing applications
2. Terminal A is registered in VCGW A
3. Terminal B is registered in VCGW B

The figure illustrates a scenario for the routing functions of VCGW

VCGW is able to limit the outgoing bandwidth of each connection

User 1
Max Bandwidth = 10kbits/sec

User 2
Max Bandwidth = 20kbits/sec

User 3
Max Bandwidth = 30kbits/sec

User 4
Max Bandwidth = 40kbits/sec

H.323 VIDEOCONFERENCING GATEWAY