



Open source High Definition Video Conferencing

Minisip, HDVIPER, HIPERMED and Carenet-se

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Introduction and history



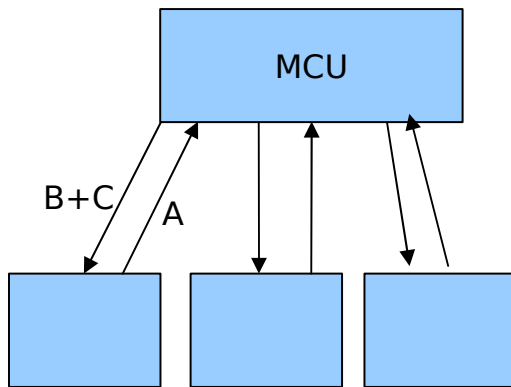
From Secure VoIP for handheld devices to HDVC in advanced setups

Protocols: SIP (w. TCP/UDP/TLS/DTLS/SCTP/SCTP-TLS), SDP, MIKEY (Diffie-Hellman, Pre-Shared-Key, RSA reverse mode), RTP, SRTP, ZRTP, STUN, TURN.

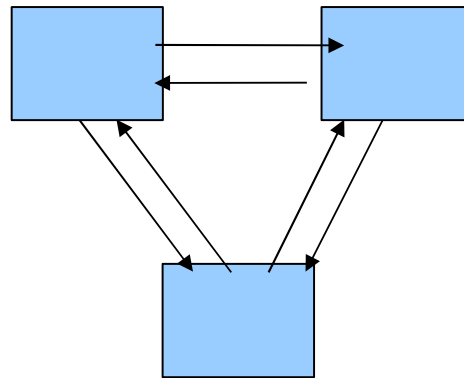
Audio/video: H.264 (x264), Speex, G.711, GSM, plugins.

Video conference architectures

Mixing MCU

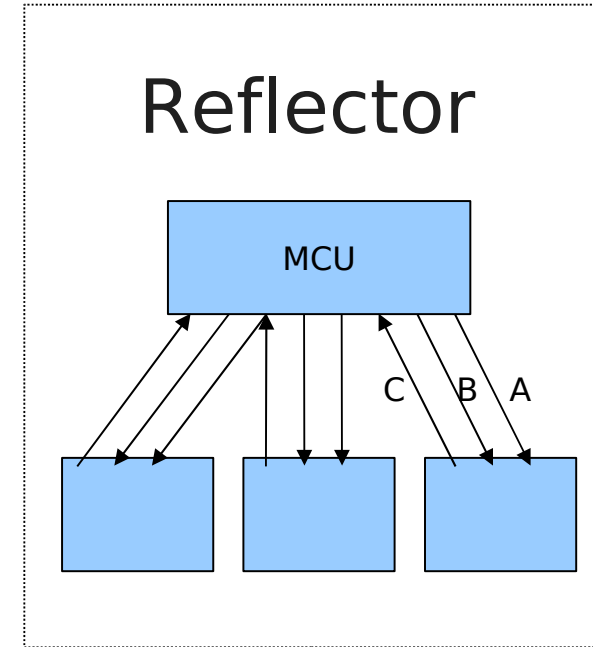


Full Mesh



HDVIPER/HIPERMED

Reflector



MCU: N decode/rcv, Client: N-1 decode/rcv, Refl: N rcv, **$N*(N-1)$ send**
 N encode/send 1 encode/N-1 send Client: N-1 decode/rcv,
 Client: 1 decode/rcv, 1 encode/send

N=number of clients in conference

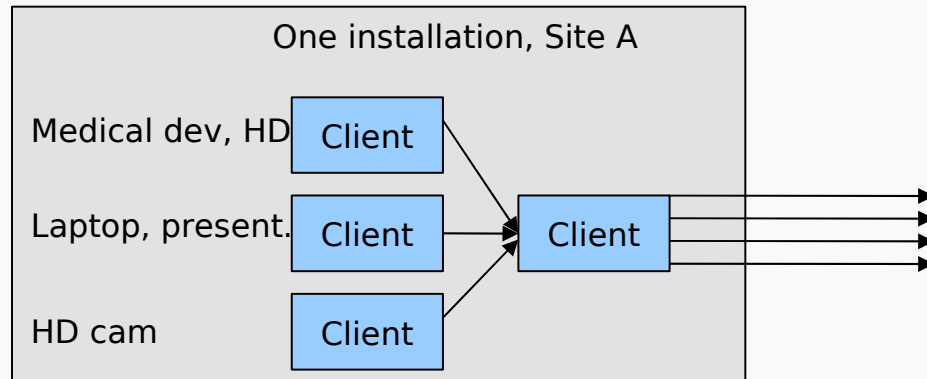
Ongoing work

* Scalability

Today: 2 outgoing HD streams, ~6 incoming.

Spring 2011: 2 outgoing, ~100 incoming(?). Scale-before-send. Reflector bandwidth usage ~linear to number of users

* "Clustering" for advanced (healthcare) scenarios



Problems and reflections

- * Typical video conference: 720p, 30FPS, 2.5+ Mbps.
- * Common problem w. packet loss:
 - Upload? Ok.
 - Download? Ok
 - Upload + Download? Packet loss
- * H.264 software encoding works, and is likely to be common (i7 920: 720p, 25FPS; AMD x6 1090t: 720p, 50FPS; i7 2600k: 1080p 30FPS).
- * Silent hardware (neonatal care installations)
- * No perceived difference KI<->KTH and KI<->Malawi



Source download: <svn://svn.minisip.org/minisip/trunk>