MMUSIC/ITU Interoperability Scenarios

T.120 overview

- H.320: ISDN audiographic/video conferencing
- T.120: “data” applications and control
- Tightly coupled conference style

• ***Recommendations***

- MCS (T.122/T.125) for reliable multicast
  - based on a tree of point-to-point connections
  - uses X.224/Q.933/Q.922/ISDN or X.224/RFC1006/TCP/IP or … (T.123)
- GCC (T.124) defines conference control database
  - both horizontal and vertical protocols
  - conference roster: list of participants
  - application roster: agents and their capabilities
- “Node controller” responsible for actual control
- T.AVC (T.128) will do audio/video control
  - floor control
  - remote camera control
  - mixer control
- T.RES will do reservations of central resources (MCUs)

T.120 overview

Fortsetzung

- “Data” applications defined so far:
  - T.126 (whiteboard, “still image”)
  - T.127 (file transfer)
- A/V uses H.320 streams (H.261, G.711, G.72[238])
  - For ISDN, multiplexed with data via H.221
  - For LANs, H.323 may use RTP or RTP variant (H.22Z)

MMUSIC/ITU Interoperability Scenarios

Interoperation within the ITU world

– ISDN-only case: *MCU*s for >2 participants
  - Non-leaf nodes in MCS and A/V distribution trees
– LAN-only case: non-leafs still needed (MCU vs. terminal)
– LANs (IP or IPX) and WANs (ISDN or POTS) use different protocols
– ⇒ define a *gateway* to translate
  - may be an MCU
  - might use a *gatekeeper* to maintain security

Example conversions in LAN/WAN gateway

ISDN	**LAN**
ISDN multiplex (H.221)	H.22Z ($\stackrel{?}{=}$ RTP)
CBR A/V (H.261 w/BCH)	packet A/V ($\stackrel{?}{=}$ RTP p.d.f.)
X.224/Q.933/Q.922	X.224/RFC1006/TCP/IP
floor holder only	continuous presence

MMUSIC/ITU Interoperability Scenarios

Internet/ITU interoperation

– basic issues are similar

– plus conversion from MCS/GCC to Internet protocols

  • A/V streams: ⇒ AVT working group...
  • “data” applications: ⇒ [where?]
  • control: ⇒ MMUSIC!

• ***Architectural issues***

– (GCC and) ITU apps based on MCS *tokens*

  • MCS support for application HPs
  • token exchange visible only to peers involved

– tightly coupled vs. less tightly coupled information consistency

  • Internet conferences are scalable
  • T.120 conferences are controlled

Internet/ITU Interoperation Scenarios

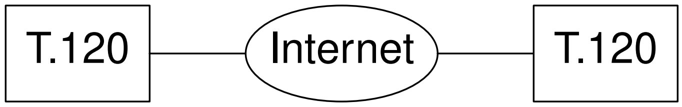
- ***1: T.120 terminal phones in to classical IETF multicast session***
  - Internet multicast session retains scalability
  - T.120 side accepts semantic lossage
    - Conference roster/application roster
    - Addressing single participants
  - Variation 1a: entire T.120 network phones in via MCU
    - requires Internet side to become virtual sub-/supertree in T.120 MCS
  - Variation 1b: add T.120-oriented functionality to Internet side
    - ⇒ Variation 3

MMUSIC/ITU Interoperability Scenarios

Internet/ITU Interoperation Scenarios

Fortsetzung

- ***2: Use Internet protocols locally behind gateway***
  - LAN users accept semantic lossage
  - Gateway must present consistent virtual subtree to T.120 side
  - Variation 2a: add T.120 functionality to Internet side
    - ⇒ Variation 3
- ***3: Tight interworking with illusion of homogeneity***
  - Require more semantic compatibility



MMUSIC/ITU Interoperability Scenarios

Technical issues

- ***Type of mapping: bidirectional vs. tunnelling***
– agreement protocol more versatile than T.120 conducted mode
- ***Resource control***
– which entities manage what?
- ***Adressing***
– T.120: E.164 (POTS/ISDN)
– Internet: IP addresses; Multicast addresses (!)
- ***Session description***
– Little information in T.120 case; update session during its course
– SDP: predescribe session; no controlled change during course
- ***Security***
– T.120: Each MCU can decide whether to accept new user
  - Only authentication defined so far:
  – per-conference secret (password)
– Internet: Cryptography

Non-MMUSIC issues

– Internet versions of “data” applications?
– Internet version of reliable multicast?
    • reliable vs. scalable...
– Multicast address allocation?
    • administratively scoped parts of the address space
    • hierarchical multicast group authority (RFC1458)?
– Subaddressing within multicast groups?
– Payment model
    • ISDN: participant pays
    • RSVP: recipient pays

MMUSIC/ITU Interoperability Scenarios

MMUSIC and IETF outstanding decisions

– What degree of interoperability do we want?

– How do we achieve semantic compatibility with T.120?

– Implications on current MMUSIC work (SDP, AP)?

– Other IETF groups

  • Who is doing the application standardization?

  • AVT impact?

  – Does cooperation between H.22Z people and RTP people work out?
    ⇒ AVT meeting this week

  • MCS vs. reliable multicasting?

  • multicast address allocation?

– Who is volunteering to do the work?