

Network-based Rapid Acquisition of Multicast RTP Sessions

draft-xia-avt-proxy-rapid-acquisition-01

IETF#77, Mar 2010, Anaheim

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Motivation

- Proxy has global view of the whole network. Based on the different network states, proxy can adjust the rate between RS and itself and between itself and RTP_Rx respectively.
- Prompt reaction for packet loss between RS and itself, in which case retransmission-caused overhead is minimized.
- Proxy facilitates NAT traversal.
- Proxy can smoothly eliminate the overlap and gap on RTP_Rx.

Proxy Behavior

- Proxy is tightly coupled with the near end router of the RTP_Rx
 - Feedback Target
 - SFGMP proxy
- Cache the unicast burst and translate it into multicast format
- Eliminate any overlap and gap between the end of burst and the beginning of primary multicast stream on RTP_Rx
- Allocate a couple of unique ports for each multicast RTP session which RTP_Rx want to join.

Proxy Behavior

- Estimate an acceleration amplification coefficient for each RTP burst session.
 - Normal rate < multicast burst rate <= unicast burst rate.
 - Proxy can automatically reduce the multicast burst rate when packets loss occurs.
- Send RAMS request and termination messages with 'P' flag setting to RS.

SDP on Proxy

- a=group:FID 1 2 3
- a=rtcp-unicast:rsi
- m=video 41000 RTP/AVPF 98
- i=Primary Multicast Stream
- c=IN IP4 233.252.0.2/255
- a=source-filter: incl IN IP4 233.252.0.2 192.0.2.2
- a=recvonly
- a=rtpmap:98 MP4V-ES/90000
- a=rtcp:41001 IN IP4 192.0.2.1
- a=rtcp-fb:98 nack
- a=rtcp-fb:98 nack psli
- a=ssrc:314159
- cname:user@prams.example.com
- a=mid:1
- m=video 41002 RTP/AVPF 99
- i=Unicast Rapid Acq Stream (upstream interface)
- c=IN IP4 192.0.2.1
- a=recvonly
- a=rtpmap:99 rtx/90000
- a=rtcp:41003
- a=fmtp:99 apt=98; rtx-time=5000
- a=mid:2
- m=video 41000 RTP/AVPF 100
- i=Multicast Stream (downstream interface)
- c=IN IP4 233.252.0.2/255
- a=source-filter: incl IN IP4 233.252.0.2 192.0.2.2
- a=sendonly
- a=rtpmap:100 MP4V-ES/90000
- a=rtcp:41001 IN IP4 192.0.2.3
- a=rtcp-fb:100 nack
- a=ssrc:314159
- cname:user@prams.example.com
- a=mid:3