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SIP Transport Requirements

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11/7/98

What is SIP

- SIP = Session Initiation Protocol

- Developed in mmusic

- Functions
  - initiation of multimedia or other sessions
  - searching for users (supports personal mobility)

- Looks like HTTP
  - Request/response
  - textual
  - But… runs on UDP or TCP

- Extensive use of proxies, much like MTA's in SMTP

Transport Requirements

- Some basic requirements:
  - low transaction latency
  - congestion control
  - implementation in standalone devices
  - multicast

- Some SIP specific requirements:
  - Request can have multiple responses - provisional and final
    - provisional responses are not reliably sent
  - mix of e2e and hop-by-hop reliability is needed for forking proxies

  - Proxies can be stateless
  - proxies can receive UDP, send TCP and vice-versa
  - reliability and message semantics conveyed together
    - ACK means "I got response" and "I'm willing to talk"
    - BYE means "I got response" and "I don't want to talk"
  - Request pipelining
  - INVITE response takes substantial time to be sent, but must arrive rapidly
    - callee hears silence after answering

Transport Solution

- INVITE and non-INVITE different

- requests are sent reliably hBh, ACK is e2e

- responses are sent reliably hBh, except INVITE 200, which is e2e

- Exponential timer backoffs

- Support for RTT estimation, but its optional

INVITE reliability

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UAC	udp	PROXY	udp	PROXY	tcp	UAS

INVITE

100 TRYING

200 OK

ACK