SIP: Status and Directions

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Session S8: SIP: Update and Look at SIP equipment vendors

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Overview

- SIP overview/review
- SIP standardization status
- SIP bake-off
SIP: Basic Operation

1. use directory service (e.g., LDAP) to map name to user@domain

2. locate SIP servers using DNS lookup

3. called server may map name to user@host

4. callee accepts, rejects, forward (→ new address)

5. if new address, go to step 2

6. if accept, caller confirms

7. ...conversation...

8. caller or callee sends BYE
SIP Operation in Proxy Mode

1. INVITE henning@columbia.edu
2. henning
3. hgs@play
4. INVITE hgs@play
5. location server
6. 200 OK
7. cs.tu-berlin.de
8. 200 OK
9. ACK hgs@play

cz@cs.tu-berlin.de

henning@columbia.edu

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SIP Operation in Redirect Mode

1. INVITE henning@ieee.org

2. 302 Moved temporarily
   Contact: hgs@columbia.edu

3. ACK henning@ieee.org

4. INVITE hgs@columbia.edu

5. 200 OK

6. ACK hgs@columbia.edu

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SIP Advanced Features

- operation over UDP or TCP
- multicast invitations \( \rightarrow \) basic ACD
- “interactive web response” (IWR)
- UA \( \leftrightarrow \) proxy = proxy/redirect \( \leftrightarrow \) proxy/redirect
- stateless proxies: self-routing responses
- forking proxies: call several in sequence and/or parallel
- security: basic (password), digest (challenge/response), PGP
SIP Standardization Status

- Feb. 2, 1999: IETF Proposed Standard:
- March 17, 1999: IETF RFC 2354
- eligible for Draft Standard: 6 months, 2 implementations √
SIP Work Items

- sip-cgi
- call processing language
- reliable provisional (1xx) responses
- caller preferences
- third-party call control
- SIP for subscribe/notify
- SIP–ISUP interworking
- SIP–H.323 interworking
- billing
- reverse channel setup for call progress tones
- pre-ringing resource reservation
SIP Bake-Off

- 35 implementors met at Columbia University, April 8th/9th, 1999

- hardware, PSTN gateways, proxy/redirect servers, clients, test instrument, ...
SIP Bake-Off Participants

3Com     Ericsson (2)
Alcatel   Helsinki Univ. of Technology
Cisco     Hewlett-Packard (2)
British Telecom    Lucent
Columbia University  MCI Worldcom
Dialogic  Mediatrix
dynamicsoft Nortel
Ellemtel   Pingtel
SIP Bake-Off Goals

- basic call set-up
- registration, user location
- proxies and redirect server operation
- advanced features: security
- identify implementation bugs and robustness issues
- identify spec ambiguities
SIP Bake-Off Results

- almost all implementations could establish basic calls – either on arrival or after minor on-site fixes
- tested redirection, proxying, security, registration, …
- generated interoperability test cases and tools
- will fold clarifications into Draft revision of RFC and web page at http://www.cs.columbia.edu/~hgs/sip
- second bake-off tentatively in August, with advanced features (DNS SRV, forking, call routing, …)
- install public testing mechanisms (Pulver OpenTestNet, www.sip-happens.com)