Voice-over-IP Standards and Interoperability Update

IETF

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Context: Convergence as Mantra

◆ is IP the ATM of today?
  ATM was the answer, what was your question?
  note that ATM is no longer the answer

◆ is convergence a mantra or a direction?
  test - who is touting convergence?
  e.g. Lucent prez - “convergence of all networks”
  and are their companies actually doing it?
Convergence as Reality

- mixed world
  - hard to justify tearing out existing circuit-switched nets
  - known operations, significant amortization
  - no reason to recreate it if starting new
- very mixed view on economics of convergence
  - 50/50 vote for cost effectiveness of IP telephony replacing
  - Lucent prez at N+I: 70% - 80% reduction in cost of IP net over existing teleco nets
  - 100 - 250 x capacity at same cost by 2005

Convergence and Architecture

- one big issue in telco/Internet convergence are the architectural assumptions in each camp
- Internet:
  - stupid network
  - smart edges
  - applications on 3rd party servers or in end nodes
- teleco network
  - smart network (Intelligent Network - IN)
  - dumb edges
  - applications in service provider network
IETF Transport Area

- Audio/Video Transport (avt)
- Endpoint Congestion Management (ecm)
- IP Performance Metrics (ippm)
- Integrated Services (intserv)
- Integrated Services over Specific Link Layers (issll)
- IP Telephony (iptel)
- Media Gateway Control (megaco)
- Multiparty Multimedia Session Control (mmusic)
- Multicast Address Allocation (malloc)
- Network Address Translator (nat)
- Network File System (nfs)
- ONC Remote Procedure Call (oncrpc)
- Performance Implications of Link Characteristics (pilc)
- PSTN and Internet Internetworking (pint)
- Resource Reservation Setup Protocol (rsvp)
- Signaling Transport (sigtran)
- Session Initiation Protocol (sip)
- Service in the PSTN/IN Requesting Internet Service (spirits)
- TCP Implementation (tcpimpl)
- TCP Over Satellite (tcpsat)
- Telephone Number Mapping (enum)
- Transport Area Working Group (tsvwg)

Audio Visual Transport - avt

- Real Time Protocol (RTP) - RFC 1899
  - transport multimedia over IP networks
  - used by H.323 & SIP
  - includes feedback protocol (RTCP)
IP Telephony - iptel

- PSTN/Internet gateway discovery protocol
  find the “right” gateway to the PSTN
  basically a routing problem
- call processing script language
  how to tell a switch what you want done with incoming calls

Media Gateway Control - megaco

- working with ITU SG16
- protocol between a media gateway controllers and media gateways
- decompose a phone switch
**Multiparty Multimedia Session Control - mmusic**

- Session Description Protocol (SDP)
- Session Announcement Protocol (SAP)
- Real Time Stream Protocol (RTSP)
- Simple Conference Control Protocol (SCCP)

**PSTN and Internet Interworking - pint**

- Internet server (e.g. web server) to PSTN commands
  - click 2 call - place call between number A and number B
  - click 2 fax - send this data to phone number A as a FAX
  - access to voice - call number A and play this voice data
Signaling Transport - sigtran

- protocol to carry IN signaling protocols over IP networks
  e.g. SS7, Q.931 ...

Session Initiation Protocol - sip

- broken out from mmusic
- extensions to SIP protocol
- advance SIP on standards track
- SIP seen as competitor to H.323
Service in the PSTN/IN Requesting Internet Service - spirits

◆ protocol to let Internet-based servers rect to information from the PSTN
e.g. Internet Call Waiting (ICW)

tElephone NUmber Mapping - enum

◆ for Internet-based hosts
◆ map from phone number to URL
can get different URLs based on application
voice vs. FAX
◆ could be URL pointing to actual host or gateway
Questions Asked

- what are the timeframes for standards?
- what is the ITU’s future role in IP realm?
- what are the trends in VoIP standards?
- key players in VoIP standards?

Timeframes

- “Likely timeframes for the development and adoption of new VoIP standards?”
- SIP is at Proposed Std (published March 1999)
- additions underway (e.g. for cable modem use) due 1st half of 2000
- pint, megaco, sigtran, iptel/gdp - 1st half of 2000
- iptel/script, spirits/enum - 2nd half of 2000
ITU Role

“Future role of the ITU as a standards authority in the IP realm”

IETF & working together on some things (e.g. megaco) but sometimes have different architectural view

IETF more peer to peer Internet
ITU more service provider

Future depends on what Internet concept prevails

ITU process is now faster than the IETF

Trends

“Current status and trends in VoIP standards”

If SIP is any guide, trend is to Internet model

Traditional phone world generally supports H.323
ISPs, new phone companies, Cisco support SIP
Cable seems to be going to SIP

Traditional telephone world still there - megaco

$$ story is still open
Players

- "Key players in the critical area of VoIP standards"
- IETF, ITU & ETSI are the major standards groups
- Cisco, Nortel, Lucent, Telcordia, etc major companies
- Worldcom (MCI) major carrier -
  Level 3 & Quest coming along

Regulations

- I’m here from the government and I’m here to help
- telco world has a surfeit of regulations
- expect the Internet to attract same
- not going to make things easier
How to become an IETFer

- the IETF does not exist: just an activity
- no “members”
- to take part
  1/ join a mailing list (open access - no fee)
     read archive before posting brilliant idea
  2/ attend a meeting (open access - meeting fee)
     next meeting in DC week of Nov 8th
- web page - www.ietf.org
- open access to all documents

Have fun

thank you