Convergence Efforts in the IETF

Is there **a** future?

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Convergence

- big buzzword
- why run N networks when all can be seen as data
- assumption is that combined networks will be cheaper

Convergence Myths

- phone traffic is special
  - only in that you pay for it by the minute
- need to change IP to support phones
  - never needed to change IP for an application before
  - voice will be a "niche market" (but not for $$)
- video on demand will be a big money maker
  - couch potato heaven
  - has not been true to date

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?
- is MPLS IETF's ATM?
  - with variable length cells
- how useful is circuit switching in an IP world?
  - not very for applications
  - some VPNs & long lived flows (video on demand) maybe

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

Quote

- from Sunday, 16 Apr 2000 11:10:57 +0200

```
Hi Roy,
 I still don't understand why it is a
 "users" choice where the "services"
 are executed - I would have thought
 that this would be networks choice -
 and the means for doing that is what
 we are now discussing.  Can you please
 clarify why a user "MAY" which to
 decieded this.
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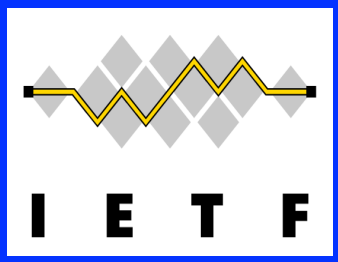
What is the IETF?

- an engineering organization
- a group of people who solve Internet problems
- but it does not legally exist



The IETF

- Internet Engineering Task Force
- formed 1986
- other standards groups cooperate with, imitate or fear the IETF (but some still ignore it)
- not important enough for a long time - good!!
- not government approved - great!!
- people not companies

"rough consensus and running code"

An Engineering Organization

- vendors
- users
- network operators
- academics
- researchers
- all as individuals
- no membership
- supported by meeting fees
  ISOC supports some functions e.g., RFC Editor

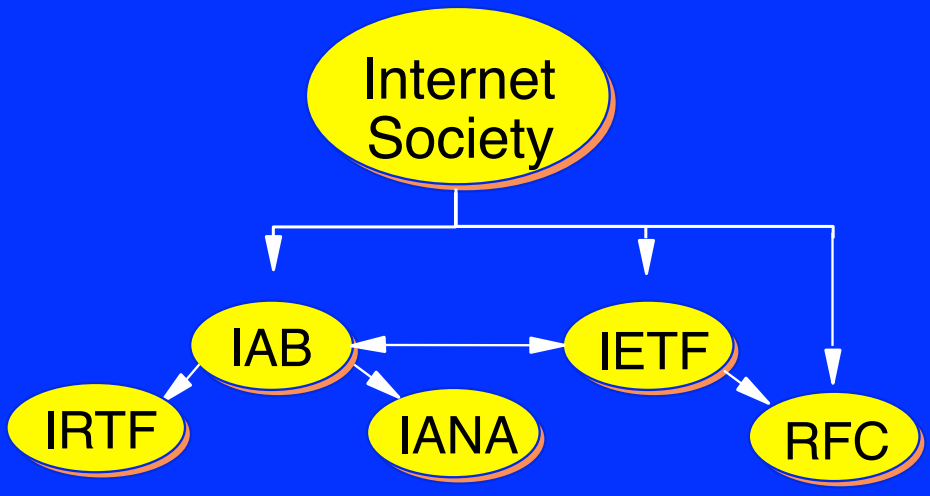
Scale

- 2400 attendees in Washington DC
- 1400 attendees in Adelaide, Australia
  up from 300 in 1990
- unknown number on mailing lists
- 100s of companies
  biggest industry sector in the last few meetings: telephony

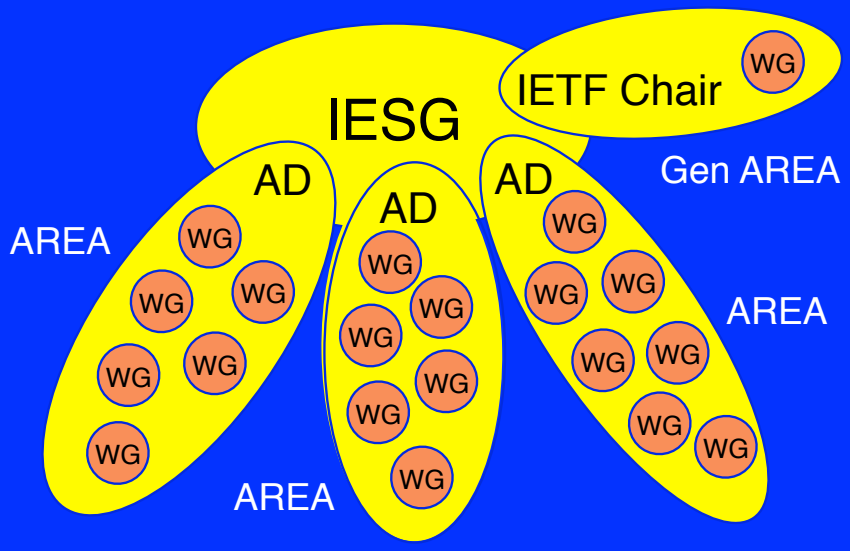
IETF Big Topics

- security - IPsec, TLS, Kerberos, smime
- QoS - intserv, RSVP, diffserv
- routing - MPLS, BGP, SSM
- internet - IPv6, IP over foo, DHCP, iDN, svrloc, mobile IP
- telephony - SIP, megago, SCTP, enum, rohc, pint
- applications - HTTP, LDAP, web caching, calendar
- management - SNMP, policy, AAA, RADUS
- transport - rmt, tcpsat,

Top Level View of Organization



IETF Structure



IETF Areas

- Applications Area - 24 WGs
- General Area - 1 WG
- Internet Area - 14 WGs
- Operations and Management Area - 20 WGs
- Routing Area - 18 WGs
- Security Area - 20 WGs
- Transport Area - 24 WGs
- User Services Area - 4 WGs

Convergence Related WGs

- Voice Profile for Internet Mail (vpim)
- IP over Cable Data Network (ipcdn)
- Internet Traffic Engineering (tewg)
- IP Routing for Wireless/Mobile Hosts (mobileip)
- Public-Key Infrastructure (X.509) (pkix)
- XML Digital Signatures (xmldsig)
- MultiProtocol Lable Swapping (mpls)
- IP Telephony (iptel)
- Media Gateway Control (megaco)
- Multiparty Multimedia Session Control (mmusic)
- PSTN and Internet Internetworking (pint)
- Performance Implications of Link Characteristics (pilc)
- Robust Header Compression (rohc)
- Service in the PSTN/IN Requesting InTernet Service (spirits)
- Session Initiation Protocol (sip)
- Signaling Transport (sigtran)
- Telephone Number Mapping (enum)

Convergence Related BOFs

- IP over optical networks (ipo) BOF
- Seamless Mobility (seamoby)
- Common Control and Management (CoMA)

Convergence Technologies

- PSTN <-> control
  - pint - tell PSTN what to do
  - spirits - tell Internet what is going on in PSTN
- PSTN signaling
  - sigtran - carry PSTN signaling in Internet - SCTP
- multi media control
  - SIP - IP telephony signaling
  - SDP - session description
- multi media transport
  - Real Time Protocol (RTP)

Convergence Technologies, contd.

- IP phone control
  - megaco / H.248
- user level switch control
  - Call Processing Language (CPL)
- gateway location
  - Telephony Routing over IP (TRIP)
- mapping telephone numbers to URLs
  - Telephone Number Mapping (enum)
- supporting voice in email
  - Voice Profile for Internet Mail (vpim)

Convergence Technologies, contd.

- QoS
  integrated services, differentiated services, traffic engineering, MPLS, CoMa, IP Optical
- funky links (e.g. wireless)
  pilc, reliable header compression (rohc)
- mobility
  mobile IP, SeaMoby
- security
  IPSec, public-key infrastructure (pkix), XML digital signatures

"but who is going to make money on that?"

John Mcquillan