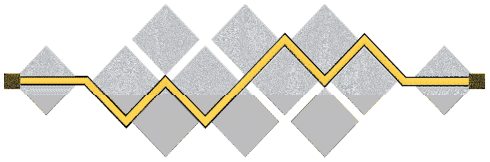
Technologies that are Influencing the Internet



I E T F®

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CNGI Engineering Forum

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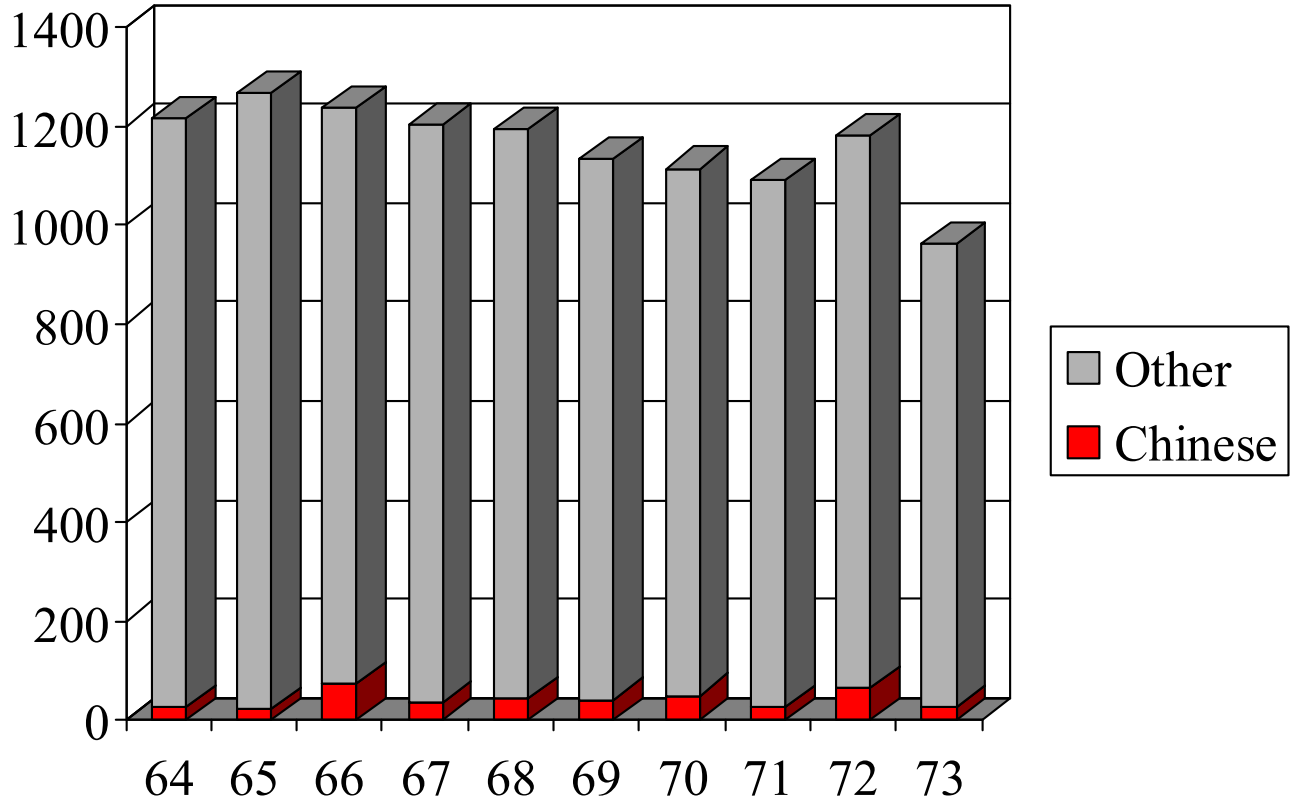
Internet Engineering Task Force

- “We make the net work”
- The mission of the IETF is to produce high quality, relevant technical and engineering documents that influence the way people design, use, and manage the Internet in such a way as to make the Internet work better. These documents include protocol standards, best current practices, and informational documents of various kinds. [RFC 3935]

Open Standards

The mission of the IETF is to make the Internet work better. However, no one is "in charge" of the Internet. Instead, many people cooperate to make it work. Each person brings a unique perspective of the Internet, and this diversity sometimes makes it difficult to reach consensus. Yet, when consensus is achieved, the outcome is better, clearer, and more strongly supported than the initial position of any participant.

Chinese Participation (2006-2008)



About 3% for meetings held in USA

About 5% for meetings held elsewhere

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Internet Standards Directions

Different technologies are pulling the Internet in many different directions

- Power
- Bandwidth
- Mobility
- New applications
- Infrastructure

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Power

Routers

- Consume lots of power and generate lots of heat
- Demands for even greater throughput

Small and Mobile Devices

- Act as always connected
- Many very small devices are servers
- Demands for longer battery life

Bandwidth

Big pipes

- Greater bandwidth than ever before, and not just between large data centers

Availability

- Competing technologies benefit consumers
- More that 20% of the world's population has access to the Internet, and it is growing steadily

Mobility

Mobile Devices

- More and more capabilities: voice, video, email, instant messaging, web browsing, geo-location

Mobile Networks

- Ships, trains, and planes (and soon automobiles)
  - Critical system using Internet protocols
  - Connect passenger's mobile and portable devices

New Applications

Many new applications

- Voice, video, and entertainment
- Social networking
- Peer-to-peer (p2p)
- Presence and geo-location
- Synchronization among devices

Changing perception of the Internet

- Critical
- Demand for privacy and security

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Infrastructure

IPv4 Address Exhaustion

- 2010: IANA unused IPv4 address pool empty
- IPv6 offers much greater address space
  - IPv4 to IPv6 transition mechanisms under development

Infrastructure Security

- DNS Security: authentication and integrity
- Routing Security: first steps toward authorization

Summary

Different technologies are pulling the Internet in many different directions:

More demanding applications
transferring much more data
from many more locations
to many more locations
being used by many more users
on vastly more devices

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Thank You

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