Commercialization of the Internet

Yakov Rekhter & Lixia Zhang

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- **What we've had in the past**
- **Where the Internet is going today**
- **What IETF should do**

1

What We've Had in the Past

- **The ARPANET days**
- **Creation of the Internet**
  - Design of TCP/IP architecture
- **NSFNET days**

  A transition from a research sandbox to an infrastructure for production use by R&E community

2

Where the Internet Is Going Today

- **The Internet is undergoing a rapid transition from an R&E infrastructure to a public facility**
- **As we move from one stage to the next, network requirements change rapidly and significantly**
  - E.g. security
- **Commercialization started when the first commercial traffic crossed the Internet**

3

Commercialization of the Internet

- **Commercialization of applications**

  We're not the only one who found the Internet useful
- **Commercialization of user community**
- **Commercialization of the infrastructure (service providers)**

These three forces interact, creating a positive feedback that further accelerate the process

4

Why All These Changes?

<u>We</u> (IETF) made this happen

1 **New technology development by government sponsored research**
ARPANET, early days of the Internet

2 **Technology mature** NSFNET backbone was built as an infrastructure for research/educational use

3 **Technology transfer** As commercial providers picking up the technology, NSF started buying services for research&educational use

4 **Market development** End users buy services directly from commercial providers (with gov. subsidy to R&E community)

5

Non-Technical Issues

- **IETF has been providing technology solutions to Internet development and growth**
- **Commercialization, however, also brought up many new and important non-technical issues**

  E.g. Intellectual property right
  - trademark wars over DNS names
  - copyright issue of various electronic documents
- **Question: on whose agenda lay these non-technical problems?**

6

What IETF Should Do
during this commercialization

- **Applaud the change: the Internet finally grown up!**
- **Facilitate the change: continue to provide the technology for further Internet growth &development**

7

We Have a lot to Accomplish

- Extend the Internet service to multicast-capable integrated services
- Routing over multi-provider interconnections
- Better understand the requirements from commercial users
  - network security
  - network management of multi-provider interconnections
  - accounting and billing mechanisms
  - electronic commerce
- .....
- **Maintain a system-wide perspective of overall architecture**

8