



The Internet of the Future: Looking Forward, Not Backward

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Thank you, IETF...



The Internet was not an accident

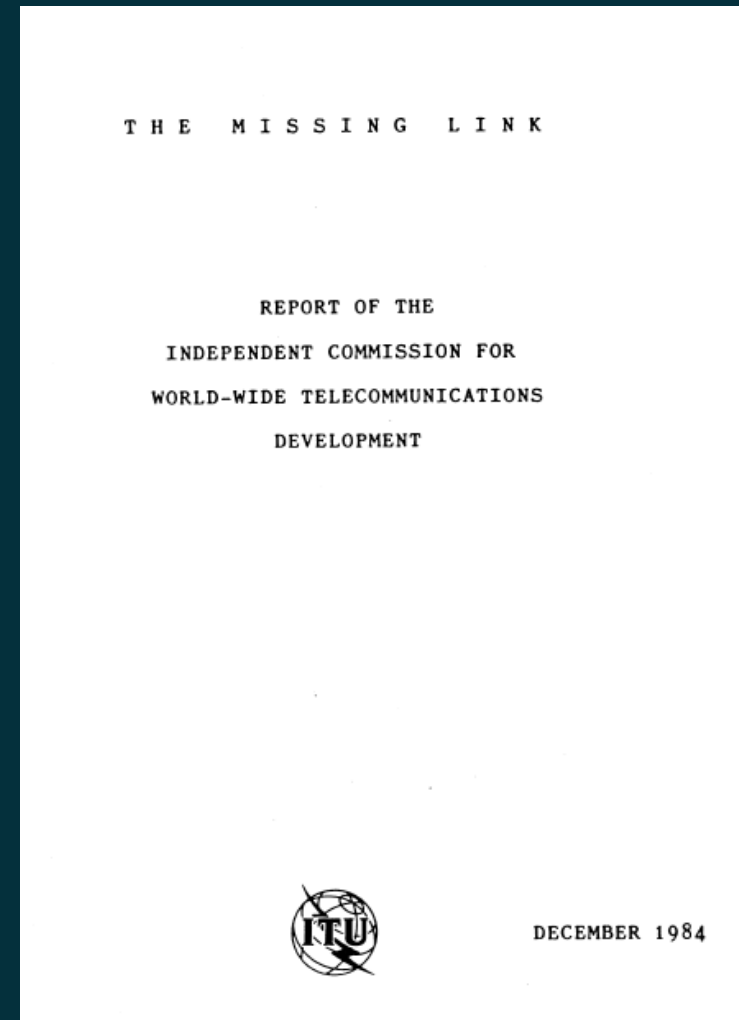
How we got here...



How we got here...

“There is in our opinion no good reason why by the early part of the next century virtually the whole of mankind should not be within easy reach of a telephone and of all the benefits this can bring.”

The Maitland Report, 1984



Connectivity in the mid-1980s

Fixed Telephone Lines in 1985

~ 403 million fixed telephone lines worldwide (8.3% of world pop of 4.8b)

Mobile Telephones in 1985

~ 750,000 mobile subscriptions (340,000 in the US)

Personal Computers:

~ 8.2 percent of households in the US had a personal computer in 1984

Source: ITU/ICT Statistics Database Dec. 2011

Apple II: 1977



IBM 5150: 1981



Apple Macintosh: 1984



Connectivity today

Global Stats:

- Over 2.2bn Internet Users (33% of total population)
- 5.9bn mobile-cellular subscriptions (87% of world population)
- 1.2bn mobile broadband subscriptions (twice as many as fixed-wired broadband subscriptions)

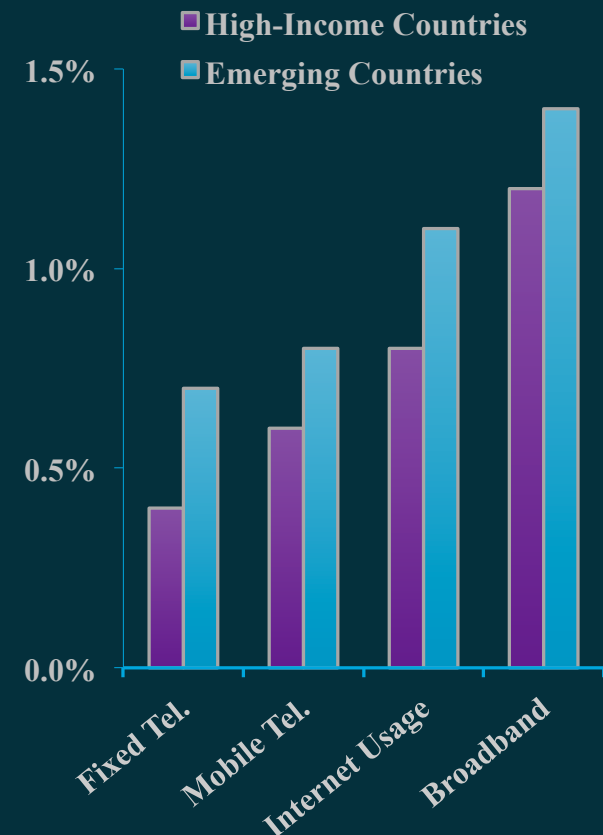
Source: ITU, 2011

Impact:

- In 2010: The Internet for the G-20 countries, the Internet “amounted to 4.1 percent of GDP, or \$2.3tr...”
- By 2016, it will be \$4.2tr. “If it were a national economy, the Internet economy would rank in the world’s top five.”
- In some countries, the Internet is contributing up to 8 percent of GDP.

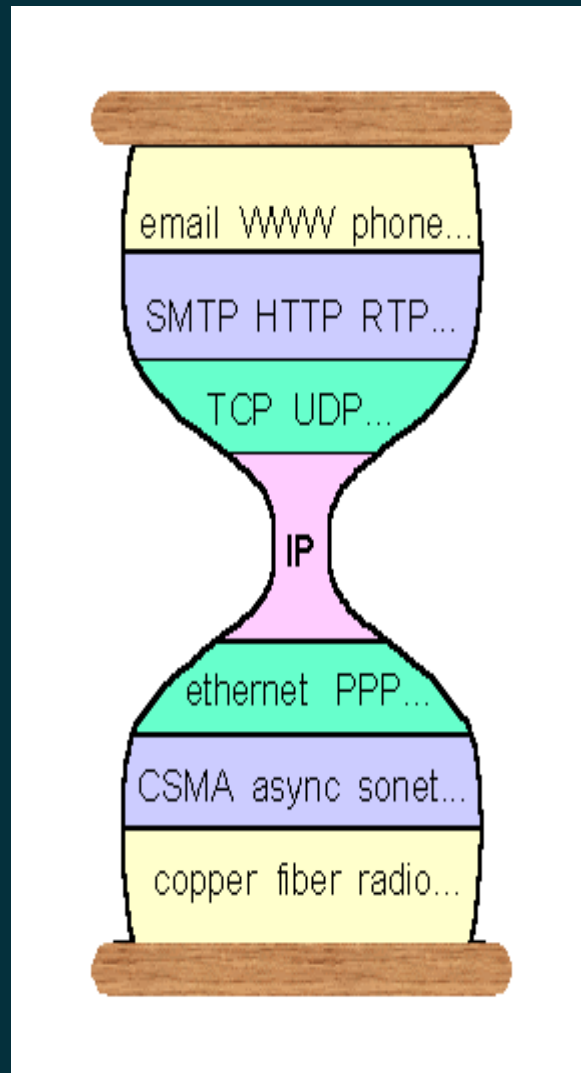
Source: BCG, 2012

Incremental Annual GDP Growth from Every Ten Percent Points Difference in ICT Penetration

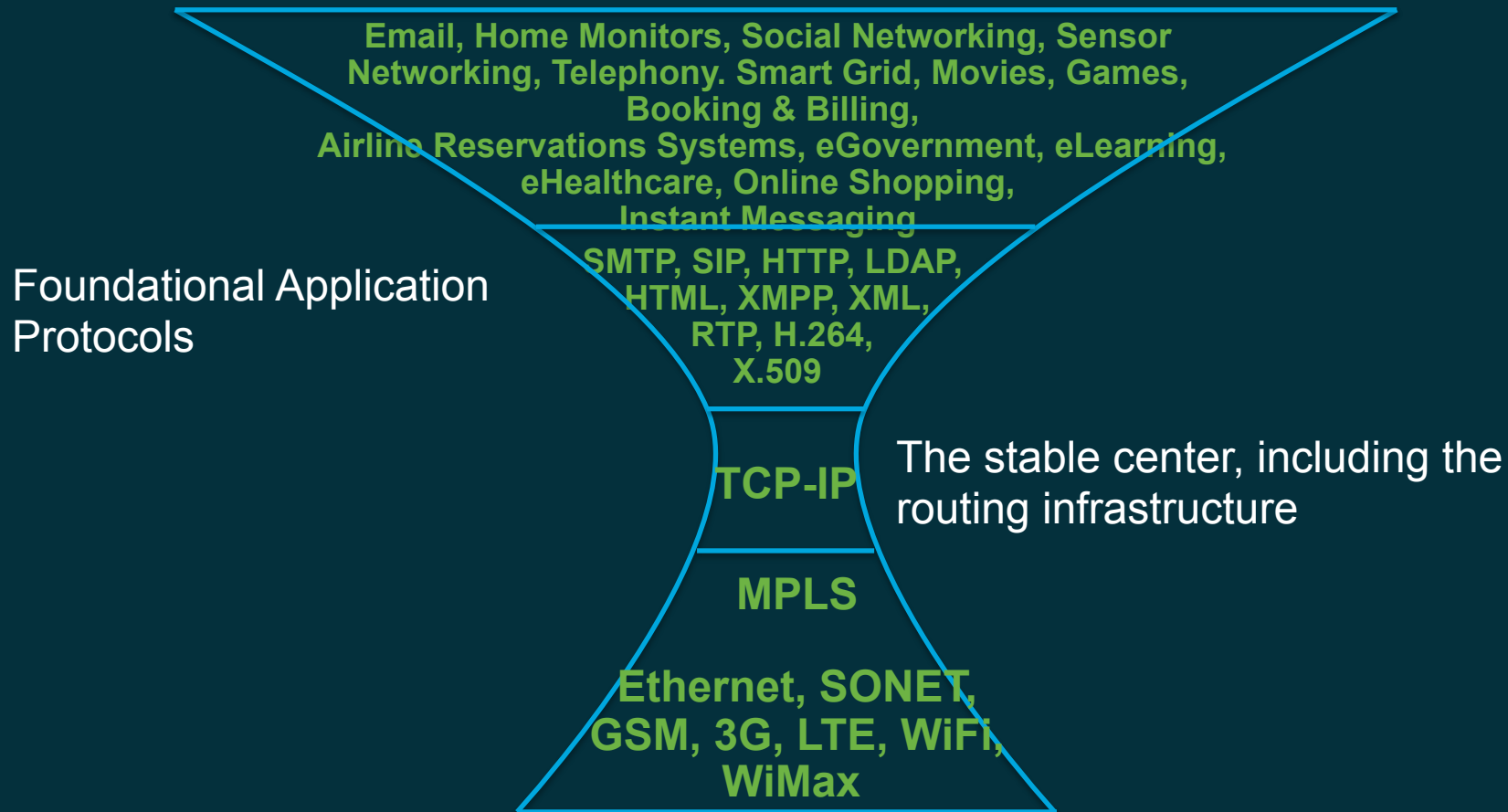


Source: World Bank, 2009

Anyone Remember Steve Deering's 2001 Presentation?

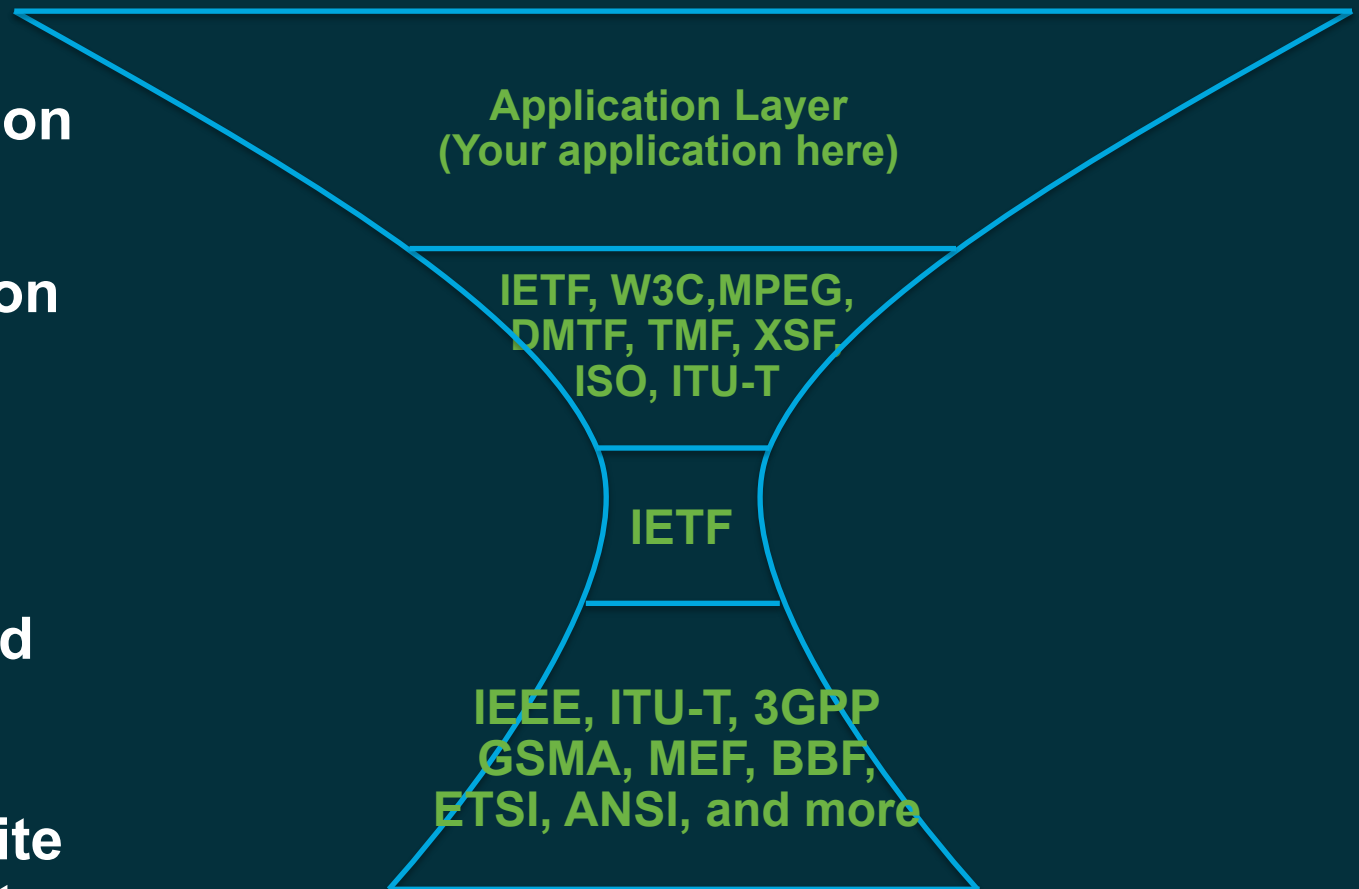


The Networking Martini Glass



IETF Has Been Critical to Internet's Success

- **Nearly 2.3 billion Internet users**
- **Over 200 million registered domains**
- **6,566 RFCs**
- **Individuals and Industry working together in spite of government**



“Unregulation” of the Internet Not an Accident

- 1970s-1980s, The Computer Inquires
 - Data processing not subject to common carrier reg
- 1984: No access charges for enhanced service providers
- 1996, Telecommunications Act: affirmed distinction for Information Service

Economic Implications

Total Economic Impacts

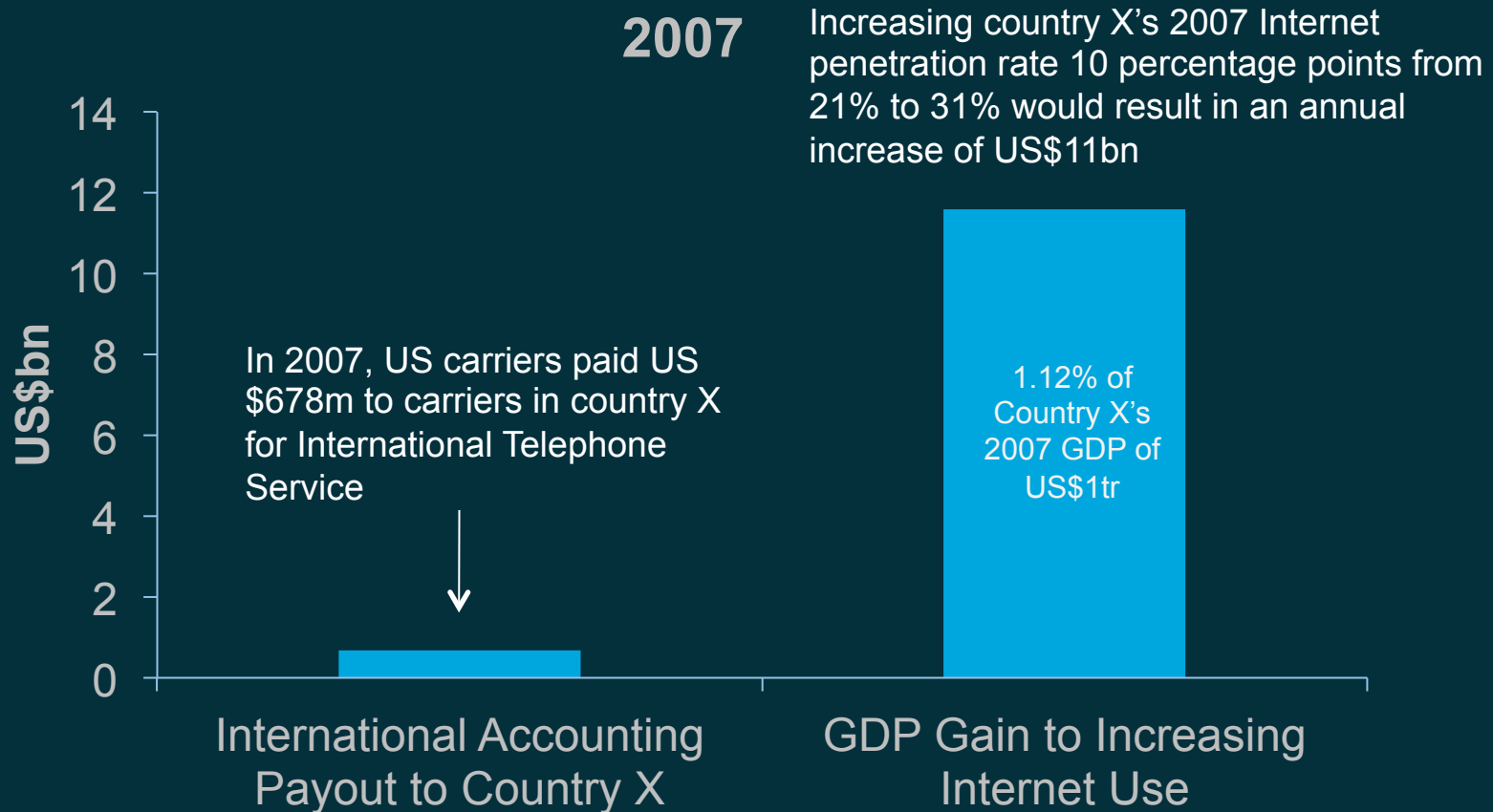
(GDP growth, productivity increases, the Internet Economy, competitive benefits to firms, consumer surplus, social development & increases to govt efficiency)



International Telecommunications Accounting Revenue

Net Effect Analysis (Back of the Envelope)

Comparing International Message Billing (US Payout to Foreign Carriers) v. increasing Internet penetration - One Example



The Internet of the Future: Looking Forward, Not Backward

Old Assumptions from the World of Telecom

- The product is voice
- The metric is minutes
- Distance matters
- Duration matters
- Location matters

New Realities in a World of Flat IP Networks

- The product is connectivity
- The metric is bandwidth/throughput
- Distance insensitive
- Time insensitive
- Location insensitive

Challenges as the Internet Grows Up

- Old assumptions/new realities
- Extending the Internet to everyone
 - Following the “mobile miracle” with broadband
 - Access for people with disabilities
- Security
- Preventing illegal behavior and catching bad guys
- And more.....

Challenges as the Internet Grows Up But approach should remain the same



But, we need to do more... An Example



Call to action



- Don't create a vacuum
- Address issues before they become “problems”
- Leverage the multi-stakeholder Internet technical community... we can't just talk to ourselves
- Ensure the future and freedom of the Internet
- It really matters

Thank you.

