INTERNET NEXT GENERATION
TECHNICAL DEVELOPMENTS AND NEW APPLICATIONS

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ACM
STAVERDEN
TECHNICAL DEVELOPMENTS

OVERVIEW:

• BANDWIDTH

• DIFFERENT QUALITIES

• ACCOUNTING

• ...
BANDWIDTH

LOCAL ACCESS - FIXED (IN BPS)
BANDWIDTH

LOCAL ACCESS - WIRELESS (IN BPS)
BANDWIDTH

BACKBONE LINE CAPACITY (IN BPS)
BANDWIDTH

CAPACITY ACCESS LINE IN THE YEAR 2005:
- 4 TO 10 DIGITAL TV SIGNALS
- 100 TO 250 HIFI AUDIO SIGNALS
- 2000 WEB PAGES PER SECOND

CAPACITY BACK BONE LINE IN THE YEAR 2005:
- 100.000 DIGITAL TV SIGNALS
- 2.500.000 HIFI AUDIO SIGNALS
- 15 MILLION TELEPHONE CALLS
- 25 MILLION WEB PAGES PER SECOND
BANDWIDTH

DEVELOPMENT GOES ON!

CAPACITY BACK BONE IN THE YEAR 2010:

- 3 MILLION DIGITAL TV SIGNALS
- 75 MILLION HIFI AUDIO SIGNALS
- 500 MILLION TELEPHONE CALLS
- 1 BILLION WEB PAGES PER SECOND
DIFFERENT QUALITIES

APPLICATIONS HAVE DIFFERENT REQUIREMENTS
IT IS NOT SURE THAT THE NETWORK WILL ALWAYS BE ABLE TO SATISFY THESE REQUIREMENTS

CAPACITY FOR (WIRELESS) ACCESS WILL BE SCARCE
WE NEED RESERVATION SCHEME’S
IETF: INTSERV

CAPACITY FOR BACKBONE MAY BE SCARCE
RESERVATION DOESN’T WORK
IETF: DIFFSERV
DIFFERENT QUALITIES - II
DIFFERENT QUALITIES - III

INTERNET NEXT GENERATION PROJECT
CTIT (UT), ERICSSON, KPN-RESEARCH, TI-CO
http://www.ctit.utwente.nl/

QBBONE
INTERNET-2
Initial QBone Participants and Connectivity*

*Actual connectivity and participant group will vary as deployment progresses.
ACCOUNTING - I

DIFFERENT QUALITIES?

DIFFERENT PRICES!
ACCOUNTING - II

- IS IT POSSIBLE TO HAVE DIFFERENT TARIFS FOR LOCAL, NATIONAL AND INTERNATIONAL TRAFFIC?

- IS IT POSSIBLE TO HAVE DIFFERENT TARIFS FOR INTER AND INTRA OPERATOR TRAFFIC?
  - SHOULD ACCOUNTING BE BASED ON VOLUME?
  - DO YOU HAVE TO PAY FOR RETRANSMISSIONS?
  - WHAT INFORMATION IS NEEDED FOR ACCOUNTING
  - WHERE SHOULD THIS INFORMATION BE COLLECTED?
  - WHO MAKES THE BILL?
OTHER DEVELOPMENTS

• MULTICASTING
• SECURITY
• ...

MANY THINGS WILL HAPPEN!
NEW APPLICATIONS

INCREASING NUMBER OF USERS

• ELECTRONIC COMMERCE
• TELE-EDUCATION
• ENTERTAINMENT
INCREASING NUMBER OF USERS

Source: http://www.genmagic.com/Internet/Trends/
INCREASING NUMBER OF USERS - II

Source: http://www.genmagic.com/Internet/Trends/
INCREASING NUMBER OF USERS - II

- MORE PERSONS
- MORE PCs PER HOUSEHOLD
- NEW TYPES OF EQUIPMENT
ELECTRONIC COMMERCE - I

ELECTRONIC BOOKSHOPS
www.amazon.com

• ROLE OF LOCAL BOOK SHOP?
• ELECTRONIC BOOKS?
• ROLE OF PUBLISHERS?
• ROLE OF CENSORSHIP?
ELECTRONIC COMMERCE - II

HOUSES

www.nvm.nl

• ROLE OF REAL ESTATE AGENTS?

• NO MORE INFORMATION MONOPOLY?
ELECTRONIC COMMERCE - III

IN GENERAL:

• SMALL COMPANIES GET DIRECT ACCESS TO END-USERS

• END-USERS GET DIRECT ACCESS TO MANUFACTURERS

• MORE SPECIALIZATION

• MORE DIFFERENTIATION

• GLOBAL COMPETITION
TELE-EDUCATION

WITHIN UNIVERSITIES

http://teletop.edte.utwente.nl/

BETWEEN UNIVERSITIES

• COURSE COMPONENTS
• COMPLETE COURSES
ENTERTAINMENT

CONTACTS

RADIO

GAMES

MULTI-USER GAMES

VIDEO ON DEMAND

TELEVISION

WHAT ROLE REMAINS FOR THE GOVERNMENT?
CONCLUSIONS

• MAJOR TECHNICAL DEVELOPMENTS
  • MANY NEW APPLICATIONS
• IMPORTANT CHANGES IN SOCIETY
• CHANGING ROLE OF GOUVERNMENT

• WE’RE JUST AT THE BEGINNING ...