Protocols for Multimedia Communications (Protokolle für Multimediakommunikation, PMMK)

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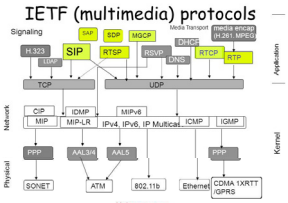
CSG Communication Systems Group

Protocols and Multimedia

- Means to bridge physical distances in support of multiple application requirements
  - Networks with service offerings
  - Protocols to extend such services
  - Internet-based applications



Lecture Outline

- Part 1: Basics and Principles
  - Telecommunications, Multimedia, and Communication Architectures
  - High Speed Networking Principles
- Part 2: High Speed Technologies
  - Wired Technologies
  - Access Technologies
- Part 3: Quality-of-Service (QoS)
  - QoS Definition and QoS Modeling
  - QoS Methods in Detail
- Part 4: Multimedia Protocols
  - Real-time, Reservation, Stream Control Transmission Protocols
  - AAA: RADIUS and Diameter, Network Management
  - Virtual Private, Content Distribution Networks, Software-defined Nets
- Part 5: Internet Economics

Teaching Aids (1)

Selected refs collected at module ends.

Detailed studies of important aspects in Journal, conference, or workshop papers:

- IEEE Network Magazine
- ACM Computer Communication Review (includes SIGCOM)
- IEEE Communications
- Computer Communications
- IEEE Journal on Selected Areas in Communications
- IEEE Computer
- Computer Networks (formerly: Computer and ISDN Systems)
- IEEE Infocom and IEEE Globecom
- Recommendations (ITU-T) and Standards (ISO)
- Request for Comments (RFC)

http://portal.acm.org/
http://ieeexplore.ieee.org/
http://www.ietf.org/rfc/

Teaching Aids (2)

- Basics and background information available within:
  Textbooks and selected chapters:
  - Jenq-Neng Hwang: Multimedia Networking: From Theory to Practice; 2009, Cambridge University Press, England, U.K., ISBN 978-0-521-88204-0.
  - B. Stiller: *Quality-of-Service*; 1996, International Thomson Publishing, Bonn, Germany, ISBN 3 – 8266 – 0171 – 8
  - S. Keshav: *An Engineering Approach to Computer Networking;* 1997, Addison-Wesley, Reading, Massachusetts, U.S.A., ISBN 0 – 201 – 63442 – 2.
  - J. Walrand, P. Varaiya: *High-performance Communication Networks;* 2nd Edition, 2000, Morgan Kaufmann, San Francisco, California, U.S.A., ISBN 1 – 55680 – 574 – 6
  - J. Sterbenz, J. Touch: *High-Speed Networking (NC): A Systematic Approach to High-bandwidth Low-latency Communication,* Wiley Networking Council Series, 2001
  - R. Steinmetz, K. Nahrstedt: *Multimedia: Computing, Communications, and Applications: Media Coding and Content Processing;* 2002, Prentice Hall, New York, U.S.A., ISBN 0 – 13 – 031399 – 8.
- Each part of the lecture carries a set of related references, either as overviews or as refinements and details

Exercises, Organizational Issues, On-line Information

- Theoretical exercises (paper-based) on a per student basis
  - Background questions, reflecting the lecture content
  - Knowledge questions, small tasks
  - Rules on passing the class' exercise sessions:
    - Submit in due time adequate solutions for at least 10 out of the 12 exercises
    - Attend in at least 10 out of the 12 exercise sessions
    - Present actively solutions or answers, when requested randomly during these exercise sessions, while being present
  - https://www.csg.uzh.ch/csg/en/teaching/hs20/pmmk/exercises.html.
- Lectures: Wednesday
  - Time: 8.15 – 9.45 hours

  Exercises: Wednesday
  Time: 10.00 – 11.30 hours
- http://www.csg.uzh.ch/teaching/hs20/pmmk/
- In case of questions, concerns, help, or ideas concerning the lecture please contact (see cover slide for contact details)
  - Prof. Dr. Burkhard Stiller and/or Muriel Franco, Dr. Eryk Schiller