

IP 8: SYSTEM ARCHITECTURE

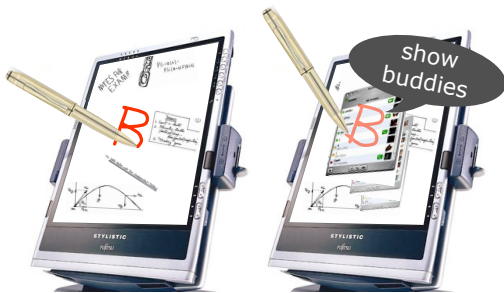
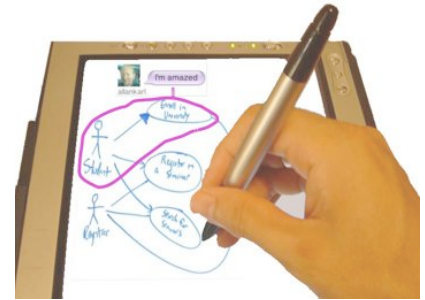
COMPUTER-MEDIATED COLLABORATION IN PEER-TO-PEER NETWORKS: SHARING REAL-TIME DATA STREAMS

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PROBLEM STATEMENT

- Asynchronous collaboration lacks important properties present in face-to-face meetings
- Effective collaboration needs the exchange of time-based data such as user-actions and application states in real-time
- Informal meetings often take place in an ad-hoc manner leaving no time for administrative tasks



FACE-TO-FACE MEETINGS

- Same-time, same-place collaboration makes strong demands on effective user interfaces
- Applications must integrate seamlessly into the workflow
- Gestures and symbols in favor of menus

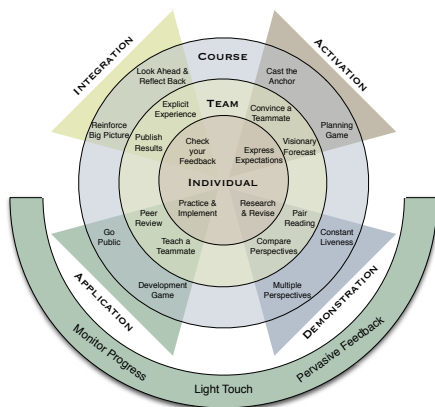
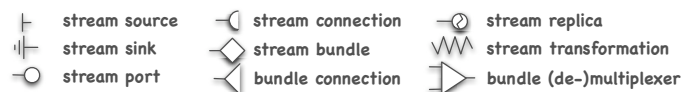
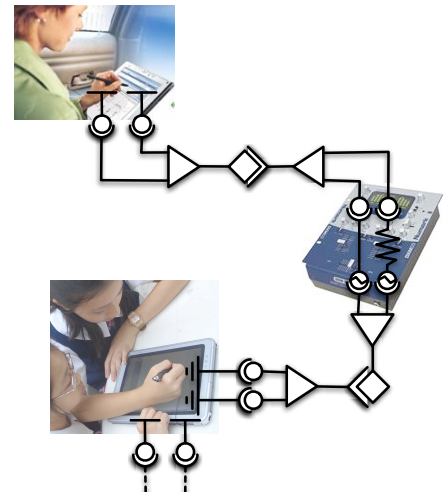
P2P STREAM SHARING

Streams are *time-based* data on *unreliable networks*, providing:

- Progressive download and minute swarming
- Simultaneous delivery to multiple receivers (multicast)
- Replication of existing streams for increasing scalability, access to resources, and lifetime of data

Types of streams:

- data and media streams
- event streams
- meta-data streams
- management streams



APPLICATION DOMAIN AND EVALUATION

- Computer supported collaborative learning
- Various tools and practices for all learning phases support instructional design and lecturing of computer science courses
- Evaluation (summer term '06): distributed course at ETH Zürich (Thomas Gross) and TU München (Bernd Brügge)