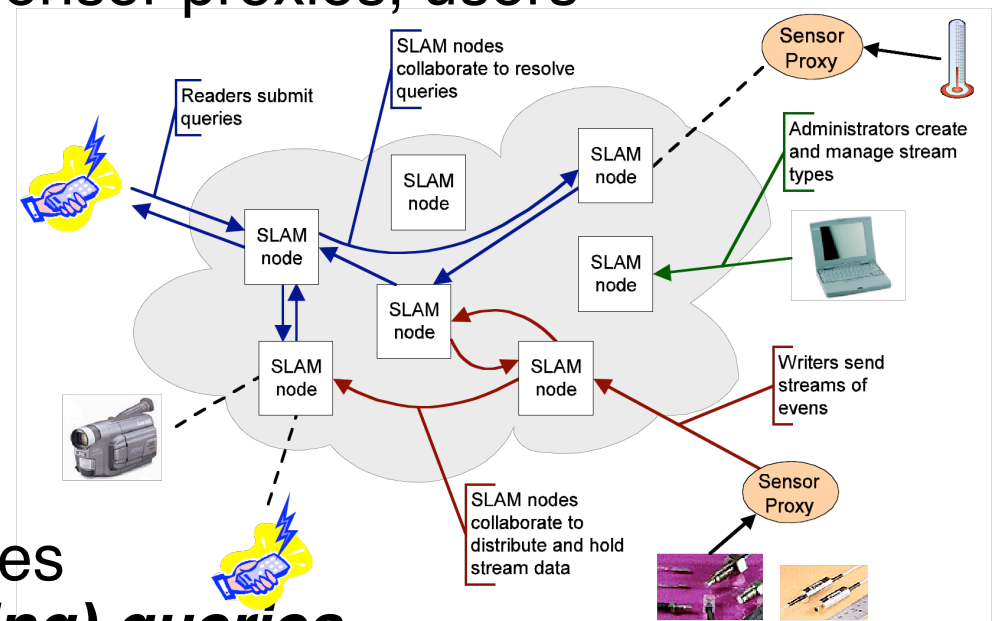
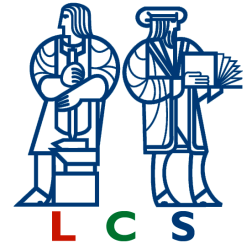


Project Overview

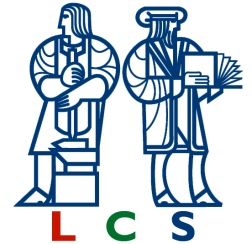
- **Medusa** project with MIT Profs. Balakrishnan, Stonebraker, Teller and several students
 - Peer-to-peer network and distributed database connected to sensors, sensor proxies, users
 - Location sensors (RFID, GPS, Cricket)
 - Temperature, ...
 - Cameras
 - Each sensor outputs a **stream** of time-stamped data
 - Distrib. database resolves **persistent (never-ending) queries**





Progress Through December 2002

- Growing group (4 faculty, 1 research staff, 7 graduate students, 1 undergraduate student)
- Collaboration with Brown U. database group and their **Aurora** project, to build a powerful single-node engine for processing stream queries
- Medusa system architecture design & documentation
- Preliminary implementation of Medusa system
 - Working demo of RFID tracking application
- Economic model for cooperation and load sharing among *multiple* Medusa networks



Research Plan for the Next Six Months

- Load balancing algorithm design
 - Sharing data storage and query-processing time among multiple nodes in Medusa network, and among multiple Medusa networks
- Stress-test benchmark
 - Implement realistic highway traffic simulator and compare against leading traditional database systems (Oracle), showing importance of distributed stream-oriented databases
- Extend prototype Medusa implementation to support full database queries via Aurora