CIS 700/005  
Networking Meets Databases  
Boon Thau Loo  
Spring 2007  
Lecture 9

Class Project
- 1-page proposal due Feb 12
- Research project option:
  - The description of the problem you are trying to solve.
  - The approach you plan to take to solve the problem.
  - A sketch of how you plan to evaluate your solution.
  - A list of at least two papers related to your problem.
  - Your proposed timeline and deliverables.
- Survey paper option:
  - The set of papers that you intend to survey.
  - The goals of your survey (e.g. what aspects of these papers are you comparing?)
- Extended office hours: Wed 3-5pm

Today
- Cost-based optimizations to pub/sub systems
- Honeycomb project
  - \texttt{http://www.cs.cornell.edu/people/egs/beehive/}
  - Beehive – O(1) lookups for Zipf-like distributions (NSDI ’04)
  - Applications:
    - CoDiNS – Cooperative Domain Name System (SIGCOMM ’04)
    - CohWeb – Content Distribution Network
    - CorDNA – Cornell Online News Aggregator (NSDI ’06)
- Potential area of research:
  - Adaptive application-aware networks
  - Cost-based optimizer for declarative networks (P2)

Rest of the Semester
- Data-centric Network Architectures:
  - Introduction to Internet Architecture (inter/intra-domain routing, BGP, etc)
  - Internet Indirection Infrastructure (I3)
  - Declarative Networking:
    - Extensible routers
    - Rapid prototyping of overlay networks
  - Active Networks
  - Routing on Flat Labels
  - Network forensics and accountability
- Spring break 🎉

Rest of the Semester
- Streams
  - Language (models and issues)
  - Execution:
    - Aurora stream processing system
    - Borealis distributed stream processing system
  - Optimizations
    - Network-aware operator placement in distributed streams
    - Continuous Adaptive Continuous Queries (CACQ) over streams

Rest of the Semester
- Sensor networks:
  - TAG and TinyDB
  - Survey of sensor abstractions:
    - TinyOS, TinyDB, single-hop/multi-hop routing, power management, time synchronization
  - DHT over sensors:
    - Geographic Hash Table
    - Virtual Ring Routing
  - Mobile sensors on delay tolerant networks
  - CarTel / IoDB
- In-class project presentations (20 Apr, Friday)
- Project report due (25 Apr)