

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
 - <http://www.cs.cornell.edu/people/egs/beehive/>
 - Beehive – O(1) lookups for Zipf-like distributions (NSDI '04)
 - Applications:
 - CoDoNS – Cooperative Domain Name System (SIGCOMM '04)
 - CobWeb – Content Distribution Network
 - CorONA – 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 / IceDB
- In-class project presentations (20 Apr, Friday)
- Project report due (25 Apr)