HUJI @ Evergrow

Evergrow meetings, 1-2.12.05
Sweden

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Lecture outline

- Short review of work up to month 24
- Future plan

Algorithms for Overlay Networks (WP3k)

- **Skip B-Trees** [Abraham,Aspnes,Yuan OPODIS 2005]
  - Combines the effectiveness of B-Trees with a distributed P2P network
  - Allows optimal range queries for dynamically changing data
- **Compact Routing for Graphs Excluding a Fixed Minor**.[Abraham,Gavoille,Malkhi DISC 2005]
  - Routing scheme with constant stretch and polylogarthmic memory for planar graphs and many extensions (road networks, excluded minors)
  - Scheme can be used for locating nearest copy of replicated object repository
- **Papillon: Greedy Routing in Rings** .[Abraham,Malkhi,Manku DISC 2005]
  - Greedy routing scheme with optimal degree vs hop count tradeoff
- **Metric Embeddings with Relaxed Guarantees** [Abraham,Bartal,Chan,Dhamdhere,Gupta,Kleinberg,Neiman,Slivkins FOCS 2005]
  - Efficient scheme for distance estimation of network coordinates
  - Provides state of the art embedding with applications to mapping internet latencies
- **Name Independent Routing for Growth Bounded Networks** [Abraham,Malkhi spaa 2005]
  - Stretch 1+epsilon routing scheme with poly-logarthmic storage on networks with bounded growth rate
  - Can be used as a base for an object location P2P scheme

More Topics - Up to Month 24

- (WP3k) Julia content distribution network
  [WORLDS 05']
- (WP3m) Tulip information sharing network
  [IPTPS 05']
- (WP3m) Efficient content distribution using belief propagation algorithm
  [Network and Algs-05]
- (WP3l) Algorithms for data transfer and indexing of data in overlay networks in a complex perspective (joint work with EPFL)
  [ECCS 05' workshop, submitted to WDAS 06']

Reach Out Topics

- (SP2) Porting to Linux and MacOS of the DIMES client
- (SP2a) EverLab project: private PlanetLab network over the Evergrow cluster (joint work with Princeton, TAU, EPFL and UCL)
- [2nd European PlanetLab meeting]

Future work

- (WP3k) Collaboration with EPFL on the following fields:
  - Data indexing in overlay networks
  - Autonomous gossiping
  - Distributed estimation of network parameters
  - Message saving belief propagation
  - Publish/Subscribe using complex systems approach
- (WP3k) Continuing theoretical work of algorithm for overlay networks

Future work – cont.

- (WP3l) Possible collaboration with TUC
  - Queries over the Tulip information sharing network
- (WP3m) Expanding the content distribution technology using network coding
- (WP3n) Collaboration with SICS
  - Solving network flow problems in a complex systems approach
- (SP2a) Installation and management of the private PlanetLab network over the evergrow cluster
  - Interaction with other grid/PlanetLab projects (INRIA, EPFL, EGEE, CETIC)

Thank You