

CSE6392 Projects

Project 1

Push vs. Pull

Information availability to mobile users

**In Push, the servers are proactive and push data to clients
consider employing a proxy or agent mechanism on the
servers/networked infrastructure to deliver data**

**In Pull, clients request for data explicitly
consider employing a proxy or agent mechanism on the
client to combine cache and prefetch to ensure data
availability**

- Group A: Push**
- Group B : Pull**

We will provide a Picture book each (By Oct. 1)

What's expected?

- Literature Review
- Understand push/broadcast or cache/prefetch
- Design and develop the strategy
- Develop an experimental model
- Performance measurements
 - Hit ratio, delay, bandwidth consumption
 - Mobility
 - Scalability
 - Consistency
- Comparison
- Write paper, demonstrate a working setup, field questions

Project 2: Mobile IP Enhancements

- Use simulation-
 - topology with at least 4-5 BSs and 15-20 MHs.
- Group A: Enhancement A
 - (e.g., Route Optimization, does not use proxies within the network)
- Group B: Enhancement B
 - (uses proxies in the network)

New mechanisms or existing ones

Project 2 : Expectations

- Design the scheme and make a case for it
- Simulation results
 - Packet losses
 - TCP/IP recovery time
 - Throughput
 - Flexibility – network architecture,
 - Scalability
 - Mobility
- Comparison
- Write paper, demonstrate the simulated setup, field questions

Project 3 – Proactivity Vs. Transparency

- Group A: The infrastructure is proactive and client transparent
- Group B : client is proactive and infrastructure transparent
- Issues include
 - Authentication and security
 - Compression/decompression
 - Translation – for example HTML to WML
 - Context-awareness
 - Location-awareness

Implementation

- Consider an application and implement
 - Linux-based Sharp Zaurus PDAs

Scenario 3



Other doctors



Hospital



Patient at home



Patients Records



Doctor in the cafeteria with a PDA



Nurse

- John Smith a medical surgeon, takes his lunch at the cafeteria, while walking to the cafeteria he makes notes on his handheld device about a patient he just visited. (take care of Handoff). It is his habit to watch a live basketball match and highlights (and scores) of finished matches on his handheld device while at lunch. When he is at the cafeteria, he also receives messages and vital information from other doctors, patients, students and nurses. He also requests the patient records systems for latest patient histories. On some days, he consults, remotely with his patients : listens to sounds, examines images, and data provided by remote consultation machines, patients and nurses. On his walk back to the clinic, he watches his daughter practice soccer at school. All on his PDA!

What's expected?

- Clients' preferences, tolerances
- Additional work at the client's end
- Additional work at the server's end
- Bandwidth considerations
- Power considerations
- Application-aware adaptation
- Mobile –aware adaptation
- Comparison
- Write paper, demonstrate a working setup, field questions

Project 4

– **Implementation of a hoarding/caching mechanism in a laptop with wireless access**

- Optimal cache utilization
 - Proactivity (server)
 - Combination of cached and prefetched items
 - Transparency (mobile device)
 - Data availability
 - Novelty
- Literature Review
 - Comparison
 - Write paper, demonstrate a working setup, field questions

What's expected?

- Literature Review
- Understand Push-pull or Replication – rather both
- Simulation environment
- document retrieval latency
- data availability
- network resource utilization
- network congestion
- Scalability
- Comparison
- Write paper, demonstrate a working setup, field questions

Students

1. Agah Afrand
2. Agarwal Shashank
3. Ahmed Khan Meraj
4. Anipindi Kalyani
5. Reshma Bhalla
6. Chandramouli Vijay
7. Chauhan Savita
8. De Madhumita
9. Dill Scott Leonard
10. Govindaswamy Visvasuresh
11. Kilaru Aravind Mohanrao
12. Kim Youngjae
13. Lee ByungHo
14. Lee Il Ho
15. Liu Yuanhui
16. Mehta Ritesh Indarmal
17. Mohare Kedar Bhikaji
18. Murali Pratik
19. Nagaraj HarishKumar H
20. Pallikondan Suresh
21. Park Kyungseo
22. Prabhakara Ajith
23. Pullela Srikanth
24. Ramamurthy Naveen
25. Ramesh Savitha
26. Ravi Nandini
27. Suryanarayanan Nagashree
28. Wang Zhijun

Project Assignment

- PROJECT GROUPS:
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 - 1A: 15, 19, 28, 1
 - 1B: 11, 20, 16, 13

 - 2A: 5, 18, 12, 14
 - 2B: 7, 8, 2, 23

 - 3A: 27, 17, 26, 6
 - 3B: 9, 4, 22, 21
- 4: 3, 10, 24, 25

 - SEMINAR:
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 - 10/22: 18, 14, 19
 - 10/24: 17, 5, 6

Seminar Topics: October 22, 2002

- Cellular IP
 - Murali Pratik
- Wireless access protocol architecture
 - Lee Il Ho
- Comparison of multicasting protocols for wireless networks
 - Nagaraj HarishKumar H

Seminar Topics for 24/10/2002

- Web Proxy mechanisms for wireless networks
 - Mohare Kedar Bhikaji
- Wireless ATMs – routing and real-time delivery
 - Reshma Bhalla
- Wireless LAN technologies
 - Chandramouli Vijay