Locus Lab:
Practical and Useful Location Aware Applications

Gunnar Misund
Associate Professor
gunnar.misund@hiof.no

Østfold University College
Faculty of Computer
Science
Halden, Norway

Outline

- Project OneMap
- The Been-There-Done-That Framework and Location Aware Mobile Applications

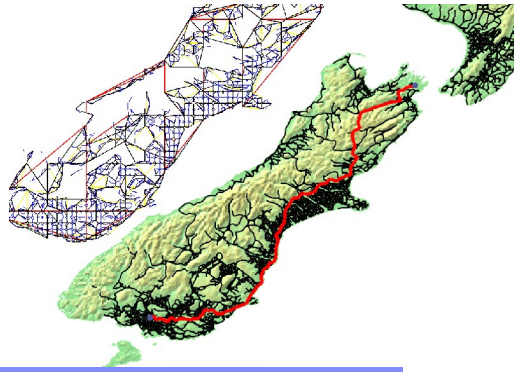
Project OneMap

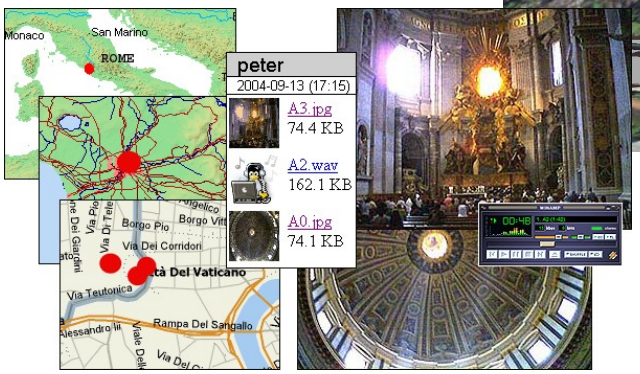
- Long term effort contributing to the fusion of standard web technologies and geographic content, often referred to as the GeoWeb.
- Open/free content
- Open managment
- Open standards/formats
- Student effort

www.onemap.org

Project OneMap

- 3 main R&D activities:
  - Methods for managment of vast amounts of geospatial data
  - 3D visualization of 2D map data
  - Mobile, location aware applications





www.onemap.org

Student Based R&D

- By the end of 2005 we will have between 25 and 30 registered scientific publications (ForskDok), involving 14 student authors
- Foundation for research based education
- So far, around 40 students have been involved in various OneMap projects
- 9 master students have graduated during the two last years, and 11 more will finish their thesises in 2006 (hopefully)

Been-There–Done-That (BTDT)

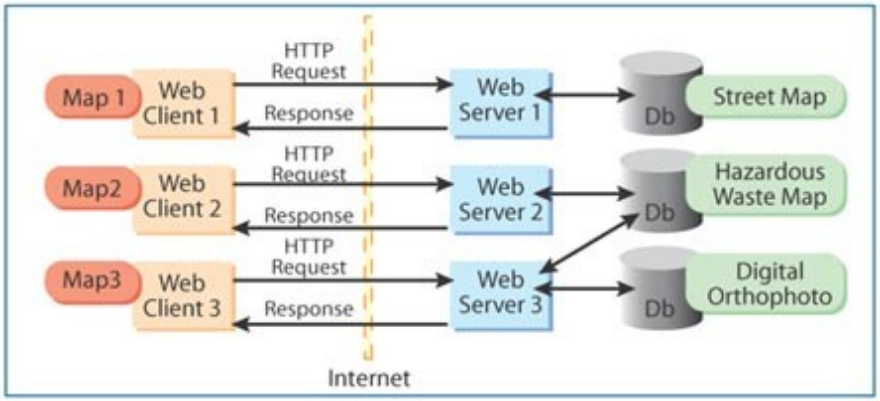
- Been-There-Done-That (BTDT) is a framework for developing and deploying mobile, location aware applications
- The clients are typically mobile phones, but may also be PDAs and laptops
- Advanced Location Based Services
  - Currently almost exclusively ”one way” communication (content pushing), the user is only a consumer
  - We involve the user. In addition to being a consumer, the user is also a producer of content
- Based on 2 years of research and developmement
- 12 students have so far been involved

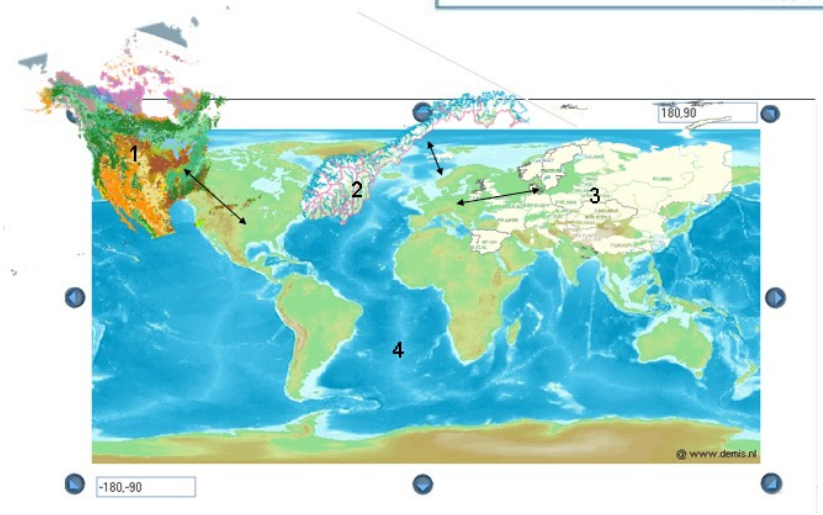
Client-Side BTDT Framework

- Positioning
  - GPS, Gazetteer, Cell ID
- Multimedia
  - Images (Megapixel Quality), Video, Audio, Text
- Connectivity
  - GSM (2G, 9.6kbps), GPRS (2.5G, <144kbps), EDGE/UMTS (3G, 384kbps), WLAN
- All this results in
  - A Full Fledged Programmable Mobile Computer with Advanced Multimedia Capabilities (both as presentation and recording)
  - With high performance and capabilities (~400MHz, ~1GB storage)

Server-Side BTDT Framework

- Open and widely adopted geodata protocols (WMS, WFS, OGC)
- Many providers of free and high quality georeferenced services (maps, weather, traffic, etc)
- A rather recent development





Ongoing BTDT Projects

- Georeferenced Multimedia Album
  - Capture images, video, text and sound tracks with your mobile phone and autimatically store them in a georeferenced form (Locate the stored information on an actual map)
- Geotagging
  - Mark a location on a map with a captured image or other data
  - Featuring both a map browser and content viewer (consumer) and a storage module to upload and store images (producer)
- Search and Rescue
  - Collaborative support for smaller SAR operations
  - All team members are marked on a map, and various methods will be implemented to enhance cooperation
- Grass Roots Journalism
  - Images, video, speech notes and text can be produced, georeferenced and published in real-time
  - Locus Times: Experiments on real time mobile multimedia reporting

Ongoing BTDT Projects (cont.)

- Dynamic Traffic Information Management
  - Clients can both report situations and get notified of situations that are in their vicinity
  - Automatic detection of potential traffic problems
  - Traffic flow in realtime based on the positions of the participating vehicles
- Electronic Fisheries Logbook
  - All fishing vessels are obligated by law to maintain a logbook
  - Reporting mandatory catch data (location, type of gear, species, quanta etc.) in real time in the field with mobile terminal and GPS
  - A tool for monitoring and coordinating the coastal fishing fleet
- Mobile Assistant for The Disabled in Urban Areas (Oslo)
  - Together with the Norwegian mapping authorities, Oslo municipality, Handikapforbundet, Blindeforbundet, Miljøverndepartementet
- Collaborative Mapping
  - Using the movement of people to create maps
  - Simplyfing the field work and enabling private entities to create their own, personal maps