Mobile Services: the Challenge of 21st Century

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Outline

- Mobile Devices Evolution
- Mobile Services Evolution
- Mobile Devices Challenges
- Invited Panelists

MOBILE DEVICES EVOLUTION
Long time ago…

MOBILE DEVICES EVOLUTION
Not that long ago…

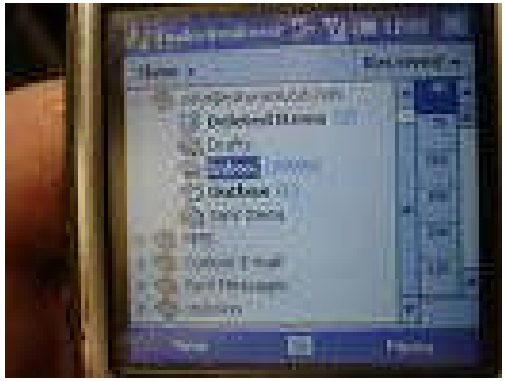
MOBILE DEVICES EVOLUTION
Nowadays… coexistence…

MOBILE DEVICES EVOLUTION
Should we feel fear?

MOBILE SERVICES EVOLUTION
Long time ago…

MOBILE SERVICES EVOLUTION
Not that long ago…

MOBILE DEVICES EVOLUTION
Nowadays… coexistence…



MOBILE DEVICES: Which is the ultimate challenge of 21st Century?

- Making people happy with their mobile device.

- Giving them as much services as possible.

MOBILE DEVICES: Which are the challenges that we have to bear in mind?

- Giving them **as much** services **as possible**

- **Adapting** these **services** to mobile devices **properly**

- Making devices **aware of user context**

Panel Invited Participants

- Timo Ojala, University of Oulu, Finland
  - Context-aware mobile multimedia services
  - Content-based information retrieval
  - Using semantic information in content-based retrieval
- Emily Ivey, Georgia Institute of Technology, USA
  - Evaluating effectivenes of mobile technology
  - Military Open Source Software
  - Technological advances for helping people with disabilities

Leverage from the EU 2007–2013

European Union
European Regional Development Fund

ICIW 2010 Panel

Mobile Services: the Challenge of 21st Century

Professor Timo Ojala
University of Oulu, Finland
http://www.ubioulu.fi

ICIW 2010
Barcelona, Spain, May 9-15, 2010

Oulu, Finland

- Population ~140 000
- Strong ICT competence
  - Largest regional R&D expenditure per capita in Finland
  - About 14000 ICT jobs in Oulu region (Nokia ~4700)
  - Wired Magazine ranked Oulu #3 ”silicon valley” in the world in late 90’s
- City’s central administration is very pro ICT and pro R&D
- More information: http://www.ouka.fi

Deployment of open horizontal infrastructure in Oulu

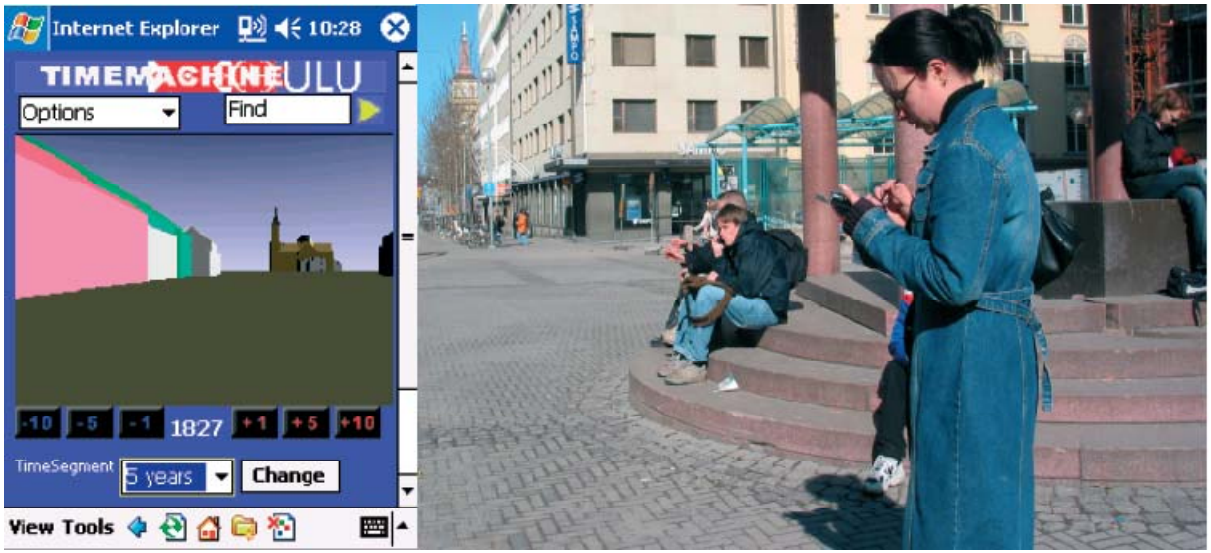
- **panOULU WLAN**: City-wide wireless network (802.11) providing open and free Internet access to general public
- **panOULU BT**: Cluster of Bluetooth AP's providing WPAN hotspots
- **panOULU WSN**: Upcoming cluster of WSN AP's (802.15.4 + 6LoWPAN)
- **UBI-hotspots**: Cluster of interactive large public displays

- More info: http://www.ubioulu.fi

Ojala T, Kukka H, Heikkinen T, Linden T, Jurmu M, Kruger F, Sasin S, Hosio S & Närhi P (2010) **Open urban computing testbed.** *TridentCom 2010, Berlin, Germany, to appear.*

Case studies on context-aware mobile multimedia services

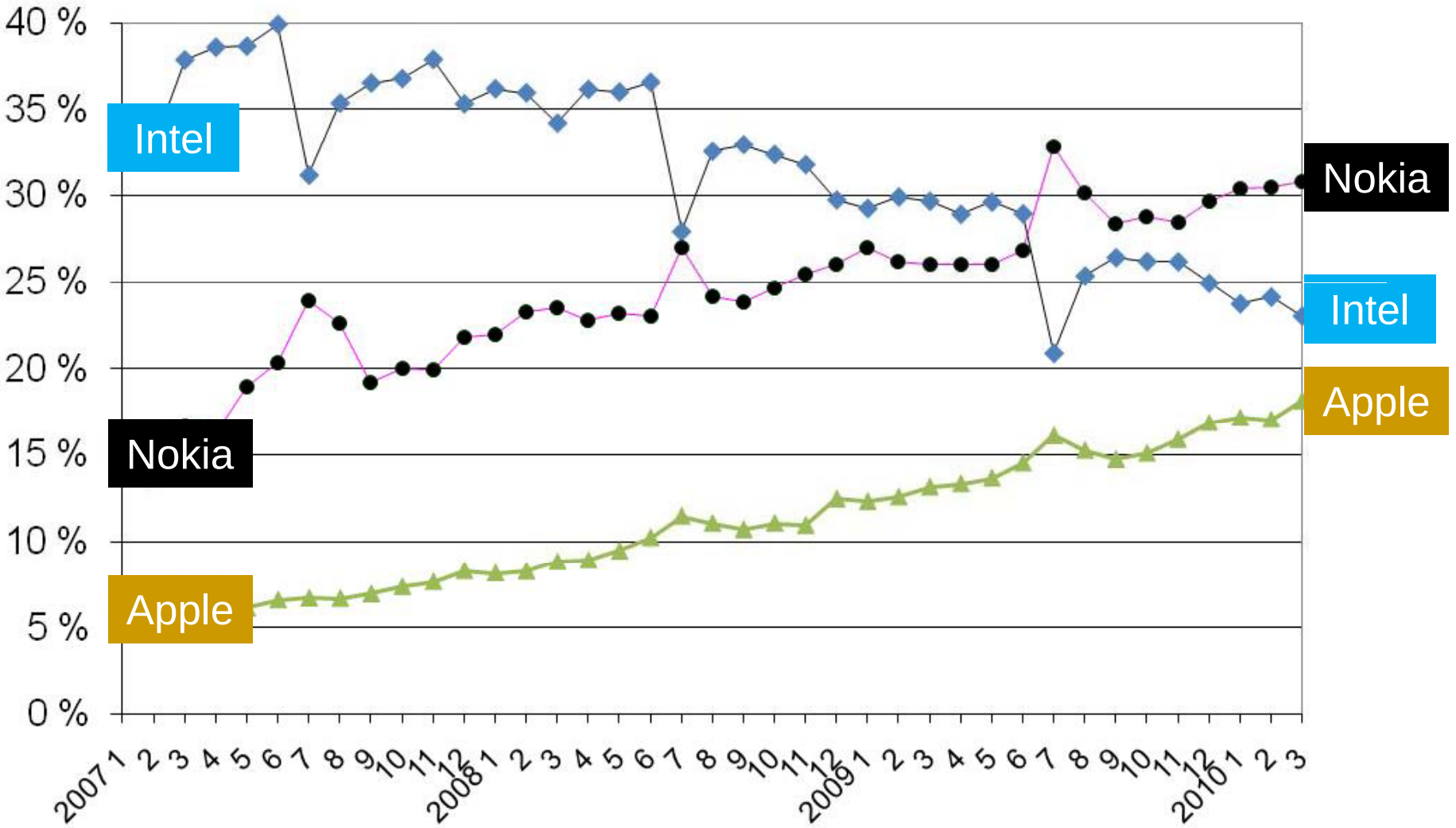
- TimeMachine Oulu (virtual 3D model of historical Oulu)
- Mobile Fair Diary
- Mobile advertising
- SmartLibrary
- SmartRestaurant
- Etc.



Ojala T (2010) **Case studies on context-aware mobile multimedia services.** *Journal on Digital Information Management 8(1):3-14.*

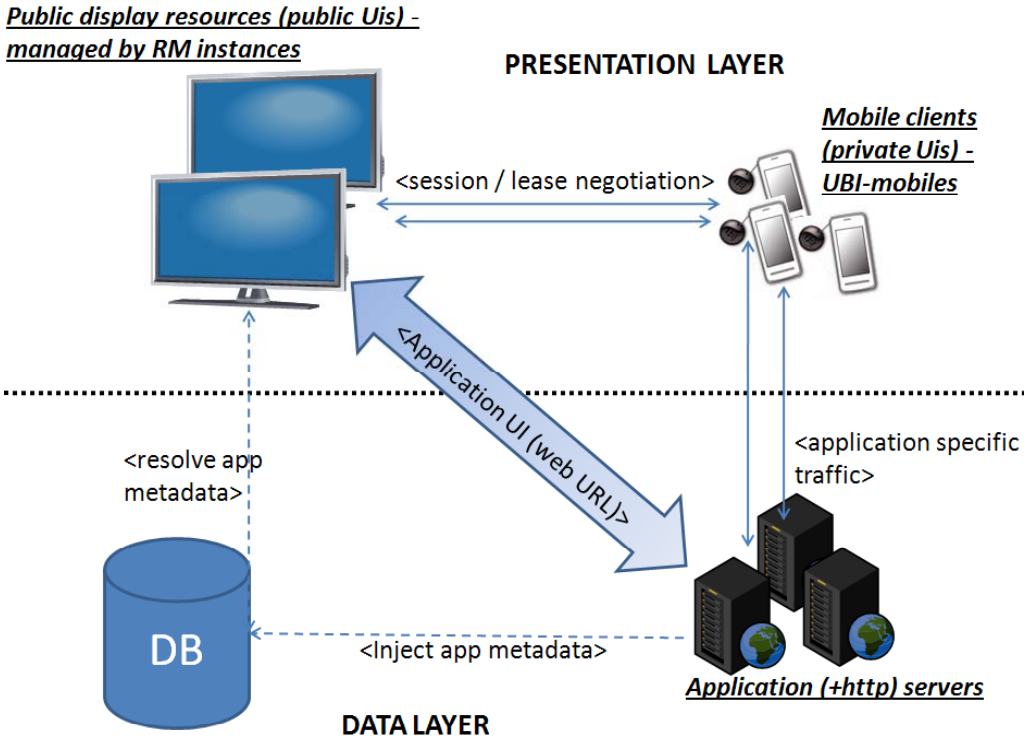
panOULU WLAN: Proportions of different clients

(derived from MAC vendor ID)



UBI-hotspots: Distributed UI for ambient interaction

- Mobile (private UI) + UBI-display (public UI)
- Partitioning of computation, control and presentation



Hosio S, Jurmu M, Kukka H, Riekki J & Ojala T (2010) **Supporting distributed private and public user interfaces in urban environments.** *Proc. HotMobile 2010, Annapolis, MD, USA, 25-30.*

Mobile Services: the Challenge of 21st Century

- Universal
  - Wireless connectivity
  - Service access, provisioning and interoperability
  - (Mobile) Internet identity
  - QoS
- HCI (mobile, ambient, context-awareness)
- Content and user data (creation, storage, management, control)
- Security, trust and privacy
- Power
- Global data plans (international roaming)
- Services for developed vs developing world

Thank you!

More information

http://www.ubioulu.fi

http://www.panoulu.net

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Mobile Technology in Election Observations

EMILY IVEY

SCHOOL OF PUBLIC POLICY
GEORGIA INSTITUTE OF TECHNOLOGY

eDemocs: Electronic Democratic Election Monitoring over Distributed Systems

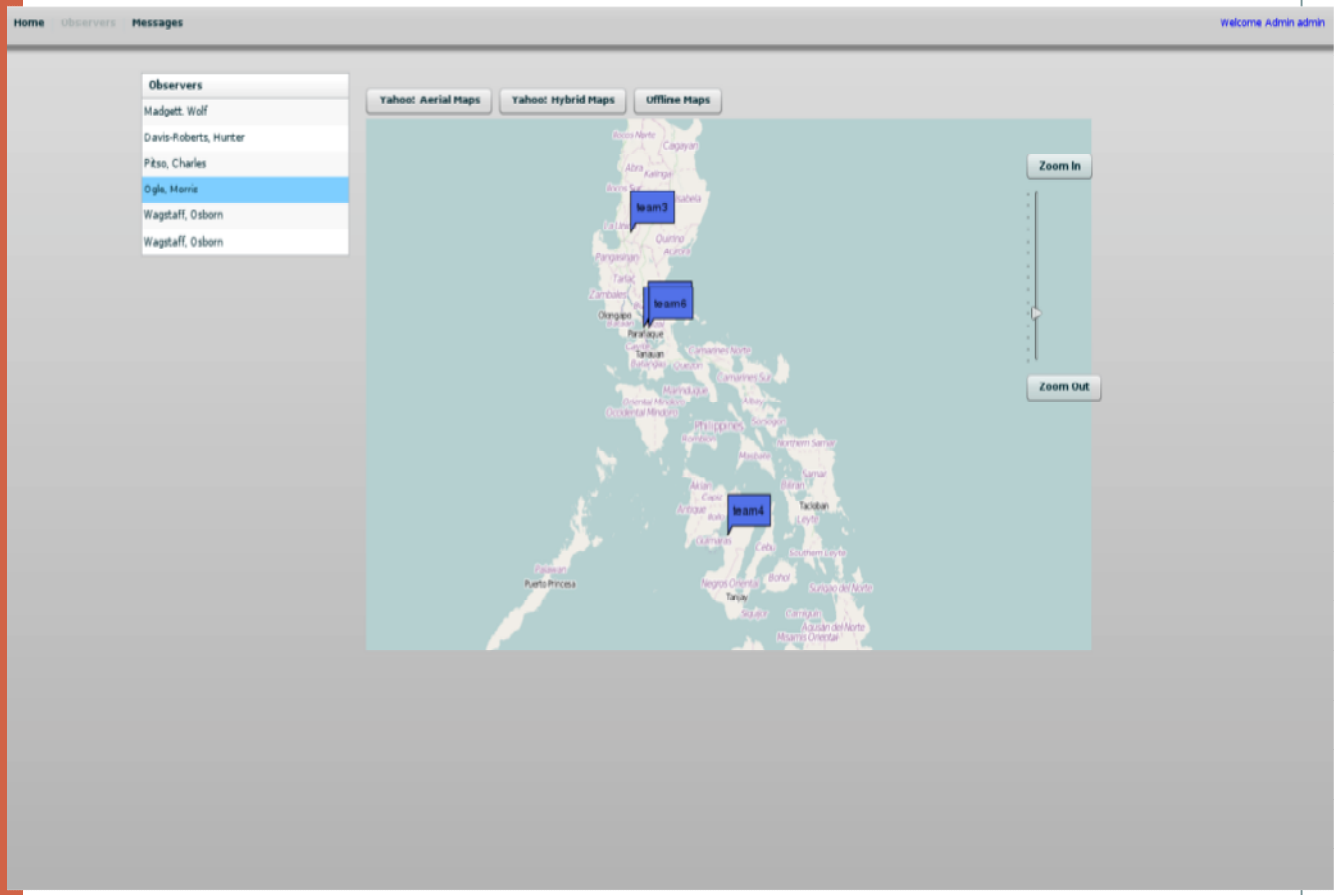
- Collaboration between the Carter Center and Georgia Tech. to replace the Carter Center's paper-based election system with a digital one to create more reliable, efficient and robust data gathering.
- Uses the same questions used in the paper-based method, but sends responses in real time via SMS.

The Technology

Because this system was designed to work in a variety of countries and settings, this entire system is completely functional without any Internet connectivity.

Specifically designed to be adaptable to many different developing world settings.

Assumes no more than 2G network coverage because 2G is the most prevalent network globally.



Program Evaluation

- As a policymaker, I study the effect that technological advances have on the community it is trying to impact.
- More: to examine variables such as the reliability of the network, the quality of the messages sent, and the ease with which observers can input information; then make recommendations to improve the system for future iterations about the project.

Questions?

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