

retino

(real time notifications)

Daniel Buchmüller

db@icontent.ch

<http://www.nycintern.com>

Fabian Hensel

fabian@iswitch.ch

<http://www.digitaldna.ch>

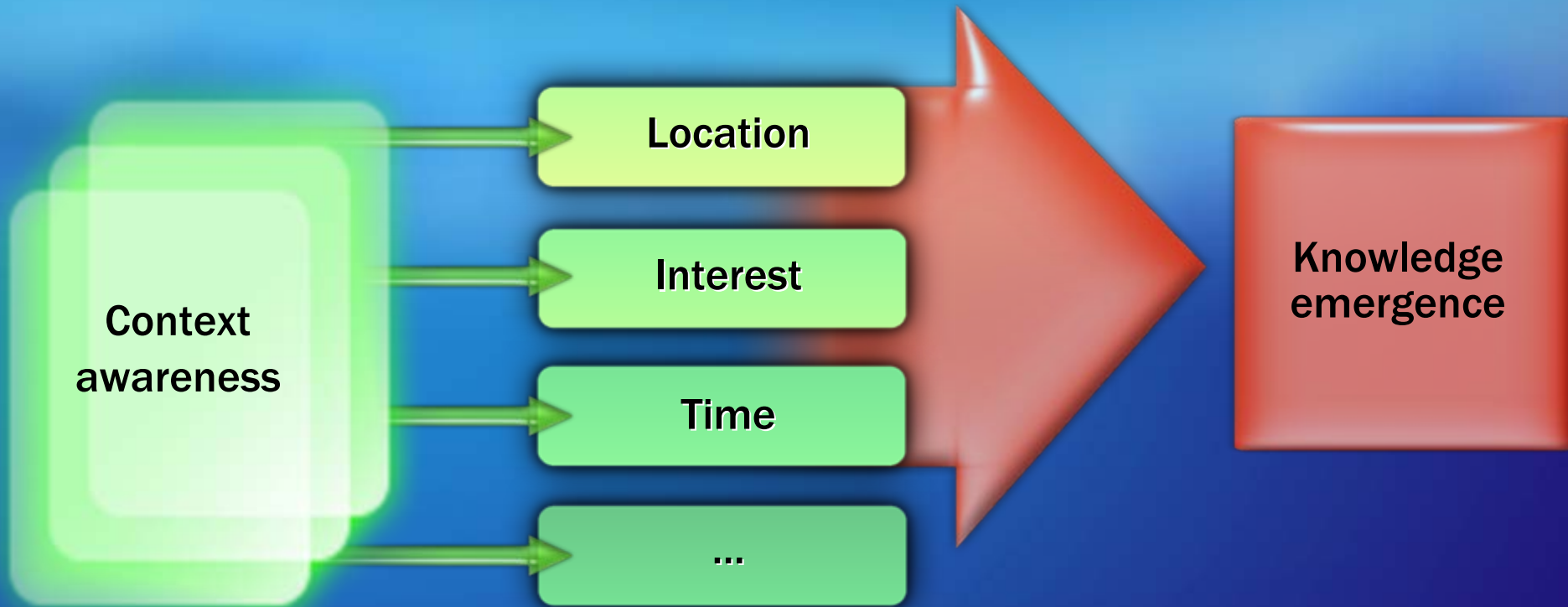
Agenda

- **Introduction**
 - Challenge
 - Scope
 - Location awareness
 - Mobile Clients
- Related work
- Our project

Challenge

- Information Flood
 - Information available, selection needed
e.g. Search engines
- Context Information Scarcity
 - Gathering needed
e.g. Ubiquitous Systems

Scope



Context awareness: Location

- Continuous
 - Satellite based: GPS
 - GSM / UMTS parameters
 - Location Area Code, Cell ID, Cell Measurements
- Discrete
 - WLAN ESSIDs
 - Infrared / Bluetooth beacons (indoor)
 - RFIDs
 - Manual



Mobile Clients: Awareness sensors

	Smart	Dumb
Thin		No local software Web application → WebPark (Nationalpark)
Fat	Local executable Local intelligence → beeloop.com (Stadtkarten)	Local executable Remote intelligence → retino

Agenda

- Introduction
- **Related work**
- Our project

Related work: Single awareness aspects

- Information flood problem
 - *Remembrance Agent, MIT Media Lab, 1996*
- Notification service
 - *Location-Based Notification as a General-Purpose Service, IBM, 2002*
- Location based services (tourism)
 - *The GUIDE Project, Lancaster University, 2000*
- Communities
 - *Supporting Awareness of Shared Interests and Experiences in Community, ATR Kyoto, 2000*
- Semantic Web
 - *mSpace Mobile, IAM, 2005*

Agenda

- Introduction
- Related work
- **Our project**
 - Imagine Cup
 - retino
 - Architecture
 - Usage Distinction
 - Node to Server Communication
 - Community
 - Extensibility
 - Demo
 - Conclusion
 - Comparison
 - Outlook

Imagine Cup

- Worldwide student competition by Microsoft
- Local finals in every country/online
- Worldwide Finals

- Several invitationals (2006)
 - Software Design
 - IT
 - Short Film
 - Algorithm
 - Programming Battle
 - Interface Designer

Imagine Cup

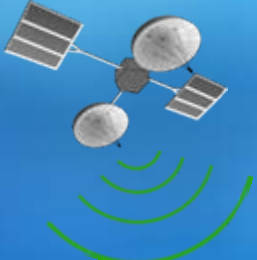
- 2004
 - „Imagine a world where smart technology makes everyday life easier“
 - Sao Paulo and Foz do Iguassu, Brasilien
- 2005
 - “Imagine a world where technology dissolves the boundaries between us”
 - Yokohama, Japan
- 2006
 - "Imagine a world where technology enables us to live healthier lives"
 - Delhi, India

Overview

- retino ...
 - ... is an open notification framework for real-time location based services (LBS)
 - ... avails the power of communities
 - ... uses smart judging and weighting algorithms
 - ... is implemented as an open framework

Architecture

GPS Satellite



GSM/UMTS Network



retino.node



Mobile client

retino.ws



retino.mappoint



Microsoft MapPoint



retino.db



retino.web



retino.door



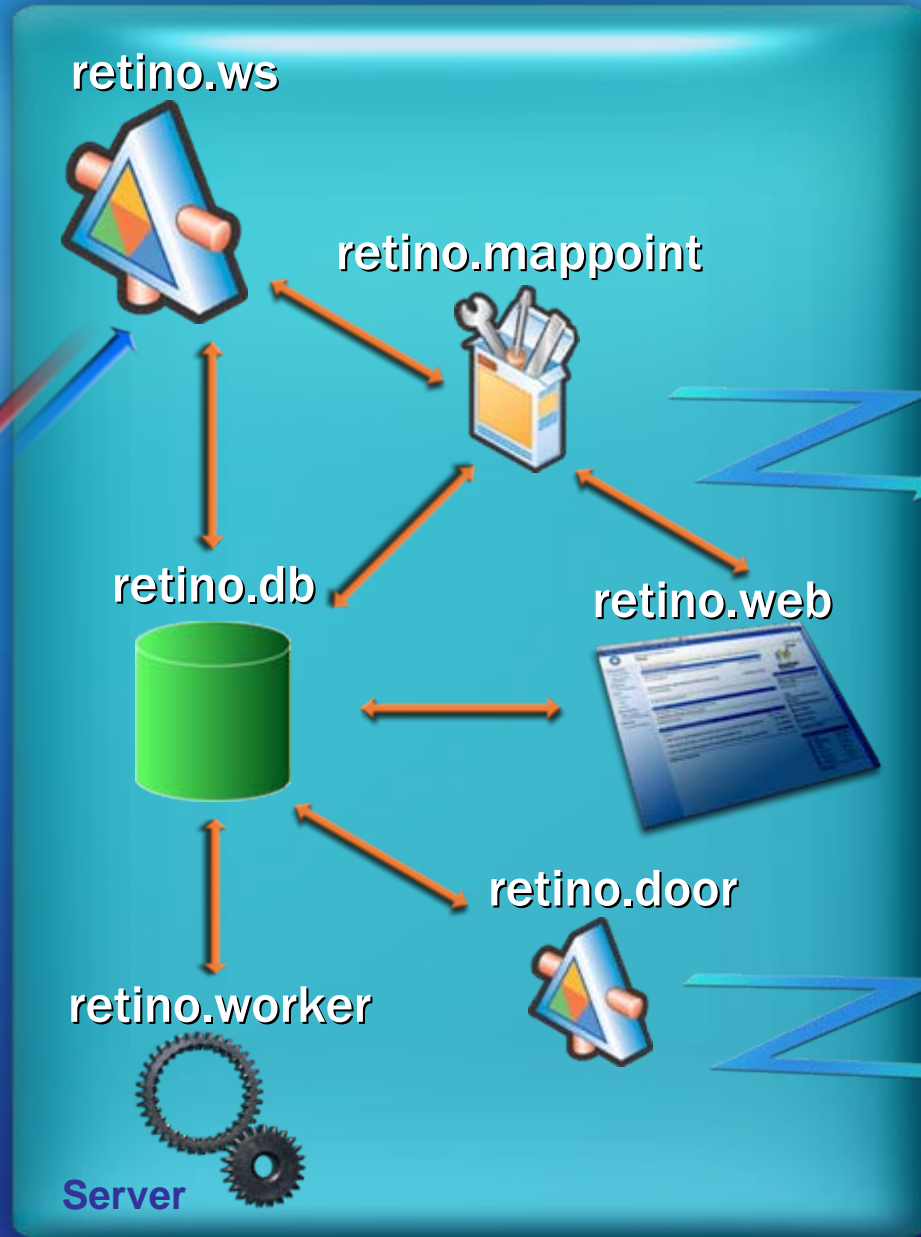
external web service



retino.worker



Server



Usage Distinction

- retino.web
 - sign up
 - configure and subscribe to services
 - download node software
- retino.node
 - pure system sensor and notifier
 - challenges
 - screen size
 - battery life
 - slow, expensive link
 - safe in-car use

Node to Server Communication

retino.node

retino.ws

retino.db

retino.worker

Users would like to report to community

Location reports



Add-up location reports



Decide on credibility and reliability (ratings)

Generate event



Users enter proximity radius of event, subscribed to service

Send notifications



Community

- retino Users
 - support the community by
 - submitting individual reports
 - building a trust network by rating contributions
 - profit from the community by
 - receiving relevant events notifications
 - being aware of friends location

Extensibility

- Service Oriented Architecture
 - WebServices allow extension or replacement of framework parts
 - e.g. J2ME based retino.node
- Semantic Web
 - Syndication publishing
 - Integration of structured sources

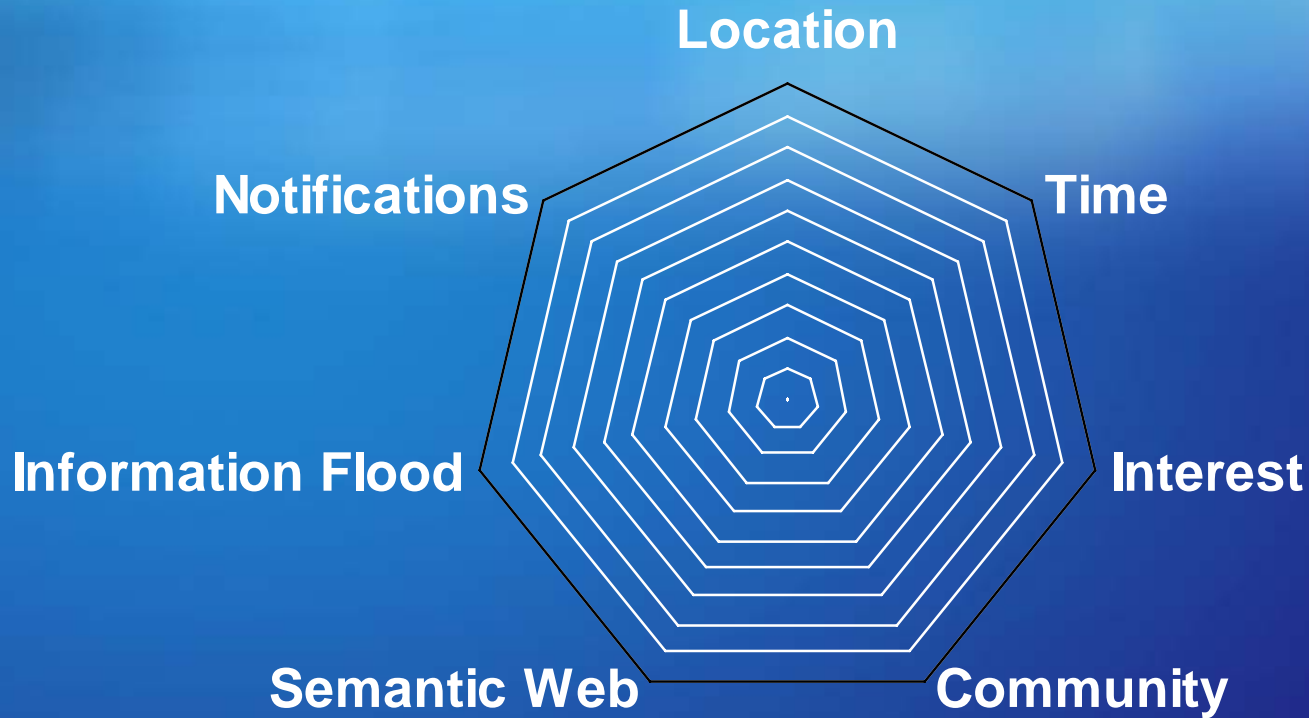
retino

demo

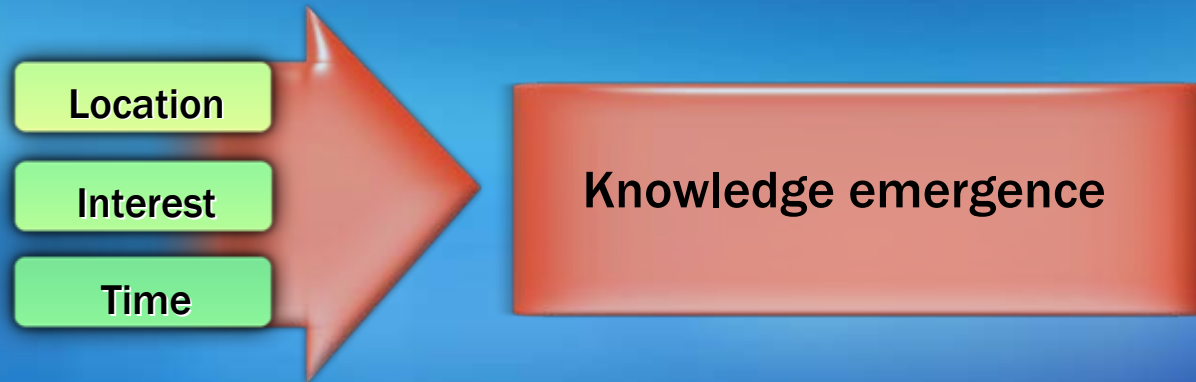
Conclusion

- retino filters the information flood and gathers
 - location-
 - time-
 - interest-aware information.

Comparison



Outlook



- Knowledge Emergence through combination of first level awareness factors
 - Time & Location → Usage Patterns
 - Speed (& acceleration) → Mean of transportation
 - Interest & Location → Ad hoc Local interest groups

Thank you

- Have a look at retino yourself:

<http://retino.icontent.ch>

- Questions?