

Ambient-oriented Programming and AmbientTalk

Vrije Universiteit Brussel
Software Languages Lab

Context



Current applications



Personal Area Networks

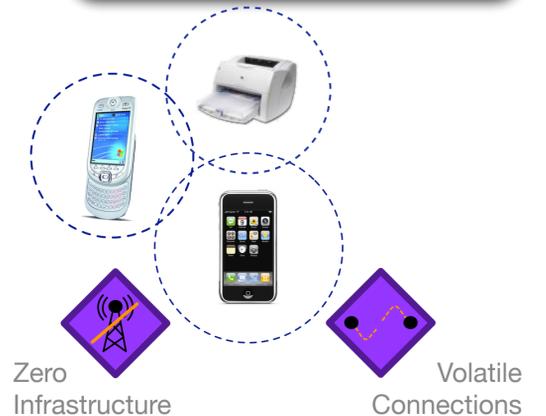
Research vision

Mobile & Ubiquitous Computing

- Hardware Issues:
 - Miniaturisation
 - Device Autonomy
 - Interoperability
 - Processor Speed
 - Limited Memory
 - Integration
 - Cost
- Software Issues:
 - Context-awareness
 - Interaction with real world
 - Portability
 - New user interfaces
 - Standards
 - Distributed Applications

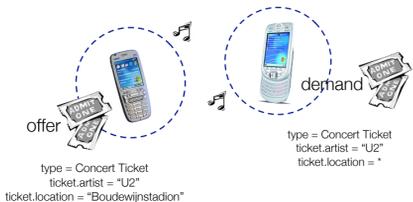
Issues

Mobile Ad Hoc Networks



Approach

Ambient-oriented Programming



No reliance on fixed, always-available server infrastructure

Tolerate disconnections, because they occur frequently rather than exceptionally

Software concerns:

- Discovery
- Synchronisation
- Communication
- Failure handling

Solution

AmbientTalk

- Object-oriented scripting language
- Started in 2005
- Pure implementation
- Runs on J2ME/CDC phones
- Open source implementation <http://code.google.com/p/ambienttalk/>



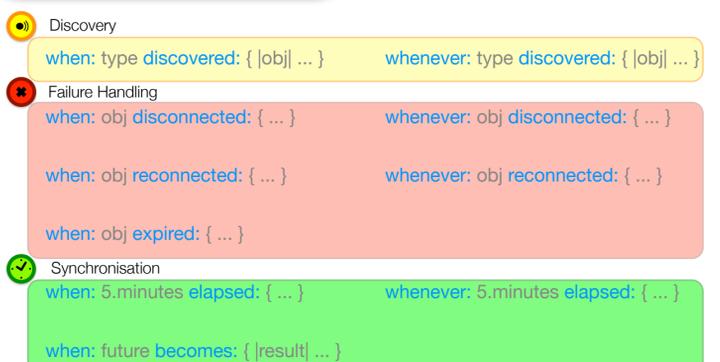
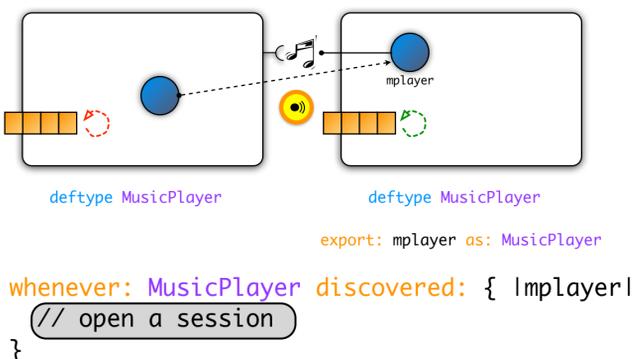
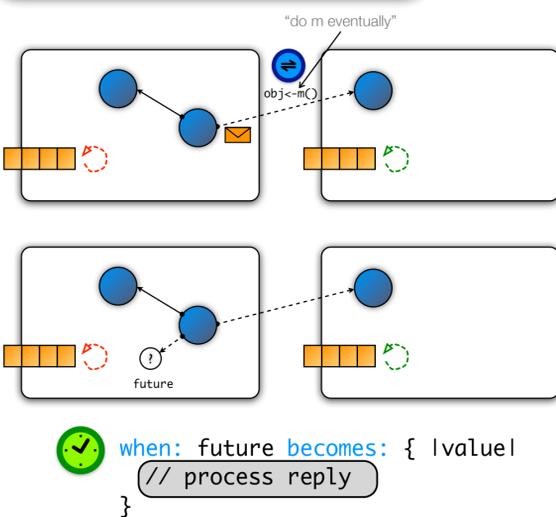
Zero Infrastructure
service discovery protocol built into the language

Volatile Connections
network connections are resilient to failures by default

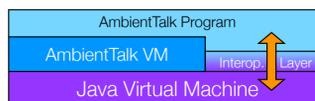
Event loop concurrency

Exporting/discovering objects

Event notifications



Implementation



Current research

Check out our website!

Don't program the hardware of the future with the software of the past

<http://soft.vub.ac.be/amop/>

