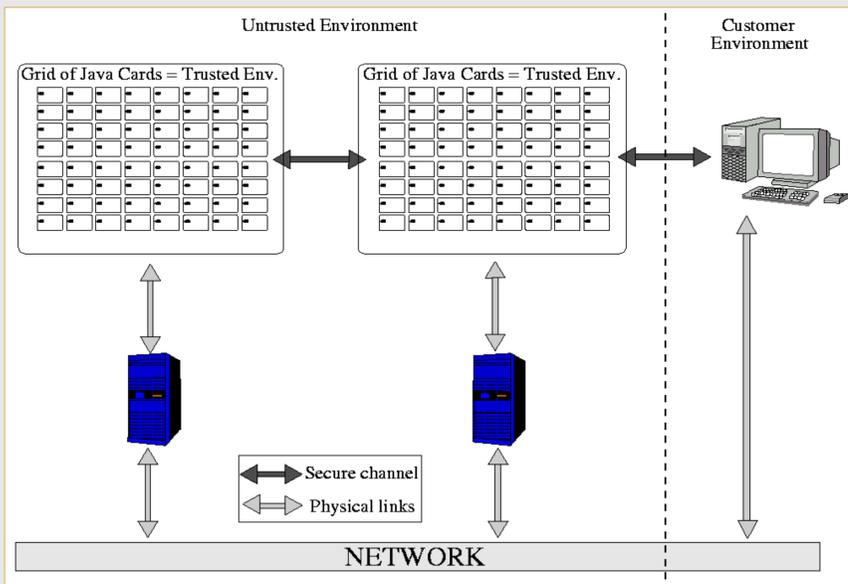


ABSTRACT

This project consists in setting up a grid-like mobile infrastructure based on SIM cards. It combines the Java Card Grid infrastructure developed at the LaBRI, the SIM experience and tools of the Royal Holloway University of London, and some features of the MADNESS project developed at the XLIM.

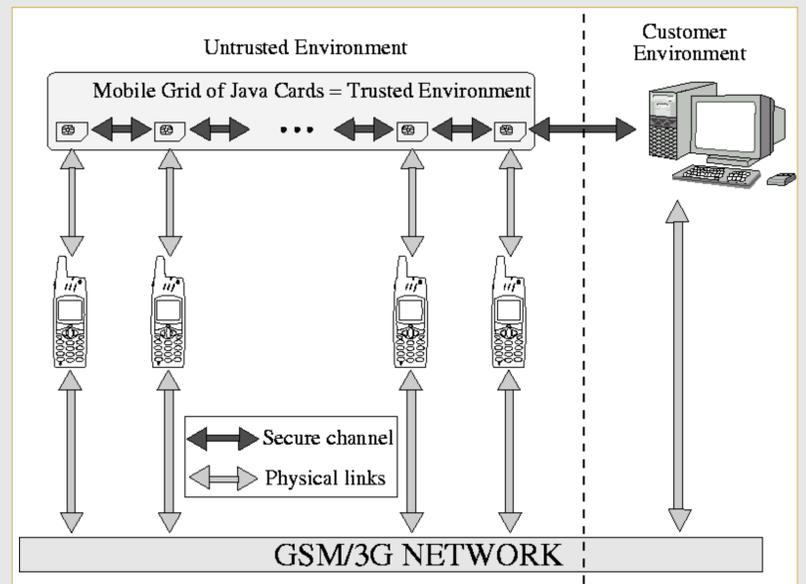
THE ORIGINAL JAVA CARD GRID

- Based on the multi-applicative characteristic of the Java Card technology and on the experience of both this technology and distributed computing of the LaBRI, the Java Card Grid has been set up. This project consists in building a cluster of smart cards and in providing a software framework for developing and managing secure applications on this cluster.



THE MOBILE JAVA CARD GRID

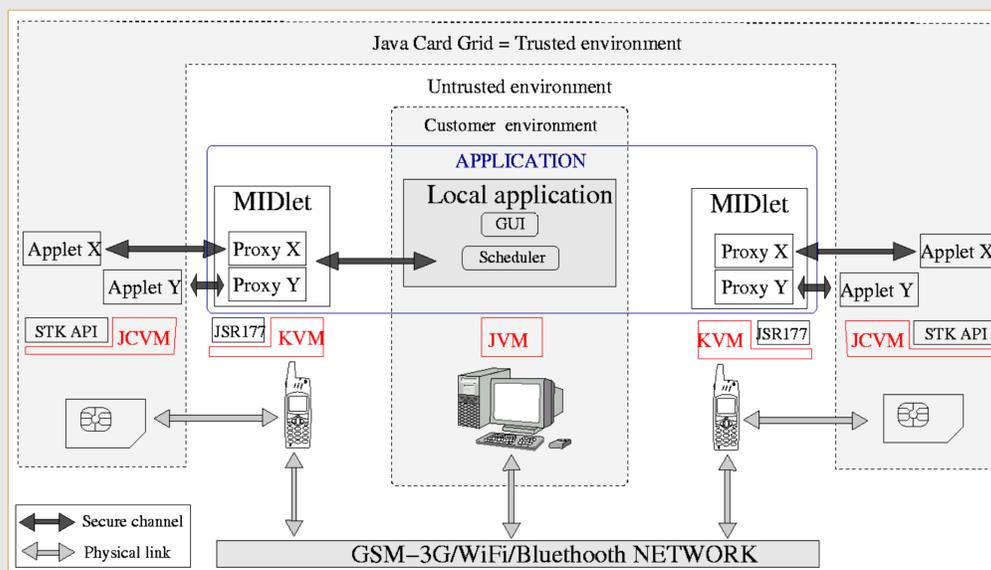
- The goal of this new project is to explore new application domains, by extending to a mobile context based on mobile phones the possibilities offered by the original Java Card Grid developed by the Distributed Systems and Objects team at the LaBRI.



- Awards**
 - Best innovative technology at e-Smart 2005
 - Invited paper at the 2006 High Performance Computing & Simulation (HPC&S) Conference

- The mobile grid will be composed of (U)SIM cards embedded in a set of mobile phones, what makes it possible to achieve this extension still providing the same level of security as in the original platform.

FRAMEWORK OVERVIEW



Challenges

- Applications deployment**
 - Current OTA solutions have bandwidth constraints
 - Solved using the solutions developed by the ISG-SCC
- Communication**
 - GSM/3G (Sim Toolkit API)
 - Bluetooth /WiFi
- Pro-activity**
 - Enables the card to act as a client
 - Already built in (U)SIM cards
- Memory limitation**
 - Solved using the secure extended memory developed at LaBRI
 - Will be solve by next generation cards (1GB)

Prospective applications

- Credential sharing between a group of users
- Distributed datamining
 - In phonebook of the employees
 - ...
- Set up a multilevel ad hoc network in a peer to peer mode or emulate its behaviour
-

Conclusion & future work

- Gather all the developed solutions to build a prototype
- Imagine a killer application.
- Will be a joint project between:
 - The ISG-SCC
 - The LaBRI
 - The XLIM

Thanks

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