



Pervasive Grid

-- Round table discussion

Minyi Guo

**School of Computer Science and
Engineering, University of Aizu, Japan**



Definition

- ◆ **Pervasive Computing + Grid Computing = Pervasive Grid ?**
- ◆ **Pervasive Computing:**
 - ❖ **Distributed Computing, Mobile Computing +**
 - ❖ **Smart Space, Invisibility, Localized Scalability, uneven conditioning**
- ◆ **Grid Computing:**
 - ❖ **Heterogeneous, Distributed System, Remote Procedure Call, Shared resource management and discovery,**
- ◆ **What is new features?**



Challenges

- ◆ **Deep Context Awareness**
- ◆ **Invisibility of resource management and discovery**
- ◆ **Cognitive Continuity**
- ◆ **Sentient Software**



Challenge issues

- ◆ *Deep Context Awareness:*
 - ❖ Make full use of context information
 - ❖ Make use of “commodity sensors” (e.g., WebCam, RFID, Temp/Light,..)
- ◆ Invisibility of Shared Resource Discovery
 - ❖ **Not find shared resource in grid systems by user themselves, while by pervasive environments**
 - ❖ **Flexible smart space infrastructure to accommodate all kinds of resource**
- ◆ **Cognitive Continuity**
 - ❖ In Pervasive network, individual moves frequently
 - ❖ **user distraction – accommodate new computing utilities**
 - ❖ **Proactive task state synthesizing**
 - ❖ **Mapping and infusing between different plans**



Challenge issues

- ◆ Sentient Software
 - ❖ Context changes → Run-time changes of software behavior.
 - ❖ *Commodity AI*: make the software look smart some of the time (implement some decent adaptive heuristics)
- ◆ Current software systems:
 - ❖ never disagree with anything you say, and of course they never initiate anything.



Challenge issues

- ◆ Some thoughts:
 - ❖ It is almost impossible to know what the user really wants.
 - ❖ Observed that most people live in routine life and most human tasks are predictable
 - ❖ So we just build software which conforms more closely to how they work.



Killer Applications

- ◆ Common services
 - ❖ Airport, hotel, railway station,
 - ❖ University Campus
 - ❖ Distance Learning
 - ❖ Other intersection of pervasive and grid systems

Build Pervasive Grid Community



- ◆ Attract researchers on Pervasive Computing and Grid Computing working together
 - ❖ GPC conference?
 - ❖ Make a special issue to discuss?
 - ❖ Make a working group/forum at IEEE/ACM