Clouds, Grids, and the Rest

An attempted clarification
Outline

• What's up? Some observations.
• What is it? Some definitions.
• What does it do? Some more observations.
• Aaaahhh! An attempt to organize matters.
• So what? Some lessons (to be) learnt.
Whats up?

- **Neverending Story:**
  "Grids are great, but to be really useful, there is *something* missing."

- **New kid in town:**
  "Clouds, what are they, really? Anyway, they are cool, they have a special *something* which makes them really useful!"

- **doh!**
  "Watson, I think we’ve got *something* here!"
What is it?

bottom-up approach on definitions:

- **Resources:**
  physical or virtual entities of limited availability.

- **Services:**
  entities providing capabilities on resources, or allowing to perform actions on resources.

- **System:**
  set of services and resources, which form an integrated whole → hierarchical concept!

- **Application:**
  entity which makes use of a system → Can be a higher level system!
What is it?

more boring defs...

- **Semantics (of Systems):**
  set of capabilities, or features, available *within* a system.

- **System Interface:**
  set of interfaces that allow an application (and higher level systems) to access the capabilities of a system.

- **Virtualization:**
  additional layer between real systems and applications, translating concurrent access to real systems into seemingly exclusive access to the virtual system.
What is it?

and two new defs! :-)  

- **Usage Mode**: commonly occurring resource access and deployment pattern for an application or a class of applications.

- **Affinity**: inherent property of a system describing a relationship between (real or virtual) resources. That relationship is indicative of the types of Usage Modes that the system supports.
What does it do?

some more observations

- **System interfaces expose a complete semantic feature set as required by the set of target applications.**
- **Higher-level systems tend to support more specific target application and usage modes than lower-level systems.**
- **The narrower a system interface, the easier it is to use.**

*Tataaa!* - do you begin to see the point we aim at?
Aaaaaaah!

- **Clouds:**
  - limited application scope
  - → specific Usage Modes
  - → limited system interface
  - → easy to use!

- **Grids:**
  - wide application scope
  - → numerous Usage Modes
  - → rich system interface
  - → tough to use!

- **Narrow Grids:** fall somewhere in the middle

Well, that was easy! :-(
So what?

• a 'general purpose cloud' does not make much sense.

• other 'specific' clouds may emerge.

• Clouds will NOT make everybody happy.

• you can build clouds on top of grids (but you don’t need to, of course).
So what?

Lessons to be learnt for ...

- **System Architects:**
  system interface semantics defines system hierarchy

- **Resource Providers:**
  Look at target user space, and usage modes!

- **Application Developers:**
  Use highest level system available!

- **OGF:**
  opportunities for standards at two levels: on infrastructure level (core capabilities), and on Cloud interface level.