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Clouds, Grids, and the Rest

An attempted clarification

Outline

- Whats 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 $\rightarrow$ hierarchical concept!
- *Application:*
  entity which makes use of a system $\rightarrow$ 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 occuring 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?

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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?

Aaaaaah!

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