



From HPC Grids to mobile collaborative business Grids

Stefan Wesner

High Performance Computing Centre Stuttgart

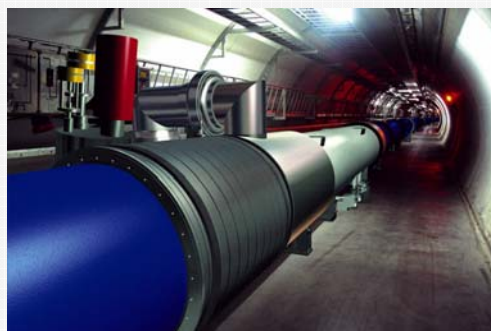
wesner@hls.de

Akogrimo Project Manager

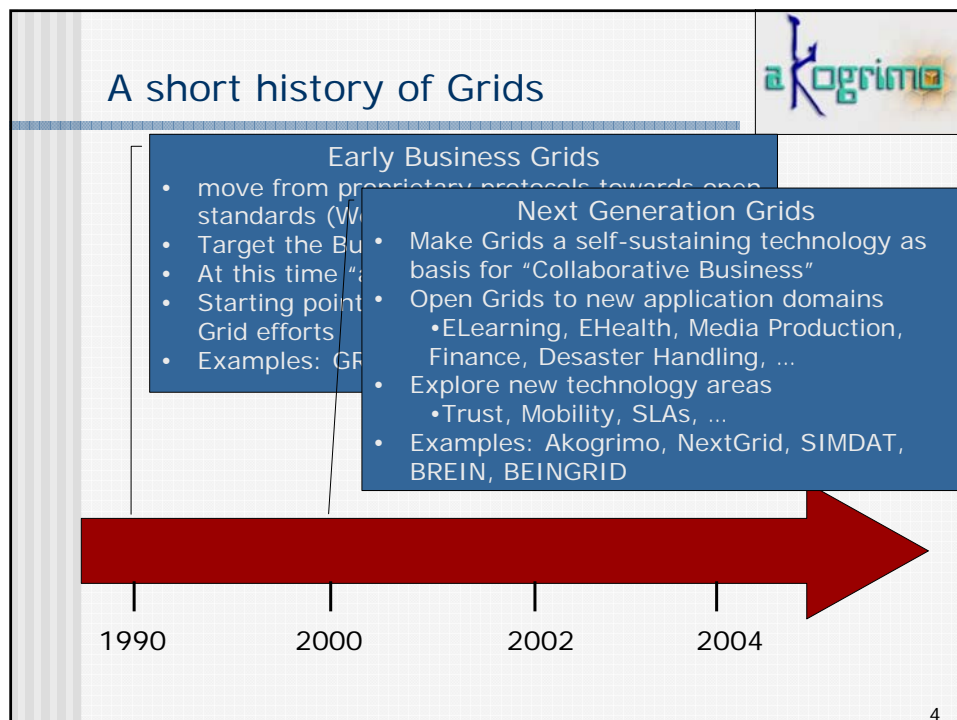
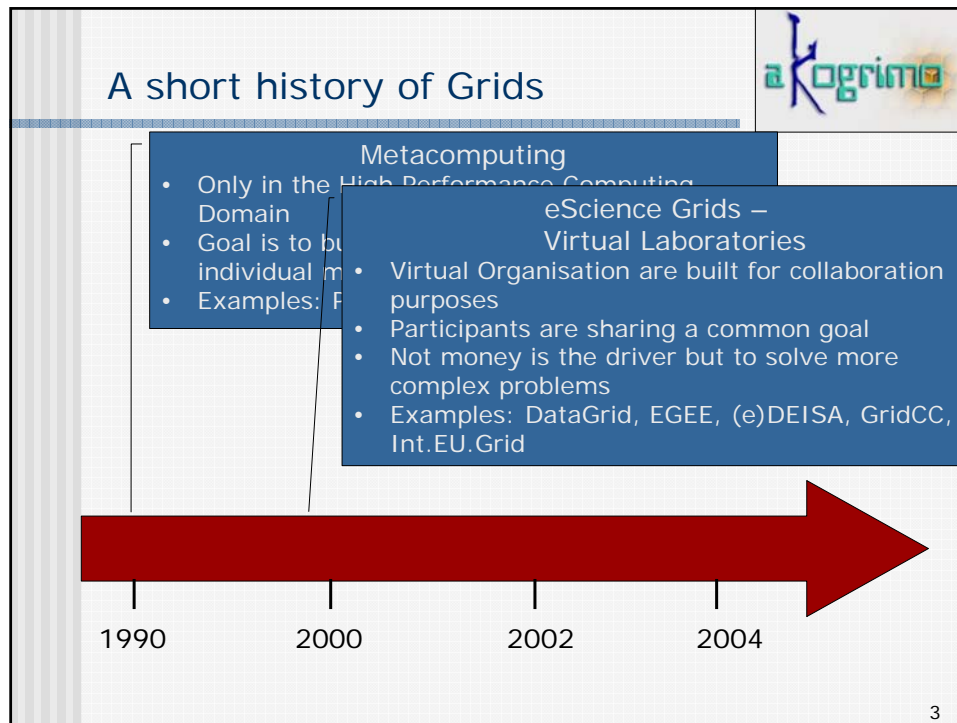
What is the Grid?



- Do you think the Grid must have something to do with this?



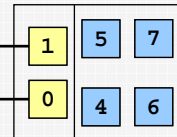
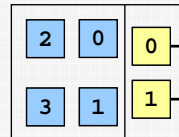
then you are only knowing part of the story...



PACX-MPI – An example for Metacomputing



- Metacomputing is realising a tight coupling between different (computational) resources
- Low-latency and high bandwidth is essential
- Complicated security models are clearly a non-goal for these applications



Nec SX8-Vector-MPP



Dual-Opteron Cluster

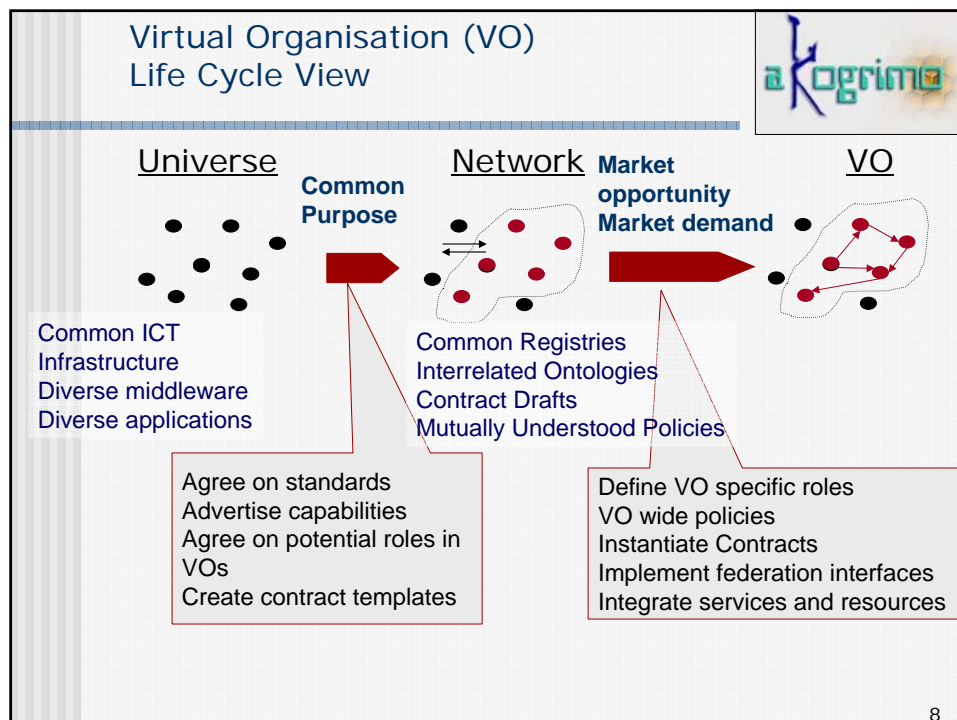
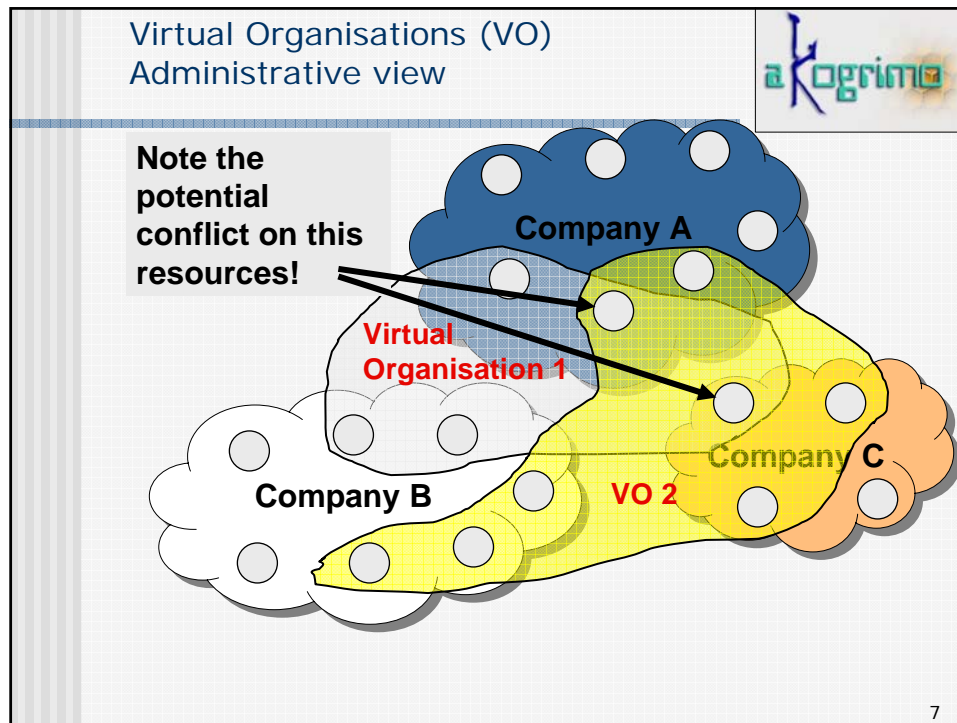
- Useful for certain types of applications:
 - Multi-physics applications,
 - Hybrid, coarse-granular codes,
 - Coupling architecture specific codes.

5

Winning Configuration for the SC2003 Challenge Award



6



An attempt of a definition...



"A Grid provides an abstraction for resource sharing and collaboration action across multiple administrative domains..."

(Source: NGG Expert Group, 16 June 2003 "European Grid Research 2005-2010")

9

Collaborative Business Grids



- Are based on Services
 - The assembly of these services is dynamic
 - Structure, behaviour and location of Grid nodes can change
 - Collaboration is between **loosely** coupled services
- Resources are available as "Utilities"
 - On demand
 - Bound to certain conditions of operation (Service Level Agreements)
- Require the usage of semantics to
 - Facilitate the aggregation
 - Automate reaction on data such as context changes

10

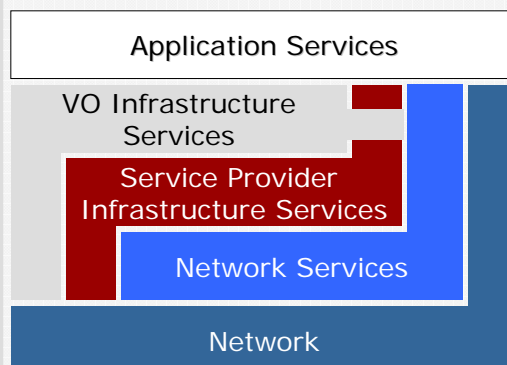
Mobile Collaborative Business Grids



- Are Collaborative Business Grids but have additionally
 - Enable cross-layer co-operation
 - Provide information from network to high layers (Identity, Context, Network Quality, ...)
 - Application needs are communicated to the lower layers (e.g. Bandwidth, ...)
 - Support different kind of Mobility
 - Mobility Aware core and application services
 - Integrate with the network middleware
 - AAA or A4C
 - SIP
 - Security Models

11

Fundamental Concept



- Virtualization of all resources via Web Services
- No strict layer concept (from a SOA perspective only two layers)
- Role sharing is more function based rather than a protocol stack
- Major principle is to allow bidirectional exchange of all information between the layers such as identity, context, ...

12

An attempt of a definition...



"Mobile Collaborative Business is the mobility aware dynamically assembled collaboration across organizational boundaries between virtualized services and individuals"

13



Thank you !

For further information/slides look at
<http://www.mobilegrids.org>

or contact me

Stefan Wesner
Deputy Director
High Performance Computing Centre Stuttgart (HLRS)
wesner@hlrs.de

14