



# HP and the Grid

Gary Lee  
ESG, HP Taiwan  
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# Purpose

Provide an overview of what HP is doing in Grid Computing and why

## Agenda

Why Grids

HP Grid Strategy

Current Grid Products/Services

Research Directions

# HP and the Grid

HP envisioned the concept of Grid in the late '80s when Joel Birnbaum advocated the notion of “utility computing”

- Concept has gone through various iterations:  
*Pervasive, utility, and planetary scale computing*
- Underlying concept has remained unchanged:  
*To harness computing power in a distributed fashion*

Most importantly,

**“It (Infrastructure) always has to be always on, always available, always reliable, always secure...”**  
(Carly Fiorina, Comdex Keynote, Nov 15, 1999)

# HP Grid Strategy

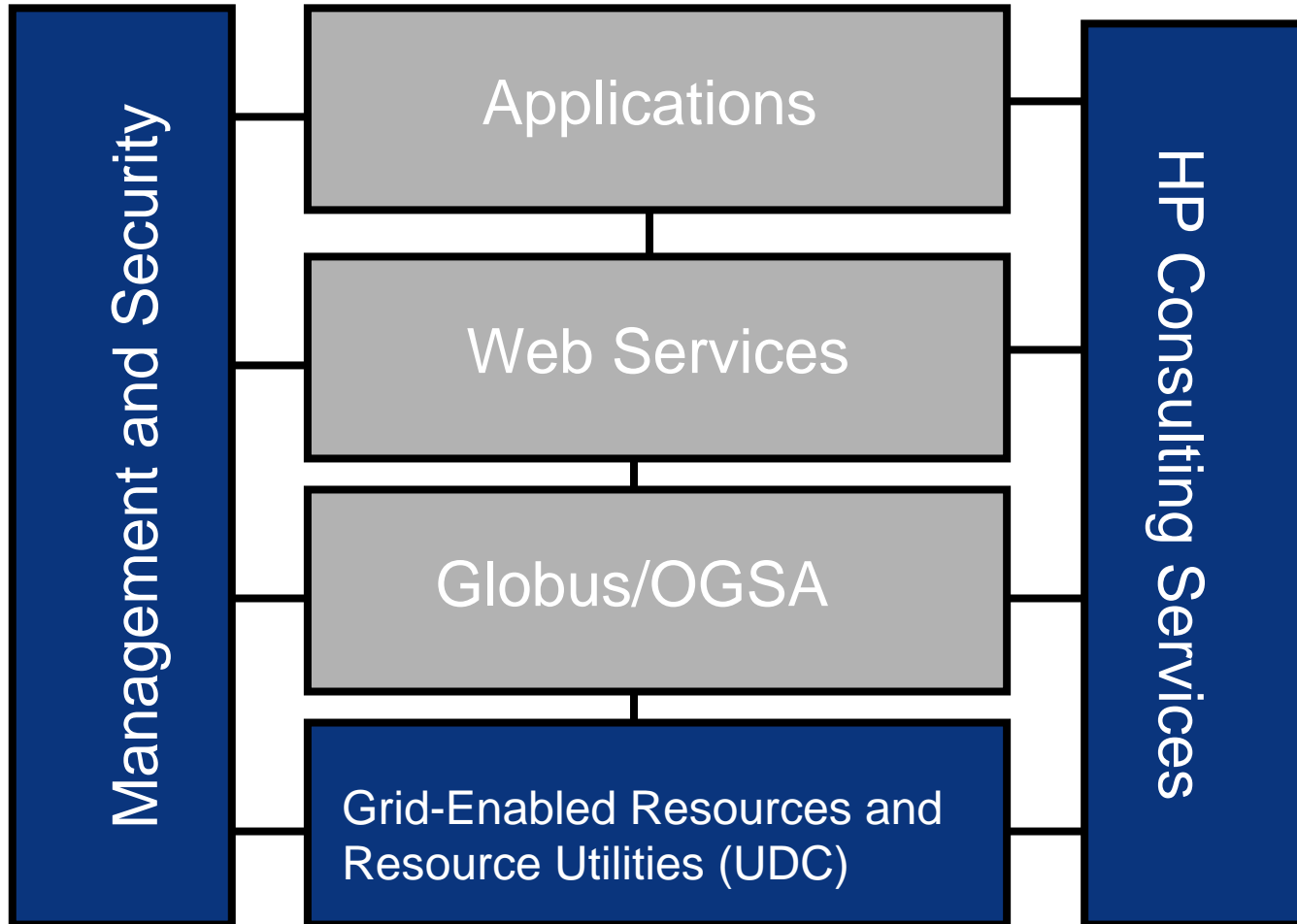
- Contribute to open standards
- Ensure HP platforms are grid-enabled
- Provide consulting services for grids
- Pursue advanced development and research

## **HP products that will play important roles in implementing grids:**

- HP Utility Data Center (UDC) for automated provisioning of resources**
- HP OpenView for Web Services management**

# “The HP Stack”

HP’s value add is in providing the UDC, management and security, and consulting services to enhance and build upon industry standards



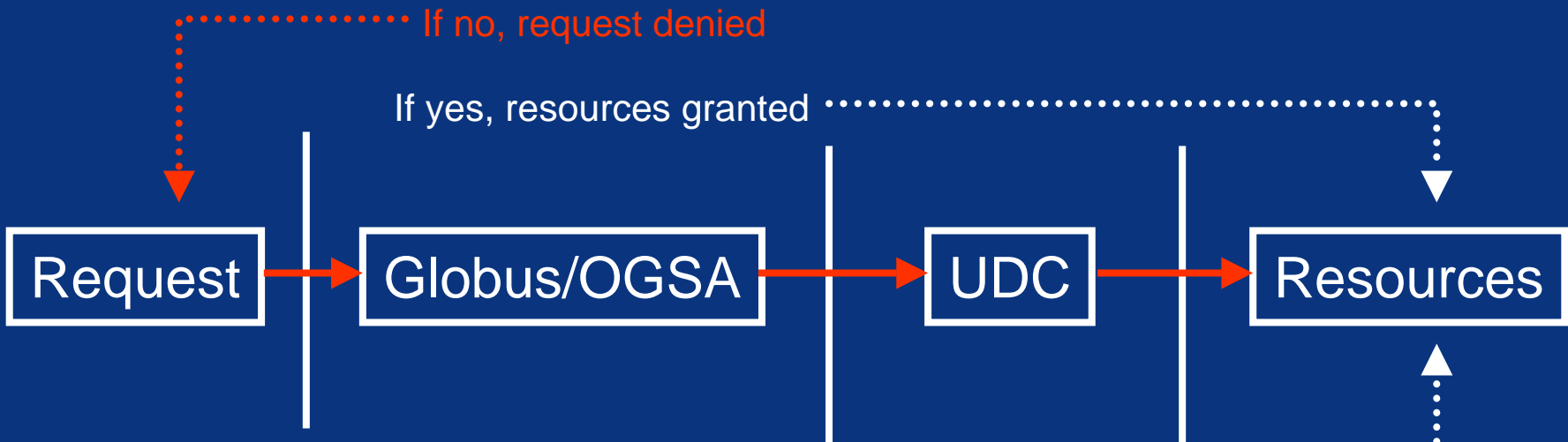
# Utility Computing through UDC

- UDC allows virtualization of all resources – storage, servers, and other compute elements
- UDC allows these resources to be dynamically allocated to any application via a GUI drag and drop interface today
  - The goal is to make this dynamic allocation fully programmable
- UDC enables simultaneous management of multiple hosted grid environments
- How does UDC make this possible?
  - Via Virtual LAN (VLAN) controlled by HP Utility Controller software and
  - Storage area networks (SANs)

# Why UDC?

UDC enhances Globus/OGSA by providing management of resources.

without UDC



If no, ask UDC

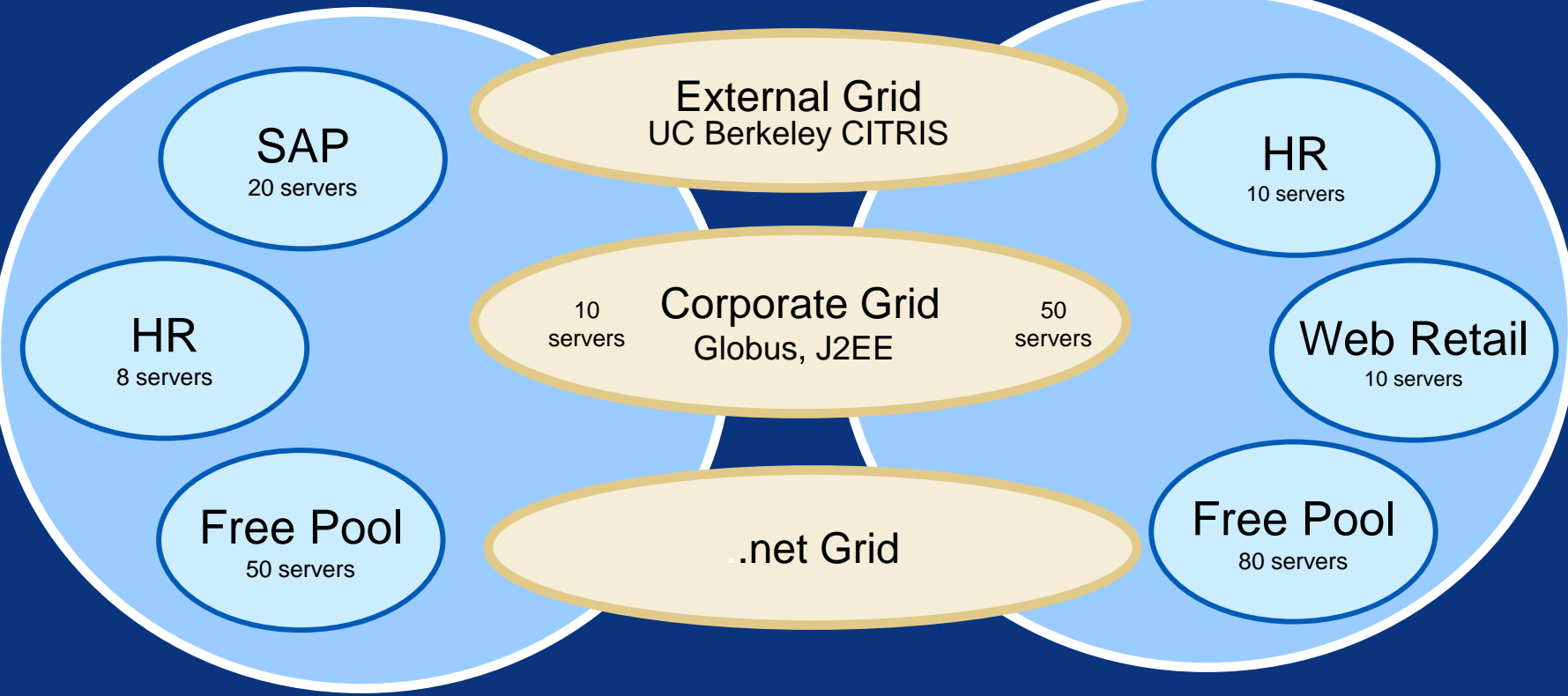
UDC will configure the resources to match the request

with UDC

# Utility Data Center and the Grid: Example

UDC in San Francisco

UDC in London



# HP and Grid Standards

- Vendor neutral standards are key to wide adoption of grid technology
- We also encourage reuse of related standards
  - Web Services standards; DMTF CIM; ...*
- Platinum Sponsor of the Global Grid Forum
- Support for Globus Toolkit
  - The de-facto standard*

# HP and Globus

- HP engineers qualified the Globus Toolkit 2.2 and provided patches to ensure portability on HP computer systems

*For latest updates visit [www.hp.com/products/Globus](http://www.hp.com/products/Globus)*

- HP's Intra-Grid is based on Globus
- HP provides customized installation and support services for Globus
- HP is committed to supporting evolution of new versions

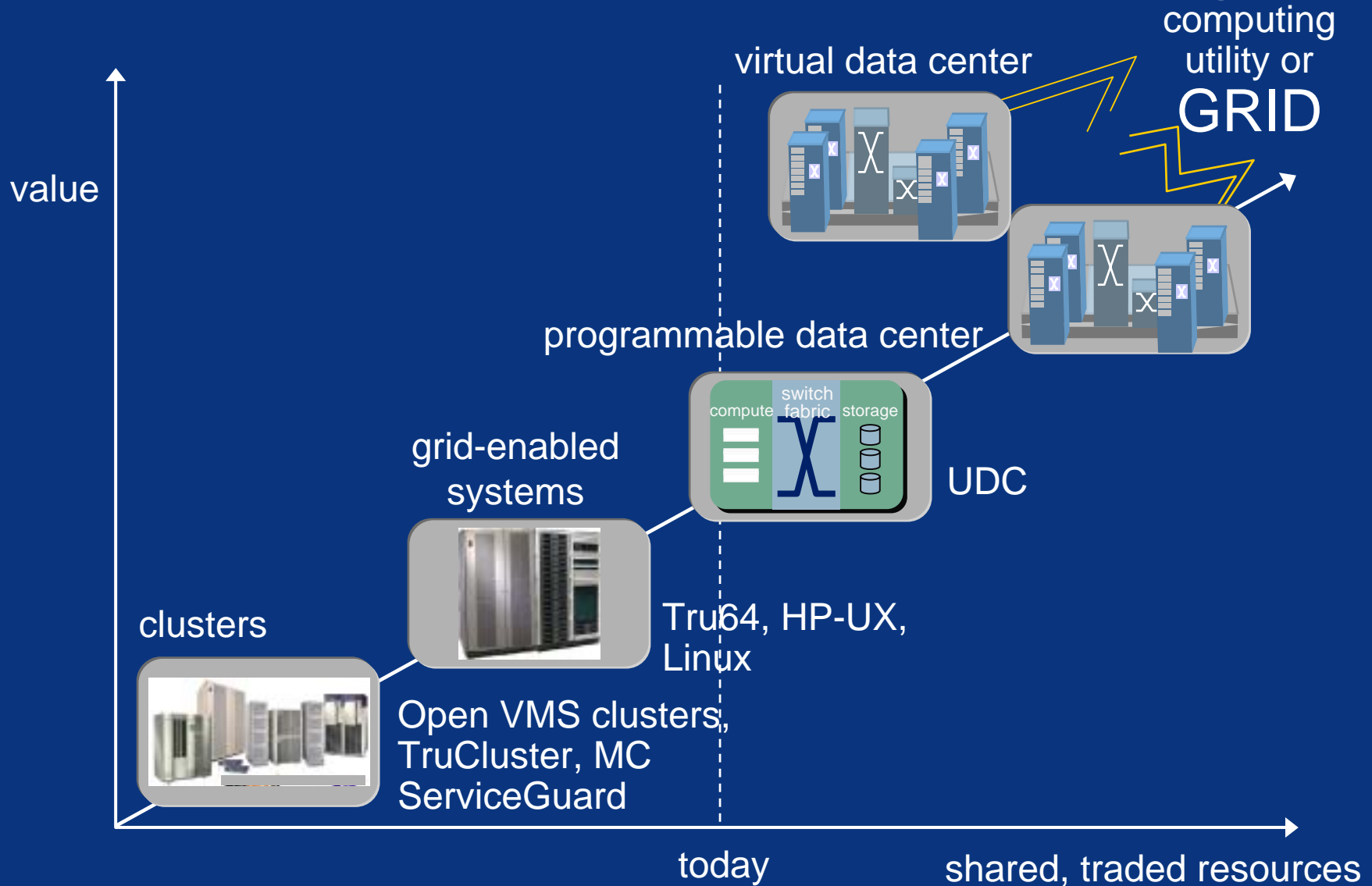
## Ensuring that HP Systems are Grid- Enabled

- Support Globus
- Alliances with Platform Computing and Avaki
- Intra-Grid within hp firewall
- Advanced Development Center for Grid Computing
- Collaborations with customers and research institutions

# hp Intra-Grid

- Within the corporate firewall
- Connects high-performance computing sites  
*Annecy, France; Galway, Ireland; Marlboro, MA; Manalapan, NJ; Nashua, NH; Tokyo, Japan;*
- Software:  
*Globus Toolkit 2.2, Cactus, Platform and Avaki products*
- Cooperating with EC-C funded GridLab project  
Using GridLab infrastructure and applications, including iPAQ
- Issues and learnings:
  - Logistics of Certificate Authority
  - Production applications: politics and trust issues
  - Need to interoperate with partners outside firewall

# on the road to planetary computing



# Requests

Please let us know about your priorities, requirements, and experiences as providers and users of Grid technologies

Visit our HP Labs and HPC websites:

[www.hp.com/go/grid](http://www.hp.com/go/grid)

[www.hp.com/products/globus](http://www.hp.com/products/globus)

[www.hpl.hp.com](http://www.hpl.hp.com)

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