An update on HP's Tycoon at CERN: integration with EGEE

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www.eu-egee.org

CERN openlab
for DataGrid applications

Information Society and Media

Enabling Grids for E-sciencE

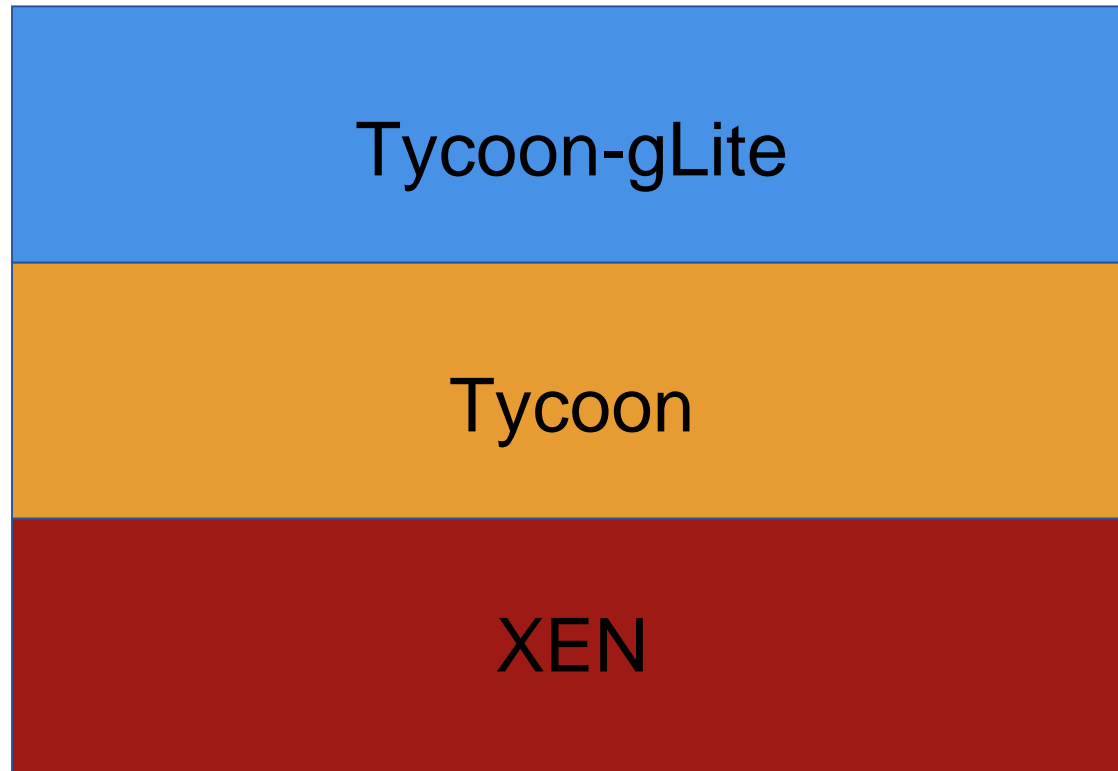- **Our goal:**
  - A dynamic Grid infrastructure using a market-driven approach

- **Our tools:**
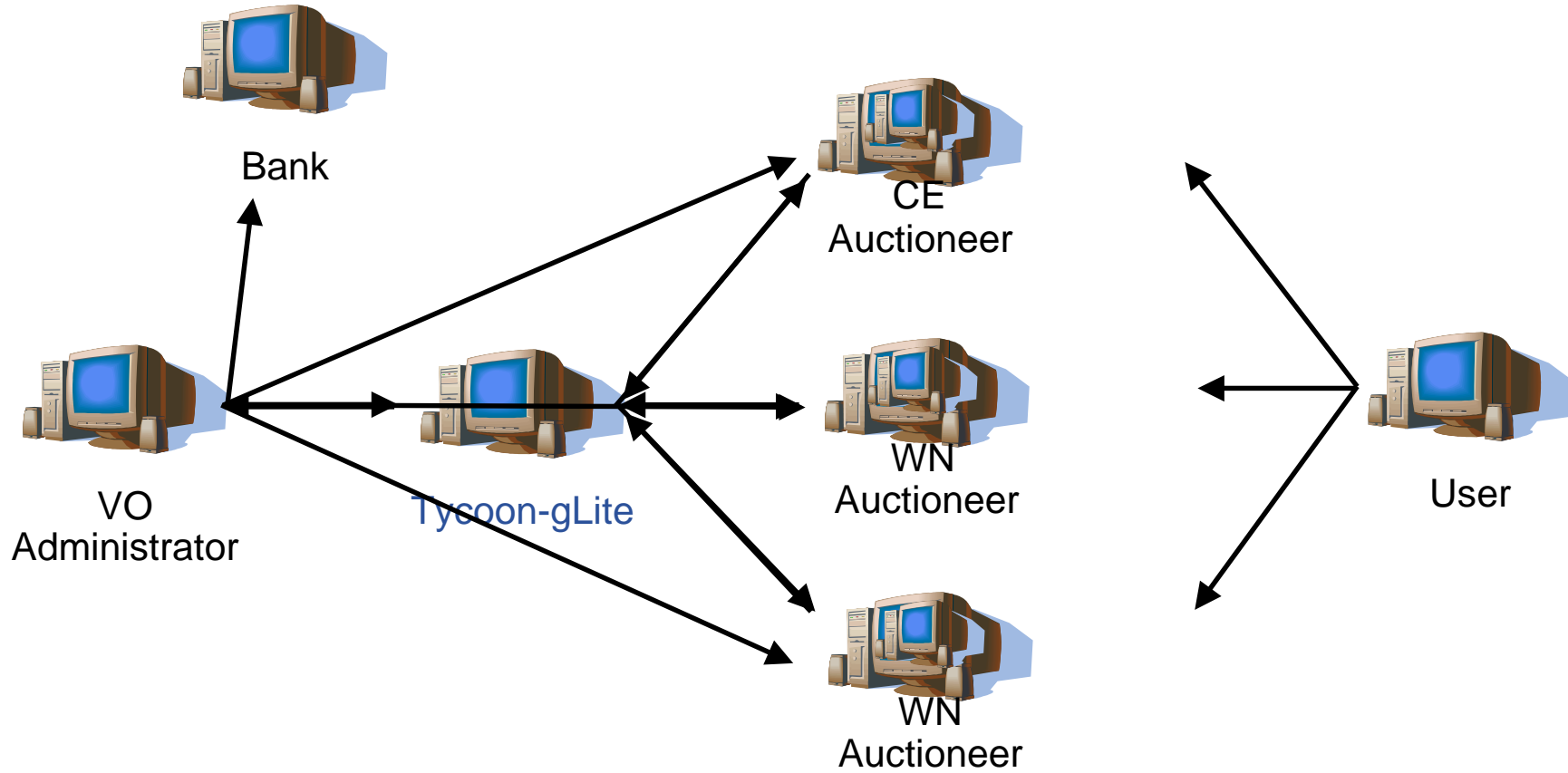 - Tycoon
  - Xen
  - gLite

- **Research prototype developed by HP Labs, Palo Alto**

- **Distributed market-based resource allocation system**

- **With fine-grain Pay-per-use**

- **Based on virtualization (Xen)**
  – Flexibility
  – Security

SLS

VM
Auctioneer

Client

VM
Auctioneer

Bank
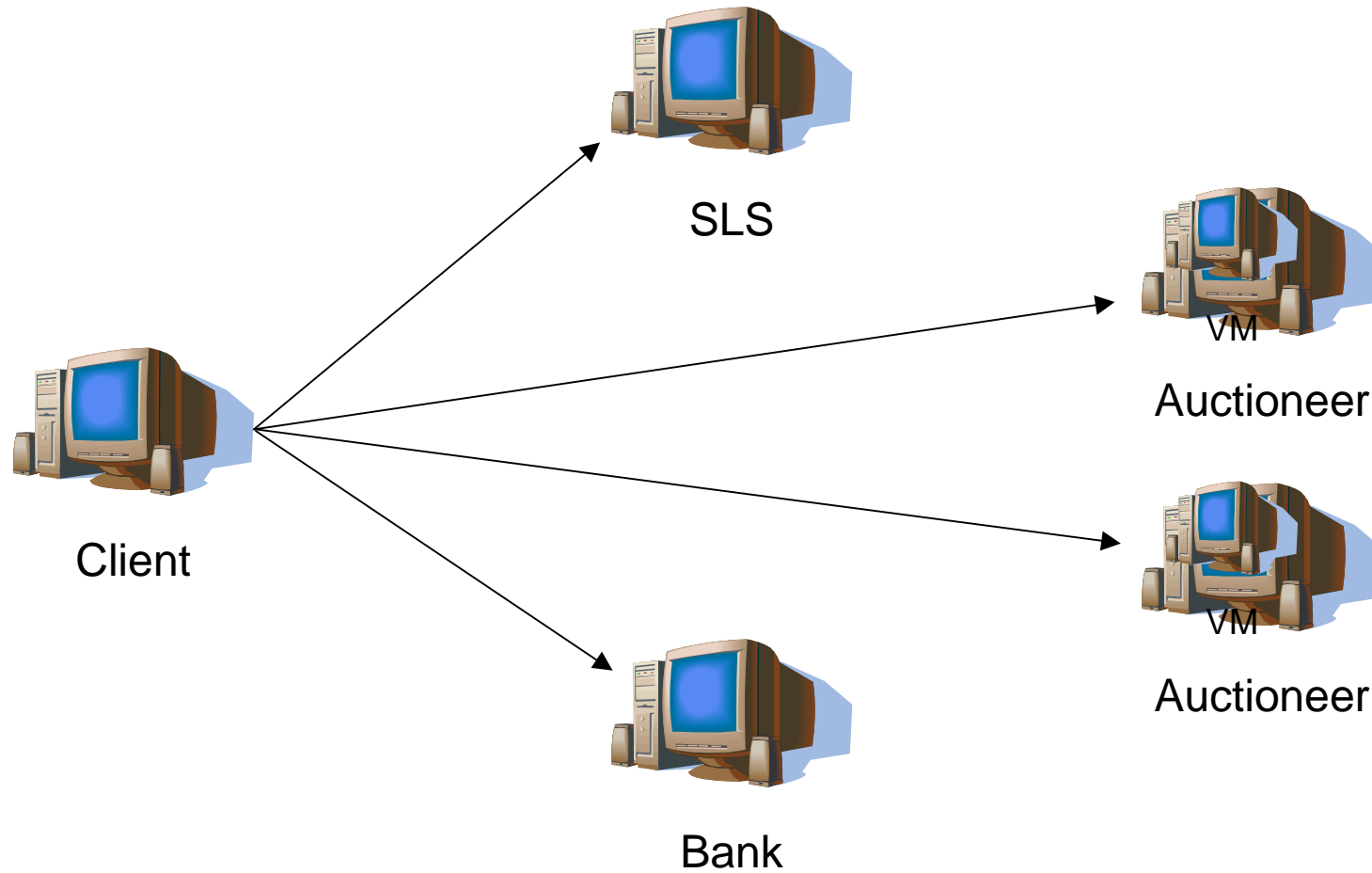
- **HP Labs has ported Tycoon to SLC4 and Xen 3.0.3**

- **CERN openlab has developed the integration with EGEE solving several problems like:**
  - Generation of CE and WN images
  - Management of host certificates
  - "Auto" configuration on-the-fly of the nodes using yaim
 - Dynamic creation of clusters within the Grid

- **Tycoon proposes a new way to understand and organize the trade of resources**

- **EGEE II has more than 160 sites (the largest Grid)**

- **Small and medium VOs could be attracted by EGEE providing Tycoon based services**

- **Large non-partners could trade resources**

- **We could have a controlled market-based system inside our Grid, helping us to share resources more efficiently**
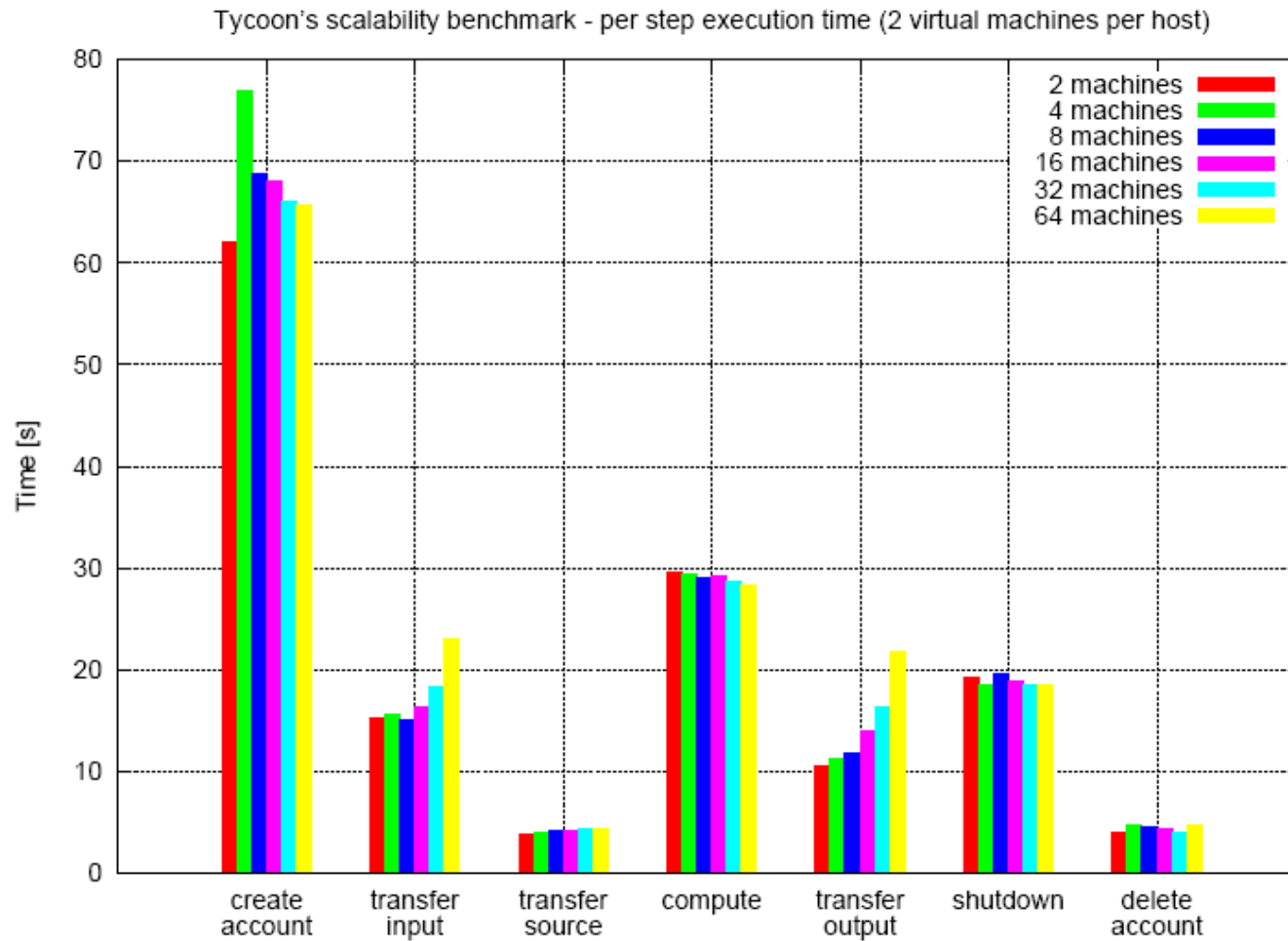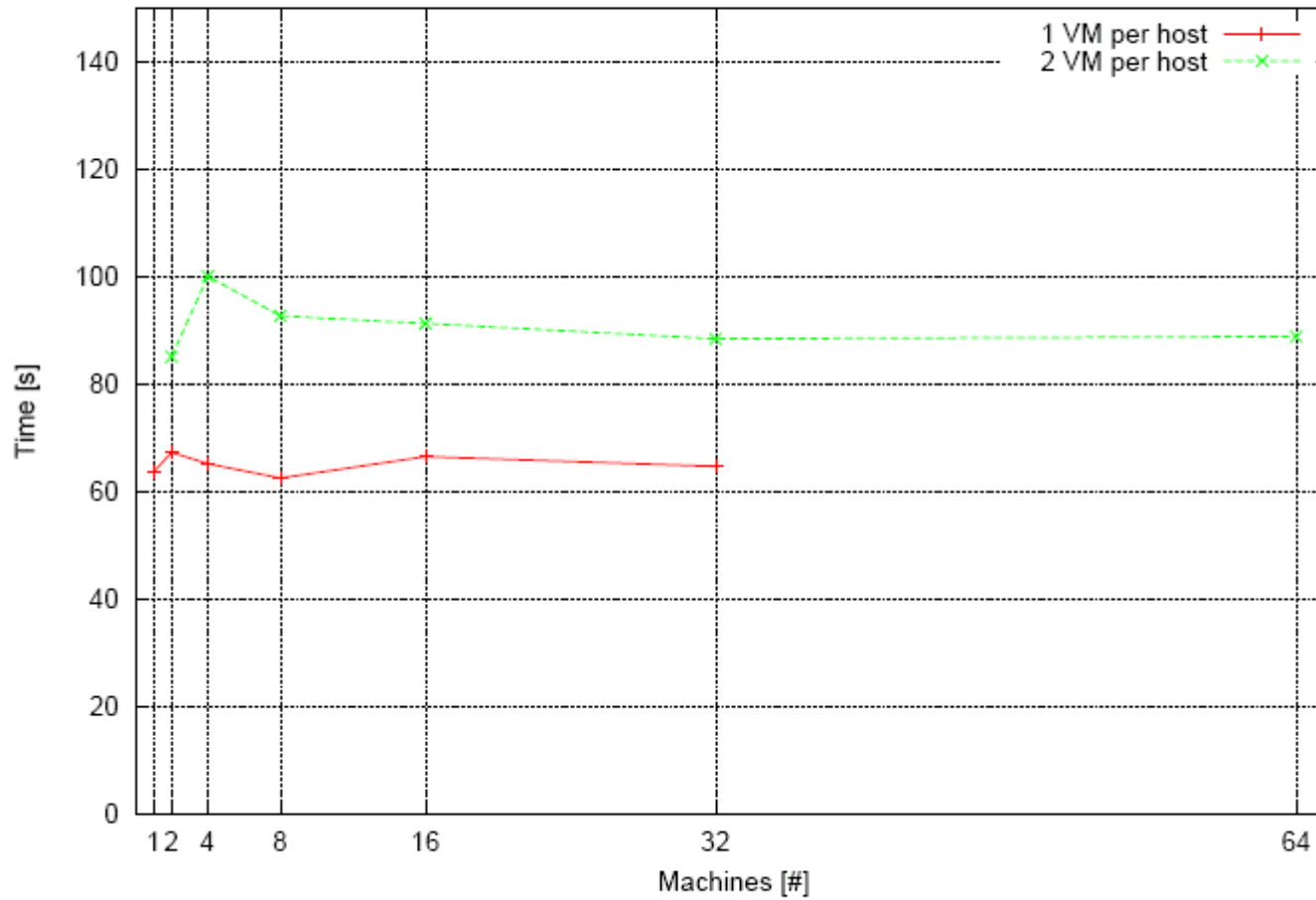
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Tycoon-gLite

Tycoon

XEN

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Bank

VO
Administrator

Tycoon-gLite

CE
Auctioneer

WN
Auctioneer

WN
Auctioneer

User

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- **Easy to implement**

- **Unmodified gLite**

- **Dynamic and secure system useful to trade resources**

- **Fully transparent for Grid users**
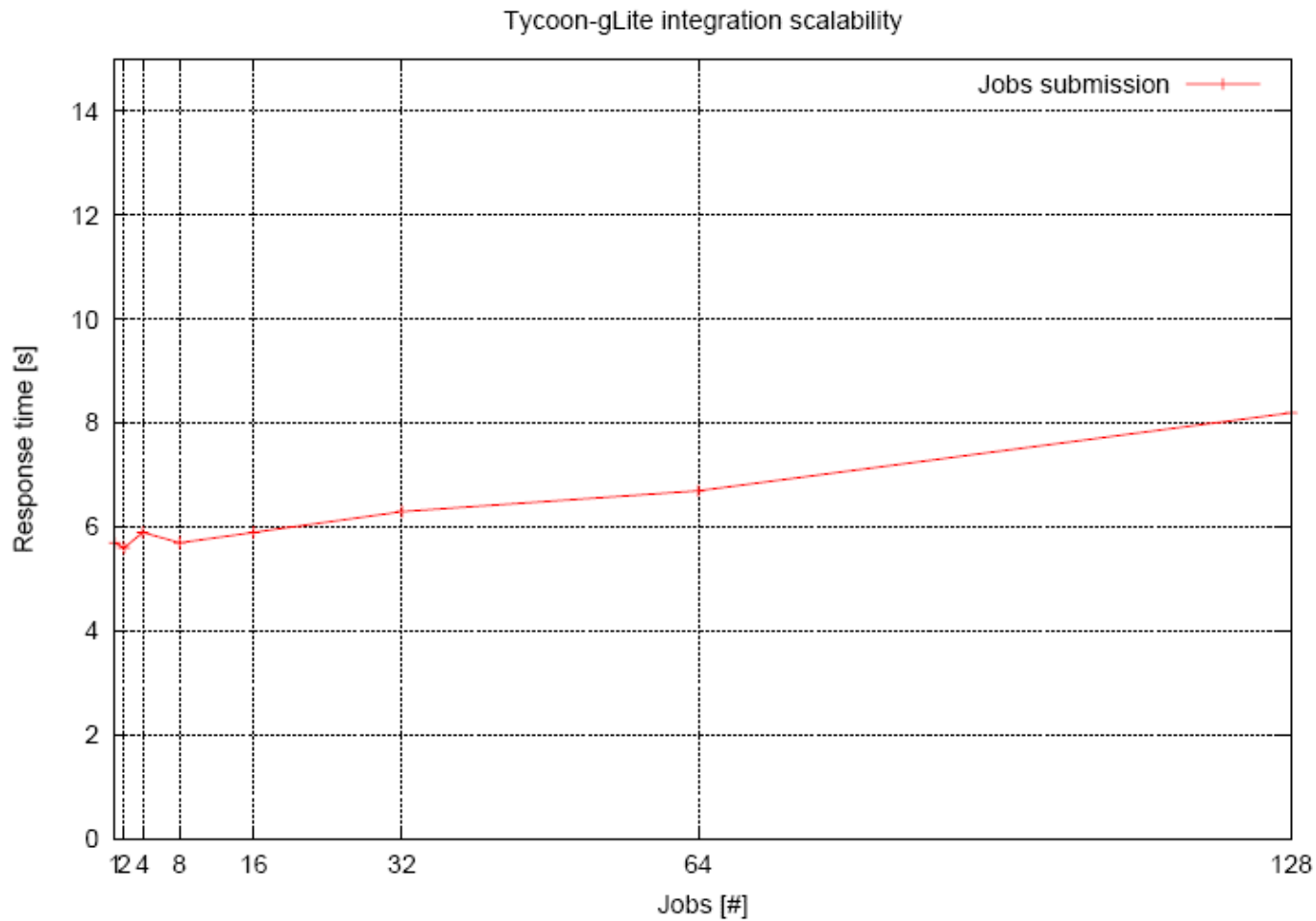
Enabling Grids for E-sciencE
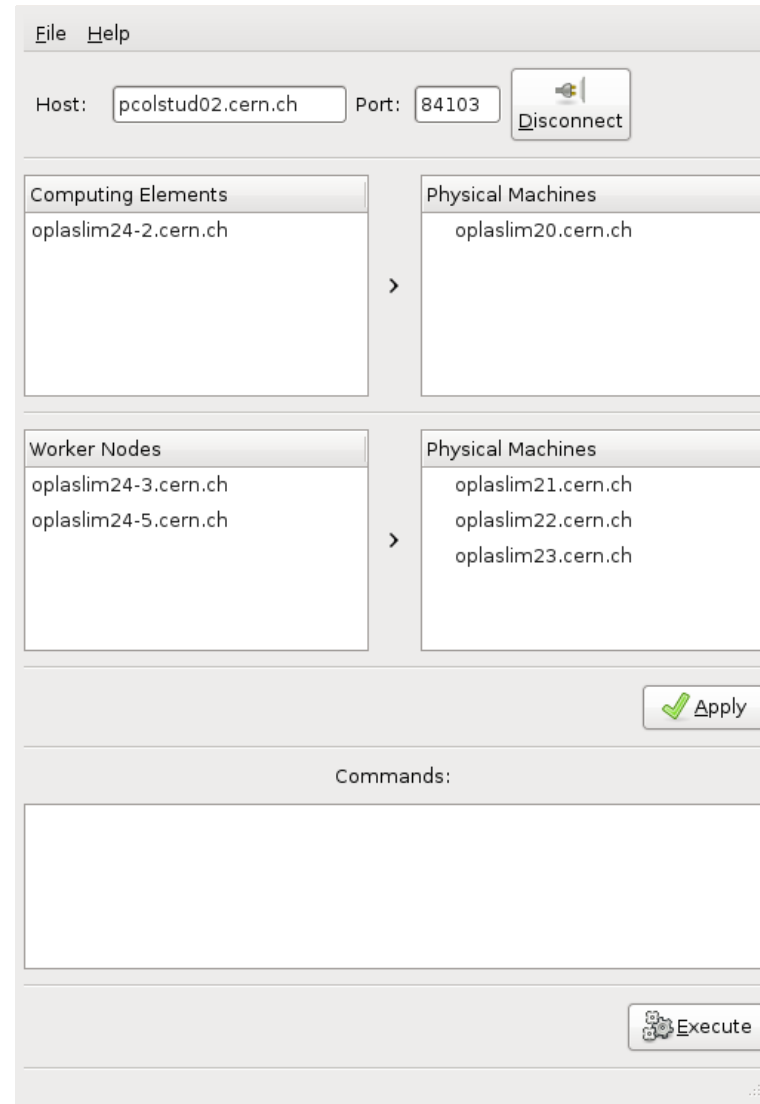
- *Every part and process of a system is a potential bottleneck*

- **We're using a distributed model with only two centralized services:**
  - The SLS: A "database" used only before the deployment. It's NOT an active part of Tycoon
  - The Bank: The system that controls transfers, bids and takes care of users' accounts

- **Therefore, we can remove the SLS from the list of potential bottlenecks… but, what about the bank?**

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Tycoon's scalability benchmark - per step execution time (2 virtual machines per host)

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Tycoon's scalability benchmark - total allocation/deallocation time

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Tycoon-gLite integration scalability
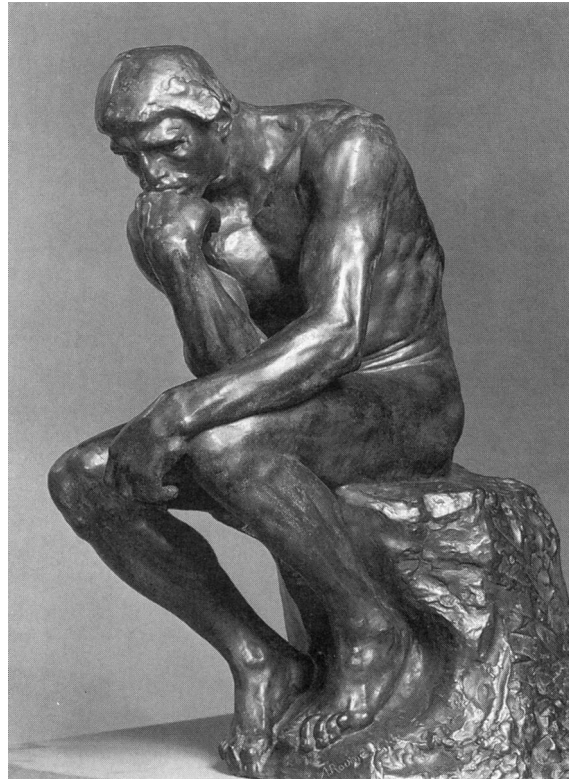
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- **Tycoon-gLite is an easy to use tool that helps the VO administrator during the auto deployment and configuration steps**

- **Our proposal is fully-transparent for final-end Grid users**

- **Tycoon scales without problems and is not a potential bottleneck**

- **The integration could help us to share and trade resources more efficiently**

- **Tycoon integration with EGEE could improve both platforms**

- **http://tycoon-dev.hpl.hp.com**
- **http://groups.google.com/group/Tycoon-Users/**
- **http://groups.google.com/group/Tycoon-Developers/**

- **Jose.Dana@cern.ch**

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