



Science as a business

History

- ***Founded April 2003***
- ***Based on 10 years of research***
- ***Funded by South Denmark Venture A/S***

Mission v 1.0

MESH-Technologies will develop middleware solutions for High Performance Computing, that allows for optimal utilization of expensive scientific hardware investments, leaving the customers with a much better price/performance ratio.

Super- or Cluster computer

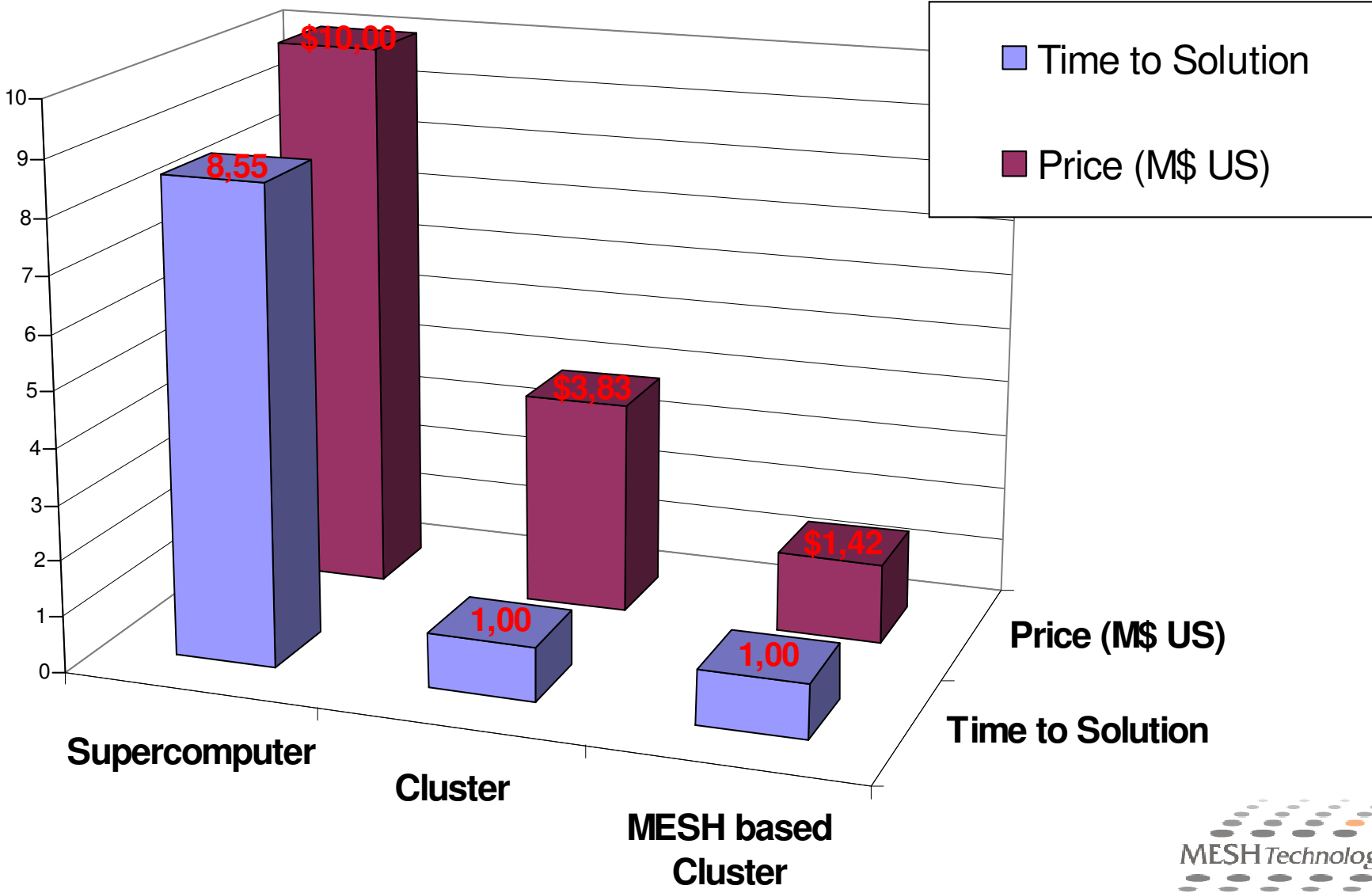
A supercomputer reduces time spend on calculations significantly, but at a *very high price*



Clusters are potentially even faster, but at a lower price

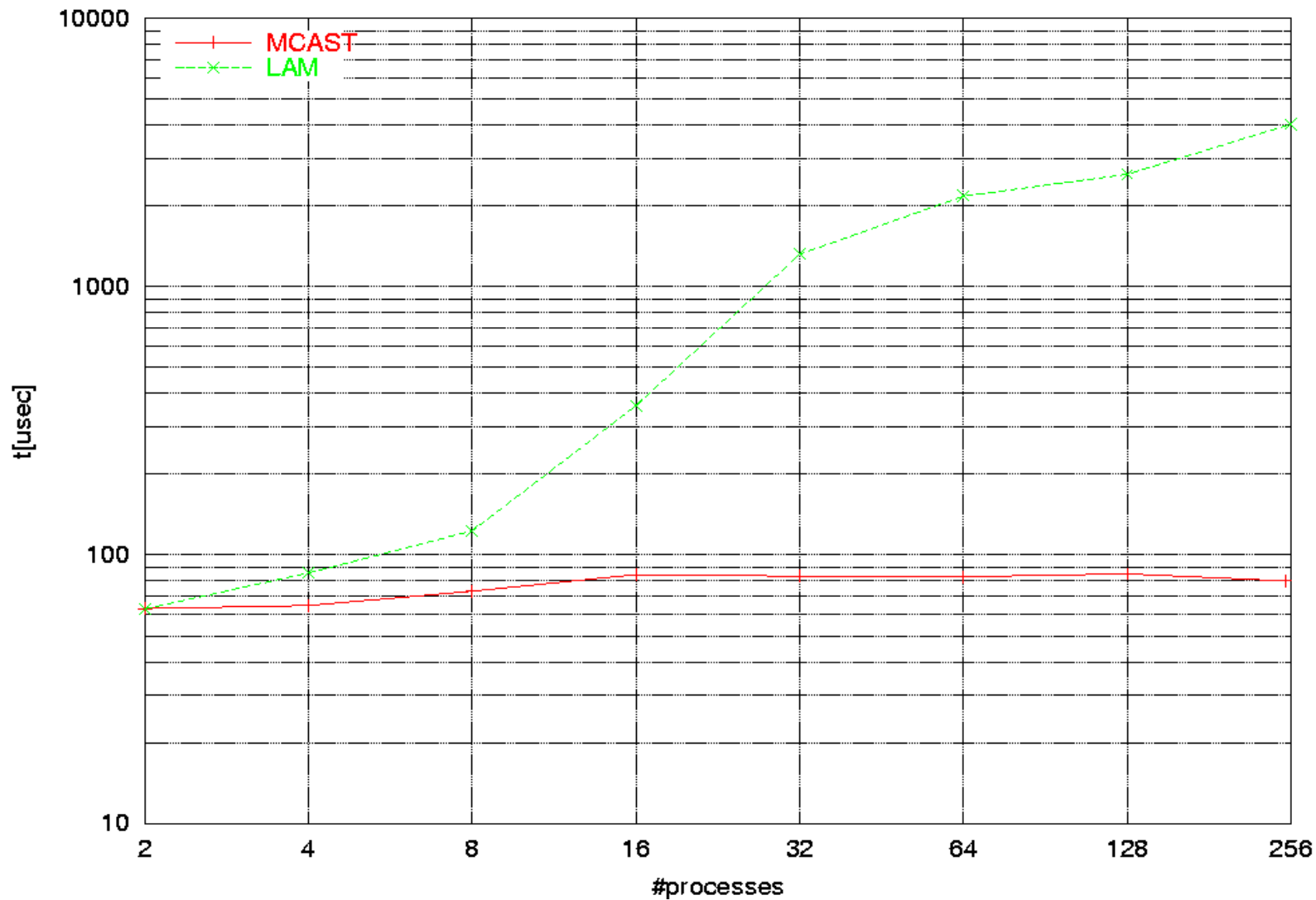


MESH advantages



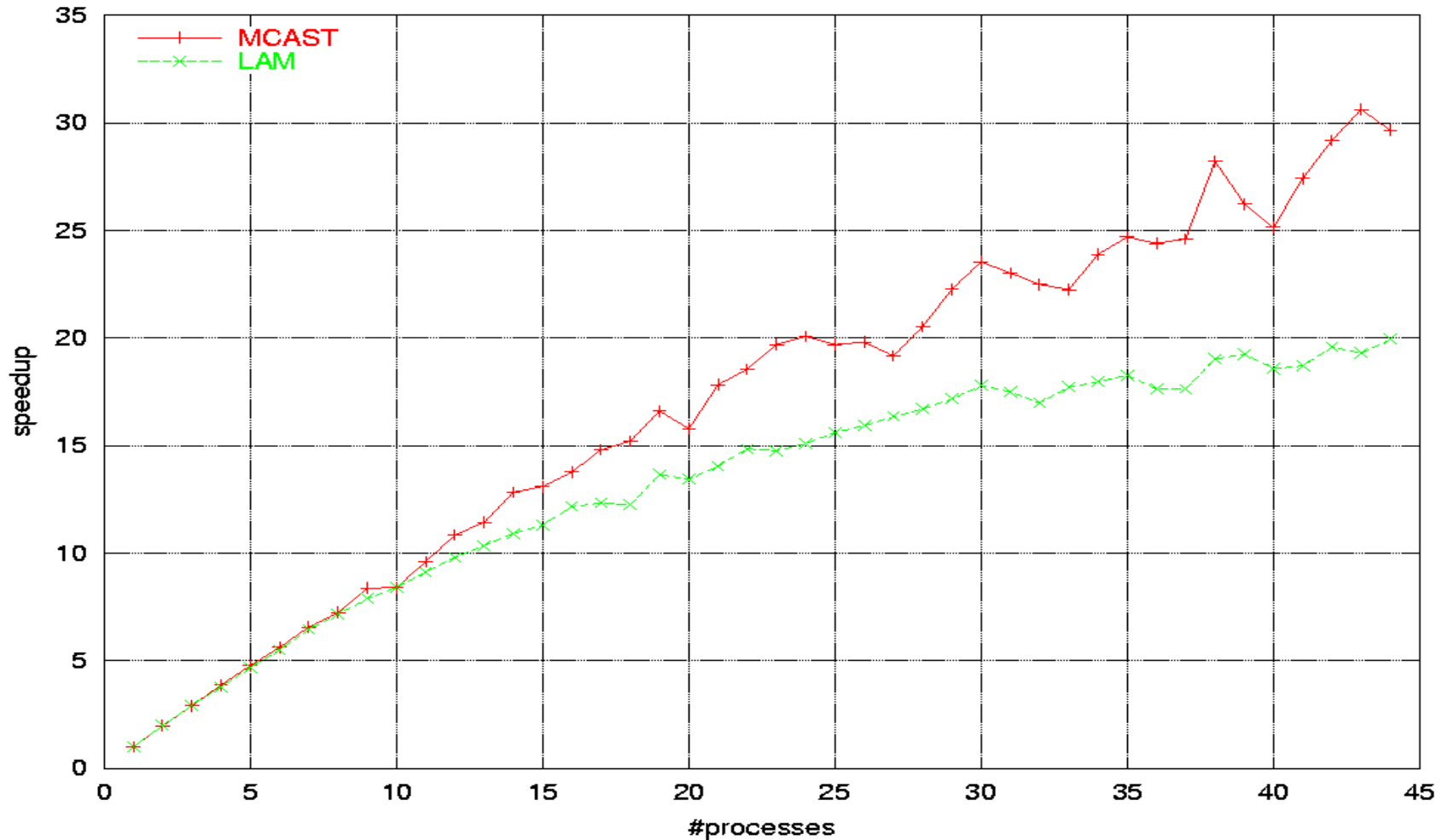
MESH-MPI performance

MESH-MPI vs. LAM-MPI 32B broadcas



MESH-MPI performance

MESH-MPI vs. LAM-MPI N-Body simulation
50% better performance on real-world application



OpenMP

- MESH OpenMP enables easy use of clusters
- Often requested feature
- MESH-OpenMP offers very high performance

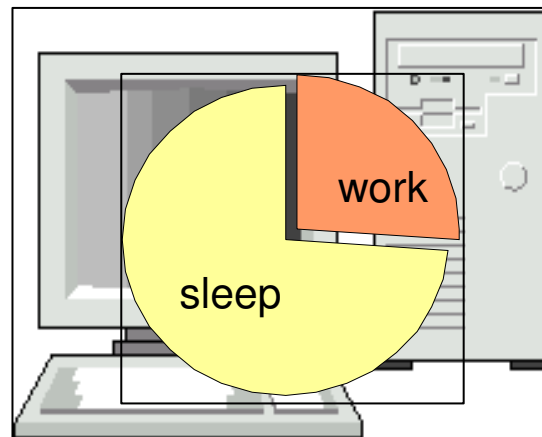
”The worlds fastest MPI”

- Good idea?
- Did we get rich?

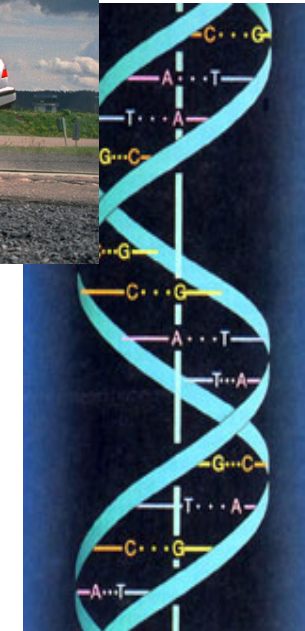
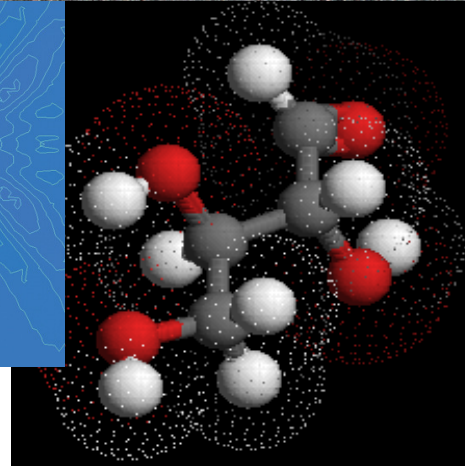
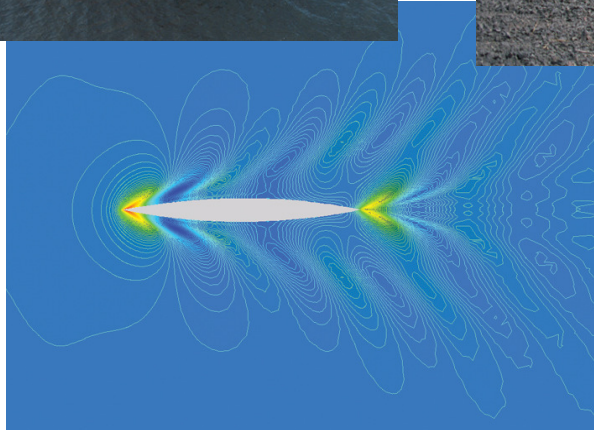
Nope!

The Latent Resources

- Why not use your office PCs as a supercomputer?
 - Hardware is already in the organization and normally the standard office PC is left idle outside normal working hours. This leads to less than 25 % utilization!
 - **OfficeGRID** allows you to utilize this 75 % latent capacity.



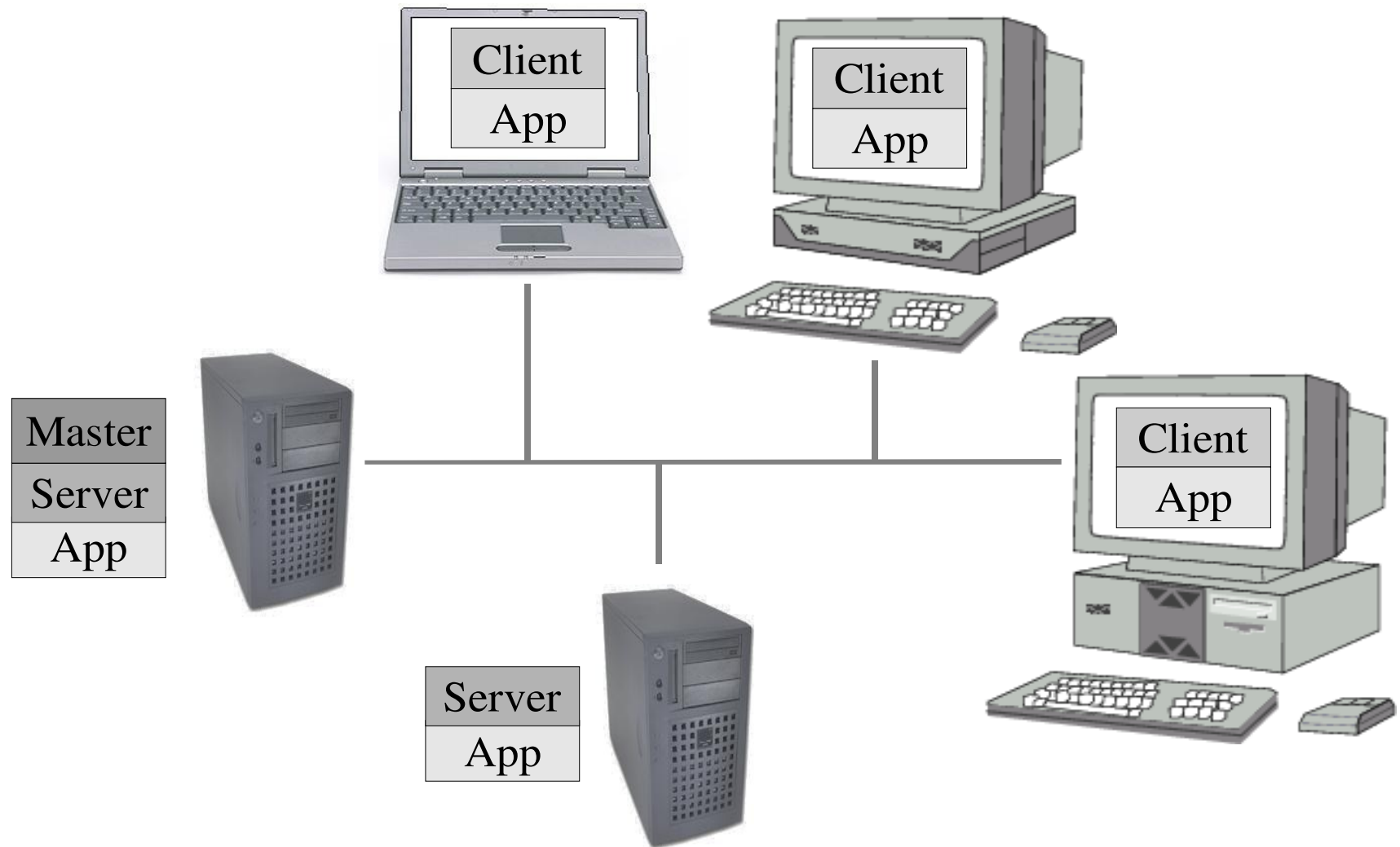
Science as a business



eScience?

- Replace the laboratory and its analytical tasks with computer simulations
- Not feasible in some cases:
 - Run-time easily a year or more
 - Problem sizes too big for one PC

OfficeGRID[®] arkitekturen



OfficeGRID BLAST Technical

- ***Upload of databases to OfficeGRID BLAST:***

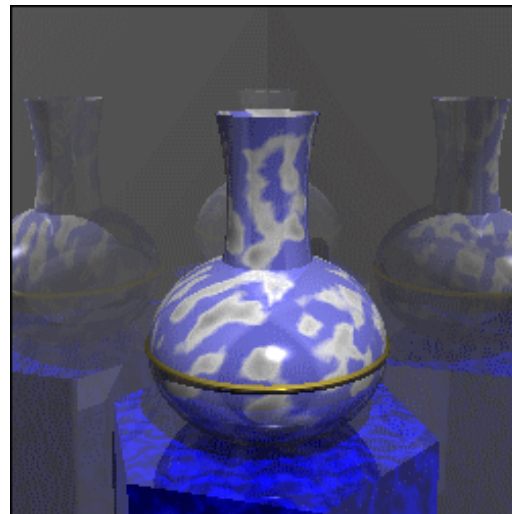
- *split in user defined chunks, format, written to TMem*
- *uses external `formatdb` program*
- *threaded upload maximizes performance*

- ***Queing the Target Databases:***

- *automatic target DB migration*
- *uses external `blastall` program*
- *split on input sequence*
- *job queue holding submitted BLAST queries*
- *well-known NCBI output format*

OfficeGRID

- Why not use your LAN as a supercomputer
 - Linux
 - Windows
 - OSX
 - Solaris
- Enviromental simulations
- OfficeGRID® version of BLAST
- Nano-tech modeling
- Povray render-grid



”LAN based GRID”

- Good idea?
- Did we get rich?

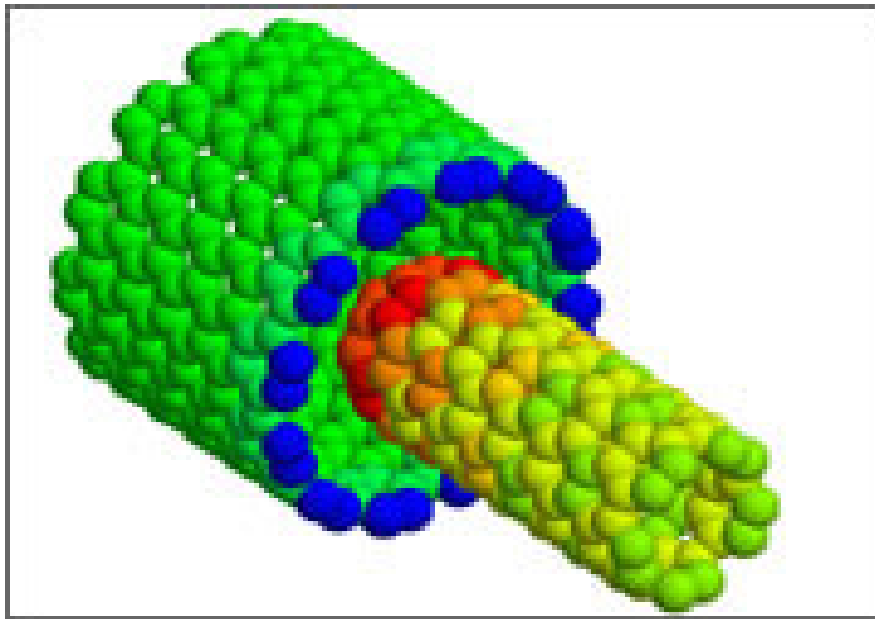
Nope!

Environmental Simulations



- New demands for more precision in the simulation of ground water, stream and ocean, pollution and flow, requires large computational resources
- With **OfficeGRID** DHI offers this to customers worldwide

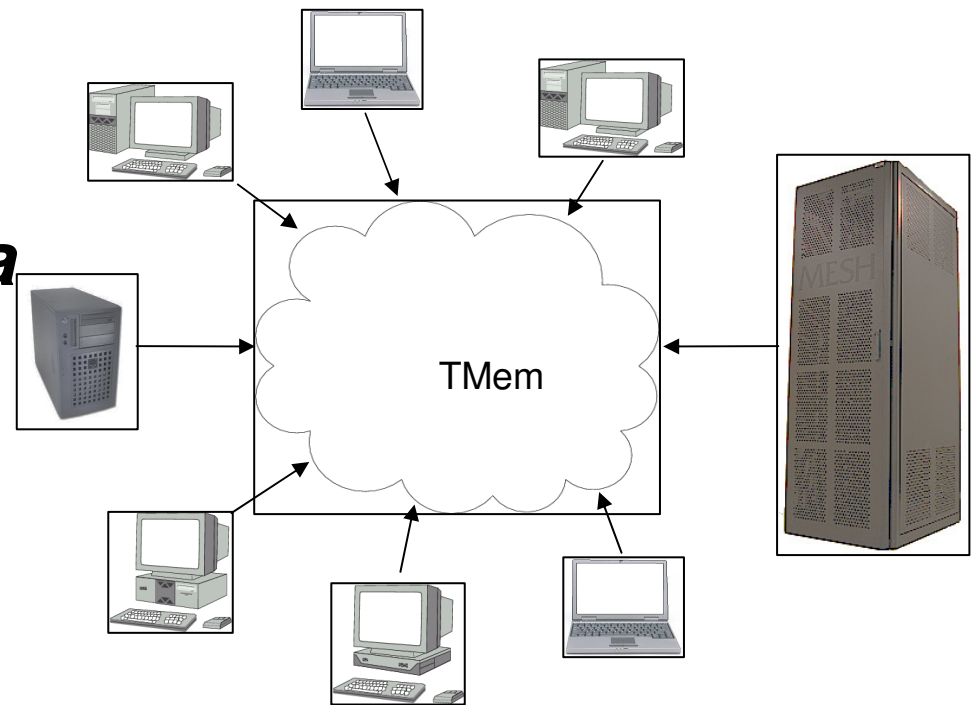
Nano-technology



- Atomistix is a leading provider of nano-structure simulation software
- Engineers using Transiesta-C, based on OfficeGRID® can draw resources from all PC in their organization

TMem®

- A Distributed Shared Memory system
- ***Enables seamless collaboration between a wide array of devices***

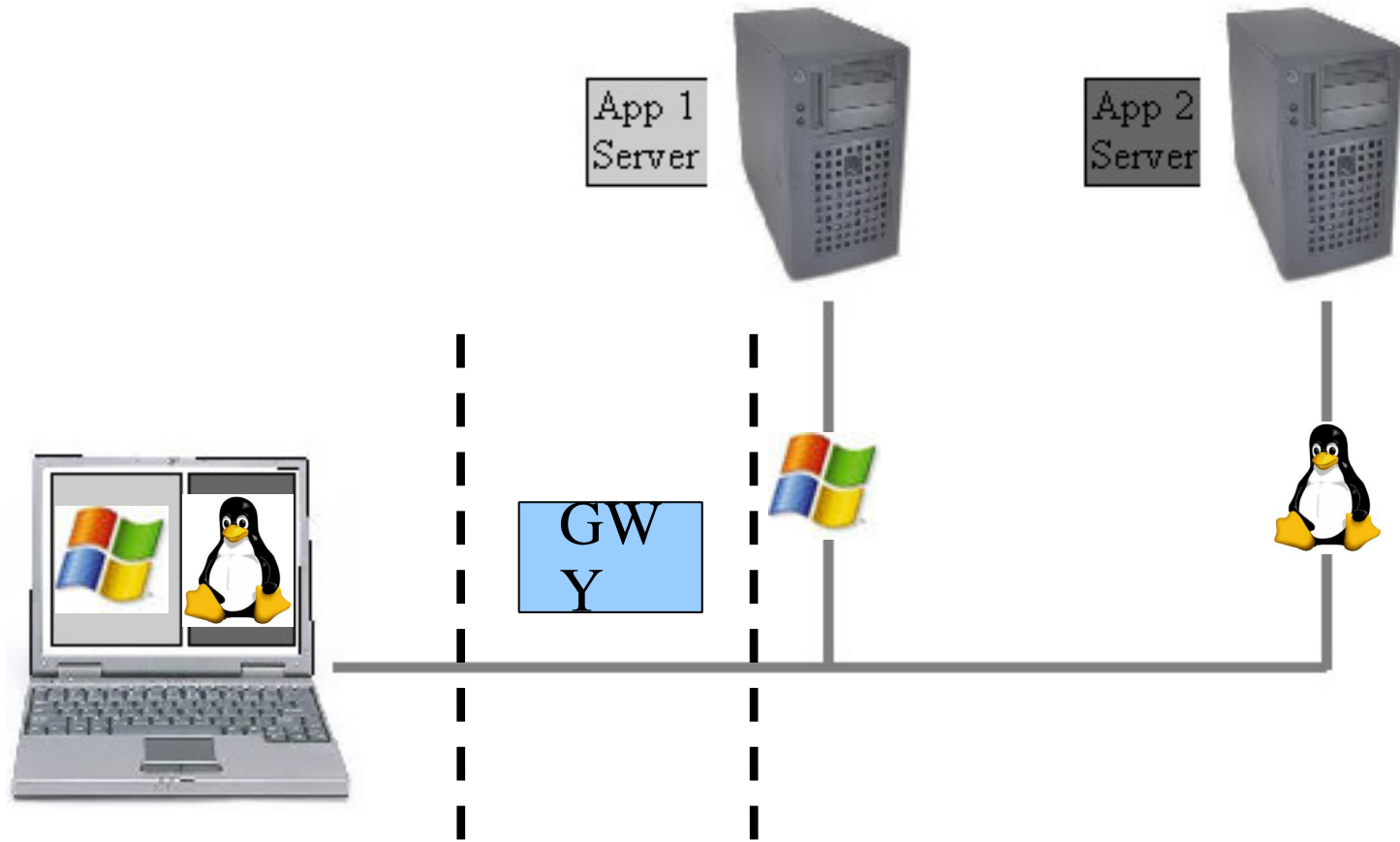


HYDRA

*Networked Embedded System
middleware for **H**eterogeneous
phYsical **D**evices in a
distRibuted **A**rchitecture*

- EU funded IP project under 6th framework

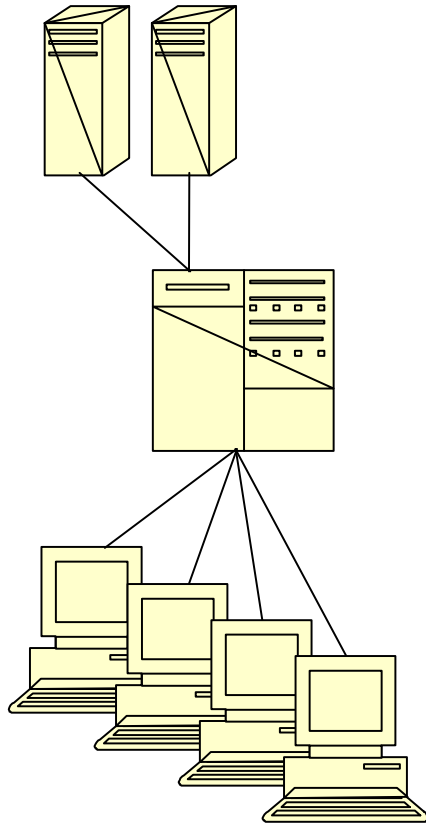
OfficeGRID[®] Secure Connect Security



- .Klient & centrale ressourceur on anonymous subnets
- .Support for encryption and certificates
- .Remote PC DOES NOT have full access to central LAN
- .Flexible configuration of ports etc.

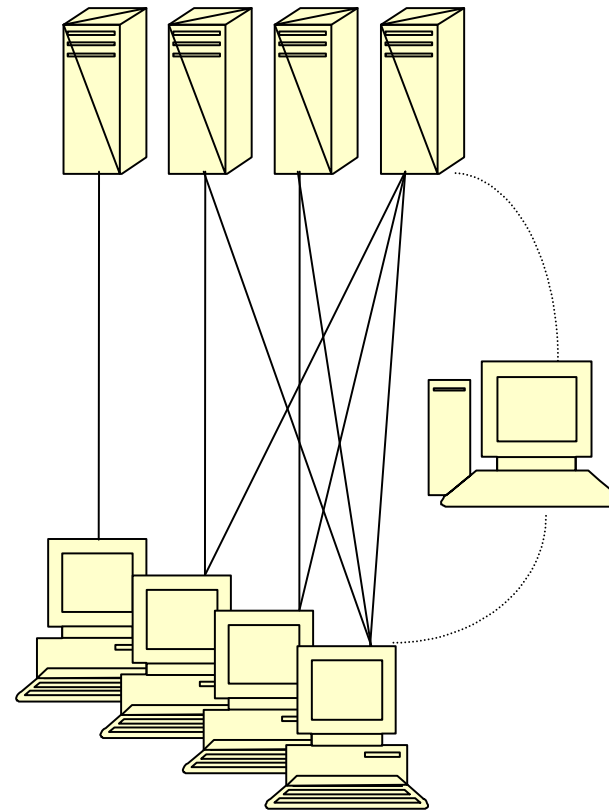
OfficeGRID[®] Secure Connect

Citrix/Terminal Server



- Centralized processing
- Server bottleneck
- Windows "only"
- Single point of failure
- Special competencies needed

GRID



- Distributed processing
- Dynamisk capacity
- Windows, linux, mac etc.
- Optimization of hw to applikations
- No special competencies

”Very Secure Connectivity”

- Good idea?
- Did we get rich?

Nope!

The GRID PC

(Broadband PC)

- ***No noise***
- ***No virus***
- ***Space saving***
- ***Power saving (< 7 W)***
- ***Multimedia support***
- ***Secure storage***
- ***Programs packages***
- ***USB support***

Professional
operating
center

Broadband
network



- **<150 USD one-time-charge**
- **Basic package <18 USD/month**

MESH Technologies

Mission v 3.0

MESH-Technologies develops and markets commercial products based on GRID technologies



MESH-Technologies 2006

Computational GRID activities which are self-financing for 3-4 years and which hopefully will become commercially viable with products for e-science, ground water modelling and heterogeneous device communication.

Connect GRID activities: Broadband PC, Online storage/sharing/streaming, settop box services.

Online Services Provider?

"The GRID PC"

- Good idea?
- Will we get rich?

We hope so!