



# CERN openlab Board of Sponsors Meeting 2008

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# Agenda

1. EDS/CERN openlab collaboration
2. Activities and results (GridMap, Messaging)
3. High-level perspective and motivation
4. Observations and outlook

# EDS / CERN openlab Collaboration

- EDS is a contributor member of the CERN openlab since April 2007
- The purpose of the joint project between CERN and EDS is to carry out research and development in the field of monitoring, management and operation of Grid services.



# Results

## *Some problems we were faced with*

- Complexity of the Grid – "state" is not well known
- Much monitoring data exist, but lack of visualizations
- No reliable messaging for monitoring in use

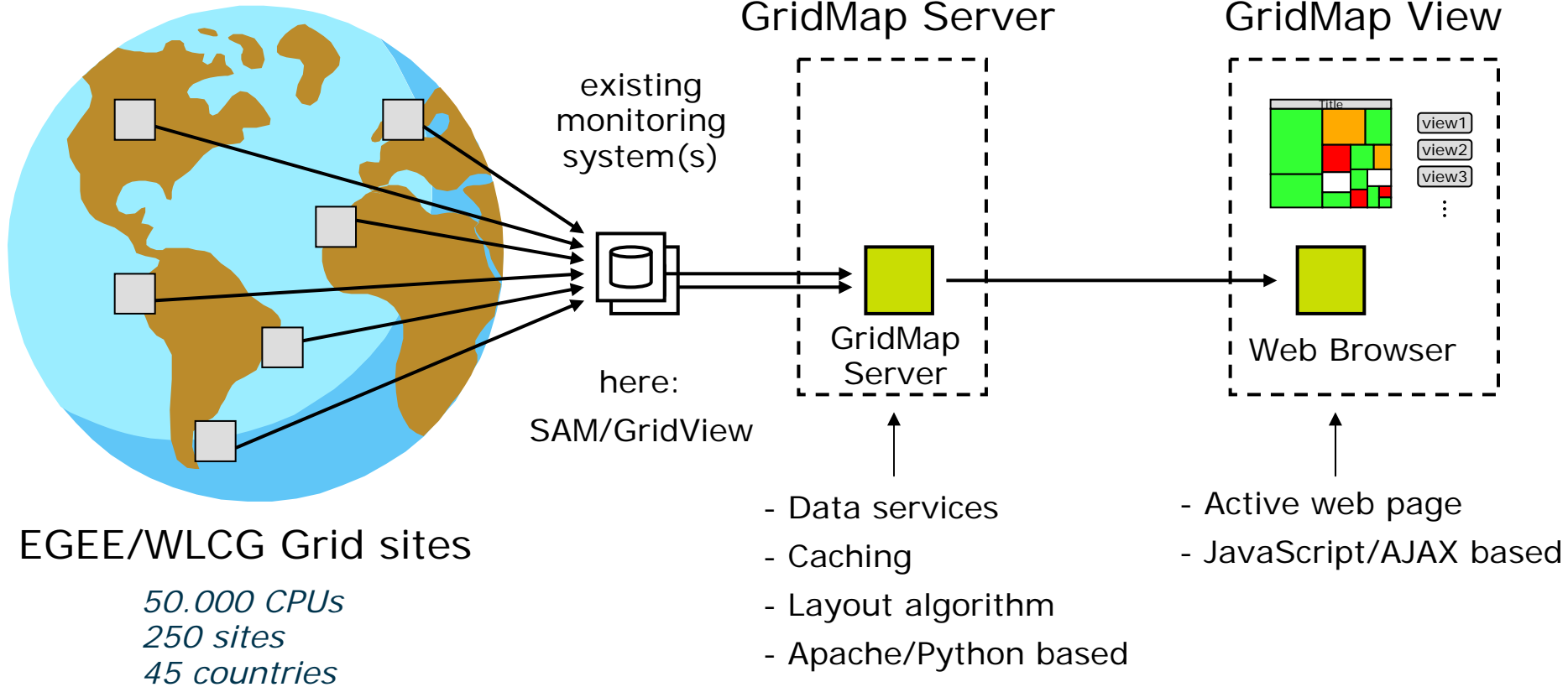
## *Results of last year's collaboration*

- GridMap prototype
  - New approach for visualizing complex monitoring data in distributed IT systems
- Messaging System for the Grid (MSG)
  - Prototype of a standard messaging infrastructure (based on Apache ActiveMQ) for monitoring data and the related architecture
  - Performance, scalability, and reliability tests
  - End2end tests with production data

# Results - GridMap

Top-level live view showing the "state" of the Grid

*Treemap / Heatmap based visualisation for distributed IT systems*



# Results - GridMap

Live link: <http://gridmap.cern.ch>

Service status

ok      degraded      down

Geographical region

Grid Site sized by "importance", coloured by service status

Size by ... (e.g. #CPUs of the site, #running jobs, ...)

User specific views

Service type to be shown (CE=Compute Element, SE=Storage Element, ...)

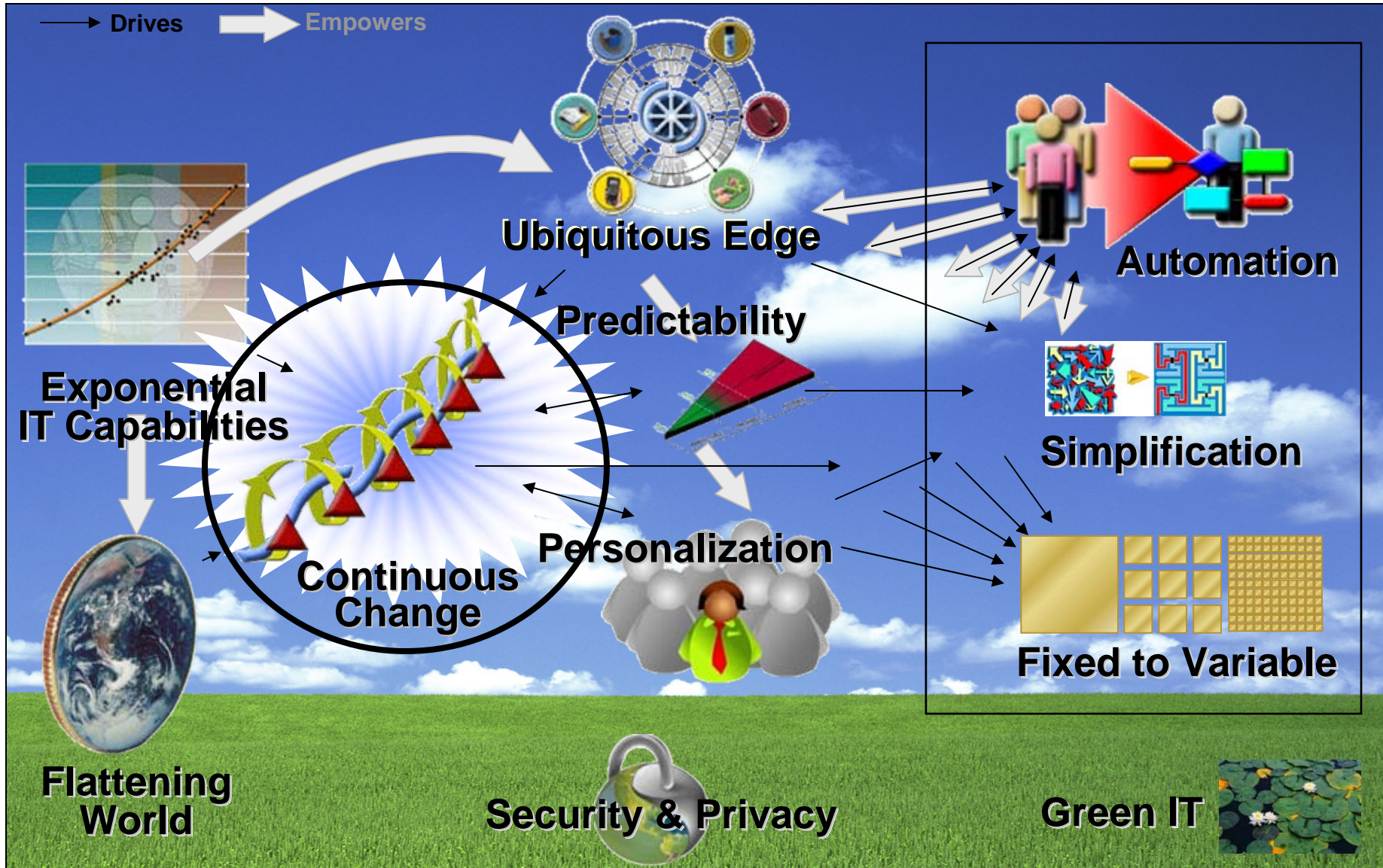
Context sensitive detail information

"Click" links to underlying tools

Drill down features



# Beliefs about the Future



# Eras of the IT Evolution

60s 70s 80s 90s **Y2K** 2004 Present

**Increasing complexity levels**



**Dawn**

**Monolithic**



**Decentralized**



**Distributed**



**Internet**



**Agile**

**"Back to the Future"**

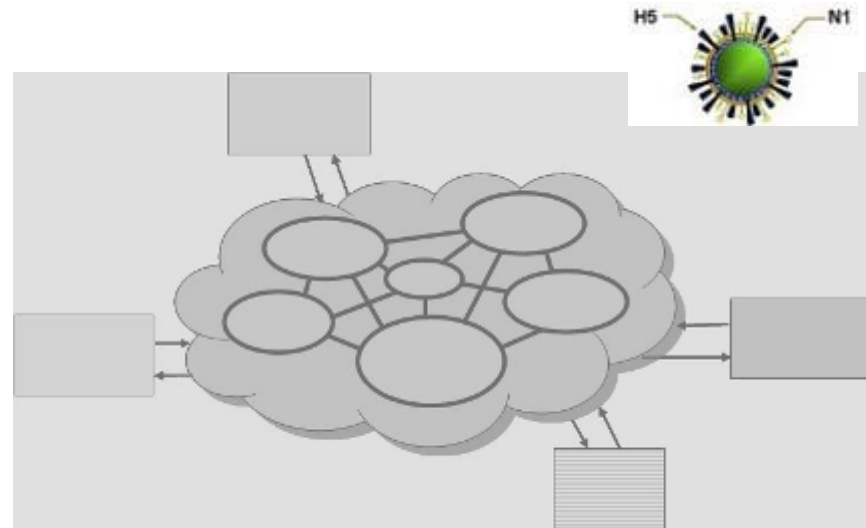
**Convergence  
Flexibility  
and  
Efficiency**



# eScience – Impact on Enterprise Computing?

## System-level science\*

„...developing an end-to-end (stimulus to output) understanding of fundamentally complex, multidisciplinary, multiphenomena behaviors...“



VPH  
Virtual Physiological Human...

The implied **dynamic and efficient assembly of people, infrastructure, software and policies** united by some common interest or task, i.e. creation and operation of a **Virtual Organisation (VO)**, describes a vital integration challenge and a mission-critical **collaboration capability** for many companies operating in a highly competitive **global market!**

\* Source:

Ian Foster, Carl Kesselman, "Scaling System-Level Science: Scientific Exploration and IT Implications", IEEE Spectrum, November 2006

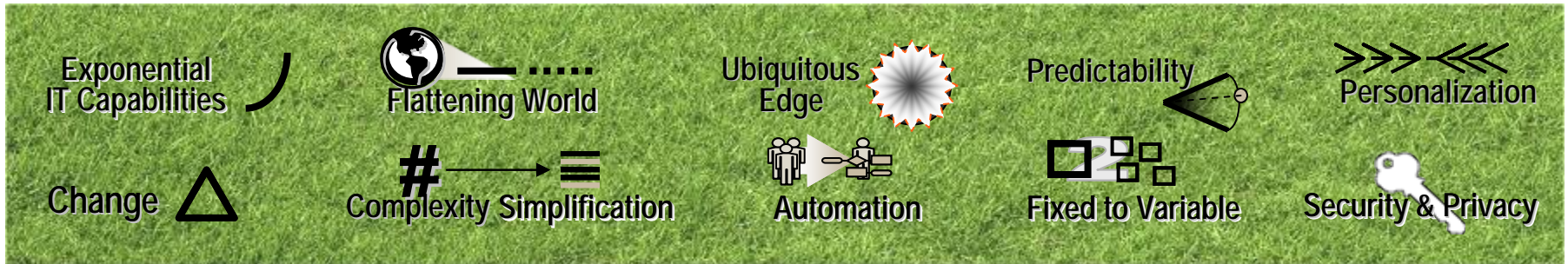


# Observations and Outlook

- Focus 2008
  - Monitoring-GUIs, GridMap reusability and ease of deployment
  - Messaging middleware architecture for grid monitoring
  - Analysis of monitoring data
- Enabling CERN openlab/EDS information exchange and thought leadership

# Q & A

We look forward to the next phase of this mutually beneficial collaboration!



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