



# *A Cloud Platform for Enterprise Applications*

www.fluidops.com

Dr. Andreas Eberhart, 23.06.2010
Mannheimer Informatik-Kolloquium

# Agenda

Company Overview

Virtualization as Base Technology for Cloud Computing

Cloud Infrastructure Challenges

Solution Overview

Use Cases

Summary


# COMPANY OVERVIEW

# fluidOps™ Mission

Gartner 2/2009: *"The server virtualization market explosion has moved beyond hypervisors to managing the ever-sprawling virtualized environment."*

fluidOps solves today's complex ***cloud computing*** challenges with truly ***innovative technologies*** to enable ***automated enterprise landscapes*** where IT is delivered as a ***utility***, and internal or external customers gain complete ***control*** over cost, performance, and service level agreements.

Gartner names fluidOps in March 2010 a "Cool Vendor in the SAP Ecosystem"

# History of fluidOps Founders


Founded quadox AG, an SAP BI consulting company

Started CodeArts to create vmTools



- Cross-Virtualization Management and Server Migration Suite (P2V, V2V, V2P, P2P)
- VMware GSX, ESX, MS Virtual Server (Connectix)

Acquired by HP in 2004


- Modules now ship as “HP Virtual Machine Management 3.7” (www.hp.com/go/vmm) and “HP Insight Server Migration software for ProLiant 3.70” (www.hp.com/go/smp)
- Software ships with every HP ProLiant Server (~2 million units/year)

Ongoing lecture series at e.g. Karlsruhe University, speaking engagements at conferences etc.

# fluid Operations GmbH

Founded Q1/2008 by team of serial entrepreneurs

Headquarters in Walldorf / Germany, SAP Partner Port

Product Milestones:

eCloudManager Suite
introduced Feb ‘09

Open-source VMFS driver
published Mar ‘09

eCloudManager revision 2.0
released Aug ’09

eCloudManager revision 3.0
released April ‘10

# fluid Operations is ‘EMC Select‘ member

fluid Operations™ was chosen to become a member of a select circle of highly qualified EMC Elite Product Partners, having been awarded EMC® Select™ status.

This is the highest honor bestowed on any EMC third-party product vendor, and represents special recognition of our company's successful work over the past few years.

This allows EMC customers to purchase the fluidOps™ eCloudManager™ directly through their existing EMC contracts and relationships. As part of EMC Select, fluidOps™ customers and prospects will be able to immediately leverage EMC's strong global reach and established network of worldwide resellers.

# SAP VL Management Solution Brief

fluid Operations™ and its eCloudManager SAP Edition are the Software Part of SAP's Virtual Landscape Management offering from the SAP Value Prototyping Dept.

This allows SAP customers to purchase the fluidOps™ eCloudManager™ directly through their existing SAP Value Prototyping contracts and relationships with the Value prototyping Services. Customers and prospects will be able to leverage SAP's strong global reach and presence.

SAP Solution Brief

## SAP VIRTUAL LANDSCAPE MANAGEMENT

MORE AUTOMATION, MORE INNOVATION

Leverage the latest virtualization and cloud technologies for your IT landscape – with SAP Virtual Landscape Management. Now you have the ability to easily provision, monitor and maintain your SAP applications as main building block of your private cloud environment.

What if you could provision a complete SAP landscape in 10 minutes compared to the 4-6 weeks it often takes today? What if that landscape were already pre-seeded with all your relevant application content, contained all your custom business processes?

Commercial application hosting, internal hosting, test centers, development centers, or similarly charged enterprise groups all run a number of enterprise application landscapes, sets of tightly integrated systems. They need to continuously bring these application landscapes up, tear them down, back them up, recover them, reuse certain applications and configurations, or reuse whole landscapes. While in the past this has been prohibitively difficult to provision and expensive to organize, today, innovative technologies are available

Still, deploying large enterprise applications in a cloud raises many important challenges like performance, integration, security and IT systems management. SAP Virtual Landscape (VL) Management deals with these issues by making the most of existing storage, networking, compute and virtualization capabilities, while adding an application management layer, which forms the core of the VL Management approach. Here, each virtual landscape consists of several enterprise systems, plus a number of optional auxiliary systems that enable network access using VPN, RDP, SAP GUI or other means.

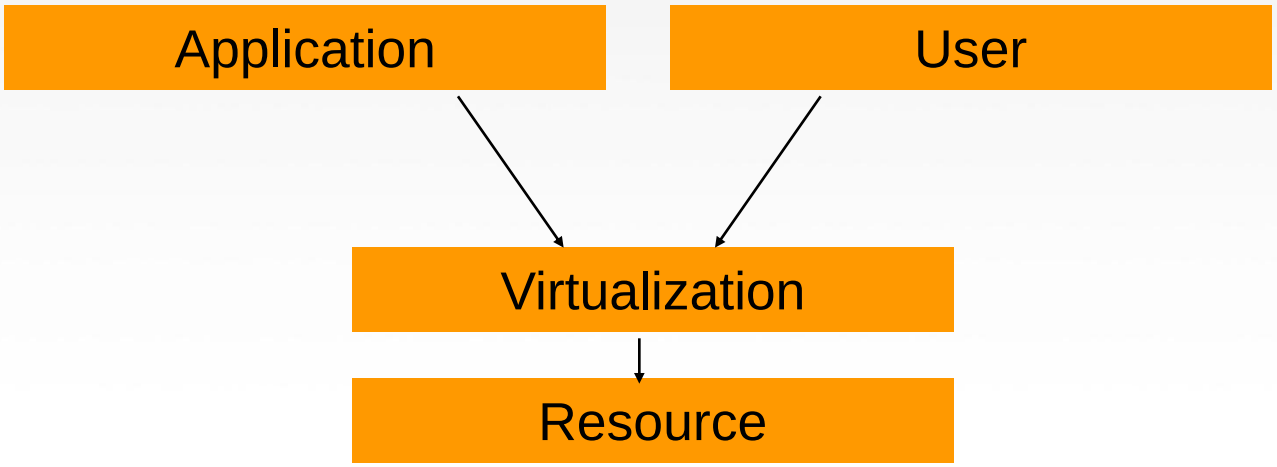
### Landscapes, Application Templates and Automation, A Potent Combination

The ability to manage SAP environments


# VIRTUALIZATION AS BASE TECHNOLOGY FOR CLOUD COMPUTING

# Definition Virtualization

Logical Layer between User and Resource, which hides the physical properties and allows for new use cases



# Scenarios

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| Szenario | Resource | Value Add |
|---|---|---|
| Linux VM on Windows Host | CPU / RAM / Filesystem | Emulate virtual hardware |
| Remote Desktop | Graphics / Window display | Transmit display via network |
| Software evaluation | CPU / RAM / Filesystem | Software is preconfigured |
| Software development | Interface of the OS for IO, Graphics, etc. | Write Once Run Anywhere |
| Installation Service Pack | Mass storage | Recover old state |

# Partitionierung

## Example

- VLAN
- Disk Partition
- VM

## Advantage

- Isolation
- Optimal utilization

# Aggregation

## Example

- Logical Volumes
- Cluster

## Advantage

- Scalability

# Emulation


## Example

- iSCSI

## Advantage

- Interoperability
- Flexibility

Virt. Resource

Phys. Resource

# Why now?

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## Virtualisierung is an old technology

- E.g. mainframe
- Performance used to be the problem

## Breakthrough today

- Even commodity hardware is powerful enough
- Broadband widely available
- Storage capacity

## Virtualization is becoming mainstream

# Virtualization Everywhere

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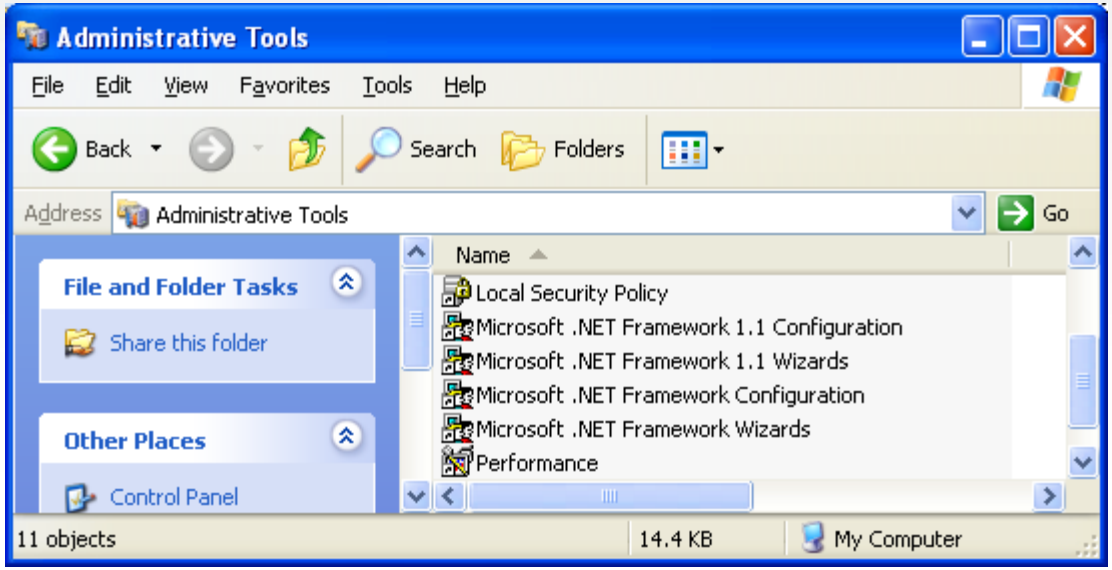
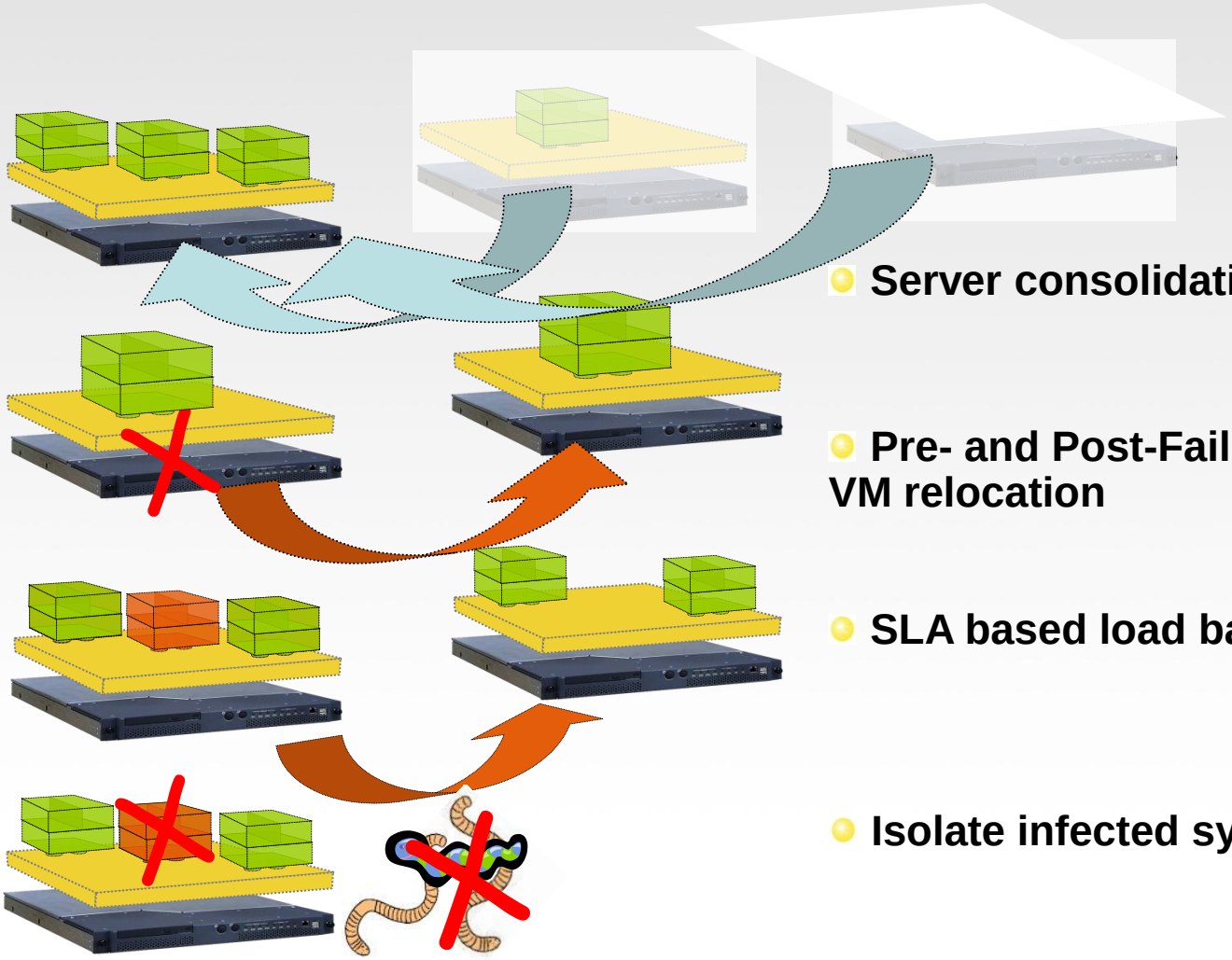
Remote Desktop

iSCSI Initiator | iSCSI Initiator Control Panel Applet

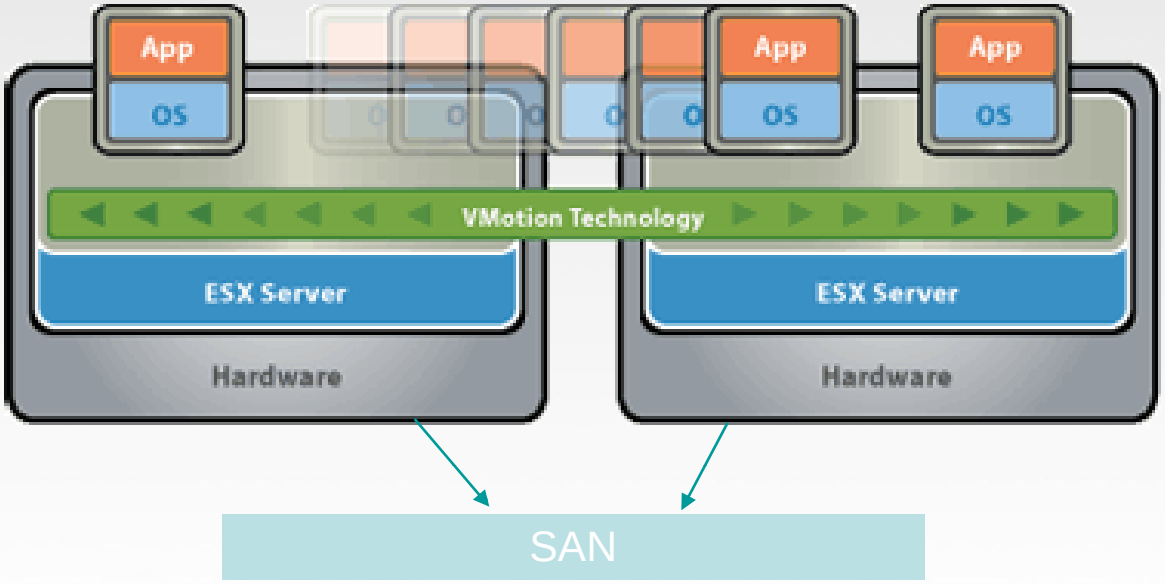


# Use cases



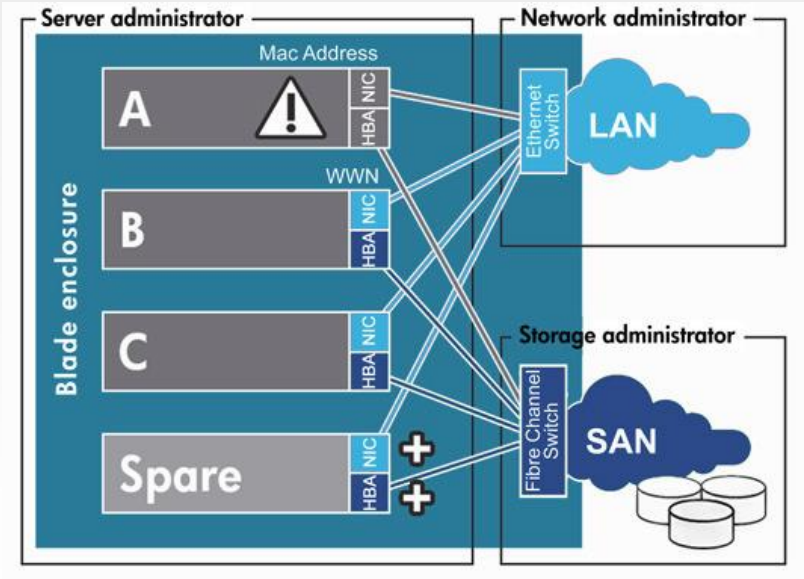
- Server consolidation
- Pre- and Post-Failure Alerts trigger VM relocation
- SLA based load balancing
- Isolate infected system

# Hypervisors: Example VMware

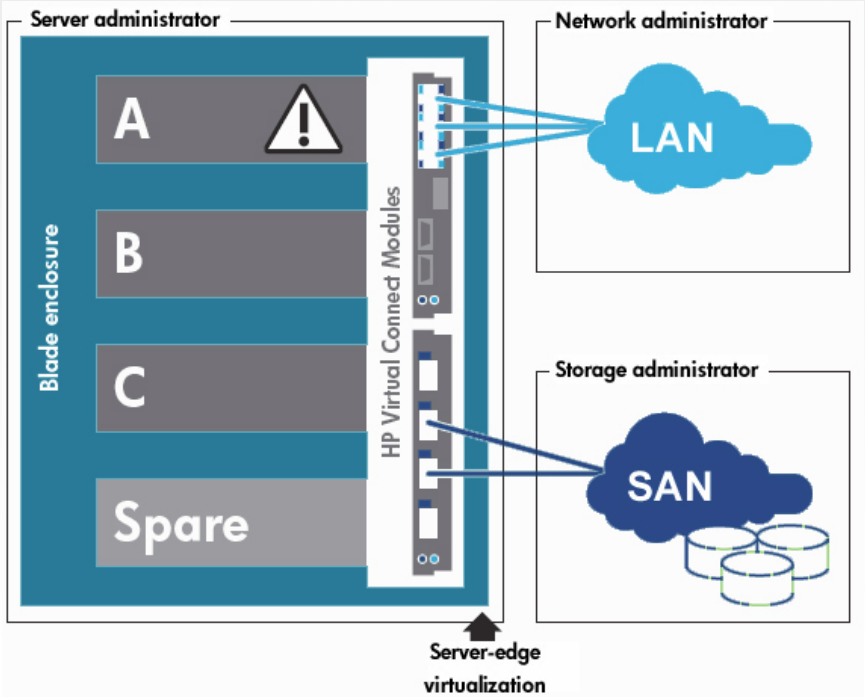


# Virtual Networks in Hardware

Old




New



# Virtualization in Hardware Blades

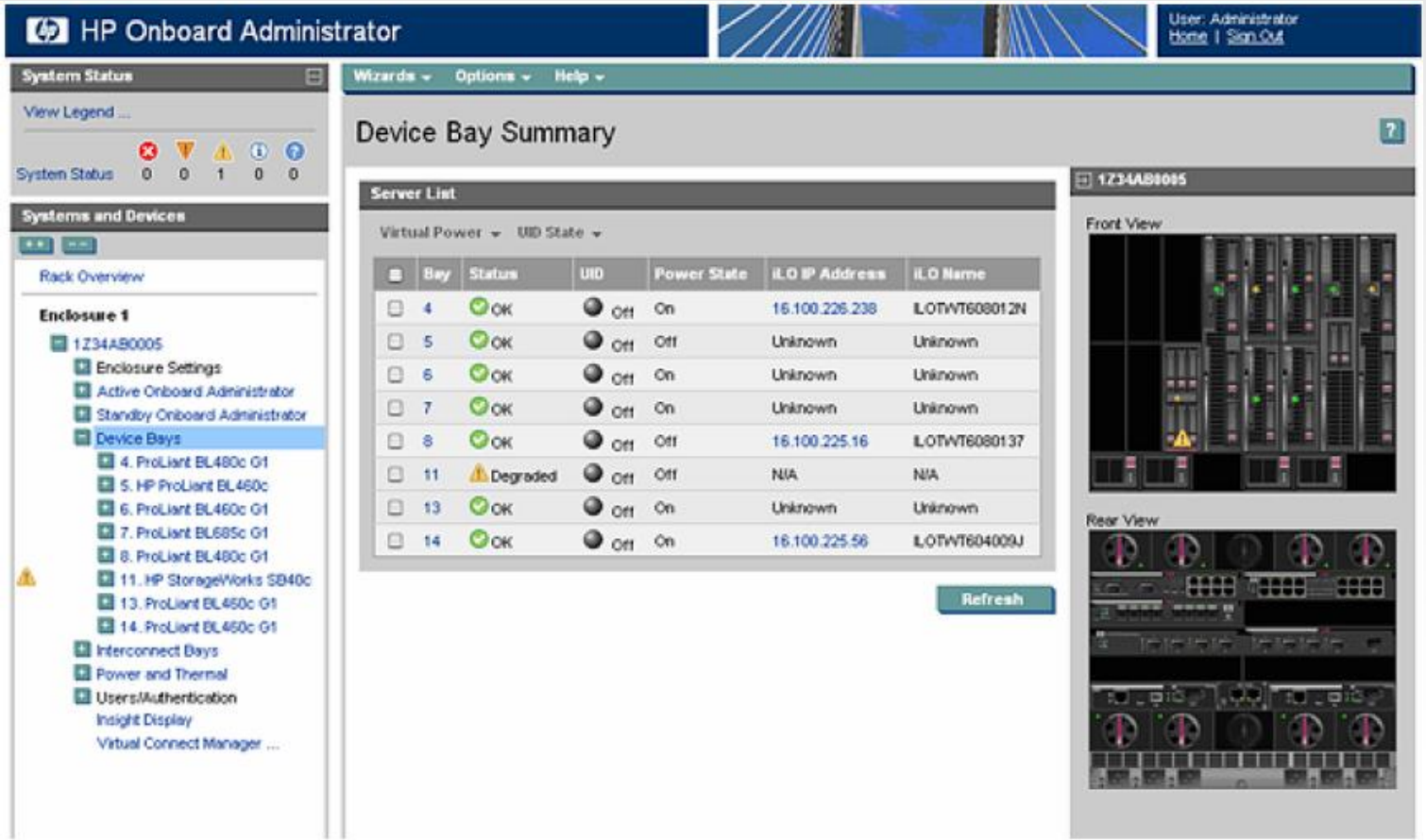

## Trad. Hypervisor

- VM
- Emulated network
- Virtual Disk (.vhd)
- Virt. Console / Start / Stop / ...

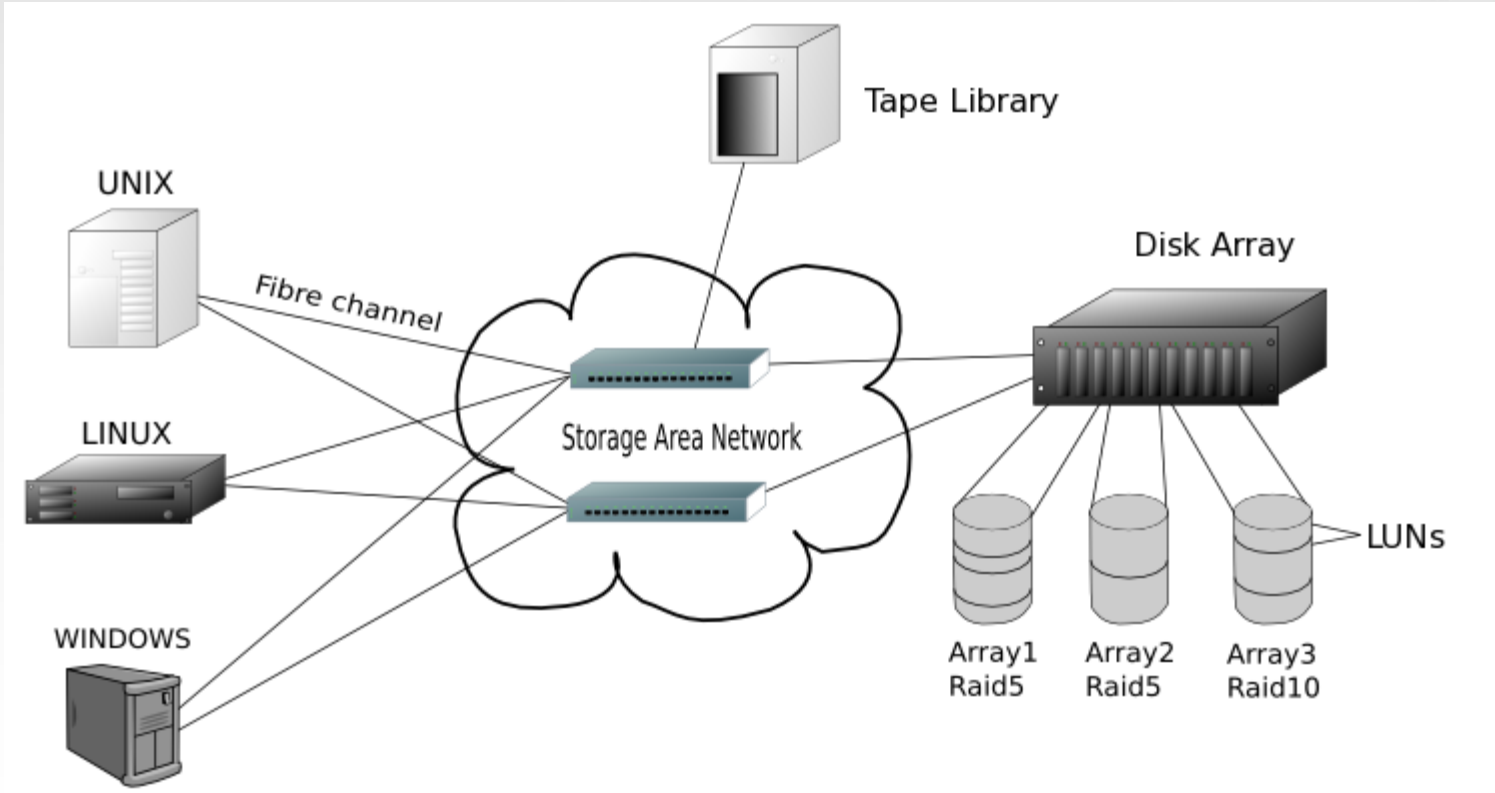
## Hardware Hypervisor

- Blade
- Virtual Connect
- LUN on SAN
- On Board Administrator Management Processor

# Example: On Board Administrator

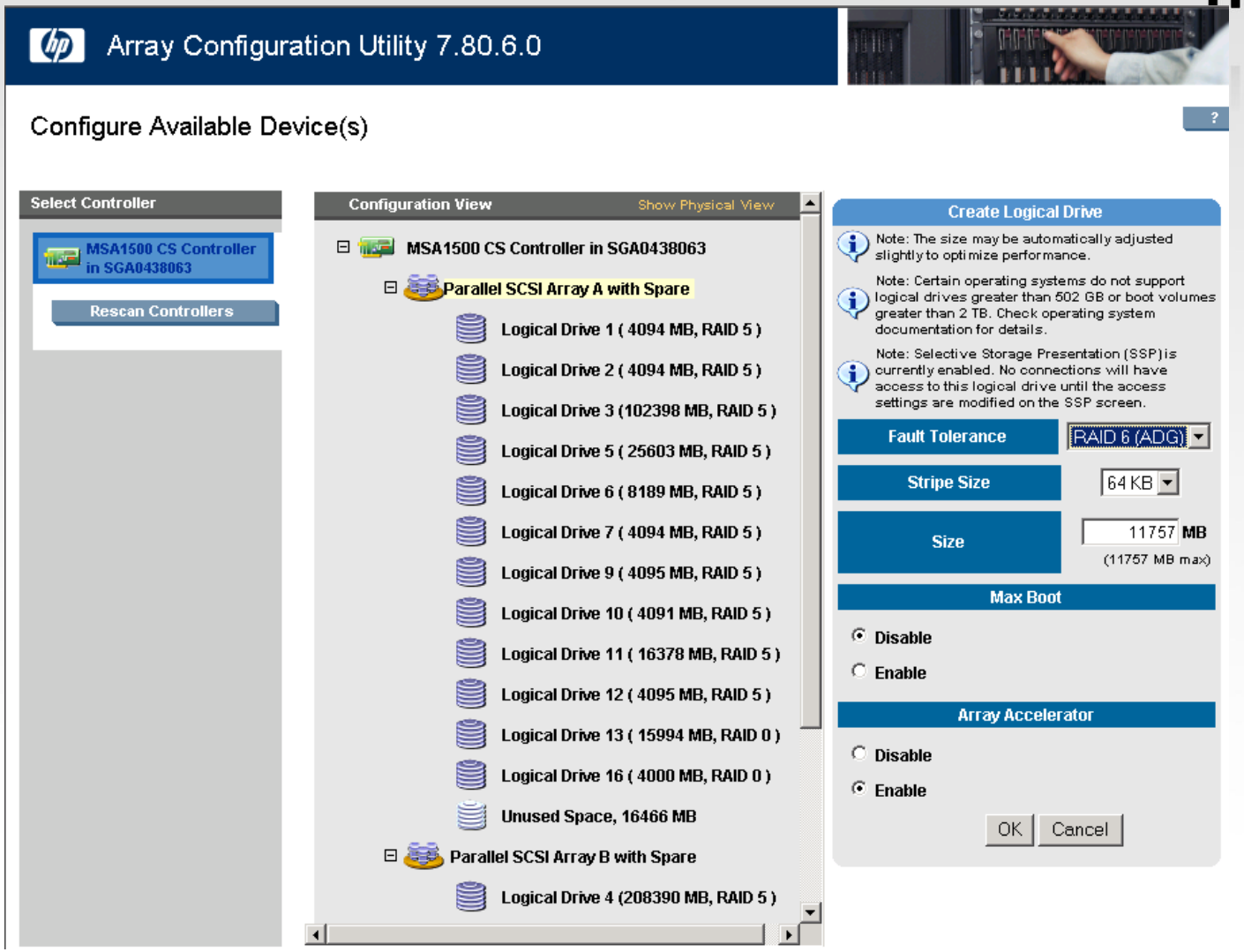


# Storage Area Network (SAN)

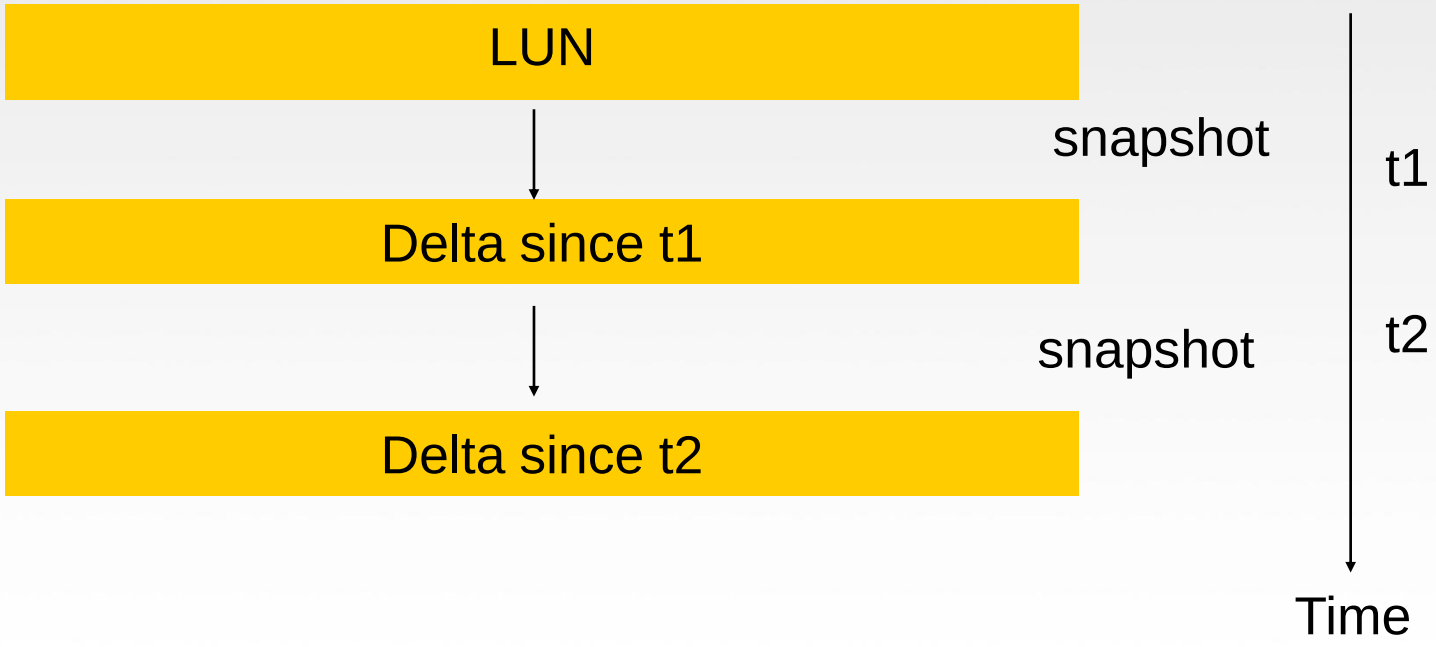



Source: http://de.wikipedia.org/wiki/Storage_Area_Network

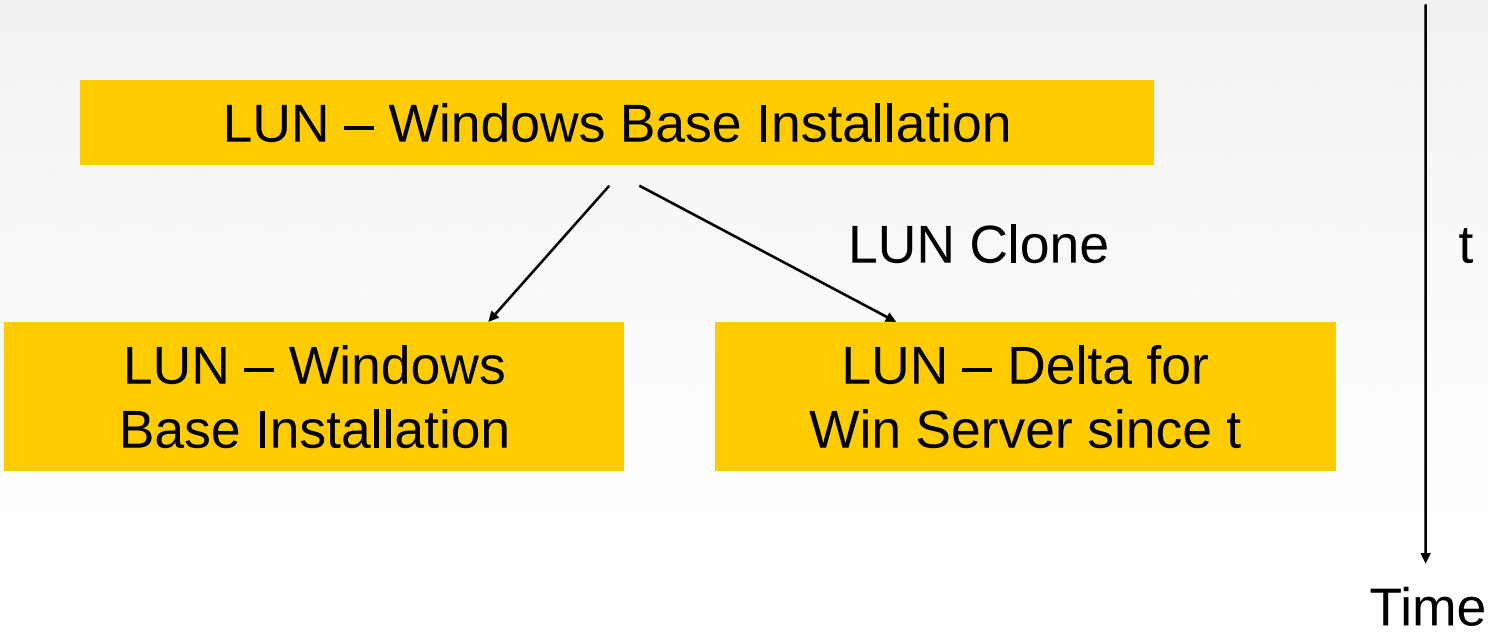
# Example: HP MSA 1500



# Snapshots


LUN
snapshot
Delta since t1
snapshot
Delta since t2
t1
t2
Time

# LUN Cloning


LUN – Windows Base Installation
LUN Clone
LUN – Windows Base Installation
LUN – Delta for Win Server since t
t
Time


# CLOUD INFRASTRUCTURE CHALLENGES

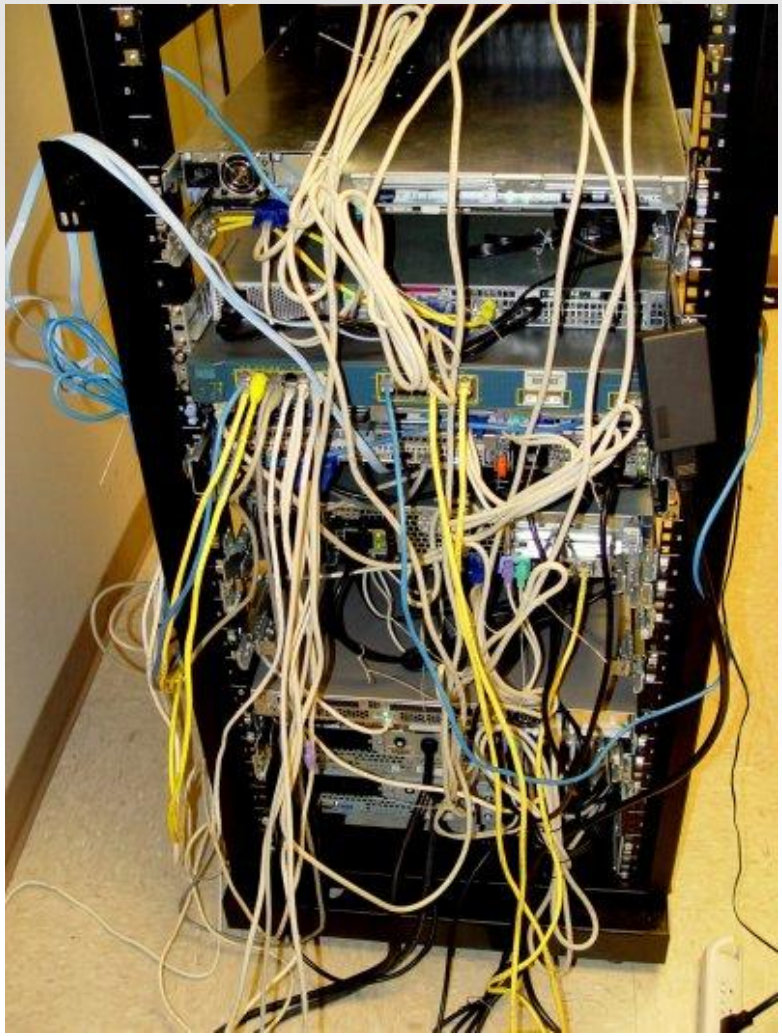
# Automation & Scalability

## Automation

- “as a Service” environments always dynamic

## Virtualization

- Do you want to patch cables physically or virtually?



# Complex Technology Stack

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Silos of managing storage, network, compute, applications

Similar functionality on different layers

Cloud requires end-to-end management

Need to combine point products & APIs into solution



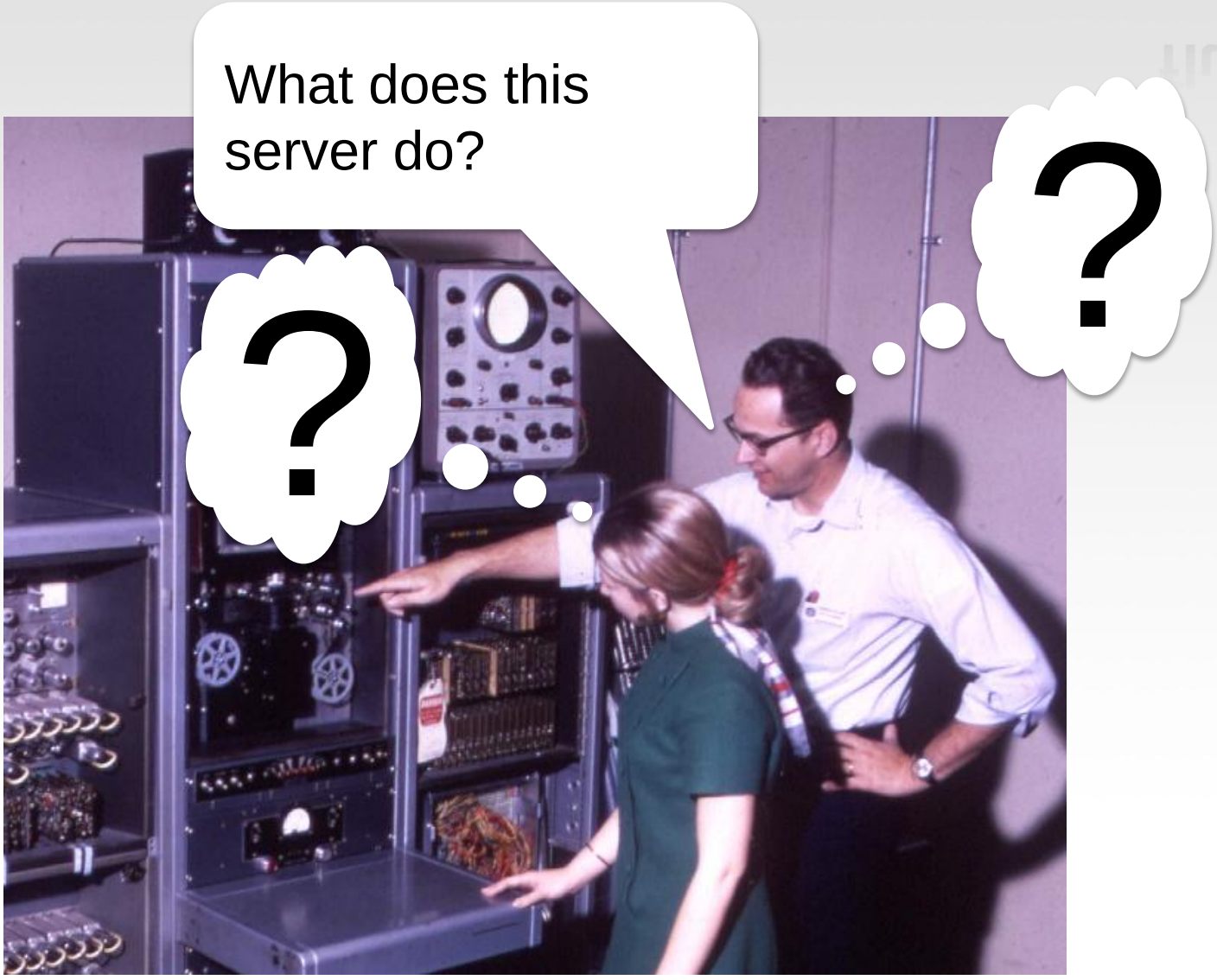









# What about Operational & Business Insight?




# SOLUTION OVERVIEW

# eCloudManager Platform

fluid Operations

## eCloudManager Infrastructure Edition

- Manage CPU, storage and application virtualization through a single pane of glass
- Rapid VM provisioning utilizing multi-vendor server virtualization and storage technologies

## eCloudManager SAP Edition

- Provisioning, management and maintenance of multi-tiered multi-system SAP enterprise application landscapes
- Advanced, hands-off integrated SAP monitoring

## eCloudManager Self-Service Edition

- Portal for all internal application clients with hybrid consumption of internal and external resources (comparable with the EC2 Cloud Portal from Amazon)
- Metering and billing

## eCloudManager Foundation

- Semantic Integration technologies (patent pending)
- Extensible Backend Services covering heterogeneous hardware / data sources, using SOAP, REST, SNMP, SSH
- VMFS driver to decouple storage and virtualization layers (made available to open-source community)
- Event/condition/action system, with integrated Groovy and Java shell for interactive scripting

eCloudManager Product Suite

# In Memory Semantic DB

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SOAP | SSH | SNMP | REST | DBMS | CLI

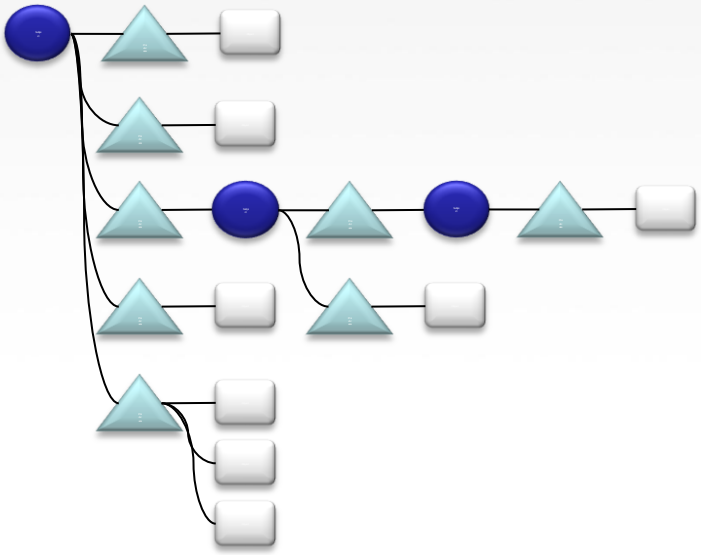
Syntax

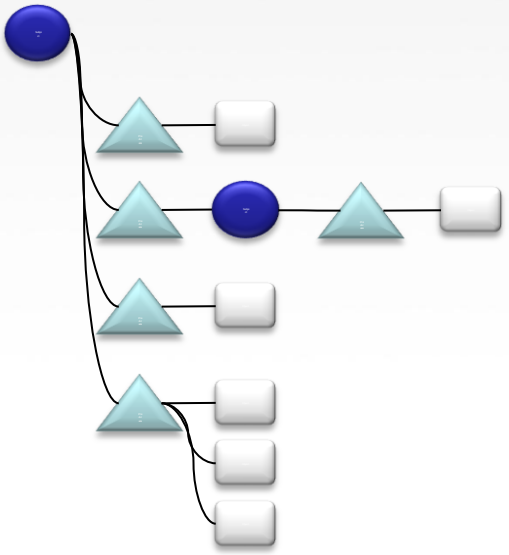
Cloud Infrastructure Management Suite

vmware

NetApp

Semantics



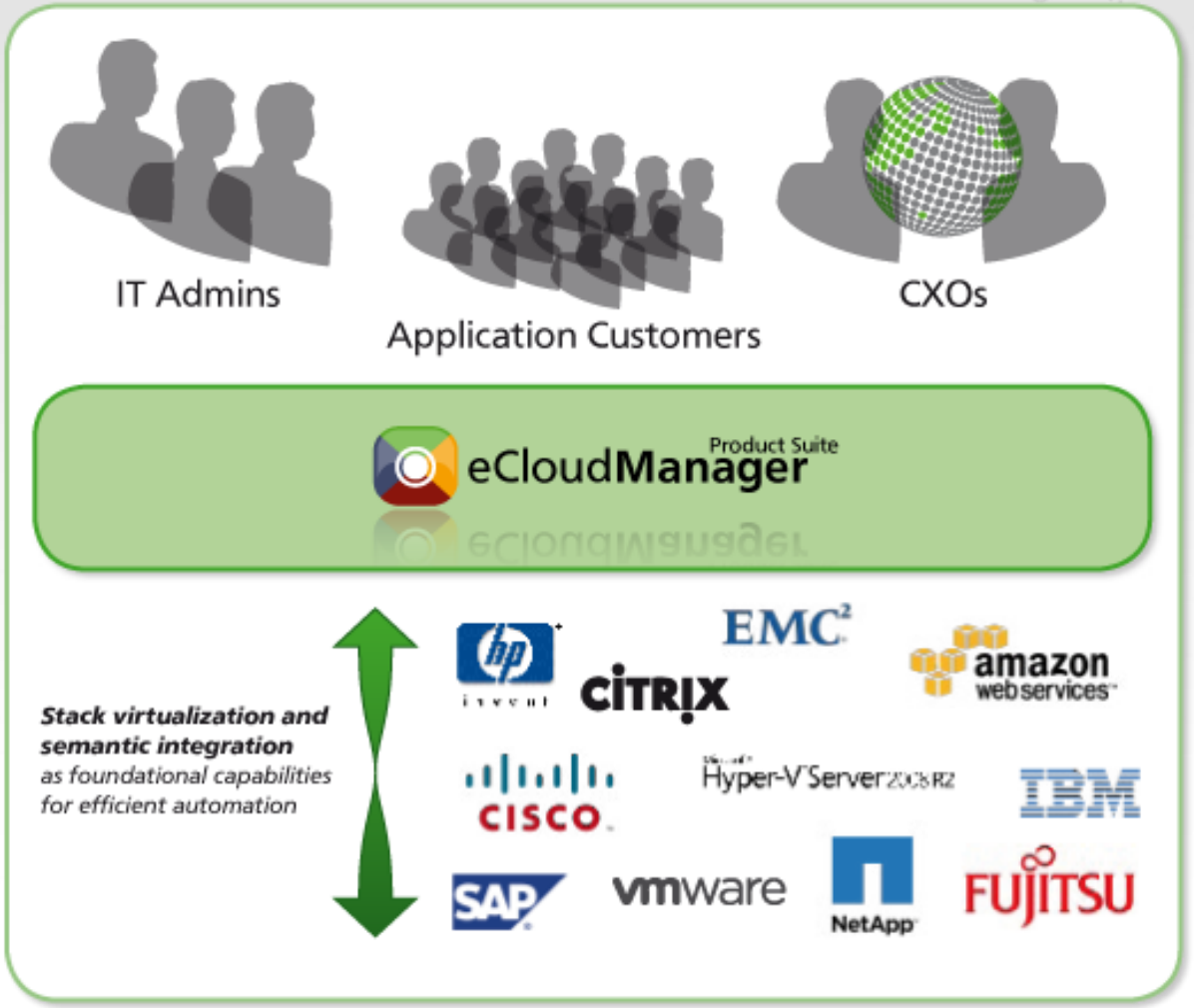


# Breakthrough No. 1: Leverage the whole stack

fluid Operations

## Allows:

- single-console access
- system-wide monitoring
- storage-assisted cloning
- storage-assisted back-ups
- centralized VM management



# eCloudManager Infrastructure Edition

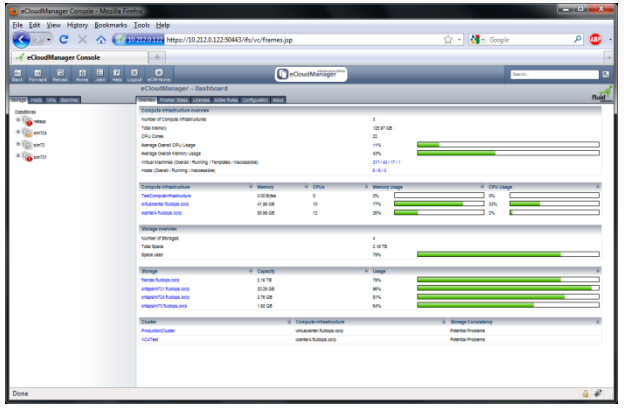
fluid Operations

## What

- Industry's first solution to monitor and manage CPU and storage virtualization across different virtualization and storage providers through a unified, functional & graphic interface. Leverages open-source VMFS driver for flexibility
- Rapid VM provisioning utilizing multi-vendor server virtualization and storage technologies

## Features

- Multi-geography data center support: multi-vCenter instance and multi-storage array management
  - Unified view on virtualized compute and storage resources in geographically distributed data centers
  - Enhanced virtualization management and monitoring features
  - Storage management across clusters of VM hosts
  - Cluster storage settings validation / repair
- Customizable event and notification system
  - Configurable and extendable rules allowing an automated data center monitoring to guarantee SLAs
  - Hierarchical rules for improved data and event processing, and advanced eMail, SMS and RSS notifications



Infrastructure Dashboard View

eCloudManager Infrastructure Edition

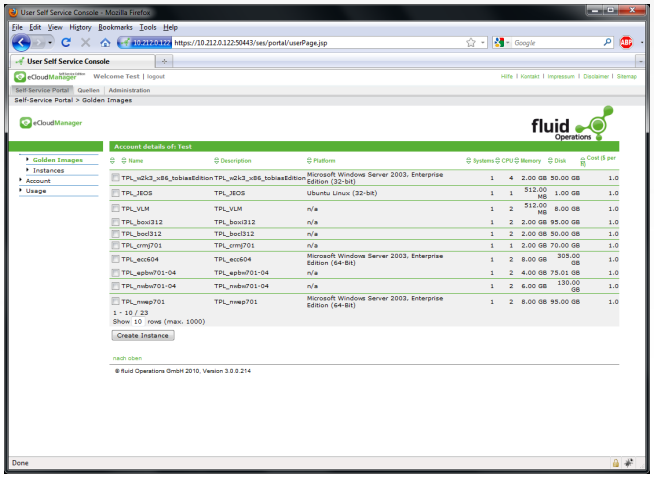
# eCloudManager Self-Service Edition

## What

- Self-service provisioning of application landscapes for development / value prototyping, testing and production

## Features

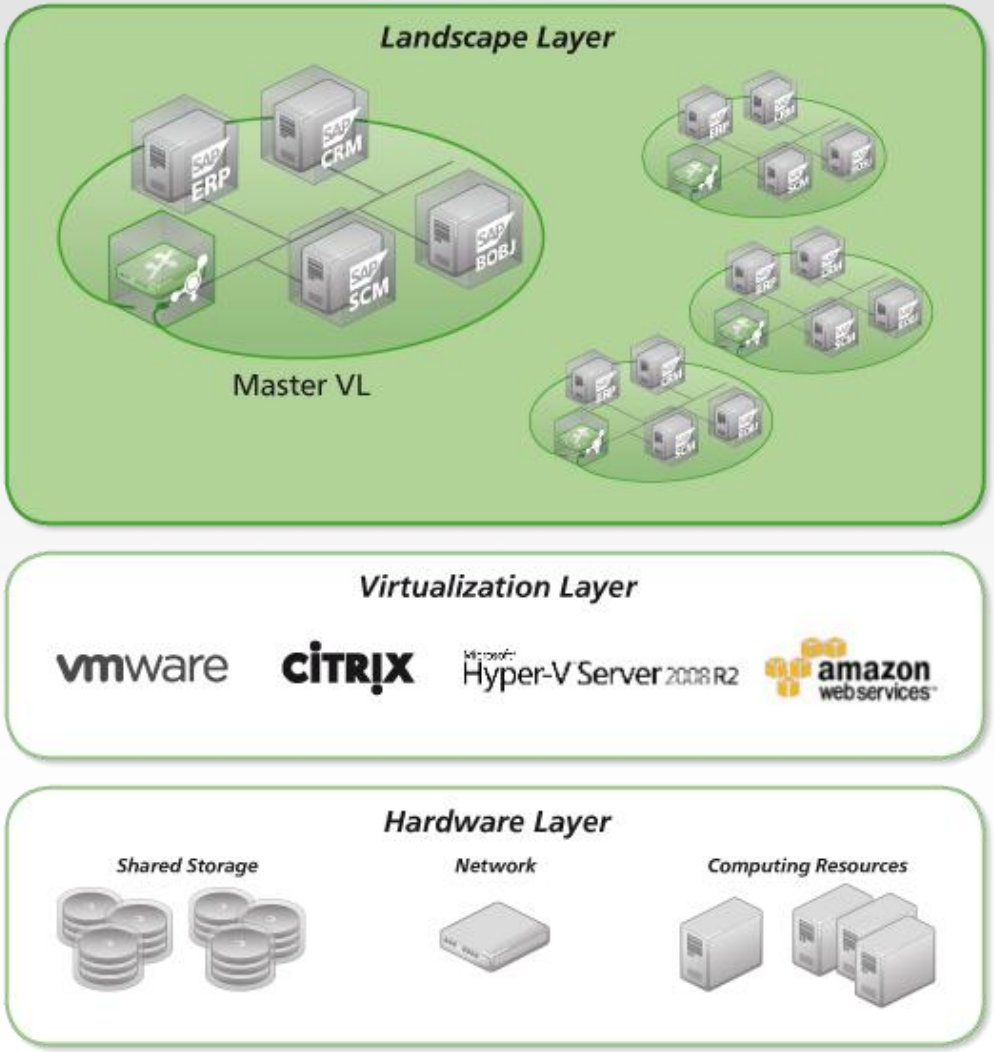
- Cloud landscapes exposed to business clients in a portal
- Storage-assisted provisioning
  - Leveraging Infrastructure Edition's rapid provisioning of large systems
- Integrated Metering and Billing
  - APIs for integration into existing infrastructure
  - Portal for cloud admins and portal for cloud users
  - Customizable cost calculation formula
- Policy based workload placement
- Multi-tier multi-system landscape editor
- Open platform for customizable features
  - Provisioning process automation and customization based on internal workflows
- Full control over provisioned systems



**Golden Images**

eCloudManager Self-Service Edition

# Breakthrough No. 2: Manage complete SAP application landscapes




## Allows:

- One-time definition of a Master Virtual Landscape (VL) as to network and storage configurations
- Wizard-based VL cloning in minutes and without post-provisioning work
- Use of SAP appliance templates or reuse of own for consistency
- Landscape-as-a-Service offering to internal business clients

# VL Management – How it's done

Main productivity and handling benefits are derived by being able to easily create, monitor, maintain and continue to adapt separately encapsulated VLs

VLs are first defined and created with the help of the eCloudManager VL Deployment Wizard

- Selecting available application (VM) templates to define the application content of a VL
- Determining a VL name and setting the VLAN for the VL
- Assigning a storage for each VM of the VL, and choosing a cluster or host where the VM will run
- Triggering the creation of the so defined VL and its automatic registration as part of the VM Provider console

# eCloudManager SAP Edition

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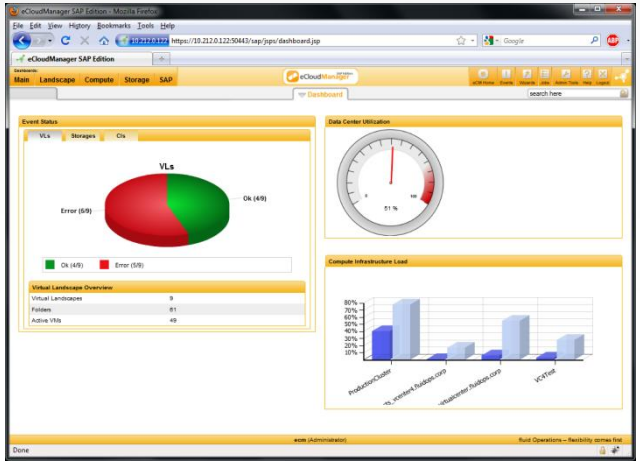
## What

- Provides full control over the life cycle of your SAP landscapes through a single, unified, easy-to-use management console, delivering Landscape-as-a-Service = LaaS
- Application (VM) Templates for immediate application content or custom versioning
- Monitoring of all SAP relevant systems based on data sources

## Features

- Rapid provisioning, management and monitoring of multi-tiered multi-system enterprise application landscapes
  - Typical example: SAP ECC + BI + Portal + Citrix access gateway
  - Includes connections between systems as well as user management. No post-provisioning configuration needed
- Landscape-as-a-Service
  - SAP landscapes exposed to business clients as LaaS in a self-service portal




eCloudManager SAP Edition

**eCloud Dashboard View**


# USE CASES

:: CeBIT 2010

:: Dynamic Net-Centric Sourcing
:: SAP Landscape as a Service
:: Managed Voice over IP Services / Application Performance Management
:: Collaboration
:: Mobile Enterprise
:: Security & Governance
:: Sustainability & Corporate Responsibility
:: Public Sector
:: Interactive Area

# Dynamic Net-Centric Sourcing

Flexible ICT sourcing solutions and pricing models for dynamic markets.

CeBIT 2010 > Dynamic Net-Centric Sourcing > SAP Landscape as a Service

## Order complete SAP system landscape from the network

**Instead of purchasing applications, companies lease them for a certain period via a mouse click from the cloud.**

As an SAP specialist in the IT department of a logistics group, Lutz Fertweit is well aware of how to utilize the maximum potential of all software. And his company has never spent a single cent yet on any of its own SAP solutions. Whether a

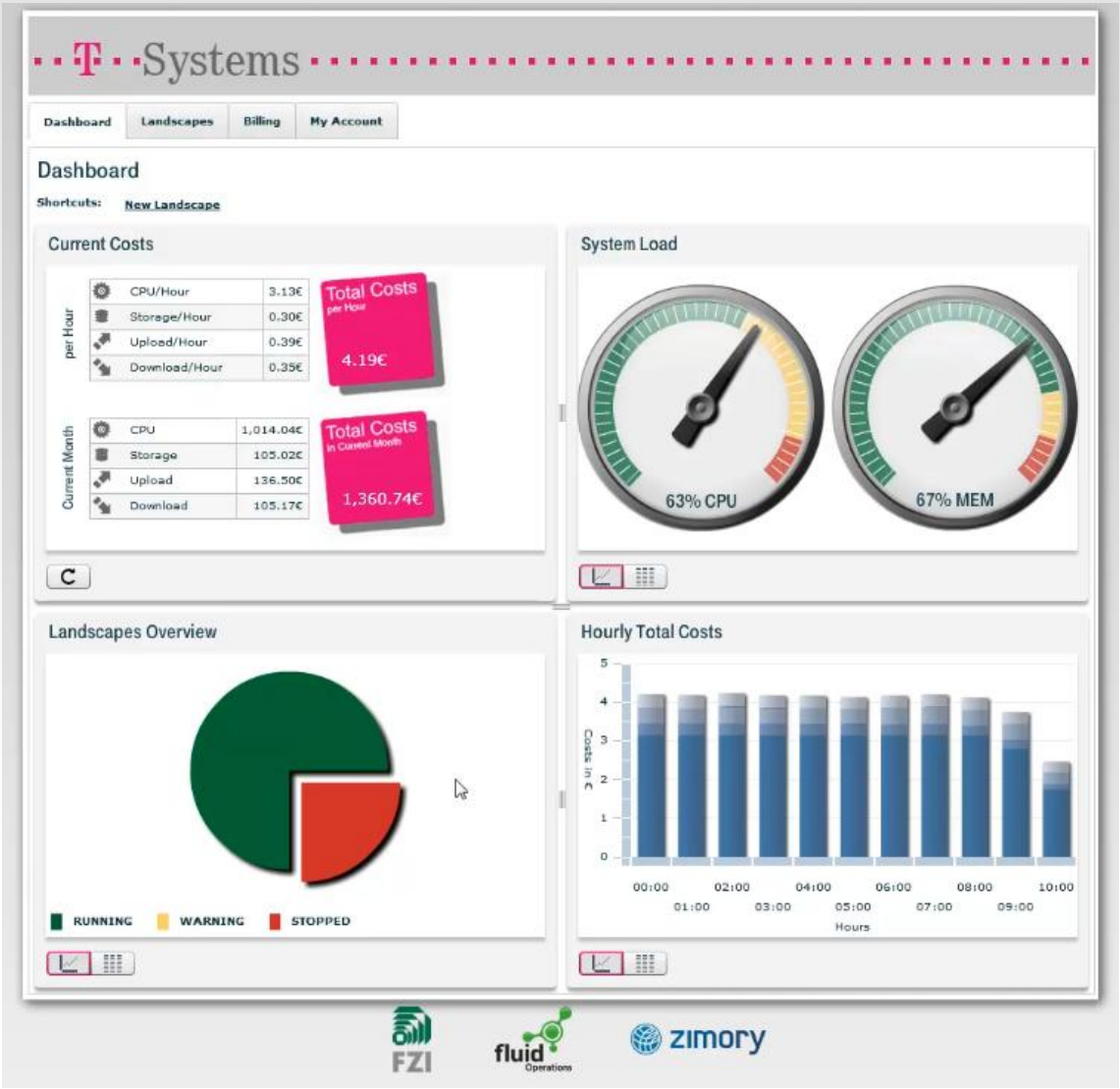
Next step

Contact our experts!
Recommend this page

Special

Dynamic Net-Centric Sourcing

# Demo


T Systems
Dashboard
Landscapes
Billing
My Account
Dashboard
Shortcuts:
New Landscape
Current Costs
per Hour
CPU/Hour 3.13€
Storage/Hour 0.30€
Upload/Hour 0.39€
Download/Hour 0.35€
Total Costs per Hour 4.19€
Current Month
CPU 1,014.04€
Storage 105.02€
Upload 136.50€
Download 105.17€
Total Costs in Current Month 1,360.74€
System Load
63% CPU
67% MEM
Landscapes Overview
RUNNING
WARNING
STOPPED
Hourly Total Costs
Costs in €
Hours
00:00
01:00
02:00
03:00
04:00
05:00
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fluid Operations
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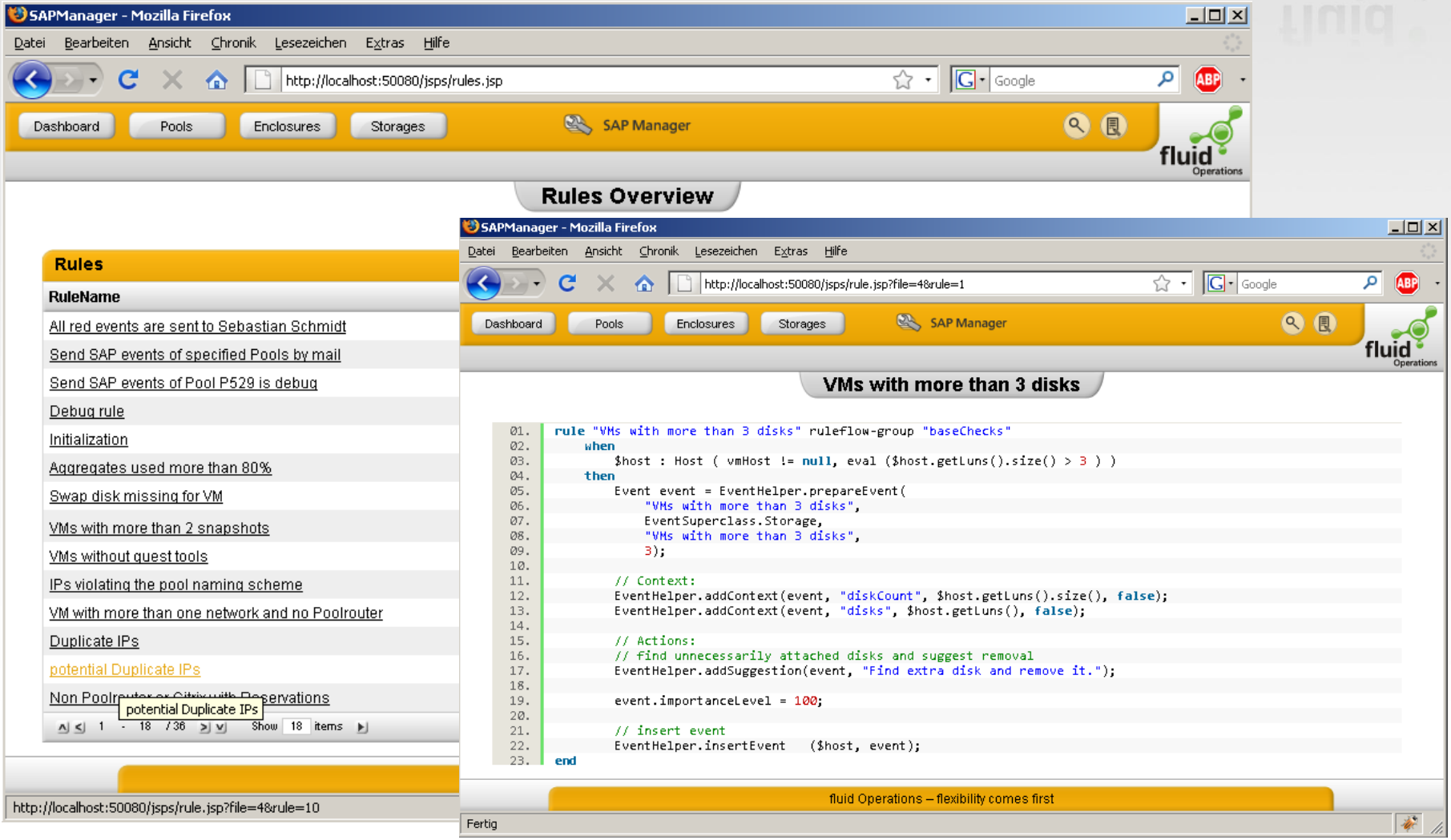
# Demo: SAP Value Prototyping: Flexible Policies to Meet SLAs



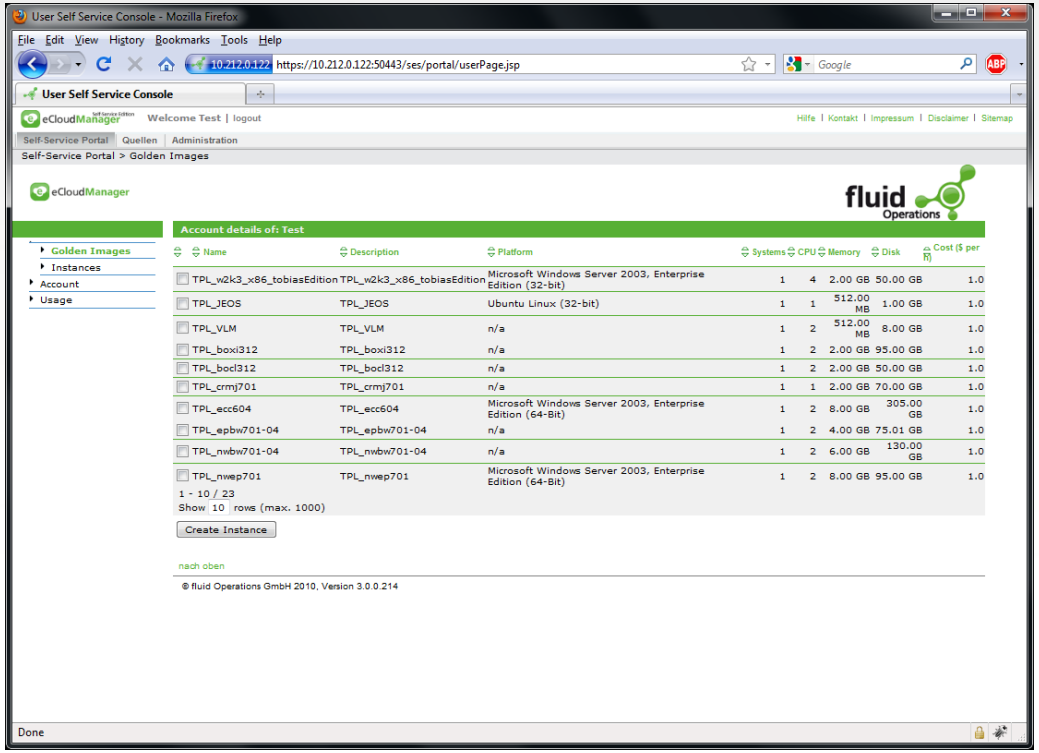
# Demo: Blade as a Service

Blade as a Service for High Performance Enterprise Applications

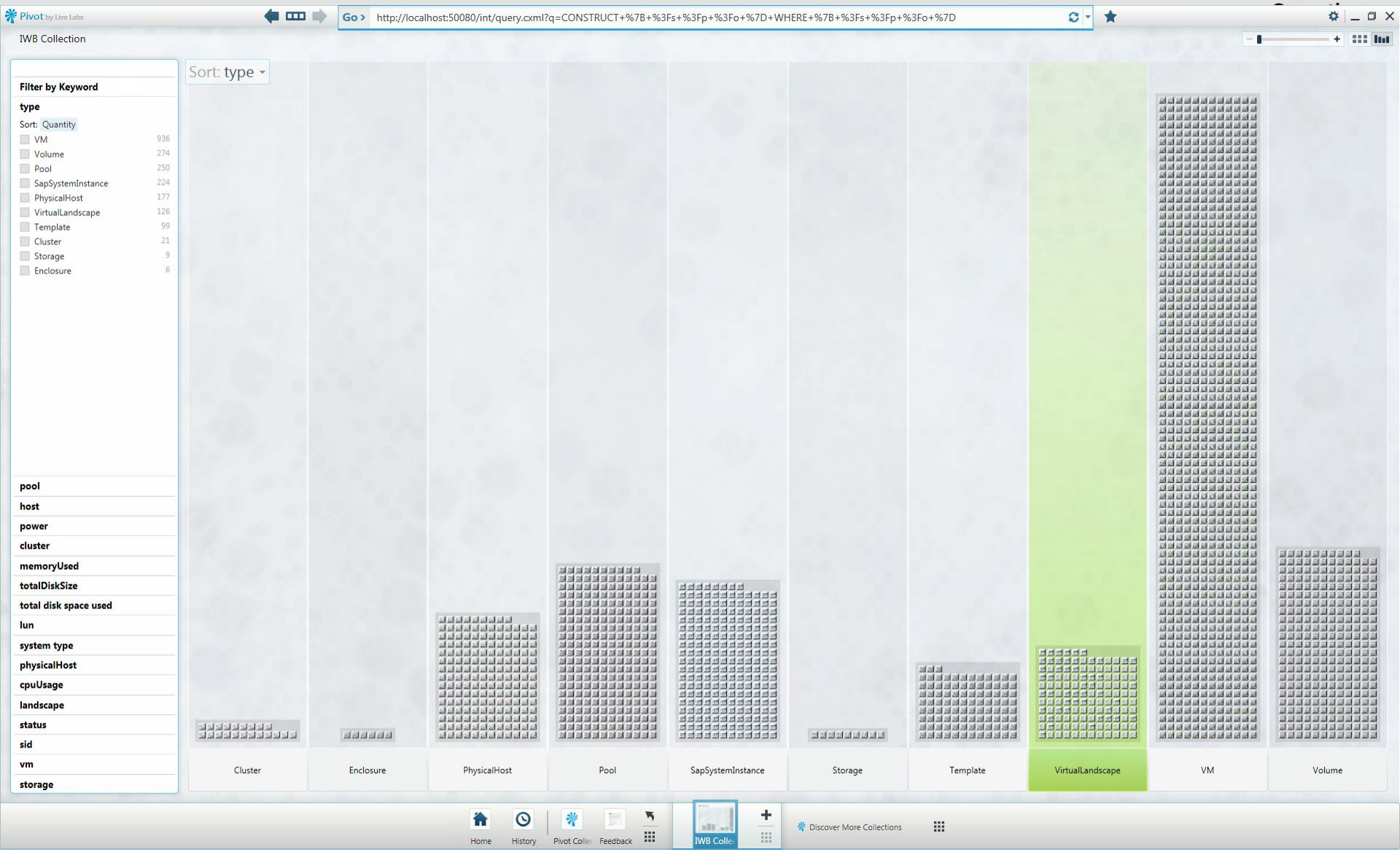
No CPU limitations, no Hypervisor Overhead

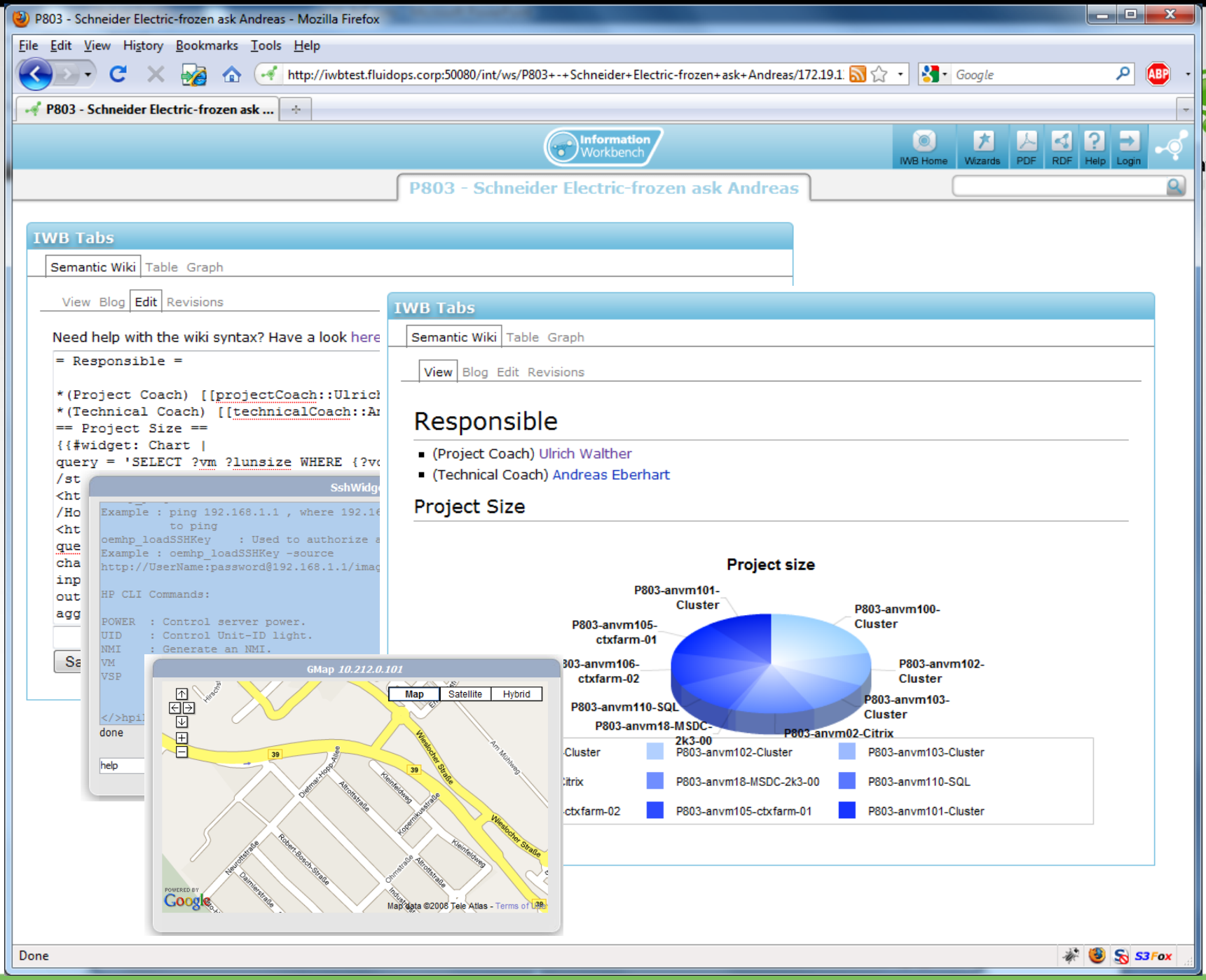
Supports HP cClass

Cisco UCS



# Demo: Insight into the Entire Data Center




P803 - Schneider Electric-frozen ask Andreas - Mozilla Firefox
File Edit View History Bookmarks Tools Help
http://iwbtest.fluidops.corp:50080/int/ws/P803+-+Schneider+Electric-frozen+ask+Andreas/172.19.1
P803 - Schneider Electric-frozen ask ...
Information Workbench
IWB Home
Wizards
PDF
RDF
Help
Login
P803 - Schneider Electric-frozen ask Andreas
IWB Tabs
Semantic Wiki Table Graph
View Blog Edit Revisions
Need help with the wiki syntax? Have a look here
= Responsible =
*(Project Coach) [[projectCoach::Ulrich
*(Technical Coach) [[technicalCoach::An
== Project Size ==
{{#widget: Chart |
query = 'SELECT ?vm ?lunsize WHERE {?vm
SshWidget
Example : ping 192.168.1.1 , where 192.16
to ping
oemhp_loadSSHKey : Used to authorize a
Example : oemhp_loadSSHKey -source
http://UserName:password@192.168.1.1/imag
HP CLI Commands:
POWER : Control server power.
UID : Control Unit-ID light.
NMI : Generate an NMI.
VM
VSP
done
help
GMap 10.212.0.101
Map
Satellite
Hybrid
Wieslocher Straße
Am Mühlweg
Diemar-Hopp-Allee
Kleinfeldweg
Kopernikusstraße
Robert-Bosch-Straße
Neurottstraße
Daimlerstraße
Ohmstraße
Industriestraße
Map data ©2008 Tele Atlas - Terms of
IWB Tabs
Semantic Wiki Table Graph
View Blog Edit Revisions
Responsible
(Project Coach) Ulrich Walther
(Technical Coach) Andreas Eberhart
Project Size
Project size
P803-anvm101-Cluster
P803-anvm100-Cluster
P803-anvm105-ctxfarm-01
P803-anvm106-ctxfarm-02
P803-anvm102-Cluster
P803-anvm110-SQL
P803-anvm103-Cluster
P803-anvm18-MSDC-2k3-00
P803-anvm02-Citrix
P803-anvm102-Cluster
P803-anvm103-Cluster
P803-anvm18-MSDC-2k3-00
P803-anvm110-SQL
P803-anvm105-ctxfarm-01
P803-anvm101-Cluster
Done
S3Fox

# Partners


## Technology





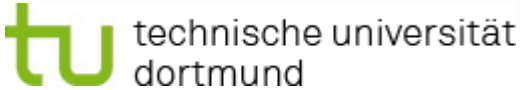





## Research





# Summary

| Challenge | Solution |
| --- | --- |
| Automation | Workflows / Policies / Self Service |
| Silos of Management | Semantic Integration |
| Scalability of management tools | In memory DB |
| Correlate technical, business, operational data | Web 2.0 approach |
| Holistic view of all resources | Analytical tools |


# CONTACT US: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