



Wir schaffen Wissen – heute für morgen

Virtual Servers for Controls Applications

From real PCs to high available VMs (Virtual Machines)

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Types of Application Servers (services)

Service	# per CtrlNet	# per BL	Total
SSH Gateway	1	1	23
Channel Access GW	1 or more	1	28
Softioc	1 or more	1	35
Port server host	1	1	23
IOC Boot PC	1 or more	1	32
WWW, Elog, Test, ..			20
Total			161

as of Sep 2011

Why to put services on dedicated systems?

Easier to manage

- Service adapted installation and configuration

Proportioned security

- Make the system as secure as the service desires it

No negative service interaction

- An “out of control” service does not harm others

No resource conflicts

- (Almost) exclusive use of RAM, Disk, Network, ...

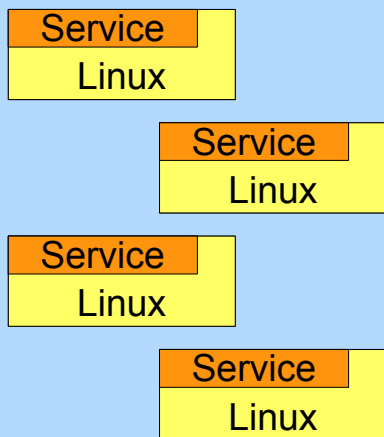
Reboot without fear

- Untrained personal may restart the system in an emergency case.
- A system reboot always applies to one service

The path from real PCs to high available VMs (1)

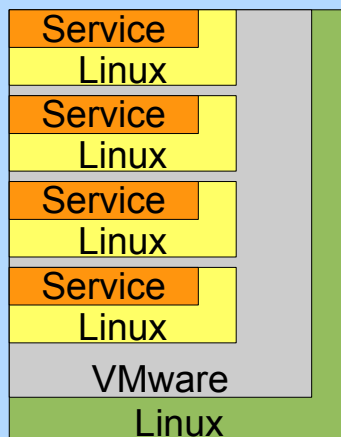
Phase 1

~1500 CHF/VM



Phase 2 (consolidation)

~5 Vms/CPU, ~500 CHF/VM

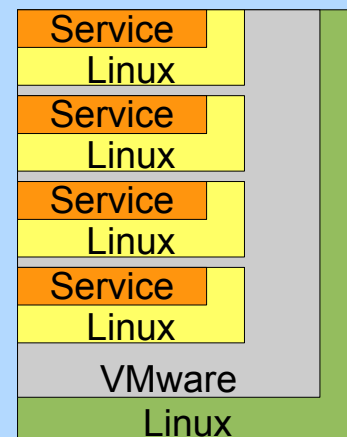


- 2 GB RAM
- local disk
- 1 CPU, 1 core



Phase 3 (availability)

~5 Vms/CPU, ~650 CHF/VM



- 2 GB RAM
- local disk (Raid1)
- 1 CPU, 2 cores

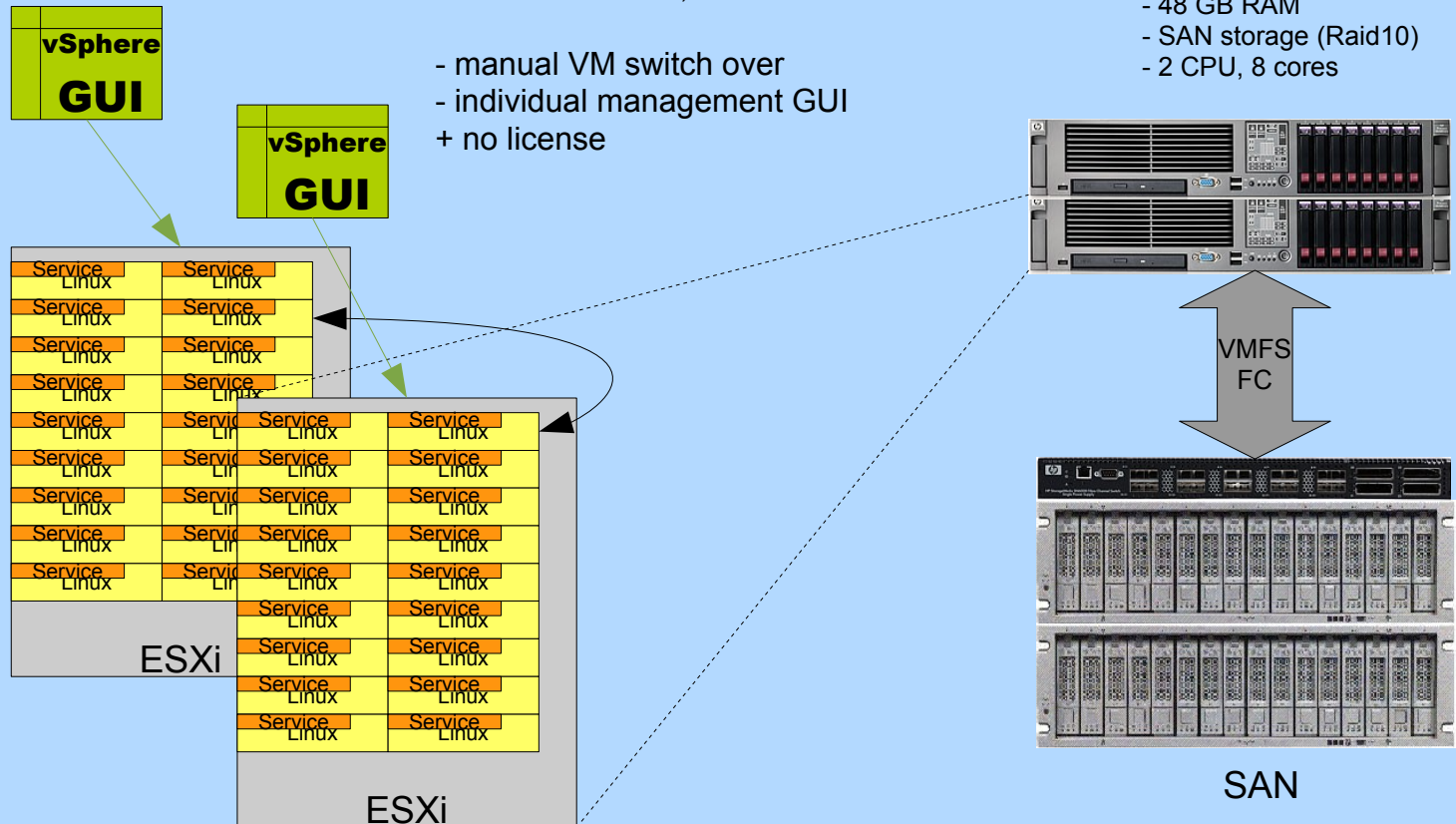


The path from real PCs to high available VMs (2)

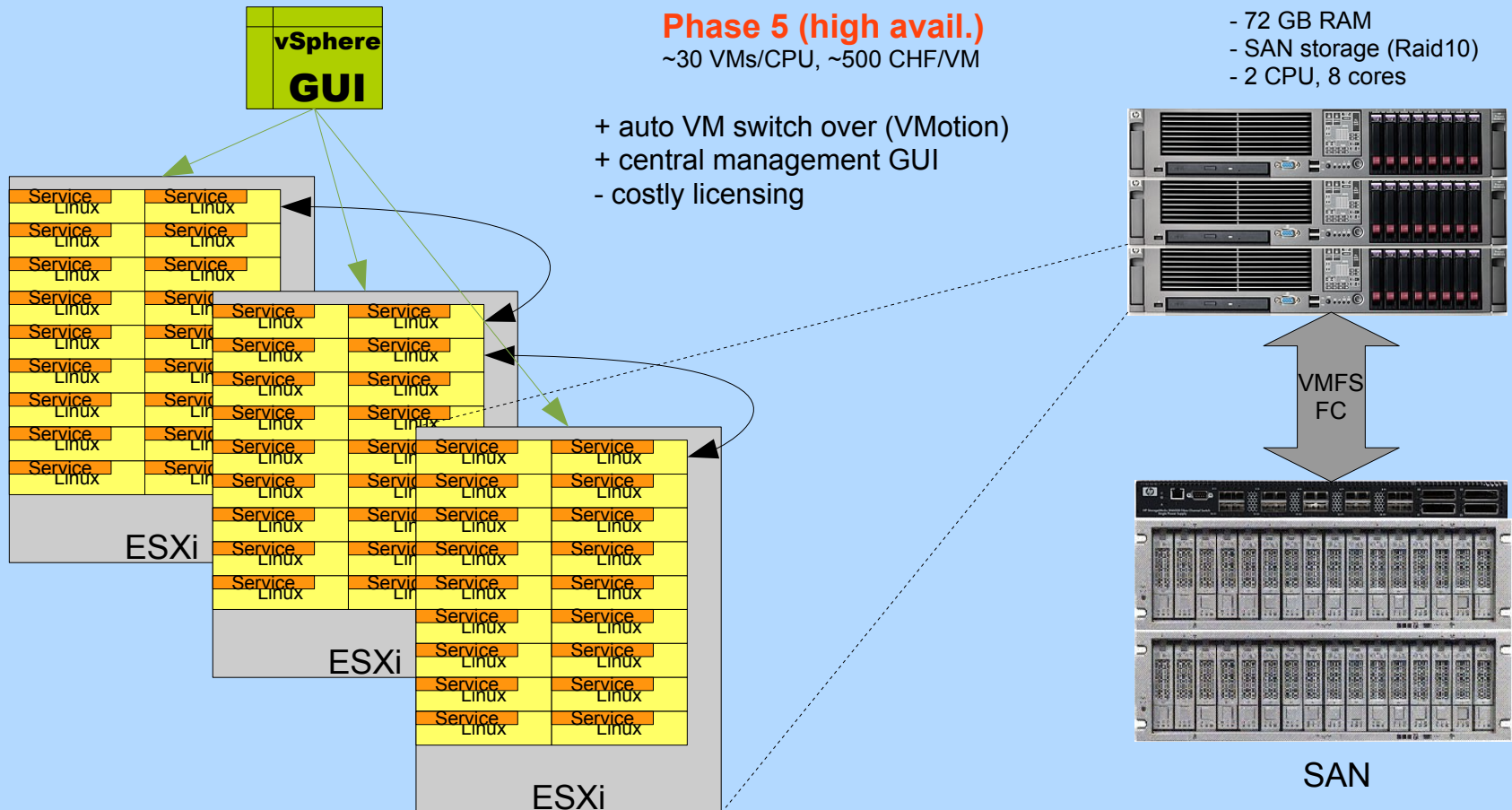
Phase 4 (compaction)

~40 VMs/CPU, ~400 CHF/VM

- manual VM switch over
- individual management GUI
- + no license



The path from real PCs to high available VMs (3)



Installation / Configuration / Backup

Well defined system classes allow...

- BootPC, CAGW, A_Console, ..

...easy and reproducible installations and...

- PXE → Kickstart → Puppet ¹

...centrally managed config and updates

- Puppet ¹

Backup of VM disks to NFS ~3 month

- VM fallback operation over NFS

1. <http://puppetlabs.com/>

Virtualization for the crowd

Just about the time when the SLS announced its first light, VMware introduced its VMware Virtual Platform for the Intel IA-32 architecture.

The start of affordable computer virtualization on IA-32 and IA-64 systems was a great opportunity to introduce virtualization at the Swiss Light Source.