Izkušnje v zakulisju OracleVM 3

- **Damjan Žiberna**; Abakus plus d.o.o.

- The latest version of this document is available at: http://www.abakus.si/

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Oracle VM 3
»behind the sceenes«

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ORACLE Gold Partner

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History

- from 1992, ~20 employees

Applications:

- special (DB – Newspaper Distribution, FIS – Flight Information System)
- **ARBITER – the ultimate tool in audit trailing**
- **APPM - Abakus Plus Performance Monitoring Tool**

Services:

- DBA, OS administration , programming (MediaWiki, Oracle)
- networks (services, VPN, QoS, security)
- open source, monitoring (Nagios, OCS, Wiki)

Hardware:

- servers, **SAN storage**, firewalls

Infrastructure:

- from 1995 GNU/Linux ***(~20 years of experience !)***
- Oracle on GNU/Linux: since RDBMS 7.1.5 & Forms 3.0 ***(before Oracle !)***
- **>20 years of experience with High-Availability !**

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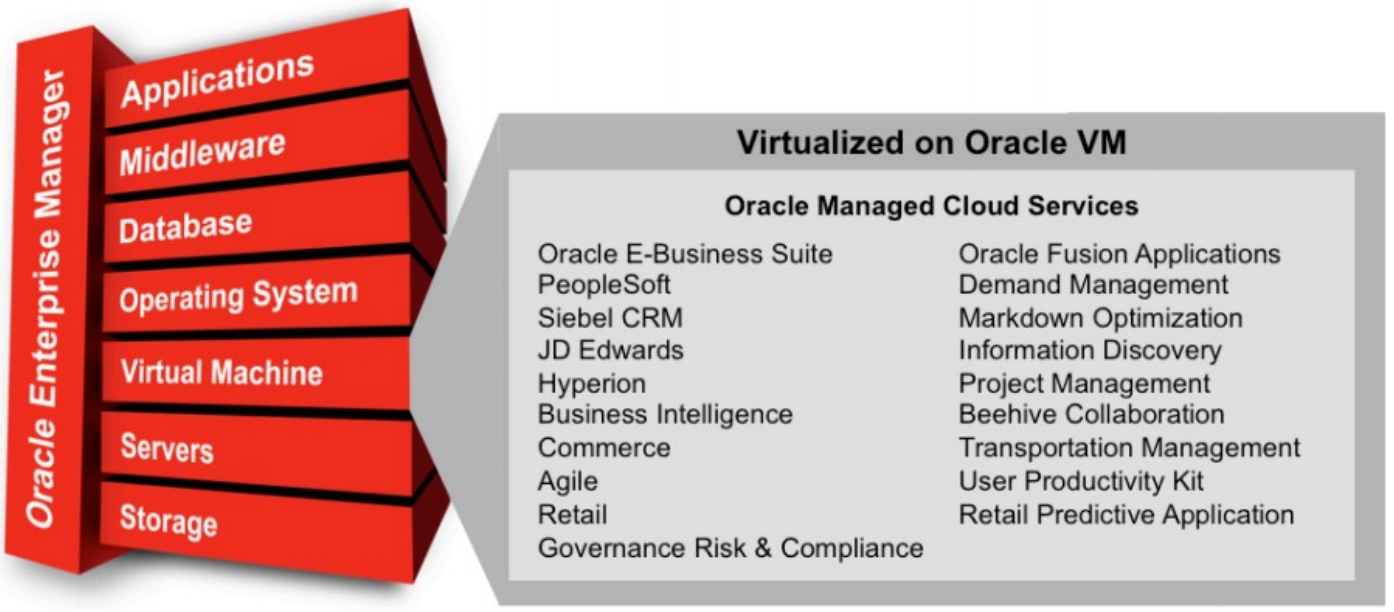
Oracle VM 3 Components

- Oracle VM Server = Xen hypervisor + agents
  - OCFS2
  - XEN
- Oracle VM Manager = GUI/CLI hypervisor management
- [Oracle OpenStack = Cloud management]

Advantages of OracleVM

- Fully integrated into Oracle environment
- Pre-built templates
- Enterprise class virtualization platform
- Can be used to limit CPU licences on the latest hardware



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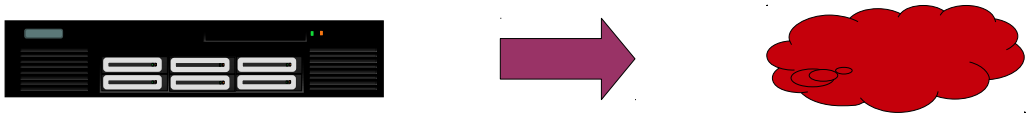
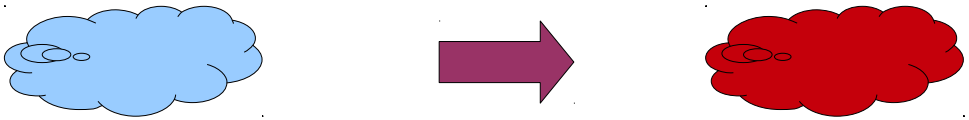
Challenges

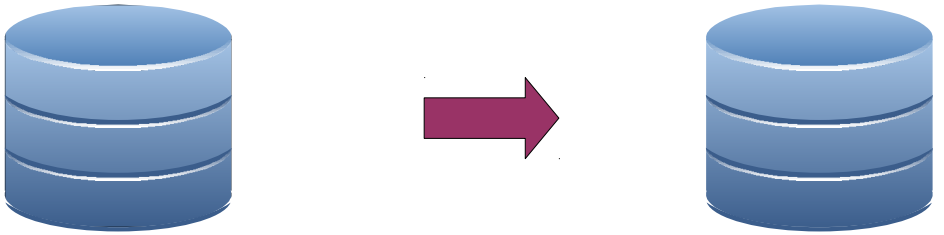
- P2V migration



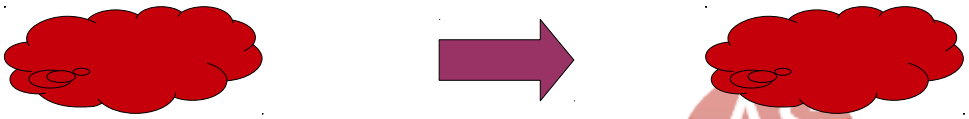
- V2V migration



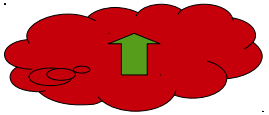
- SAN 2 SAN migration



- POOL 2 POOL migration



- UPGRADES



P2V migration

- Physical machine to HVM mode virtual machine
  - limited to IDE controller (up to 4 drives)
- Windows OS »Blue Screen of Death« due to HAL change
- Migration process requires creation of a template
- No »wizzards« available for OracleVM

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V2V migration

- Virtual machine to HVM mode virtual machine
  - limited to IDE controller (up to 4 drives)
- Windows OS »Blue Screen of Death« due to HAL change
- Migration process requires creation of a template
- Capable of importing OVF format exports
- Wizzard included

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MS Windows HAL fix

Windows 2003 »OVF« migration from VMware :

- **Pre-OVM driver Installation**:

  copy *HALMPS.DLL* over C:\WINDOWS\system32*HAL.DLL*

- **Post-OVM driver Installation**:

  copy *HALMACPI.DLL* over C:\WINDOWS\system32*HAL.DLL*

MAX 3 HDDs supported when migrating Windows OVF from Vmware to OVM3.

MAX 4 HDDs if you clone template disks and manually set-up the VM!

HALMACPI.DLL	ACPI Multi processor PC
HALAACPI.DLL	ACPI Uniprocessor PC
HALACPI.DLL	Advanced Configuration and Power Interface (ACPI)
HALMPS.DLL	MPS Multiprocessor PC
HALAPIC.DLL	MPS Uniprocessor PC
HAL.DLL	Standard PC

SAN 2 SAN migration

- PoolFileSystem and RepositoryFileSystem need to be in the same cluster!
- OVM Manager database gets corrupted when disk ID (Page83) changes!
- Corrupt PoolFS -> no Repository -> no VM
- Manual intervention possible but not supported!
- BACKUP!

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SAN 2 SAN migration

```
# multipath -ll
...
2353766623436232 dm-4 SCST_BIO,ClusterRepo1
size=200G features='0' hwhandler='0' wp=rw
|-+- policy='round-robin 0' prio=1 status=active
| `- 5:0:0:6 sdh 8:112 active ready running
`-+- policy='round-robin 0' prio=1 status=enabled
`- 6:0:0:13 sdv 65:80 active ready running


# fdisk -l /dev/sdh
Disk /dev/sdh: 214.7 GB, 214748364800 bajtov
255 heads, 63 sectors/track, 26108 cylinders
# fdisk -l /dev/sdv
Disk /dev/sdv: 1073.7 GB, 1073741824000 bajtov
255 heads, 63 sectors/track, 130541 cylinders
```

POOL 2 POOL migration

CLEAN WAY

- Shutoff VMs,
- Unassign VMs,
- Unpresent Repos,
- Remove OVS from pool,
- Add OVS to new pool,
- Present Repos,
- Assign VMs

CORRUPT POOLFS WAY

- Delete PoolFS LUN
- Define new PoolFS LUN
- Delete /etc/ovs-agent/db/{aproc,exports,server}
- Reboot
- Clear OracleVM Manager DB
- Define a new pool
- Add OVS to new pool
- Change cluster ID attribute on RepositoryFS
- Rescan LUN
- Present Repo to new pool
- Assign VMs

UPGRADES

OVM Server & Manager 2.x -> 3.x =
»new install«

#OVM Manager 3.1.x uses OracleDB#
#OVM Manager 3.2+ uses Mysql EE#

OVM Server & Manager 3.2 -> 3.3 =
»two-step« upgrade

ALERT – 5. 10. 2015

Alert	Product Area	Last Updated
Live Migrating a Guest to Oracle VM 3.2.9 Server Corrupts Guest Virtual Disk Filesystem	Oracle VM	Mon, 5 Oct 2015 08:51 GMT+01:00

Workaround:

- Schedule a downtime of virtual machines to perform an upgrade of OracleVM Servers.
- Do »cold migration« of virtual machines if necessary.

OracleVM, behind the sceenes

Thank You!

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