Restore Duration: Zero Time!

- **mag. Sergej Rožman**; Abakus plus d.o.o.

- The latest version of this document is available at:

  http://www.abakus.si/

Backup & Restore

Restore Duration:
Zero Time!

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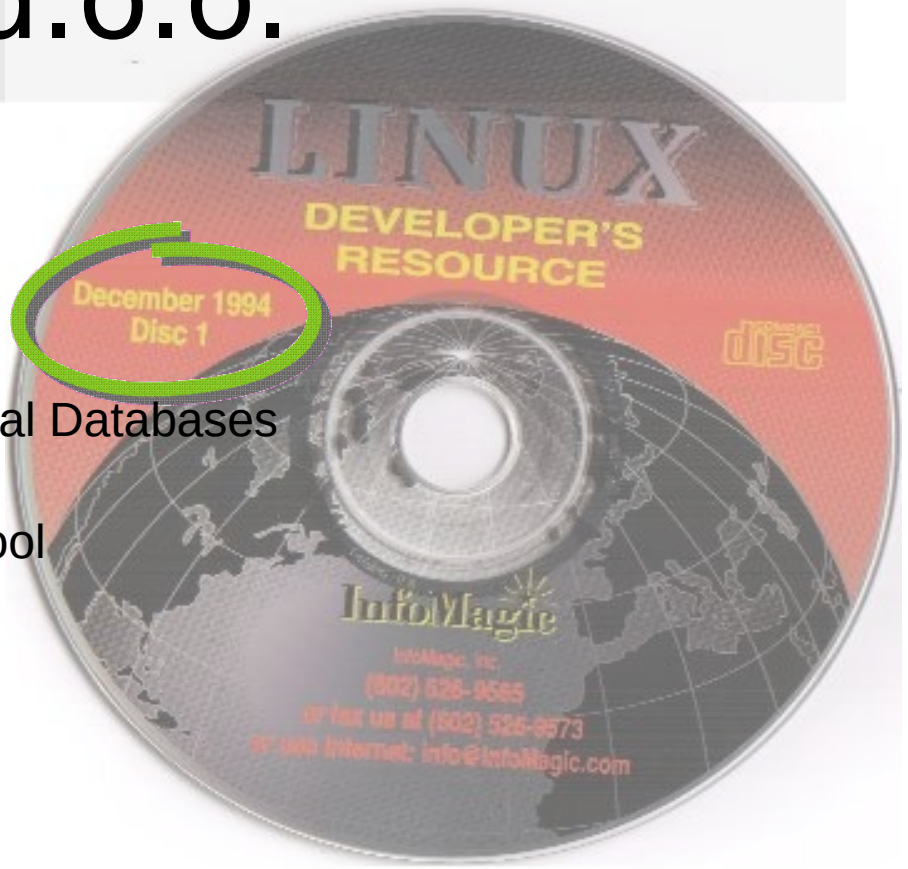
Make IT

SIOUG 2023

Abakus plus d.o.o.



History

- from 1992, ~20 employees

Applications:

- DejaVu - High Performance Architecture for Virtual Databases
- ARBITER – the ultimate tool in audit trailing
- APPM – Abakus Plus Performance Monitoring Tool

Services:

- DBA, OS administration , programming (Oracle)

Infrastructure:

- servers, SAN storage, UPS, firewalls, backup servers, virtualization

Skills & Experience:

- from 1995 GNU/Linux ***(~30 years of experience !)***
- Oracle on GNU/Linux: since RDBMS 7.1.5 & Forms 3.0 ***(before Oracle !)***
- **~35 years of experience with High-Availability !**

Customers


Gorenjska Banka
GENERALI Zavarovalnica
Ljubljana Airport
EKDIS
Ekspresno. Ekonomično.
REPUBLIKA SLOVENIJA
MINISTRSTVO ZA OBRAMBO
NOVA BANKA
MILENIJUM® OSIGURANJE
KONTROLA ZRAČNEGA PROMETA SLOVENIJE
Iskra®
Hidria
Mestna občina Ljubljana
skbbanka
otp group
triglav
ANDRITZ
jata emona
LJUBLJANA
UNIVERZITETNA PSIHIATRIČNA KLINIKA LJUBLJANA
University Psychiatric Clinic Ljubljana
BANKA SLOVENIJE
SAVA INFOND
MERKUR
TRELLEBORG
Trelleborg Slovenija, d.o.o.
SODO
SISTEMSKI OPERATER DISTRIBUCIJSKEGA OMREŽJA Z ELEKTRIČNO ENERGIJO
NLB Vita
Življenjska zavarovalnica
PRVA
MAGNETIK d.o.o.
PEST MANAGEMENT SOLUTIONS
Mercator
ZAVOD ZA ŠPORT RS PLANICA
PH Primorska hranilnica
GOODYEAR DUNLOP
SAVA TIRES
MM KARTON
studio ritem
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TKO
TOVARNA KOVINSKE OPREME
SAVA HOTELS & RESORTS
CENTROSINERGIJA
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CHOOSE THE FUTURE
hit alpinea
Kranjska Gora
LASERLINE
DRINA OSIGURANJE
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INFOTRANS®
PARK POSTOJNSKA JAMA
ADRIA ANKARAN
HOTEL & RESORT

Backup or Restore

What is more important to you?

- the efficiency of backup
- the efficiency of restore

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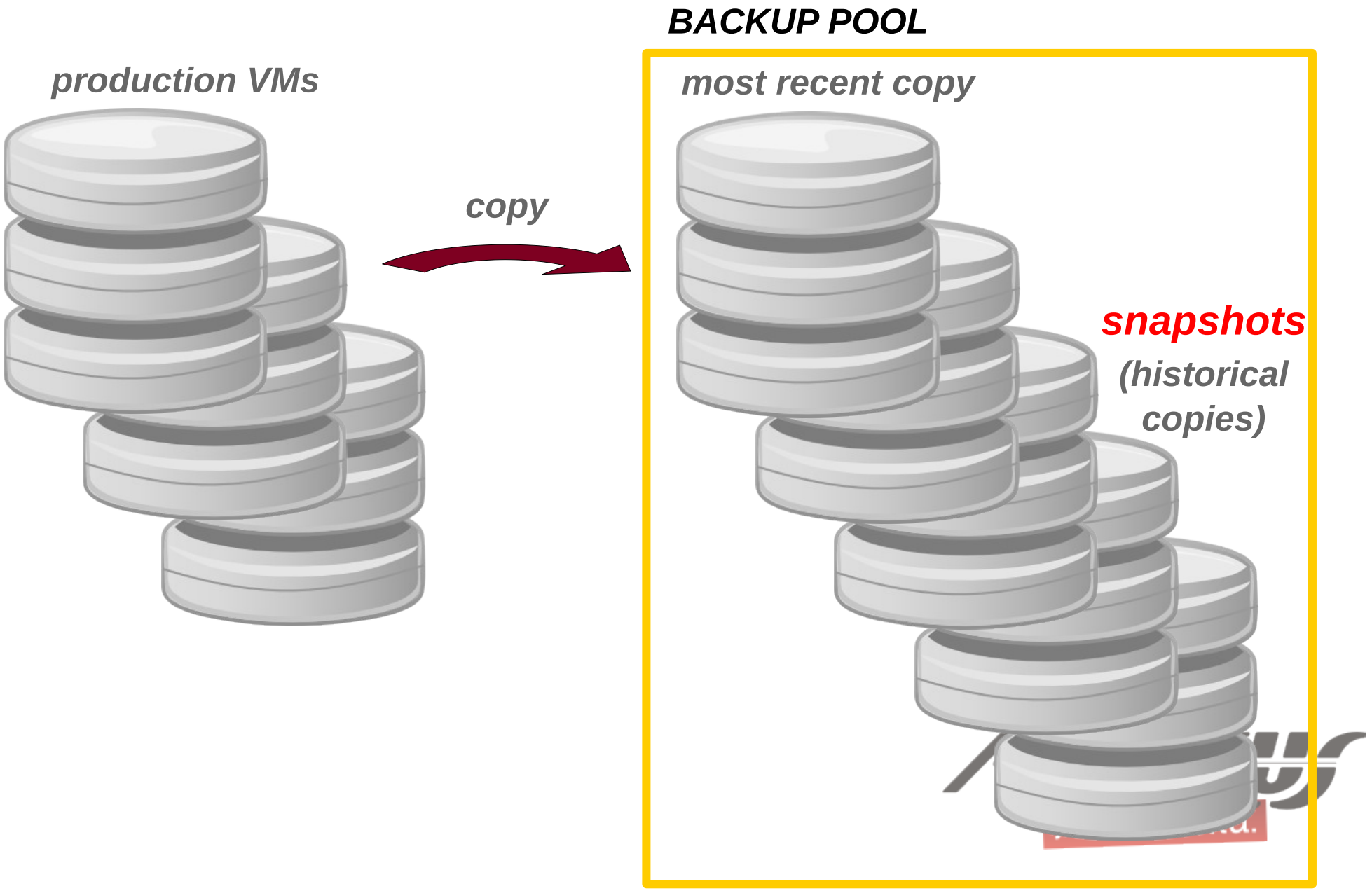
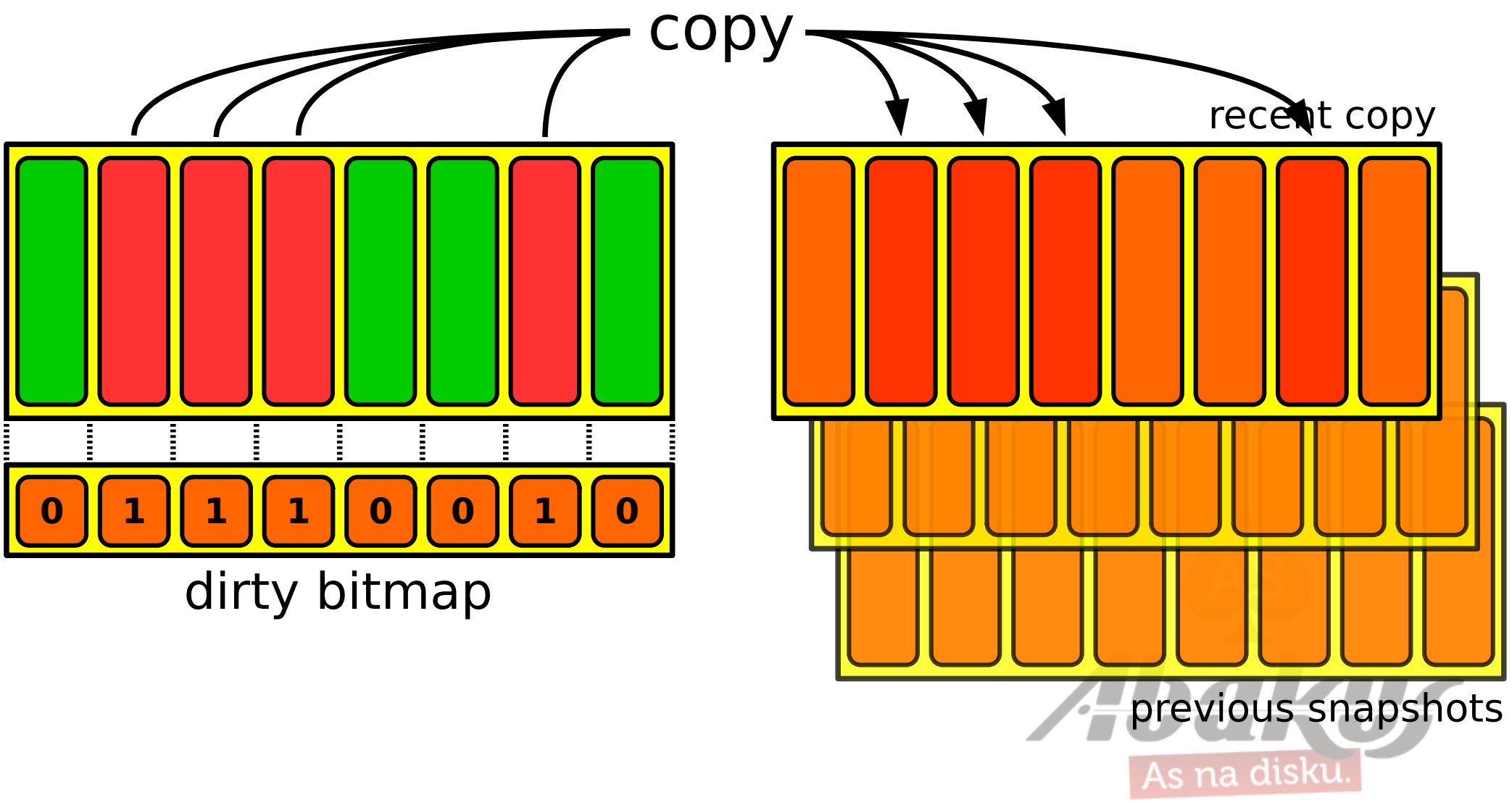
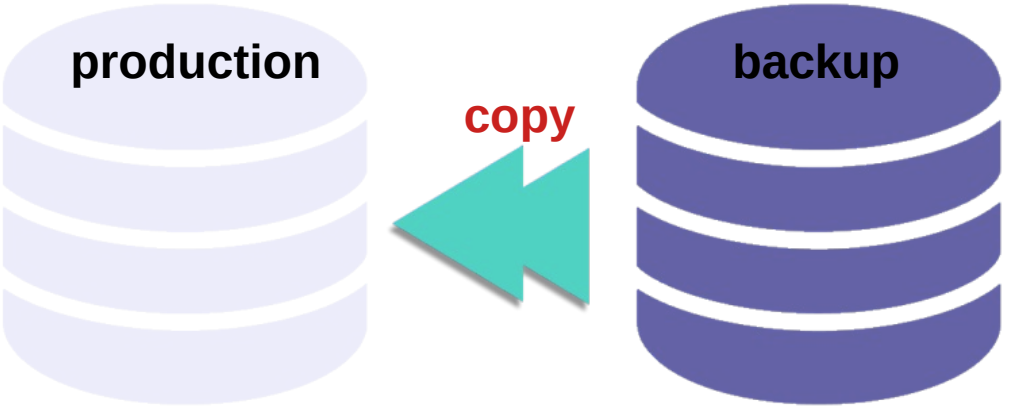
Backup


BACKUP POOL
production VMs
most recent copy
copy
snapshots
(historical
copies)

Bitmap Incremental Backup



Classical Restore



Do we really have a backup?

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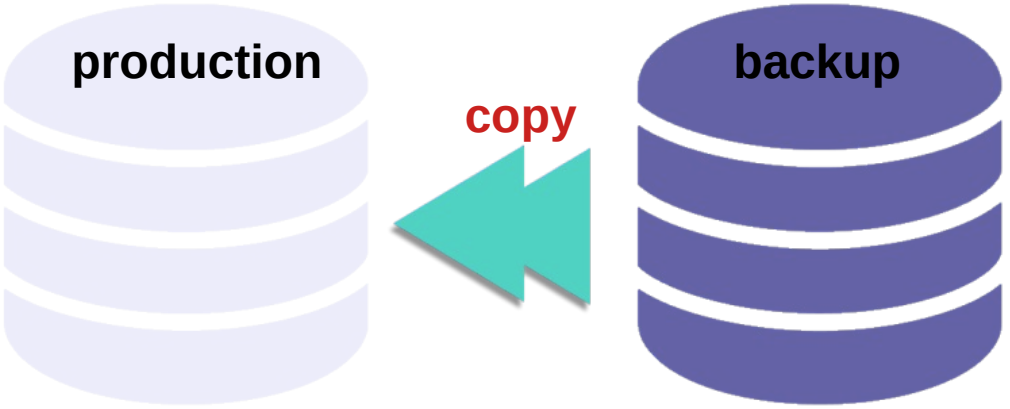
Classical Restore

Time is the biggest chalange

10 TB of data over …

- 1 Gbps ~ 24 hours
- 10 Gbps ~ 2,5 hours
- 100 Gbps ~ 15 minutes



Advanced Ideas

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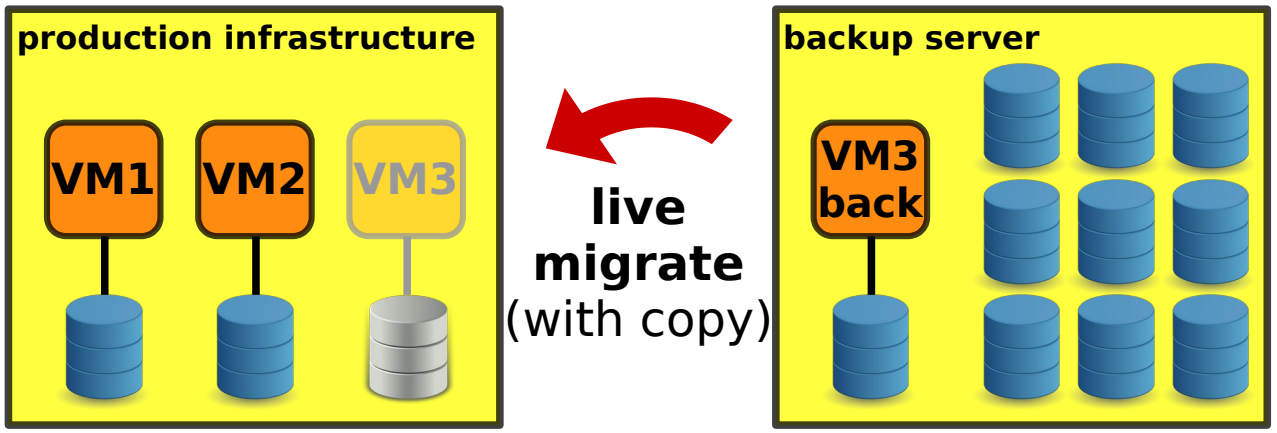
Restore by Live Migration

```
# virsh migrate --live --copy-storage-all --verbose sr-test qemu+ssh://sergejr/system
Migration: [100 %]
```

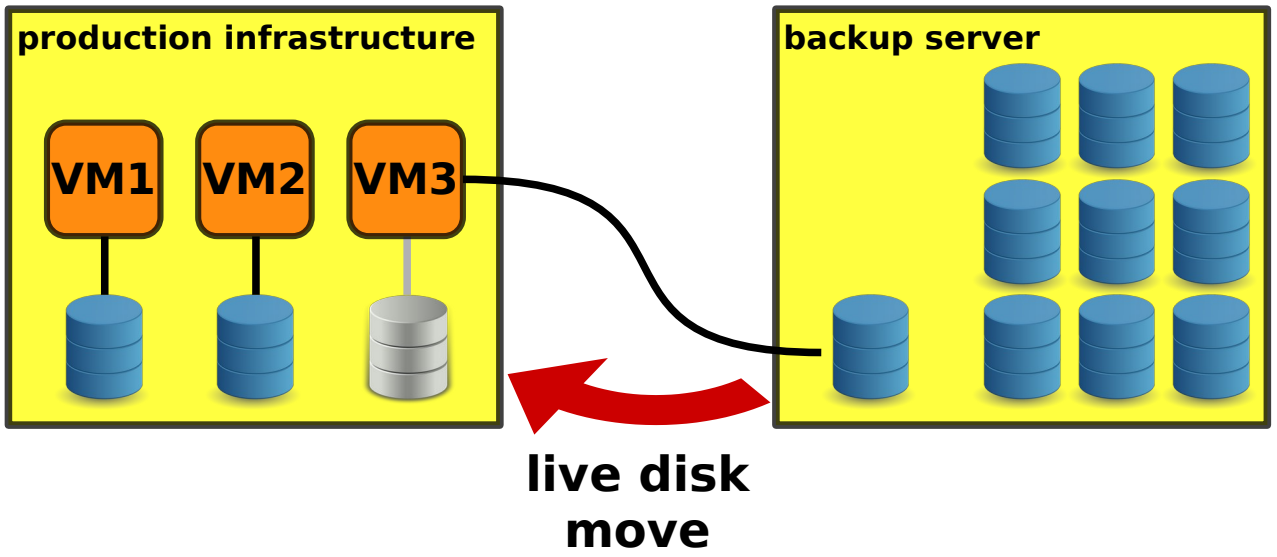


Restore by Live Migration

- back in business even without working production infrastructure
- version compatibility demands
- configuration compatibility demands

Restore by Live Block Copy (disk move)

```
# virsh blockcopy --domain ZS39-5 sda /tmp/ZS39-5.img --wait --verbose --pivot --transient-job
Block Copy: [100 %]
Successfully pivoted
```



Restore by Live Block Copy (disk move)

- business continuity on a production infrastructure
- requires a VM configuration change

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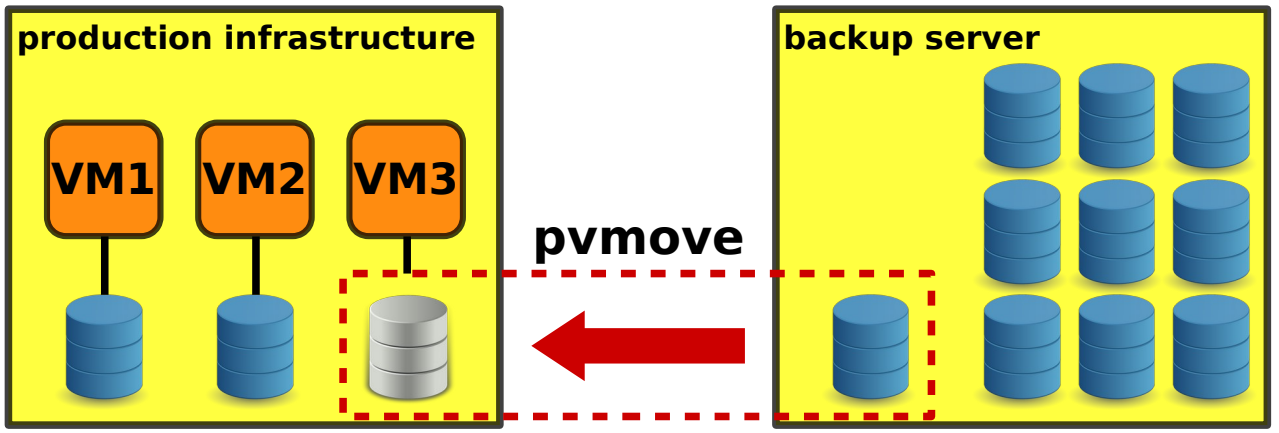
Restore by LVM (pvmove)

```
# vgmerge prod back
# lvrename prod/b_disk prod/p_disk
# <start VM3>
# pvmove /dev/sdf

# vgreduce prod /dev/sdf
```

```
# VG "back" merged into "prod"
# backup LV renamed to production LV

# phisicaly move LV from backup server to
#    production infrastructure – online
# disconnect backup disk from "prod"
```



Restore by LVM (pvmove)

- business continuity on a production infrastructure
- infrastructure configuration change only, transparent to VM
- can be done even on disk (SAN) infrastructure
- demands proper LVM configuration planing

OLVM – Oracle Linux Virtualization Manager

- based on libvirt
- no permanent configuration on the hosts
- host configuration change might cause inconsistencies
  - configuration change should be done with the manager

    or

  - temporary configuration change at a host with switched off the manager temporarily
- very strict and consistent

Conclusion

- instant restore is possible
- no »one fits all« solution
- restore procedures should be planed in advance!

Restore Duration: Zero Time!

Thank You

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