



**TSM Symposium
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eXSM.cluster

High Availability for TSM Server

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Why High Availability?

Downtime

Planned

- Hardware Upgrades
- Repairs
- Software Updates/upgrades
- Testing
- Development

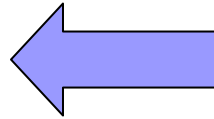
Unplanned

- Admin errors
- Application failures
- Hardware failures
- Environmental disasters

Components for HA

Hardware, redundant

- servers
- networks (LAN, SAN)
- adapters
- disks



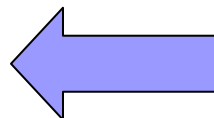
Multipathing (disk and tape)

- NIC teaming
- Shared disks

Operating system tools

Software

- Monitoring
- Failure detection
- Failure diagnostics
- Automated failover/failback
- Automated reintegration



TSM

- Client Backup Retries
- Restartable Restores
- Transaction based
- Recovery Log
- SAN discovery

HA from the shelf

 TSM Server on ...

 IBM HACMP
IBM TSA for Linux

 Microsoft MSCS

 Veritas Cluster

 Expensive

 Complex

 Difficult

 HW oriented

How to setup ? 

ITSM in a clustered environment, Redbook SG24-6679-00

Our Solution: eXSM.cluster

- eXSM.cluster is an add-on enhancement for a standard TSM Server
- There is no need for additional software
- Easy to implement

How eXSM.cluster works

- Redundancy of server hardware
 - supports 2 Servers per TSM instance
 - supports redundancy of Server components (NIC, FC, internal Disks...) as supported by the OS
 - supports redundancy of external disks (mirroring between sites) and tape libraries

How eXSM.cluster works

- makes use of the advanced functions many operating systems provide:
 - TSM DB, TSM Log and TSM Disk Pools are on external, SAN-attached, shared Disks
 - TSM service is tied to relocatable, virtual IP address
 - eXSM.cluster fills in the gaps

Focus: server and OS

- use „standard“ server with AIX operating system
- Same OS and TSM code to be installed on „internal“ disks on every node of the cluster
- One server (HW and/or OS) may fail
- TSM instance moves to second server

Focus: network attachement

- Use more than one NIC if available
- Use NIC teaming if supported by customer network infrastructure
- Virtual IP adress and unique ports for every TSM instance in the cluster
- Fixed IP adress for the underlying operating system

Focus: TSM data

- TSM configuration files, TSM database, TSM log and TSM disk pools are placed on shared disks
- Disks are SAN-attached, high availability and high performance
- Disks are accessible by all nodes of the cluster
- All TSM data is mirrored (by OS or disk subsystem) to second subsystem

Focus: environment

- If available, eXSM.cluster makes use of other parts of the customer environment:
 - eXSM.cluster nodes may be installed on locally dispersed sites – if connectivity is sufficient
 - eXSM.cluster integrates seamlessly (disk subsystem, tape libraries, LPARs, network infrastructure etc.)

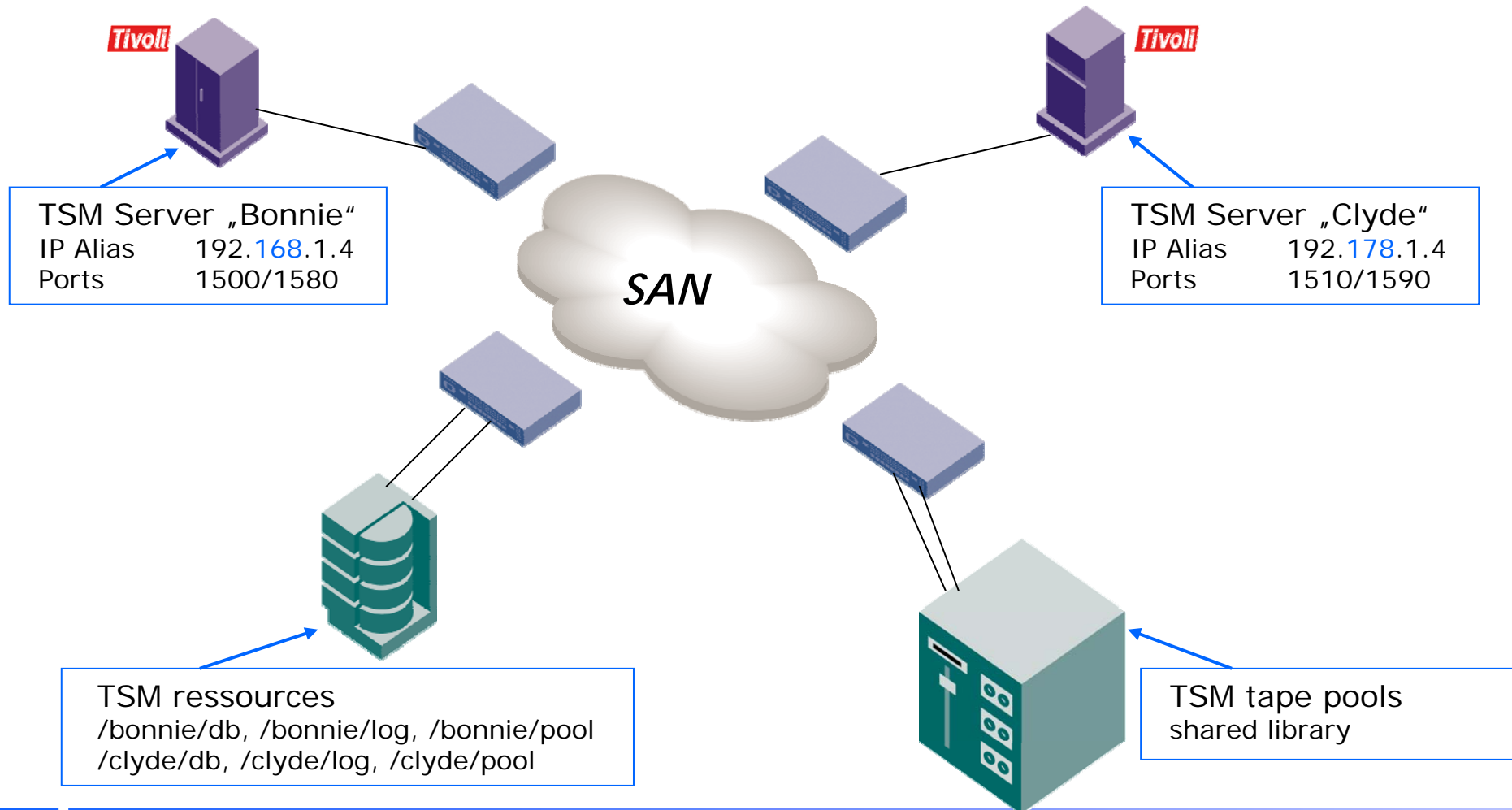
Features

- Monitoring of TSM activities
- Heartbeat between TSM server
- SAN Path Control (Alerting and Path Failover)
- Failover within several minutes, no loss of client sessions
- Failover of all TSM resources (DB/Log and disk/tape pools)

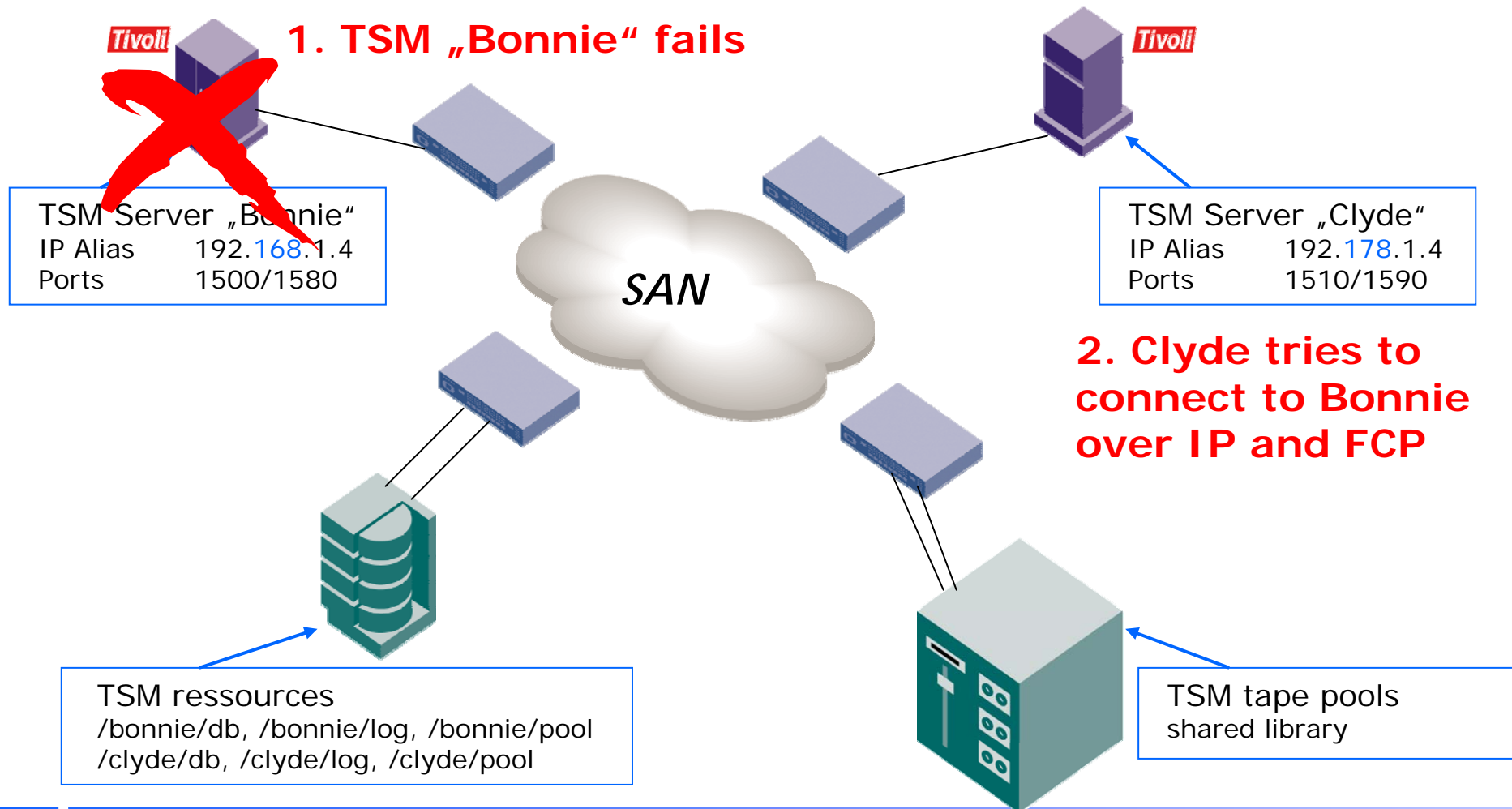
Optional functions

- Generating and monitoring of SNMP Traps
- Heartbeat over FC (IP und FCP)
- Web-Interface
- eRMM Integration
- Support for STK silos
- Support for Gresham EDT

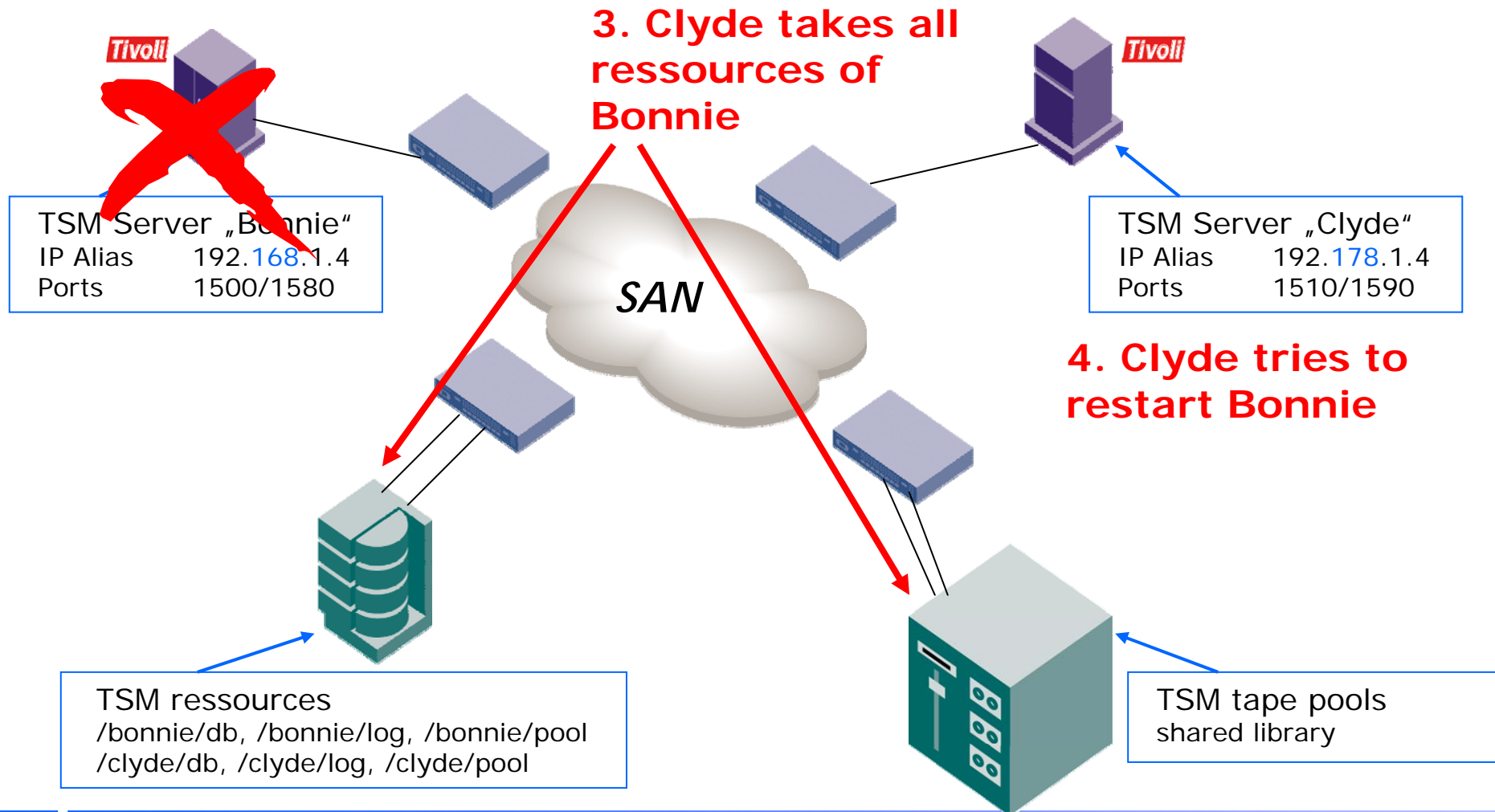
Overview



Outage of a TSM server

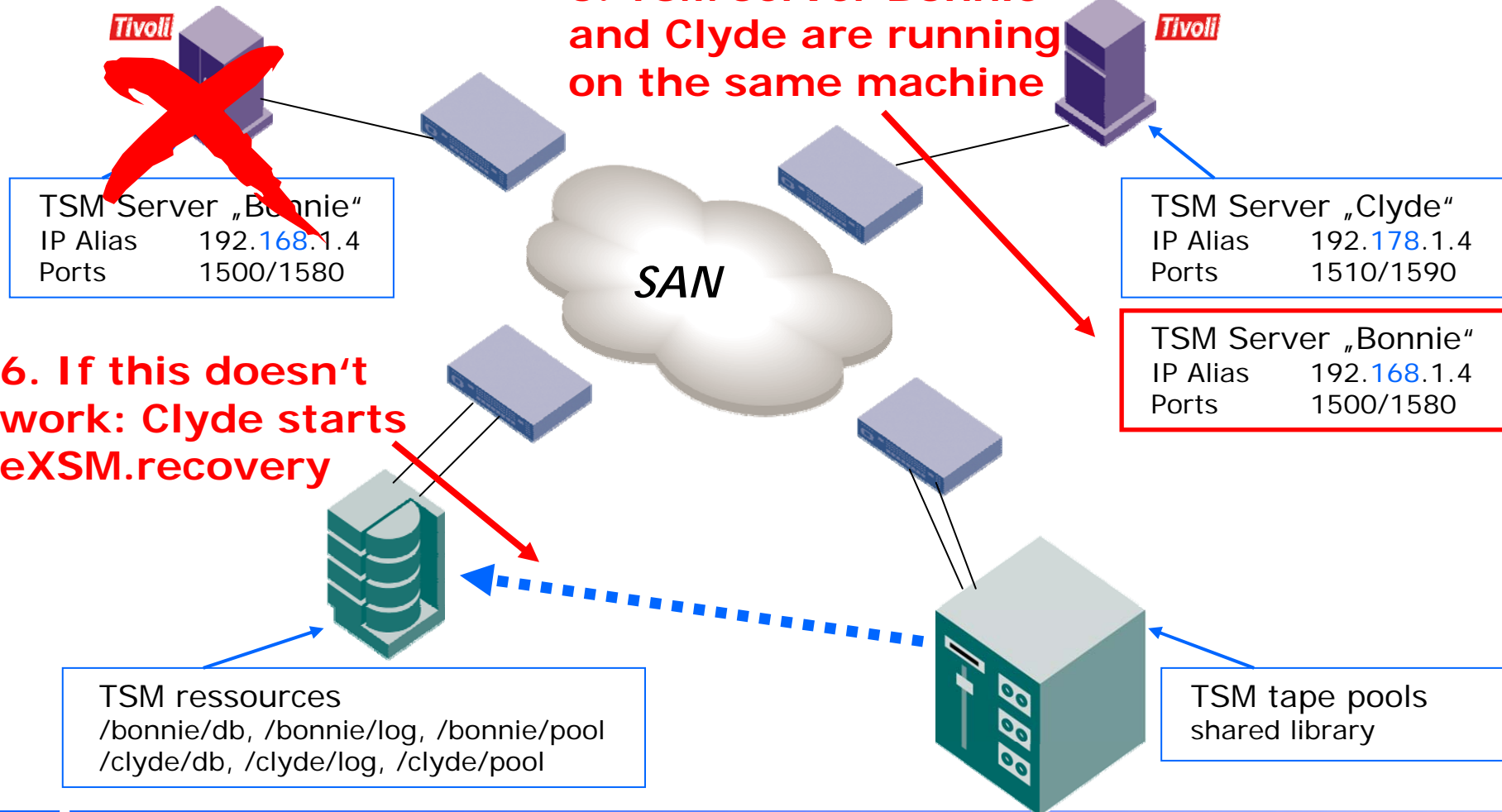


Outage of a TSM server



Outage of a TSM server

5. TSM server Bonnie and Clyde are running on the same machine



6. If this doesn't work: Clyde starts eXSM.recovery

Support

- Software Maintenance includes new releases and new functions
- Adaption of new OS releases and/or functions
- 5x9 hours defect support

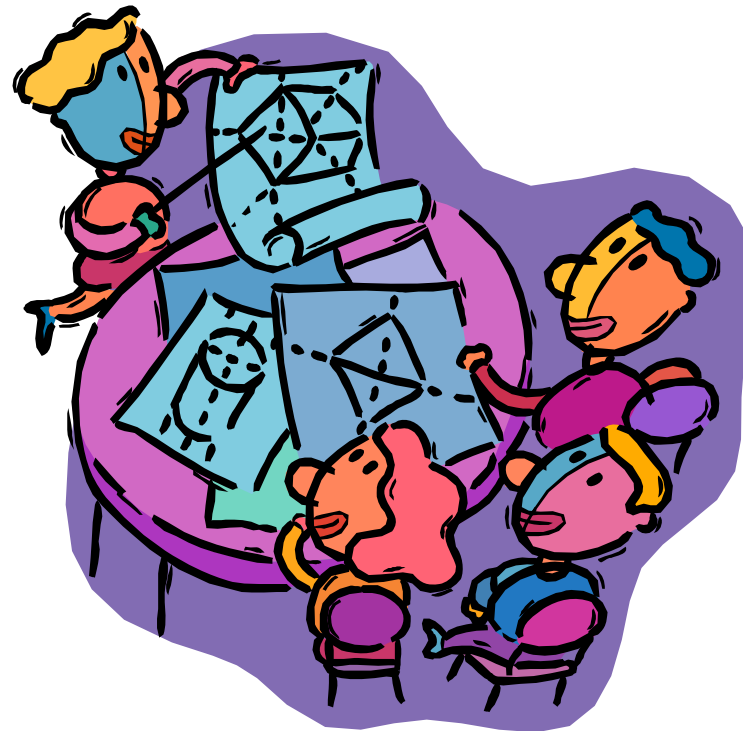
Today

- eXSM.cluster 1.1 is in use in customer environments since early 2005
- Platforms in V1.1:
 - AIX 5L (Releases 5.1/5.2/5.3)
 - TSM Version 5.x
 - All supported TSM environments

Future

- eXSM.cluster 1.2 is planned for the last quarter this year
- News in V1.2:
 - Support for Windows 2000/2003
 - Support for Sun Solaris 9 und 10
 - Support for Linux
 - Storage Agent Monitoring

Q & A



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