

So Many High Availability Options, So Little Time

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Agenda

- High Availability Basics
- Backups
- SQL Server High Availability Technologies
- Non-SQL Server High Availability Techniques
- Summary

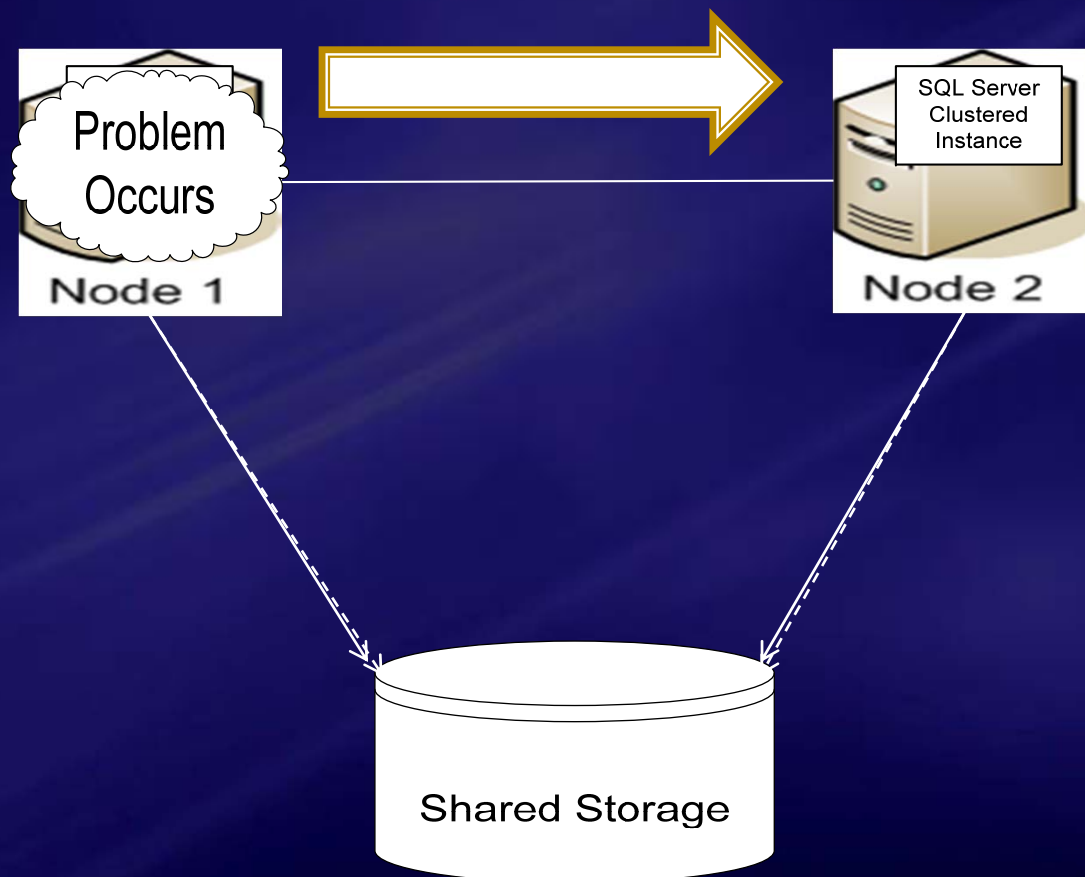
High Availability Basics

- High availability (HA) vs. disaster recovery (DR)
 - Key term: business continuity
- Combination of people, process, *and* technology
 - Same for all sizes of organizations
- Basic keys to success:
 - Defining formal service level agreements (SLAs)/recovery time objectives (RTOs)/recovery point objectives
 - Proper budget
 - Solid deployments
 - Security
 - Right people, right place, right time
 - Patching and Change Management
 - Testing
 - Communication

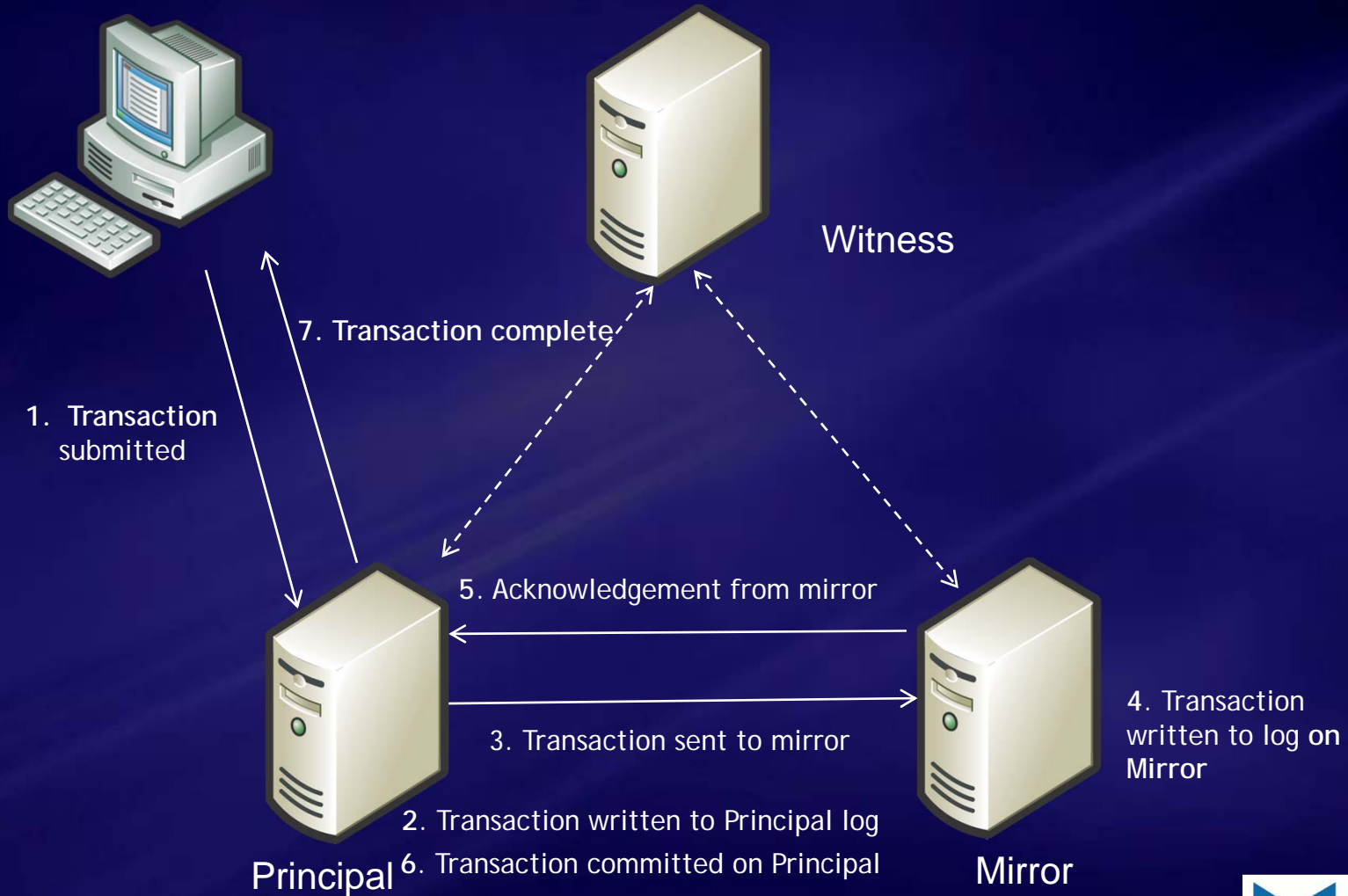
Backups

- Cornerstone of any high availability or disaster recovery solution
- Deploying one of the HA technologies does not take away the need for backups
- If you do nothing else, DO THIS WELL!
- Test your backups
- VLDBs and HA/DR
 - Larger = more time
 - Adjust SLAs, RTOs, and RPOs accordingly
 - May need to employ a hardware-based solution
- Use backup compression

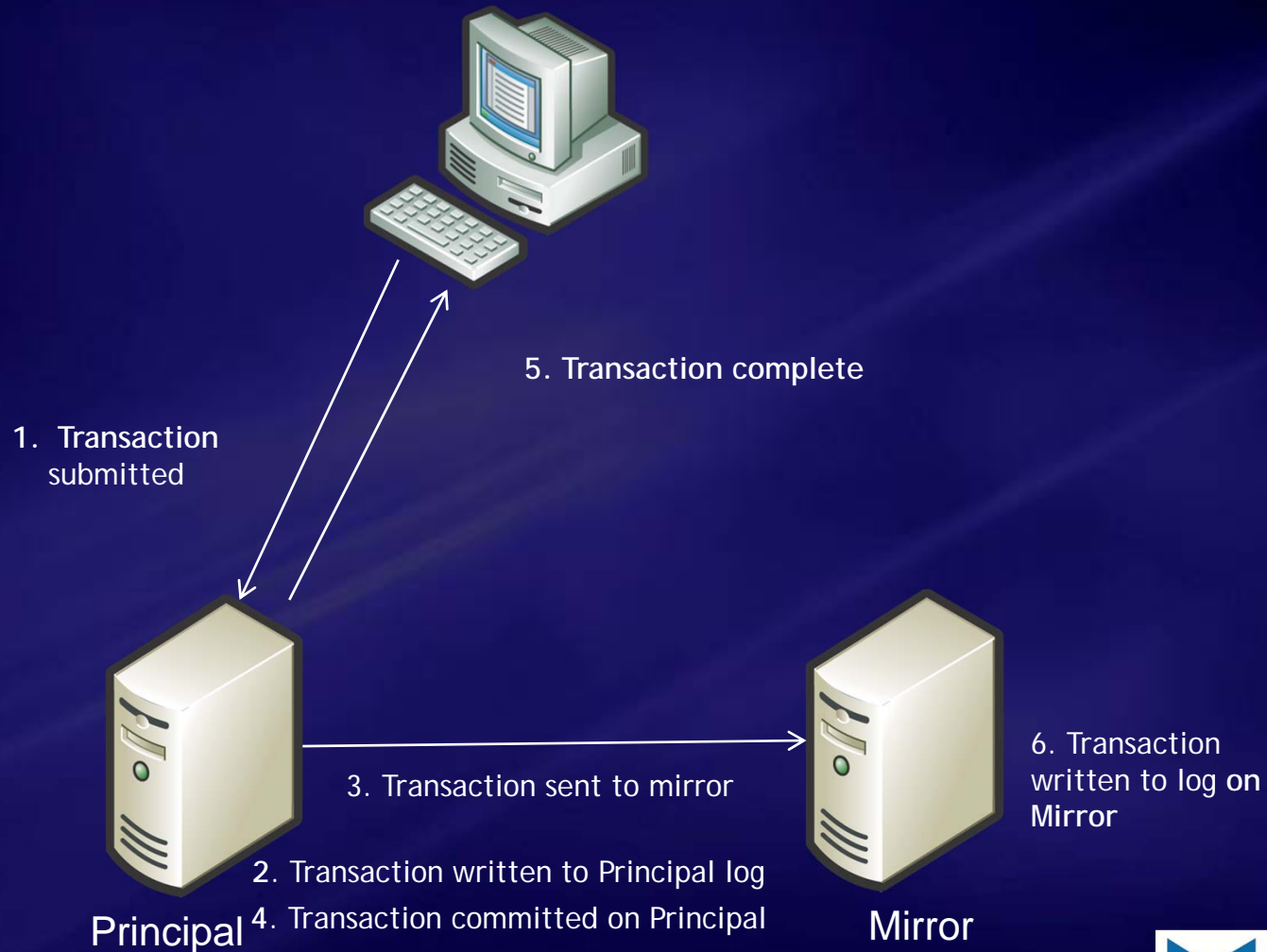
Failover Clustering



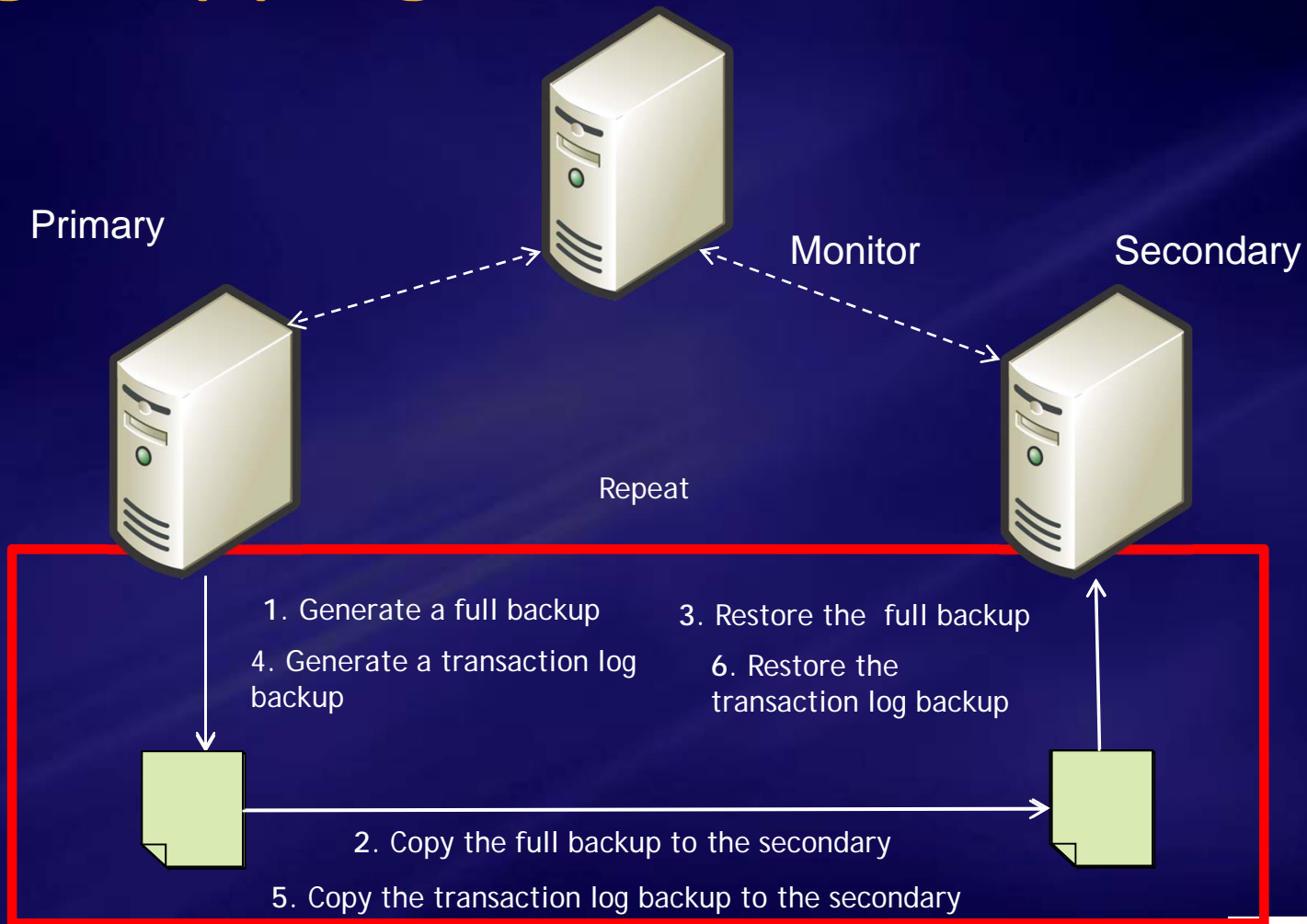
High Safety (Synchronous) Database Mirroring



High Performance (Asynchronous) Database Mirroring



Log Shipping



Comparing the SQL HA Features 1

Attribute	Failover Clustering	Log Shipping	Database Mirroring	Replication
Distance	Maximum supported by networking and SAN	No distance limitations	No distance limitations	No distance limitations
Server Switch	Automatic or manual	Manual	Automatic or manual	Manual
Average server switch time	30 sec – 2 minutes	Minutes	10 sec – 1 min (+/-)	Minutes
Protects	Full instance of SQL Server	Individual database	Individual database	Individual database
Granularity	Entire instance	Per transaction log	Per transaction	Depends on the type of replication

Comparing the SQL HA Features 2

Attribute	Failover Clustering	Log Shipping	Database Mirroring	Replication
Recovery Mode Requirements	None	Bulk-logged or Full	Full	Depends on the type of replication
Works with other SQL Server 2008 editions	N/A	Yes	No	Yes
Number of failover/mirror/s standby servers	Up to 16	Unlimited	1	Unlimited
Editions supported	Developer, Enterprise, Standard	Developer, Enterprise, Standard, Workstation	Developer, Enterprise, Standard	All

Comparing the SQL HA Features 3

Attribute	Failover Clustering	Log Shipping	Database Mirroring	Replication
Special HW Considerations	Yes	No	No	No
Data Loss	None	Likely	Maybe	Likely
Single Point of Failure	Disk Subsystem	None	None	None
Objects that reside outside the DB	Accounted for	Need to account for	Need to account for	Need to account for
Redundant servers can be used for reporting	No	Maybe	Yes	Yes

Comparing the SQL HA Features 4

Attribute	Failover Clustering	Log Shipping	Database Mirroring	Replication
Coexists/works with SQL Server 2000, 2005	Yes	Yes	No	Yes
Server name change abstracted	Yes	No	Maybe	No
Setup	Install time	After install	After install	After install
Schema dependencies	No	No	No	Yes

Non-SQL Server High Availability Techniques

- Hardware-based mirroring of storage
- Third party software
- Virtualization
- The Cloud

Summary

- Must define SLAs, RTOs, and RPOs
- People and process matter
- Technology is only part of the HA puzzle
- Each SQL Server HA technology option has pros and cons
 - No one perfect solution
 - Costs generally go up the smaller the downtime tolerance
- If you do one thing well – BACKUPS (that are tested)

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