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STRATEGIC PARTNER









Failover Clustered Instances Availability Groups



Disaster Recovery Site

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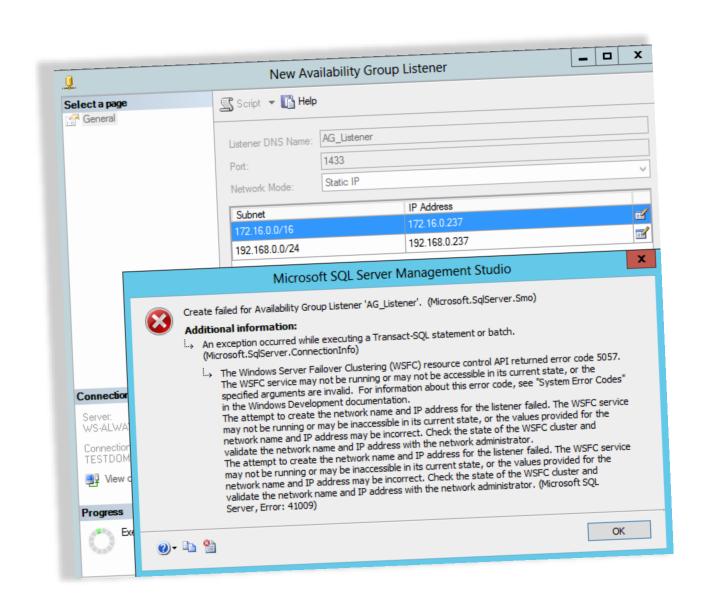
@EdwinMSarmiento

in http://ca.linkedin.com/in/EdwinMSarmiento

YOUR CAREER

is **DEPENDENT** on the things that **YOU ARE NOT EVEN AWARE OF**





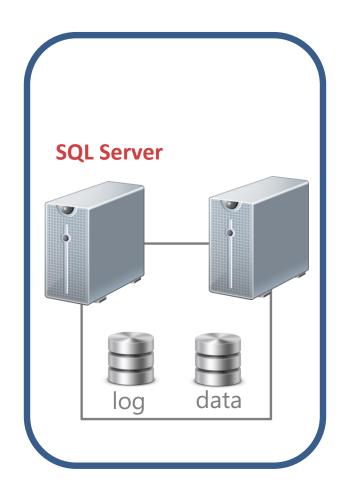
whenever we are A stressed out it is because we

DON'T KNOW ENOUGH

- Earl Nightingale -

let's
START
with

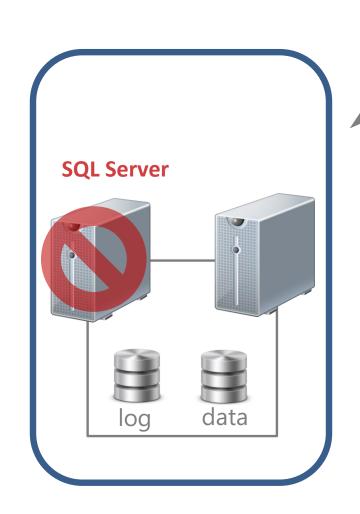
failover Clubowit works



traditional 2-node cluster

failover Clhow it works

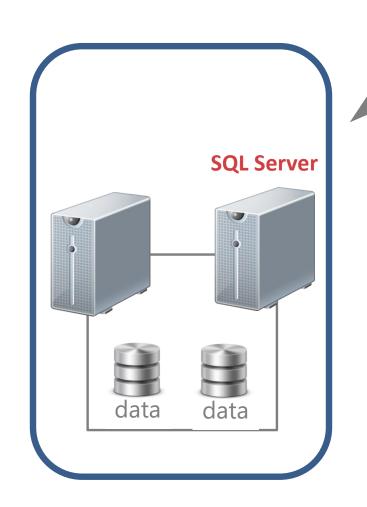
Application



traditional 2-node cluster

failover Clubowit works

Application



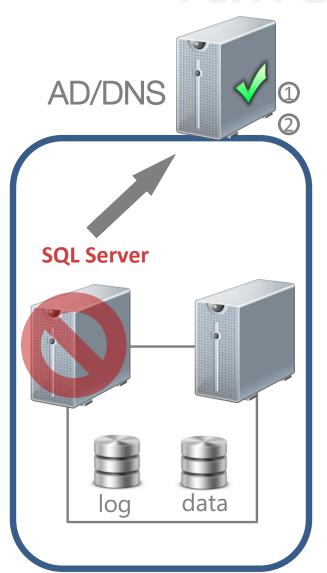
traditional 2-node cluster

*Availability Groups

what
IS NOT
commonly
mentioned

failover Clubowit works

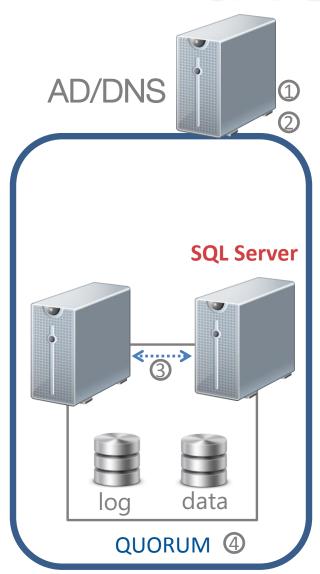
Application



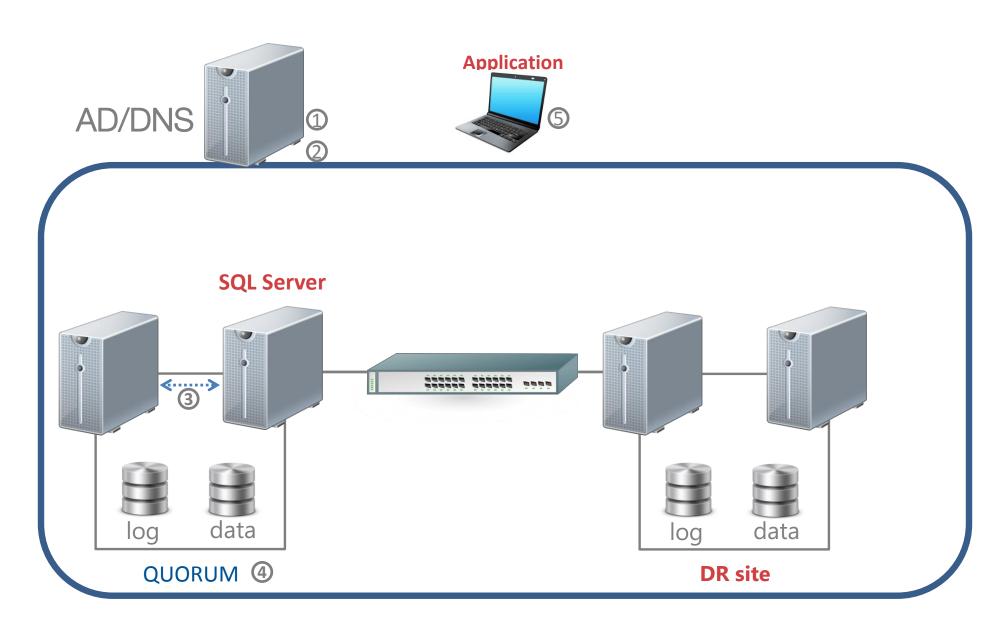
traditional 2-node cluster

failover Clubowit works

Application

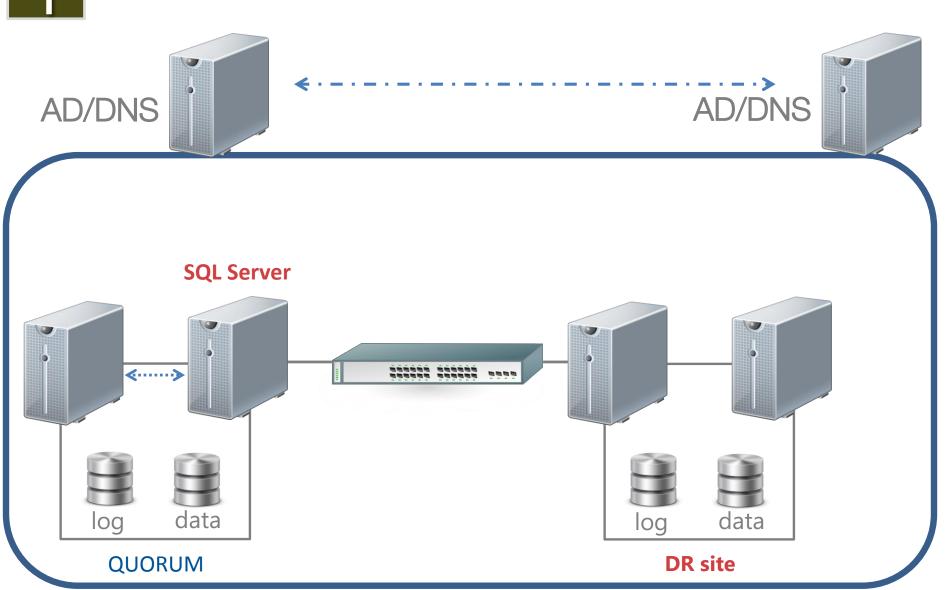


traditional 2-node cluster



Windows Server Failover Cluster





Windows Server Failover Cluster

Replication between sites

6 out of 12 rated this helpful - Rate this topic

Updated: January 21, 2005

Applies To: Windows Server 2003, Windows Server 2003 R2, Windows Server 2003 with SP1, Windows Server 2003 with SP2

Replication between sites

Active Directory handles replication between sites, or intersite replication, differently than replication withir limited. The Active Directory Knowledge Consistency Checker (KCC) builds the intersite replication topolog replication is optimized for bandwidth efficiency, and directory updates between sites occur automatically replicated between sites are compressed to preserve bandwidth.

For information about intrasite replication, see Replication within a site.

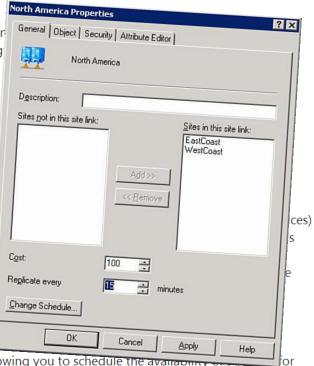
For information about site design, see "Designing the Site Topology" at the Microsoft Windows Resource

Building the intersite replication topology

Active Directory automatically builds the most efficient intersite replication topology using information y about your site connections. The directory stores this information as site link objects. One domain contro assigned to build the topology. A least-cost spanning tree algorithm is used to eliminate redundant repli topology is updated regularly to respond to any changes that occur in the network. You can control inte when you create your site links. For more information, see Managing replication.

Determining when intersite replication occurs

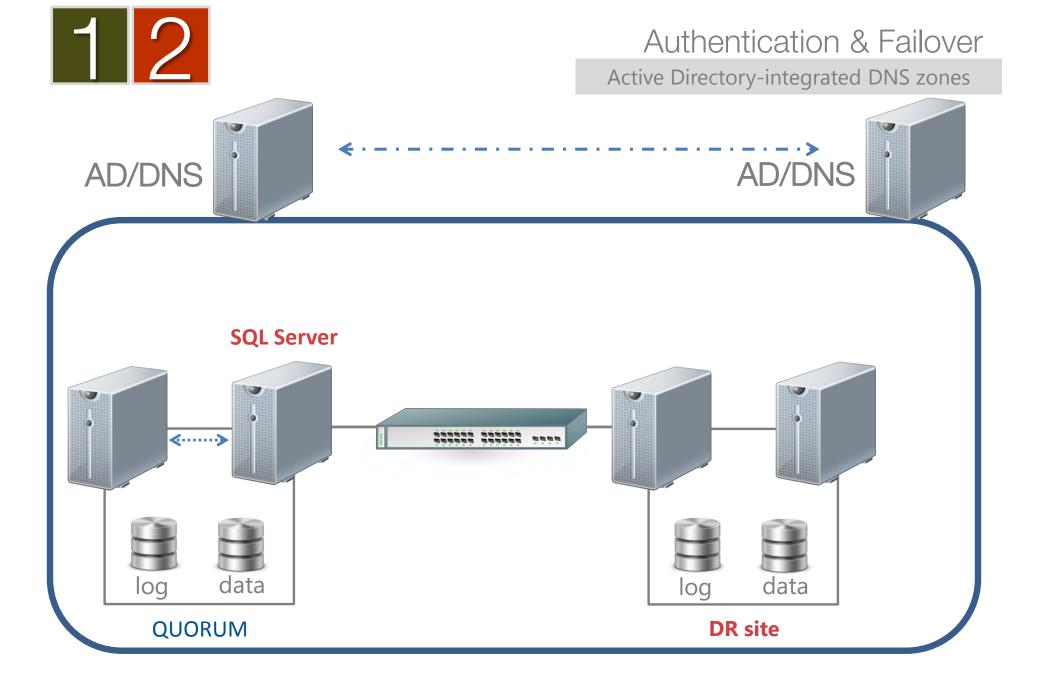
Active Directory preserves bandwidth between sites by minimizing the frequency of replication and by allowing you to schedule the availability of replication. By default, intersite replication across each site link occurs every 180 minutes (3 hours) You can adjust this frequency to match your specific needs. Be aware that increasing this frequency increases the amount of bandwidth used by replication. In addition, you can schedule the availability of site links for use by replication. By default, a site link is available to carry replication traffic 24 hours a day, 7 days a week. You can limit this schedule to specific days of the week and times of day. You can, for example, schedule intersite replication so that it only occurs after normal business hours. For more information, see Configure site link replication frequency and Configure site link replication availability.



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Windows Server Failover Cluster

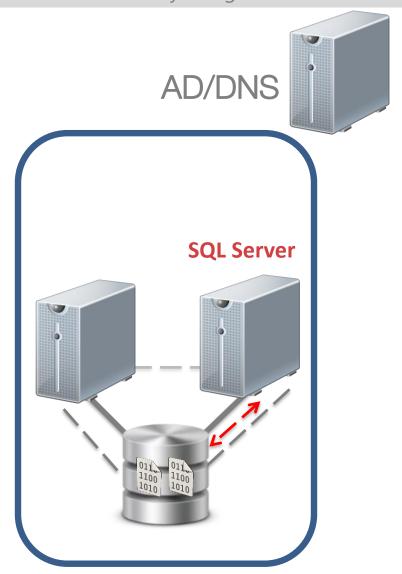


Authentication & Failover

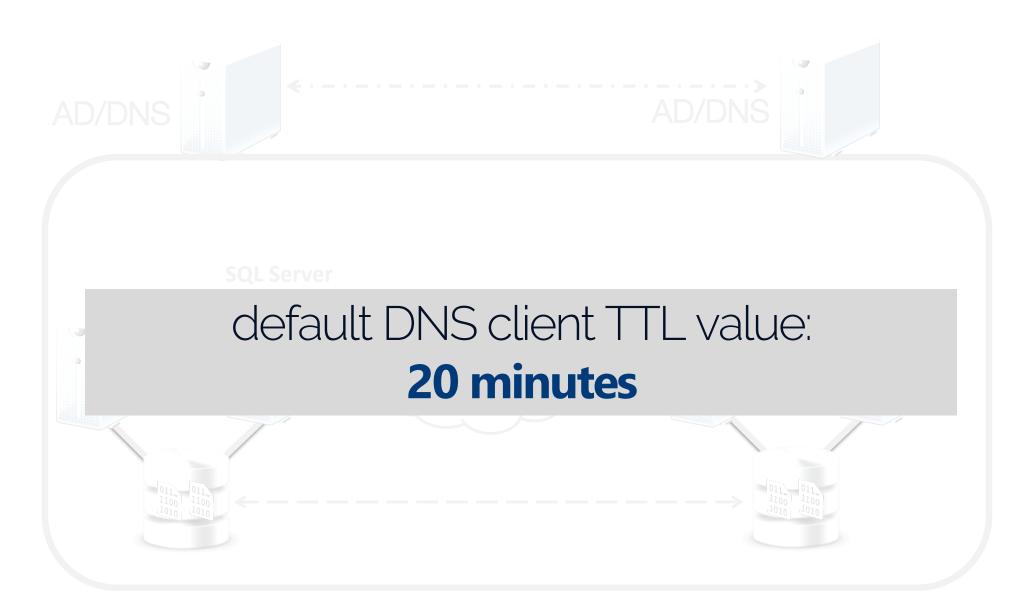
Active Directory-integrated DNS zones

RegisterAllProvidersIP

determines whether or not the IP addresses of all the provider IP address resources are registered



*for multi-subnet/geographically dispersed clusters





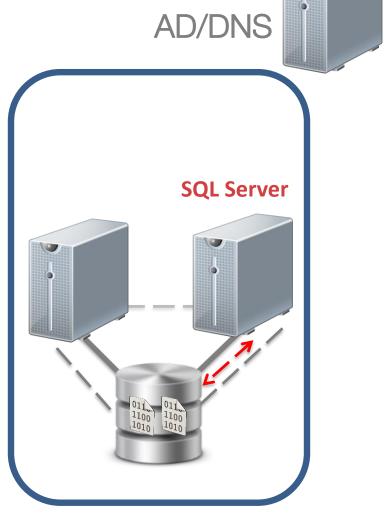
Authentication & Failover

Active Directory-integrated DNS zones



HostRecordTTL

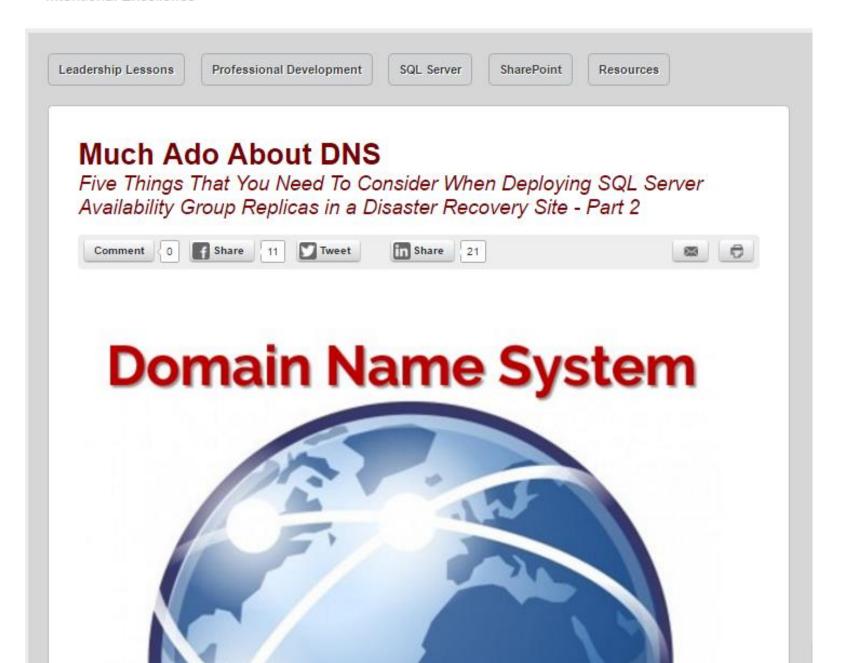
Time To Live (TTL) in seconds to be set for the resource records published for the cluster name

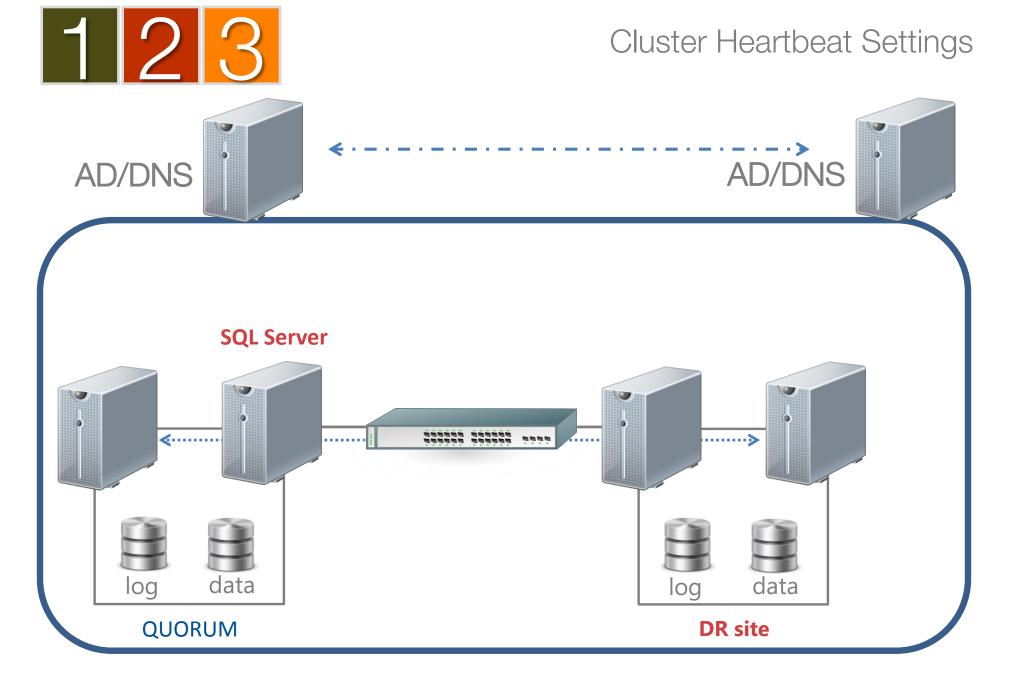


*for multi-subnet/geographically dispersed clusters

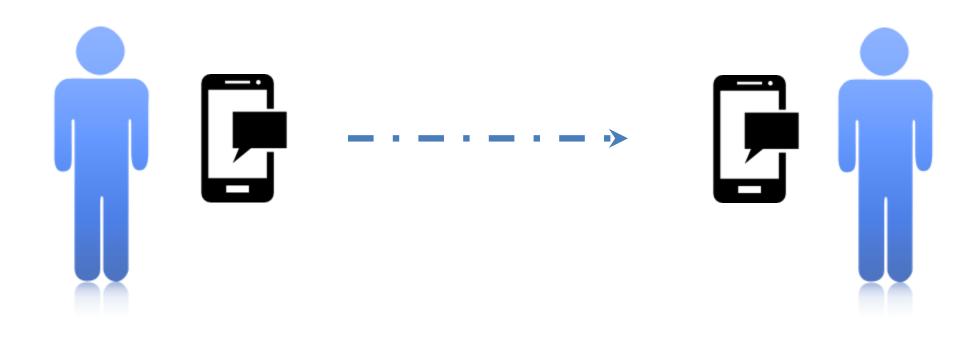
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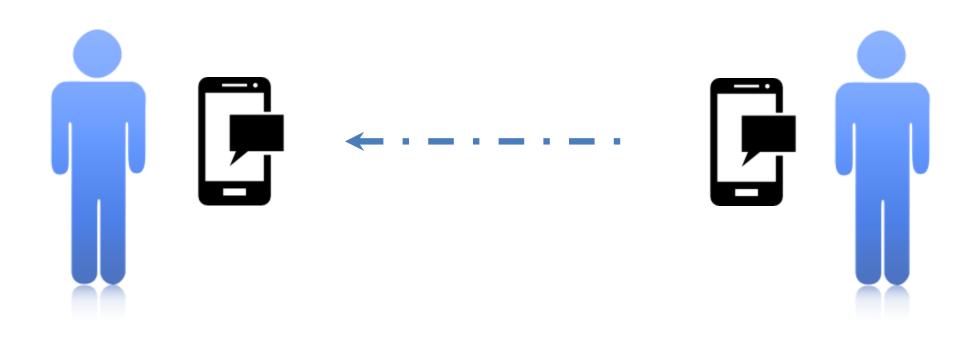
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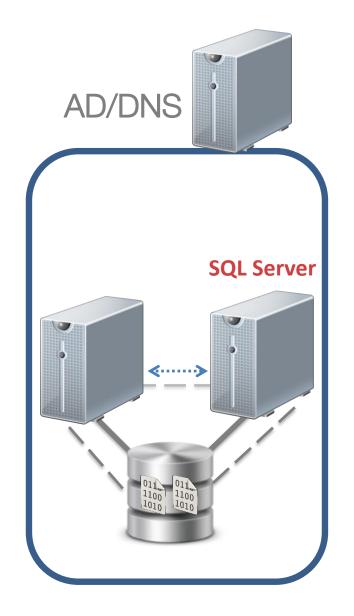
Windows Server Failover Cluster





cluster heartbeat settings

to make sure that the cluster can communicate properly with all of the nodes even on different networks for health detection

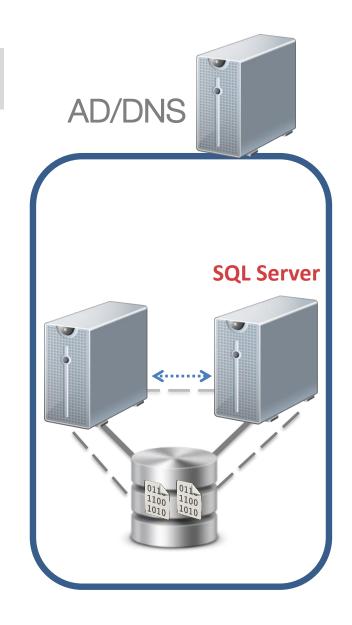


cluster heartbeat settings

SameSubnetDelay

frequency of heartbeats sent on nodes in the same network subnet

DEFAULT: 1 Sec **MAXIMUM:** 2 Sec

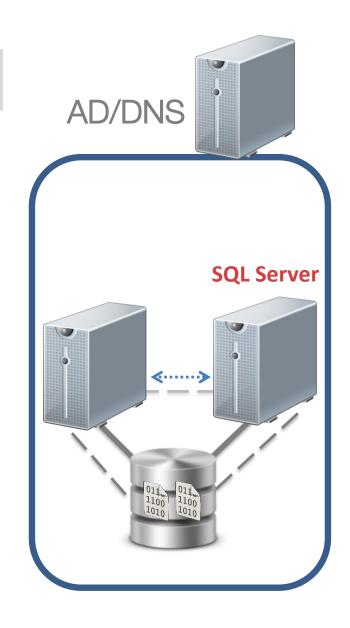


cluster heartbeat settings

SameSubnetThreshold

missed heartbeats before a node is considered unavailable

DEFAULT: 5 **MAXIMUM:** 120

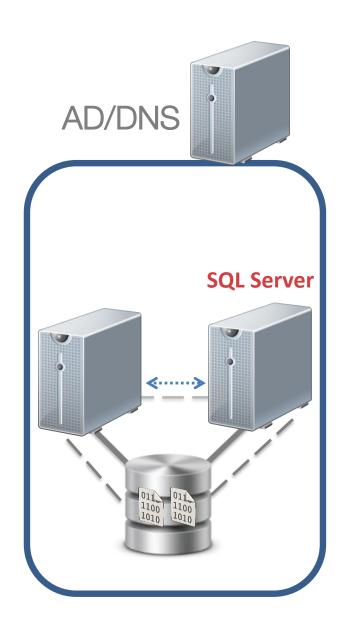


cluster heartbeat settings

default threshold before possible downtime

5 sec

cluster nodes in the same subnet

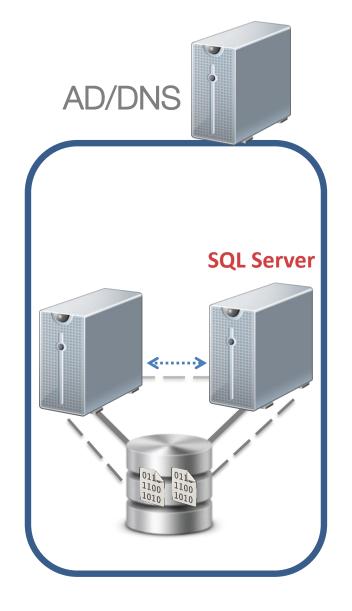


cluster heartbeat settings

CrossSubnetDelay

frequency of heartbeats sent on nodes on different network subnet

DEFAULT: 1 Sec **MAXIMUM:** 4 Sec

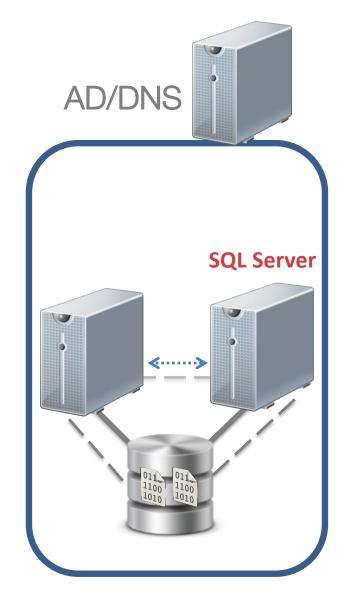


cluster heartbeat settings

CrossSubnetThreshold

missed heartbeats before a node on a different subnet is considered unavailable

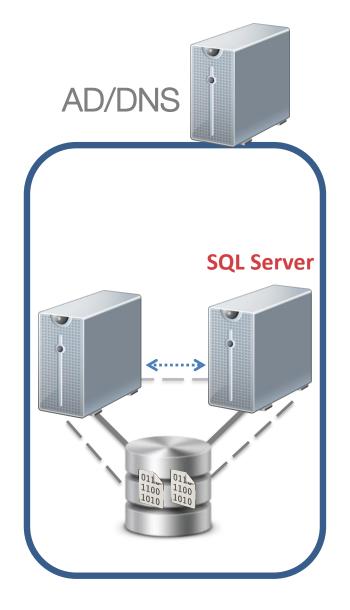
DEFAULT: 5 **MAXIMUM:** 120

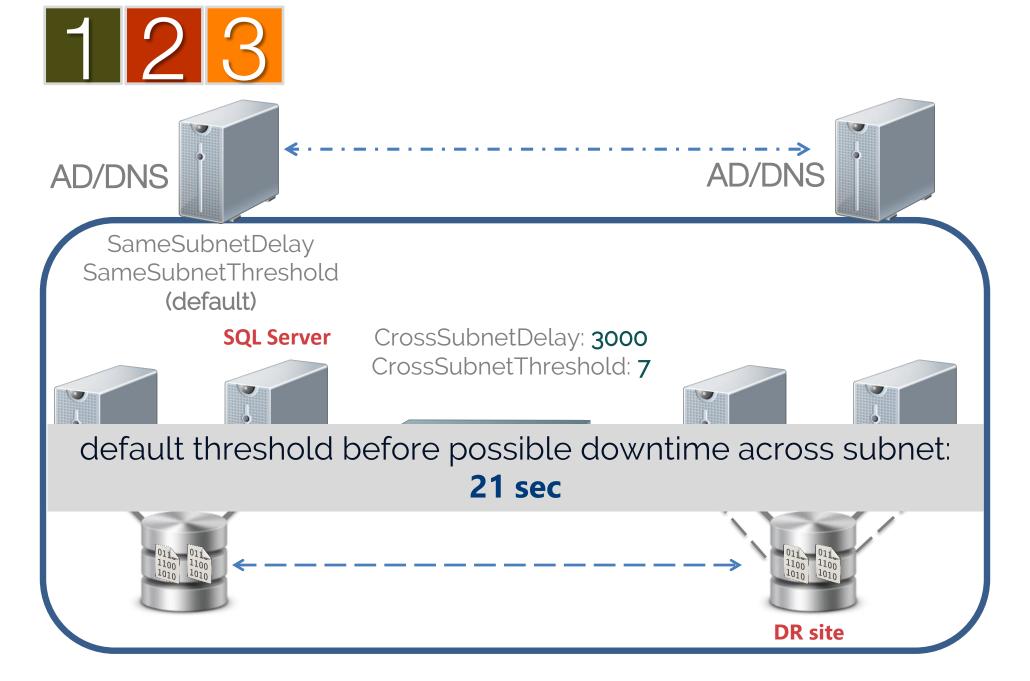


cluster heartbeat settings

default threshold before possible downtime

5 sec

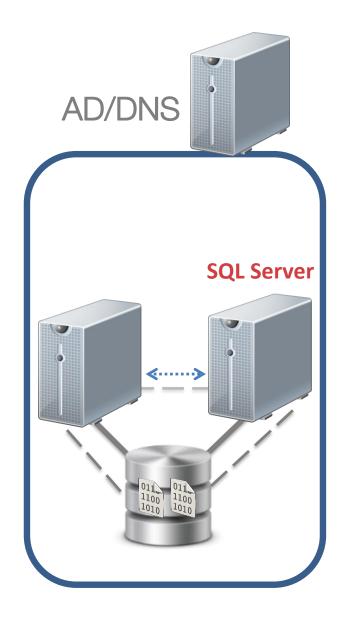


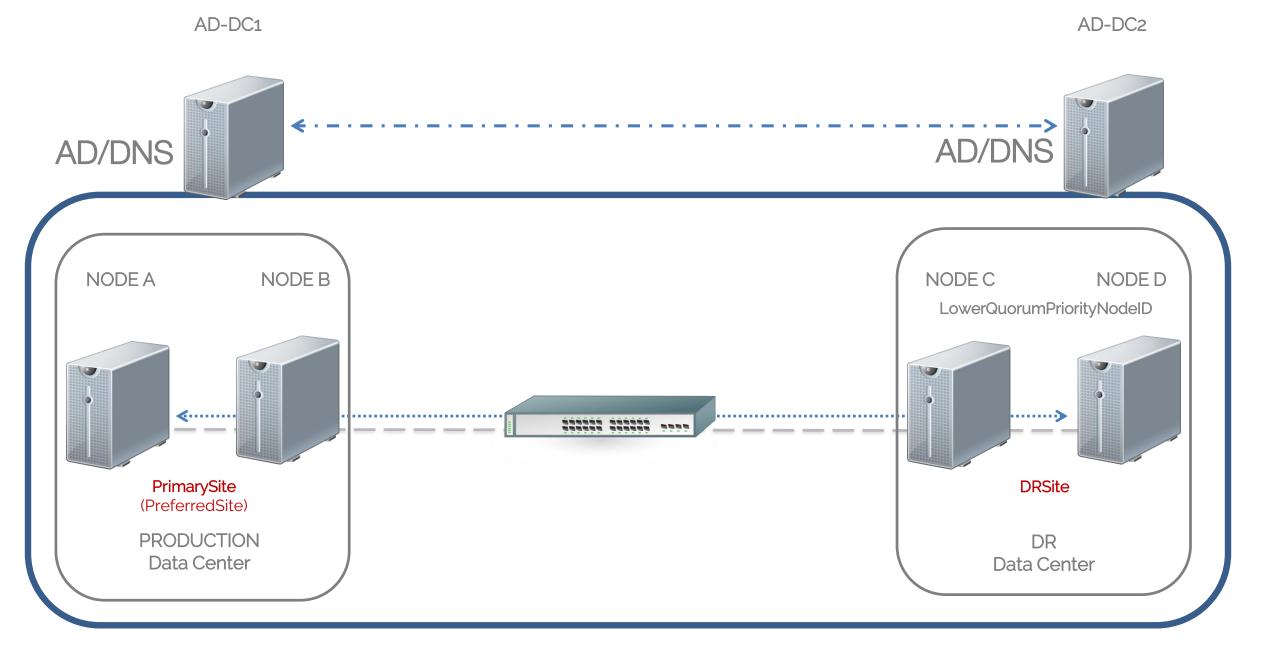


Windows Server 2016

Fault Domains

Site awareness





Windows Server Failover Cluster

Windows Server 2016

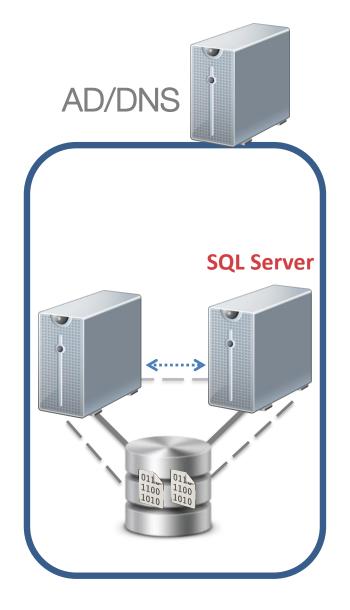
Fault Domains

Site awareness

CrossSiteDelay

frequency of heartbeats sent on nodes on different sites

DEFAULT: 1 **MAXIMUM**: 4



Windows Server 2016

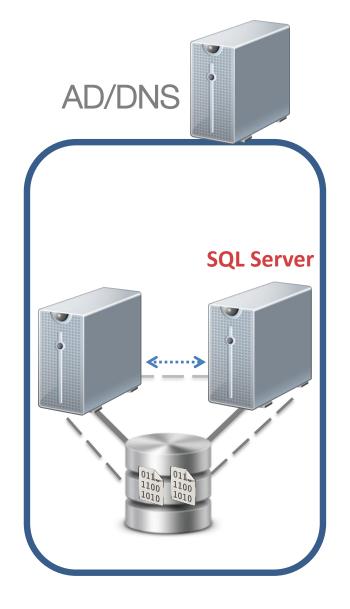
Fault Domains

Site awareness

CrossSiteThreshold

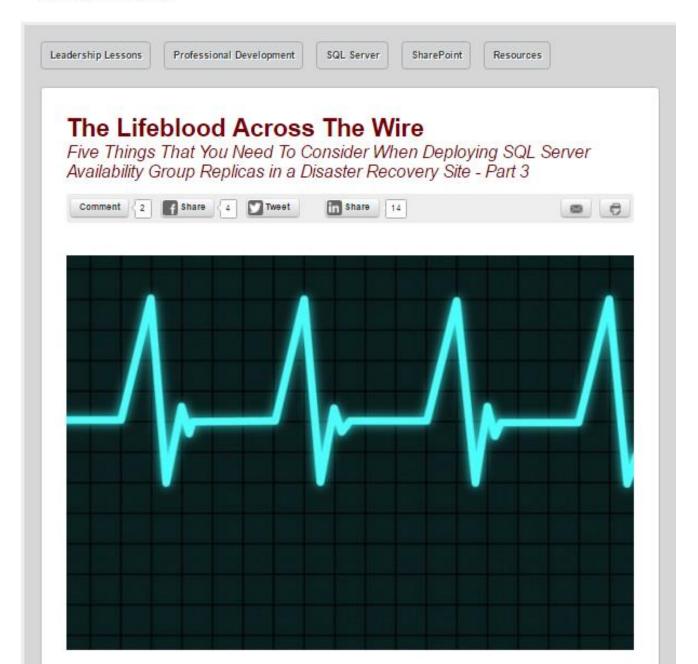
missed heartbeats before a node on a different site is considered unavailable

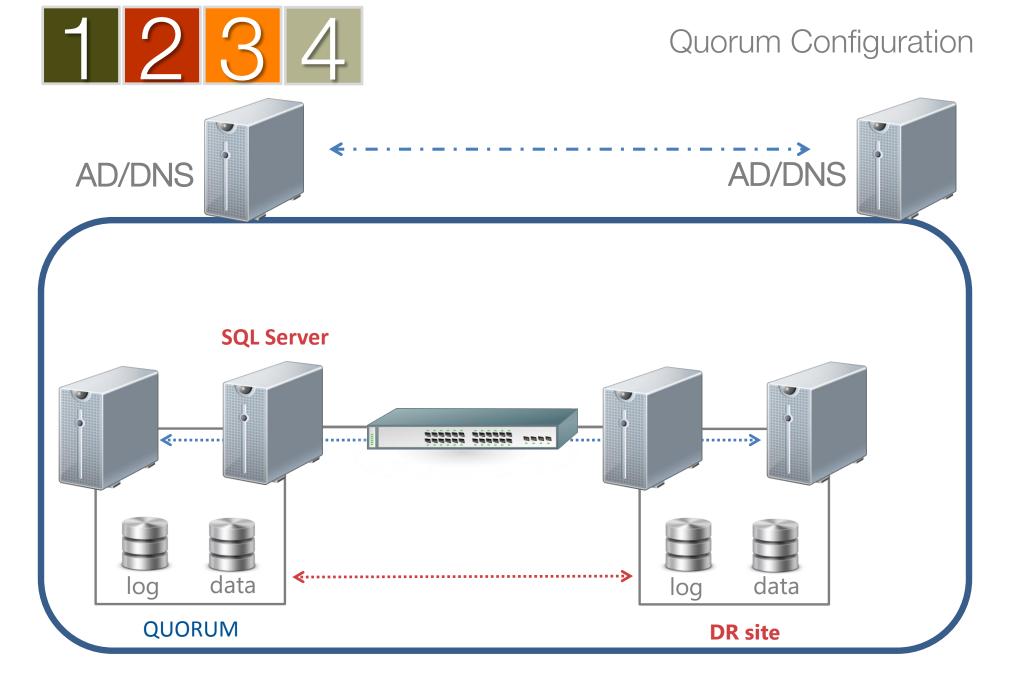
DEFAULT: 20 **MAXIMUM:** 120



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Windows Server Failover Cluster

what about QUORUM

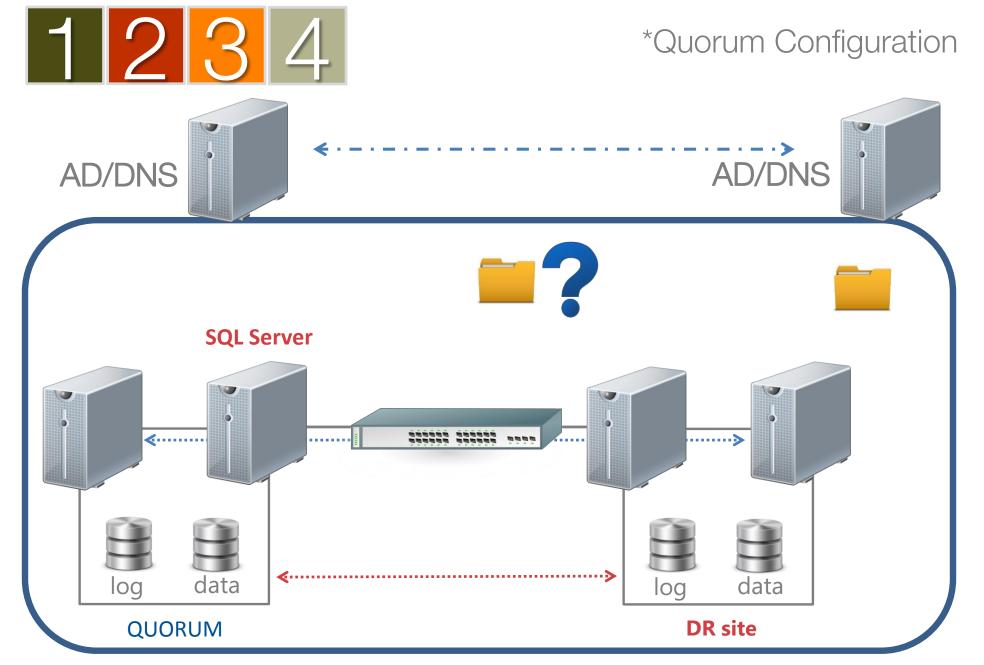
what about QUORUM majority VOTE wins

*ALL NODES have a vote



*ALL NODES have a vote

what happens if you lose QUORUM



*Asymmetric Witness

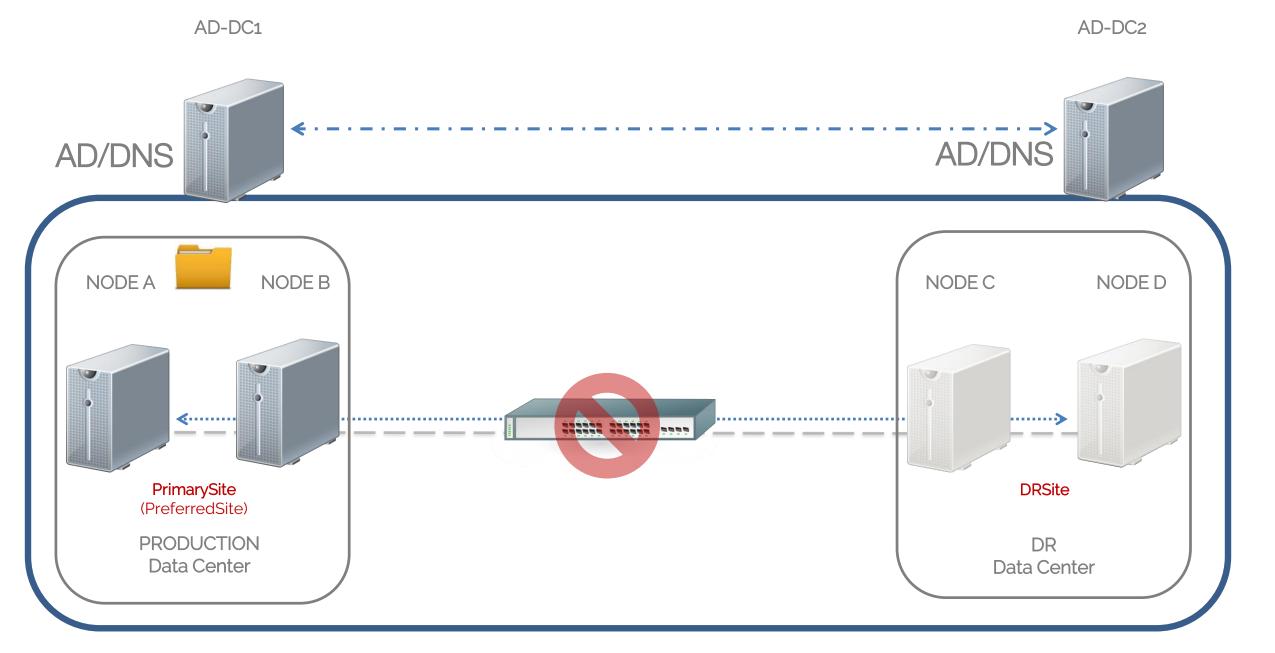
Windows Server 2016

Fault Domains

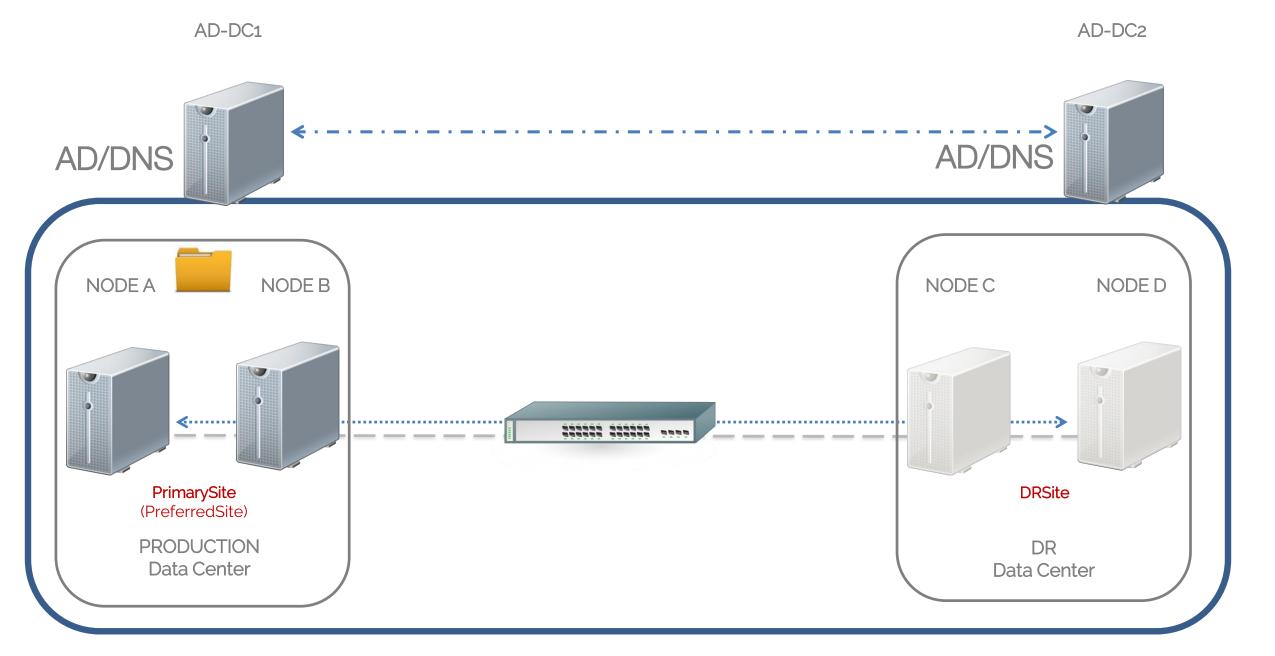
Site awareness

Quorum

Dynamic quorum drops votes from site that is not assigned as a preferred site



Windows Server Failover Cluster

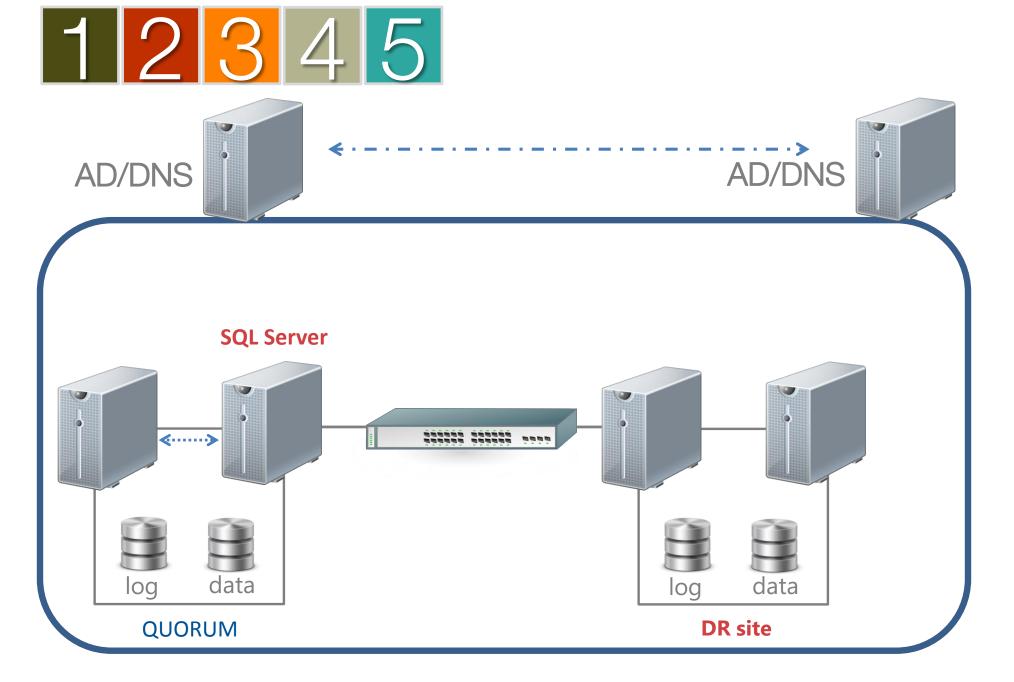


Windows Server Failover Cluster

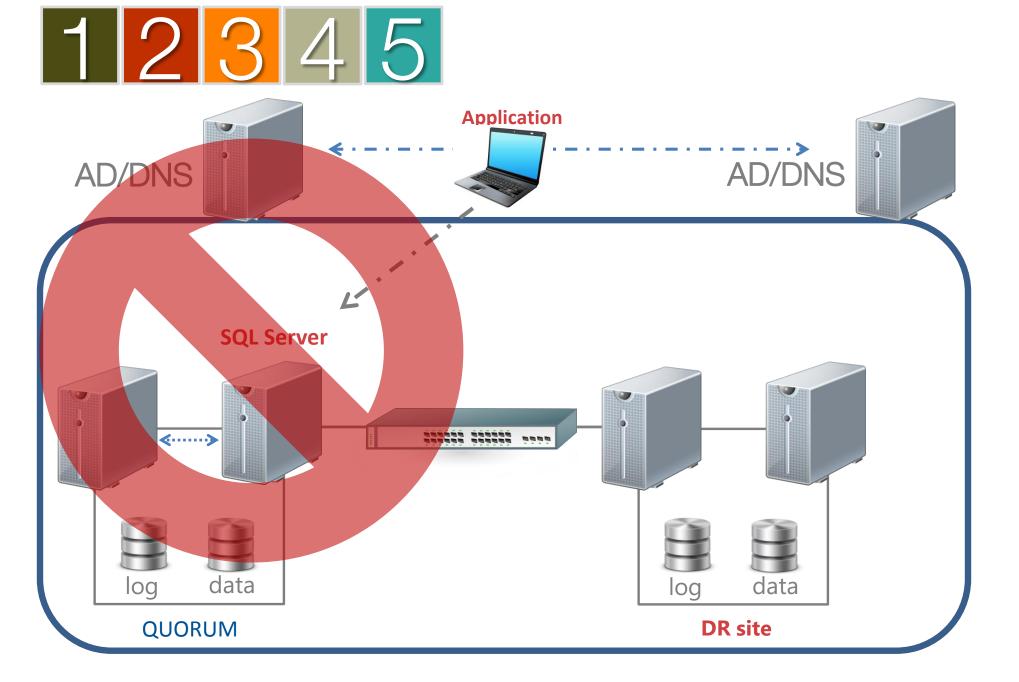
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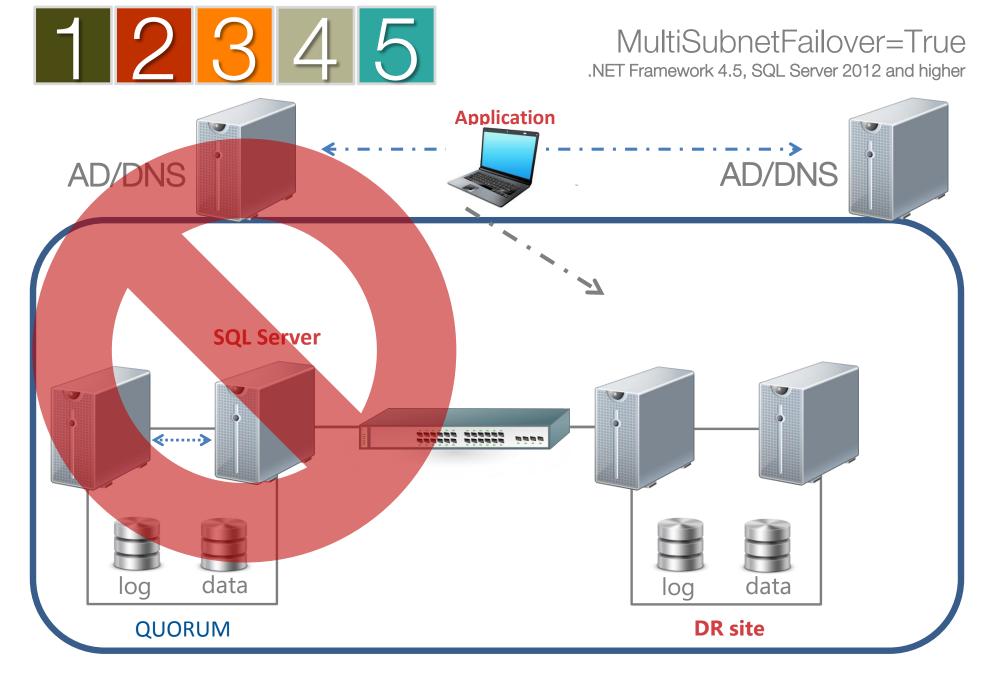




Windows Server Failover Cluster



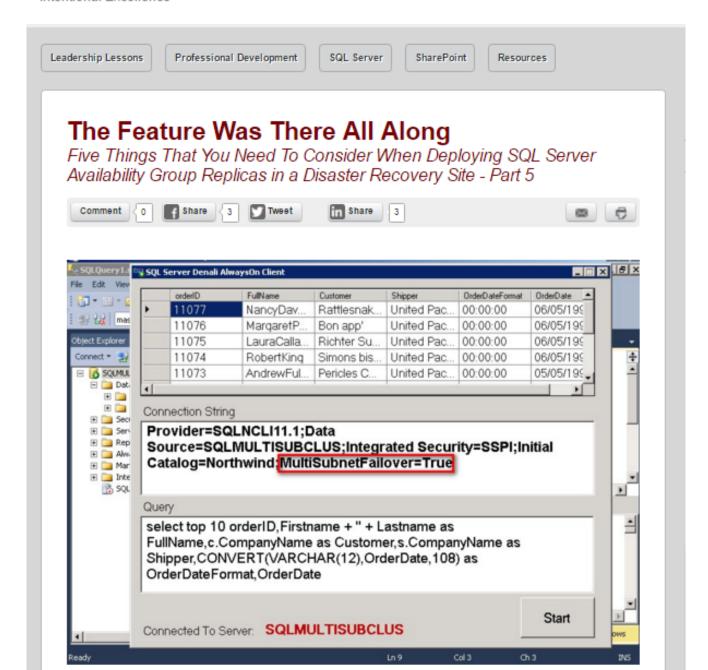
Windows Server Failover Cluster



Windows Server Failover Cluster

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we need to speak to the domain, DNS & network administrators

not just for the

databases

but for the

ENTIRE

infrastructure

Recovery Time Objective

YOUR CAREER

is **DEPENDENT** on the things that **YOU ARE NOT EVEN AWARE OF**



Failover Clustered Instances Availability Groups

to a Disaster Recovery Site

http://bit.ly/2fGHGuR

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