



Transactional Replication

A Deeper Dive

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About me

I'm a Senior SQL Server DBA at IGS Energy in Dublin, Ohio. I've been using SQL Server since SQL Server 2000 and I love it. I also enjoy DevOps, release management, and PowerShell.

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What's In This Presentation?

- How transactional replication works
 - Security model
 - Monitoring and querying
 - (Some) Knobs and levers
 - Replication and HA
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When Should You Consider Transactional Replication?

- Reporting instances
 - Concurrent Copies of Data
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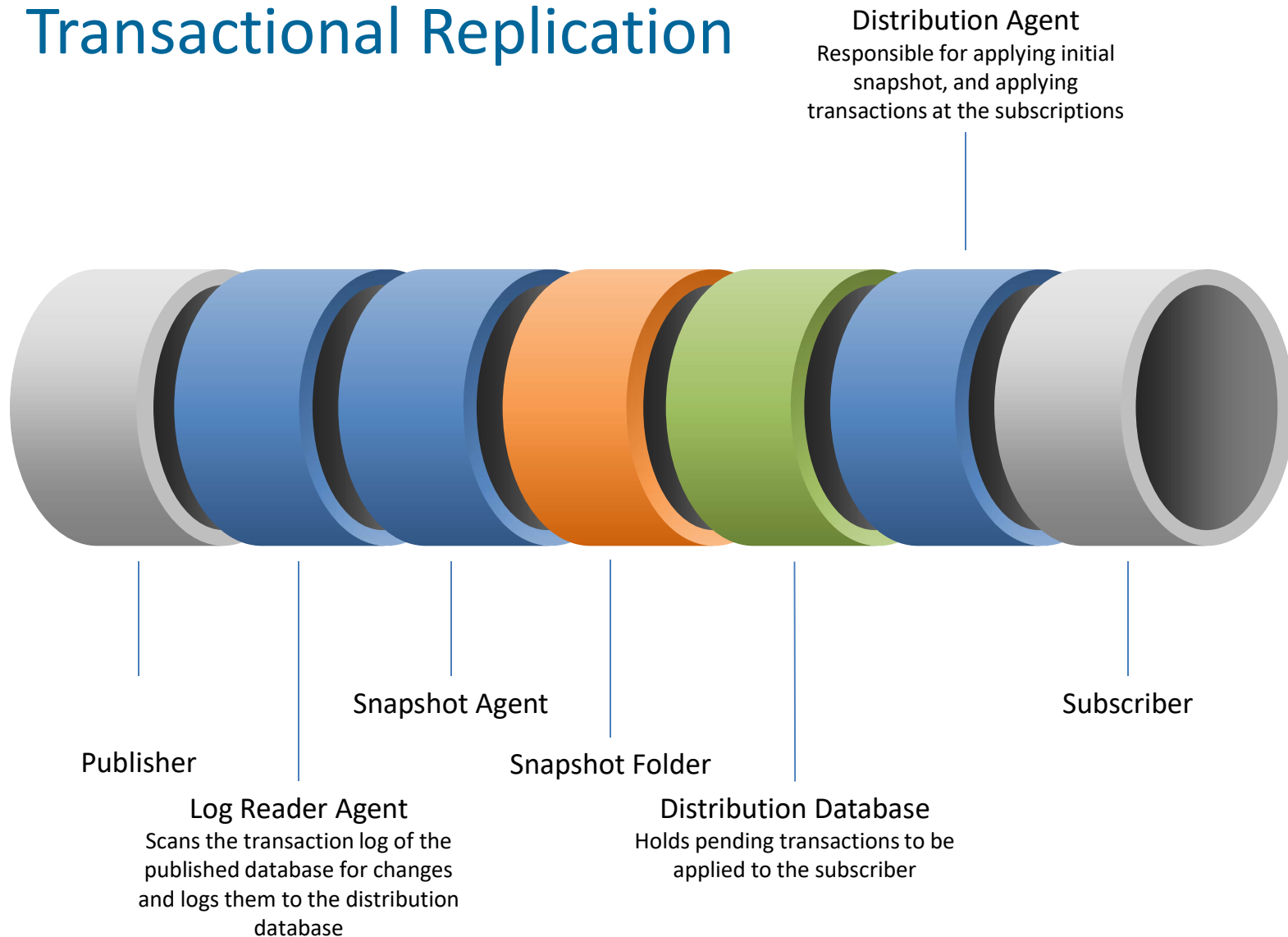
When You SHOULDN'T Consider (Any) Replication

- As a DR practice
 - As a real-time source of data
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“New:” Replication and Azure

- You can replicate to Azure SQL Database
 - SQL Server 2016
 - SQL Server 2014 SP1 (CU3)
 - SQL Server 2012 SP2 (CU8)
 - Geolocation
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Transactional Replication



Security and Permissions

- For snapshot agents: **db_owner** on published database(s), **db_owner** on the distribution database, and read/write permissions on the network snapshot share.
 - For distribution agents: **db_owner** on distribution, **db_owner** on subscriber database, and read access to the snapshot network share.
 - For log reader agents: **db_owner** in both distribution database and published database(s).
 - You can also impersonate the SQL Agent account, but it's not best practice.
 - More best practices for replication security:
[https://msdn.microsoft.com/en-us/library/ms151227\(v=sql.110\).aspx](https://msdn.microsoft.com/en-us/library/ms151227(v=sql.110).aspx)
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What happens when a transaction is replicated?

- What gets replicated?
 - Monitoring transactions
 - When is a statement not a statement?
 - Your transaction will be multiple statements
 - Different behaviors are possible
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Things to remember when something is replicated...

- Truncate table
 - Renaming objects
 - Object dependencies
 - Changing data at a subscriber?
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Common Trouble Spots

- Snapshots and objects.
 - Distribution cleanup jobs.
 - Replication and continuous integration.
 - Transactions that break replication.
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What To Do When It Breaks

- Is replication actually doing anything?
 - The replication monitor
 - What's that red "X" mean?
 - DR and replicated databases
 - Job Agent Alerts!
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Replication and HA

- Bad news first: you can't put the distribution database into an availability group.
- But you can replicate databases that are in an availability groups!

Replication and HA, continued

- Just make sure:
 - Add all nodes as a publisher at the distributor
 - Enable replication on all databases on the other nodes manually with TSQL.
 - Additional permissions for the agents.
 - Consider TF 1448?
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Would you like to know more?

- MSDN: <https://msdn.microsoft.com/en-us/library/ms151198.aspx>
 - SQL Server Central: <http://www.sqlservercentral.com/stairway/72401/>
 - More on SQL Server Replication To Azure SQL Database:
<https://msdn.microsoft.com/library/mt589530.aspx>
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