

Transactional Replication

it's not scary



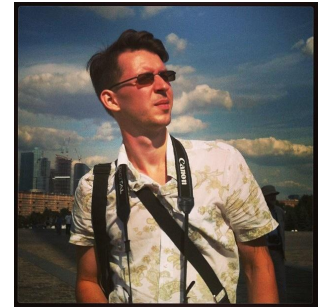
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About me

- Evgeny Khabarov
- Moscow, Russia
- DBA in a financial company in Moscow
- Also work as a independent consultant
- Developer in past



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Agenda

- What is replication?
- When we can use transactional replication?
- When we must not use it?
- Replication components
- How works simplest replication schema
- What we should to do to begin use replication or «fast setup of replication»
- Let's break something and see what happens
- How change replication
- Tips & tricks

What is replication?

- Synchronization mechanism
- Synchronizes different objects
 - Tables
 - Views
 - SP
 - UDF
- Replication types
 - Transactional
 - Peer-To-Peer
 - Merge
 - Snapshot



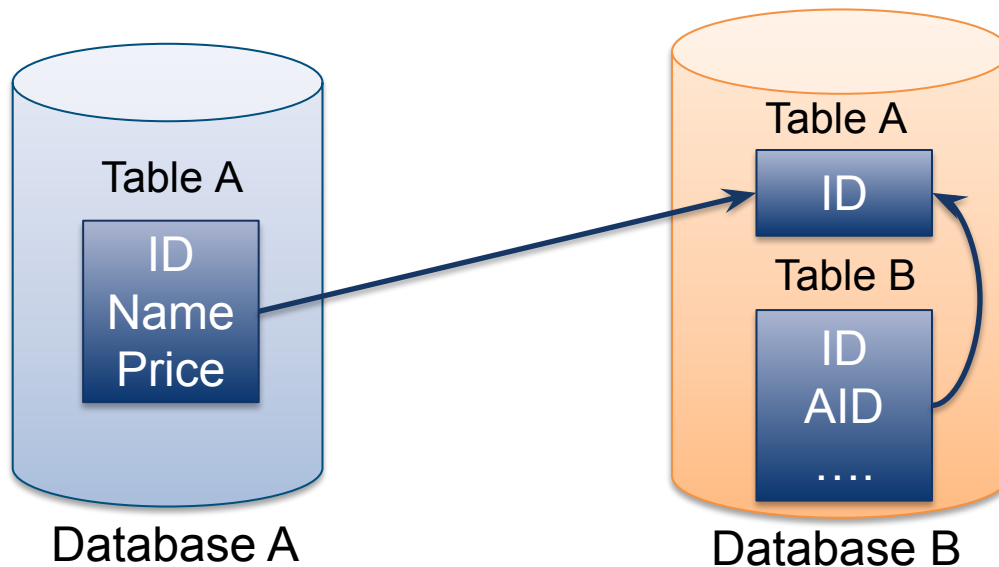
“Articles”

What is **transactional** replication?

- Tracks changes through transactional log
- Propagates changes to Subscribers in near real time
- Transactional consistency within Publication guaranteed
- Publisher and Subscriber might be not-SQL Server database, for example Oracle or DB2

When we can use transactional replication?

- DWH & Reporting
- Load distribution across databases (retail network)
- Cross-database foreign keys



When we must not use it?

- HA/DR
 - Doesn't supports automatic page repair
 - Doesn't supports load balancing
 - Doesn't supports failover/failback
 - Data in Subscriber database could be changed
 - Can't replicate any table without PK

Replication components (1)

- Publisher
 - Published database
 - Publication
 - Article
- Distributor
- Subscriber
 - Subscription
 - PUSH
 - PULL

Replication components (2)

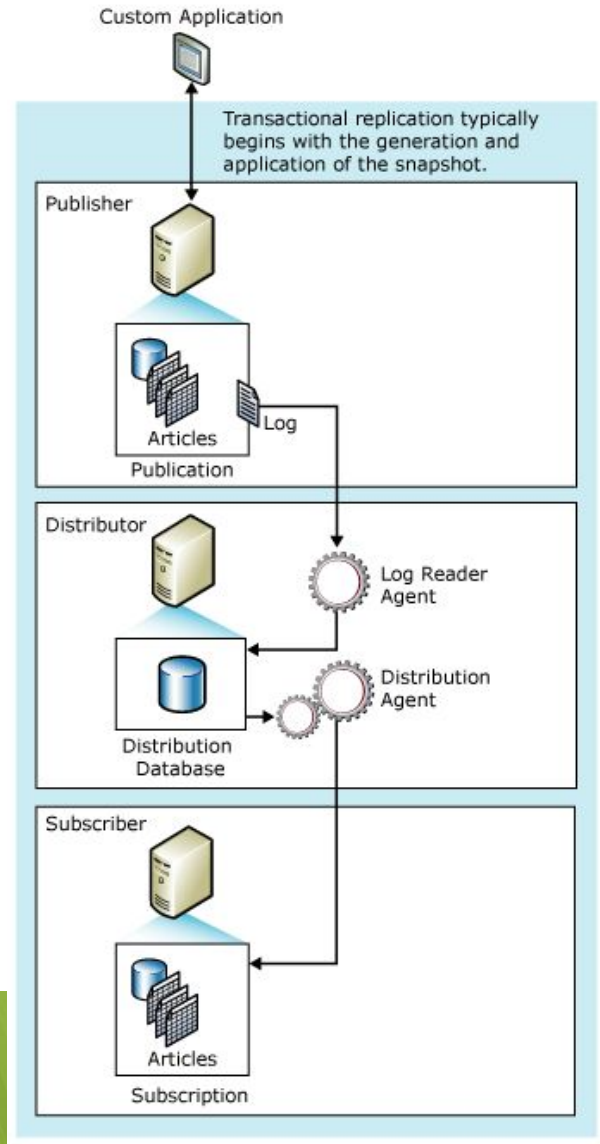
- Agents
 - Snapshot agent
 - Log reader agent
 - Distributor agent

Replication components (3)

■ Jobs

- Agent history clean up: <distribution database>
- Distribution clean up: <distribution database>
- Expired subscription clean up
- Reinitialize subscriptions having data validation failures
- Replication agents checkup
- Replication monitoring refresher for <distribution database>

How works simplest replication schema



Fast replication setup aka “next, next, next, finish”

DEMO

Let's break something and see what happens

DEMO



Incorrect ANSI_PADDING settings

DEMO

Tips & Tricks

- Initialize with backup
- `sp_configure, 'max text repl size (B)'`
- Profiler
- Snapshot/Distribution Agent profile –MaxBCPThread
- Don't use many instances of Replication Monitor at the same time

Thank you!

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Resources

- <http://www.sqlservercentral.com/stairway/72401/>
 - Stairway to SQL Server Replication by *Sebastian Meine*
- <http://www.replicationanswers.com/>
 - Script and articles by Paul Ibison
- <http://blogs.msdn.com/b/repltalk/archive/2010/02/07/repltalk-start-here.aspx>
 - Microsoft SQL Server Replication Support Team
- <https://msdn.microsoft.com/en-us/library/ms151740.aspx>
 - Frequently Asked Questions for Replication Administrators
- <https://technet.microsoft.com/en-us/library/ms152556.aspx>
 - Enable Initialization with a Backup for Transactional Publications
- [https://technet.microsoft.com/en-us/library/ms152552\(v=sql.105\).aspx](https://technet.microsoft.com/en-us/library/ms152552(v=sql.105).aspx)
 - Regenerating Custom Transactional Procedures to Reflect Schema Changes
- <https://msdn.microsoft.com/en-us/library/ms151227.aspx>
 - Replication Security Best Practices
- <http://www.sqlskills.com/blogs/paul/category/replication/>
 - Paul Randall blog