

# Transactional Replication

it's not scary



Evgeny Khabarov

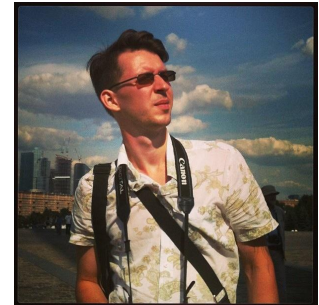


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# About me

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- 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

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- 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?

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



“Articles”

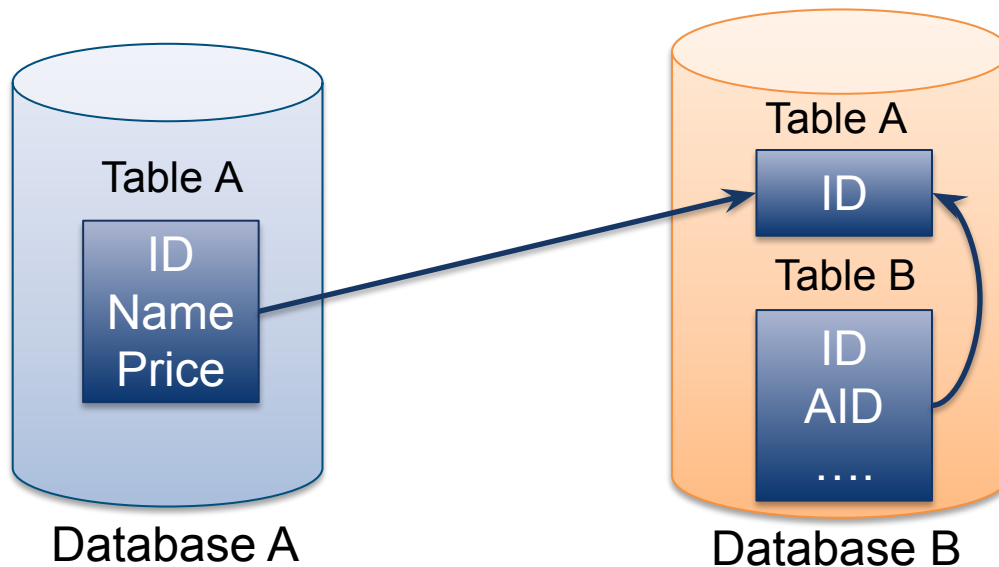
# What is **transactional** replication?

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- 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?

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- 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)

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

# Replication components (2)

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

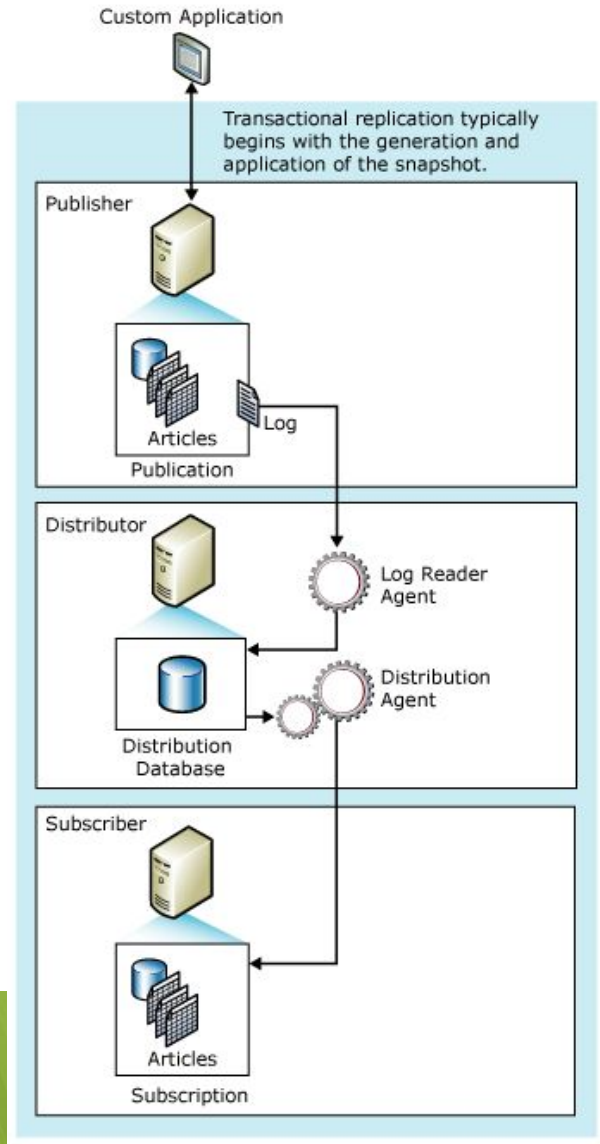
# Replication components (3)

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## ■ 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

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- 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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- Twitter: [@gr4mm](https://twitter.com/gr4mm)
- Blog: <http://sql.dev.ms>



# Resources

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- <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