

Overview of Microsoft Replication Technologies



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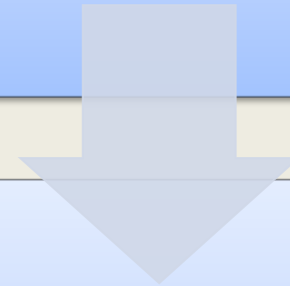


March 6, 2010

Replication = Data + Movement

Server to Server

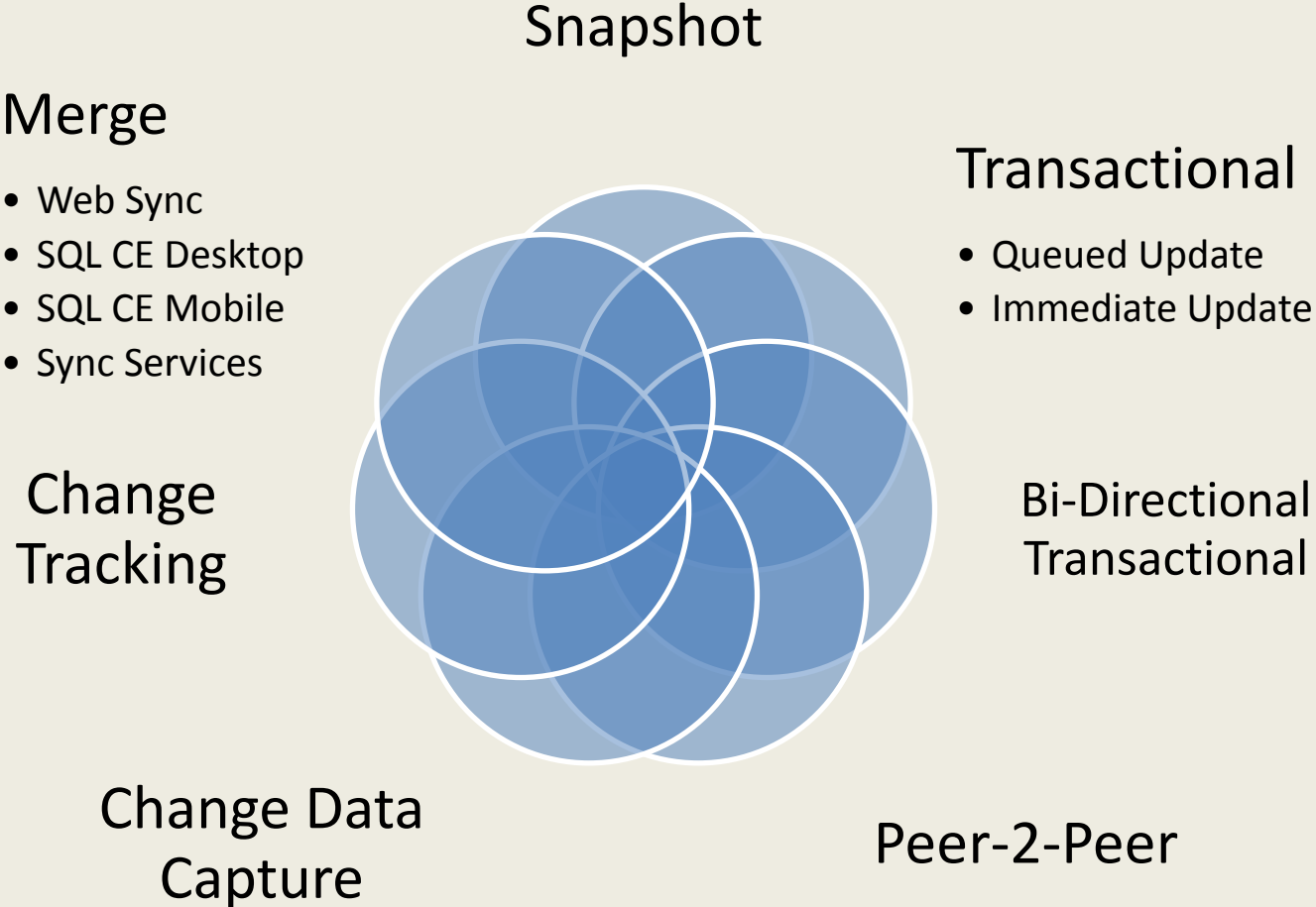
- **Near Real-time on-way flow to a Reporting server**
- **Data Warehouse loading**
- **Off-site Disaster Recovery**
- **Regional 2-way Synchronization (SQL to SQL , Oracle to SQL)**
- **Web App Load Balancing through n-way data movement**



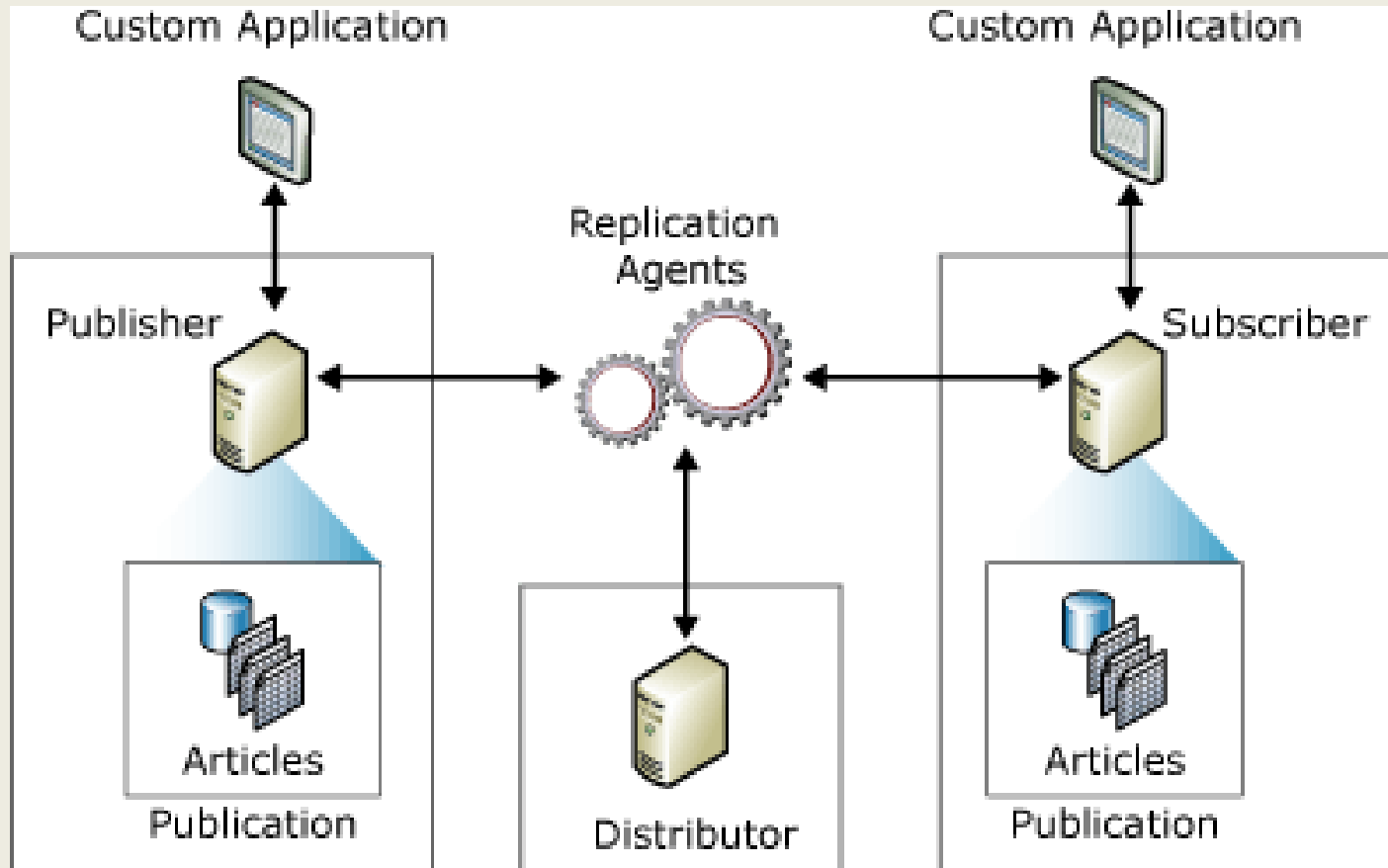
Client to Server (n-way data flow)

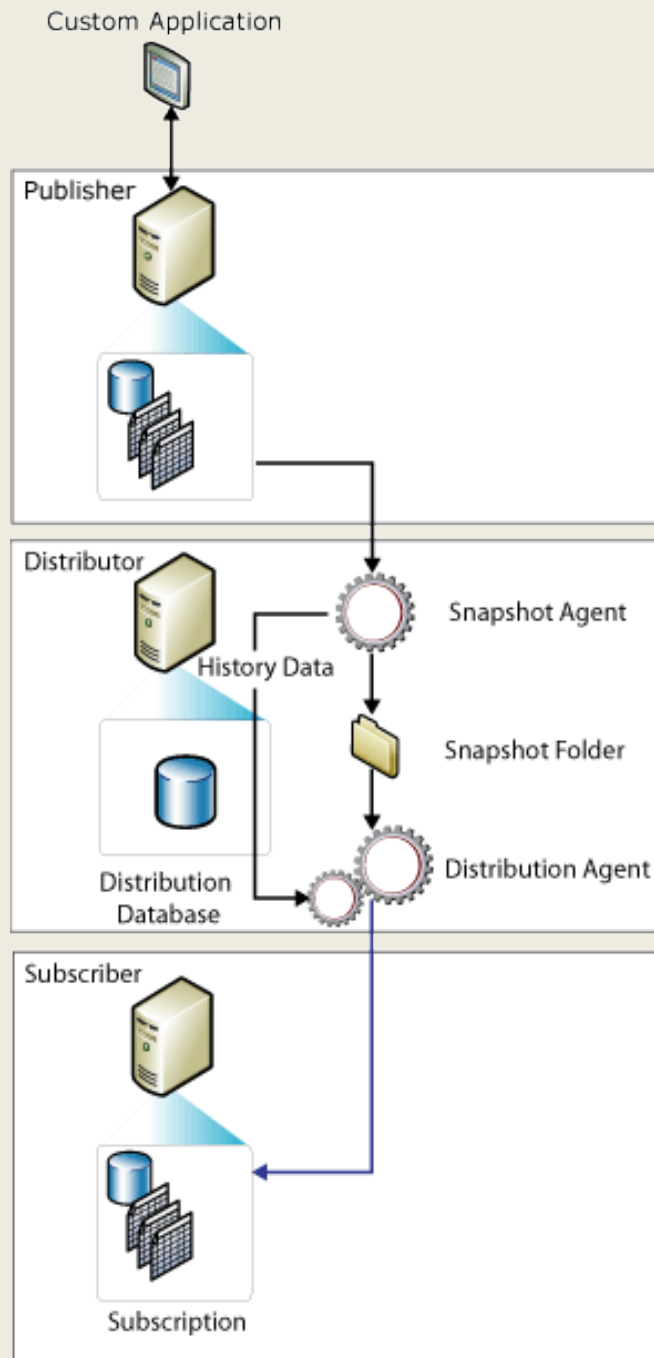
- **CRM - Customer Relationship Management**
- **SFA - Sales Force Automation**
- **FFA - Field Force Automation**
- **POS - Consumer Point of Sale Applications**

SQL Replication Solutions for Moving Data



Replication Publisher/Subscriber Model



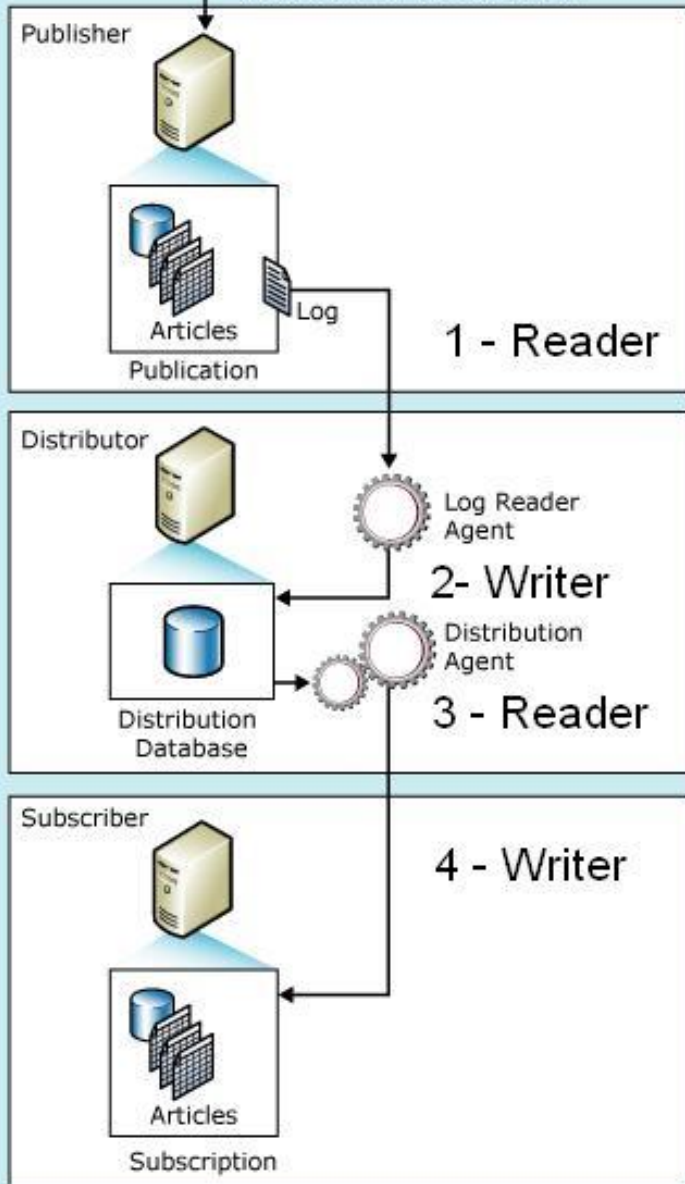


Snapshot Replication

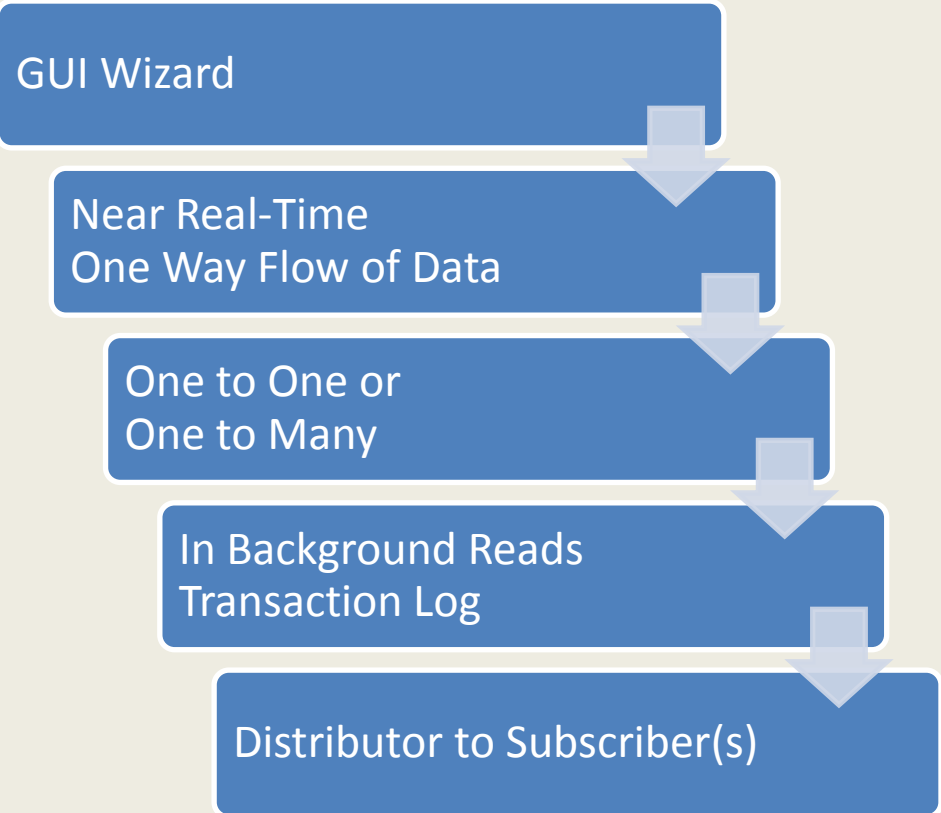
Custom Application



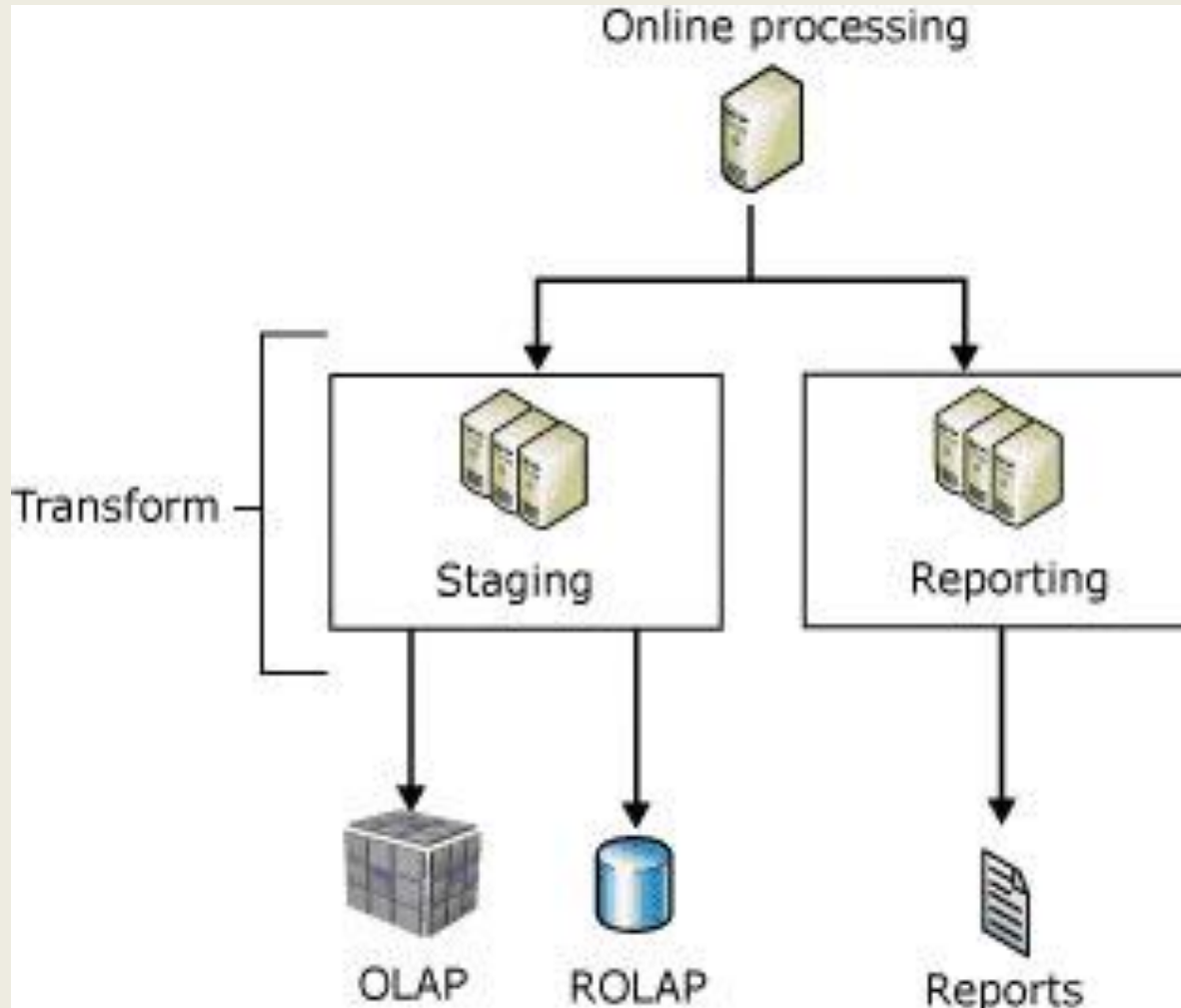
Transactional replication typically begins with the generation and application of the snapshot.



TRANSACTIONAL



Early Users of Transactional Replication

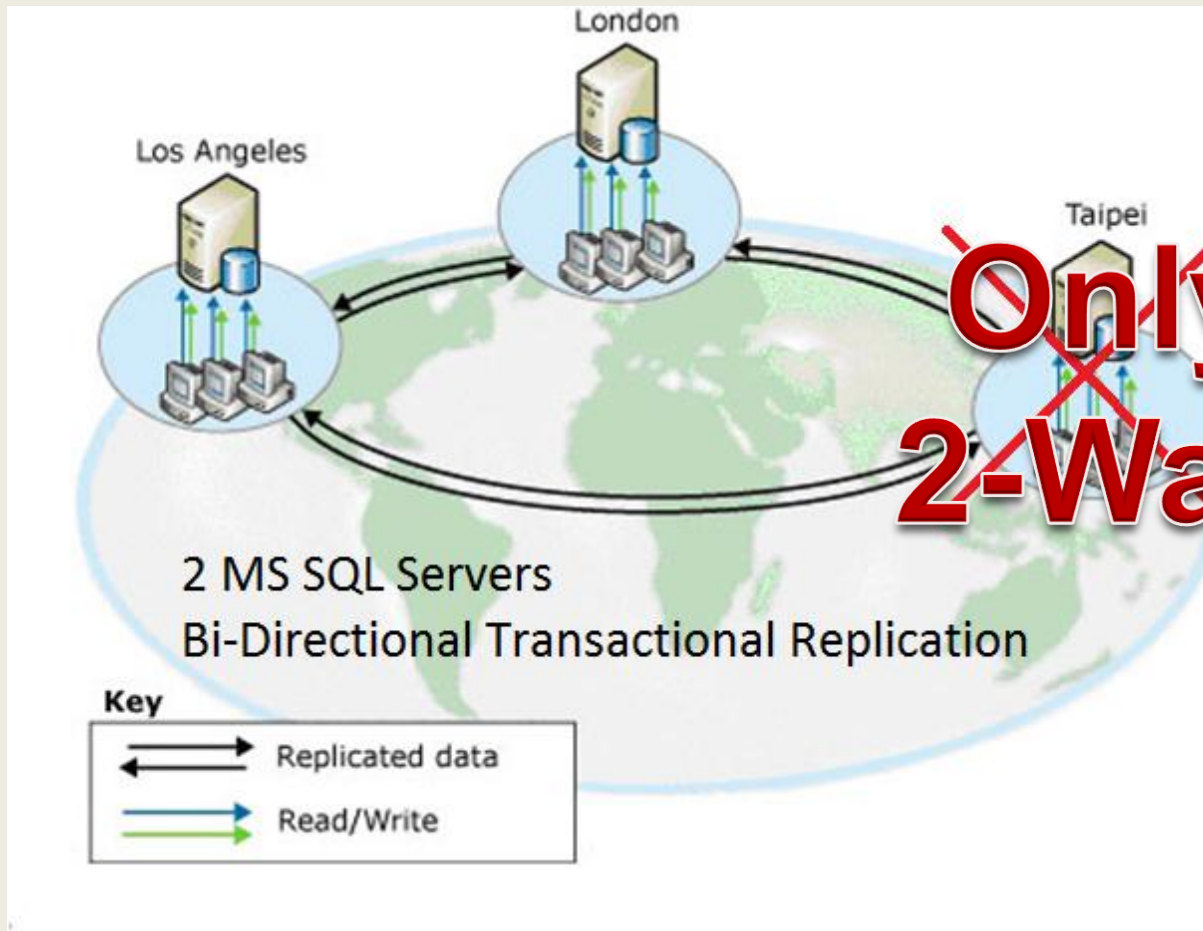


Data Warehouse
-aggregations

Reporting Server
-ad hoc queries
-archival storage

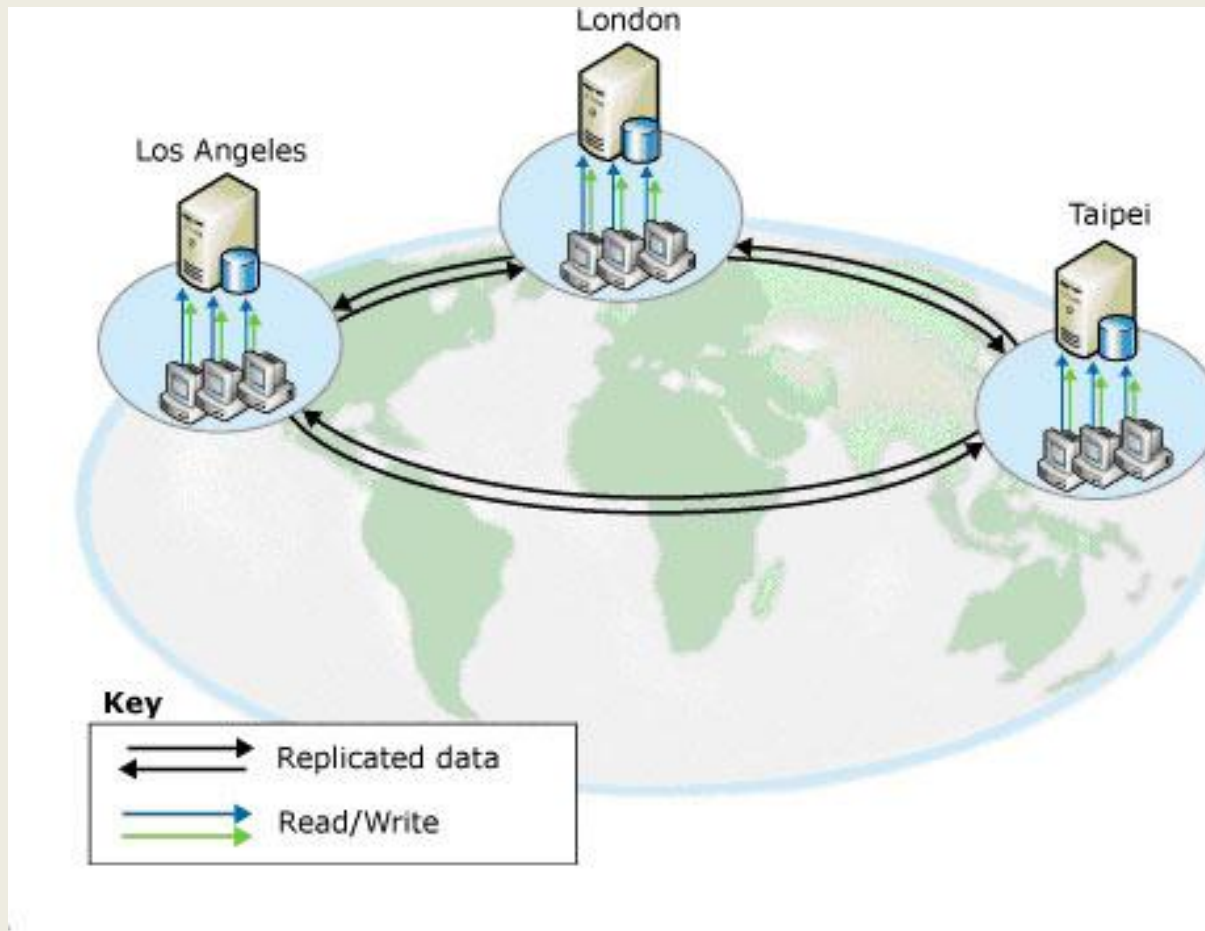
Bi-Directional

SQL 2000/2005/2008 Standard Edition

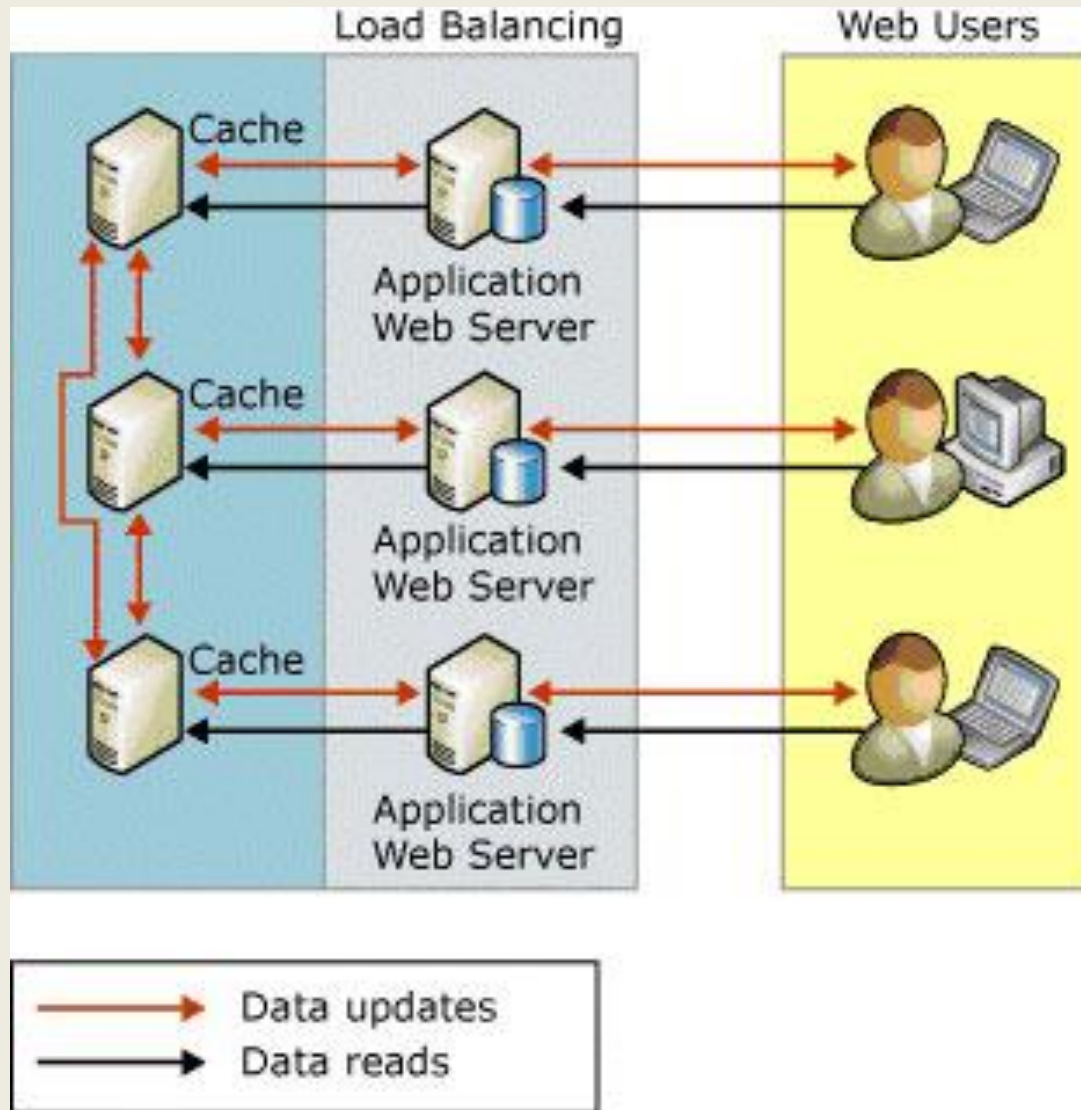


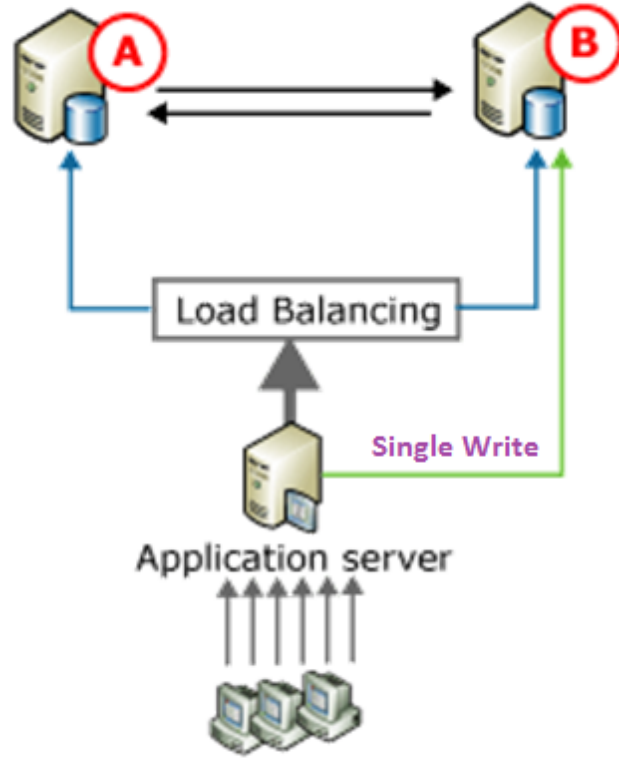
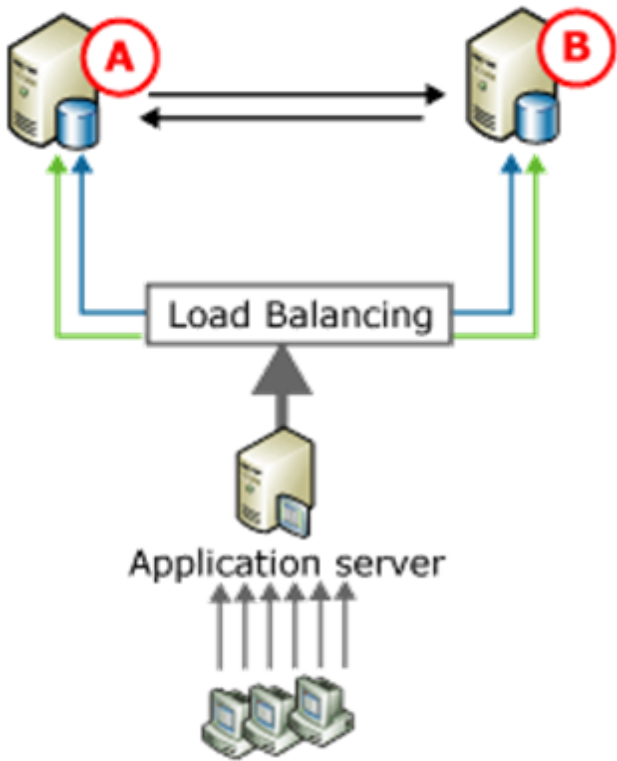
Peer-2-Peer World

Enterprise Edition Feature



P2P Load Balancing Web Servers





Key

- Replicated data
- Read
- Write
- User traffic

P2P Load
Balancing
Reads

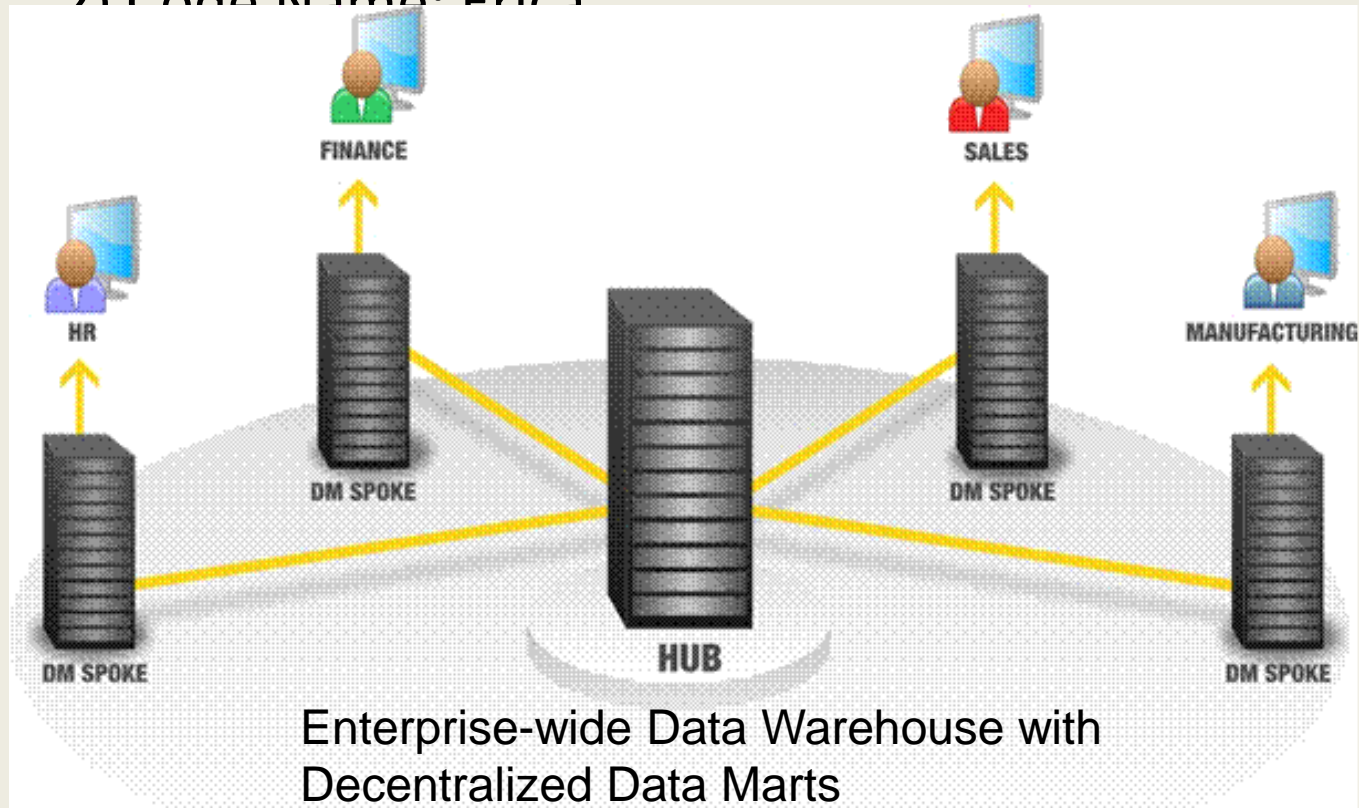
Single
Writes

Microsoft Solution(s) for moving Data between Data Warehouses

1) Code Name: Madison (DATAlegro appliance)

Combines decentralized data marts with enterprise-wide data

2) Code Name: Erica



Merge Replication

Occasionally Disconnected Clients to Central Sever

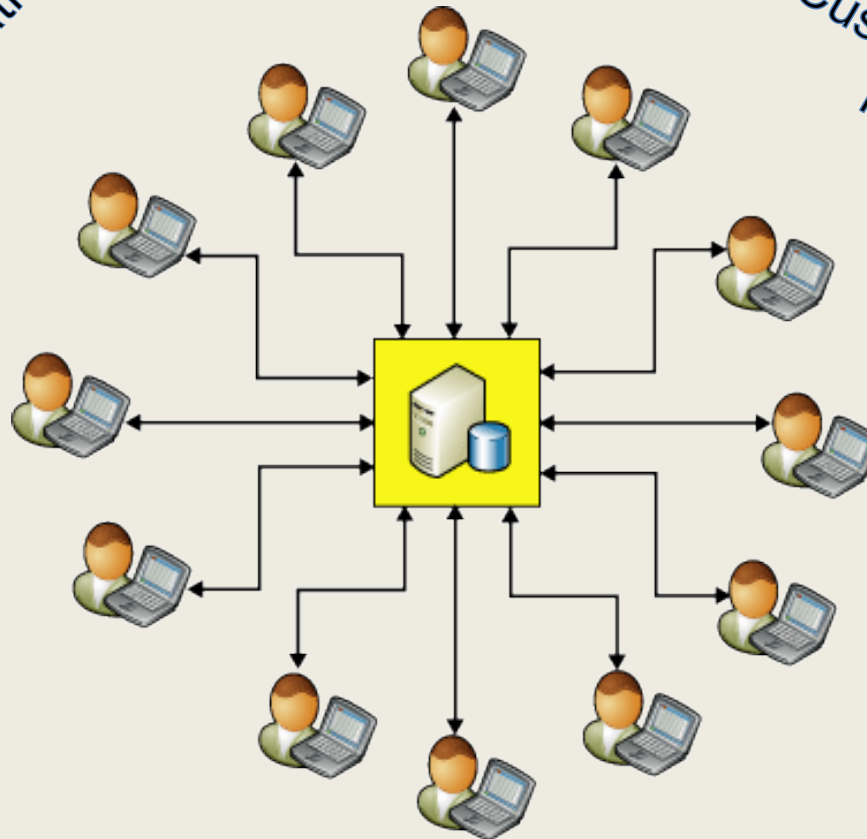
Filtered Subscribers

Conflict Detection and Resolution

“out of the box” solution

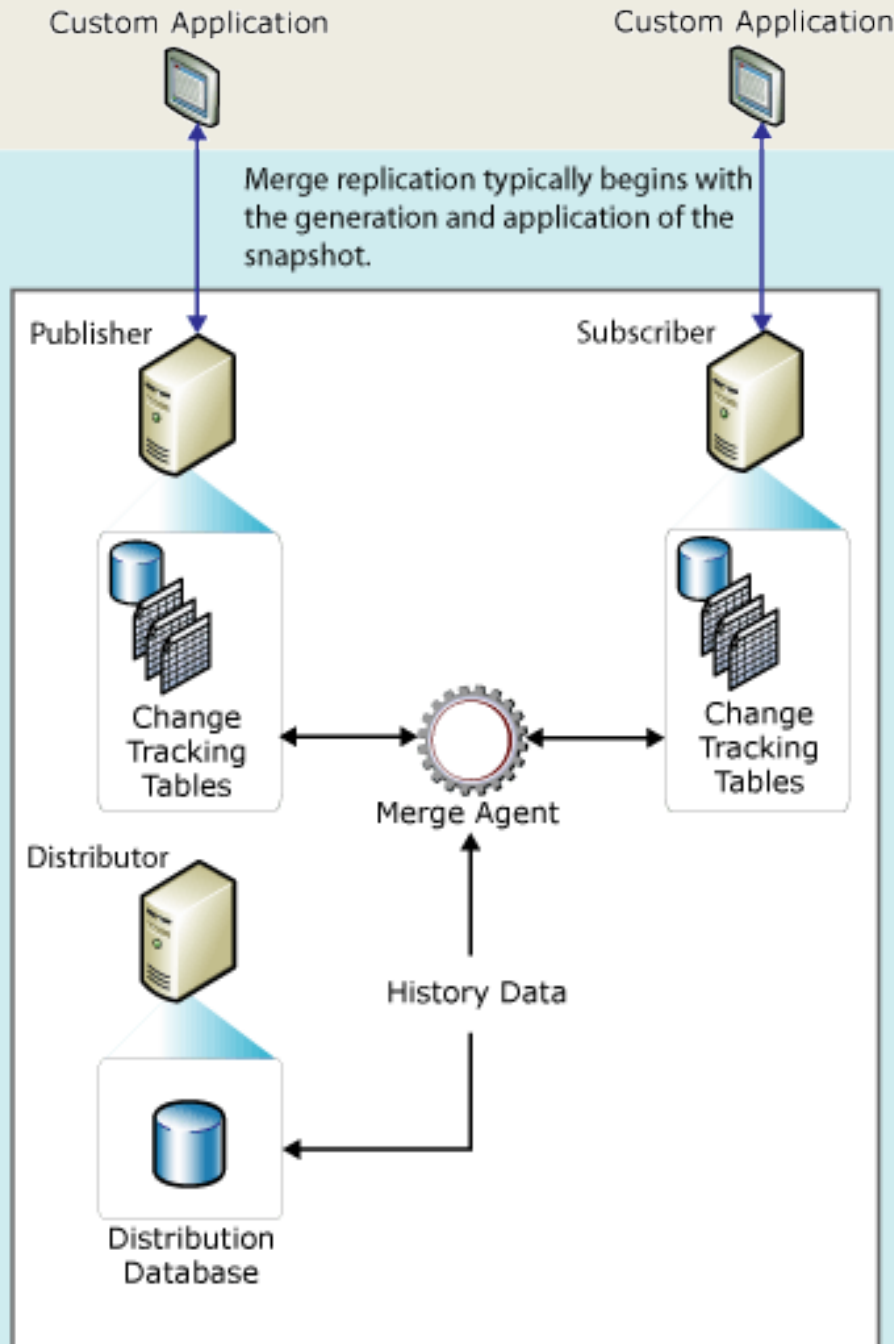
Sales Force Automation

Customer Relationship Management



Consumer Point of Sale Applications

Merge Replication



VPN or Intranet connection

Desktop App store data in

--SQL Standard Edition

--SQL Express

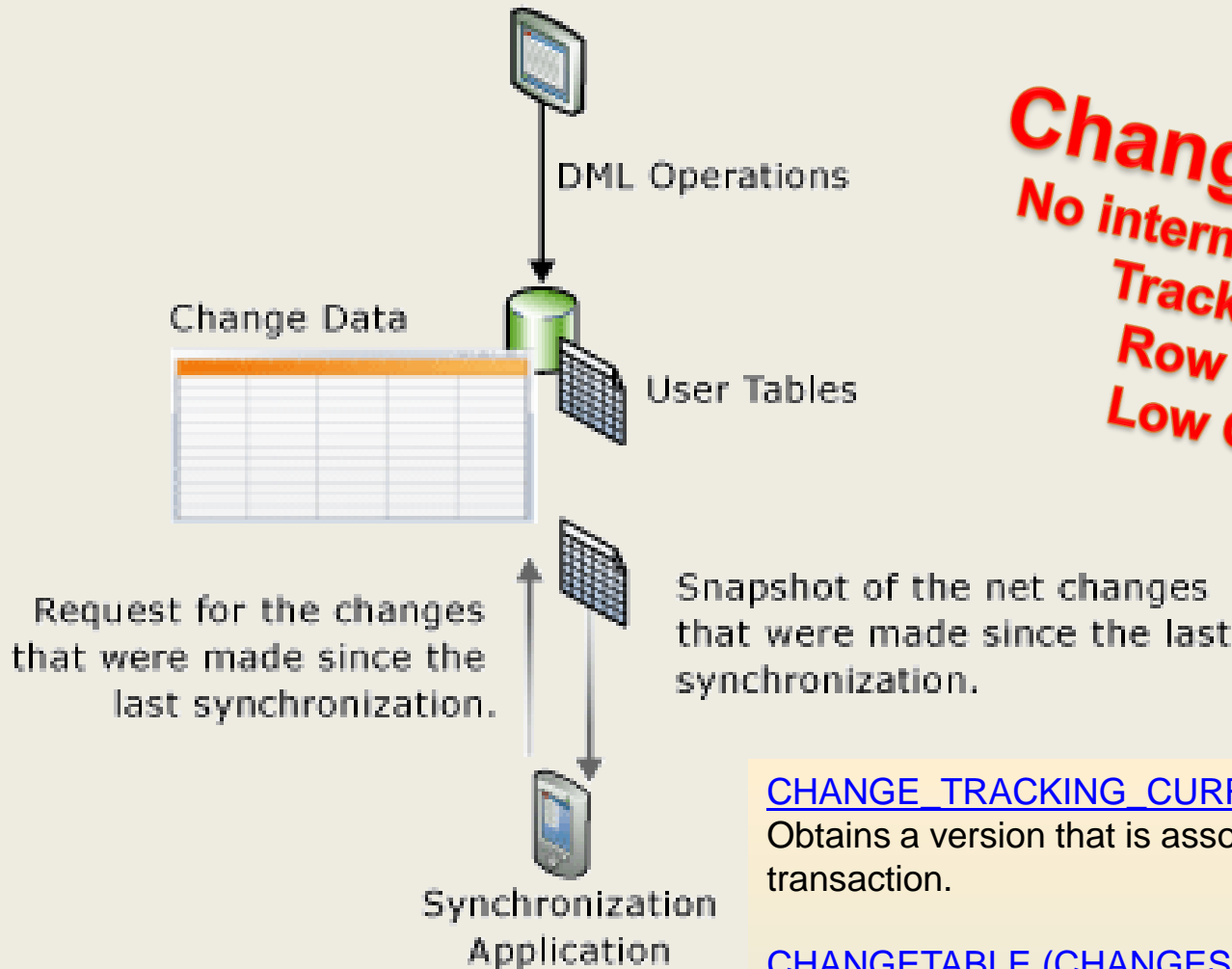
--Compact Edition

“Filtered” Subscribers

Conflict Detection and Resolution

More “metadata” overhead v. Tran

Customizable Merge



Change Tracking
No intermediate changes
Tracks only PKs
Row "version"
Low Overhead

[CHANGE_TRACKING_CURRENT_VERSION](#)

Obtains a version that is associated with the last committed transaction.

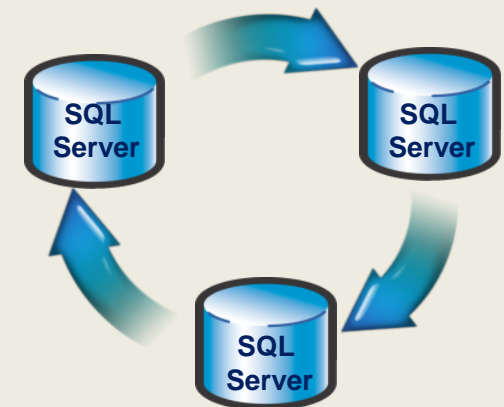
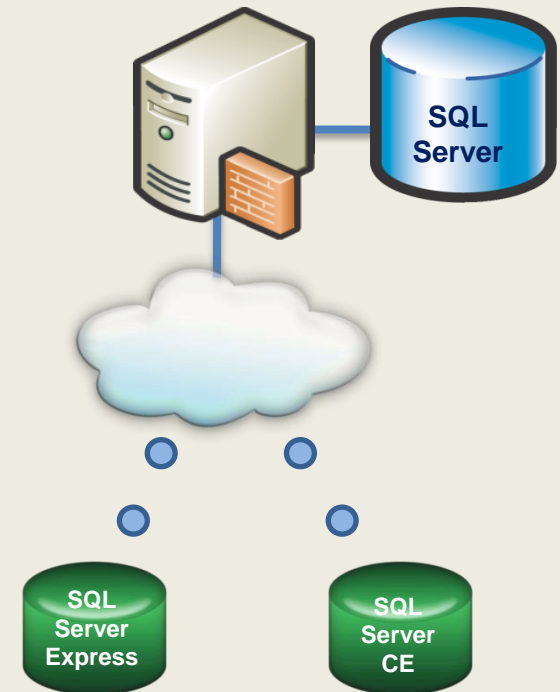
[CHANGETABLE \(CHANGES\)](#)

Returns tracking information for all changes to a table that have occurred since a specified version.

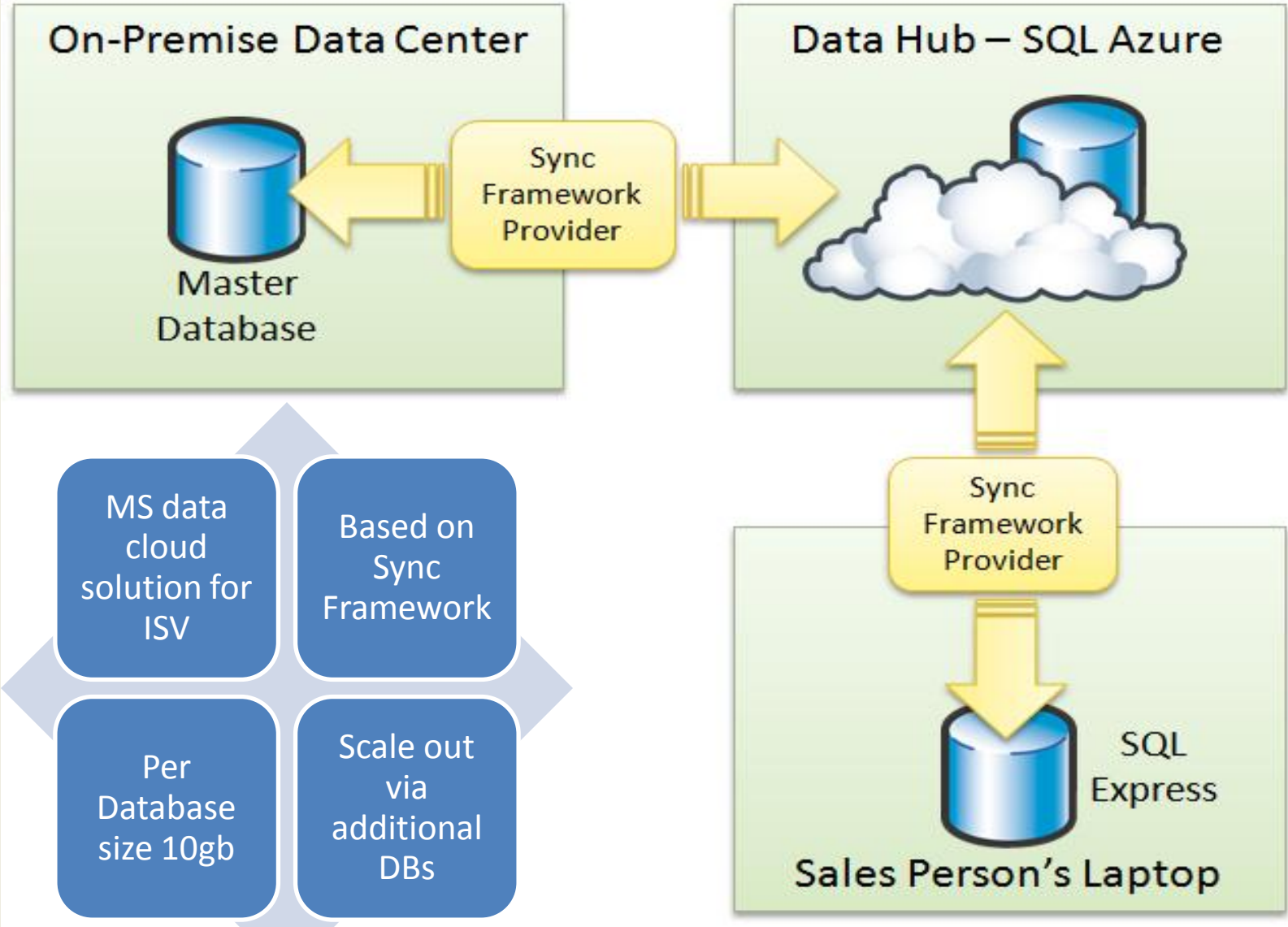
Customizable Change Tracking Solutions

Sync Services for ADO.NET

- Add synchronization capabilities to applications
 - Flexible and powerful managed API
 - Componentized model of merge replication
 - For developers familiar with ADO.NET
 - Open API
 - Tight integration with SQL Server
- **Offline Database Synchronization:**
 - Remote clients sync with central database
 - SQL Compact Clients only
 - **Data Collaboration**
 - Collaboration between SQL Server databases
 - Support is not available for SQL Server Compact



SQL Azure



MS Data Movement Technologies

Transactional

- Near real-time flow of transactions
- One-Way or Peer-2-Peer
- No Conflict Resolution

Change Tracking

- Identifies ROWS (PKs) that were changed

Change Data Capture

- Tracks history of data changes

Madison

- Distributed Data Warehouse

Merge

- Desktop or Mobile Device
- Can sync data through IIS
- Conflict Detection and Resolution

Sync Services

- Customizable Merge
- Client/Server and Peer Synchronizations

SQL Azure

- MS Hosted data storage
- Provides automatic data redundancy
- Sync data back to enterprise SQL Server

BING

*"The more they over think the plumbing,
the easier it is to stop up the drain."*

<http://blogs.msdn.com/ReplTalk>

<http://blogs.msdn.com/CHRISSEK>

