# Implementing Replication

- Overview of Replication

- Managing Publications and Subscriptions

- Configuring Replication in Some Common Scenarios

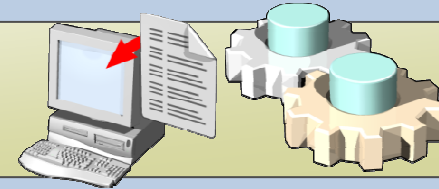# Lesson 1: Overview of Replication

- Distributing and Synchronizing Data

- What is Replication?

- Components of Replication

- Server Roles in Replication

- Types of Replication

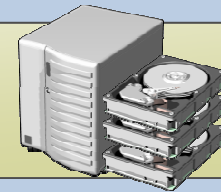- What are Replication Agents?

Distributing and Synchronizing Data

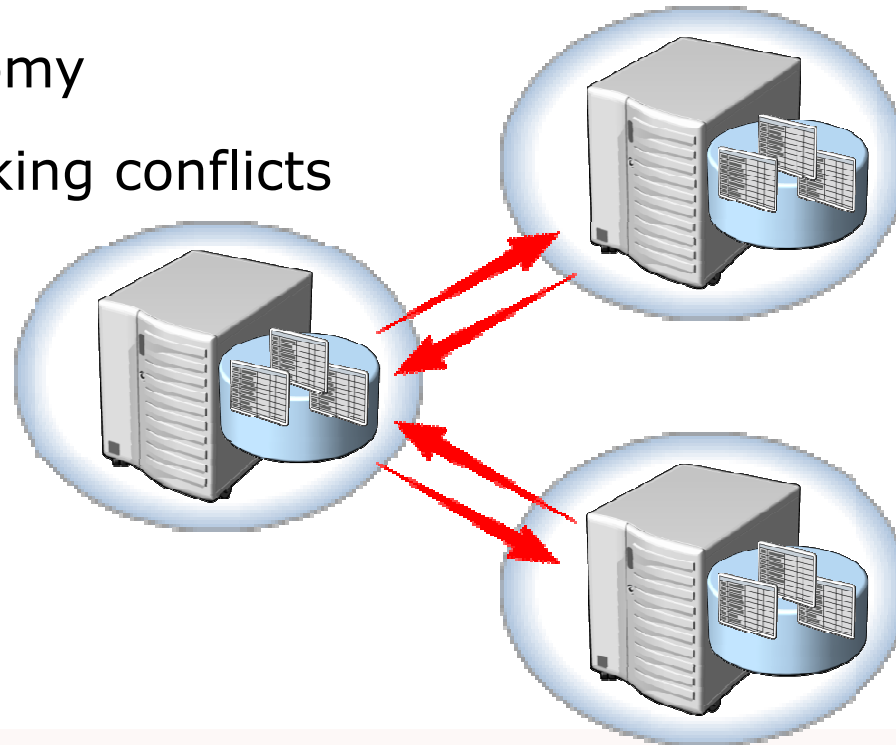- **Branch Office**
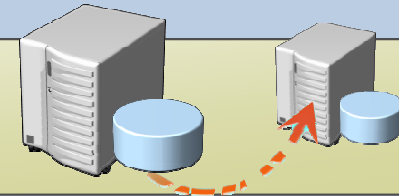
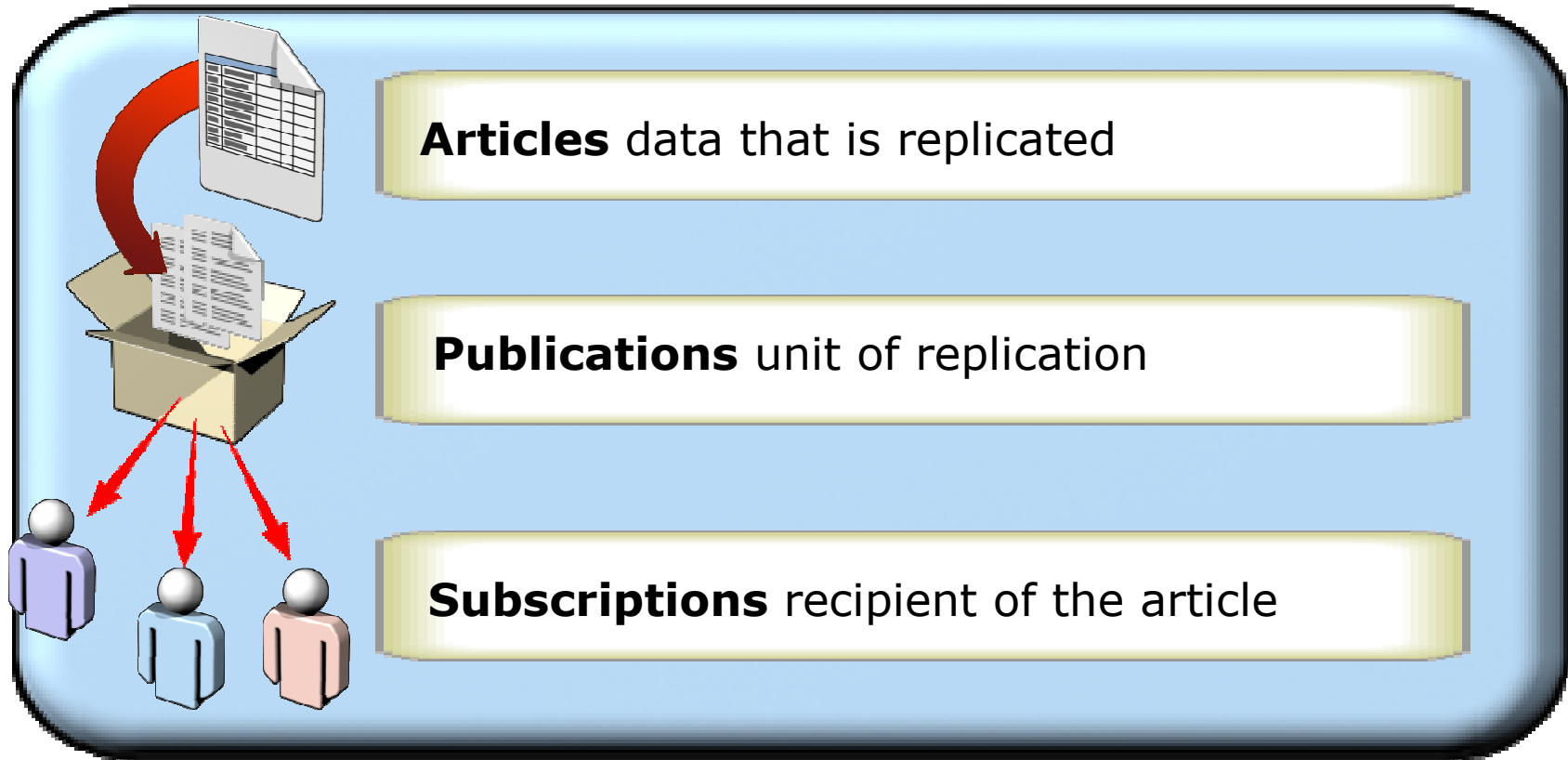- **Reporting and Warehousing**

- **Scalability**

What is Replication?

- Create and maintain multiple copies of data

- Bring data closer to users

- Site autonomy

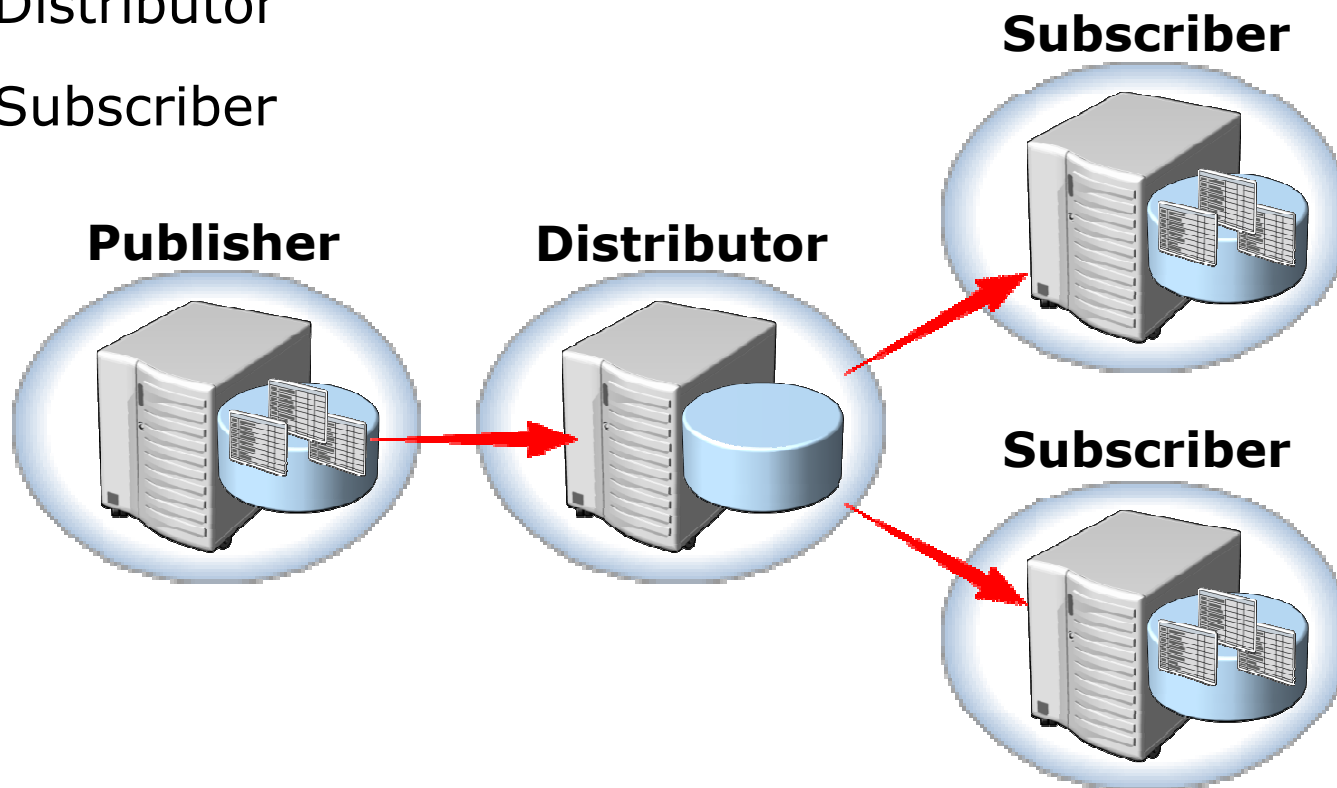- Reduce locking conflicts

Components of Replication

Articles data that is replicated

Publications unit of replication

Subscriptions recipient of the article

Server Roles in Replication

- Publisher

- Distributor

- Subscriber

Types of Replication

- **Snapshot replication**
  - Sends all of the data

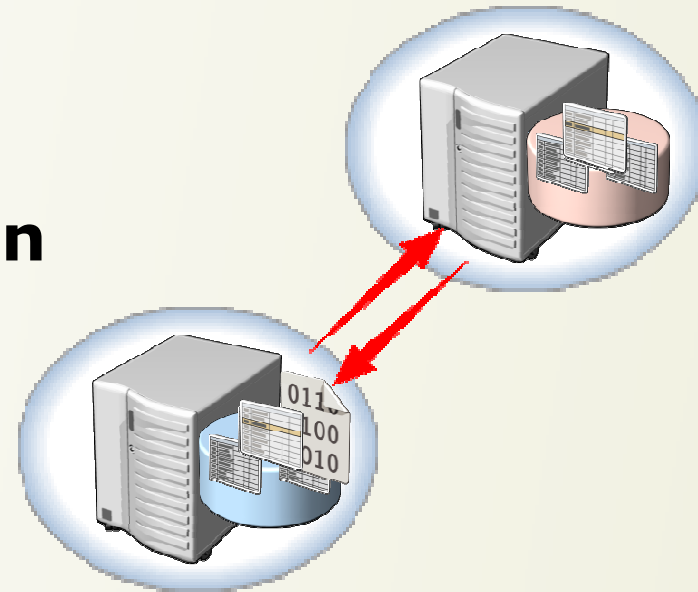- **Transactional replication**
  - Sends modifications of the data
  - Peer-to-Peer replication

- **Merge replication**
  - Modifications at both the publisher and subscribers
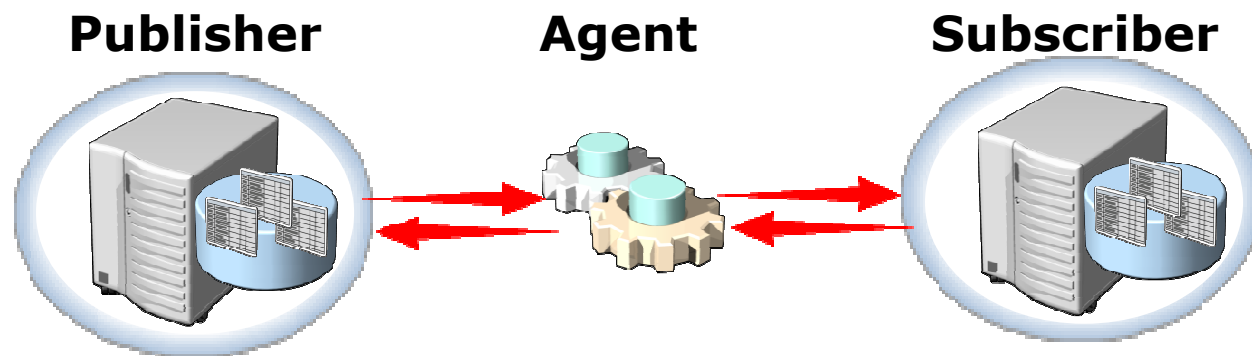 - Web Synchronization

- **Heterogeneous replication**
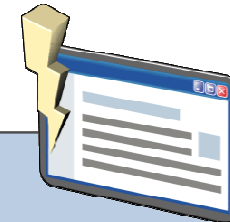 - Replicate with other database products

Replication Agents

- Types of replication agents

  - Snapshot Agent

  - Log Reader Agent

  - Queue Reader Agent

  - Distribution Agent

  - Merge Agent

Publisher   **Agent**   **Subscriber**

Create a Publication

- Using the New Publication wizard

Required information:

1 Distributor	**6** Articles
2 Snapshot folder	**7** Filters
3 Publication database	**8** Snapshot Agent
4 Publication type	**9** Security settings
5 Subscriber types	**10** Publication name

- Using the replication stored procedures

Create a Subscription

- Push and pull subscriptions
- Using the New Subscription wizard
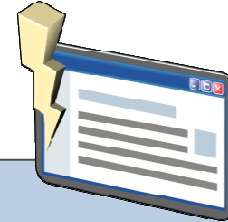
Required information:

1	**Publication**
2	**Agent location**
3	**Subscribers, databases**
4	**Security settings**

5	**Synchronization**
6	**Replicating changes**
7	**Initialization**
8	**Subscription type**

- Using the replication stored procedures

Managing and Monitoring Replication

- Monitoring replication by using Replication Monitor

- Validating and reinitializing subscriptions

- Managing replication agents
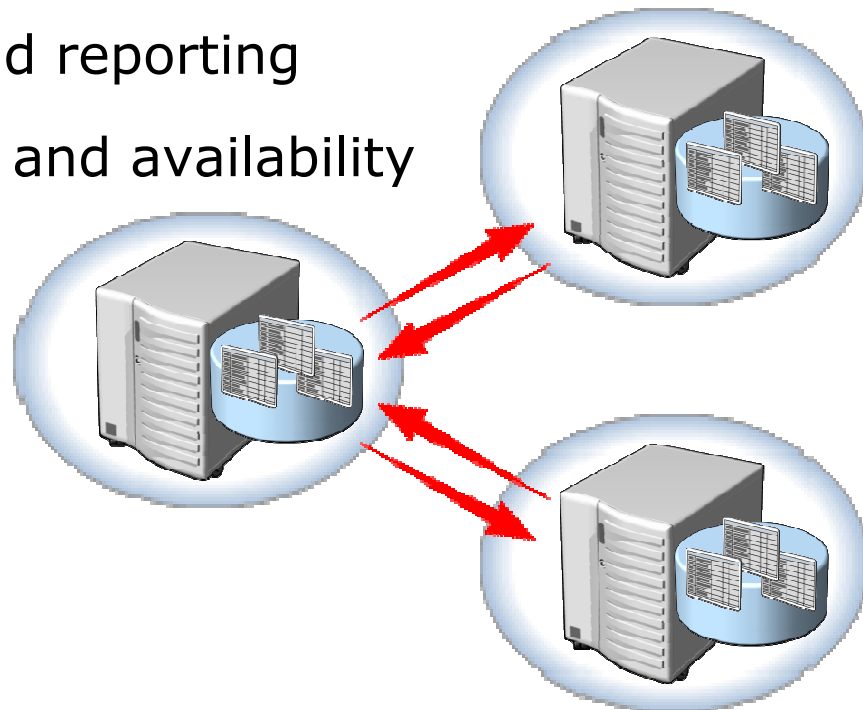
- Resolving replication conflicts
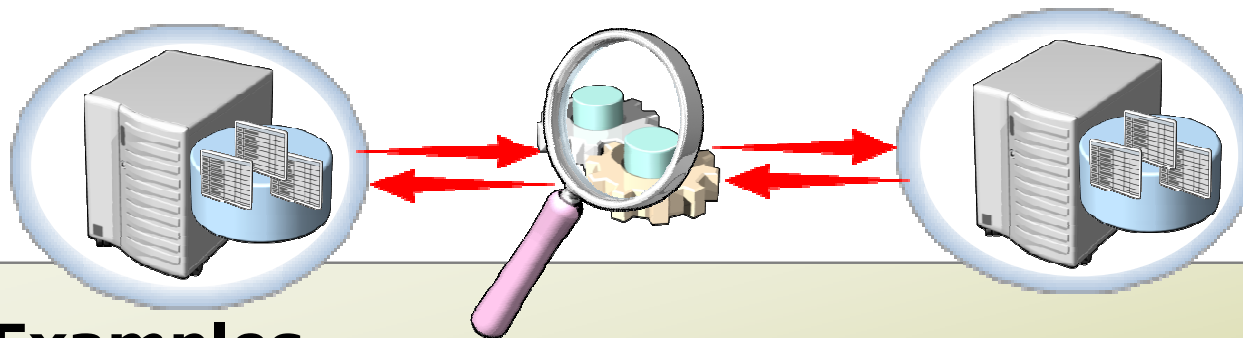
Examples

- Notify if synchronization time is exceeded

- View Agent status

Server-to-Server Replication Scenarios

- Integrating data from multiple sites

- Integrating heterogeneous data

- Offloading batch processing

- Data warehousing and reporting

- Improving scalability and availability

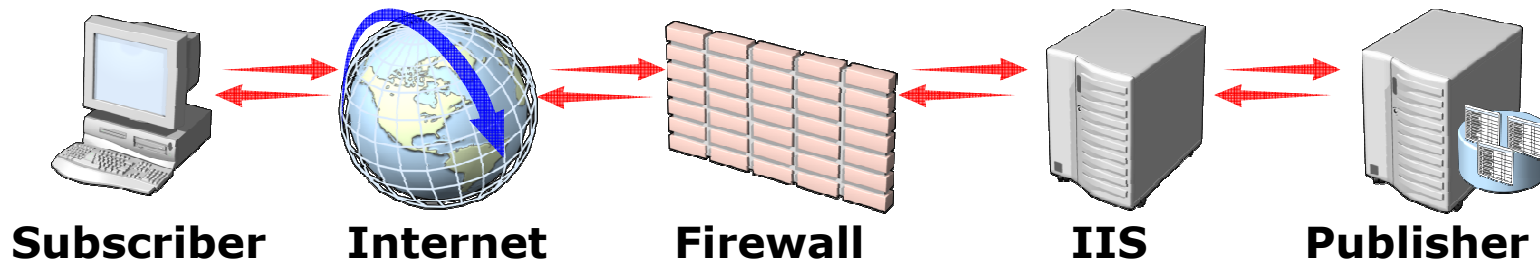# Server-to-Client Replication Scenarios

- Exchanging data with mobile users

- Consumer point of sale (POS) applications

- Integrating data from multiple sites
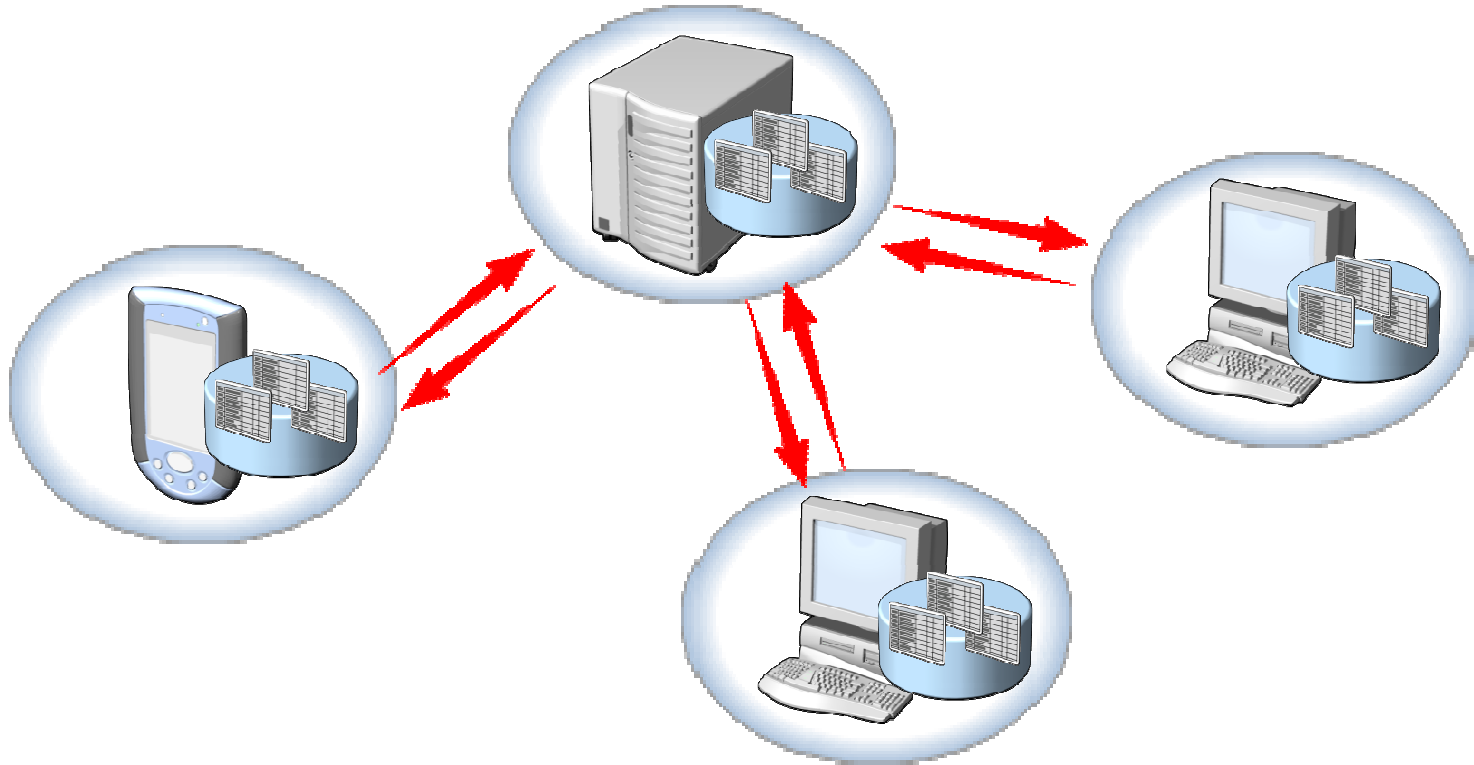
HTTP Merge Replication

XML over HTTP/HTTPS	Binary over TCP/IP

Subscriber   Internet   Firewall   IIS   Publisher

Configuring HTTP Merge Replication

- **Create a Merge publication**
- **Install and configure IIS**
- **Configure Web synchronization**
- **Test the WebSync ISAPI extension**

Subscribing to an HTTP Merge Publication

- **Import client certificate for Merge Agent**
- **Use Web synchronization**
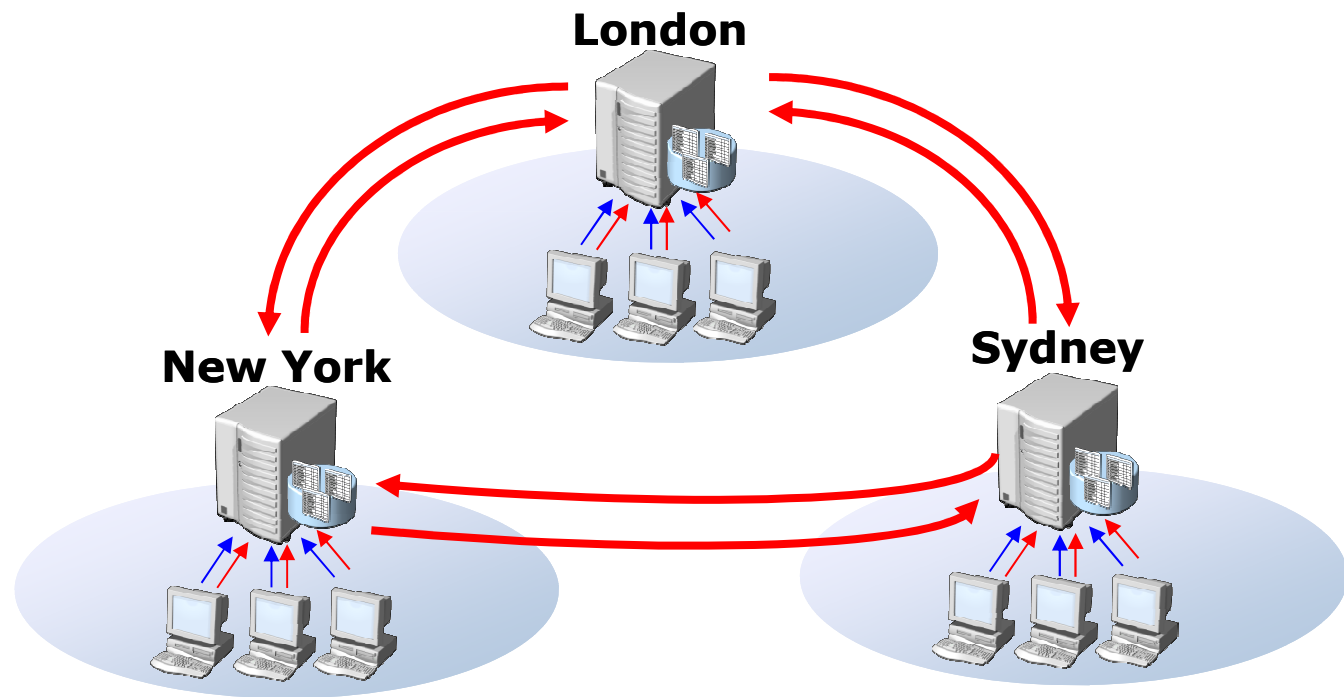- **Connect to the Web synchronization URL**

Oracle Publishing

- How Oracle Publishing works

- Considerations for using Oracle Publishing

- Configuring Oracle Publishing

- Subscribing to an Oracle publication

Subscriber

SQL Server Distributor

Oracle Publisher

Subscriber
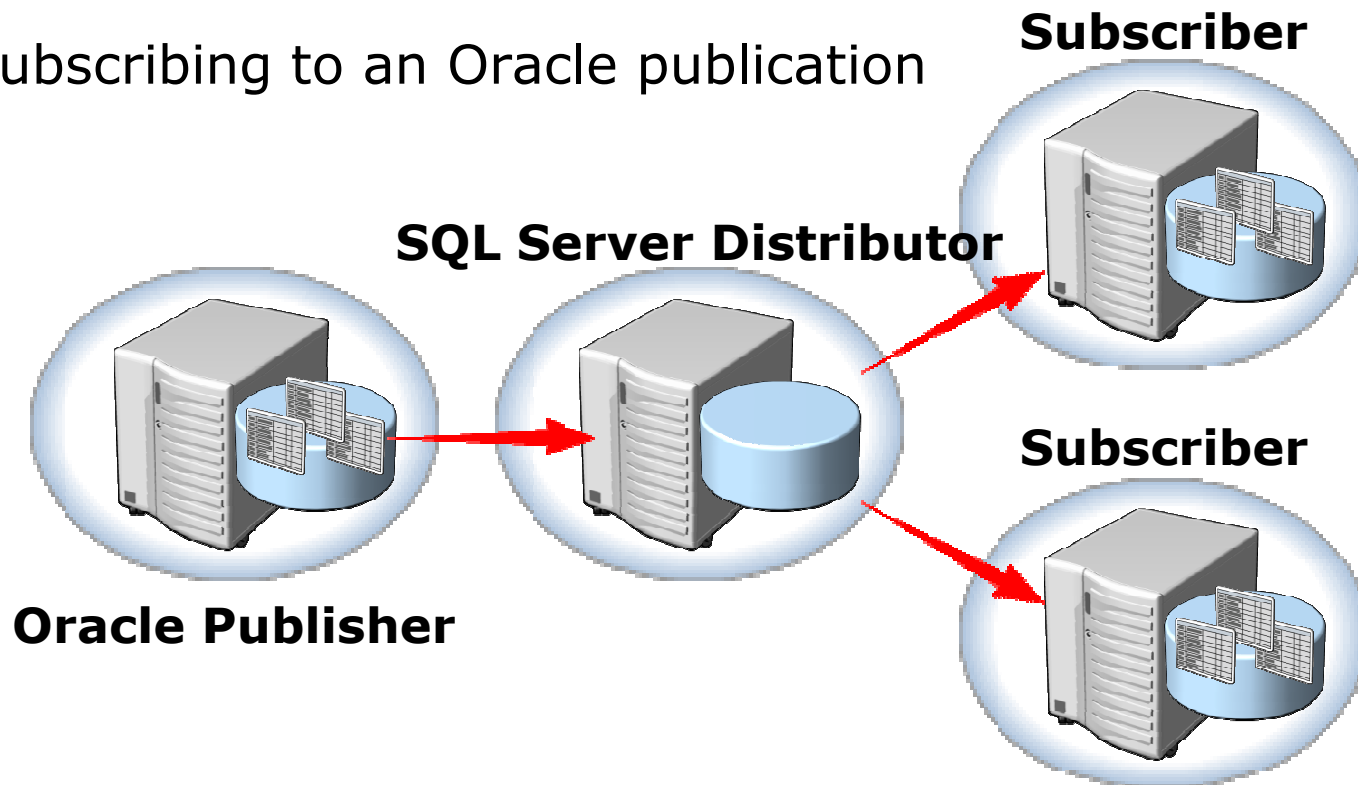
Peer-to-Peer Replication

- Multiple database replicas
- Each server has a read/write replica

Lab Scenario

You are a database administrator in the IT department of the Adventure Works Bicycle manufacturing company. One table holds contact names for all contacts, including staff and customers. This information is required by many applications, which causes locking conflicts if the production system has to update records. Initially, you will create a replica copy of the first 50 records in a separate instance of SQL Server. If this resolves the locking problems, a full replica will be created later.

Module Review and Takeaways

- Review Questions

- Common Issues and Troubleshooting Tips

- Best Practices