


Let Service Broker Help You Scale Your Application

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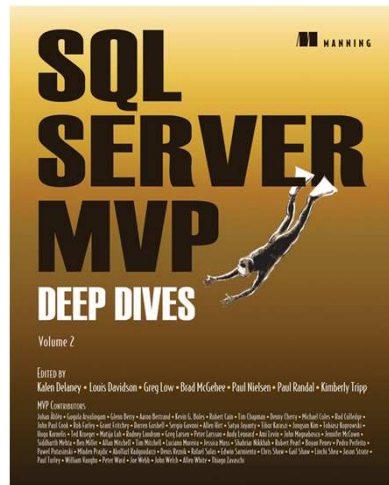
About Me

- Practice Manager with UpSearch Tech Services
- Over 35 years in IT
- Career covered multiple disciplines – operations, development, telecommunications, network design/administration and database design and administration
- Started using Sybase in 1992, MS SQL Server in 1995
- Microsoft Certified IT Professional: Database Administrator and Database Developer, Microsoft Certified Trainer (MCT)
- Awarded Microsoft MVP Award for SQL Server for last 5 years



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Agenda

The Problem
 What is Service Broker
 Use Case
 Components
 Demos

The Problem

Scalability

Need to data from point A to point B

Need to reduce resource contention



What Is Service Broker

Asynchronous Messaging System

Uses Queues for Sending & Receiving

Messages Delivered In Order

- If links down, messages wait
- Delivered as soon as links reestablished

Can be Encrypted for Secure Transfer



Use Cases

Credit Card Batch Transfer

Data Modification Changes

- Triggers for ETL Process

Customer Web Site Synchronization

- Smaller Web Site Databases

Data Sharding

Components

Message Types

Contracts

Queues

Services

Conversations

Endpoints

Routes



Message Types

Send Messages

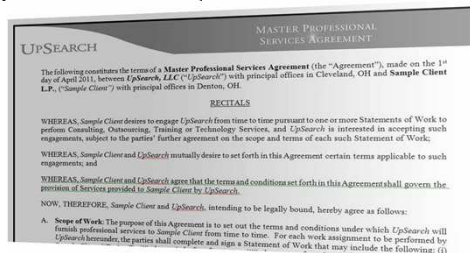
- Between Databases on a Single Server
- Between SQL Server Instances on a Windows Server
- Between Different Physical Servers



```
CREATE MESSAGE TYPE
[ //AWSync/Sync/HumanResourcesEmployee ]
AUTHORIZATION dbo
VALIDATION = WELL_FORMED_XML
GO
```

Contracts

Contracts define what message types are allowed to be sent, and in which direction



```
CREATE CONTRACT [ //AWSync/Sync/IntContract ]
AUTHORIZATION dbo
( [ //AWSync/Sync/HumanResourcesEmployee ] SENT BY ANY,
[ //AWSync/Sync/PersonContact ] SENT BY ANY,
[ //AWSync/Sync/PurchasingVendor ] SENT BY ANY )
GO
```

Queues

A queue is a place to store messages until they can be delivered.

Can also auto-activate a message handling process



```
CREATE QUEUE IntQueue
WITH STATUS = ON,
RETENTION = OFF
GO
```

```
AUTHORIZATION IntUser
ON QUEUE IntQueue
([//AWSync/IntContract])
GO
```

Services

Send the Messages on the Queue to their Destination

Receive the Messages Coming from Other Senders



```
CREATE SERVICE [//IntSite/IntService]
AUTHORIZATION IntUser
ON QUEUE IntQueue
([//AWSync/IntContract])
GO
```

Conversations

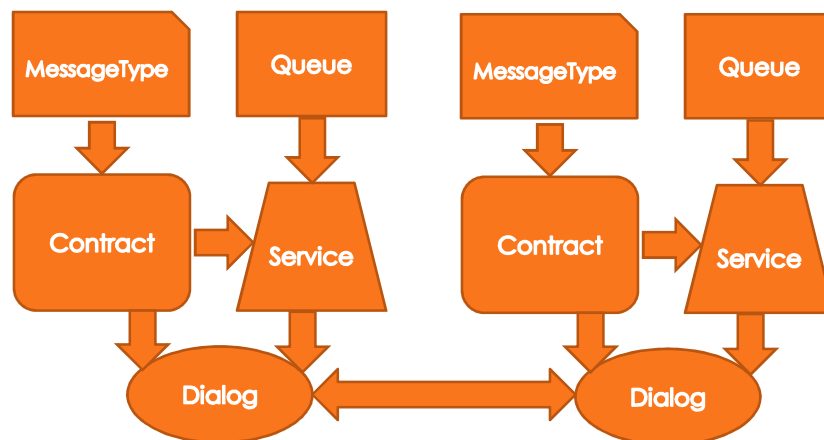
A channel on which to send a message



```
BEGIN DIALOG @InitDlgHandle
  FROM SERVICE [//IntSite/Sync/IntService]
  TO SERVICE N'//ExtSite/Sync/IntService'
  ON CONTRACT [//AWSync/Sync/IntContract]
  WITH
    ENCRYPTION = ON;

SEND ON CONVERSATION @InitDlgHandle
  MESSAGE TYPE [//AWSync/Sync/HumanResourcesEmployee]
  (@ChangeMsg);
```

Let's Put it Together



Demo

Endpoints

Endpoints define which port TCP/IP can use to communicate for this feature



```
CREATE ENDPOINT IntEndpoint  
STATE = STARTED  
AS TCP ( LISTENER_PORT = 4022 )  
FOR SERVICE_BROKER (AUTHENTICATION = WINDOWS );  
GO
```


Routes

Get from One Place
to Another

Need to Define Routes
to Each Destination

Also Define Local
Route in msdb

```
USE AdventureWorks
GO
CREATE ROUTE DMZRoute AUTHORIZATION dbo
WITH SERVICE_NAME = N'//DMZSite/Sync/IntService',
    ADDRESS = N'TCP://SQLTBWS:4023'
GO
USE msdb;
GO
CREATE ROUTE IntrRoute AUTHORIZATION dbo
WITH SERVICE_NAME = N'//IntSite/Sync/IntService',
    ADDRESS = N'LOCAL'
GO
```



Remote Service Binding

Binds a remote Service
Broker service to Local
one

Defines the Security
Credentials to be used
in the Conversations



```
CREATE REMOTE SERVICE BINDING [DMZBinding]
    AUTHORIZATION dbo
    TO SERVICE N'//DMZSite/Sync/IntService'
    WITH USER = [DMZUser]
GO
```



Demo



References

Pro SQL Server 2008 Service Broker

- Klaus Aschenbrenner
- <http://www.amazon.com/Pro-Server-2008-Service-Broker/dp/1590599993>

Remus Rusanu

- <http://rusanu.com/>

Using Service Broker instead of Replication

- <http://itknowledgeexchange.techtarget.com/sql-server/using-service-broker-instead-of-replication/>



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