

MQ SERIES FOR VSE

User Experience

Why MQ Series At WRG

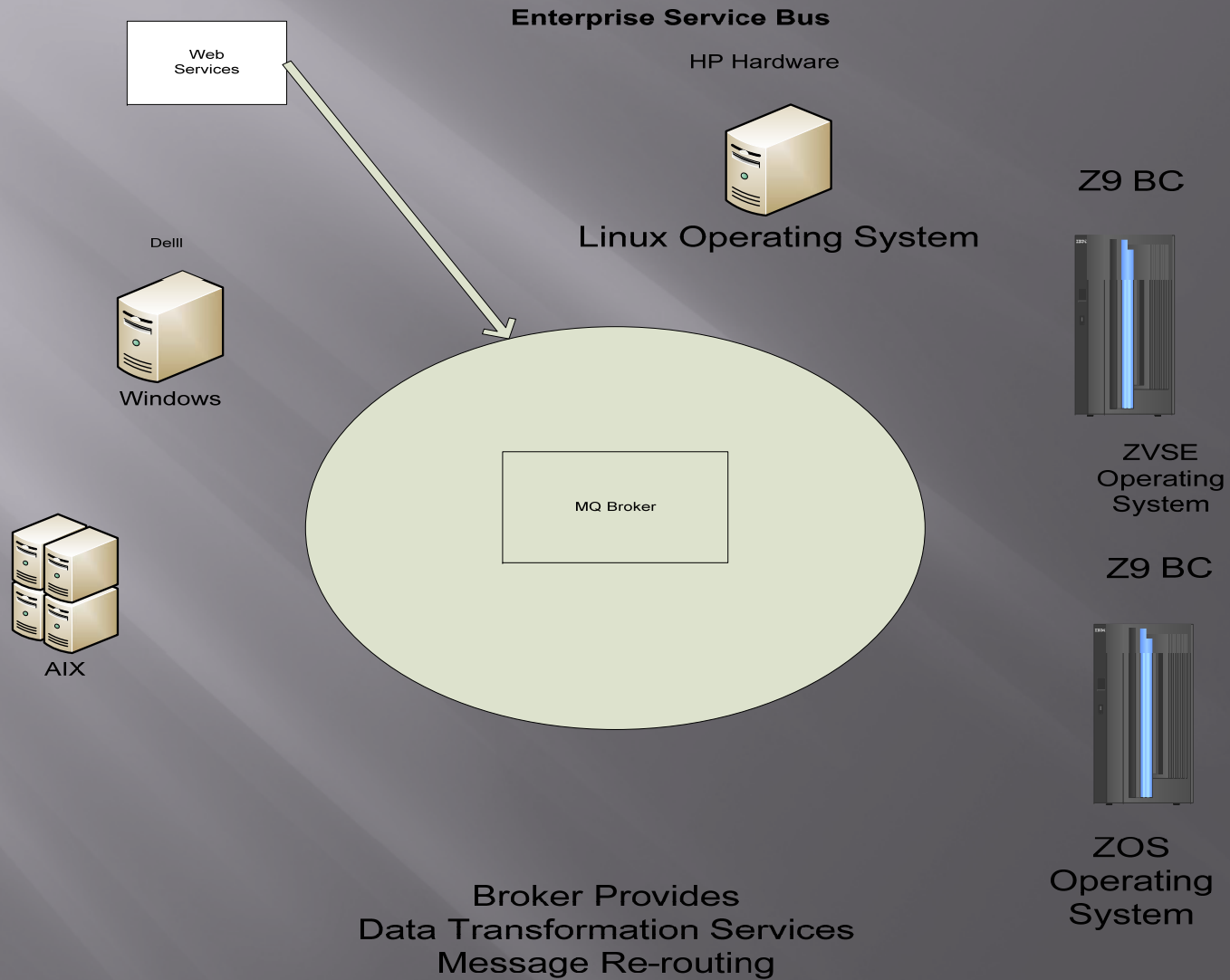
- ▣ New CIO
- ▣ New Commercial Application that required messaging
- ▣ All of our data resides on the mainframe
- ▣ Overall new strategic direction

MQ Series – Presentation Contents

- ▣ High Level overview – Enterprise Service Bus
- ▣ MQ Series Capabilities and Reliability and High Availability
- ▣ MQ Series in the ZVSE World
- ▣ MQ at Western Reserve Group
 - Our initial Approach
 - Training
 - MQ Playground
 - Lets get real – Engaged IBM Services
 - Built Several High available Clustered Environments
 - Zvse Configuration settings to watch for
 - Production experiences

MQ Series

High Level View
MQ Series is only one important component of the
Enterprise Service Bus



MQ Series in the ZVSE World

- ❑ Must have a CICS region active at all times to support MQ – even for batch MQ applications. This is unique to ZVSE
- ❑ MQ on ZVSE does not support Clustering – which causes challenges for message flow design and high availability
- ❑ Version 3 of MQ Series for VSE supports remote management using MQ Explorer
- ❑ MQ for VSE is very stable and reliable
- ❑ The documentation for MQ Series for ZVSE is very good
- ❑ There is little to no training specific to MQ Series on VSE
- ❑ Excellent support for MQ Series for ZVSE (once you reach the right support group)

- IBM WebSphere MQ
 - Queue Managers
 - ESBBKP0
 - Queues
 - Advanced
 - Channels
 - Client Connections
 - Listeners
 - Services
 - Process Definitions
 - Namelist
 - Authentication Information
 - ESBBKP0 on 'pesbbkp0(2415)'
 - Queues
 - Advanced
 - Channels
 - Client Connections
 - Listeners
 - Services
 - Process Definitions
 - Namelist
 - Authentication Information
 - ESBBKP1
 - ESBBKP1 on 'pesbbkp1(2416)'
 - Queues
 - Advanced
 - Channels**
 - Client Connections
 - Listeners
 - Services
 - Process Definitions
 - Namelist
 - Authentication Information
 - ESBCMP0
 - Queues
 - Advanced
 - Channels
 - Client Connections
 - Listeners
 - Services
 - Process Definitions

Channels

Filter: Standard for Channels

Channel name	Channel type	Overall channel status	Conn name
APPWATCH.SVRCONN	Server-connection	Inactive	
ESBBKP1.CHL	Server-connection	Inactive	
ESBBKP1.TO.ESBCMP0	Sender	Running	pesbcmp0(2
ESBBKP1.TO.ZVSEPROD	Sender	Running	172.21.1.1!
ESBCMP0.TO.ESBBKP1	Receiver	Running	
TO.ESBBKP0	Cluster-sender	Running	pesbbkp0(2
TO.ESBBKP1	Cluster-receiver	Running	pesbbkp1(2
ZVSEPROD.TO.ESBBKP1	Receiver	Inactive	

MQ Series Recommendations

- ▣ If you are new to MQ attend the IBM Training Classes
 - MQ Administration
 - Broker Administration

Set up an MQ Playground - Development licenses are free - You can set up a robust environment on your desktop or laptop (especially if you are running VM)

ESB Naming conventions are critical - spend a great deal of time coming up with good naming conventions for MQ and Broker artifacts. There is a lot of good information on IBM 's site and the internet on naming conventions

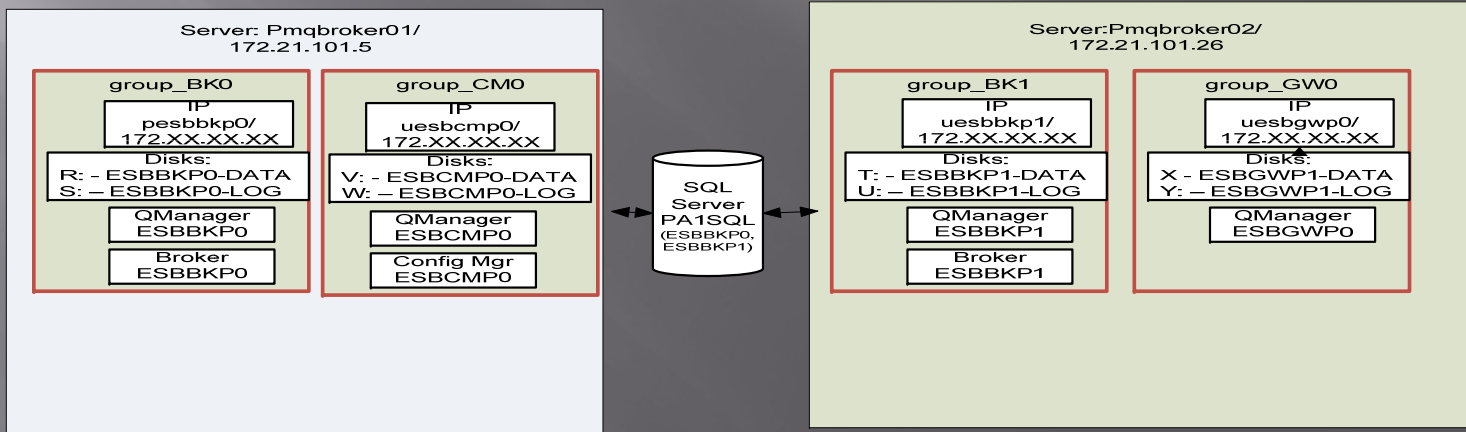
When finalizing an environment, use scripting - do not use MQ Explorer to define or maintain your environment.

Look into purchasing monitor software eg. Q PASA. Unfortunately we could not find any for the ZVSE environment

When creating your final design especially if you are considering a high availability environment, consider licensing costs - MQ Brokers are very expensive

MQ Series High Availability Design

Microsoft Cluster
Service
Perspective



MQ Series - Scripting

- ▣ @echo off
- ▣ set BK0_QM_NAME=ESBBKT0
- ▣ set BK1_QM_NAME=ESBBKT1
- ▣ set GW0_QM_NAME=ESBGWT0
- ▣ set CM0_QM_NAME=ESBCMT0
- ▣ set BK0_HOST_NAME=tesbbkt0
- ▣ set BK1_HOST_NAME=tesbbkt1
- ▣ set GW0_HOST_NAME=tesbgwt0
- ▣ set CM0_HOST_NAME=tesbcmt0
- ▣ set BK0_LISTEN_PORT=2415
- ▣ set BK1_LISTEN_PORT=2416
- ▣ set GW0_LISTEN_PORT=2417
- ▣ set CM0_LISTEN_PORT=2414
- ▣ set VSE_LISTEN_PORT=1515
- ▣ set VSE_QM_NAME=ZVSE.TEST.QM
- ▣ set VSE_SHORT_QM_NAME=ZVSETEST
- ▣ set VSE_HOST_NAME=172.21.25.205
- ▣ set VSE_MSGSIZE_SIZE=20000
- ▣ set LARGE_MSGSIZE_SIZE=16777216

- ▣ set CLUSTER_NAME='ESB_CLUSTER'

MQ Series – Production Experiences

- ▣ This will cover both ZVSE and Open Systems
- ▣ Difficult for Broker Programmers to debug VSE issues due to lack of green screen experience. This will be helped by V3 of MQ. They will be able to use the MQ Explorer to view ZVSE MQ information
- ▣ Very few outages... mostly due to poor planning on our side
 - Vsam allocation for Queue files
 - Channel Disconnect Intervals
 - In short – review all settings carefully – do not accept defaults on ZVSE parameters
 - It is easier to accept the defaults on the Windows side (except log file allocations)
 - Work closely with development staff during application and message flow design

MQ Series – Production Experiences

- ❑ Be careful using message grouping on ZVSE – can cause a lot of overhead
- ❑ Recovery in an MQ environment can be very complex, both from a D/R and application failure perspective
Make sure that a great deal of effort and thought is put into your recovery processes
- ❑ There are some very good reference manuals that cover both backup and recovery
- ❑ During application design it is very important to differentiate between the need for persistent vs. non persistent messages

MQ Series – CICS Bridge Facility

The MQ Series CICS Bridge facility allows you to use existing CICS programs to send and receive messages without changing the application code. The messages are passed via the commarea of the program. It is easy to implement and can get some applications using MQ up and running very fast and easily.

The Bridge facility maintains the messages (puts / gets) for you automatically. We have used this facility with great success.

MQ Series – Configuration Global Settings

```
WRGTEST-A - [24 x 80]
File Edit View Communication Actions Window Help
PrintScreen Copy Paste Send Recv Display Color Map Record Stop Play Quit Clipboard Support Index

03/17/2010          IBM MQSeries for VSE/ESA Version 2.1.2          STAGWRG
10:54:19           Global System Definition          STAG
MQWMSYS            Queue Manager Information          DP12
Queue Manager . . . : ZVSE.STAG.QM
Description Line 1. : _____
Description Line 2. : _____

Queue System Values
Maximum Connection Handles.: 00000100   System Wait Interval : 00000030
Maximum Concurrent Queues .: 00000100   Max. Recovery Tasks  : 0000
Allow TDQ Write on Errors  : Y CSMT     Allow Internal Dump  : Y

Queue Maximum Values
Maximum Q Depth . . . . .: 00100000   Maximum Global Locks.: 00001000
Maximum Message Size. . . : 00020000   Maximum Local Locks .: 00001000
Maximum Single Q Access . .: 00000100

Global QUEUE /File Names
Local Code Page . . . : 01047
Configuration File. . : MQFCNFG
LOG Queue Name. . . . : SYSTEM.LOG
Dead Letter Name. . . : SYSTEM.DEAD.LETTER.QUEUE
Monitor Queue Name. . : SYSTEM.MONITOR

Requested record displayed.
PF2=Return PF3=Quit PF4/Enter=Read PF6=Upd PF9=Comms PF10=Log PF11=Event

MA c 04/031
Connected to remote server/host 172.21.25.202 using port 18455 hp deskjet 6122 series on USB002
start Bob Johnston - Inbox... CICS Web Interface ... Session A - [24 x 80] WRGTEST-A - [24 x 80] WRGTEST-A - [24 x 80] 2010 Wavv Presenta... Microsoft PowerPoint ... 100% 10:56 AM
```

MQ Series Configuration Queue Definitions

```
WRGTEST-A - [24 x 80]
File Edit View Communication Actions Window Help
PrtScr Copy Paste Send Recv Display Color Map Record Stop Play Quit Clipbrd Support Index

03/17/2010          IBM MQSeries for VSE/ESA Version 2.1.2          STAGWRG
11:01:51           Queue Extended Definition                    STAG
MQWMQUE                                                    DP12

Object Name:  ESBBKU0

General          Maximums          Events
Type . . . : Local      Max. Q depth . . : 00100000  Service int. event: N
File name . . : MQF0004  Max. msg length: 00020000  Service interval . : 00000000
Usage . . . : I         Max. Q users . . : 00000100  Max. depth event . : N
Shareable . . : Y       Max. gbl locks : 00001000  High depth event . : N
Dist.Lists . . : Y      Max. lcl locks : 00001000  High depth limit . : 000
                                           Low depth event . . : N
                                           Low depth limit . . : 000

Triggering
Enabled . . . : Y       Transaction id.: _____
Type . . . . : E       Program id . . : MQPSEND_
Max. starts: 0001     Terminal id . . : _____
Restart . . . : Y      Channel name . . : ZVSESTAG.TO.ESBBKU0
User data . . : _____
                  _____

Requested record displayed.
PF2=Return  PF3=Quit  PF4/Enter=Read  PF5=Add  PF6=Update
PF9=List   PF10=Queue

MÁ c                               09/015
3 Connected to remote server/host 172.21.25.202 using port 18455  hp deskjet 6122 series on USB002
start  Bob Johnston - Inbox...  CICS Web Interface ...  Session A - [24 x 80]  WRGTEST-A - [24 x 80]  WRGTEST-A - [24 x 80]  2010 Wavy Presenta...  Microsoft PowerPoint ...  100%  11:02 AM
```

MQ Series Channel Definitions

```
WRGTEST-A - [24 x 80]
File Edit View Communication Actions Window Help
PrtScr Copy Paste Send Recv Display Color Map Record Stop Play Quit Clipbrd Support Index

03/17/2010          IBM MQSeries for VSE/ESA Version 2.1.2          STAGWRG
11:13:37           Channel Record              DISPLAY          STAG
MQWMCHN
Channel : ZVSESTAG.TO.ESBBKU0
Desc. . : _____
Protocol: I (L/T)   Type : S (Sender/Receiver/svrConn) Enabled : Y

Sender
Remote TCP/IP port . . . . : 02415      LU62 Allocation retry num : 00000000
Get retry number . . . . . : 00000003   LU62 delay fast (secs) . . : 00000000
Get retry delay (secs) . . . : 00000010   LU62 delay slow (secs) . . : 00000000
Convert msgs (Y/N) . . . . . : N
Transmission queue name. . . : ESBBKU0
TP name. . . : _____

Sender/Receiver
Connection : UESBBKU0
Max Messages per Batch . . . : 000050   Message Sequence Wrap . . . : 999999999
Max Message Size . . . . . : 0020000   Dead letter store (Y/N) . . : Y
Max Transmission Size . . . . : 032766   Split Msg (Y/N) . . . . . : N
Max TCP/IP Wait . . . . . : 000000

Channel record displayed.
F2=Return PF3=Quit PF4=Read PF5=Add PF6=Upd PF9=List PF10=SSL PF11=Ext PF12=Del

M& c 04/013
39 Connected to remote server/host 172.21.25.202 using port 18455 hp deskjet 6122 series on USB002
start Bob Johnston - Inbox... CICS Web Interface ... Session A - [24 x 80] WRGTEST-A - [24 x 80] WRGTEST-A - [24 x 80] 2010 Wavy Presenta... Microsoft PowerPoint ... 100% 11:15 AM
```

MQ Series - Summary

As stated MQ series is very reliable and stable if properly implemented

It should be implemented as part of a overall strategy for future application design

If you are new to MQ – get outside help. IBM has a lot of resources – some expensive and some free that can assist

Do not look at MQ as a quick fix for a single application requirement