The top ten issues in WebSphere MQ and WebSphere MB

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Who Am I?

- **Barry Lamkin**

- **Army Helicopter Pilot 1967 – 1971**

- **Air Traffic Controller 1973 - 1981**

- **MVS (aka z/OS) Systems Programmer 1981 – 1994**

- **Candle Systems Engineer 1994 – 2004**

- **IBM Executive IT Specialist 2004 – whenever**

WebSphere MQ (MQSeries) - Features

- ✓ Assured, exactly once delivery
- ✓ Single API across 45+ platforms
- ✓ Network integration across various
       network protocols
- ✓ Transactional control
- ✓ Triggering of jobs/programs
- ✓ Content independence
- ✓ Single message > 100MB
- ✓ Asynchronous design (application
       & platform independent)
- ✓ Parallel processing
- ✓ Robust, commercial middleware
- ✓ Shields developers from
       network complexities

# Monitoring Points used to track transaction flow
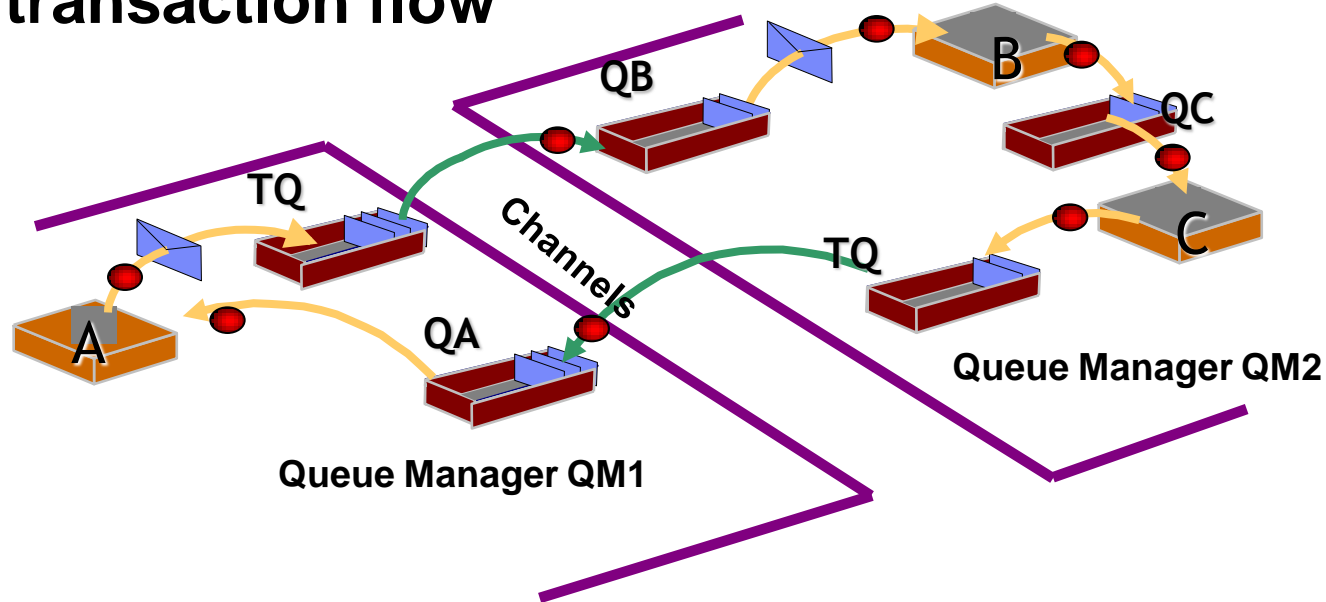
- Application A, B and C are components of a business transaction
- There are many objects that make up the underlying transactions
- There are as many as 8 monitoring points for objects associated to this transaction
- You should Monitor all the objects as it relates to the transaction (queues, channels)
- You should Monitor the flow of messages belonging to specific message queues (get/put rate)
- You need the ability to detect slowdown or stoppage in flow in specific queues (put rate exceeds get rate, channel down)
- You will need to identify problems and automatically react to them.

Top Ten Issues in WMQ & WMB (or more)

▶MQ Channel Down

▶Queue Full

▶Messages in the Dead Letter Queue

▶Messages in a queue and no open processes

▶Isolating MQ problems between IBM z/OS® and distributed systems

▶Changes in the MQ configuration

▶Restoring last valid MQ configuration

▶Determining if slow performance is due to network, MQ or Message Broker

▶Problems connecting to broker's queue manager

▶No messages flowing in the broker

▶Execution Groups or Message Flows not started

MQ Channels
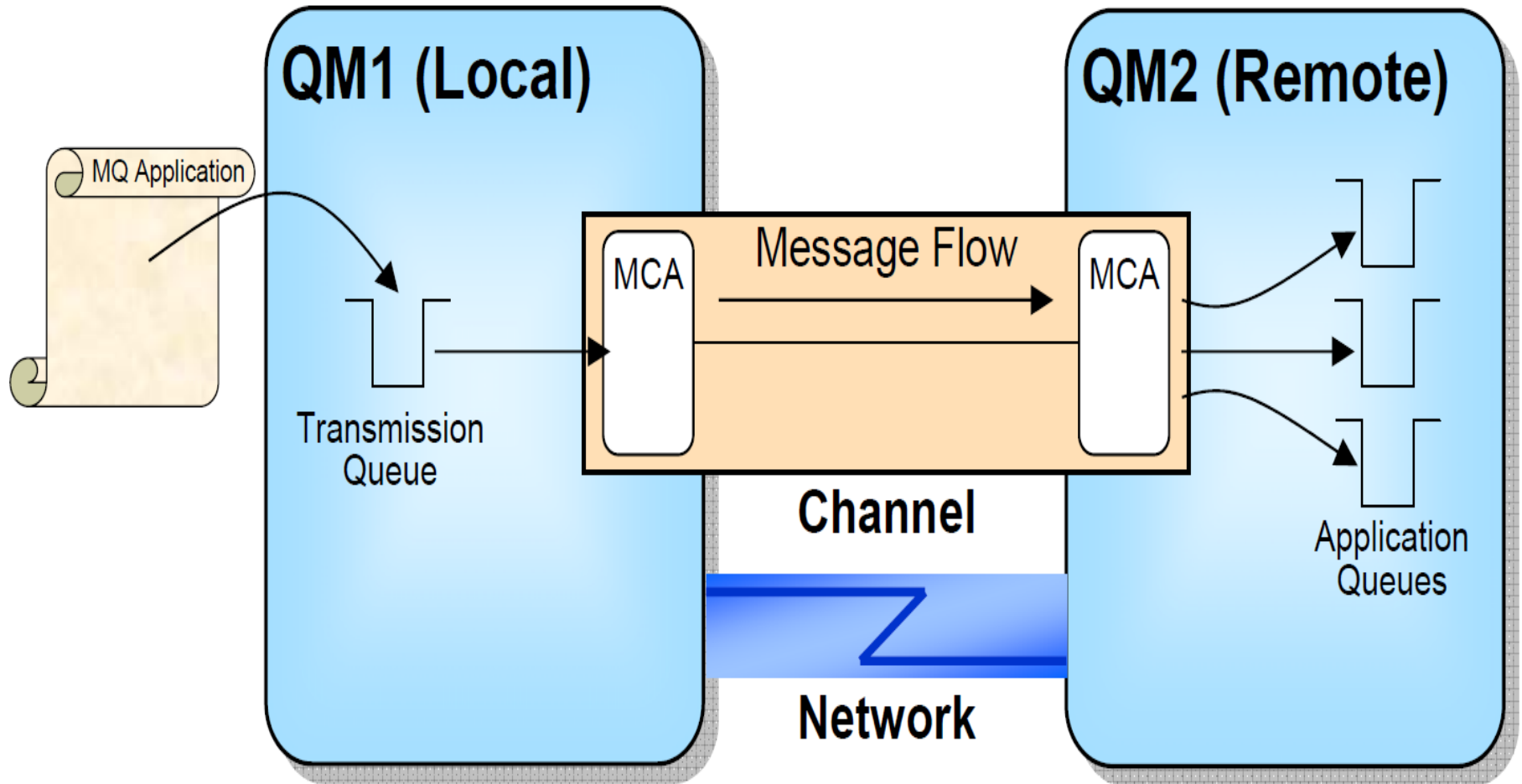
Issues with Channels

- **Which channels are running or stopped?**

- **If my channel is up, is it transmitting messages?**

- **Are my channels optimally configured?**

- **If channel performance is poor, how does that impact my clients?**

MQ Channel Down

- **Is this a problem?**

- **MQ Event "Channel Stopped" may not be good enough**

- **Check Channel Status**

- **Is the Listener running?**

- **Are there messages in the XmitQ?**

- **Is the Remote Queue Manager down?**

- **Is the Remote Queue correct or full?**

- **Is there a Network problem?**

Channel Stopped
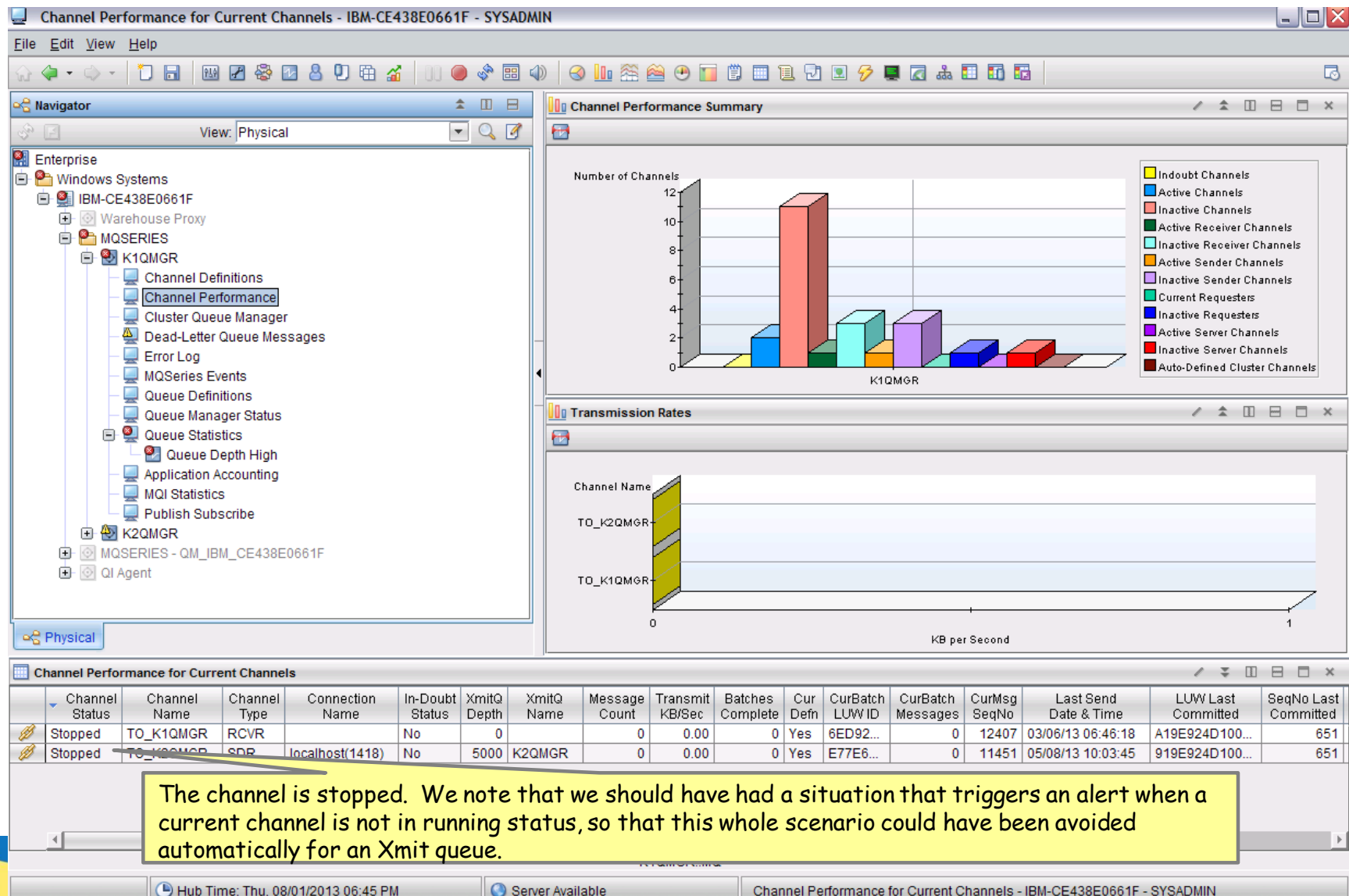
The channel is stopped. We note that we should have had a situation that triggers an alert when a current channel is not in running status, so that this whole scenario could have been avoided automatically for an Xmit queue.

Start the Channel

- Right click on the channel row and select the Take Action option, then select the action to start the channel. The channel name for the selected row is automatically filled in.
- If we had the situation to detect the stopped channel, the action to start it could be automated to occur at the time the issue is detected.
- Note that any MQSC command can be configured as a take action, even if it is not product-provided.

WebSphere MQ Channel is started but not running

Capitalware's MQ Technical Conference v2.0.1.4

File   Edit   View   Communication   Actions   Window   Help

```
                File  Edit  View  Tools  Navigate  Help   03/10/2014 02:59:14
                                                                              Auto Update    : Off
Command ==>                                                                   HostName  : _____
KMQSTART                                                                      QmgrName  : _____
                              WebSphere MQ Health Overview
```

Queue Manager Status

Columns 2 to 13 of 24   Rows   1 to   3 of   3

ΔQMgr ▽Name	Host ▽Name	ΔQMgr ▽Health	ΔQueue ▽Health	ΔChannel ▽Health	ΔCurrent ▽MQEvents	QMgr Status	Channel Initiator	Command Server	Conn #	DLQ Depth	Message # On XMITQ	Total Messages
_ Q7G5	SYS	Critical	Unknown	Unknown	0	Stopped	Stopped	Stopped	0	0	0	0
_ Q7G1	SYS	Warning	Warning	Critical	0	Running	Running	Waiting	32	0	0	197
_ Q7G4	SYS	OK	OK	OK	0	Running	Running	Waiting	0	0	0	0

Queue-Sharing Group Nodes   No Data

Offline WebSphere MQ Monitoring Managed System Nodes

Columns 2 to 5 of 5   Rows   1 to   3 of   3

◇Managed System	Version	Host Address	Host Info	Managing System
Q722:SP22:MQESA	07.10.00	ip.pipe:#9.42.46.22<NM>SP22</	z/OS~01.12.00	SP22:MQIRA
Q723:SP22:MQESA	07.10.00	ip.pipe:#9.42.46.22<NM>SP22</	z/OS~01.12.00	SP22:MQIRA
SP22:MQIRA	07.10.00	ip.pipe:#9.42.46.22.15857.<NM	z/OS~01.12.00	M5510R22:CMS

```
                                   Monday March 10 2014
```

MA   C ?⌨   01/003

File   Edit   View   Communication   Actions   Window   Help

```
                    File   Edit   View   Tools   Navigate   Help    03/10/2014 03:00:01
                                                                              Auto Update    : Off
Command ==>                                                                   HostName  : SYS
KMQQMSTS                                                                      QmgrName  : Q7G1
                              Current Queue Manager Status
```

Queue Manager Health

```
QMgr Name........................................................ Q7G1      Host Name........................................................ SYS
QMgr Health...................................................... Warning   Connection Count................................................. 32
QMgr Status...................................................... Running   Channel Initiator Status......................................... Running
Command Server Status............................................ Waiting   Current MQEvents................................................. 0
```

Queue Health

```
Queue Health..................................................... Warning   DLQ Depth........................................................ 0
High Depth Queue Count........................................... 0         Put Inhibited Queue Count........................................ 0
Total XMIT Queue Messages........................................ 0         Get Inhibited Queue Count........................................ 1
Total Messages................................................... 197       Open Queue Count................................................. 21
```

Channel Health

```
Channel Health................................................... Critical  Indoubt Connections.............................................. 0
Current Not Running.............................................. 1         Server Connections............................................... 1
Current Connections.............................................. 2         % Max Channels................................................... 1.0
Active Connections............................................... 1         % Max Active Channels............................................ 0.5
```

Log Datasets

```
Oldest Active UOW Log Dataset Name............................................................................... MQM.V701
Page Set Recovery Log Dataset Name............................................................................... MQM.V701
Active Log Copy 1 Dataset Name................................................................................... MQM.V701
Active Log Copy 2 Dataset Name................................................................................... MQM.V701
```

Monday March 10 2014

MA   C   01/002

Connected to remote server/host wlaa.tivlab.raleigh.ibm.com using lu/pool TCPA0035 and port 23

```
   Session C - [62 x 160]

File   Edit   View   Communication   Actions   Window   Help

[toolbar icons]

            File   Edit   View   Tools   Navigate   Help   03/10/2014 03:06:23
                                                                              Auto Update    : Off
Command ==>                                                                   HostName  : SYS
KMQCHNRS                          Channel Not Running Summary                 QmgrName  : Q7G1
X                             Current Channels Not Running
Columns  2 to  8 of 16            ← | → | ↑ | ↓                    Rows      1 to     1 of      1
ΔChannel        |ΔConnection   ← →  |ΔChannel    |ΔChannel     |In-Doubt    |User Stop    |Current Action   |Batches
∇Name           |∇Name              |∇Type       |∇Status      |Status      |Request      |State            |Complete
_ Q7G1.TO.Q7G4  | 9.42.46.25(4040)  |Sender      |Retrying     |Not In-Doubt|Stop Not Requested|n/a          |      0
X                             Inactive Channels at Last Sample
Columns  2 to 10 of 12            ← | → | ↑ | ↓                    Rows      1 to     15 of     15
ΔChannel        |ΔConnection   ← →  |ΔChannel    |Channel     |In-Doubt    |LUW Last     |SeqNo Last   |CurBatch   |CurBatch  |+CurMsg
∇Name           |∇Name              |∇Type       |Status      |Status      |Committed    |Committed    |Messages   |LUW ID    |SeqNo
_ ABC.SDR.CHANNEL  |ABC             |SDR         |Binding     |n/a         |             |          0  |         0 |          |        0
_ CHANNEL1         |                |SVRCONN     |Binding     |n/a         |             |          0  |         0 |          |        0
_ Q7G1.TO.Q721     |SP22(21426)     |SDR         |Binding     |n/a         |             |          0  |         0 |          |        0
_ Q721.TO.Q7G1     |                |RCVR        |Binding     |n/a         |             |          0  |         0 |          |        0
_ SYSTEM.DEF.CLUSRCVR|              |CLUSRCVR    |Binding     |n/a         |             |          0  |         0 |          |        0
_ SYSTEM.DEF.CLUSSDR |              |CLUSSDR     |Binding     |n/a         |             |          0  |         0 |          |        0
_ SYSTEM.DEF.RECEIVER|              |RCVR        |Binding     |n/a         |             |          0  |         0 |          |        0
_ SYSTEM.DEF.REQUESTER|             |RQSTR       |Binding     |n/a         |             |          0  |         0 |          |        0
_ SYSTEM.DEF.SENDER  |              |SDR         |Binding     |n/a         |             |          0  |         0 |          |        0
_ SYSTEM.DEF.SERVER  |              |SVR         |Binding     |n/a         |             |          0  |         0 |          |        0
_ SYSTEM.DEF.SVRCONN |              |SVRCONN     |Binding     |n/a         |             |          0  |         0 |          |        0
_ TO.Q7G1.RCVR     |               |RCVR        |Binding     |n/a         |             |          0  |         0 |          |        0
_ TO_Q7G1         |                |RCVR        |Binding     |n/a         |             |          0  |         0 |          |        0
_ TUNGW.SDR.CHANNEL|ABC            |SDR         |Binding     |n/a         |             |          0  |         0 |          |        0
_ WAS.JMS.SVRCONN |                |SVRCONN     |Binding     |n/a         |             |          0  |         0 |          |        0

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```
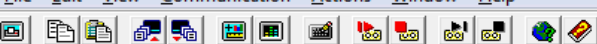
File   Edit   View   Tools   Navigate   Help   03/10/2014 03:07:39

```
Command ==>
KMQCHLSD                            Channel Status Details
```

Channel Q7G1.TO.Q7G4 Conn 9.42.46.25(4040)

```
Channel Type...........................Sender      Message Count...........................0
Channel Status.........................Retrying    Bytes Received..........................0
In-Doubt Status........................Not In-D    Bytes Sent..............................0
CurBatch Messages.......................0          Short Term Compression Time.............0
CurMsg SeqNo............................0          Short Term Exit Time....................0
CurBatch LUW ID.........................CCD489CD    Short Term Net Time.....................0
SeqNo Last Committed....................0          Short Term XmitQ Time...................0
LUW Last Committed.......................00000000   Short Term Batch Size...................0
Last Message Date......................n/a         Start Date.............................14/03/10
Last Message Time......................n/a         Start Time.............................03:07:32
Heartbeat Interval.....................300         Long Retries Left......................976562K
Keep Alive Interval.....................0          Short Retries Left.....................0
User Stop Request......................Stop Not    Current Action State...................n/a
```

Remote Queue Manager Status for Q7G4

```
QMgr Status............................Running     Channel Initiator Status................Running
```

```
TCP IP Listener Active.................Yes         # TCPIP QMgr Listeners..................1
TCP IP Group Listener Active...........No          # TCPIP QMgr Retrying...................0
LU62 Listener Active...................No          # TCPIP Group Listeners.................0
LU62 Group Listener Active.............No          # TCPIP Group Retrying..................0
```

Channel Status on Remote Queue Manager Q7G4

```
Columns  _2 to  _9 of 16        ←  →  ↑  ↓              Rows      1 to      1 of      1
```

◊Channel Name	Connection Name	Channel Status	Channel Type	In-Doubt Status	CurBatch Messages	CurMsg SeqNo	CurBatch LUW ID	+Last Message Date & Time
_ Q7G1.TO.Q7G4		Stopped	Receiver	Not In-Doubt	0	0	0000000000000000	n/a

Monday March 10 2014

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MA        C                                    01/002
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Session C - [62 x 160]

File Edit View Communication Actions Window Help

File Edit View Navigate Help   03/10/2014 03:21:24

Command ==>   Auto Update   : Off
KMQCHLSD   HostName : SYS
                                                                    QmgrName : Q7G1

```
                    n  │ 1. Z z/OS  │  Channel Status Details
                       │ 2. C CICS  │
                       │ 3. I IMS   │  Q7G1.TO.Q7G4 Conn 9.42.46.25(4040)
  ∨                    │ 4. D DB2   │                                                    _|□|×
                       │ 5. N Networks│
Channel Type............│ 6. M MQ    │ Message Count...................           0
Channel Status..........│ 7. S Storage│ Bytes Received..................           0
In-Doubt Status.........└────────────┘ Bytes Sent......................           0
CurBatch Messages.......................         0   Short Term Compression Time.....           0
CurMsg SeqNo............................         0   Short Term Exit Time............           0
CurBatch LUW ID.........................  CCD489CD   Short Term Net Time.............           0
SeqNo Last Committed....................         0   Short Term XmitQ Time...........           0
LUW Last Committed......................  00000000   Short Term Batch Size...........           0
Last Message Date.......................       n/a   Start Date......................    14/03/10
Last Message Time.......................       n/a   Start Time......................    03:19:12
Heartbeat Interval......................       300   Long Retries Left...............    976562K
Keep Alive Interval.....................         0   Short Retries Left..............           0
User Stop Request.......................  Stop Not   Current Action State............         n/a
```

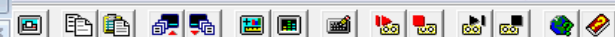∨   Remote Queue Manager Status for Q7G4   ▣│▣│×

```
QMgr Status.............................   Running   Channel Initiator Status........     Running
```

```
TCP IP Listener Active..................       Yes   # TCPIP QMgr Listeners..........           1
TCP IP Group Listener Active............        No   # TCPIP QMgr Retrying...........           0
LU62 Listener Active....................        No   # TCPIP Group Listeners.........           0
LU62 Group Listener Active..............        No   # TCPIP Group Retrying..........           0
```

▶   Channel Status on Remote Queue Manager Q7G4   No Data ▣│▣│×

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M   03/046

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File   Edit   View   Communication   Actions   Window   Help

=KN3TAPO   File   Edit   View   Tools   Navigate   Help   03/10/2014 03:25:01

Command ==>   Auto Update   : Off
KN3START   Plex ID   : SYS
                              Enterprise Network Health   Sys ID   : Q7G1

Network Health for Applications

Columns _3_ to _14_ of _21_   ← → ↑ ↓   Rows ____1 to ____6 of ____6

ΔSystem ∇ID	ΔJob ∇Name	Δ% Segs ∇OutOfOrder	ΔTot Segs ∇OutOfOrder	ΔConn in ∇Backlog	Backlog Rejected	ΔTot Backlog ∇Rejected	Δ% Segs ∇Retrans	ΔTot Segs ∇Retrans	ΔIdle ∇Time	ΔConn ∇Count	Active Conns	ΔHighest ∇Conns	ΔTransm ∇Byte R
SP22	$22SDSST	0	0	0	0	0	0	1.4K	0.43	46	25	25	0
SP22	$22SM2	0	0	0	0	0	0	820	17.70	22	4	4	0
SYS	$GGSM2	0	0	0	0	0	0	825	17.70	22	4	4	0
SYS	M5D0RMTG	0	20	0	0	0	0	1	0.08	64	40	40	1.5K
SYS	M5D0DSST	0	0	0	0	0	0	15	8.14	17	4	8	0
SYS	$GGSDSST	0	0	0	0	0	300	1.4K	17.02	30	9	9	1.3K

Monday March 10 2014

MA   C   01/003

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File   Edit   View   Communication   Actions   Window   Help

```
                  File  Edit  View  Tools  Navigate  Help    03/10/2014 03:27:30
                                                                          Auto Update    : Off
Command ==>                                                               TCP STC   : *
KN3TAPO                                                                    SMF ID    : *
                              Enterprise Applications Health
```

Applications Summary

Columns 3 to 14 of 24   ← → ↑ ↓   Rows 1 to 5 of 127

◇System ID	△Job ▽Name	△Idle ▽Time	△Conn ▽Count	Active ▽Conns	△Highest ▽Conns	Conn in Backlog	Backlog Rejected	△Transmit ▽Byte Rate	△Receive ▽Byte Rate	% Segs Retrans	△Tot Segs ▽Retrans	Tot Backlog Rejected	+% Segs OutOfOrd
_ SYS	I5D0B8IP	0.01	75	52	52	0	0	2.1K	3.9K	0	0	0	0
_ SYS	M5D0RMTG	0.13	64	40	40	0	0	8.5K	11.8K	0	1	0	0
_ SP22	L3ITDSW4	0.27	55	34	34	0	0	33.6K	146.6K	0	2	0	0
_ SP22	$22SDSST	0.48	46	25	25	0	0	1.1K	0	300	1.4K	0	0
_ SYS	TSS0DSR3	0.38	45	17	17	0	0	9.2K	34.8K	0	0	0	0

Percent Out of Order Segments OR Total Out of Order Segments

Columns 3 to 13 of 13   ← → ↑ ↓   Rows 1 to 1 of 1

△System ▽ID	△Job ▽Name	△% Segs ▽OutOfOrder	△Tot Segs ▽OutOfOrder	△Segments ▽OutOfOrder	Tot Segs Sent	Tot Segs Received	Total Segments	Segments Sent	Segments Received	Application Type	△Sysplex ▽Name	TCPIP STC Name
_ SYS	M5D0RMTG	0	20	0	8.5K	49.4K	58.0K	0	0	Unknown	LPAR400J	TCPIPG

Connections in Backlog OR Total Backlog Connections Rejected

No Data

Percent Segments Retransmit OR Total Segments Retransmit

Columns 3 to 13 of 13   ← → ↑ ↓   Rows 1 to 5 of 5

△System ▽ID	△Job ▽Name	△% Segs ▽Retrans	△Tot Segs ▽Retrans	△Segs ▽Retrans	Retrans Rate	△Conn ▽Count	Active ▽Conns	Accepted Conns	Conn Rate	Application Type	△Sysplex ▽Name	TCPIP STC Name
_ SP22	$22SDSST	300	1.4K	3	3	46	25	0	0	Unknown	LPAR400J	TCPIP22
_ SP22	$22SM2	0	825	1	1	23	4	0	0	Unknown	LPAR400J	TCPIP22
_ SYS	$GGSM2	0	829	1	1	23	4	0	0	Unknown	LPAR400J	TCPIPG
_ SYS	M5D0DSST	0	15	0	0	17	4	0	0	Unknown	LPAR400J	TCPIPG
_ SYS	$GGSDSST	0	1.4K	0	0	29	9	0	0	Unknown	LPAR400J	TCPIPG

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                              Monday March 10 2014
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MA   C   01/002

```
                | File  Edit  View  Tools  Navigate  Help   03/10/2014 03:29:59                    Auto Update   : Off
Command ==>                                                                                         TCP STC  : TCPIPG
KN3TAPO                       Options Menu                      lications Health                    SMF ID   : SYS

  v                   Select an option and then press ENTER     ions Summary                              _ |B|x

 Columns      L   1. E Enterprise Network Workspaces                                           Rows   32 to  79 of   127
                  2. L TCP Listeners and Connections
 <>System     V   3. S Application Details                      in     Backlog  ATransmit  AReceive  % Segs  ATot Segs  Tot Backlog  +% Segs
   ID                                                           og     Rejected VByte Rate VByte Rate Retrans VRetrans  Rejected     OutOfOrd
```

System ID			Backlog Rejected	ΔTransmit ∇Byte Rate	ΔReceive ∇Byte Rate	% Segs Retrans	ΔTot Segs ∇Retrans	Tot Backlog Rejected	+% Segs OutOfOrd
_ SYS	SSHD6	17.85	2	0	0	0	0	0	0	0	0	0
_ SP22	SNMPQE22	17.80	3	0	0	0	0	0	0	0	0	0
_ SYS	SNMPQEG	17.80	3	0	0	0	0	0	0	0	0	0
_ SP22	RXSERVE	17.80	2	0	0	0	0	0	0	0	0	0
_ SP22	RSED	17.80	1	0	0	0	0	0	0	0	0	0
_ SYS	RSED	17.80	1	0	0	0	0	0	0	0	0	0
_ SP22	Q722CHIN	1.21	1	0	0	0	0	0	0	0	0	0
_ SP22	Q721CHIN	17.80	1	0	0	0	0	0	0	0	0	0
_ SYS	Q7G4CHIN	0.46	1	0	0	0	0	0	0	0	0	0
_ SYS	Q7G1CHIN	4.66	2	1	1	0	0	0	0	1	0	0
_ SYS	QID1MQ	0.05	18	3	3	0	0	4.2K	388	0	0	0
_ SP22	P3SR00V	17.77	7	0	0	0	0	0	0	0	0	0
_ SP22	P3SR00V	17.77	8	0	0	0	0	0	0	0	0	0
_ SP22	P3DEMNV	17.80	2	0	0	0	0	0	0	0	0	0
_ SP22	P3DEMNV	17.80	2	0	0	0	0	0	0	0	0	0
_ SP22	OSNMPD22	17.80	2	0	0	0	0	76.5K	18.1K	0	0	0
_ SYS	OSNMPDG	17.85	2	0	0	0	0	1.0K	563	0	0	0
_ SP22	N3D0AG22	0.31	20	3	3	0	0	0	0	0	0	0
_ SYS	N3D0AGGG	0.13	22	4	4	0	0	0	0	0	0	0
_ SP22	M540DSST	0.39	29	12	12	0	0	1.5K	328	0	0	0
_ SYS	M5D0RMTG	0.13	64	40	40	0	0	8.5K	11.8K	0	1	0
_ SYS	M5D0HAHB	0.02	41	20	20	0	0	28.1K	21.2K	0	0	0
_ SYS	M5D0DSST	8.19	17	4	8	0	0	0	0	0	15	0
_ SP22	L3ITDSW4	0.27	55	34	34	0	0	33.6K	146.6K	0	2	0
_ SYS	L3ITDSG4	0.01	42	24	24	0	0	5.0K	72.6K	0	0	0
_ SYS	L3IAQIG4	0.52	12	2	2	0	0	0	0	0	0	0
_ SP22	L3IAN3W4	0.13	24	3	3	0	0	29.6K	10.7K	0	0	0
_ SYS	L3IAN3G4	0.10	19	3	3	0	0	4.8K	384	0	0	0
_ SP22	L3IAM2W4	0.54	24	4	4	0	0	0	0	0	10	0
_ SYS	L3IAM2G4	0.53	23	4	4	0	0	0	0	0	10	0
_ SP22	L3IAMQW4	0.35	19	3	3	0	0	50.8K	15.9K	0	0	0
_ SYS	L3IAMQG4	0.02	18	3	3	0	0	41.0K	186	0	0	0
_ SP22	L3IAMCW4	0.53	13	2	2	0	0	0	0	0	0	0
_ SYS	L3IAMCG4	0.52	12	2	2	0	0	0	0	0	0	0
_ SYS	L3IAI5G4	0.18	21	4	4	0	0	323	863	0	0	0
_ SYS	L3IAI2G4	0.53	7	1	1	0	0	0	0	0	0	0
_ SP22	L3IADFW4	0.54	12	2	2	0	0	0	0	0	0	0
_ SP22	L3IAC5W4	0.13	26	4	4	0	0	34.7K	7.4K	0	1	0
_ SYS	L3IAC5G4	0.07	19	3	3	0	0	4.1K	5.5K	0	0	0
_ SYS	LOCKD	17.80	1	0	0	0	0	0	0	0	0	0
_ SYS	JMON	17.80	1	0	0	0	0	0	0	0	0	0
_ SYS	I5D0B8IP	0.01	75	52	52	0	0	2.1K	3.9K	0	0	0
_ SYS	IXGLOGR	0.00	1	0	0	0	0	1.3K	0	0	0	0
_ SP22	IOBSNMP	0.00	1	0	0	0	0	0	213.9K	0	0	0
_ SYS	INETD5	17.80	3	0	0	0	0	0	0	0	0	0
_ SP22	INETD4	17.76	4	0	0	0	0	0	0	0	0	0
_ SP22	INETD4	17.76	4	0	0	0	0	0	0	0	0	0
_ SYS	IMS93ACO	17.80	3	0	0	0	0	0	0	0	0	0

File   Edit   View   Communication   Actions   Window   Help

File   Edit   View   Tools   Navigate   Help   03/10/2014 03:30:16

Command ==>

KN3TCLS   Application TCP Listeners and Connections

Auto Update : Off
TCP STC : TCPIPG
SMF ID   : SYS

Connections Summary for Q7G4CHIN

Columns 3 to 12 of 22   ← | → | ↑ | ↓   Rows   0 to   0 of   0

◇Remote IP Address	◇Local Port	▵Connection ▽State	% Segs Retrans	Tot Segs Retrans	% Segs OutOfOrder	Tot Segs OutOfOrder	Out Bytes Buffered	In Bytes Buffered	Last Activity	Out Queued Data Time Stamp	+In Tim

TCP Listeners Summary for Q7G4CHIN

Columns 3 to 13 of 23   ← | → | ↑ | ↓   Rows   1 to   1 of   1

▵Local ▽VIP Address	▵Local ▽Port	▵Conn in ▽Backlog	▵Backlog ▽Rejected	▵Tot Backlog ▽Rejected	▵Idle ▽Time	▵% Active ▽Conns	▵Active ▽Conns	▵Accepted ▽Conns	▵Highest ▽Conns	▵Conn ▽Rate	▵Estab Conns ▽in Backlog	+FRC in
_ ::	21432	0	0	0	0.51	0	0	0	0	0	0	

Monday March 10 2014

Connected to remote server/host wlaa.tivlab.raleigh.ibm.com using lu/pool TCPA0035 and port 23

File　Edit　View　Communication　Actions　Window　Help

File　Edit　View　Tools　Navigate　Help　03/10/2014 03:51:10

Command ==>
KMQSTART

```
KMQQACT    Issue MQSC command
Specify the value and then press ENTER
  start listener trptype(tcp) port(4040)
```

Auto Update : Off
HostName :
QmgrName :

ΔQMgr ∇Name	Host Name	ΔQMgr ∇Health	ΔQueue ∇Health	ΔChannel ∇Health	ΔCurrent ∇MQEvents	QMgr Status	Channel Initiator	Command Server	Conn #	DLQ Depth	Message # On XMITQ	Total Messages
_ Q7G5	SYS	Critical	Unknown	Unknown	0	Stopped	Stopped	Stopped	0	0	0	0
_ Q7G1	SYS	Warning	Warning	Critical	0	Running	Running	Waiting	32	0	0	197
_ Q7G4	SYS	OK	OK	OK	0	Running	Running	Waiting	39	0	0	8

Columns   Rows   1 to   3 of   3

▷| Queue-Sharing Group Nodes   No Data ▮▯✕
▷| Offline WebSphere MQ Monitoring Managed System Nodes   ▮▯✕

Columns 2 to 5 of 5   ← | → | ↑ | ↓   Rows   1 to   3 of   3

◇Managed System	Version	Host Address	Host Info	Managing System
Q722:SP22:MQESA	07.10.00	ip.pipe:#9.42.46.22<NM>SP22</	z/OS~01.12.00	SP22:MQIRA
Q723:SP22:MQESA	07.10.00	ip.pipe:#9.42.46.22<NM>SP22</	z/OS~01.12.00	SP22:MQIRA
SP22:MQIRA	07.10.00	ip.pipe:#9.42.46.22.15857.<NM	z/OS~01.12.00	M5510R22:CMS

Monday March 10 2014

MA   C   06/054

File   Edit   View   Communication   Actions   Window   Help

File   Edit   View   Tools   Navigate   Help   03/10/2014 03:53:08

Command ==>
KMQSTART

Auto Update : Off
HostName :
QmgrName :

WebSphere MQ Health Overview

Queue Manager Status

Columns 2 to 13 of 24   ← → ↑ ↓   Rows   1 to   3 of   3

ΔQMgr ← → Name	Host ← → Name	ΔQMgr ∇Health	ΔQueue ∇Health	ΔChannel ∇Health	ΔCurrent ∇MQEvents	QMgr Status	Channel Initiator	Command Server	Conn #	DLQ Depth	Message # On XMITQ	Total Messages
_ Q7G5	SYS	Critical	Unknown	Unknown	0	Stopped	Stopped	Stopped	0	0	0	0
_ Q7G1	SYS	OK	OK	OK	0	Running	Running	Waiting	32	0	0	197
_ Q7G4	SYS	OK	OK	OK	0	Running	Running	Waiting	39	0	0	8

Queue-Sharing Group Nodes   No Data

Offline WebSphere MQ Monitoring Managed System Nodes

Columns 2 to 5 of 5   ← → ↑ ↓   Rows   1 to   3 of   3

◇Managed ← → System	Version	Host Address ← →	Host Info	Managing System
Q722:SP22:MQESA	07.10.00	ip.pipe:#9.42.46.22<NM>SP22</	z/OS~01.12.00	SP22:MQIRA
Q723:SP22:MQESA	07.10.00	ip.pipe:#9.42.46.22<NM>SP22</	z/OS~01.12.00	SP22:MQIRA
SP22:MQIRA	07.10.00	ip.pipe:#9.42.46.22.15857.<NM	z/OS~01.12.00	M5510R22:CMS

Monday March 10 2014

MA   C   01/002

Queues

- A queue is a container for messages
  - Local Queues
  - Transmission Queues
  - Remote Queues
  - Alias Queues
  - Model Queues

- **Managed by the Queue Manager**

- **Queue Defined**
  - Predefined
  - Dynamically defined

- **Messages are placed in queues to allow programs to interact with each other asynchromously**

Queue Statistics / Definitions

- **Active, Input and Output Processes**

- **Local Aliased Queue Name and Type**

- **Queue Configuration**
  - ▶ **Trigger Active**
  - ▶ **Trigger Depth**
  - ▶ **Max Message Length**

Queue Full

- **Local Application or MCA can no longer put messages to Queue**

- **Local Application should check for Queue Full condition**
  - ▶ MQRC_Q_FULL (2053, X'805')

- **MCA will put messages to Queue for a Remote Application**
  - ▶ If Queue Full messages go to Dead Letter Queue
  - ▶ If no Dead Letter Queue channel will be stopped

- **MQ Event "Queue Full" or "Queue High" may not be adequate**
  - ▶ These events do not get reset until the Queue Depth hits "Queue Low"

- **Check Queue Depth**

- **Check if messages are on a Queue and no processes have it opened**

Queue Depth High

Check Queue Status

Combine z/OS and MQ information to solve Queue Full


```
        File   Edit   View   Tools   Navigate   Help    07/24/2014 23:57:41
                                                                              Auto Update  :  Off
Command ==>                                                                   HostName  :  SP22
KMQQMSTS                                Current Queue Manager Status           QmgrName  :  Q721

  Status  | Parameters |

─────────────────────────── Queue Manager Health ───────────────────────────
  QMgr Name................................................. Q721   | Host Name................................................. SP22
  QMgr Health.............................................. Warning | Connection Count......................................... 55
  QMgr Status.............................................. Running | Channel Initiator Status................................. Running
  Command Server Status.................................... Waiting | Current MQEvents......................................... 0

──────────────────────────────── Queue Health ─────────────────────────────
  Queue Health............................................. Critical| DLQ Depth................................................. 0
  High Depth Queue Count...................................    1     | Put Inhibited Queue Count................................ 0
  Total XMIT Queue Messages................................    0     | Get Inhibited Queue Count................................ 0
  Total Messages........................................... 158560   | Open Queue Count......................................... 36

─────────────────────────────── Channel Health ────────────────────────────
  Channel Health...........................................    OK    | Indoubt Connections...................................... 0
  Current Not Running......................................    0     | Server Connections....................................... 0
  Current Connections......................................    0     | % Max Channels........................................... 0.0
  Active Connections.......................................    0     | % Max Active Channels.................................... 0.0

──────────────────────────────── Log Datasets ─────────────────────────────
  Oldest Active UOW Log Dataset Name......................................................... MQM.V701
  Page Set Recovery Log Dataset Name......................................................... MQM.V701
  Active Log Copy 1 Dataset Name............................................................. MQM.V701
  Active Log Copy 2 Dataset Name............................................................. MQM.V701




                                        Thursday July 24 2014
```

```
Session C - [62 x 160]

File   Edit   View   Communication   Actions   Window   Help
```

```
          File   Edit   View   Tools   Navigate   Help   03/10/2014 02:59:14
                                                                                      Auto Update    : Off
Command ==>                                                                           HostName  : _____
KMQSTART                                 WebSphere MQ Health Overview                  QmgrName  : _____
```

Queue Manager Status

ΔQMgr ∇Name	Host Name	ΔQMgr ∇Health	ΔQueue ∇Health	ΔChannel ∇Health	ΔCurrent ∇MQEvents	QMgr Status	Channel Initiator	Command Server	Conn #	DLQ Depth	Message # On XMITQ	Total Messages
_ Q7G5	SYS	Critical	Unknown	Unknown	0	Stopped	Stopped	Stopped	0	0	0	0
_ Q7G1	SYS	Warning	Warning	Critical	0	Running	Running	Waiting	32	0	0	197
_ Q7G4	SYS	OK	OK	OK	0	Running	Running	Waiting	0	0	0	0

Columns _2 to 13 of 24   Rows ____1 to ____3 of ____3

Queue-Sharing Group Nodes   No Data

Offline WebSphere MQ Monitoring Managed System Nodes

Columns 2 to 5 of 5   Rows ____1 to ____3 of ____3

◊Managed System	Version	Host Address	Host Info	Managing System
Q722:SP22:MQESA	07.10.00	ip.pipe:#9.42.46.22<NM>SP22</	z/OS~01.12.00	SP22:MQIRA
Q723:SP22:MQESA	07.10.00	ip.pipe:#9.42.46.22<NM>SP22</	z/OS~01.12.00	SP22:MQIRA
SP22:MQIRA	07.10.00	ip.pipe:#9.42.46.22.15857.<NM	z/OS~01.12.00	M5510R22:CMS

```
                                    Monday March 10 2014
```

```
MA      C  ?                                              01/003
   Connected to remote server/host wlaa.tivlab.raleigh.ibm.com using lu/pool TCPA0035 and port 23
```

File   Edit   View   Tools   Navigate   Help   07/24/2014 23:58:21

                                                                                  Auto Update   : Off
Command ==>   HostName : SP22
KMQQUEHS   Queue High Depth Summary   QmgrName : Q721

Queues with High Depth

Columns   2 to   9 of   9   ← | → | ↑ | ↓   Rows   1 to   1 of   1

△Queue ▽Name	← →	△Current ▽Depth	Input Opens	Output Opens	Get Status	Put Status	Trigger Control	% Full	High Depth Threshold %
_ P6.IN.Q1		912	1	1	Enabled	Enabled	Off	91.2	80.0

Queues with Depth > 0

Columns   2 to   9 of   9   ← | → | ↑ | ↓   Rows   1 to   15 of   15

△Queue ▽Name	← →	△Current ▽Depth	Input Opens	Output Opens	Get Status	Put Status	Trigger Control	% Full	High Depth Threshold %
_ ABCQ		157572	0	0	Enabled	Enabled	Off	0.0	80.0
_ P6.IN.Q1		912	1	1	Enabled	Enabled	Off	91.2	80.0
_ TUNGW.QUEUE		40	0	0	Enabled	Enabled	Off	66.6	80.0
_ ITML3TEST003		26	0	0	Enabled	Enabled	Off	0.0	80.0
_ ITML3TEST009		14	0	0	Enabled	Enabled	Off	46.6	80.0
_ SYSTEM.CHANNEL.SYNCQ		11	0	0	Enabled	Enabled	Off	0.0	80.0
_ ITML3TEST001		10	0	0	Enabled	Enabled	Off	33.3	80.0
_ javascript		7	0	0	Enabled	Enabled	Off	70.0	80.0
_ Q4QM7501		7	0	0	Enabled	Enabled	Off	0.0	80.0
_ SYSTEM.CLUSTER.REPOS		6	1	1	Enabled	Enabled	Off	0.0	80.0
_ ITML3TEST007		6	0	0	Enabled	Enabled	Off	20.0	80.0
_ ITML3TEST004		3	0	0	Enabled	Enabled	Off	10.0	80.0
_ SYSTEM.HIERARCHY.STA		2	0	0	Enabled	Enabled	Off	0.0	80.0
_ SYSTEM.DURABLE.SUBSC		2	0	0	Enabled	Enabled	Off	0.0	80.0
_ SYSTEM.RETAINED.PUB.		1	0	0	Enabled	Enabled	Off	0.0	80.0

```
                                                              Auto Update   : Off
Command ==>                                                   HostName  : SP22
KMQQUESD                        Queue Status Details          QmgrName  : Q721
```

| Status | Statistics | Parameters |

```
▽                                Queue P6.IN.Q1                              ▉▉▉▉
Current Depth...................................  1148   Queue Monitoring.....................  Medium
Uncommitted Msgs................................    No   Short Term Queue Time...............  976562K
Output Opens....................................     1   Long Term Queue Time...............  976562K
Input Opens.....................................     1   Oldest Msg Age.......................    1307
Last Put Date...............................  14/07/25   Last Get Date....................  14/07/25
Last Put Time...............................  00:07:15   Last Get Time....................  00:06:04
```

```
Queue Usage.....................................  Normal   Definition Type.....................  Predefin
% Full..........................................     0.0   Max Depth..........................  9999999
Get Status....................................  Enabled   Trigger Control.....................      Off
Put Status....................................  Enabled   Trigger Type........................    First
Default Persist.................................      No   Trigger Priority....................        0
Default Priority................................       0   Trigger Depth.......................        1
Creation Date...............................  14/07/24   Alter Date.......................  14/07/25
Creation Time...............................  23:30:01   Alter Time.......................  00:02:08
```

```
▽                     Applications with Open Handle for Queue                ▉▉▉▉
```

```
Columns  2 to 12 of 20              ← | → | ↑ | ↓              Rows ____1 to ____2 of ____2
```

△Appl ← → ▽Tag	△Appl ▽Type	△ASID ▽	△User ← → ▽ID	Open for Input	Open for Output	Open for Browse	Open for Inquire	Open for Set	Channel Name	Connection ← → Name	+CICS Regio
_ A6INP	BATCH	0047	DONGCC	No	Yes	No	No	No			
_ A6OUP	BATCH	003F	DONGCC	Exclusive	No	Yes	No	No			

Auto Update : Off
Command ==>
HostName : SP22
KMQAPQZD   z/OS Application Details for Queue   QmgrName : Q721

▼   Queue P6.IN.Q1 Appl A60UP   ▮▮▮✕

Columns 2 to 13 of 15   ← → ↑ ↓   Rows   1 to   1 of   1

◇Appl Tag	User ID	Handle Status	Asynch State	Open for Input	Open for Output	Open for Browse	Open for Inquire	Open for Set	QSG Disp	External Unit of Recovery Type	External Unit of Recovery ID	+QMg Rec
_ A60UP	DONGCC	Active	None	Exclusive	No	Yes	No	No	Qmgr	QMGR		

▼   z/OS Address Space CPU Details for A60UP 0x003F   ▮▮▮✕

```
Job Name...................................................................... A60UP
ASID.......................................................................... 003F
Type.......................................................................... Batch
JESJOBID................................................................... JOB12118
Step Name................................................................... CSQ4BCJ
Proc Step.....................................................................
IO per Second................................................................. 0.0
CPU Percent................................................................... 96.1
IFA Percent................................................................... 0.0
SRB Percent................................................................... 0.0
TCB Percent................................................................... 96.1
zIIP Percent.................................................................. 0.0
CPU Percent Excluding Home SRB Time........................................... 96.1
IFA Percent With Enclave Home SRB Time........................................ 0.0
zIIP Percent With Enclave Home SRB Time....................................... 0.0
```

```
IFA on CP Percent............................................................. 0.0
zIIP on CP Percent............................................................ 0.0
IFA Percent With Enclave Home SRB Time........................................ 0.0
zIIP Percent With Enclave Home SRB Time....................................... 0.0
Job CPU Percent............................................................... 87.7
Job SRB Percent............................................................... 0.0
Job TCB Percent............................................................... 87.7
Job CPU Time................................................................. 88.76
Job SRB Time................................................................. 0.00
Job TCB Time................................................................. 88.76
Job Preemptable Home SRB Service Time........................................ 0.00
Job Preemptable Home SRB Service Percent...................................... 0.0
Job Additional SRB Service Time.............................................. 0.00
Job Additional SRB Service Percent............................................ 0.0
```

```
                                                                    Auto Update   : Off
Command ==>                                                         HostName  : SP22
KMQAPQZD                                                            QmgrName  : Q721

┌─────────────────────────────────────────────────────────────┐
│ KM5MQASZ Navigation Options for Address Space A60UP 0x003F    │  ils for Queue
│                                                               │
│ Select an action and then press ENTER                         │  ppl A60UP                          _|□|×
│                                                               │
│    1. ! Take Action on Address Space                          │               Rows    1 to    1 of    1
│    2. C - Cancel Address Space                                │
│    3. A Address Space Bottlenecks Summary                     │  for   Open for   Open for   QSG    External Unit of   External Unit of  +QMg
│    4. B Bottleneck Analysis for Address Space                 │  e     Inquire    Set        Disp   Recovery Type      Recovery ID       Rec
│    5. D Storage Usage by Address Space                        │
│    6. M Storage Usage by all Address Spaces                   │        No         No         Qmgr   QMGR
│    7. S Address Space CPU Usage Details                       │
│    8. T TCB Storage and LSQA for Address Space                │  ils for A60UP 0x003F               _|□|×
│    9. W WLM Service Class Resources                           │
│                                                               │
 Job Name.............................................................................A60UP
 ASID.................................................................................003F
 Type.................................................................................Batch
 JESJOBID.............................................................................JOB12118
 Step Name............................................................................CSQ4BCJ
 Proc Step............................................................................
 IO per Second........................................................................0.0
 CPU Percent..........................................................................96.1
 IFA Percent..........................................................................0.0
 SRB Percent..........................................................................0.0
 TCB Percent..........................................................................96.1
 zIIP Percent.........................................................................0.0
 CPU Percent Excluding Home SRB Time..................................................96.1
 IFA Percent With Enclave Home SRB Time...............................................0.0
 zIIP Percent With Enclave Home SRB Time..............................................0.0

 IFA on CP Percent....................................................................0.0
 zIIP on CP Percent...................................................................0.0
 IFA Percent With Enclave Home SRB Time...............................................0.0
 zIIP Percent With Enclave Home SRB Time..............................................0.0
 Job CPU Percent......................................................................87.7
 Job SRB Percent......................................................................0.0
 Job TCB Percent......................................................................87.7
 Job CPU Time.........................................................................88.76
 Job SRB Time.........................................................................0.00
 Job TCB Time.........................................................................88.76
 Job Preemptable Home SRB Service Time................................................0.00
 Job Preemptable Home SRB Service Percent.............................................0.0
 Job Additional SRB Service Time......................................................0.00
 Job Additional SRB Service Percent...................................................0.0
```

Auto Update : Off
Command ==>
Plex ID   : LPAR400J
KM5BOTA2
SMF ID   : SP22

Bottleneck Analysis

Address Space A60UP Summary

Columns 3 to 4 of 4   ← → ↑ ↓   Rows   1 to   4 of   4

◇Attribute	◇Percent	0...20...40...60...80...100	Resource
_ Using CPU	16.8	▐▐▐▐.................................	
_ CPU Loop Index	17.7	▐▐▐.................................	
_ ECB Wait	6.5	▐.................................	
_ CPU Wait	4.9	▐.................................	

Contention(%) by Resource

Step Name...	CSQ4BCJ	Using CPU..........................	88.5
Proc Step...		Using IFA..........................	0.0
Service Class.....................................	BATCH	Using zIIP.........................	0.0
CPU Wait..	4.9	CPU Loop Index.....................	17.7
ECB Wait..	6.5	Resource Group Capping.............	0.0
IFA Wait..	0.0	Active I/O.........................	0.0
VIO Wait..	0.0	Queued I/O.........................	0.0
zIIP Wait...	0.0	Tape Mount.........................	0.0
Stimer Wait.......................................	0.0	Shared Pages.......................	0.0
Enqueue Wait......................................	0.0	Server Swap-In.....................	0.0
MVS Lock Wait.....................................	0.0	Common Page-In.....................	0.0
Stimer ECB Wait...................................	0.0	Private Page-In....................	0.0
Server Paging.....................................	0.0	Hiperspace Page-In.................	0.0
Server MPL Delay..................................	0.0	Cross Memory Page-In...............	0.0

Contention(%) by Resource -- (JES,HSM,SWAP & CRYPTO)

JES2 Job Cancel...................................	0.0	JES2 Job Delete....................	0.0
JES2 Job Status...................................	0.0	JES2 SYSOUT........................	0.0
JES2 Job Requeue..................................	0.0	HSM Backup.........................	0.0
HSM JES3 C/I Locate...............................	0.0	HSM Delete.........................	0.0
HSM TSO CLIST.....................................	0.0	HSM Migrate........................	0.0
HSM Recall..	0.0	HSM CDS Read.......................	0.0
HSM Recover.......................................	0.0	SWAP APPC..........................	0.0
SWAP Aux Stor.....................................	0.0	SWAP Central Stor..................	0.0
SWAP Detected.....................................	0.0	SWAP Enq Exchange..................	0.0
SWAP Exchange.....................................	0.0	SWAP Long..........................	0.0
SWAP Out Too Long.................................	0.0	SWAP MPL Delay.....................	0.0
SWAP Request......................................	0.0	SWAP Real Stor.....................	0.0
SWAP Sys Paging...................................	0.0	SWAP Page-Ins......................	0.0
SWAP Terminal In..................................	0.0	SWAP Terminal Out..................	0.0
SWAP Transition...................................	0.0	SWAP Unilateral....................	0.0
SWAP OMVS Input...................................	0.0	SWAP OMVS Output...................	0.0
SWAP In-Real......................................	0.0	Using Crypto Async Msg Proc........	0.0
Crypto Async Msg Proc Wait........................	0.0	Using Crypto Assist Proc...........	0.0
Crypto Assist Proc Wait...........................	0.0	WTOR Wait..........................	0.0

```
                                                                      Auto Update  : Off
Command ==>                                                           Plex ID  : LPAR400J
KM5INSS                      Inspect: CPU Usage for A60UP 0x003F       SMF ID   : SP22
```

```
Columns   3 to   4 of   4              ←  →  ↑  ↓               Rows     1 to     1 of     1

◇Samples   ◇Interval │ Samples      Samples
                     │ Taken        Used

    1000          2 │    1000          1000
```

▼   CPU Usage for A60UP 0x003F   ▮▯▢✕

```
Columns   1 to  11 of  19              ←  →  ↑  ↓               Rows     1 to     5 of     5

Load Module  TCB       Load Module  Load Module   0..20..40..60..80.100  CSECT    CSECT     Offset     CPU % of  0..20..40..60..80.100  +Initial
Name         Address   Address      CPU % of Job                         Name     Address   in CSECT   CSECT                            Program

_ CSQ4BCJC   007F8030  24C00000          100.0  ▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮      CSQ4BCJ1  24C00080   00000E10      69.7  ▮▮▮▮▮▮▮▮▮▮▮.......     CSQ4BCJ
_                                                                                            00000E00      18.7  ▮▮.................
_                                                                                            00000E20      10.1  ▮▮.................
_                                                                                            00000E30       1.2  ..................
_                                                                                            00000DF0       0.1  ..................
```

▼   Messages   ▮▯▢✕

```
Columns   1 to   1 of   1              ←  →  ↑  ↓               Rows     1 to     1 of     1

◇Message

  KM3IN008I GRANULARITY SET TO 0X00000010
```

Issues with DLQ

- Are there any messages in the DLQ?

- How long has a message been in the DLQ?

- What messages are in the DLQ?

- Why is a message in the DLQ?

- Can I view the message?

- Can I delete one or more messages?

- Can I requeue a message?

Messages in the Dead Letter Queue

- **Dead Letter Queue prevents the Queue Manager from stopping the channel**

- **Need to monitor if messages arrive in the Dead Letter Queue**

- **Need to quickly isolate the cause of the message(s) arriving in the DLQ**

- **Need to be able to resolve the issue with the DLQ messages**
  - ▶ Fix the issue
  - ▶ Delete the message(s)
  - ▶ Retry the messages

MQ problems between IBM z/OS® and distributed systems

- **MQ provides common API across all platforms**

- **Different monitoring/management solutions for each platform?**

- **Best practices dictate looking at MQ environment holistically**

- **Differing backup & recover strategies for MQ objects**

MQ Configuration - Administration

- **Enterprise-wide configuration/administration strategy?**

- **Different strategies depending on platform?**

- **What about backup/recovery?**

- **If an object is modified you need to be able to detect that.**

WebSphere MQ Configuration Management
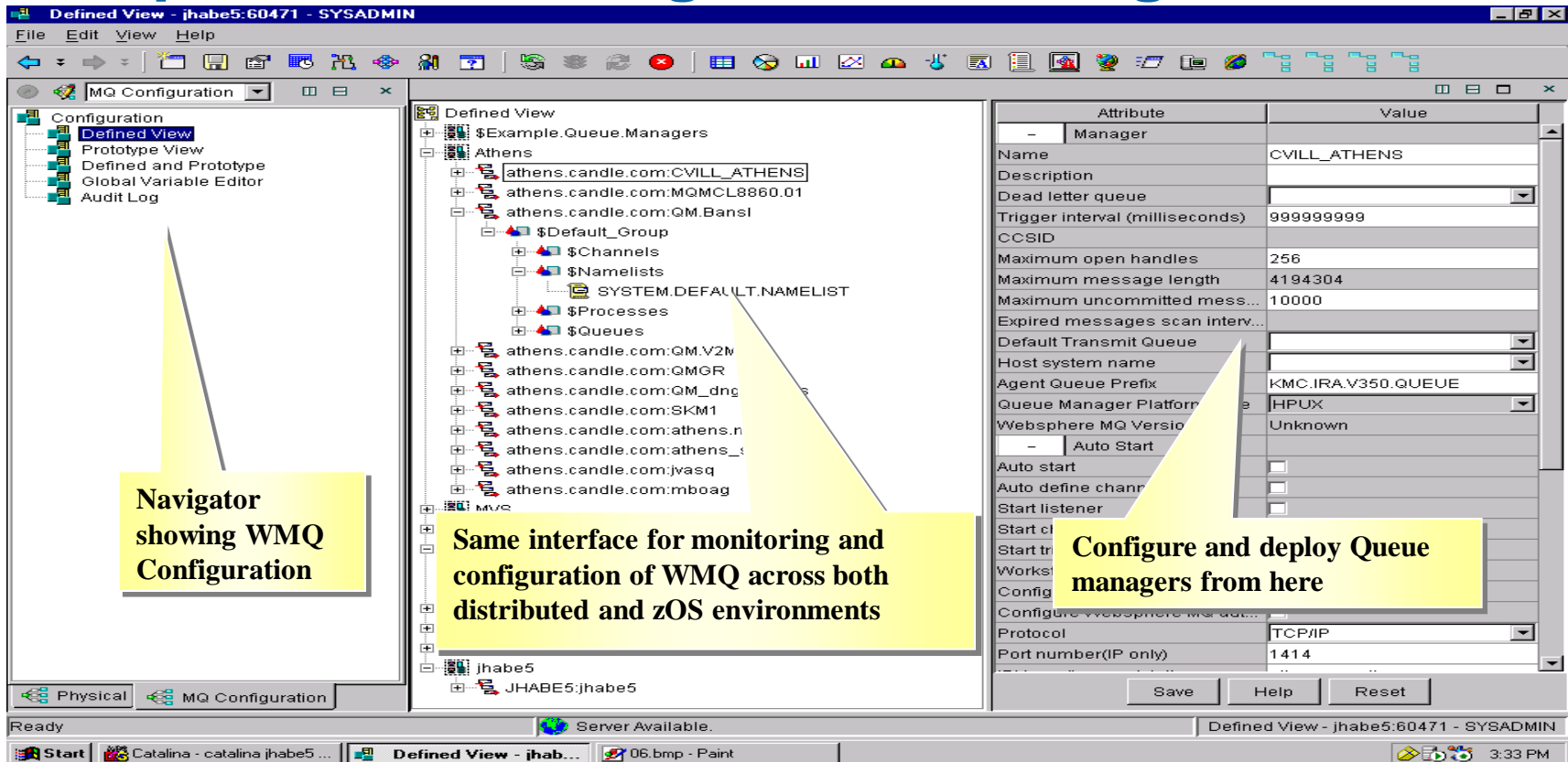
- Discovery of existing MQ resources
- Prototyping/Modeling (templates) of configuration
- Validation prior to deployment
- Deployment of template based configuration to multiple nodes, immediate or scheduled
- Synchronization from actual to defined or defined to actual
- Audit trail
- Identify WMQ configuration discrepancies
- Recovery of WebSphere MQ Environments

WebSphere Message Broker (IIB)

- **More of a Black Box than MQ**
  - ▶ Execution Groups
  - ▶ Message Flows
  - ▶ Processing Nodes
  - ▶ Threads

- **Need to understand if MB is being affected by MQ**

- **Is the Queue Manager running?**

- **Is the Broker connected to the Queue Manager?**

- **Are the issues with the Network?**

- **Are there issues with the OS?**

- **Demands a holistic approach to monitoring to improve MTTR**

Message Broker Performance & Availability Monitoring

- Monitor message broker / message flow events
- Provide performance statistics at broker, execution group, message flow, sub-flow and processing node levels
- Report pub/sub neighbors, subscriptions, retained publications and ACL entries in broker
- Detect broker configuration changes

- Message broker operational command access
- Detect Broker Status - stopped broker, problems connecting to broker's queue mgr, stopped message flow, an active trace, expired publications or subscriptions
- Track Broker performance – message flow time, queue time, input/output rates

Message Flow Workspaces
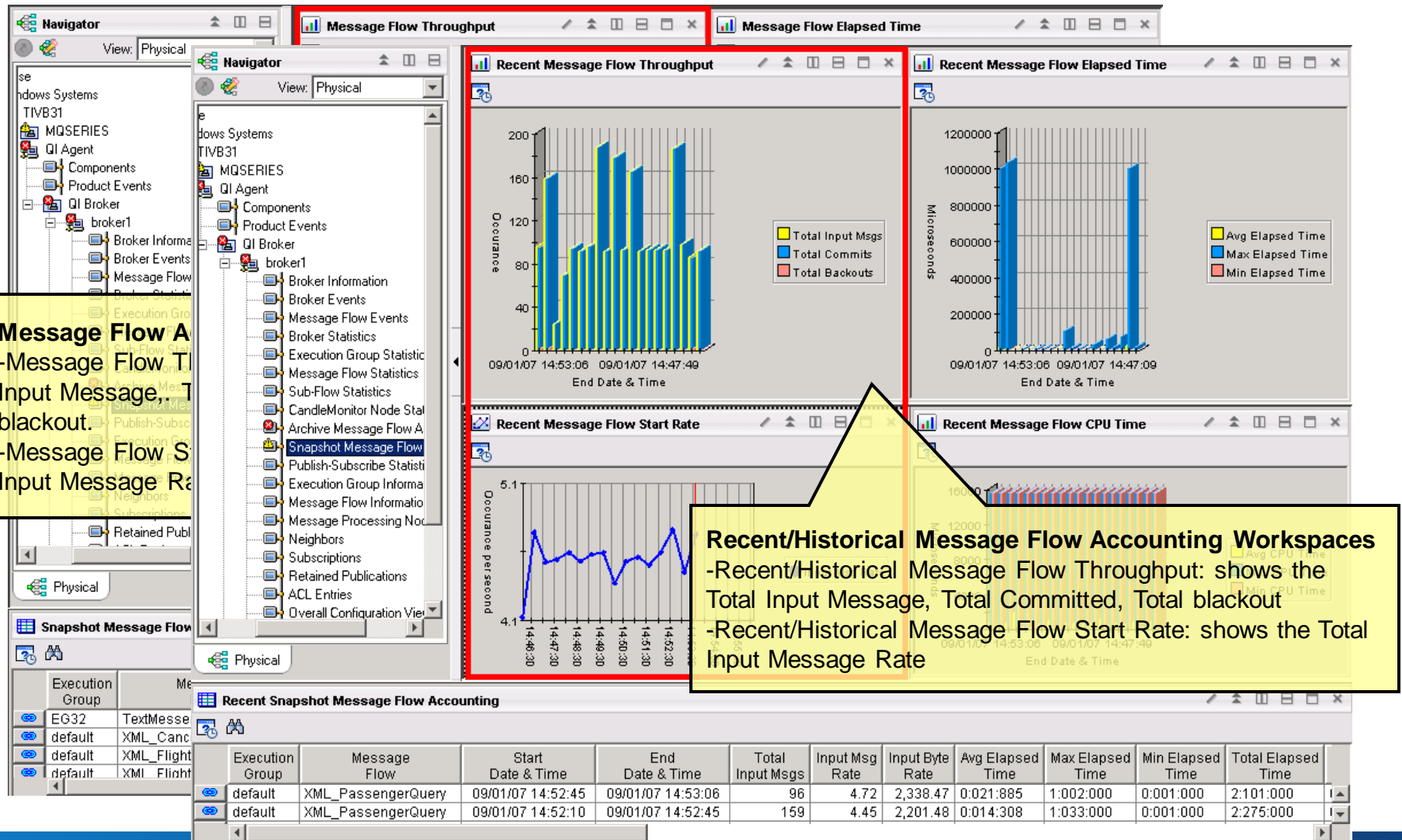
Broker Explorer & Message Flow Statistics
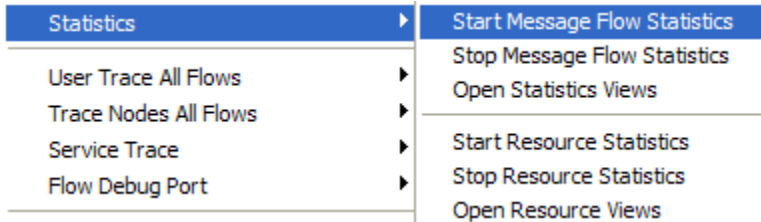
- **The Message Broker Explorer enables you to start/stop message flow statistics on the broker, and view the output.**

- **New in V7 (although supportpac IS02 available for V6.1)**

- **Warnings are displayed advising there may be a performance impact (typically ~3%)**
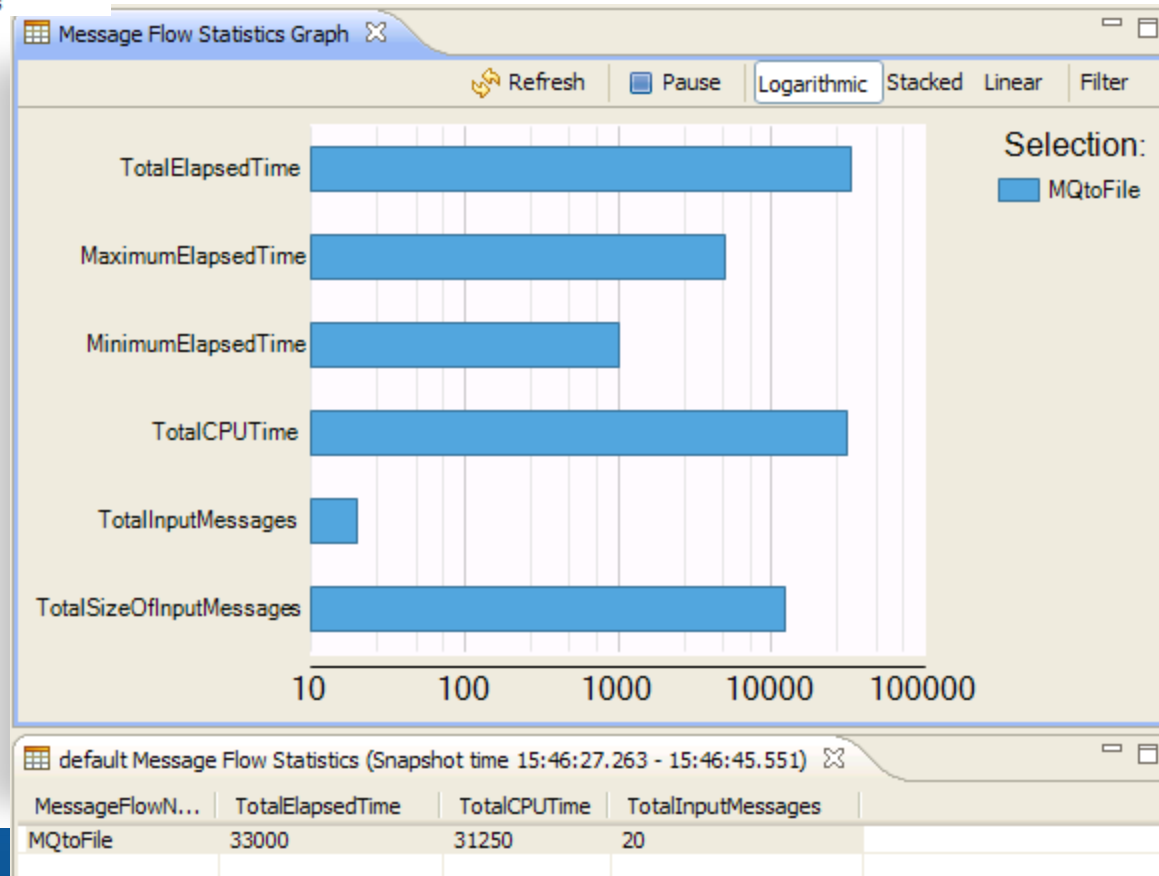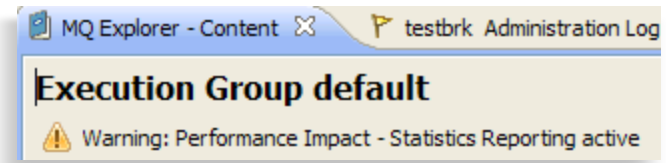
What else?

- **Logs (different for z/OS and Distributed)**

- **Buffer Pools (z/OS)**

- **Page Sets (z/OS)**

- **Shared Queues/Coupling Facility (z/OS)**

- **Clusters**

- **Age of Messages**

- **Queue/Dequeue Rate**

- **Channel Usage**

- **Poison Messages**

- **What's normal activity?**

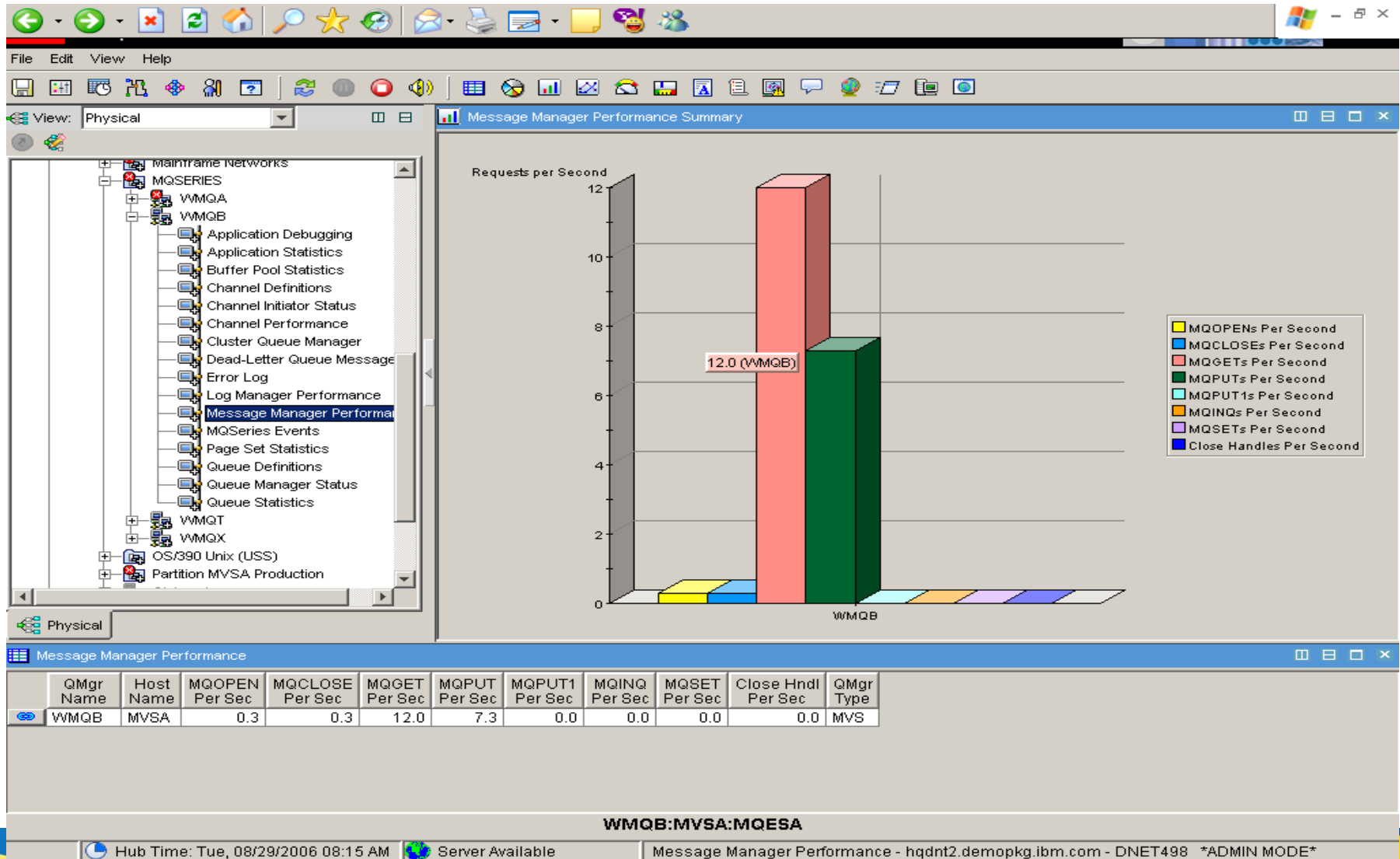- **Predictive Analysis**

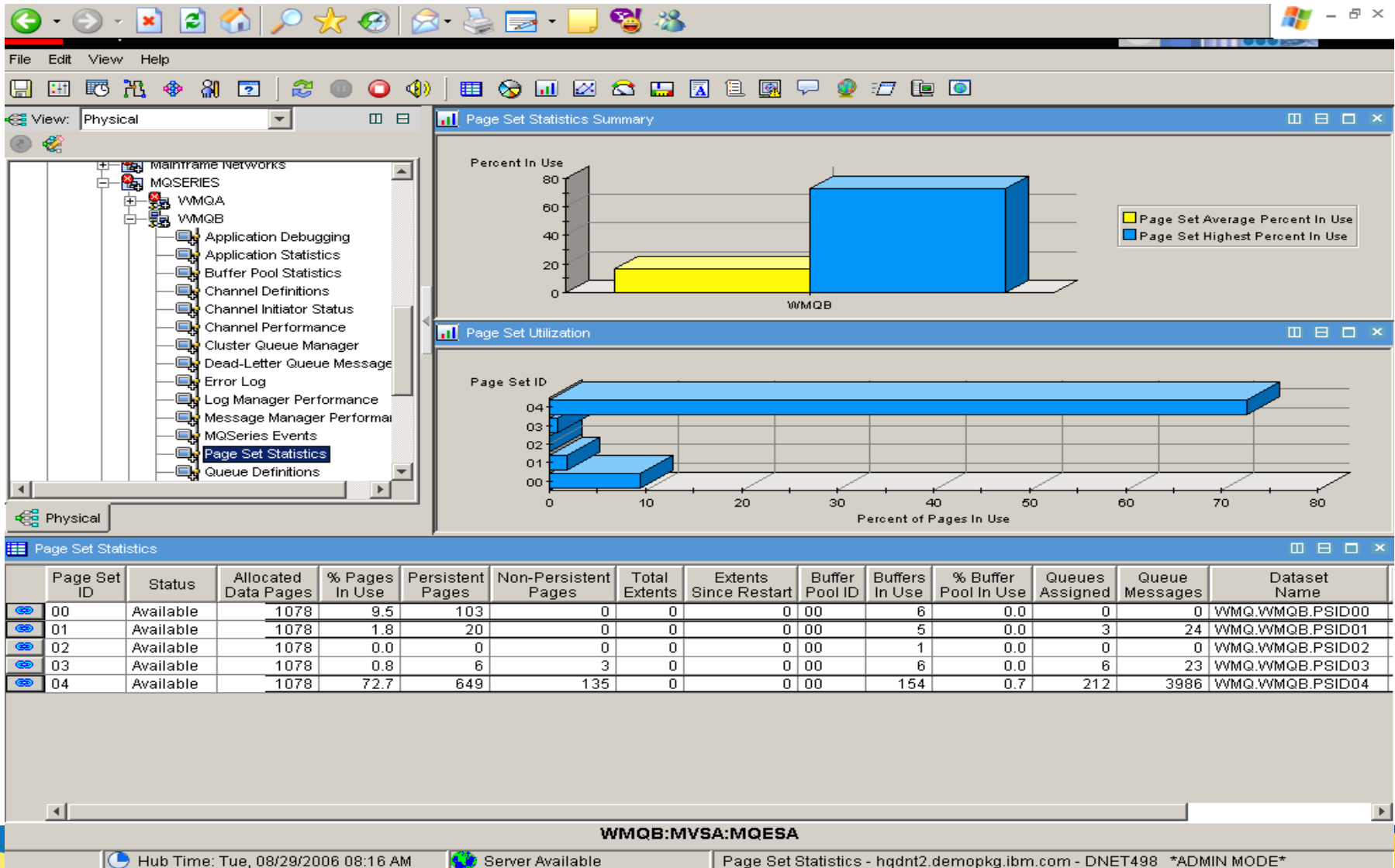# Buffer Pool Statistics - zOS
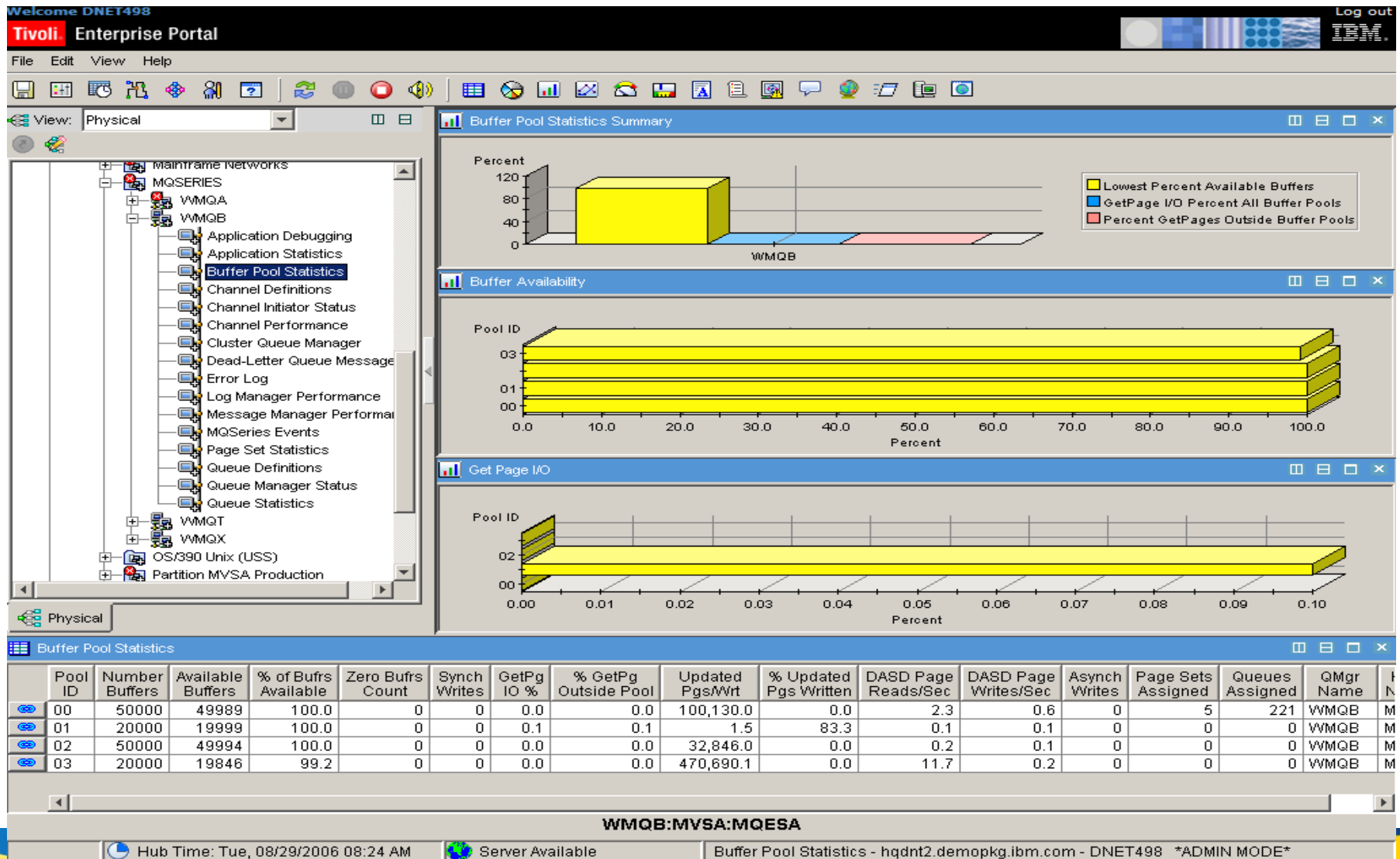
Channel Initiator Status - zOS
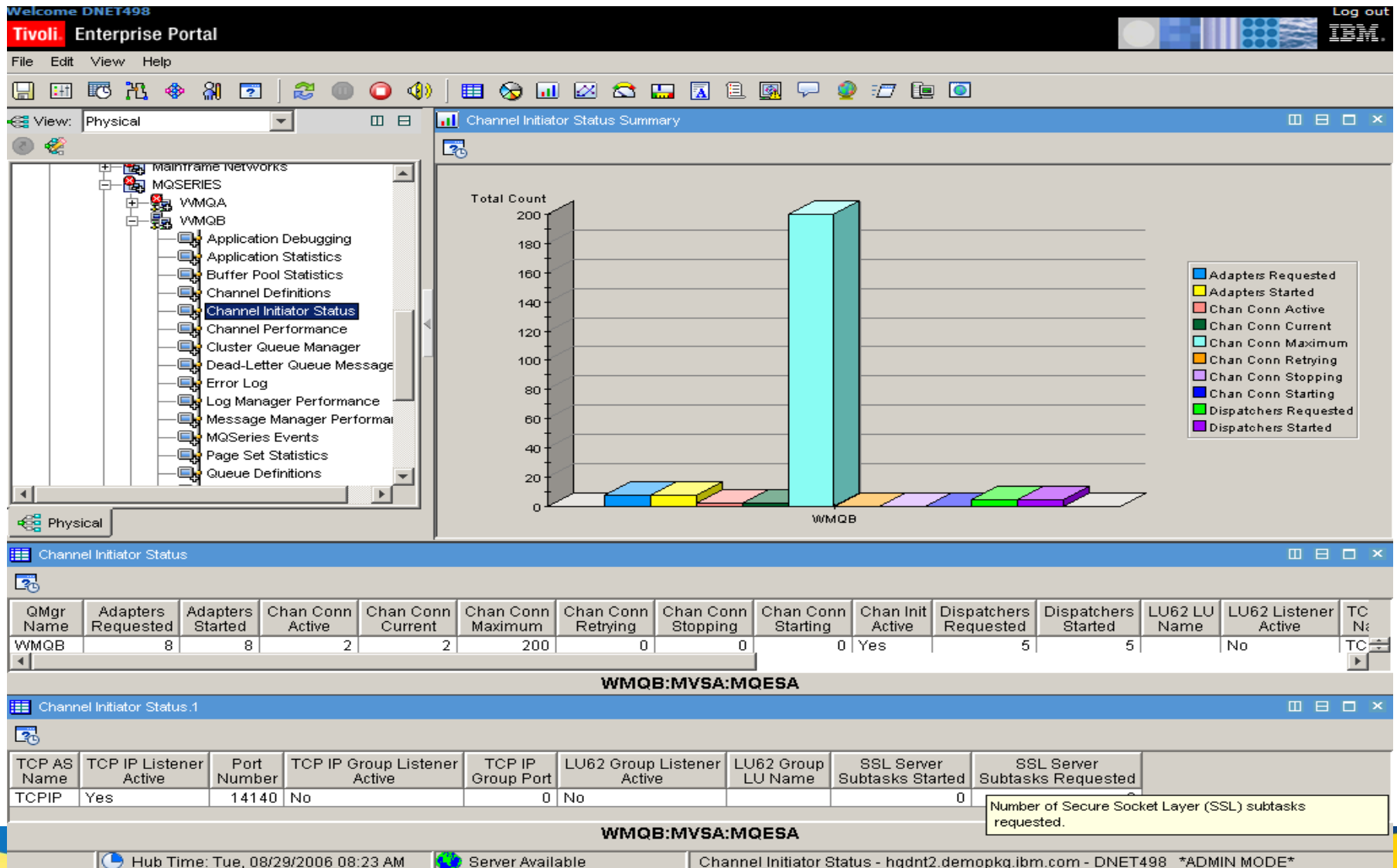
Log Manager Performance - zOS
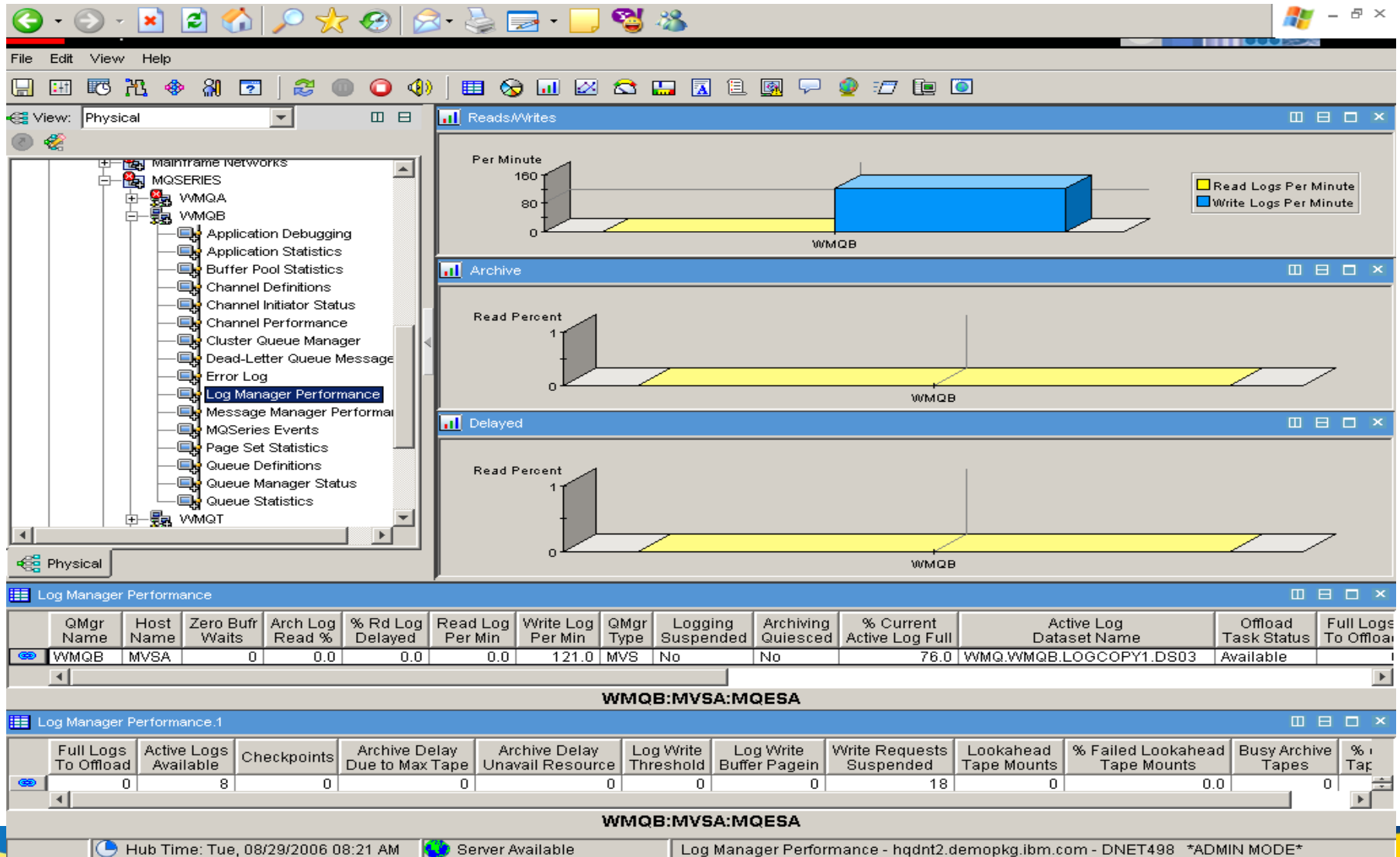
Message Manager Performance - zOS

Page Set Statistics - zOS

Summary

- **Once introduced into an environment WMQ and WMB become ubiquitous.**

- **Monitoring/managing your messaging backbone in a silo is not adequate**

- **Start looking at your Enterprise Monitoring & Management strategy holistically.**

- **It may look like the problem is WMQ or WMB, maybe it Is not.**

- **Use automation for corrective action when appropriate**

Questions & Answers

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