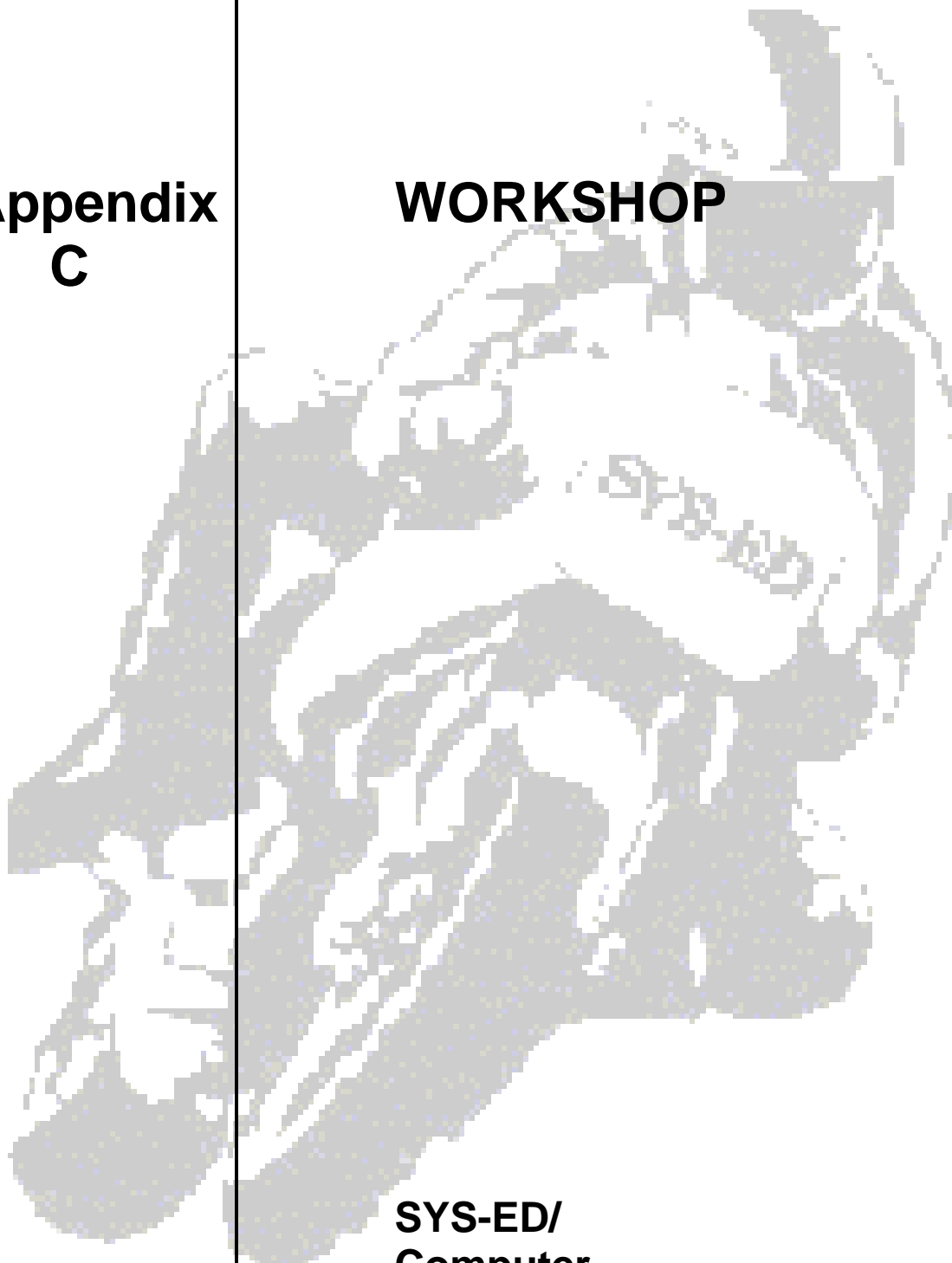


**Appendix
C**

WORKSHOP



**SYS-ED/
Computer
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Techniques, Inc.**

1 Concepts and Facilities

Review MQ architecture and system features.

Objectives

- Specify key components of WSAD.
- The relationship between the actual queues and the software.

Details

1. The message _____ identifies the message and contains additional control information, such as the type of message and the priority assigned to the message by the sending application.
2. Queues are managed by a _____.
3. The manipulation or administration of objects includes starting and stopping _____.
4. The WebSphere MQ _____, which allows communication between WebSphere MQ on your z/OS system and other systems.
5. The amount of storage used to buffer the page set access is controlled through WebSphere MQ objects called _____.
6. The name and size of the active log data set is held in a data set called the _____.
7. The channel initiator provides and manages resources that enable WebSphere MQ distributed queuing. WebSphere MQ uses _____ to send messages from one queue manager to another.
8. The _____ utility program is provided with WebSphere MQ for z/OS to help in performing backup, restoration, and reorganization tasks, and to issue commands and process object definitions.
9. A simple message for which no reply is expected is a _____.
10. A message that describes an event such as the occurrence of an error is a _____.

2 Shared Queues and Queue-Sharing Groups

Review the IBM shared queue facilities.

Objectives

- Characteristics and architecture of shared queues.

Details

1. _____ messages can be accessed by one or more queue managers that are in a sysplex.
2. The messages on a shared queue are stored in the _____.
3. The definition of a shared queue is stored in a DB2 shared database called the shared _____.
4. Queue-sharing groups have a name of up to _____ characters.
5. The maximum length for messages on a shared queue is _____ KB.
6. Each _____ in the queue-sharing group starts an additional listener task to listen on a generic port.
7. A channel can be restarted on a different queue manager and channel initiator instance within the queue-sharing group if the communications subsystem, channel initiator, or queue manager fails. Restarting failed channels in this way is a feature of shared channels called _____ recovery.
8. The shared _____ table is used when there is a channel initiator or communications system failure. It indicates which channels need to be restarted on a different channel initiator in the queue-sharing group.
9. When defining a shared initiation queue, it will not be necessary to have a trigger monitor running on every queue manager in the _____.
10. Dead-letter queues should not be defined as a _____.

3 Storage Management

Create a storage class using an existing page set; the attributes of the storage class have to be specified and displayed.

Objectives

- Create a storage class.
- Display status and attributes of the storage class.

Details

1. Define a storage class giving the appropriate page set ID. The page set ID will be provided by the instructor.
2. Create a local queue that is associated with the storage class that was defined in the previous step.
3. Display the characteristics of the storage class.

4 System Definition

Processing on the dead letter queue and the CSQUDLQH utility.

Objectives

- Create a dead letter queue.
- Delete messages in the dead letter queue.

Details

1. Determine the name of the existing dead letter queue for a queue manager.
2. Create a new dead letter queue.
3. Given the COBOL program dlwrite, compile and run the program. It will create messages that are written to the dead letter queue.
4. This sample JCL will invoke the CSQUDLQH utility:

```
//READQ EXEC PGM=CSQUDLQH,  
// PARM='CSQ1.DEAD.QUEUE CSQ1'  
//STEPLIB DD DSN=thlqual.SCSQAUTH,DISP=SHR  
// DD DSN=thlqual.SCSQLOAD,DISP=SHR  
// DD DSN=thlqual.SCSQANLE,DISP=SHR  
//SYSOUT DD SYSOUT=*  
//SYSIN DD *  
control cards  
/*
```

5. Invoke the CSQUDLQH utility and delete all the messages in the dead letter queue.

5 WebSphere MQ and CICS/TSO/Batch

Manage the CICS/MQ connection in a real time environment.

Objectives

- Start and stop MQ connections in CICS.
- Display information about the task initiator.
- Display information on CICS tasks.

Details

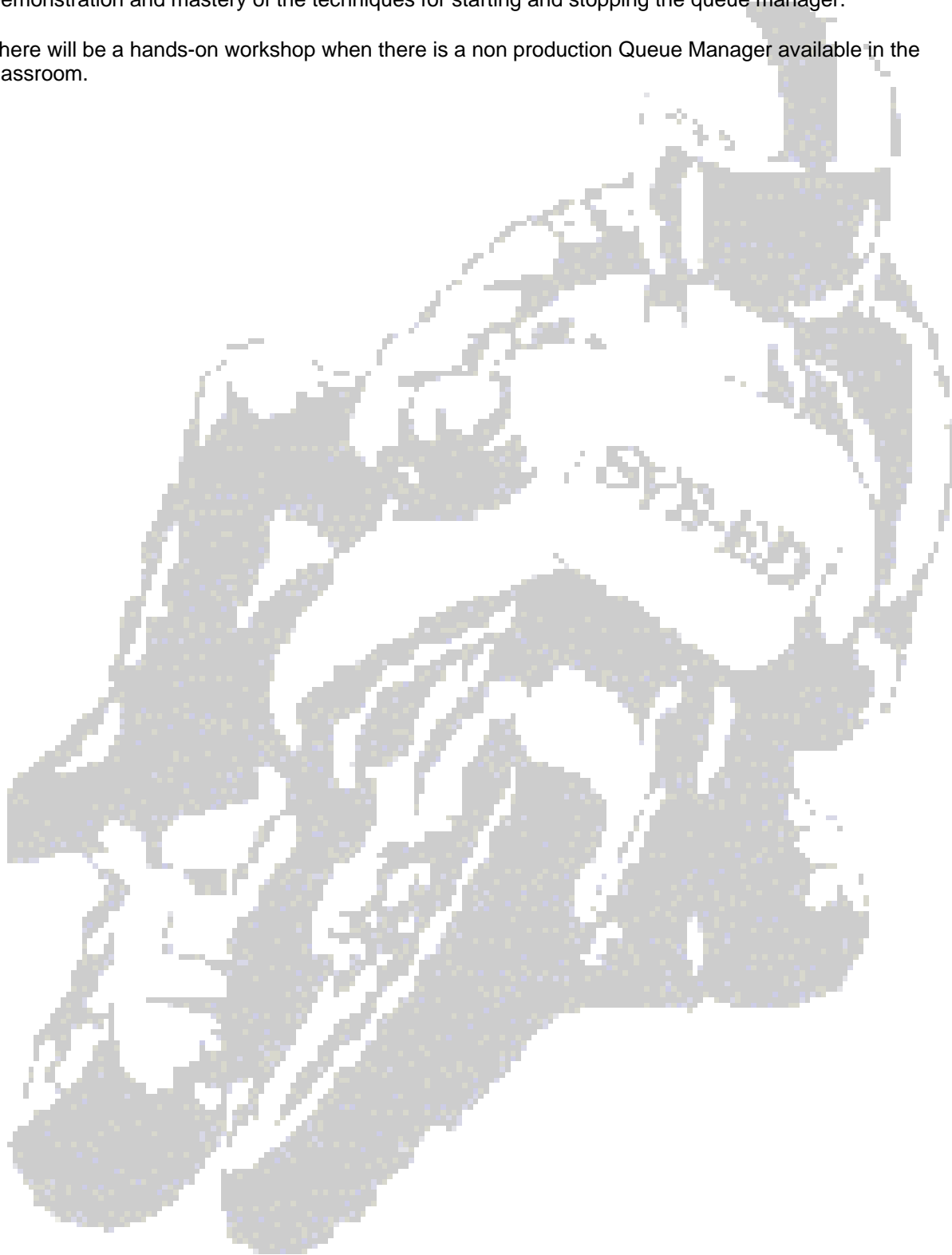
Use the CICS adapter display function to perform the following:

1. Start or stop a connection to a queue manager.
2. Display the current status of a connection and the statistics associated with that connection.
3. Start or stop an instance of the task initiator transaction, CKTI.
4. Display details of the current instances of CKTI.
5. Display details of the CICS tasks currently using the adapter.

6 Queue Manager

Demonstration and mastery of the techniques for starting and stopping the queue manager.

There will be a hands-on workshop when there is a non production Queue Manager available in the classroom.



7 WebSphere MQ Administration: Writing Programs

Learn to write MQ programs on any of the following programming languages: COBOL, Assembler Language or Java.

Objectives

- Create a local queue.
- Code a program that writes and reads a MQ local queue.
- Check for error conditions.

Details

1. Create a local queue based on an existing queue. Use all the defaults and the attributes from the model queue. The instructor will provide the name of the existing queue and the queue managers name.

Use the following naming convention for the queue name:

Firstname.QUEUE

There are a number of methods that can be used to create a queue. For this exercise, use the batch CSQUTIL utility. The following is skeleton JCL for running the utility.

```
//UTILITY EXEC PGM=CSQUTIL,PARM=('CSQ1 ')
//STEPLIB DD DSN=thlqual.SCSQANLE,DISP=SHR
//DD DSN=thlqual.SCSQAUTH,DISP=SHR
//SYSPRINT DD SYSOUT=*
//SYSIN DD *
COMMAND DDNAME(COMMAND)
/*
```

```
//COMMAND DD *  
  
DEFINE QL (Firstname.QUEUE) LIKE(instructor_provided)  
  
DISPLAY QL (Firstname.QUEUE) ALL  
  
/*
```

2. Using the queue created in step 1, write a program that:
 - Connects to the queue which has been created.
 - Checks the condition code and the responses code.
 - If an error occurs, display a message and the response code.
 - Write the name of every student in the class onto the queue.
 - Close and disconnect from the queue.

3. Code a program that does the following:
 - Connect and open the queue which has been created.
 - Checks the condition code and the responses code.
 - If an error occurs, display a message and the response code. Confirm that the operation was successful by checking the condition and response codes.
 - Display every message in the queue. Do not delete any messages.
 - Close and disconnect from the queue.

The programs will be compiled with the JCL provided by the instructor.

8 WebSphere MQ and CICS

Obtain CICS and MQ status and thread information using CKQC DISPLAY.

Objectives

- Use the CKQC DISPLAY command.
- Display CICS and MQ status information.

Details

1. Display CICS task information.
 - The CICS adapter control panels can be used for displaying information about CICS tasks using MQI calls.
 - Status information can be obtained using the CKQC DISPLAY command.
2. Display information about all the CICS tasks that are currently using MQI calls and list the following:
 - Transaction ID (name).
 - User ID.
 - CICS task number.
 - Task status.
 - Thread status.
 - Total number of API calls issued by this task.
 - Whether resource security checking is active for this task.
 - Most recent API call issued by this task.
 - Thread ID used by WebSphere MQ.

9 Logs

Appreciate and master log management in MQ and archiving logs.

Objectives

- Understand the use of the ARCHIVE LOG command.
- Understand QUIESCE options.

Details

1. When issuing the ARCHIVE LOG command, WebSphere MQ truncates the current _____ data sets.
2. When issuing the ARCHIVE LOG command, WebSphere MQ runs an asynchronous _____.
3. The ARCHIVE LOG command has a MODE(QUIESCE) option. With this option, WebSphere MQ jobs and users are quiesced after a commit point, and the resulting point of consistency is captured in the current _____ before it is off-loaded.
4. When there is a problem during the log archive process, such as when there is a problem with allocation or tape mounts, the archiving of the active log might be suspended. The archive process can be canceled and restarted by using the _____ command.
5. The _____ command can be used for extracting and printing log records.

10 Page Set Management

How to expand a page set.

Objectives

- Expand and format a page set.
- Copy messages from the source to destination page set.

Details

A page set is expanded by creating a new, larger page set and copying the messages from the old page set to the new one. The technique involves stopping and restarting the queue manager.

The page set that is to be expanded is referred to as the source page set; the new, larger page set is referred to as the destination page set.

Implement the following steps:

1. Stop the queue manager.
2. Define the destination page set, ensuring that it is larger than the source page set, with a larger secondary extent value.

Use the FORMAT function of CSQUTIL to format the destination page set.

3. Use the COPYPAGE function of CSQUTIL to copy all the messages from the source page set to the destination page set.
4. Restart the queue manager using the destination page set by doing one of the following:
 - Change the queue manager startup procedure to reference the destination page set.
 - Use Access Method Services to delete the source page set and then rename the destination page set, giving it the same name as that of the source page set.

11 Queue-Sharing Groups and Shared Queues

Work with queue sharing groups.

Objectives

- Recovery of persistent messages on shared queues.
- Moving queues and messages from one CF structure to another.
- Getting information about connections to queue managers and their associated threads.

Details

1. The _____ function of the queue-is used for adding a queue manager to a queue-sharing group.
2. The _____ function of the queue-sharing group utility (CSQ5PQSG) is used for removing a queue-sharing group from the DB2 tables.
3. WebSphere MQ can recover persistent messages on shared queues when:
 - a) Backups of the CF structures containing the messages have been performed.
 - b) All the logs for all queue managers in the queue-sharing group are available to perform recovery from the point when the backups are taken.
 - c) DB2 is available and the structure backup table is more recent than the most recent CF structure backup.
 - d) a and c.
 - e) a, b and c.
4. To move queues and their messages from one CF structure to another, the _____ command is used.
5. The _____ command can be used for getting information about connections to queue managers and their associated threads.

12 WebSphere MQ Utility Program - CSQUTIL

Use the CSQUTIL to display system information.

Objectives

- Display various information about queues, channels, processes and logs.

Details

Use MSQC commands to display the following information:

1. Archive information.
2. Channel definition.
3. Channel status.
4. Command server.
5. Channel initiator.
6. Active log information.
7. Namelist.
8. Processes.
9. Queue Manager information.
10. Status of a queue.
11. Queue information.
12. Active and in-doubt threads.