

IBM Education Assistance for z/OS V2R1

Item: Auto-Reply Support For DCCF
Synch WTOR Notification

Element/Component: BCP/Consoles



Agenda

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Trademarks

- See url <http://www.ibm.com/legal/copytrade.shtml> for a list of trademarks.



Presentation Objectives

Synchronous Write-To-Operator with Reply (WTOR) Notification

- Enhanced notification of an outstanding synchronous WTOR
- Auto-Reply expanded to support synchronous WTORs
 - Auto-Reply first introduced in z/OS V1R12
- Synchronous WTORs added to AUTOR00 parmlib member



Synchronous WTOR Overview (1 of 2)

Problem Statement / Need Addressed

Need to reduce the time a system is stopped waiting for a reply to a synchronous WTOR

Synchronous WTORs indicate **critical** problems

- System is **stopped** until a reply is provided
- Delay in replying affects other systems in the sysplex

A synchronous WTOR is displayed:

- Only on consoles **attached to the system** that issues the WTOR
- Only on **one operator console at a time** (more on this later)
- WTOR is moved to another console (on the same system) if a reply is not given within ~2 minutes
- Reply is **only accepted** from the console on which the WTOR is **currently** displayed
- Operator consoles not involved with the WTOR process appear “hung”



Synchronous WTOR Overview (2 of 2)

Solution

- Enhance Auto-Reply to support synchronous WTORs so z/OS can reply without operator involvement
- Inform operators that a synchronous WTOR is outstanding and on which console the WTOR is currently displayed

Benefit / Value

- Using Auto-Reply to reply after a reasonable delay minimizes the system stopped time
- Operators who are aware that a synchronous WTOR is outstanding are less likely to think the system is “hung” and re-IPL the system or sysplex



Usage & Invocation (1 of 31)

Auto-Reply is automatically activated during IPL if an AUTOR00 parmlib member exists

- Post-IPL, the SET AUTOR=xx command allows the specification of other parmlib members
- The SETAUTOR OFF commands turns off the Auto-Reply function
- No externals change from z/OS V1R12

Synchronous WTOR Notification changes:

- First, we will discuss the current processing
- Then describe the changes
- Note that only HMCS, 3270 MCS and the System Console can display synchronous WTORs
 - No SMCS, EMCS, printer or subsystem consoles



Usage & Invocation (2 of 31)

Current Processing – No SYNCHDEST

1) Synchronous WTOR issued

IEA015A TIMER LOST. REPLY RETRY OR ABORT



Fred



Barney



Wilma



Pebbles

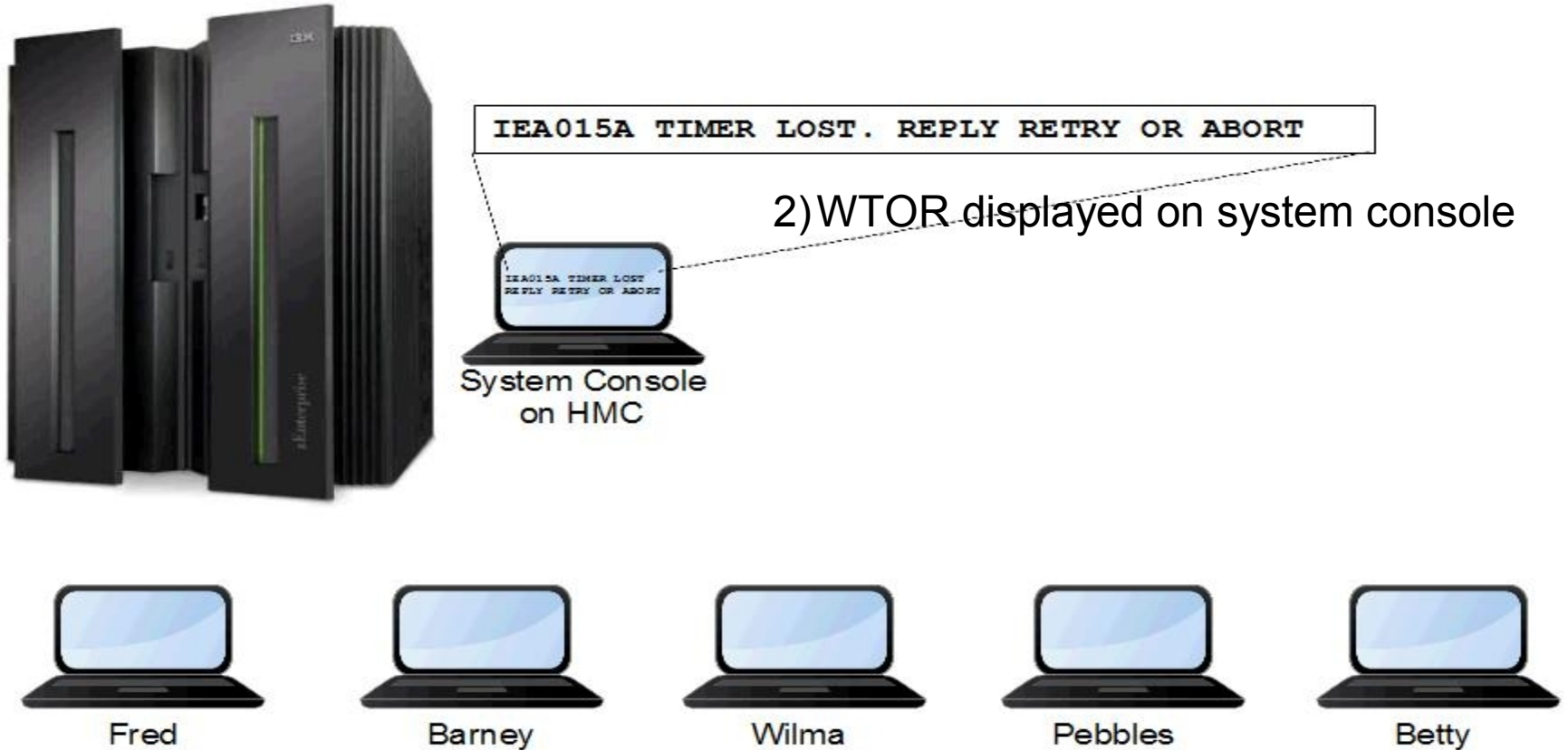


Betty

Usage & Invocation (3 of 31)

Current Processing – No SYNCHDEST

1) Synchronous WTOR issued



Usage & Invocation (4 of 31)

Current Processing – No SYNCHDEST

1) Synchronous WTOR issued



2) WTOR displayed on system console

3) System image is stopped waiting for a reply



Fred



Barney



Wilma



Pebbles



Betty

Usage & Invocation (5 of 31)

Current Processing – No SYNCHDEST

1) Synchronous WTOR issued



2) WTOR displayed on system console

3) System image is stopped waiting for a reply

4) Consoles appear “hung”



Fred



Barney



Wilma



Pebbles



Betty

Usage & Invocation (6 of 31)

Current Processing – No SYNCHDEST

Operations staff has to:

- Notice the system is stopped
- Access the system console on the HMC
- Notice the WTOR awaiting a reply
- Determine what the reply should be
- Provide a reply



Fred



Barney



Wilma



Pebbles



Betty

Usage & Invocation (7 of 31)

If SYNCHDEST is specified, synchronous WTOR processing is different

Assume we have a SYNCHDEST list containing consoles:

- Fred
- Wilma

Although the system console does not appear in the list, it is always the last console to receive a synchronous WTOR

- The “Console Of Last Resort”



Usage & Invocation (8 of 31)

Current Processing – With SYNCHDEST

SYNCHDEST list: Fred, Wilma

1) Synchronous WTOR issued

IEA015A TIMER LOST. REPLY RETRY OR ABORT



Fred



Barney



Wilma



Pebbles



Betty

Usage & Invocation (9 of 31)

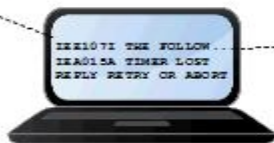
Current Processing – With SYNCHDEST

SYNCHDEST list: Fred, Wilma

- 1) Synchronous WTOR issued
- 2) WTOR is displayed on first active MCS console in the group (Fred)
- 3) System image is stopped waiting for a reply
- 4) Consoles appear “hung”



IEE107I THE FOLLOWING MESSAGE IS ISSUED BY SYNCHRONOUS WTO/R SERVICE
IEA015A TIMER LOST. REPLY RETRY OR ABORT



Fred



Barney



Wilma



Pebbles



Betty

Usage & Invocation (10 of 31)

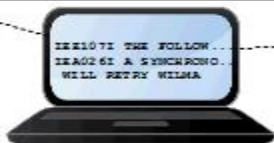
Current Processing – With SYNCHDEST

SYNCHDEST list: Fred, Wilma

5) After ~2 minutes if no reply, Fred is updated to indicate where the WTOR will appear next (Wilma)



IEE107I THE FOLLOWING MESSAGE IS ISSUED BY SYNCHRONOUS WTO/R SERVICE
IEA026I A SYNCHRONOUS WTOR TIMED OUT ON THIS CONSOLE -
WILL RETRY THE WTOR ON CONSOLE WILMA



Fred



Barney



Wilma



Pebbles



Betty

Usage & Invocation (11 of 31)

Current Processing – With SYNCHDEST

SYNCHDEST list: Fred, Wilma

5) After ~2 minutes if no reply, Fred is updated to indicate where the WTOR will appear next (Wilma)

6) WTOR is displayed on Wilma



IEE107I THE FOLLOWING MESSAGE IS ISSUED BY SYNCHRONOUS WTO/R SERVICE
IEA026I A SYNCHRONOUS WTO/R TIMED OUT ON THIS CONSOLE -
WILL RETRY THE WTO/R ON CONSOLE WILMA

IEE107I THE FOLLOW...
IEA026I A SYNCHRONO...
WILL RETRY WILMA

Fred

Barney

IEE107I THE FOLLOWING MESSAGE IS ISSUED BY SYNCHRONOUS WTO/R SERVICE
IEA015A TIMER LOST. REPLY RETRY OR ABORT

IEE107I THE FOLLOW...
IEA015A TIMER LOST...
REPLY RETRY OR ABORT

Wilma

Pebbles

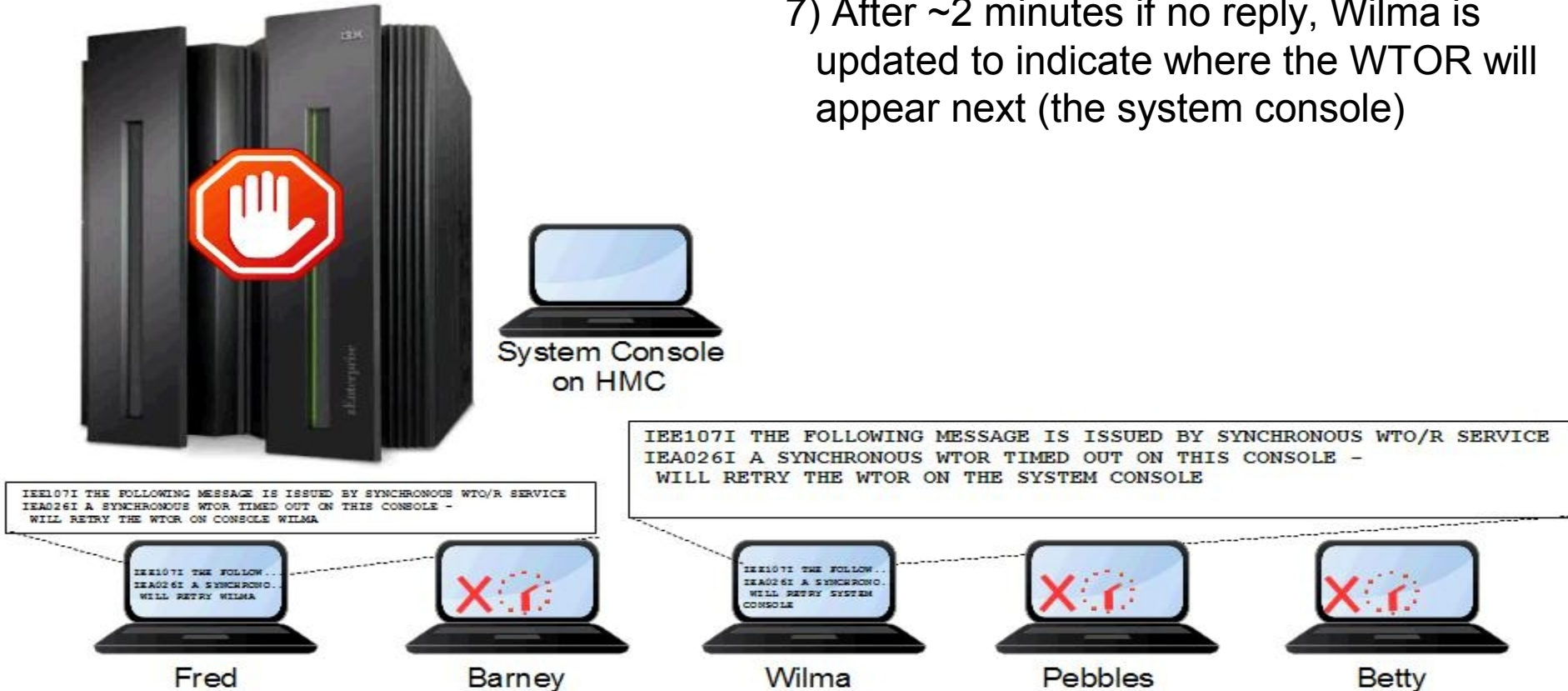
Betty

Usage & Invocation (12 of 31)

Current Processing – With SYNCHDEST

SYNCHDEST list: Fred, Wilma

7) After ~2 minutes if no reply, Wilma is updated to indicate where the WTOR will appear next (the system console)



Usage & Invocation (13 of 31)

Current Processing – With SYNCHDEST

SYNCHDEST list: Fred, Wilma

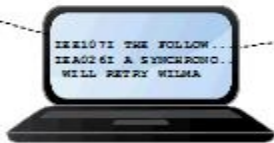
7) After ~2 minutes if no reply, Wilma is updated to indicate where the WTOR will appear next (the system console)

8) WTOR is displayed on the system console

9) WTOR remains on system console until a reply is provided



IEE107I THE FOLLOWING MESSAGE IS ISSUED BY SYNCHRONOUS WTOR/R SERVICE
IEA026I A SYNCHRONOUS WTOR TIMED OUT ON THIS CONSOLE -
WILL RETRY THE WTOR ON CONSOLE WILMA

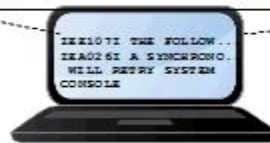


Fred



Barney

IEE107I THE FOLLOWING MESSAGE IS ISSUED BY SYNCHRONOUS WTOR/R SERVICE
IEA026I A SYNCHRONOUS WTOR TIMED OUT ON THIS CONSOLE -
WILL RETRY THE WTOR ON THE SYSTEM CONSOLE



Wilma



Pebbles



Betty

Usage & Invocation (14 of 31)

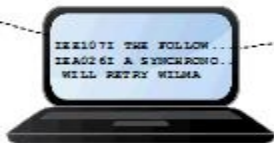
Current Processing – With SYNCHDEST

Operations staff has to:

- Notice the system is stopped
- Locate the console with the WTOR
 - Finding one console where the WTOR was displayed will lead to the end
 - Depending on SYNCHDEST list and console locations, running the chain may take some time



IEE1071 THE FOLLOWING MESSAGE IS ISSUED BY SYNCHRONOUS WTOR SERVICE
IEA0261 A SYNCHRONOUS WTOR TIMED OUT ON THIS CONSOLE -
WILL RETRY THE WTOR ON CONSOLE WILMA

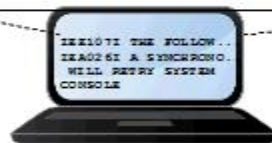


Fred



Barney

IEE1071 THE FOLLOWING MESSAGE IS ISSUED BY SYNCHRONOUS WTOR SERVICE
IEA0261 A SYNCHRONOUS WTOR TIMED OUT ON THIS CONSOLE -
WILL RETRY THE WTOR ON THE SYSTEM CONSOLE



Wilma



Pebbles



Betty

Usage & Invocation (15 of 31)

- For z/OS V2R1, we have enhanced the operator notification of synchronous WTORs
- We will revisit the flow assuming no SYNCHDEST has been specified



Usage & Invocation (16 of 31)

z/OS V2R1 – No SYNCHDEST

1) Synchronous WTOR is issued

IEA015A TIMER LOST. REPLY RETRY OR ABORT

2) All active MCS/HMCS consoles attached to the system image are notified



**CNZ4215W THE SYSTEM HAS BEEN STOPPED. MESSAGE IEA015A IS DISPLAYED ON THE SYSTEM CONSOLE AND IS AWAITING AN OPERATOR REPLY.
(THE SYSTEM CONSOLE IS LOCATED ON THE HARDWARE MANAGEMENT CONSOLE)**



Fred



Barney



Wilma



Pebbles



Betty

Usage & Invocation (17 of 31)

z/OS V2R1 – No SYNCHDEST

- 1) Synchronous WTOR is issued
- 2) All active MCS/HMCS consoles attached to the system image are



IEA015A TIMER LOST. REPLY RETRY OR ABORT



- 3) The WTOR is displayed on the system console
- 4) The system image is stopped

CNS4215W THE SYSTEM HAS BEEN STOPPED. MESSAGE IEA015A IS DISPLAYED ON THE SYSTEM CONSOLE AND IS AWAITING AN OPERATOR REPLY.
(THE SYSTEM CONSOLE IS LOCATED ON THE HARDWARE MANAGEMENT CONSOLE)



Fred



Barney



Wilma



Pebbles



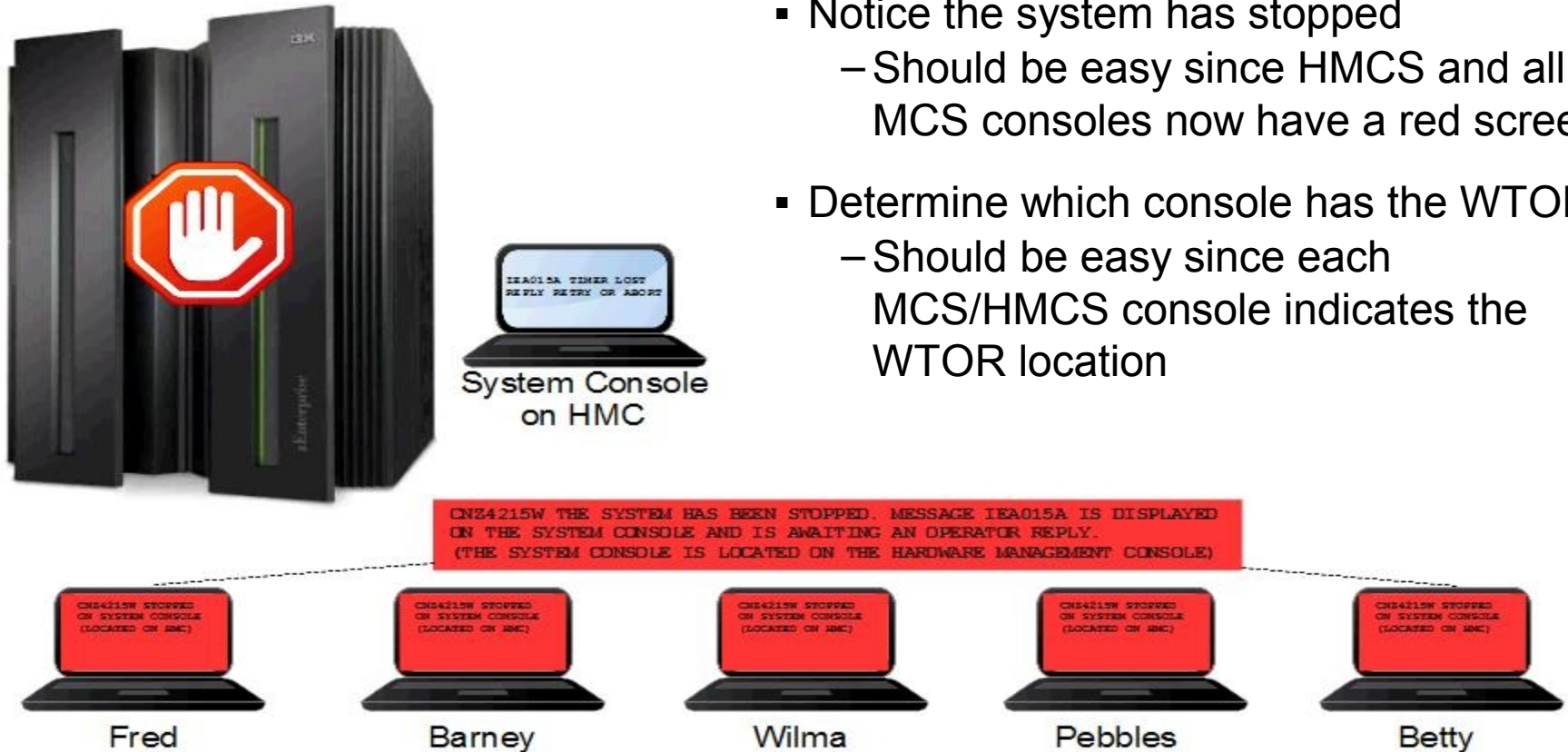
Betty

Usage & Invocation (18 of 31)

z/OS V2R1 – No SYNCHDEST

Operations staff has to:

- Notice the system has stopped
 - Should be easy since HMCS and all MCS consoles now have a red screen
- Determine which console has the WTOR
 - Should be easy since each MCS/HMCS console indicates the WTOR location



Usage & Invocation (19 of 31)

- SYNCHDEST processing has also been enhanced in z/OS V2R1
- Assume we have the same SYNCHDEST list:
 - Fred
 - Wilma



Usage & Invocation (20 of 31)

z/OS V2R1 – SYNCHDEST

SYNCHDEST list: Fred, Wilma

1) Synchronous WTOR is issued

IEA015A TIMER LOST. REPLY RETRY OR ABORT

2) All active MCS/HMCS consoles attached to this system image are notified

- Except the console that is to display the WTOR (Fred)



CNZ4215W THE SYSTEM HAS BEEN STOPPED. MESSAGE IEA015A IS DISPLAYED ON CONSOLE FRED AND IS AWAITING AN OPERATOR REPLY.



Fred



Barney



Wilma



Pebbles



Betty

Usage & Invocation (21 of 31)

z/OS V2R1 – SYNCHDEST

SYNCHDEST list: Fred, Wilma

1) Synchronous WTOR is issued

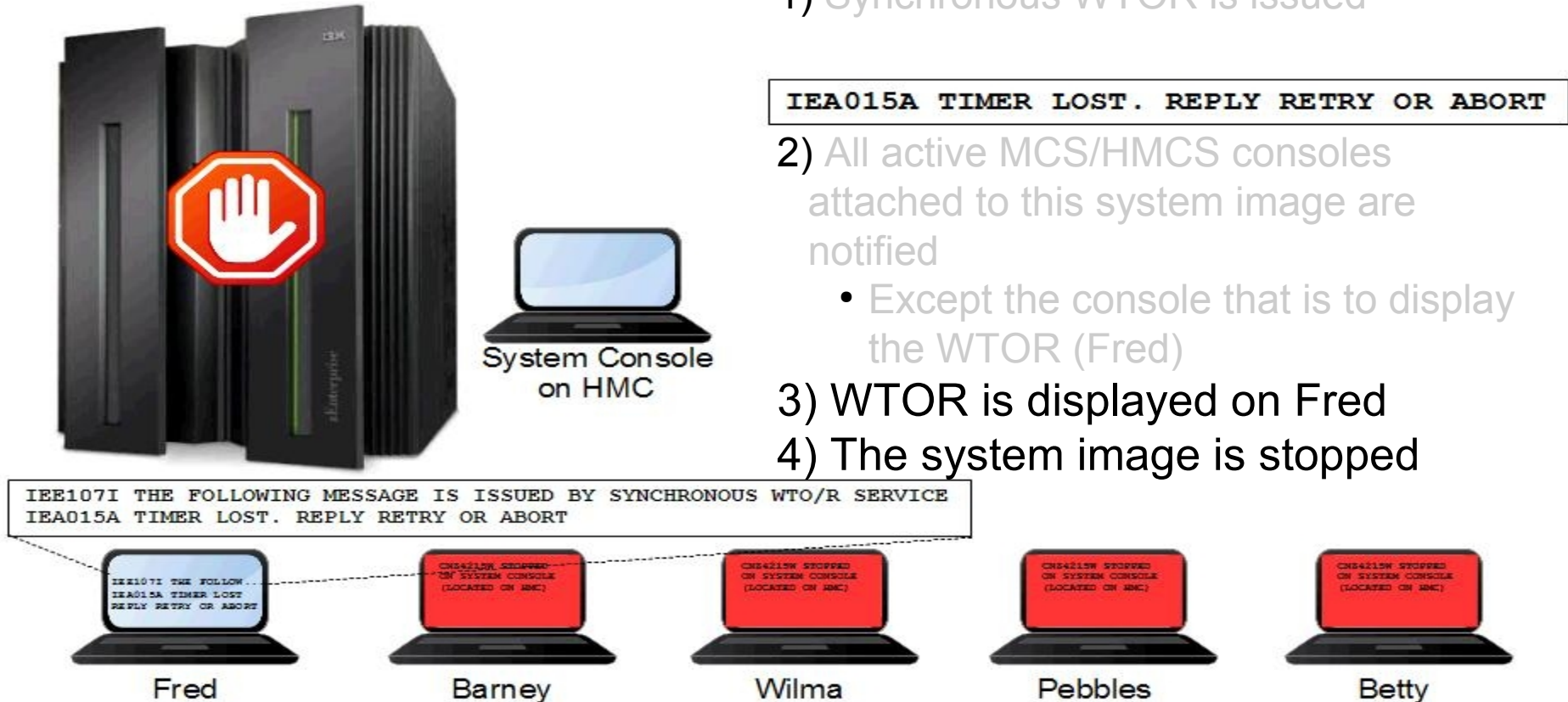
IEA015A TIMER LOST. REPLY RETRY OR ABORT

2) All active MCS/HMCS consoles attached to this system image are notified

- Except the console that is to display the WTOR (Fred)

3) WTOR is displayed on Fred

4) The system image is stopped



Usage & Invocation (22 of 31)

z/OS V2R1 – SYNCHDEST

SYNCHDEST list: Fred, Wilma



5) After ~2 minutes if no reply, all MCS/HMCS consoles attached to the system image are updated to indicate which console now has the WTOR (Wilma)

- Except for Wilma

CNZ4216A THE SYSTEM REMAINS STOPPED. MESSAGE IEA015A HAS NOT BEEN REPLIED TO AND IS NOW DISPLAYED ON CONSOLE WILMA.



Usage & Invocation (23 of 31)

z/OS V2R1 – SYNCHDEST

SYNCHDEST list: Fred, Wilma



5) After ~2 minutes if no reply, all MCS/HMCS consoles attached to the system image are updated to indicate which console now has the WTOR (Wilma)

- Except for Wilma

6) The WTOR is displayed on Wilma

IEE107I THE FOLLOWING MESSAGE IS ISSUED BY SYNCHRONOUS WTO/R SERVICE
IEA015A TIMER LOST. REPLY RETRY OR ABORT



Fred



Barney



Wilma



Pebbles



Betty

Usage & Invocation (24 of 31)

z/OS V2R1 – SYNCHDEST

SYNCHDEST list: Fred, Wilma



7) After ~2 minutes if no reply, all MCS/HMCS consoles attached to the system image are updated to indicate which console now has the WTOR (the system console)

CNZ4216A THE SYSTEM REMAINS STOPPED. MESSAGE IEA015A HAS NOT BEEN REPLIED TO
AND IS NOW DISPLAYED ON THE SYSTEM CONSOLE.
(THE SYSTEM CONSOLE IS LOCATED ON THE HARDWARE MANAGEMENT CONSOLE)



Fred



Barney



Wilma



Pebbles



Betty

Usage & Invocation (25 of 31)

z/OS V2R1 – SYNCHDEST

SYNCHDEST list: Fred, Wilma



7) After ~2 minutes if no reply, all MCS/HMCS consoles attached to the system image are updated to indicate which console now has the WTOR (the system console)

8) The WTOR is displayed on the system console where it remains until a reply is provided

IEA015A TIMER LOST. REPLY RETRY OR ABORT



Fred



Barney



Wilma



Pebbles



Betty

Usage & Invocation (26 of 31)

z/OS V2R1 – SYNCHDEST

Operations staff has to:

- Notice the system has stopped
 - Should be easy since HMCS and all MCS consoles now have a red screen
- Determine which console has the WTOR
 - Should be easy since each MCS/HMCS console indicates the WTOR location



Fred



Barney



Wilma



Pebbles



Betty

Usage & Invocation (27 of 31)

- If AUTOR00 was set to monitor WTOR IEA015A with:
 - **Delay (2M) Reply (RETRY)**

- And no SYNCHDEST processing was requested:
 - WTOR is displayed on the System Console
 - Auto-Reply will provide the reply after two minutes

- If we have the same SYNCHDEST list:
 - Fred
 - Wilma

- WTOR is displayed on Fred for two minutes, then Auto-Reply provides the reply



Usage & Invocation (28 of 31)

If the synchronous WTOR is being managed by Auto-Reply, different messages will be displayed

CNZ2610I THE FOLLOWING SYNCHRONOUS WTOR IS BEING MANAGED BY AUTO-REPLY

Instead of:

IEE107I THE FOLLOWING MESSAGE IS ISSUED BY SYNCHRONOUS WTO/R SERVICE

**CNZ4215W THE SYSTEM HAS BEEN STOPPED. MESSAGE IEA015A IS DISPLAYED
ON CONSOLE FRED AND IS AWAITING AN OPERATOR REPLY.
THE MESSAGE IS BEING MANAGED BY AUTO-REPLY.**

Instead of:

**CNZ4215W THE SYSTEM HAS BEEN STOPPED. MESSAGE IEA015A IS DISPLAYED
ON CONSOLE FRED AND IS AWAITING AN OPERATOR REPLY.**



Usage & Invocation (29 of 31)

**CNZ4216A THE SYSTEM REMAINS STOPPED. MESSAGE IEA015A HAS NOT BEEN REPLIED TO
AND IS NOW DISPLAYED ON CONSOLE WILMA.
THE MESSAGE IS BEING MANAGED BY AUTO-REPLY.**

Instead of:

**CNZ4216A THE SYSTEM REMAINS STOPPED. MESSAGE IEA015A HAS NOT BEEN REPLIED TO
AND IS NOW DISPLAYED ON CONSOLE WILMA.**



Usage & Invocation (30 of 31)

Considerations

Synchronous WTORs are **only displayed** on active HMCS, MCS (3270) consoles and the system console

- SMCS, EMCS, subsystem and printer consoles are ignored
- Consoles must be attached to the **same system** where the WTOR is issued

Notification messages are **only displayed** on active HMCS and MCS (3270) consoles on the **same system** where the WTOR is issued

To achieve the benefit of notification:

- Each system image should have at least one active HMCS or MCS (3270) console



Usage & Invocation (31 of 31)

Considerations

- To reduce the likelihood of needing to access the system console:
 - Enable Auto-Reply to provide a reply
 - Provide a SYNCHDEST list

- Once a synchronous WTOR makes it to the system console, operations will need to access the Hardware Management Console to provide a reply
 - The system console interface is different than traditional z/OS operator consoles
 - Operators should be trained on using the system console



Interactions & Dependencies

- Software Dependencies
 - None
- Hardware Dependencies
 - None
- Exploiters
 - The following synchronous WTORs have been added to AUTOR00 (see the appendix for the full message text)
 - BLW004A
 - IEA015A
 - IEA367A
 - IEA394A
 - IEA500A
 - IEA502A



Installation (1 of 2)

- Update your AUTOR00 parmlib member with the one provided in z/OS V2R1
- If Auto-Reply is to be used, ensure member AUTOR00 exists in your active parmlib concatenation
- Enable operators to have access to the system console located on the Hardware Management Console
 - If you do not want operators to have access to the HMC, ensure SYNCHDEST is set up
 - Even if SYNCHDEST is used, synchronous WTORs **may still** end up on the system console
- Train your operators on how to reply to a synchronous WTOR from the system console



Installation (2 of 2)

- If SYNCHDEST is desired:
 - Ensure your CONSOLxx parmlib member contains a SYNCHDEST group specification on the DEFAULT statement
 - Ensure your CNGRPxx parmlib member contains a console group name that matches the name of the SYNCHDEST group
 - Ensure your CNGRPxx parmlib member is activated via the CONSOLxx INIT CNGRP(xx) statement
 - Have at least one HMCS or MCS (3270) operator console active per system
 - If you do not have one, z/OS cannot notify your operators (except via the System Console)
 - Locate near your operations staff
 - SMCS/EMCS consoles are **NOT** used for synchronous WTORs



Presentation Summary

Synchronous WTORs

- Supported by Auto-Reply
- Customer planning required to implement SYNCHDEST
 - Not a new requirement
 - SYNCHDEST was introduced 1990
- Operator education needed for use of system console
 - Not a new requirement
 - The system console was introduced 1990
- Behavior of synchronous WTORs has not changed
 - The notification of operators has changed
 - MCS/HMCS consoles need to be active on each system image to receive the benefit of notification changes



Appendix

- *z/OS V2R1 MVS Initialization and Tuning Reference (SA23-1380)*
 - AUTORxx, CNGRPxx, CONSOLxx, SYNCHDEST

- *z/OS V2R1 MVS System Commands (SA38-0666)*
 - SET AUTOR=xx, SETAUTOR, DISPLAY AUTOR, FORCE TCB

- *z/OS V2R1 MVS Planning: Operations (SA23-1390)*
 - Auto-Reply, SYNCHDEST

- *z/OS MVS Data Areas (GA32-0935)*
 - ASCBNOFT bit



Appendix – Synchronous WTORs added to AUTOR00 (1 of 6)

```
BLW004A RESTART INTERRUPT DURING jobname stepname ASID=asid  
      MODE=mode PSW=ppppppppp  
      SYSTEM NON-DISPATCHABILITY INDICATOR IS {ON|OFF}  
      REPLY ABEND TO ABEND INTERRUPTED PROGRAM,  
      RESUME TO RESUME INTERRUPTED PROGRAM,  
      REPAIR TO PERFORM REPAIR ACTIONS.
```

Delay(60S) Reply(REPAIR)



Appendix – Synchronous WTORs added to AUTOR00 (2 of 6)

IEA015A THIS SYSTEM HAS LOST ALL CONNECTION TO THE SYSPLEX TIMER. IF THIS EVENT OCCURRED ON SOME, BUT NOT ALL SYSPLEX MEMBERS, THE LIKELY CAUSE IS A LINK FAILURE. TO FIX, ENSURE THAT EACH AFFECTED SYSTEM HAS AT LEAST ONE CORRECTLY CONNECTED AND FUNCTIONAL LINK.

IF THIS EVENT OCCURRED ON ALL SYSPLEX MEMBERS, THEN THE LIKELY CAUSE IS A SYSPLEX TIMER FAILURE. TO FIX, REFER TO THE MESSAGE IEA015A DESCRIPTION IN MVS SYSTEM MESSAGES.

AFTER FIXING THE PROBLEM, REPLY "RETRY" FROM THE SERVICE CONSOLE (HMC). IF THE PROBLEM WAS NOT CORRECTED, THIS MESSAGE WILL BE REISSUED AND YOU MAY TRY AGAIN. REPLY "ABORT" TO EXIT MESSAGE LOOP. PROBABLE RESULT: 0A2-114 WAITSTATE

Delay(2M) Reply(RETRY)



Appendix – Synchronous WTORs added to AUTOR00 (3 of 6)

IEA367A MULTIPLE CONSOLE SUPPORT INOPERATIVE ERROR CODE = xxxx
REPLY WITH ANY CHARACTER TO CONTINUE WITHOUT MULTIPLE CONSOLE
SUPPORT

Delay(15S) Reply(U)



Appendix – Synchronous WTORs added to AUTOR00 (4 of 6)

IEA394A THIS SERVER HAS LOST CONNECTION TO ITS SOURCE OF TIME.
IF THIS EVENT OCCURRED ON SOME, BUT NOT ALL NETWORK SERVERS, THE
LIKELY CAUSE IS A LINK FAILURE.

TO FIX, ENSURE THAT EACH AFFECTED SERVER HAS AT LEAST ONE
CORRECTLY CONNECTED AND FUNCTIONAL LINK.

IF THIS EVENT OCCURRED ON ALL NETWORK SERVERS, THEN THE LIKELY
CAUSE IS A TIMING NETWORK FAILURE.

TO FIX, REFER TO THE MESSAGE IEA394A DESCRIPTION IN MVS SYSTEM
MESSAGES.

AFTER FIXING THE PROBLEM, REPLY "RETRY" FROM THE SERVICE CONSOLE
(HMC).

IF THE PROBLEM WAS NOT CORRECTED, THIS MESSAGE WILL BE REISSUED
AND YOU MAY TRY AGAIN.

REPLY "ABORT" TO EXIT THE MESSAGE LOOP. PROBABLE RESULT: 0A2-158
WAITSTATE.

Delay(2M) Reply(RETRY)



Appendix – Synchronous WTORs added to AUTOR00 (5 of 6)

```
IEA500A RESTART INTERRUPT DURING jobname stepname ASID=aaaa  
      MODE=mmmm PSW=psw  
      REPLY RESUME TO RESUME INTERRUPTED PROGRAM  
      REPLY ABEND TO ABEND INTERRUPTED PROGRAM
```

Delay(60S) Reply(ABEND)



Appendix – Synchronous WTORs added to AUTOR00 (6 of 6)

IEA502A RESTART REASON COULD NOT BE OBTAINED. REPLY WITH RESTART
REASON CODE:

Delay(60S) Reply(1)



Appendix – Synchronous WTOR Testcase (1 of 4)

```

        TITLE 'TestSync - Synchronous WTOR Test'
TESTSYNC RSECT                Set up control section
TESTSYNC AMODE 31              Address mode of module
TESTSYNC RMODE ANY            Residence of module
        BAKR  14,0             Save register/psw status
        BASR  12,0
        USING *,12
        MODESET MODE=SUP
        MODESET KEY=ZERO
        WTOR Text=(( (Msg_Text1,D) , (Msg_Text2,D) , (Msg_text3,D) ,      X
                    (Msg_text4,DE) ) ,Reply,L'Reply,WTORECB) ,          x
                    LINKAGE=BRANCH,SYNCH=YES
        MODESET KEY=NZERO
        MODESET MODE=PROB
        PR
WTORECB  DC          F'0 '
REPLY    DC          CL32'  '
MSG_TEXT1 DS         CL52
          ORG         MSG_TEXT1
@NM00001 DC          AL2(50)
REALTEXT1 DC         CL50'CNZXXXXA This is an example of a synchronous WTO*
          R. '

```



Appendix – Synchronous WTOR Testcase (2 of 4)

```

      ORG      MSG_TEXT1+52
MSG_TEXT3 DS   CL46
      ORG      MSG_TEXT3
      DC       AL2(44)
      DC       CL44'          remember to check the priority box.'
      ORG      MSG_TEXT3+46
MSG_TEXT4 DS   CL57
      ORG      MSG_TEXT4
      DC       AL2(55)
      DC       CL55'          Reply 0,U (or anything else besides U t*
                                o end) .'
      ORG      MSG_TEXT4+57
MSG_TEXT2 DS   CL53
      ORG      MSG_TEXT2
      DC       AL2(51)
      DC       CL51'          If replying from the system console (HM*
                                C) , '
      ORG      MSG_TEXT2+53
      END
```



Appendix – Synchronous WTOR Testcase (3 of 4)

When displayed on an MCS console, the message looks like:

```
IEE107I THE FOLLOWING MESSAGE IS ISSUED BY SYNCHRONOUS WTO/R SERVICE
*00    CNZXXXXA This is an example of a synchronous WTOR.
          If replying from the system console (HMC),
          remember to check the priority box.
          Reply 0,U (or anything else besides U to end) .
```

```
R 0 ,
```



Appendix – Synchronous WTOR Testcase (4 of 4)

- When you link-edit the module
 - Say NORENT since the code is non-reentrant
 - Specify AC(1) so the code will be authorized
 - Allows the code to get into supervisor state, key 0.

