Modernize your IMS Connect Systems using Automation

Session A03

Jim Martin
IMS Connect Extensions Architect
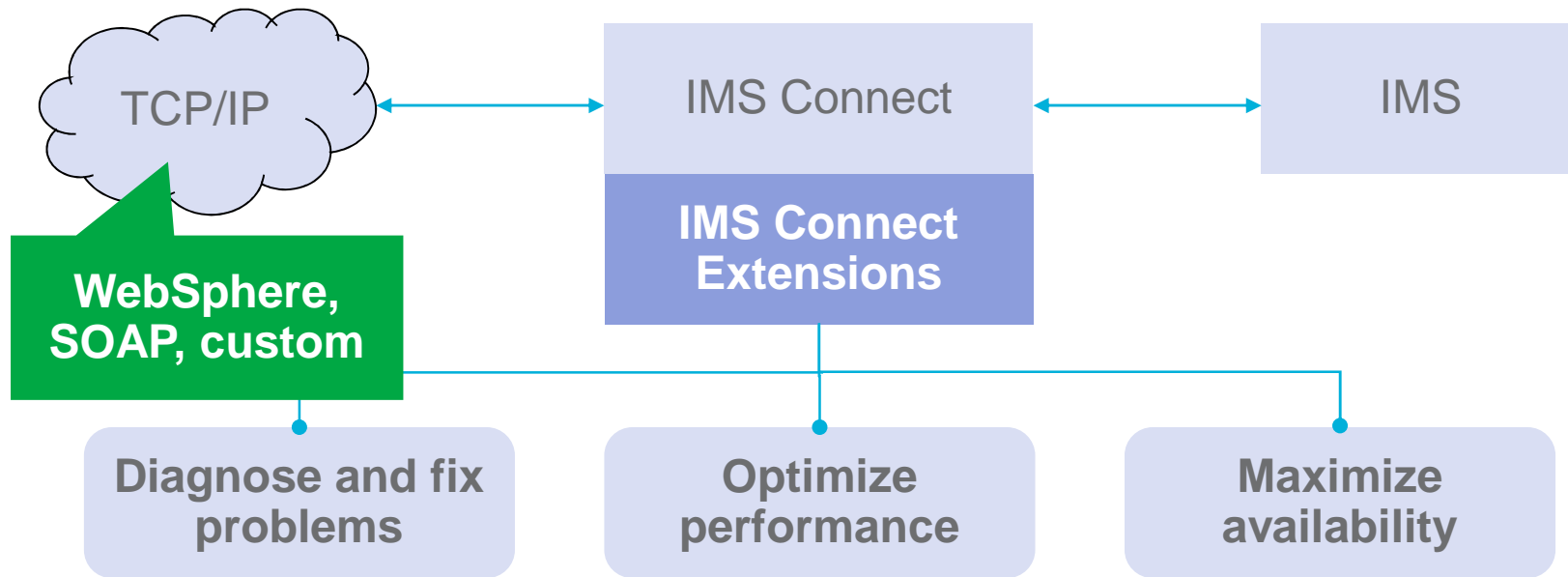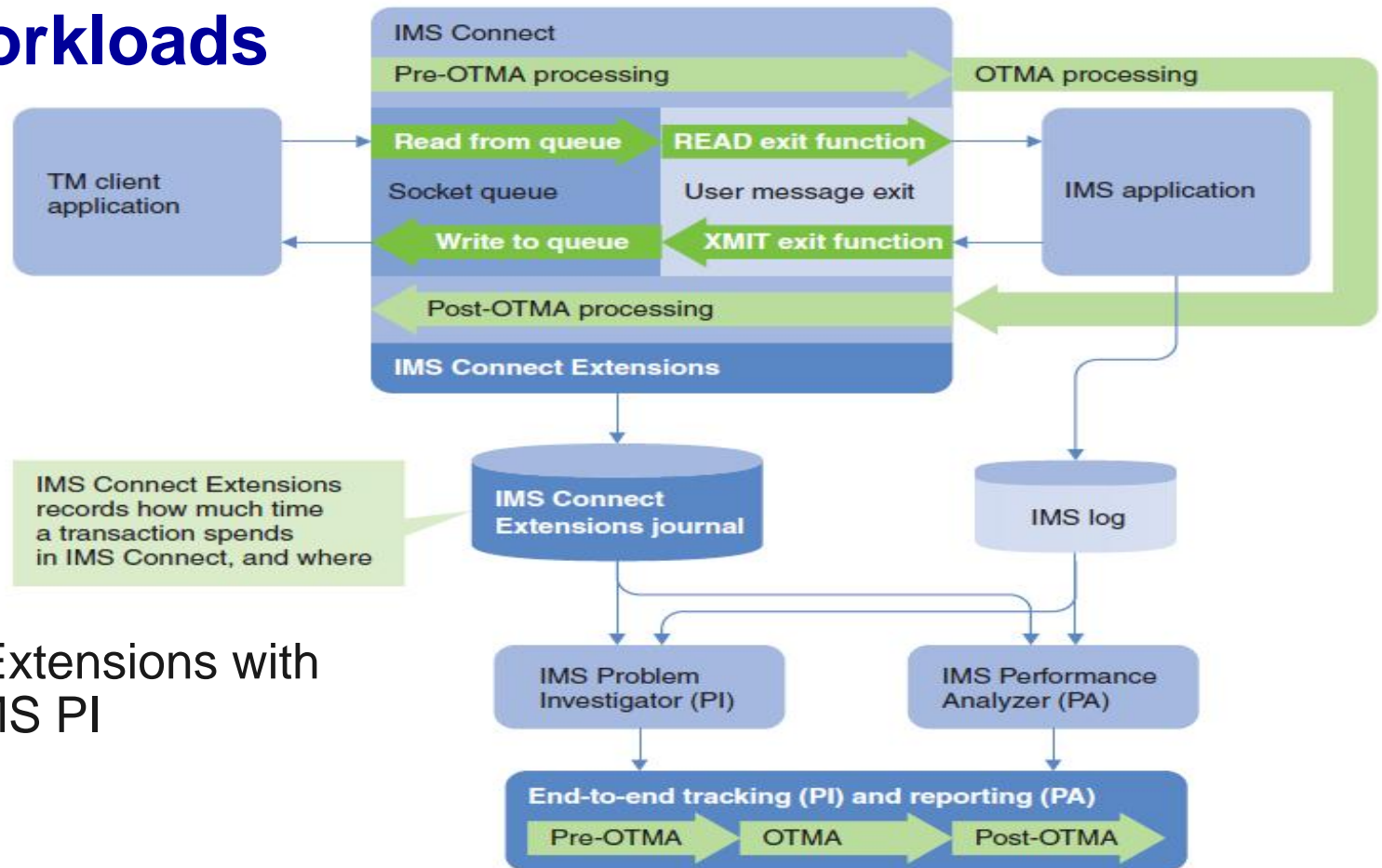
IMS Technical Symposium 2015

IBM

Overview

➢ IMS Connect Extensions at a glance

➢ Operating IMS Connect without using VIEWHWS

➢ Recorder trace not needed

➢ New features in CEX V240

➢ Cloud Support using Routing

➢ Automation capabilities using CEX

➢ Security

➢ Client session management

IMS Connect Extensions at a Glance
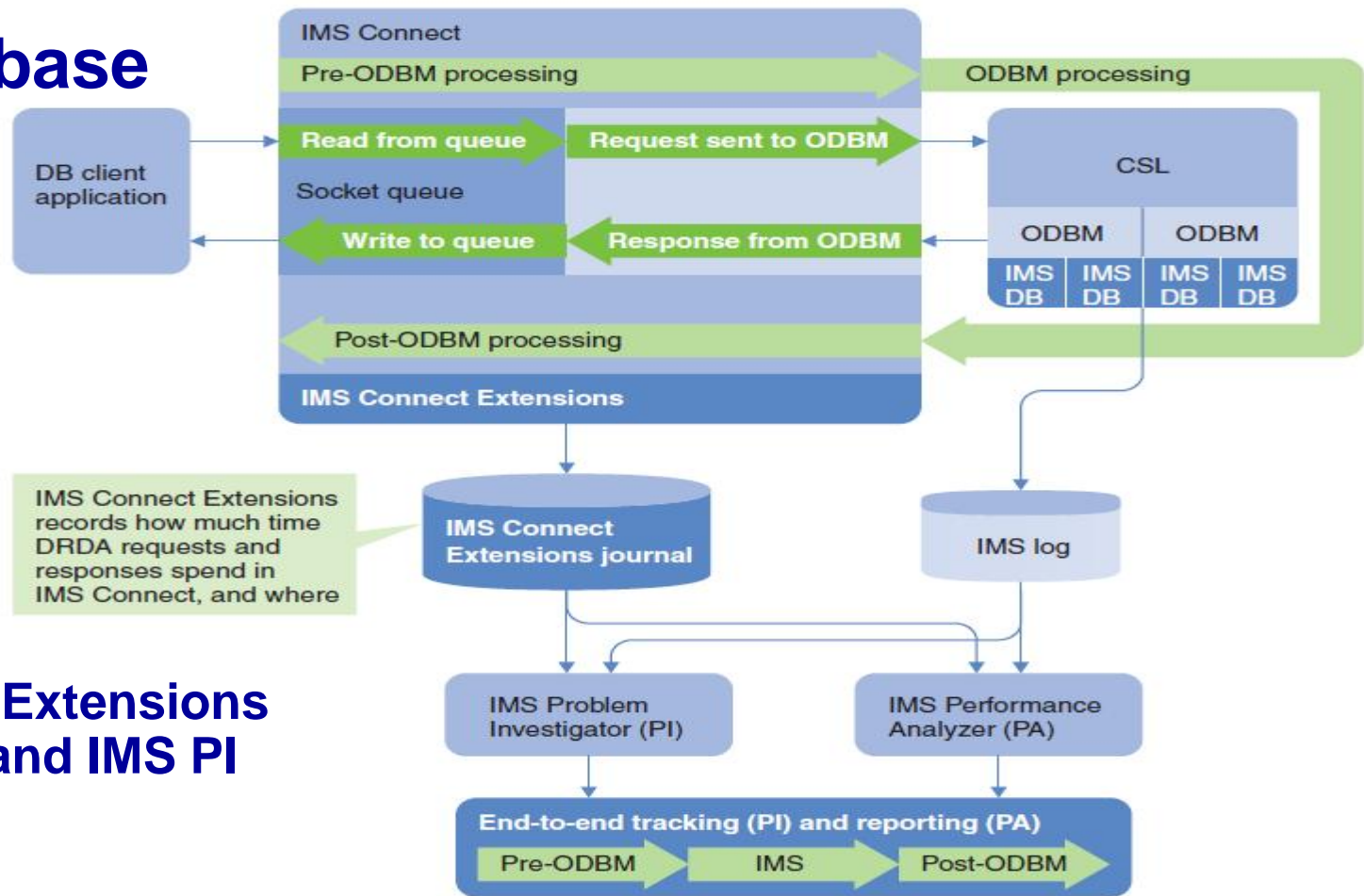
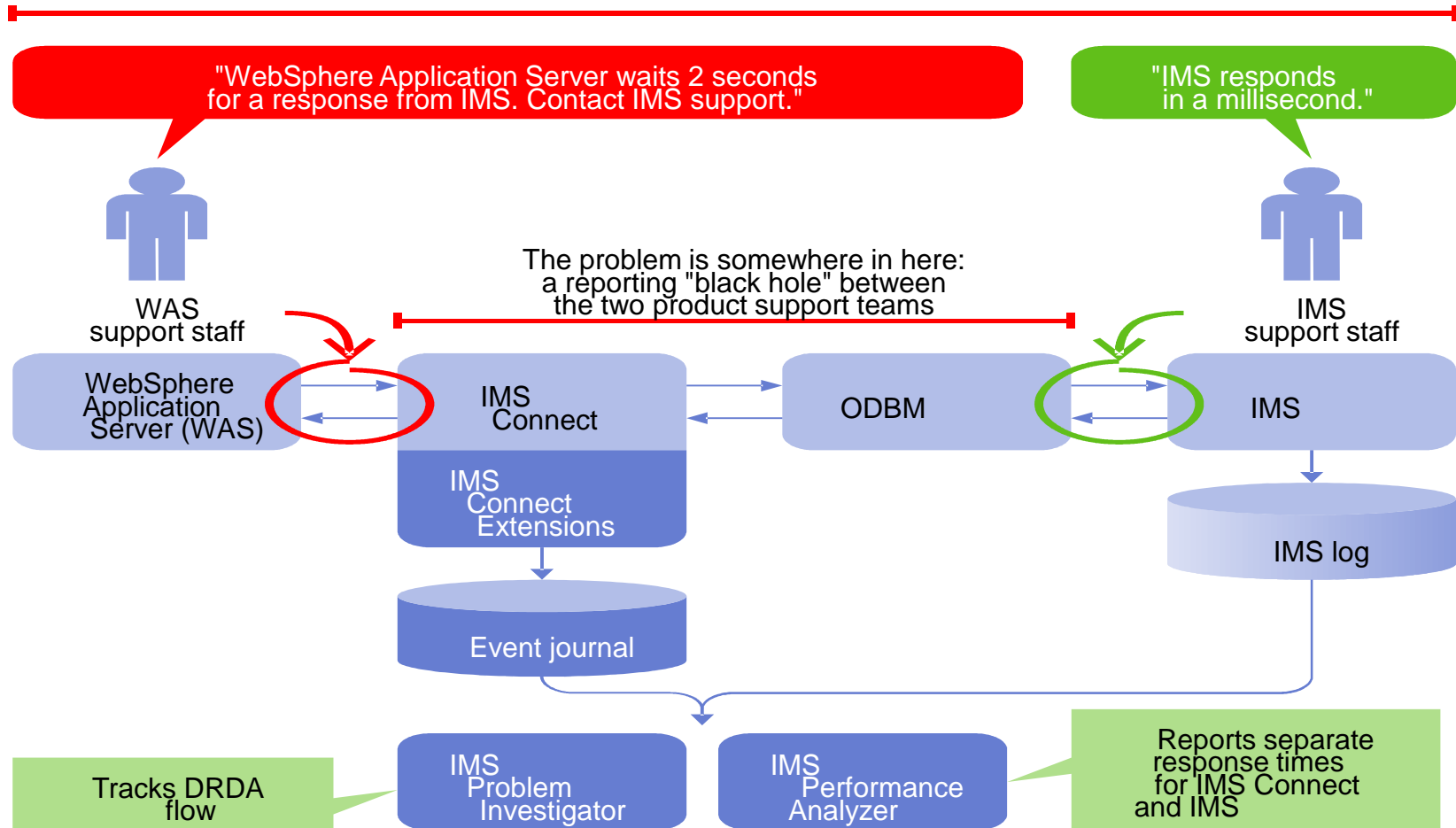TCP/IP ←→ IMS Connect ←→ IMS

IMS Connect Extensions

WebSphere, SOAP, custom

Diagnose and fix problems

Optimize performance

Maximize availability

OTMA Workloads

IMS Connect Extensions with
IMS PA and IMS PI

Open Database Workloads

IMS Connect Extensions with IMS PA and IMS PI

IMS Connect

Pre-ODBM processing ➤

ODBM processing

DB client application →

Read from queue ➤ Request sent to ODBM ➤ → CSL

Socket queue

ODBM | ODBM

← Write to queue ← Response from ODBM ←

IMS DB | IMS DB | IMS DB | IMS DB

← Post-ODBM processing ←

IMS Connect Extensions

IMS Connect Extensions records how much time DRDA requests and responses spend in IMS Connect, and where

IMS Connect Extensions journal

IMS log

IMS Problem Investigator (PI)

IMS Performance Analyzer (PA)

End-to-end tracking (PI) and reporting (PA)

Pre-ODBM ➤ IMS ➤ Post-ODBM ➤

Response times over 2 seconds!

"WebSphere Application Server waits 2 seconds for a response from IMS. Contact IMS support."

"IMS responds in a millisecond."

WAS support staff

IMS support staff

The problem is somewhere in here: a reporting "black hole" between the two product support teams

WebSphere Application Server (WAS)

IMS Connect

ODBM

IMS

IMS Connect Extensions

IMS log

Event journal

Tracks DRDA flow

IMS Problem Investigator

IMS Performance Analyzer

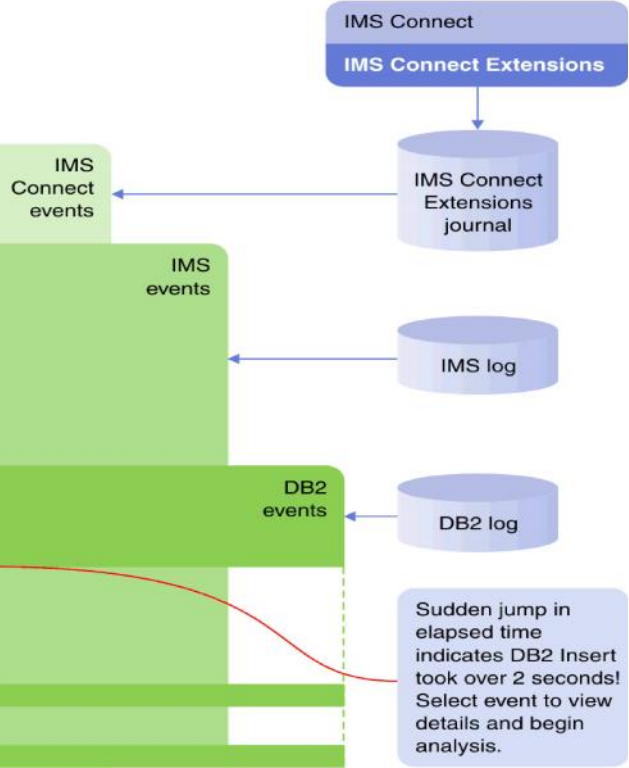Reports separate response times for IMS Connect and IMS

IMS Problem Investigator ISPF dialog

File Menu Edit Mode Navigate Filter Time Labels Options Help

```
BROWSE     CEX000.QAAUTO.COMBLOG.ICONPT.D071205        Record 00145076 More: < >
Command ===>                                               Scroll ===> CSR
Forwards / Backwards . .  00.00.00.000100    Time of Day . .  14.41.55.532866
Code Description                      Date 2007-12-05 Wednesday  Time (Relative)
/  ----  ----------------------------------------------       ----------------
___ A03C  Prepare READ Socket                                      -0.001009
___ A049  READ Socket                                              -0.000942
___ A03D  Message Exit called for READ                             -0.000923
___ A03E  Message Exit returned from READ TranCode=CEXTNONC        -0.000888
___ A041  Message sent to OTMA Datastore=XCFMI9DE                  -0.000607
___ 01    Input Message TranCode=CEXTNONC Source=Connect    14.41.55.803770
___ 35    Input Message Enqueue TranCode=CEXTNONC                  +0.003398
___ 31    DLI GU TranCode=CEXTNONC Region=0001                     +0.020757
___ 5616  Start of protected UOW Region=0001                       +0.021560
___ 5E    SB Handler requests Image Capture Region=0001            +0.021636
___ 50    Database Update Database=DI21PART Region=0001            +0.025143
___ 50    Database Update Database=DI21PART Region=0001            +0.025983
___ 50    Database Update Database=DI21PART Region=0001            +0.026027
___ 50    Database Update Database=DI21PART Region=0001            +0.026695
___ 50    Database Update Database=DI21PART Region=0001            +0.026756
___ 5600  Sign-on to ESAF Region=0001 SSID=DB2P                    +0.027700
___ 0020  DB2 Unit of Recovery Control - Begin UR                  +0.028763
___ 0020  DB2 Update In-Place in a Data Page                       +0.028779
___ 0010  DB2 Savepoint                                            +0.028987
___ 0020  DB2 Delete from a Data Page                              +0.029067
___ 0020  DB2 Insert into a Data Page                              +0.029291
___ 03    Output Message Response LTerm=3835 Source=Connect        +2.029659
___ 31    DLI GU TranCode=CEXTNONC Region=0001                     +2.029682
___ 33    Free Message                                             +2.029777
___ 5610  Start Phase 1 Syncpoint Region=0001                      +2.029809
___ 5600  Commit Prepare starting Region=0001 SSID=DB2P           +2.029836
___ A042  Message received from OTMA Datastore=XCFMI9DE            +2.030109
___ 0020  DB2 Unit of Recovery Control - End Commit Phase 1        +2.040235
___ 37    Syncpoint Region=0001                                    +2.043131
___ 33    Free Message                                             +2.051761
___ 0020  DB2 Unit of Recovery Control - Begin Commit Phase 2      +2.052187
___ A042  Message received from OTMA Datastore=XCFMI9DE            +2.052401
___ A03D  Message Exit called for XMIT                             +2.052601
___ A03E  Message Exit returned from XMIT                          +2.052636
___ A04A  WRITE Socket                                             +2.052891
___ A00C  Begin CLOSE Socket                                       +2.052922
___ A00D  End CLOSE Socket                                         +2.053526
___ A048  Trigger Event                                            +2.053557
___ 0020  DB2 Unit of Recovery Control - End Commit Phase 2        +2.054395
___ 5600  Commit Continue completed Region=0001 SSID=DB2P         +2.054540
___ 5612  End of Phase 2 Syncpoint Program=CEXTPGM                 +2.054550
___ 07    Application Terminate TranCode=CEXTNONC Region=0001      +2.443742
******************************** Bottom of Data ********************************
```

IMS Connect receives transaction request via TCP/IP

IMS Transaction Manager receives request from IMS Connect, and starts processing the transaction

Transaction starts DB2 activity

IMS Connect receives transaction response from IMS TM, and sends it to the client via TCP/IP

IMS TM ends transaction

IMS Connect events

IMS events

DB2 events

IMS Connect

IMS Connect Extensions

IMS Connect Extensions journal

IMS log

DB2 log

Sudden jump in elapsed time indicates DB2 Insert took over 2 seconds! Select event to view details and begin analysis.

New in IMS Connect Extensions V2.4

- Operations Console eclipse plugin for IBM Explorer for z/OS® (or other shells).
- IMS Connect Extensions host command environment for REXX
- Routing Plans
- Support for qualifying rules-based routing by transaction code
- Support for routing by alternate transaction code
- Pre-routing user exit for rules based routing
- Datastore Drain/Resume feature
- Session drain command
- New Session Message Limit option enables Automatic Session Rebalancing in session distribution environments
- Update commands
- OTMA Global Flood Warning support
- Support for IMS V13
- Support for dynamically added IMS Connect ports
- Support for dynamically added IMS Connect datastores
- zIIP offload support

You don't need to use VIEWHWS

VIEWHWS

- Output in system-specific joblogs.

- Output is cluttered and fills spool.

- Difficult to filter, search, sort, summarize and export.

- Displays don't provide leads to command actions.

IMS Connect Extensions

- Consolidated output from multiple systems.

- Output is tabulated.

- Built-in filtering and sorting.

- Instant export to spreadsheet applications.

- Context actions:
  p_____y
  a_____

Still using /VIEWHWS ?

Properties view…

The sessions view provides you with:
- Context actions to cancel sessions and get network status.
- Sortable, searchable and filterable Sysplex view of sessions.
- Ability to summarize, save and export the session list as a CSV file.
- Auto update highlighting any criteria.
- Many more session attributes.

Still using /VIEWHWS ?

The Status Monitor view provides you with:
- Tabbed views of each resource type.
- Context actions against resource instances like drain, stop and start.
- Sortable, searchable and filterable sysplex view of resources.
- Summarise, save and export the session list as a CSV file.
- Auto update and highlighting any criteria.
- Many more session attributes.

You don't need to use the Recorder Trace

Recorder Trace

- Tracing is non-specific.
- Recorder trace and BPE trace records are produced in separate log datasets.
- There are no mechanisms to correlate recorder trace records with other log sources.

IMS Connect Extensions

- Conditional trace record generation may be based on a variety of criteria.
- Trace records are contained in existing journals.
- Trace records contain detailed IRM, RSM, CSM and RXML sections for both READ and XMIT.
- Trace records have correlation tokens that allow transaction tracking and reporting in IMS Problem Investigator and IMS Performance Analyzer.
- The journal can be merged with IMS logs to give an end-to-end view of a transaction initiated by a distributed client.
- Invoke via GUI, ISPF and REXX (batch).

Still using the Recorder Trace?

Conditional Trace
Can be invoked from the context menu for any IMS Connect.

Activating the IMS Connect Extensions trace produces additional trace records in the Journals when the criteria is met.

IMS Connects	Ports	Exits	Datastores	Datastore Groups	ODBMs	Aliases	MSCs	Remote ICONs

Name	Status	System	Super Member	Accepted Count	Reject...	Ignore Count	ACK Cour
HWSOPGS1	P02	HWSOPGS1	MEMA	117	0	0	
HWSOPGS2	P02	HWSOPGS2		3	0	0	

Switch Journal

Start Recorder Trace
Stop Recorder Trace

Start Conditional Trace ...

00.EVNTLOG(TRT0001A)   Record 00000
                                        Sc
H.MM.SS.THMIJU   Time of Day . . 2
            Date 2014-02-13 Thursday T

Enter Criteria for a new Conditional Trace

☑ Reactivate Tracing after System Restart

Level: 2

Port: *

Enter One Additional Filter Criterion (Optional):

Client name:

Transaction:

Message exit:

User ID: CEX001

LTERM:

IP address:

Tracing is currently active.

Start Trace   Cancel

```
__  0049 READ Socket
__  00A4 Event Collection IRM Trace      ◄───
__  003D Message Exit called for READ
__  00A3 Event Collection OTMA Trace     ◄───
__  003E Message Exit returned from READ TranCode=COOLTRAN
__  00A3 Event Collection OTMA Trace     ◄───
__  0041 Message sent to OTMA Type=Transaction
__  00A3 Event Collection OTMA Trace     ◄───
__  0042 Message received from OTMA Type=Data
__  00A3 Event Collection OTMA Trace     ◄───
__  0042 Message received from OTMA Type=Commit confirm
__  00A3 Event Collection OTMA Trace     ◄───
__  003D Message Exit called for XMIT
__  00A6 Event Recording EXIT Output Message Trace  ◄───
```

+0.007000
+0.007016
+0.007077
+0.007084
+0.007099

Rules-based routing

➤ The simplest way to gain the benefits of IMS Connect Extensions' routing

➤ Create rules that, for a given DESTID, determine a primary and fallback collection of candidate datastores

➤ IMS Connect Extensions will balance workload between the datastores in the primary collection

➤ If none of the datastores in the primary collection are available or if all datastores in that collection are in flood, then IMS Connect Extensions spreads workload between the fallback collection

➤ Works for transactional messages, Send Only, Resume TPIPE, Synchronous callout, and Asynchronous callout
  ➤ Rule must match IMS Configuration capabilities

➤ Routing plans provide the ability to logically group routing rules and to dynamically swap between different plans.

➤ Benefits: improved performance, redundancy, better capacity management

OTMA Workload routing automation

1000msg/s → 4x250msg/s

Messages → Routing rule

New in V2.4
- Routing Plans
- Qualified Routing
- Alternate trans codes
- Pre-routing user exit

```
   File   Menu   Settings   Help
_____
EDIT                          OTM
Command ===> _____

Name  . . . . :  OTMARULE
Description . . Routing for DestID 'PROD'

Apply rule to:                Rule is active when:
1  1. System  . . . . . HWSOPGS1  +    Routing Plan . . PEAK      +
   2. Group . . . . . . _____  +    Rules with no plan are always active
   3. All systems

Condition:
    Original Datastore . PROD      (IRM_IMSDestId)
    Additional qualifier TRANSACTION          +
       List name . . . . PAYROL    +

                                       ---- Routing lists -----
/  Message types                       Target    + Fallback  +
Y  Send-Receive Transactions           TARGLST1    FBCKLST1
Y  Send-Only requests                  TARGLST1    FBCKLST1
_  Resume TPIPE requests               _____     _____
_  Synchronous call-out resume TPIPE requests  _____  _____
_  Synchronous call-out responses      _____     _____
```
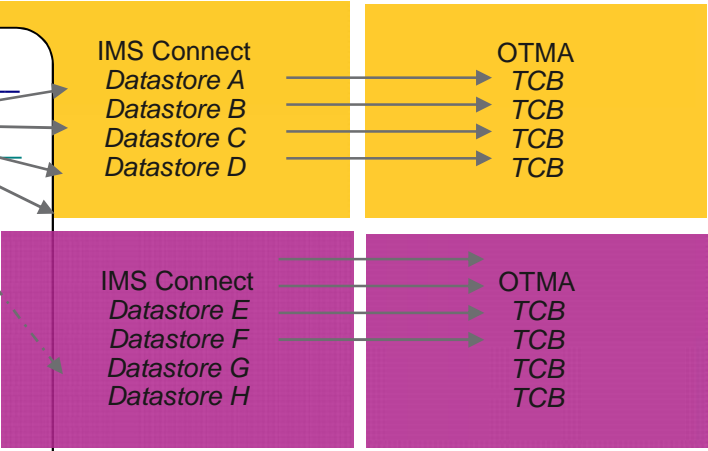
Use Original IMS DestID and optionally Transaction Code to determine candidates

IMS Connect
Datastore A
Datastore B
Datastore C
Datastore D

OTMA
TCB
TCB
TCB
TCB

IMS Connect
Datastore E
Datastore F
Datastore G
Datastore H

OTMA
TCB
TCB
TCB
TCB

Simple setup and configuration

OTMA Routing – Qualified Routing

```
 File  Menu  Settings  Help
_____
EDIT                      OTMA Routing Rule
Command ===> _____

Name . . . . . : OTMARULE
Description . . Routing for DestID 'PROD'

Apply rule to:
1  1. System . . . . . HWSOPGS1 +      Routing Plan . . PEAK    +
   2. Group . . . . . . _____ +
   3. All systems

Condition:
   Original Datastore . PROD    (IRM_IMSDestId)
   Additional qualifier TRANSACTION          +
     List name . . . . PAYROL  +

/  Mess
Y  Send
Y  Send
   Resu
   Sync
   Sync
```

```
EDIT      Transaction Name List
Command ===> _____

Name . . . . . : PAYROL
Description .   Payroll Transactions

Enter "/" to select action

    Transaction
_   DEDTP*
_   PAY0*
_   PAY12
_   PAY14
_   PAYB03
```
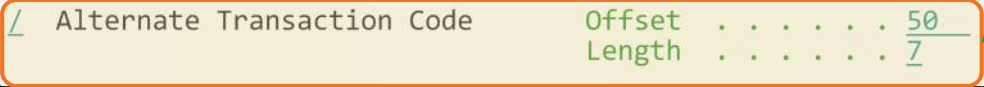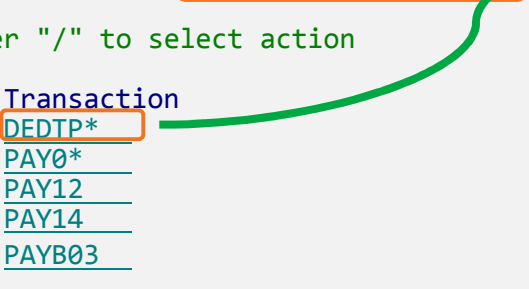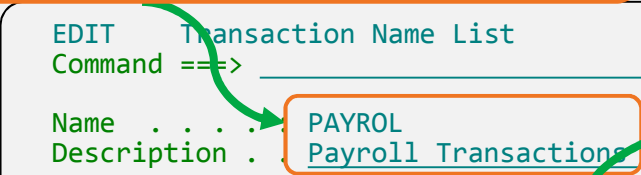
```
EDIT                      Transaction
Command ===> _____

Name . . . . . : DEDTP*
Description . . Deductions

Application . . . DVP      +

_   Override Transaction Timer      Message timeout . . 00
                                    ACK/NAK timeout . . 00
_   Override Transaction Expiration Set F1_TRNEXP . . . 1  1. On
                                                           2. Off
_   Override Client ID Cancellation Set F3_CANCID . . . 1  1. On
                                                           2. Off
/   Alternate Transaction Code      Offset . . . . . . 50
                                    Length . . . . . . 7
```

Optionally use Additional Qualifier and a List Name to specify additional conditions for the OTMA Routing Rule.

Optionally define the transaction with an offset to an Alternate Transaction code.
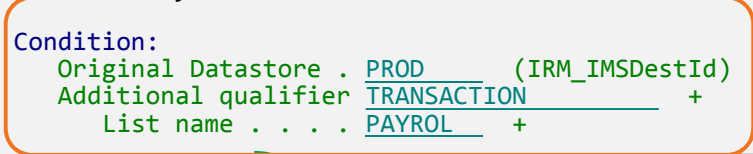
OTMA Pre-Routing Exit (CEXRBUXT)

New in V2.4

Message for 'PART' transaction

IMS Connect

IMS Connect Extensions

Routing Rules
Rule 1
Rule 2
Rule 3 …

Candidate datastores
Datastore A
Datastore B
Datastore C

Apply criteria programmatically to alter the list of routing candidates.

Pre Routing Exit
'PART' transaction on 'B' is not available!

Candidate datastores
Datastore A
Datastore B
Datastore C

C

B
PART

A
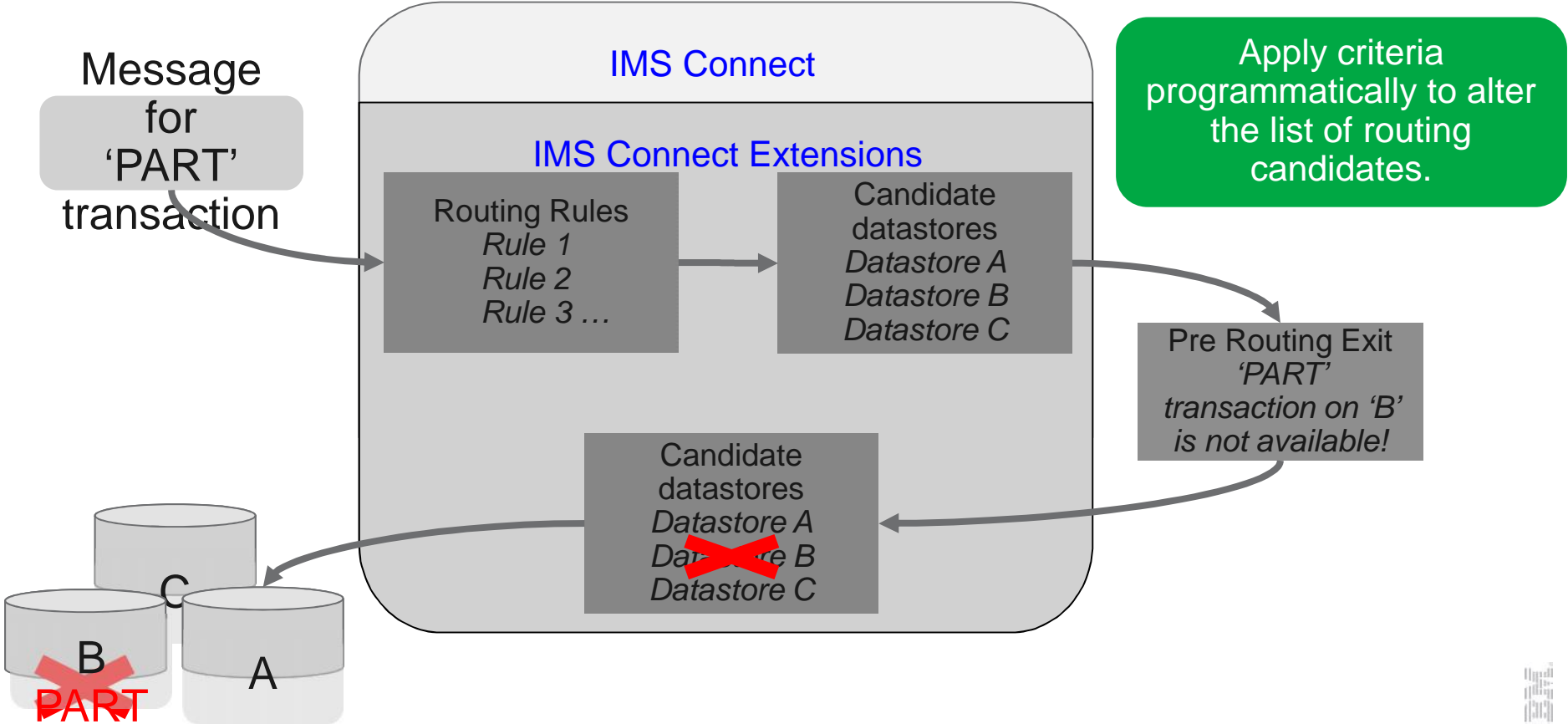
Open database workload automation

Requests → Routing rule → **IMS Connect**
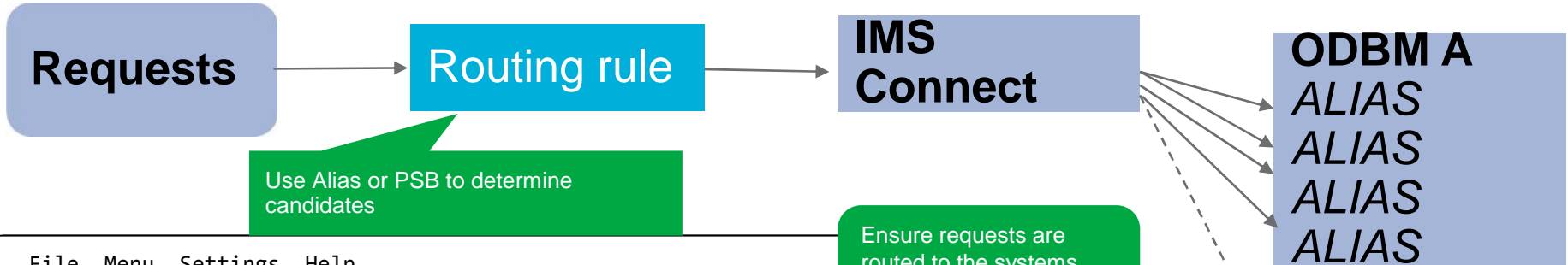
Use Alias or PSB to determine candidates

ODBM A
ALIAS
ALIAS
ALIAS
ALIAS

Ensure requests are routed to the systems that have the right databases

Gain control and shape open database traffic

Provide fallback and redundancy

ODBM B

```
   File   Menu   Settings   Help
   _____

   EDIT                      ODBM Routing Rule
   Command ===>  _____

   Name  . . . . : DFSRULE
   Description . . Rule for PROD DFS* PSBs access

   Apply rule to:                   Rule is active when:
   1   1. System . . . . . HWSOPGS1  +    Routing Plan . . PEAK
       2. Group . . . . . . _____  +    Rules with no plan are always active
       3. All systems

   Condition:
       Input Alias  . . . . PROD
       PSB name list  . . . DFSPSBS   +


                                         ---- Routing lists -----
   /   Request types                     Target   + Fallback  +
   Y   DRDA Requests                     DFSLIST    _____
```

Routing Plans (OTMA and ODBM Rules)

New in V2.4

Pre-defined Routing Rules

Rule#	Plan Name
R1	{no plan}
R2	PEAK
R3	WEEKEND

Routing plans allow swapping between sets of rules that are intended to operate at the same time.
- Rules can be pre-configured for known periods of demand or maintenance.
- Plan Name is SET using a command (GUI, ISPF, Batch).

No plan set

Rule#	Plan Name
R1	{no plan}

Plan set to PEAK

Rule#	Plan Name
R1	{no plan}
R2	PEAK

Plan set to WEEKEND

Rule#	Plan Name
R1	{no plan}
R3	WEEKEND

Balance processing costs

Workload balancing or Routing Plan

IMS Connect

DS1 ($)

DS2 ($)

DS3 ($$$)

- Change transaction distribution by time
  - Alter preferred datastores (Capacity weights)
  - Use different Routing Plan
- Use low cost machine for low demand periods

Workload

100

50

0

Peak   Off-peak   Weekend
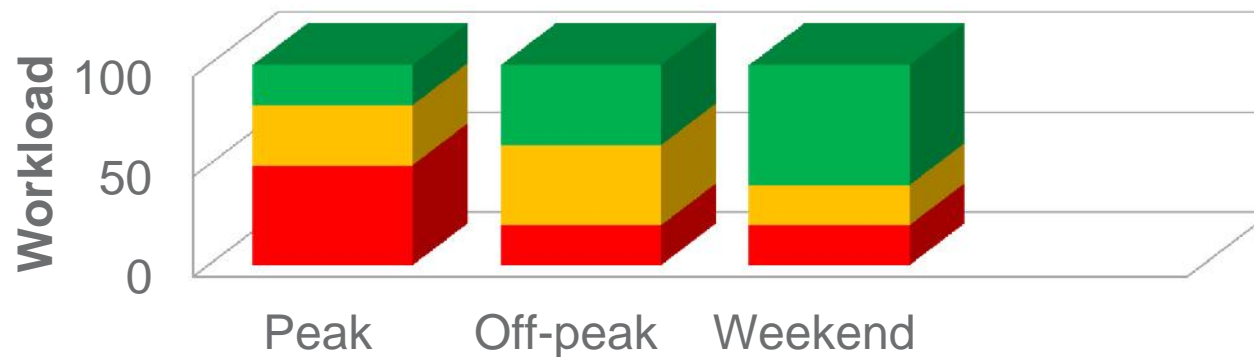
Update Commands – Datastores

New in V2.4
Update CWR:
- GUI or Batch
- Zero CWR

Status	System	Name	Member	TMember	XCF Group	Connect Status	IMS Status	Routing Status	Waiting Reply	CWR	S
●	HWSOPGS1	IMSA	DM1IMSA	XCFMICDA	XCFGDEVT	Active	Normal	Normal	2	1	M
●	HWSOPGS1	IMSB	DM1IMSB	XCFMICDA	XCFGDEVT	Active	Normal	Normal	8	1	M
●	HWSOPGS1	IMSC	DM1IMSC	XCFMICDB	XCFGDEVT	Active	Normal	Normal	0	0	M
●	HWSOP					Active	Normal	Normal	0	30	M
■	HWSOP					Discon		AutoResume	0	1	M
●	HWSOP					Active	Normal	Normal	4	1	M
●	HWSOP					Active	Normal	Normal	2	1	M
●	HWSOP					Active	Normal	Normal	2	10	
●	HWSOP					Active	Normal	Normal	1	30	

Route Drain
Route Drain with AUTORESUME
Route Resume
Stop
Update Capacity Weight ...

Capacity Weight Rating

Update Selected Datastores

Capacity Weight Rating: 25

Acceptable field values are numbers in the range 1 – 100 and 0.

Note: A value of zero has a special meaning. It indicates that the datastore is a candidate for routing.

Finish   *Cancel*

Status Monitor | Session

Dynamically change workload balancing weightings.
or
Schedule REXX job to make changes at specific times.

Capacity Weight Rating

Confirm Changes

Name	System	Old Value	New Value
IMSC	HWSOPGS1	0	25
IMSD	HWSOPGS1	30	25

< Back   Next >   Finish   Cancel

Datastore monitor

➢ **Datastore specific view that includes:**
IMS Connect Status, IMS/OTMA status and IMS Connect Extensions routing status.

➢ **Monitor datastore usage (Messages waiting reply).**

➢ **Highlight datastores under stress.**

➢ **Control datastores - Stop/Start/Drain/Resume.**

➢ **Datastore information available via ISPF "Status Monitor" view or using Operations Console "Datastore" Tab.**

```
 File   Menu   Help
                              Datastore Monitor
Command ===> _____

System . . : HWSOPGS1

Enter "/" to select action
 ▢
              ICON     IMS              Routing    Super           Waiting
      Name    Status   Status           Status     Member   CWR     Reply
/     IMSA    Active   MemberFloodSevr  Unavailable  SM01     1       231
              Active   GlobalFloodWarn  Degraded              1       193
              Active   Normal           Normal               100       0
              Active   Normal           SusAutoRes            9         0
              Discon                    AutoRes               1
***************** Bottom of data ***************************
```

```
Datastore  . . : IMSA

Select by number or action code then press Enter
___  1.  Start datastore         (T)
     2.  Stop datastore          (P)
     3.  Drain with AUTORESUME    (DA)
     4.  Drain without AUTORESUME (D)
     5.  Resume                   (R)
```

Flood-warning and routing

IMS Connect Extensions - Demo Systems - IBM Explorer for z/OS - C:\Users\alawal01\.zosexplo...

File   Edit   Navigate   Search   Project   Status Monitor   Run   Window   Help

Filtering can be used to highlight when flood conditions occur

-- Saved Displays --

Ports Interval: 1 minute   Other Interval: 1 hour   Show Confirmation? ☑

| IMS Connects | Ports | Exits | Datastores | Datastore Groups | ODBMs | Aliases | MSCs | Remote Connects |

Manage filters...
✓ Degraded ▶
      Deactivate
      Manage...
      🟨 Routing Status = Degraded
      🟥 Routing Status = Unavailable

Status	System	Name	TMember	Super Member	Connect Status	IMS Status	Routing Status			
◇	HWSOPGS1	IMSA	XCFMICDA	MEM1	Active	MemberFloodSevr	Unavailable			
◇	HWSOPGS1	IMSB	XCFMICDA	MEM1	Active	GlobalFloodWarn	Degraded			
●	HWSOPGS1	IMSC	XCFMICDB	MEMA	Active	Normal	Normal	0	0	0
●	HWSOPGS1	IMSD	XCFMICDB	MEMA	Active	Normal	Normal	0	30	0
■	HWSOPGS1	TESTDS	XCFMIZZZ	MEMA	Discon		AutoResume	0	1	0
◇	HWSOPGS2	IMSA	XCFMICDA	MEM2	Active	GlobalFloodWarn	Degraded	0	1	7
◇	HWSOPGS2	IMSB	XCFMICDA	MEM2	Ac...					
●	HWSOPGS2	IMSC	XCFMICDB							
●	HWSOPGS2	IMSD	XCFMICDB							

Navigation

Enter search value
<All Source Types>

Navigation
  ▲ All Sources
    ▲ IMS Connect
      ● HWSOPGS1 : IC
      ● HWSOPGS2 : IC
      ■ HWSOPGS3 : IC
  ▲ Demo Systems
    ▲ IMS Connect
      ● HWSOPGS1 : IC
      ● HWSOPGS2 : IC

Degraded Performance Global Warn Support
- IMS Global Degraded performance does not support 'Global Fail'
- New option to treat 'Global Warn' as 'Global Fail'

All forms of routing in IMS Connect Extensions use Flood Warning to help determine the best datastore for processing a message.
Datastores in flood warn state are never used unless there are no other datastores (which are not themselves in flood warn state) available.

```
****** **************************** Top of Data ***************
000001 * CEXCTLIN Routing options
000002 *-------------------------
000003 CEXROUTE INELIGIBLEIF=GLOBALFLOODWARNING|GLOBALFLOODSEVERE
****** **************************** Bottom of Data **************
```

Datastore Drain

Gives users ability to take datastores offline without potentially disrupting clients with active sessions

- **Mark the datastore as requiring a drain**

- **Status changed to suspended:**

  – No new requests will be routed to this system

  – Responses to outstanding transactions still returned to the client

  – Option to auto-resume when datastore is detected as available

Restart the datastore (IMS)

- Click to stop the datastore
- Perform maintenance
- Click to start the datastore

New in V2.4 - REXX samples
- Allow automatic drain in batch
- Drain a datastore or list of datastores
- For Single or Multiple IMS Connects
- Automatically stop IMS

		Route Drain
		Route Drain with AUTORESUME
		Route Resume
		Stop
		Update Capacity Weight ...

| IMS Connects | Ports | Exits | Datastores | Datastore Groups | ODBMs | Aliases | MSCs | Remote Connects |

Status	System	Name	TMember	Super Member	Connect Status	IMS Status	Routing Status	Waiting Reply	CWR
●	HWSOPGS1	IMSA	XCFMICDA	MEM1	Active	Normal	Normal	4	1
●	HWSOPGS1	IMSB	XCFMICDA	MEM1	Active	Normal	SusAutoRes	0	1
●	HWSOPGS1	IMSC	XCFMICDB	MEMA	Active	Normal	Normal		
●	HWSOPGS1	IMSD	XCFMICDB	MEMA	Active	Normal	Normal		

No sessions waiting – datastore drained

| IMS Connects | Ports | Exits | Datastores | Datastore Groups | ODBMs | Aliases | MSCs | Remote Connects |

Status	System	Name	TMember	Super Member	Connect Status	IMS Status	Routing Status	Waiting Reply	CWR
●	HWSOPGS1	IMSA	XCFMICDA	MEM1	Active	Normal	Normal	4	1
■	HWSOPGS1	IMSB	XCFMICDA	MEM1	Inactive		AutoResume	0	1
●	HWSOPGS1	IMSC	XCFMICDB	MEMA	Active	Normal	Normal	0	10
●	HWSOPGS1	IMSD	XCFMICDB	MEMA	Active	Normal	Normal		

		Route Drain
		Route Drain with AUTORESUME
		Route Resume
		Start
		Update Capacity Weight ...

| IMS Connects | Ports | Exits | Datastores | Datastore Groups | ODBMs | Aliases | MSCs | Remote Connects |

Status	System	Name	TMember	Super Member	Connect Status	IMS Status	Routing Status		
●	HWSOPGS1	IMSA	XCFMICDA	MEM1	Active	Normal	Normal		
●	HWSOPGS1	IMSB	XCFMICDA	MEM1	Active	Normal	Normal		
●	HWSOPGS1	IMSC	XCFMICDB	MEMA	Active	Normal	Normal	0	10
●	HWSOPGS1	IMSD	XCFMICDB	MEMA	Active	Normal	Normal	0	30

Update Commands – IMS Connect

New in V2.4

	Name	Status	Start Time	System	Super Member	OTMA Routing Plan	ODBM Routing Plan	Event Coll. Level	Msg. Limit	Limit Threshold
▲				▲						
	HWSOPGS1	P01	2014-09-23 09.43.37	HWSOPGS1	MEMA	PEAK		4	Active	50
	HWSOPGS2	P01	2014-09-23 09.43.37	HWSOPGS2		PEAK	WEEKENDS	4	Inactive	0

Switch Journal

ACEE Cache Statistics
Clear ACEE Cache...

Update ▸

Start Conditional Trace ...
Stop Conditional Trace

Start Recorder Trace
Stop Recorder Trace

Event Collection Level ...
Session Message Limit ...
ODBM Routing Plan ...
OTMA Routing Plan ...

23/09/2014 2:48:24 PM; 1 of 2

Status Monitor | Sessions

Dynamically change
- OTMA/ODBM Routing Plans
- Event Collection Level
- Message Limits
- Single or multiple systems
or
Schedule REXX job to make changes at specific times.

IMS Connects | Ports | Exits | Datastores | Datastore Groups | ODBMs | Aliases | MSCs | Remote Connects

Security and validation

➢ **Extends IMS Connect authentication and authorization to improve flexibility, performance, and security**

➢ **Authorize users based on:**

  ➢ The IMS Connect system they are connecting through

  ➢ The IP address they are connecting from:

    ➢ White list: only allow certain IP addresses access through IMS Connect

    ➢ Black list: reject access from certain IP addresses or address ranges

  ➢ The ports that users are connecting to

➢ **Routing itself ensures enhanced security by allowing you to reject messages that don't have certain basic characteristics**

➢ **ACEE caching for all supported versions of IMS Connect**

TCP/IP ⟷ IMS Connect

IMS Connect Extensions
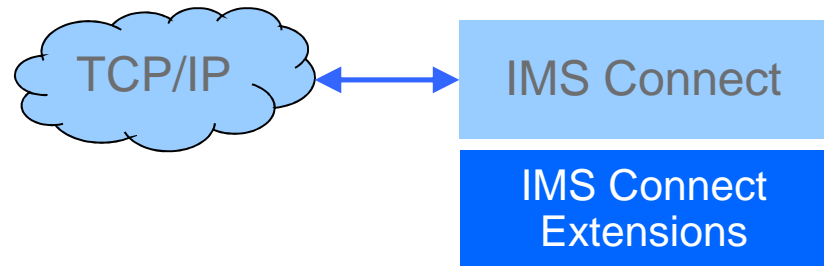
Is the user at that IP address authorized to access the requested IMS Connect, via this port?

```
CEX.IPV4.ICONname.nnn.nnn.nnn.nnn.zzzzz
CEX.IPV6.ICONname.xxxx.xxxx.xxxx.xxxx.xxxx.xxxx.xxxx.xxxx.zzzzz
```

SYSPLEX Session Re-balancing

Session Message Limit Option:

- New option allows user to set limit on input messages for a persistent session.

- Allows session balance across IMS Connect systems to be maintained in Sysplex Distributor environments.

```
 File  Menu  Settings  Help
───────────────────────────────────────────────────────────
EDIT                        System Definition
Command ===> _____

Name  . . . . : ICOND00
Description . . Workshop demo system1
                                                   More:   - +
/  Activate Advanced Features
   _   Activate Pacing
       Interval count . . . . 3
       Warning threshold  . . 0        Reject threshold  . . 0
   /  Activate Session Message Limit    Limit threshold . . . 300
```

When the number of sessions on a persistent socket reaches this threshold, the persistent socket is closed,.

Session Drain

Command to drain persistent Sessions:

- From GUI, ISPF or REXX.

- Safer than cancelling a persistent session.

- Works on the same principle as Session Re-balancing.

- More immediate than Session Re-balancing

```
              Active Sessions

   System     Type    Port  Socket  Event
 / ───────    ────    ────  ──────  ─────
 / HWSOPGS1   OTMA    4101       8  Message sent to OTMA
 H .─────────────────── Line Actions ───────────────────.
 H | Select by number or action code then press Enter.  |
 H | 4  1. Display session information... (S)            |
 H |    2. Display network information... (N)            |
 H |    3. Cancel session                 (P)            |
 H |    4. Drain session                  (D)            |
 H |    5. View message log...            (L)            |
 H .─────                                                |
```

V2.4 includes a REXX sample that allows you to drain all persistent sessions based on a various criteria.

When the Drain command is issued against a persistent session the socket is automatically closed on the completion of the next transaction on the socket.
This allows for a safe and controlled termination of the socket so that the client can re-establish a connection elseware.

IMS Connect Extensions host command environment for REXX

➢ Includes most IMS Connect Extensions commands.

➢ Improves options for automated solutions

➢ allows flexible and tightly integrated automation

➢ Key benefits:
  ➢Flexibility of REXX language
  ➢Single REXX able to communicate with multiple IMS Connect systems
  ➢Scripts can also address other host environments
      eg. IMS SPOC, SDSF, MVS Console, ISPF

IMS Connect Extensions host command environment for REXX

➢ Many samples are included. These all work out of the box or can be modified to address your own needs:

  ➢ **CEXRXC01/02** - Journal Switching / OLDS switch.
  ➢ **CEXRXC11** - Control IMS Connect Extensions OTMA/ODBM Trace
  ➢ **CEXRXC21/22/23** - Various samples to drain and shutdown IMS systems.
  ➢ **CEXRXC26** - Drain persistent sessions based on criteria (eg All, port, trans, IPAddress).
  ➢ **CEXRXC31** - Set routing plans.
  ➢ **CEXRXC40** - Shell - Issue commands to IMS Connect or to IMS (Type 1).
  ➢ **CEXRXC42/44/45** - Query (Sessions, ACEE Cache, Trace options).
  ➢ **CEXRXC51** - Clear ACEE cache.
  ➢ **CEXRXC61** - Update Capacity Weights for datastores or a open database targets.
  ➢ **CEXRXC62** - Update a systems Journaling options – Event Collection level
  ➢ **CEXRXC63** - Update a systems Session Message Limit options.
  ➢ **CEXRXC71** - Add a datastore.

IMS Connect Extensions Operations Console

➢ Eclipse Plug-in
  ➢ Installed under the IBM Explorer for z/OS® shell.
  ➢ Can be installed in other eclipse shells.
  ➢ Integration with other tools (eg. IMS Configuration Manager, Transaction Analysis Workbench).

➢ Import/export facility
  ➢ Simplifies GUI setup by export of 'Standard' configuration file

➢ IMS Commands Support
  ➢ Issuing IMS Type-1 commands
  ➢ Issuing new IMS Connect commands
  ➢ IMS Configuration Manager V2.1 provides 'auto-discovery' and OM commands.

➢ Improvements in V2.4
  ➢ Improved connection and credential management
  ➢ Tabbed status monitor and tabbed active sessions displays
  ➢ Improved filters and filter management
  ➢ Improved list layout management
  ➢ Summarize/Group options
  ➢ Numerous navigation and usability improvements
  ➢ Saved displays and Comparator wizard

Operations Console: Summary

Summarize is available on all editors and all tabs

1. Summarize option

List Summary for All Sessions

1. Select one or more fields to group by, then press Summarize;

- System
- Client Id
- Read Exit Orig DS
- User Id
- Predicted Session Status
- Wait Time

Summarize

2. Select a summary group to expand, then press Apply:

System	Read Exit Orig DS	Total
HWSOPGS1		2
HWSOPGS1	PROD	12
HWSOPGS2		1
HWSOPGS2	IMSA	5
HWSOPGS2	IMSB	2

Use case sensitive groupings

Apply   Clear Grouping   Close

2. Select one or more criteria to summarize session data

3. To see specific records select from the summary and press 'Apply'

Questions?

Resources

IMS Connect Extensions for z/OS V2.3 User Guide

http://publib.boulder.ibm.com/epubs/pdf/cexugb31.pdf?noframes=true

IMS Performance Solution Pack: Overview and Customization V1.2

https://publib.boulder.ibm.com/infocenter/dzichelp/v2r2/topic/com.ibm.imstools.funoc.doc.oc/funoca20.pdf?noframes=true

Technotes

http://www-947.ibm.com/support/entry/portal/documentation_expanded_list/information_management/ims_connect_extensions_for_z~os

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Thank you