CICS Transaction Server V4.2 – User Experience Panel

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About Southern California Edison

- Second largest investor-owned electric utility in the U.S.
- Subsidiary of Edison International (NYSE = EIX)
- $12.4 billion revenue in 2010
- 430 cities in our 50,000 square mile service territory
- includes 13 million people
- 5 million meters
- 18,000+ employees
Southern California Edison
Technical Details

- Two data centers
  - One backs up the other via XRC
- 6,286 z/OS MIPS on two z/196’s and one z10 (DR Backup)
  - Expandable to 11,276 MIPS for Disaster Recovery
    - Of course, that implies the other 5,300 MIP machine is down
- 3 Sysplexes – Production, App Development, Sandbox
  - 26 LPARS
    - 5 production, 2 dev, 3 sandbox, 2 comm, 9 DR, 3 XRC, 2 z/VM (mostly Linux)
    - z/OS 1.13, CICS TS 4.2, DB2 V9 everywhere
    - 130 CICS Regions – 67 dev, 40 production, 15 sandbox – in 3 CICSPlexes
    - 3 million CICS/DB2/MQ “user” transactions per day in production
- 838 Unix (mostly AIX) Server Images on 125 Servers
- 3,270 “Non-Unix” (mostly Wintel) Server Images on 1,545 Servers
- 192 TB Mainframe DASD, 2 Petabytes non-mainframe DASD
Production Transaction Processing Config

SCE CICS/DB2/MQ Production Configuration

IBM z10 Model 2097-706 Ser# DCB31

System C0

System C1

System C2

Complete your sessions evaluation online at SHARE.org/AnaheimEval
CICS Application Mix at SCE

- CICS is for “legacy” applications in our shop
  - Not a lot of new development going on, hence not much use of new function (Java, Web Services, etc.) in CICS
    - Although there’s suddenly a lot of interest in Web Services
    - And just implemented our first Java program in CICS
- 5 years ago decided to “move everything” to SAP
  - At that time, “The Mainframe is (or will be) dead”
  - Cooler heads prevailed – Customer Service System remains in CICS
- Largest App is Customer Service System (CSS)
  - 3 Million User Transactions a Day
  - PowerBuilder on the Workstation,
    - talks to MQ Client,
    - which sends “request” messages to MQ on the mainframe;
    - long-running “listener” tasks running in 4 TORs,
    - routes transactions to 10 cloned AORs on 2 LPARs
    - Application in AOR sends “response” message back to Powerbuilder via MQ
  - Batch process produces 250,000 Customer Bills each day
What We Tested in the 4.2 Beta

- 64 bit – many control blocks have moved “Above the Bar”
- IPIC – Region connectivity across IP Connections (IPCONN)
- CPSM WLM Enhancements
- Threadsafe Improvements
- CICS Explorer Enhancements
- System Events
What We Didn’t Test in the 4.2 Beta

- Like I said earlier,
  - We have no Java (so no JVMSERVER work)
  - No CICS Transaction Gateway or WebSphere Application Server
    - All of our WAS connectivity comes through MQ
    - So very little of the new connectivity options
- No real Web Service applications
  - Although that has suddenly taken off and a lot of development is happening now
- No HTTP 2.0
  - No Atomservices, Dynamic Scripting, etc.
- There’s probably a lot more in 4.2 I’m missing
64 Bit – Control Blocks Moved Above the Bar

- 4.2 moves many control blocks “above the bar”
  - CSA, TCA, etc. – not the CWA
  - All have been heavily modified
    - “The TCA has been radically changed”
    - So if you have code that twiddles in those . . .
  - All User Exits that use the XPI must be reassembled
- MEMLIMT=4G is the minimum for CICS to run
  - We don’t specify it anywhere
    - not in SYS1.PARMLIB, not in Region jobs
  - Our z/OS guys basically told me
    - We let the system manage it
      - It all just depends on how much real storage backs it all up anyway
      - The system is pretty good at managing it itself
- TSMAINLIMIT can’t be greater than 25% of MEMLIMIT
  - We specify 1024M
IPIC – Region connectivity across IP Connections (IPCONN)

• IP Connections have been around for a while, but in 4.2
  • File Control, Temp Storage and Transient Data all full function now
• Since we don’t have WAS or CTG connecting directly to CICS:
  • All we really tested was IPIC between CICS Regions
    • Between an AOR and an FOR
• All functionality that we normally have on MRO and ISC links
  • FC, TS and TD all look good
  • We will probably replace our ISC links with IPIC
  • But still not as fast as MRO and XCF
    • So really only for links to remote connections
• More to come under Threadysafe Mirror, Open TCBs and WLM
CPSM WLM Enhancements

• We use CPSM’s WLM to manage our workload balancing
  • across 10 cloned AORs spread over 2 LPARs
• IPIC Connections now weighted higher
  • Between LU6.2 and MRO/XCF
• New Routing Algorithms exclude “Link Weighting”
  • In addition to Queue and Goal,
    • There’s now LNQueue and LNGoal (LN = Location Neutral)
    • Disregards the type of connection (MRO, ISC, IPIC, etc.) to the AOR
  • In the past work coming into one LPAR tended to stay on that LPAR
    • With Location Neutral, you can balance that better
      • *If that’s what you want to do*
Threadsafe Improvements

• “Threadsafe Mirror” across IPIC Connections
  • Use FCQRONLY=NO in the FOR

• CONCURRENCE(REQUIRED) on Program Definitions
  • Says program MUST run on an Open TCB (L8 with API(CICSAPI))
  • Can get tasks that never used the L8 to run almost entirely on them
    • We defined nearly all our application programs as CONCURRENCE(THREADSAFE) when it became available
    • In testing, changed all of those to CONCURRENCE(REQUIRED)
    • Got a DB2-oriented task that spent about 3% of its time on the L8 to go to 87% on the L8
    • Got a VSAM-oriented task that spent 0% on the L8 to go to 80%
    • Most QR time was Terminal I/O (SEND/RECEIVE MAP, etc.) or CONVERSE across MRO/ISC for FC I/O
    • TCB Switches increased, but such increased usage of L8 should improve throughput (we think – no “real” performance measurement yet
CICS Explorer Enhancements

Can now view CPSM Workload information in Explorer
CICS Explorer Enhancements (cont.)
And can Activate/Quiesce Target Regions
CICS Explorer Enhancements (cont.)
SITParms are viewable
CICS Explorer Enhancements (cont.)

SITParms are viewable – with overrides (also JCL and Console)

Table

Sysin

Combined
CICS Explorer Enhancements (cont.)

• Many other new views
  • Operations
    • CICSPLEXes
    • CMAS Details
    • Journal Models
    • Journal names
    • Stream names
  • Administration
    • CICSPLEX Definitions
    • System Definitions
    • System Group Definitions
CICS Explorer vs 3270

INQ URIM
STATUS: RESULTS - OVERTYPE TO MODIFY

Uri($029120 ) Pip Ena Http ) Path(/GetUserEligibilities )
Host(*)

Uri($037590 ) Pip Ena Http ) Path(/GetCustomerAccounts )
Host(*)

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RESPONSE: NORMAL

TIME: 09.37.46  DATE: 07/30/12
CICS Explorer vs 3270

![IBM CICS Explorer screenshot](image)

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System Events

• Really, just a new “canned” flavor of Business Events
• New System Events allow capture of changes in system status
  • File Open/Close, Enable/Disable
  • DB2 Connection Status
  • Transaction Abends
  • System Maxtasks Thresholds (50%, 60%, 70%, 80%, 90%, 100%)
  • Tranclas Maxtasks Thresholds (50%, 60%, 70%, 80%, 90%, 100%)
• Can emit the event to all the standard places
  • MQ Queue
  • TS Queue
  • Start a Transaction
  • HTTP
  • Custom (User Written)
System Events Sample

BROWSE SYSTEM EVENTS - Queue: SCE.CICS.SYSTEM.EVENTS 00000283 Column 225 Scroll 394
COMMAND ==> E1EMRFN CLOSED
CMT#ISW1J1 E1EMRFN CLOSED
CMT#ISW1J1 E1PAXMN CLOSED
CEDA#ISW1J1 DFHCSD OPEN UNENABLING NSSG.C420.DFHCSD
CMT#ISW1J1 E1EMRFN OPEN UNENABLING NSSG.E1EMRFN.CLUSTER
CMT#ISW1J1 E1PAXMN OPEN UNENABLING NSSG.E1PAXMN.CLUSTER

-------------------- Bottom of Data --------------------------
So Why Get Involved in a Beta?

• Pros:
  • Gives us early access to new function/features
    • Find problems
    • Learn about your own environment (i.e., uncover “surprises”)
  • Develop relationships with Hursley’s development community
  • Sometimes the ability to influence the direction of the product
  • Learn how other customers treat similar issues

• Con:
  • Not a trivial investment of human resource (time)

• Overall:
  • Worth it!