IMS 12 User Experience

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Disclaimer

- These are TI’s experiences; your mileage may vary
- This is not meant to be an overview of IMS 12
  - Only items of interest to TI are discussed
- Point of view of an IMS systems programmer
- TI does not have IMS 12 in production yet
  - Currently on development and test systems
  - Scheduled for first production install in May 2012
Agenda

• About TI
• QPP
• IMS Environment
  • User modifications
• Installation
• New Features Tested
• “Gotchas”
About Texas Instruments

- Semiconductor (Analog, DSP, Wireless, DLP®)
- Education Technology
- Headquartered in Dallas, Texas
- Sales, design, manufacturing sites worldwide
- 35,100 employees
- Revenue: US$ 13.735 billion (2011)
IMS Quality Partnership Program (QPP)

• IMS early support program for new releases
  • QPP customers involved through entire process
  • Many QPP customers go into production before GA

• Benefits for IBM
  • Technical issues can be identified and addressed early on
  • Code is tested in various customer environments
  • Product readiness for GA

• Benefits for QPP customers
  • Provide feedback on design and implementation
  • Develop relationship with IMS development team
  • Early look at release; evaluate impact

• IMS 12: QPP code (Jan 2011); GA (Oct 2011)
IMS Environment

- What we use
  - IMS 11 & 12 DB/DC
  - MSC
  - MQ
  - DB2
  - CSL
    - Simplified configuration
    - TSO SPOC and OM Audit Trail
    - DRD (via SPOC and RTD)
  - HALDB (new)
    - In-house written PSE
  - IMS Connect (new)
    - OTMA Destination Descriptors

- What we do not use
  - Fast Path
  - Shared Queues
  - Data Sharing
  - Java
  - Open Database
IMS Test Environment

- **VM**
  - 5 IMS control regions running on 4 VM guests; can be MSC-connected
  - Started as needed, usually only during normal business hours
  - Only systems programmers

- **DV**
  - Single IMS control region on stand-alone z/OS
  - Generally up 24/7; can be taken down as needed
  - Mostly systems programmers, occasionally DBAs

- **YR/Y2**
  - 2 IMS control regions, each on separate z/OS; MSC-connected
  - Up 24/7; semi-monthly scheduled maintenance windows
  - Applications, DBAs, and systems programmers

- **ADS**
  - Single IMS control region, running on same z/OS as commercial production
  - Up 24/7; can be taken down with prior notification and approval
  - Applications
IMS Production Environment

• Commercial
  • Four IMS control regions spread across two z/OS images
  • Order planning, supply chain, financials, job scheduling
  • Up 24/7; quarterly maintenance windows

• Manufacturing
  • Three IMS control regions, each on separate z/OS
  • Semiconductor Manufacturing System (SMS)
  • Up 24/7; yearly maintenance windows

• ~16 million transactions per day
• All production IMSs are MSC-connected
User Modifications

• 90 user modifications needed in our environment
  • Most created decades ago
  • Reliability, availability, serviceability
  • Many directly modify IBM code (!!!)
• Usermods to IBM code have slowly gone down over time
  • Example: internally replaced TI dynamics (RTD) with DRD
• Challenge: refit user modifications for new IMS release
• IMS 12: all user modifications fit without significant change
  • Able to test IMS 12 with all TI user modifications
  • IMS 12 was second QPP where we were able to do this
Installation (QPP)

• SMP/E and IVP (02/03/2011)
  • No major issues
  • DFSDDEF1 did not include SCEEMAC; APAR PM31505, PM44763

• VM (03/04/2011)
  • Brought up IMS 12 with all TI user modifications
  • 79 testplans; test user modifications and other base functionality
  • New RDDS created from MODBLKS (DFSURCM0 utility)
  • New RECONs allocated and initialized

• DV (09/27/2011)
  • First time to install during QPP
  • Used existing RDDS (no MODBLKS)
  • Upgraded existing RECONs
  • CA OPS/MVS; IBM Fault Analyzer and File Manager
  • Tested back-out to IMS 11 with DBRC coexistence PTF UK62971
Installation (GA)

- DV back-out to IMS 11 (10/27/2011)
  - Due to manufacturing down schedule and SVC charging
  - VM remained at IMS 12 (limited license)
- SMP/E (11/28/2011)
- DV (02/02/2012)
  - RECONs already upgraded
- Y2 (02/14/2012)
- YR (03/07/2012 tentative)
- ADS (03/21/2012 tentative)
New Feature Testing

- /DIAG Enhancement
- IMS Connect Type-2 Commands
- IMS Connect CM0 ACK NoWait
- Dynamic Database Buffer Pools
- Repository
/DIAG Enhancement

- TI has IMSLOOK, which displays storage to an Lterm
- User modification + transaction
- Similar to new /DIAG output to an Lterm
/DIAG Enhancement
### /DIAGNOSE SNAP STORAGE DISPLAY

<table>
<thead>
<tr>
<th>SCD</th>
<th>System Contents Directory</th>
<th>Loc: 00BED998</th>
</tr>
</thead>
<tbody>
<tr>
<td>0000</td>
<td>E2E2C3C4 0000FC30 00000000 0AF307FE</td>
<td>!SSCD.........3..!</td>
</tr>
<tr>
<td>0010</td>
<td>00619B01 12103853 02004200 C9D4E2C2</td>
<td>./.........IMSB!</td>
</tr>
<tr>
<td>0020</td>
<td>40404040 00BD9FB0 89AC7000 00000000</td>
<td>........................................ i......</td>
</tr>
<tr>
<td>0030</td>
<td>00007043 00FC4E80 003F0040 008A7C58</td>
<td>........................................+.......@.</td>
</tr>
<tr>
<td>0040</td>
<td>00FF358 70FC0007 C9D4E2C2 40404040</td>
<td>........................................ 3...IMSB!</td>
</tr>
<tr>
<td>0050</td>
<td>D1D6C2F0 F0F0F3F5 00BED9CC 00BEDAD4</td>
<td>JDB00035..R...M!</td>
</tr>
<tr>
<td>0060</td>
<td>00BEDB58 00BEDC5C 00BEDCC4 00BEDD84</td>
<td>......................................D...d!</td>
</tr>
<tr>
<td>0070</td>
<td>00BEDDE0 00BEDE18 00BEDE5C 00BD9000</td>
<td>......................................%......</td>
</tr>
<tr>
<td>0080</td>
<td>00BEDEB8 00BEDED4 00BEDEE4 00BEDF28</td>
<td>......................................M...U......</td>
</tr>
<tr>
<td>0090</td>
<td>00BEE108 00BEE178 00BEE4BC</td>
<td>......................................U......</td>
</tr>
</tbody>
</table>
| 00A0 | 00BEE4F4 00BEE5A0 00BEE614 00BEE620 | ......................................U4..V...W...W!
| 00B0 | 00BEE644 00BEE674 00BEE720 00BEE7B0 | ...................................... W...W...X...X! |
| 00C0 | 00000000 09915E38 09A55A70 09A557C0 | ......................................j;v]v...v... |
| 00D0 | 09B02DA8 00FD60C0 1BFF07FE 89A78000 | ......................................y...ix... |
| 00E0 | 89A81970 09B0F174 89ABF000 00BDAFD0 | ......................................i..1.i.0... |
| 00F0 | 00BDAFD0 00LA00FF 01FDB30 00BED998 | ......................................Rq! |
| 0100 | 0000AAA0 00030000 00000000 00BEF898 | ......................................8q! |
| 0110 | 00FC3010 0A4A07E8 09A47000 09AE3140 | .................................Flat.y.u... |

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**2 Sess-1 157.170.179.206** 1/2
/DIAG Enhancement

• /DIAG provides most functionality provided by IMSLOOK
  • Minor display differences
  • No MSCD, DFSDFA[D,P,T], DFSCSLA
    ▪ Can get to via BLOCK(SCD) and ADDRESS(xxxxxxxx)
  • /DIAG provides several CBs not implemented by IMSLOOK
  • No OTMA control blocks
    ▪ DFSYTIP, DFSYTIB, DFSYQAB would be nice

• Several issues identified
  • See “PTFs of interest” later in this presentation
IMS Connect Type-2 Commands

- Issue IMS Connect commands from SPOC rather than replying to WTOR or issuing z/OS Modify commands
  - Greatly improves usability
- PM50772: QUERY IMSCON TYPE(CLIENT) SHOW(ALL)
  - Does not show DELDUMMY clients
IMS Connect CM0 ACK NoWait

- CM0 send-receive clients can eliminate receive of final timeout event
- Wrote client to test; looked OK
  - CSM_PROTOLVL: CSM_PR02 (X’02’) = CM0 ACK NOWAIT SUPPORT
  - IRM_F1: IRM_F1_NOWAIT (X’02’) = CM0 ACK NOWAIT
- Not useful to our IMS Connect implementation
  - All input via SENDONLY; no reply to IOPCB
  - All output via RESUME TPIPE (auto flow)
Dynamic Database Buffer Pools

- Tested for both OSAM and VSAM buffer pools
  - Looks good
  - Included testing after HALDB conversion
  - APAR PM55994
    - DSID for HALDB X and L datasets handled incorrectly

- Has potential for IMSs that come down yearly
  - Most active databases have their own subpools
  - Could add new or redefine existing without waiting for recycle
  - No definite plans to use in production yet
Repository

- Ran IVP ‘U’ jobs
- Do not plan to use at TI yet
  - Each IMS has its own simplified IMSplex configuration
  - Repository adds complexity to install, configure, monitor
    - Little perceived benefit for us
  - Will continue to use RDDS
- Will re-evaluate if we implement full IMSplex
“Gotchas”

- **HWSSMPL1**
  - TI adds 4 instructions (12 bytes) to READROUT subroutine
    - Required for in-house written security product
  - UK74666 (Sync Callout) adds code to HWSSMPL1
    - Addressability issues in READROUT
    - Had to .AGO around unused code
  - Now in SDFSRESL
    - HWSSMPL0, HWSJAVA0, HWSUINIT as well
“Gotchas”

• MINVERS
  • MINVERS 10.1 → DBRC timestamps in microseconds
  • 10.1 is lowest value supported in IMS 12
  • Still had application that read LIST.RECON SYSPRINT
    • Did not support new timestamp format
    • Wrote fix using DBRC API

• SECURITY macro
  • RPG: “IMS 12 is last version to support SECURITY macro”
  • Still need in IMS 12 if using DFSCTRN0 or DFSCSGN0
## PTFs of Interest

<table>
<thead>
<tr>
<th>APAR</th>
<th>PTF</th>
<th>Date Available</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM31505</td>
<td>UK70854</td>
<td>08/18/2011</td>
<td>SCEEMAC DDDEF in DFSDDDEF1</td>
</tr>
<tr>
<td>PM32518</td>
<td>UK65897</td>
<td>03/19/2011</td>
<td>IEC214I on DFSWADS1</td>
</tr>
<tr>
<td>PM38076</td>
<td>UK67679</td>
<td>05/18/2011</td>
<td>/ DIAG SNAP BLOCK(SCD) abend U3058</td>
</tr>
<tr>
<td>PM48421</td>
<td>UK73796</td>
<td>11/19/2011</td>
<td>DFS3187W CLASS=RXXX</td>
</tr>
<tr>
<td>PM44431</td>
<td>UK73125</td>
<td>10/22/2011</td>
<td>/ DIAG SNAP LTERM/USER for ETO resource</td>
</tr>
<tr>
<td>PM44953</td>
<td>UK74971</td>
<td>12/21/2011</td>
<td>/ DIAG SNAP LTERM abend S0C4</td>
</tr>
<tr>
<td>PM50772</td>
<td>UK75086</td>
<td>12/29/2011</td>
<td>QRY IMSCON TYPE(CLIENT) no DELDUMMY</td>
</tr>
<tr>
<td>PM28721</td>
<td>UA57797</td>
<td>12/14/2010</td>
<td>DFS0730I for VSAM databases</td>
</tr>
<tr>
<td>PM54754</td>
<td>UK75650</td>
<td>01/21/2012</td>
<td>/ DIAG SNAP abend U0757 from AOI program</td>
</tr>
<tr>
<td>PM55994</td>
<td>UK76736</td>
<td>03/03/2012</td>
<td>DSID for HALDB X &amp; L incorrectly handled</td>
</tr>
</tbody>
</table>
Conclusion

• No issues with installation
• Code base seems stable
  • Can only speak for what we tested and used
• Tested new features
  • A few minor problems found; no showstoppers
• Currently in our test environment
  • Plan to start production fan-out in May 2012
  • Complete fan-out in 1Q2013
• Contact me if you want to hear more