Cheryl’s Hot Flashes

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Cheryl’s Hot Flashes

- VTOC Conversion Aid
- Hardware Data Compression
- CICS & LE
- CF Online Monitor
- TCP/IP Status
- VSAM Tuning
- APARs of Interest
- WLM
- Web Sites
- Good Reading
- Miscellaneous
VTOC Conversion Aid

- WSC Flash **W98045** - potential data integrity problem; indicated the necessity of applying APAR **PN89166** (9/96)
- This APAR added bits in the VTOC to help products that move/copy volumes/VTOCs to handle alternate cylinder allocations; without the bits, copy programs could drop data
- BUT - VTOCs created before the APAR are still open to data loss during a move
- **Don Chesarek** of IBM’s Senior Technical Staff created a neat VTOC conversion tool to report on status of each VTOC and help convert the old VTOCs (builds ICKDSF control cards) - you should use it!
- Obtain: MKTTOOLS (keyword CVTOC) or Servicelink/DLL (CVTOC00H - doc, CVTOC00C - code)
Hardware Data Compression

- HDC introduced with 9021-711 family
  - Instructions that compress or expand data; implemented as hardware instruction
- CMOS G1 & G2 implemented HDC as microcode
- CMOS G3 implemented HDC as hardware again; much more efficient
- CMOS G4 (thru G6) implement HDC as millicode since lack of room on the chip
- Results: HDC users moving from G3 to G4 or G5 are seeing less than expected improvements in the HDC applications (one user reported 30% higher CPU time than expected)
- Solution: IBM expects to implement HDC in G7 when more users will be exploiting HDC
Bob Archambeault did some analysis of CICS, COBOL and LE

- R. A. Solutions Int'l. Inc.
- CICS project at SHARE

His results:

- More CPU time was used as newer releases of LE was implemented
- CICS CALL was considerably more efficient than CICS Link
- CBLPSHPOP showed even higher savings
- Results on next page were from his benchmarks
CICS & LE

- Comparison of Link/Call/CBLPSHPOP

![Bar chart comparing Link and Call for different versions of CICS and LE.](chart.png)
CICS & LE

- New APARs from IBM reduce the increased CPU time after LE:
  - **PQ14883** (LE) and **PQ16794** (COBOL) - Skip Exit DSA processing
  - **PQ14888** (LE) and **PQ16844** (CICS) - Allows LE/CICS Run Unit Work Area (RUWA) to be reused across EXEC CICS LINK commands for ALL31(ON) apps
  - **PQ17931** (LE) - Allows an installation to specify ALL31(ON) to be used as a CICS default

- More benchmark tests run by IBM and reported by Bob Archambeault

- Bob’s Recommendation:
  - Apply all five APARs and specify RUWAPOOL=YES in the SIT for best performance
CICS & LE

- Results of IBM’s Benchmarks

CICS 1.4 COBOL LINK Performance with LE 1.8

Before APARs | After APARs 1&2 | After APARs 3&4

CPU Seconds for 5000 LINKS

ALL31=ON  ALL31=OFF
CF Online Monitor

- CFMON - Coupling Facility Monitor
  - New, little-advertised, free online monitor for parallel sysplex
  - Similar to facility that was included in RMF for OS/390 R6 and retrofitted back to R4
  - You can download a free version now that works for SP 5 to OS/390 R5 (expires 12/31/2000)
  - Look at Redbook SG24-5153 (Parallel Sysplex Coupling Facility Online Monitor) for download directions & instruction
TCP/IP Status

- OS/390 R5 was complete rewrite of TCP/IP stack
- Performance improvements are significant (sometimes 15 times better)
- New stack does not support IUCV and VMCF APIs
  - Some vendors do not support the change
  - IBM’s Partners in Development were told in 1996, but not all of them have made the change
  - Customers are going to R5 and finding ISV products that won’t work
- Rumors: most sites have difficulty with TCP/IP when going to R5 and R6 from prior releases - plan on this taking extra time
TCP/IP Status

- WSC Flash **W98042** - CS for OS/390 V2R6 TCP/IP Migration Tips

- WSC Flash **W98019** - CS for OS/390 V2R5 TCP/IP Migration Tips

- Storage Info APARs of importance (thanks to Eliot Swiger):
  - **II11553** - known TCP/IP storage problems
  - **II11180** - TCP/IP CSM storage problems
  - TCP/IP Stack Conversion Cookbook
    <http://www.software.ibm.com/enetwork/commserver/about/api/api_csos390.html>
VSAM Tuning

- Back to the Basics!
- **Eileen Ahles** asked why adding buffers to a VSAM file didn’t help performance (Strobe had identified huge delays on a VSAM file, so user added lots of buffers in the JCL)
- Problem was traced to use of alternate indexes which do not use additional buffers
- With only a slight modification to 4 programs and a load of the file each night to create a file without alternate indexes (and adding the buffers during execution), they were able to save 12 minutes of CPU a night and almost 4 hours of elapsed time providing a savings of several thousand dollars a night in billable charges!
APARs of Interest

- SDSF User Hangs - APAR PN91283 (closed 97/08)
  - SDSF 1.6.0 & R3; occurs when SDSF user selects a swapped out address space

- Catalog CPU Overhead - APAR II10752 describes possible solutions, describes how to report increases to IBM - PLEASE REPORT THEM!

- René Bélanger, Lead "PLEXOLOGIST", reported some serious data sharing problems: APAR II11487 - inability to share SHISAM indexes IMS Data Sharing; APAR PQ24154 - DB2 SYSLGRNX Page Regressed
Important closed APARs:

- **OW32140** - reduces CICS V4/TS overhead if not using transaction goals; note that this does not affect users who are using transaction goals - it’s still important for those users to reduce total MAXTASKS as much as possible (Chuck Hopf had a large CICS environment, 350 test regions and 40-50 production regions with a total MAXTASKS of 30,000 and found WLM taking total 40-50% of one CPU across a sysplex; reducing MAXTASKS to 8000 reduced CPU time to 16% of one CPU or 1.3% of total sysplex)

- **OW31890, OW31894** - reduces possibility of low importance work impacting high importance work (this problem caused some sites to back off goal mode)

- **PQ20927** - Peter Durrant reported problem where CPU time is zero in RMF for IMS Fast Path transactions in goal mode
WLM

● APARs

- Important info APARs:
  - **II11190** - How to stop JES2 since OMVS can’t be stopped first (R3+)
  - **II11578** - Documentation for DDF V4 in compatibility mode (12/98)
  - **WSC Flash W98017A** - lists APARs to resolve JES2 $ACTIVATE problem which kept some sites from using WLM managed initiators

- Important open APARs:
  - **OW37216** - higher importance server address space delayed by lower importance
  - **OW37652** - STC marked as SYST in SCHEDxx can’t be assigned (R4+)

● Keep Current With WLM Web Site

- Several important papers at:
Migrating to new OS/390 releases when in goal mode

- Kathy Walsh of WSC brought this to my attention
- Once you are running in goal mode, your policy will not automatically add any new subsystems (e.g. DB2, IWEB, etc.) when you move to a new OS/390 release
- You can manually add new subsystems, but the subsystem name must match the name in the WLM: Planning manual
  - Once the subsystem is added, it will have the correct attributes for classification
Web Sites

● Washington Systems Center
  ■ Web site has moved once more since last SHARE
  ■ New site also has pointers to white papers (look for this to expand)
    – One white paper is: “Customizing JES2 with Dynamic Tables and Control Block Extensions” by John Hutchinson (new facilities in R7 and available in APAR OW32032)
  ■ <http://www.ibm.com/support/techdocs>

● IBM Free Road Show in March
  ■ <http://www.s390.ibm.com/roadmap>
  ■ Of course, it’s marketing!
  ■ BUT - it will help you and your management understand where IBM is going (CICS, Web, e-commerce, etc.)
Web Sites

- **Nicus Software**
  - Provides services in charge-back, capacity and performance
  - Web site contains an MXG/CA-MICS cross-reference that is excellent
  - <http://www.nicus.com>

- **Mainframers Home Pages**
  - Chuck Hopf’s Home Page: <http://www.chopf.com>
  - Look for paper on WLM migration (includes MXG code to determine goals)
  - Follow ‘dinos Ring’ to home pages of other mainframers to find some excellent sources for other papers, tools, software, more sites
  - Dave Alcock’s Home: <http://www.ticnet.com/davea/>
Web Sites

- High Level Assembler Home

- Redbooks & ITSO
  - <http://www.redbooks.ibm.com>
  - Now has papers, not just completed books

- CMG Australia Quarterly Journal
  - <http://journal.cmga.org.au>
  - This is free for a short time and contains some excellent papers
Good Reading

- **UNIX Books**

- **Assembler Coding**
    - Includes free copy of PC shareware, PC370 (PC-based MVS Assembler emulator)
New Redbooks

- SG24-5168-00 Capacity Planning for CICS Web-Enabled Applications on OS/390 (98/12/21)
- SG24-5329-00 Batch Processing in a Parallel Sysplex (99/1/5)
- SG24-5272-00 DFSMSshsm Primer (98/12/30)
- SG24-2085-00 Continuous Availability - Systems Design Guide (98/12/14)
- SG24-2086-00 Continuous Availability S/390 Technology Guide (98/12/18)
- SG24-4356-03 System/390 Parallel Sysplex Performance (98/12/11)
- SG24-2079-00 Parallel Sysplex Operational Scenarios (98/12/2)
Good Reading

● New Redbooks
  - SG24-5330-00 File Server Consolidation on S/390 (98/12/2)
  - SG24-5261-00 DB2 for OS/390 and Data Compression (98/11/18)
  - SG24-5142-00 Integrating Java with Existing Data and Applications on OS/390
  - SG24-5149-00 Lotus Domino for S/390 Performance Tuning & Capacity Planning
  - SG24-5150-00 Enterprise Integration with Domino for S/390
Miscellaneous

- Private Area Problems
  - Sites migrating to OS/390 are running out of private area (e.g. SP 4.3 to OS/390 R5 lost 3.5 MB in private below the line)
  - No current documentation on what things to remove from LPA
  - Please send me email of deletion suggestions and tools that you’ve used and I’ll consolidate the suggestions and return it to anyone who contributes

- Email from Rich Olcott:
  - December 31, 1999 (991231) is F1FFF in hex. Adding 1 to 991231 in hex gives F2000. His note said that most sysprogs would pull out their hex calculators to confirm this (and I did!)

- Are some people getting carried away?
  - Sanyo’s bread board is Y2K-certified:
The End!

- Was this useful? Please fill out evaluations
- See you in Chicago in August!