Cheryl's Hot Flashes

Cheryl Watson

SHARE, February 1999

Session #2543

Watson & Walker, Inc.
publishers of 'Cheryl Watson's TUNING Letter'
2477 Stickney Point Road, Suite 207B, Sarasota, FL 34231
941-924-6565, fax: 941-924-4892
email: cheryl@watsonwalker.com
Home Page: http://www.watsonwalker.com

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

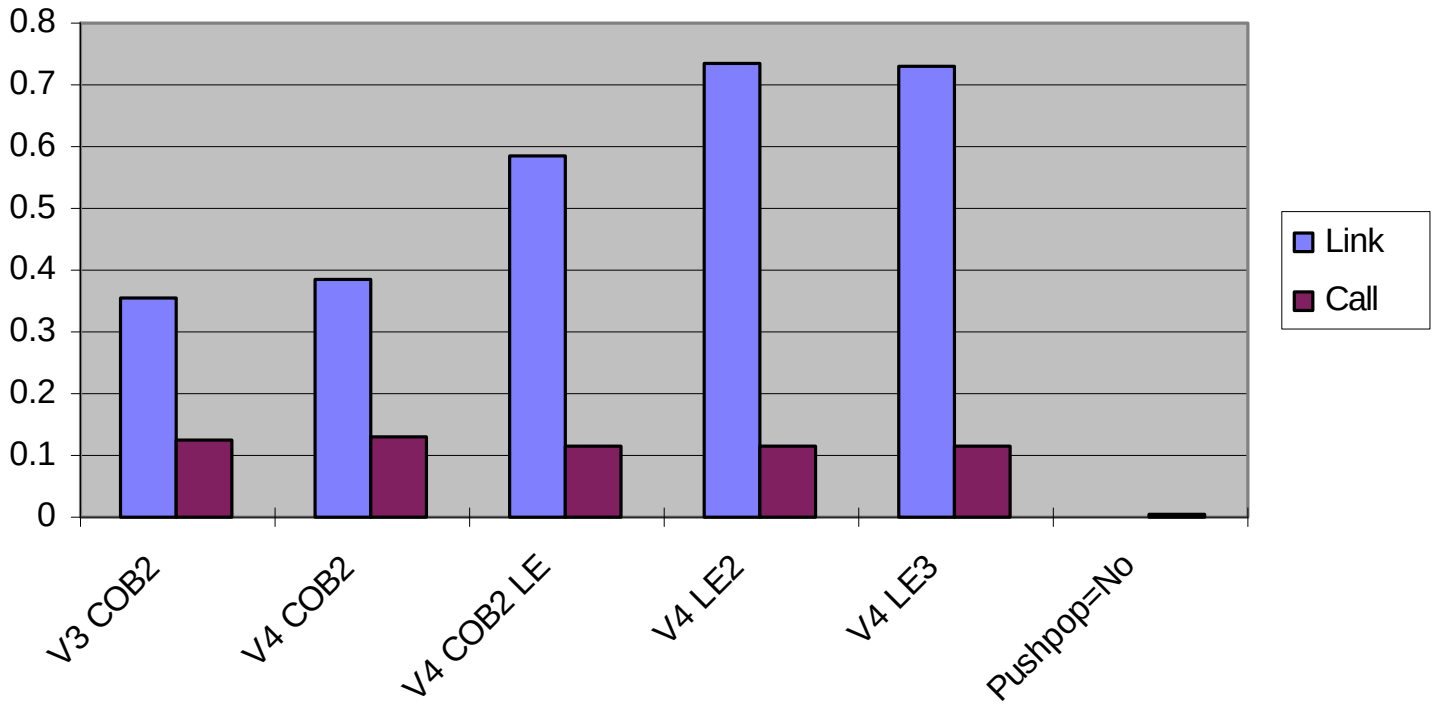
- HDC introduced with 9021-711 family
  - Instructions that compress or expand data; implemented as hardware instruction
- CMOS G1 & G2 implemented HDC as microcode
- CMOS G3 implemented HDC as hardware again; much more efficient
- CMOS G4 (thru G6) implement HDC as millicode since lack of room on the 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

CICS & LE

- 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

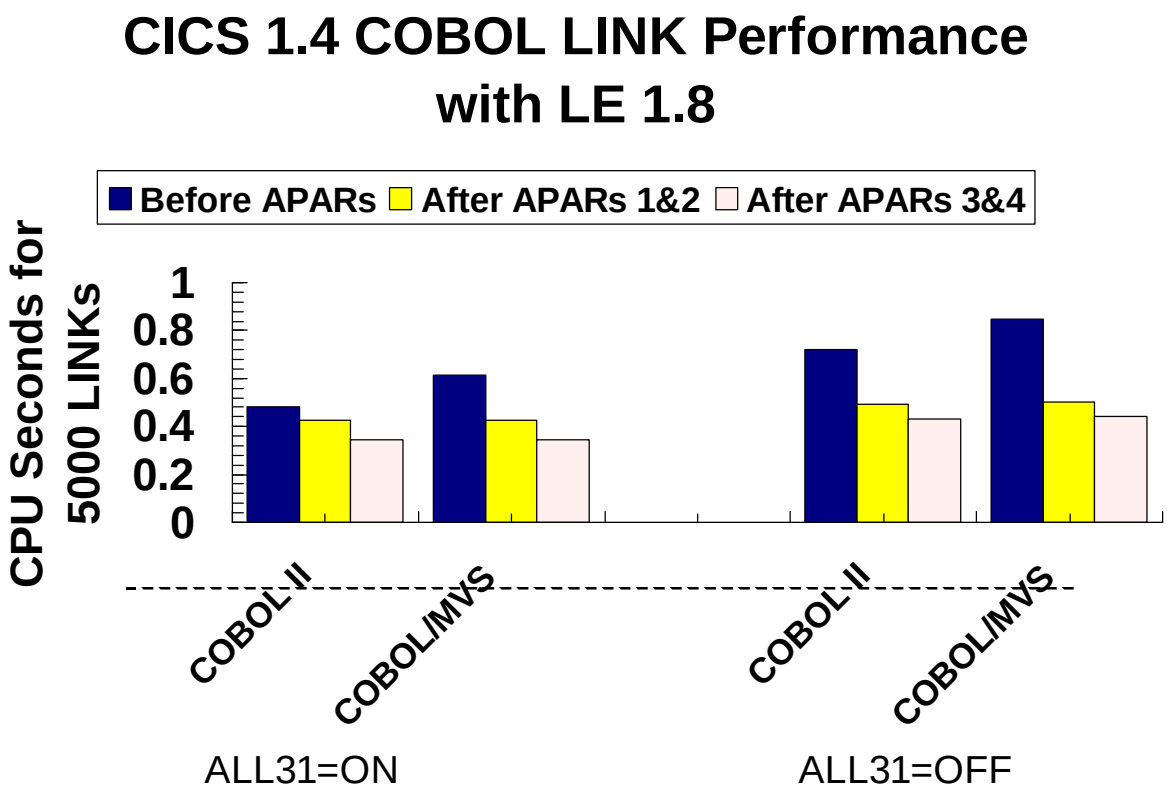


CICS & LE

- 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



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

WLM

- APARs
  - 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:
    - **<http://www.s390.ibm.com/products/wlm>**

WLM

- 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
  - <http://www.software.ibm.com/ad/hlasm/>
- 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
  - UNIX as a Second Language, Bob Johnson, Landmark Systems, September 1998, ISBN 0-9650929-1-7, bjohnson@landmark.com
  - UNIX for the Mainframer, David B. Horvath, Prentice-Hall 1998, ISBN 0-13-632837-7
  - The Design of the UNIX Operating System, Maurice J. Bach, Prentice-Hall 1984, ISBN 0-13-201799-7

- Assembler Coding
  - "Mainframe Assembler Programming", Bill Qualls, ISBN 0471249939 (2/98)
    - Includes free copy of PC shareware, PC370 (PC-based MVS Assembler emulator)

Good Reading

- 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 DFSMShsm 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:
    - <http://www.sanyousa.com/products/home_appliance/small_appliance/bs-1.html>

The End!

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