

# System z Batch Network Analyzer Tool (zBNA) - Because Batch is Back!

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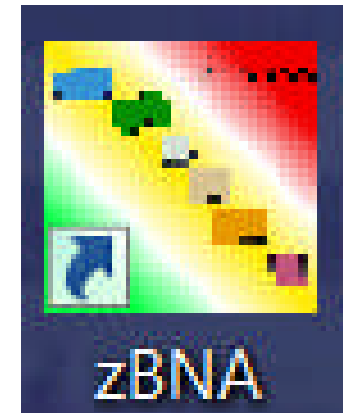
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# zBNA Topics

- Capacity Planning Information
- Introduction
  - What and Why
  - New SMF 30 field for Max Task CPU%
  - Sample flow and reports
- What's New
  - SMF 42.6s
  - Compression and zEDC
    - BSAM and QSAM Candidates
    - zBNA Sample Reports
    - Alternate Compression
- Technical Support and Additional Education



## ■ System z Capacity Planning Opportunities:

- Per thread (engine) speed improvements for CMOS CPs is slowing dramatically
  - Every CMOS platform is facing this issue
  - Future capacity gains will be by adding more CPs rather than much faster CPs
  - Enhances need for parallel operation and more reliance on parallel sysplex
- Availability of subcapacity models continues to grow
  - Provide capacity as more, slower processors increasing parallelism
  - Especially useful in environment with large number of LPARs
  - Additional capacity can be acquired in smaller increments
  - Receive benefit since Specialty CPs run at full n-way speed

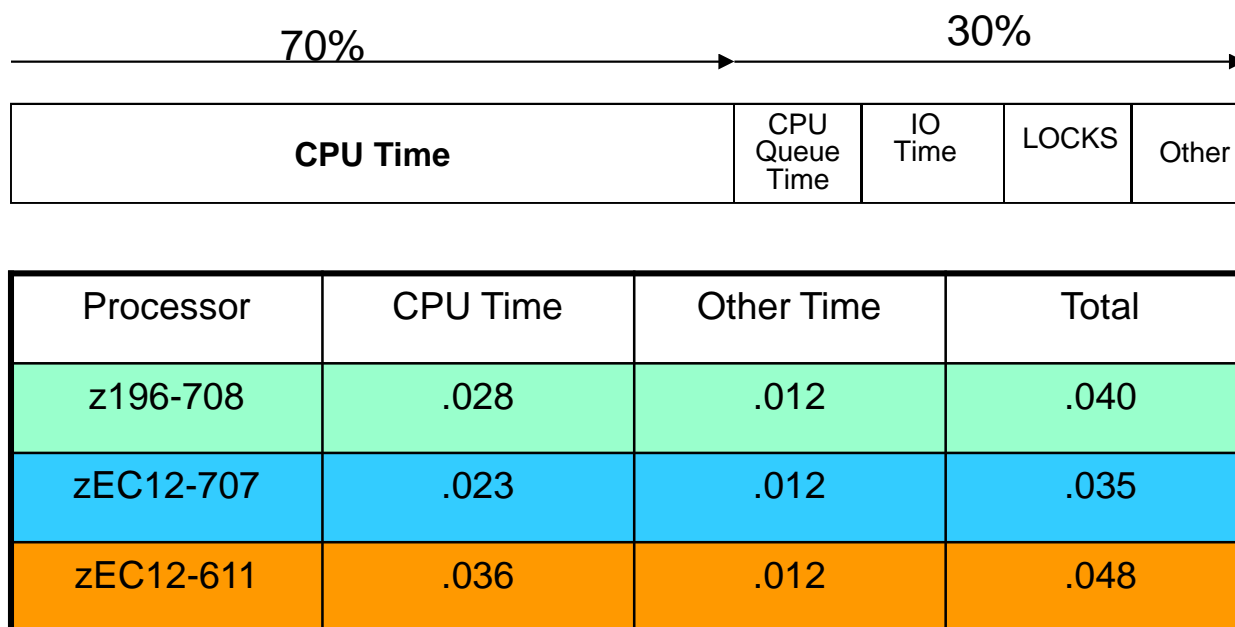
**Impact of these trends will most likely be seen first in the  
Batch Window**

# Fewer, Faster CPs vs More, Slower CPs

- **Fewer, Faster CPs**
  - High priority workloads see great benefits
  - Have the ability to monopolize a CP
  - On a migration a previously limited workload can now use more capacity
    - Rejoice
    - Control with WLM resource groups
  - Availability Issues
- **More, Slower CPs**
  - More work units are active
  - Can limit a task's throughput
  - Increased parallelism
  - Limits the impact of a workload which monopolizes a CP
  - Can trade-off slower CP speeds with a reduction in CPU queue delay

# Workload Considerations

Online Transaction

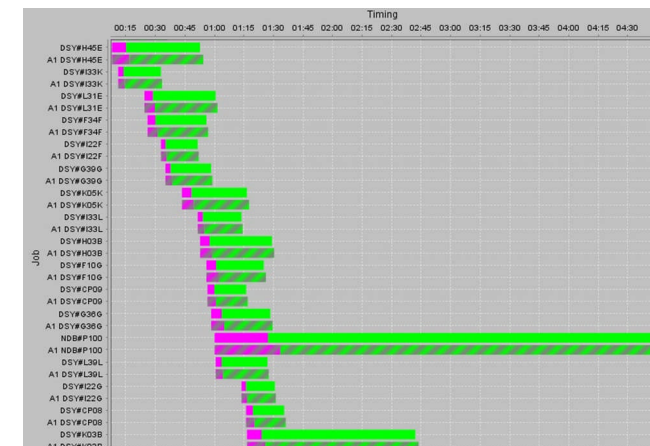
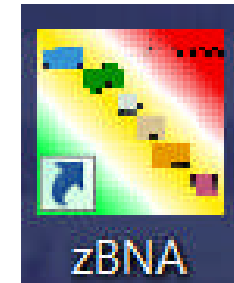


The real issue is in the **batch window** where CPU time can be significant, and CP speed issues can impact elapsed time and job network time

# IBM System z Batch Network Analyzer (zBNA)



- IBM System z Batch Network Analyzer
  - A no charge, “as is” tool to analyze batch windows
  - Available to Customers, Business Partners and IBMers
  - PC based, and provides graphical and text reports
    - Including Gantt charts and support for Alternate Processors
- Available on Techdocs
  - <https://www.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/PRS5132>





# Enhanced SMF 30 Reporting

- APAR OA39629 – New Function
- New SMF 30 function to provide enhanced reporting in the CPU Accounting section
  - z/OS 1.12 and above
  - Support in subtypes; interval (2, 3), step (4), job(5)
- Highest percent of CPU time used by a single task in the address space in the interval, step, or job
  - SMF30\_Highest\_Task\_CPU\_Percent
- Program name associated with the task with the highest percentage of CPU time in the address space
  - SMF30\_Highest\_Task\_CPU\_Program

Need SMF 30 Interval recording  
to get values in subtype 4s and  
5s and thus zBNA reporting

# zBNA Scope of Analysis

- Data Inputs
  - Provide Extractor job run on client systems to capture the data
  - SMF 70, 72, and 113
  - SMF 30 records (subtype 4 for Step info and subtype 5 for Job info)
  - SMF 42 records (subtype 6 for DASD Data Set information)
  - SMF 14, 15 records (for BSAM/QSAM data set compression information)
- Scope of Analysis Limit the time range to 24 hours for 1 System !
  - Scope is primarily single batch window of user defined length
  - What if analysis is how that specific batch window would run in a different environment on an alternate processor
  - Single system view
- Tool Filters
  - Discovered from the data
    - Service classes, job classes, account codes
  - Settable by user
    - Time Window, CPU Seconds, CPU Intensity, Task Intensity, Exclude Jobs, Key Jobs
- Output
  - Save the study (filters, and file names)
  - Generate a suite of output reports

# Why use zBNA?

- Identify Batch Resource Usage
  - Filter jobs by attributes like CPU time / intensity, job class, service class, etc.
  - Review the resource consumption of batch jobs
  - Drill down to the individual Steps to see resource usage and DASD Data Sets used
  - Identify job time sequences based on a graphical view
  
- Help Reduce the “Batch Window” by Identifying Technology Options: CPU, I/O
  - Identify candidate jobs for running on different processors
  - Identify jobs with speed of engine concerns (top tasks %)
  - Perform "what if" analysis and estimate the CPU upgrade effect on batch window
  - Identify DASD Data Sets used by jobs, and Top10 DASD Data Sets overall
  - Identify BSAM/QSAM Compression candidates and estimate number of zEDC Express cards

# Typical zBNA Flow

- Load the Data
- Filter the Jobs
  - Graph / Report
  - Additional Information
    - Load the Step Detail for the Filtered Jobs
    - Load the DASD Data Set Detail for the Filtered Jobs
    - Load the DASD Data Set Detail for the Top 10 DASD Data Sets
  - Create Alternate CPU analysis
    - Graph / Report
- zEDC BSAM / QSAM Analysis
- Save the zBNA File

# zBNA Filtering Capability

The screenshot displays the IBM System z Batch Network Analyzer (zBNA) interface. The main window shows a list of jobs with columns for Key Batch, Job Name, Steps, and various performance metrics. A dialog box titled "zBNA Filters" is open, allowing users to filter the data based on several criteria:

- Job Thresholds:** Includes fields for "Top Program Pct (0-100)" (set to 10%), "GCP Time (secs)" (set to 10), and "Elapsed Time (secs)" (set to 0).
- Service Class, Report Class, Job Class, Account Code:** Lists available options for each category, such as BATCHHI, BATPRDDF, and BATTSTDF.
- Filter by time:** Includes "From" and "To" date and time selectors.
- Job Name Include Mask:** A text box for including specific job names, with "M3\*" and "M4\*" entered.
- Exclude by Job Name:** A text box for excluding specific job names, with "M373DVF(JOB27670)" entered.

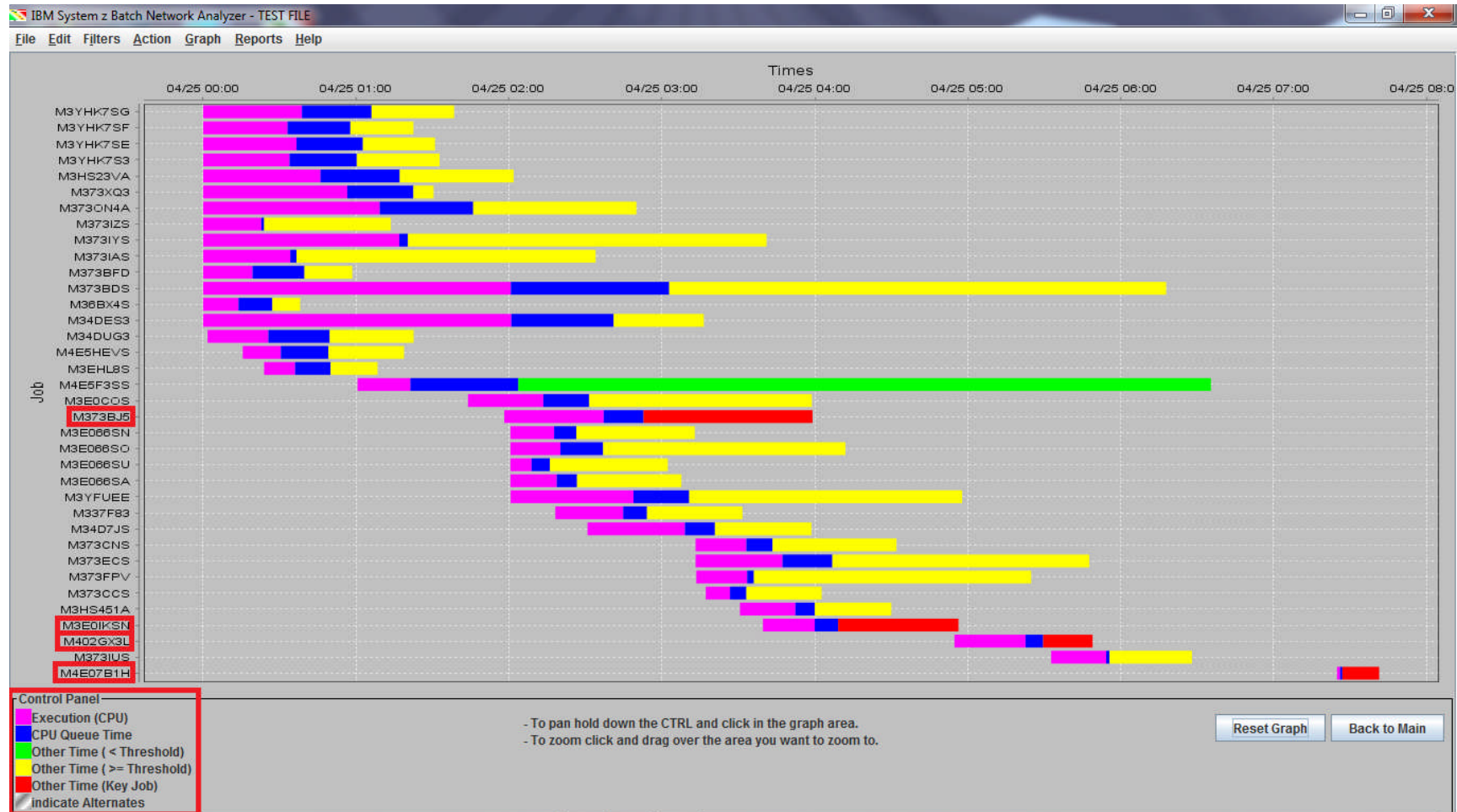
The bottom of the interface shows a status bar with the text "36 Jobs" and a red box containing the message "Only JOB end records (type 30 subtype 5) have been loaded."

# zBNA – Job Details for Filtered Jobs – Elapsed Time Descending

IBM System z Batch Network Analyzer - TEST FILE														
Applied Filters										Mainframe Information				
SERVICE CLASS: BATCHEHI, BATPRDDF, BATTSTDF JOB NAMES: M3*, M4*										Model:	2817-711			
										Partition Name:	ONLM			
										SYSID:	SYS1			
										Partition Logical Utilization:	93.7%			
										CPC Utilization:	93.7%			
Key Batch	Job Name	Steps	Job Class	Acct Code	Service Class	Elapsed Time	CPU Time	zAAP Time	zIIP Time	CPU Intensity	EXCPs	Top Program	Top Pgm %	Condition Code
<input type="checkbox"/>	M373BDS	21	J	37397332	BATPRDDF	6.3h	2.0h	0.0s	0.8s	32.0%	18,169,677	DSNECP10	46.0%	0000
<input type="checkbox"/>	M4E5F3SS	<div>Show Step Details</div> <div>Exclude Data</div> <div>Toggle Key Batch</div> <div>Job Dataset Report</div>	J	4E595732	BATPRDDF	5.6h	20.7m	0.0s	0.2s	6.2%	19,960,843	DSNECP10	17.0%	0000
<input type="checkbox"/>	M373IYS		J	37397332	BATCHEHI	3.7h	1.3h	0.0s	0.0s	34.8%	144,846	DSNECP10	34.0%	0000
<input type="checkbox"/>	M34DES3		J	34D94432	BATPRDDF	3.3h	2.0h	0.0s	0.0s	61.6%	31,510	DSNECP10	92.0%	0000
<input type="checkbox"/>	M3YFUEE		J	3YF3YF32	BATPRDDF	3.0h	48.2m	0.0s	0.0s	27.2%	441	DSNECP10	21.0%	0000
<input type="checkbox"/>	M373ON4A	3	J	37397332	BATPRDDF	2.8h	1.2h	0.0s	0.0s	40.8%	56,388	DSNECP10	63.0%	0000
<input type="checkbox"/>	M373ECS	3	J	37597532	BATPRDDF	2.6h	34.1m	0.0s	0.0s	22.1%	316	DSNECP10	25.0%	0000
<input type="checkbox"/>	M373IAS	3	J	37397332	BATCHEHI	2.6h	34.2m	0.0s	0.0s	22.2%	67,910	DSNECP10	26.0%	0000
<input type="checkbox"/>	M3E0COS	3	J	3E09E032	BATPRDDF	2.2h	29.6m	0.0s	0.0s	21.9%	4,404	DSNECP10	26.0%	0000
<input type="checkbox"/>	M3E066SO	2	J	3E09E032	BATPRDDF	2.2h	19.6m	0.0s	0.0s	14.9%	344	DSNECP10	15.0%	0004
<input type="checkbox"/>	M373FPV	9	J	37397332	BATCHEHI	2.2h	20.0m	0.0s	0.0s	15.2%	1,776,060	DSNECP10	17.0%	0000
<input type="checkbox"/>	M3HS23VA	3	J	3HS3HS32	BATPRDDF	2.0h	46.0m	0.0s	0.0s	37.8%	21,905	DSNECP10	49.0%	0000
<input checked="" type="checkbox"/>	M373BJ5	11	J	37397332	BATPRDDF	2.0h	39.0m	0.0s	0.4s	32.2%	14,821,030	SYNCSORT	9.0%	0000
<input type="checkbox"/>	M3YHK7SG	26	J	3YH3YH32	BATPRDDF	1.6h	38.8m	0.0s	0.0s	39.4%	596,359	DSNECP10	62.0%	0000
<input type="checkbox"/>	M3YHK7S3	26	J	3YH3YH32	BATPRDDF	1.5h	33.9m	0.0s	0.0s	36.6%	512,864	DSNECP10	62.0%	0000
<input type="checkbox"/>	M3YHK7SE	26	J	3YH3YH32	BATPRDDF	1.5h	36.6m	0.0s	0.0s	40.3%	874,506	DSNECP10	64.0%	0000
<input type="checkbox"/>	M373XQ3	5	J	37397332	BATPRDDF	1.5h	56.6m	0.0s	0.0s	62.5%	6,101	DSNECP10	87.0%	0000
<input type="checkbox"/>	M34D7JS	3	J	34D94432	BATPRDDF	1.5h	38.2m	0.0s	0.0s	43.5%	3,735,605	DSNECP10	21.0%	0000
<input type="checkbox"/>	M3YHK7SF	26	J	3YH3YH32	BATPRDDF	1.4h	33.1m	0.0s	0.0s	40.1%	731,964	DSNECP10	63.0%	0000
<input type="checkbox"/>	M34DUG3	15	J	34D94432	BATPRDDF	1.3h	23.9m	0.0s	0.0s	29.5%	21,548	DSNECP10	29.0%	0000
<input type="checkbox"/>	M373CNS	5	J	37397332	BATPRDDF	1.3h	19.9m	0.0s	0.0s	25.3%	392,740	DSNECP10	19.0%	0000
<input checked="" type="checkbox"/>	M3E0IKSN	4	J	3E09E032	BATPRDDF	1.3h	20.3m	0.0s	0.0s	26.5%	1,976,574	DSNECP10	8.0%	0000
<input type="checkbox"/>	M373IZS	3	J	37397332	BATCHEHI	1.2h	22.8m	0.0s	0.0s	31.0%	43,231	DSNECP10	22.0%	0000
<input type="checkbox"/>	M337F83	5	J	33793732	BATPRDDF	1.2h	26.6m	0.0s	0.0s	36.3%	2,434,989	DSNECP10	26.0%	0000
<input type="checkbox"/>	M3E066SN	2	J	3E09E032	BATPRDDF	1.2h	17.2m	0.0s	0.0s	23.7%	320	DSNECP10	13.0%	0004
<input type="checkbox"/>	M3E066SA	2	J	3E09E032	BATPRDDF	1.1h	18.2m	0.0s	0.0s	27.1%	340	DSNECP10	22.0%	0004
<input type="checkbox"/>	M4E5HEVS	7	J	4E595732	BATPRDDF	1.1h	15.0m	0.0s	0.0s	23.7%	6,954	DSNECP10	18.0%	0000
<input type="checkbox"/>	M3E066SU	2	J	3E09E032	BATPRDDF	1.0h	498.0s	0.0s	0.0s	13.4%	342	DSNECP10	12.0%	0004
<input type="checkbox"/>	M3HS451A	9	J	3HS3HS32	BATPRDDF	59.4m	21.8m	0.0s	0.0s	36.6%	121,786	DSNECP10	23.0%	0000
<input type="checkbox"/>	M373BFD	7	J	37397332	BATPRDDF	58.5m	19.4m	0.0s	0.0s	33.1%	865,814	DSNECP10	48.0%	0000
<input type="checkbox"/>	M373IUS	14	J	37397332	BATCHEHI	55.3m	21.6m	0.0s	0.2s	39.1%	3,407,043	DSNECP10	24.0%	0000
<input checked="" type="checkbox"/>	M402GX3L	17	J	40242032	BATPRDDF	54.2m	27.9m	0.0s	0.0s	51.5%	2,949,226	ENGEXE	4.0%	0000
<input type="checkbox"/>	M373CCS	15	J	37397332	BATPRDDF	45.5m	571.8s	0.0s	0.0s	21.0%	510,039	DSNECP10	13.0%	0000
<input type="checkbox"/>	M3EHL8S	2	J	3EH94932	BATPRDDF	44.5m	12.2m	0.0s	0.0s	27.3%	36,613	DSNECP10	15.0%	0000
<input type="checkbox"/>	M36BX4S	3	J	36B96B32	BATPRDDF	38.1m	13.9m	0.0s	0.0s	36.5%	172,542	DSNECP10	10.0%	0000
36 Jobs														



# zBNA – Display Graph for Filtered Jobs



# zBNA – Step Details for Job M373BDS

**zBNA Job Details**

File Action

Job Name: M373BDS      Job Number: JOB27655      **Number of Steps: 21**      Key Batch: No

Start Date: Apr 25, 2013      Start Time: 12:00 AM      End Date: Apr 25, 2013      End Time: 6:17 AM

Job Class: J      Service Class: BATPRDDF      Account Code: 37397332      Condition Code: 0000

Top Pgm %: 46%      Top Program: DSNECP10      Elapsed Time: 22672.7 Seconds      CPU Intensity: 32.0%

**Steps**

Key Batch	Start Date	Start Time	End Date	End Time	Proc Step	Step Name	Program Name	Step Number	Sub Type	Job Class	Acct Code	Service Class
	4/25/13	0:00:00	4/25/13	6:17:52				21 Total	Job	J	37397332	BATPRDDF
	4/25/13	0:00:00	4/25/13	2:31:53		S373BD3	LNMIHW23	3	Step	J		BATPRDDF
	4/25/13	2:31:53	4/25/13	2:39:29		EDFNXS3	LHEJHQHU	4	Step	J		BATPRDDF
	4/25/13	2:39:29	4/25/13	2:47:18		EDFNXS4	LHEJHQHU	5	Step	J		BATPRDDF
	4/25/13	2:47:18	4/25/13	2:50:28		EDFNXS5	LHEJHQHU	6	Step	J		BATPRDDF
	4/25/13	2:50:28	4/25/13	2:51:11		EDFNXS6	LHEJHQHU	7	Step	J		BATPRDDF
	4/25/13	2:51:11	4/25/13	2:52:45		EDFNXS7	LHEJHQHU	8	Step	J		BATPRDDF
	4/25/13	2:52:45	4/25/13	2:55:25		VRUWBD3	VBQFVRUW	9	Step	J		BATPRDDF
	4/25/13	2:55:25	4/25/13	3:02:35		S373BD4	LNMIHW23	10	Step	J		BATPRDDF
	4/25/13	3:02:35	4/25/13	3:10:51		EDFNXS8	LHEJHQHU	11	Step	J		BATPRDDF

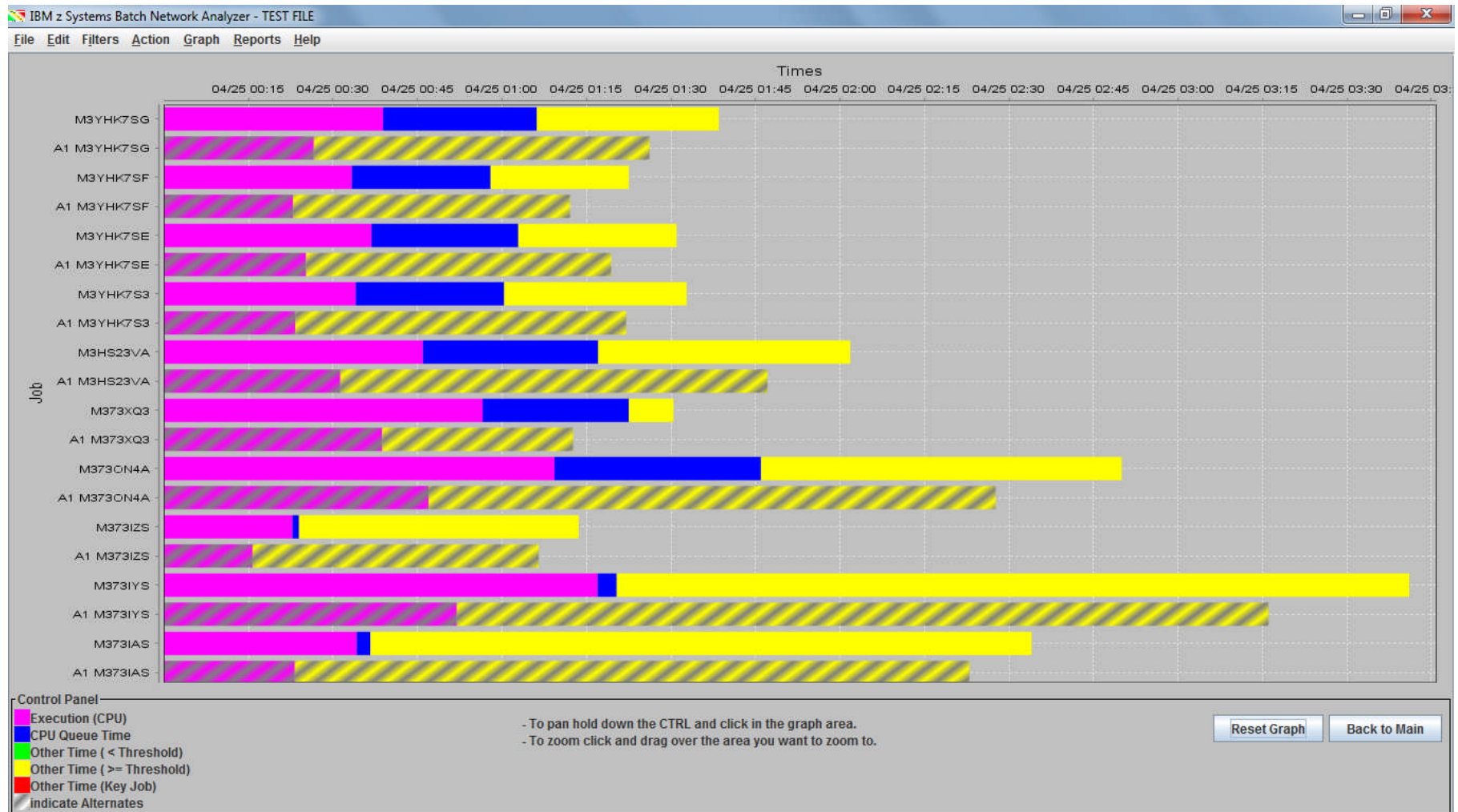
Scroll to see the remaining Steps.

Scroll to see the remaining columns.

Report Class	Elapsed Time	CPU Time	zAAP Time	zIIP Time	IIP CP Time	EXCP	CPU Intensity	Top Program	Top Pgm %
	6.3h	2.0h	0.0s	0.8s	0.0s	1816...	32.0%	DSNECP10	46.0%
	2.5h	37.1m	0.0s	0.0s	0.0s	2857...	24.5%	DSNECP10	29.0%
	455.0s	13.8s	0.0s	0.0s	0.0s	1263...	3.0%	IEFIIC	0.0%
	469.0s	8.2s	0.0s	0.0s	0.0s	2695...	1.7%	IEFIIC	0.0%
	189.0s	3.7s	0.0s	0.0s	0.0s	1069...	1.9%	IEFIIC	0.0%
	42.0s	0.8s	0.0s	0.0s	0.0s	2282...	1.8%	IEFIIC	0.0%
	93.0s	1.7s	0.0s	0.0s	0.0s	4552...	1.8%	IEFIIC	0.0%
	160.0s	4.1s	0.0s	0.3s	0.0s	3967	2.6%	IEFIIC	0.0%
	430.0s	12.1s	0.0s	0.0s	0.0s	1375...	2.8%	IEFIIC	0.0%
	495.0s	15.1s	0.0s	0.0s	0.0s	1263...	3.0%	IEFIIC	0.0%



# zBNA Alternate Processor Analysis – z196-711 to z13-708



# zBNA – Some Recent Updates include:

See C:\CPSTOOLS\zBNA “zBNAnews.pdf” for  
a complete description

- v1.5.0 – 10/22/14
  - Alternate Support for zEDC Compression: I/O, I/O time and CPU delta in table and graphs
- v1.5.1 – 12/12/14
  - New Gigabytes by hour graph
  - Allow inclusion/exclusion by data sets to drive zEDC graphs
- v1.6.0 – 1/14/15
  - z13 Support
- v1.6.1 – 1/31/15
  - Miscellaneous enhancements and fixes
- v1.6.2 – 3/6/15
  - Alternate Support for zEDC Compression to include estimated DASD space savings

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## **SMF 42.6 DASD Data Set Information**

## Filter” BATCHHI Service Class, Jobs M4E07\*, >10 sec CPU and >100 sec Elapsed - Select Job M4E07B1H then (right click) Job Data Set Report

IBM System z Batch Network Analyzer - TEST FILE

File Edit Filters Action Graph Reports Help

Applied Filters:

JOB NAMES: M4E07\*

Mainframe Information:

Model: 2817-711  
 Partition Name: ONLM  
 SYSID: SYS1  
 Partition Logical Utilization: 93.7%  
 CPC Utilization: 93.7%

Key Batch	Job Name	Steps	Job Class	Acct Code	Service Cla...	Elapsed TI...	CPU Time	zAAP Time	zIP Time	CPU Intens...	EXCPs	Top Program	Top Pgm %	Condition ...
<input type="checkbox"/>	M4E07EMH	99	B	4E595732	BATCHHI	129.0s	10.8s	0.0s	0.0s	8.4%	90,392	IEFIIIC	0.0%	0C00
<input type="checkbox"/>	M4E07WWH	126	B	4E595732	BATCHHI	120.0s	11.0s	0.0s	0.0s	9.7%	124,052	IEFIIIC	0.0%	0C00
<input type="checkbox"/>	M4E07HZH	128	B	4E595732	BATCHHI	27.8m	114.5s	0.0s	0.2s	6.9%	3,499,688	IEFIIIC	0.0%	0C00
<input type="checkbox"/>	M4E07HZF	51	B	4E595732	BATCHHI	107.0s	22.7s	0.0s	0.0s	21.1%	23,613	IEFIIIC	0.0%	0C00
<input type="checkbox"/>	M4E07N7H	212	B	4E595732	BATCHHI	179.0s	19.7s	0.0s	0.0s	11.0%	186,397	IEFIIIC	0.0%	0C00
<input type="checkbox"/>	M4E07HBH	212	B	4E595732	BATCHHI	143.0s	13.8s	0.0s	0.0s	9.6%	79,513	IEFIIIC	0.0%	0C00
<input type="checkbox"/>	M4E072HH	171	B	4E595732	BATCHHI	129.0s	13.5s	0.0s	0.0s	10.5%	100,008	IEFIIIC	0.0%	0C00
<input type="checkbox"/>	M4E07LHH	124	B	4E595732	BATCHHI	248.0s	20.1s	0.0s	0.0s	8.1%	438,290	IEFIIIC	0.0%	0C00
<input type="checkbox"/>	M4E070TH	212	B	4E595732	BATCHHI	271.0s	16.2s	0.0s	0.0s	6.0%	78,878	IEFIIIC	0.0%	0C00
<input type="checkbox"/>	M4E07AIH	90	R	4F595732	BATCHHI	134.0s	10.3s	0.0s	0.0s	7.6%	130,425	IEFIIIC	0.0%	0C00
<input type="checkbox"/>	M4E072CH	212	B	4E595732	BATCHHI	18.1m	90.5s	0.0s	0.1s	8.3%	1,182,800	IEFIIIC	0.0%	0C00
<input type="checkbox"/>	M4E07AFH	131	B	4E595732	BATCHHI	26.3m	121.9s	0.0s	0.0s	7.7%	4,479,181	IEFIIIC	0.0%	0C00
<input type="checkbox"/>	M4E07HRH	126	B	4E595732	BATCHHI	107.0s	11.4s	0.0s	0.0s	10.6%	123,460	IEFIIIC	0.0%	0C00
<input type="checkbox"/>	M4E07HCH	126	B	4E595732	BATCHHI	119.0s	12.2s	0.0s	0.0s	10.2%	164,071	IEFIIIC	0.0%	0C00
<input type="checkbox"/>	M4E0768H	90	R	4F595732	BATCHHI	114.0s	10.3s	0.0s	0.0s	8.9%	120,118	IEFIIIC	0.0%	0C00
<input type="checkbox"/>	M4E0799H	130	B	4E595732	BATCHHI	129.0s	13.5s	0.0s	0.0s	10.4%	180,207	IEFIIIC	0.0%	0C00
<input type="checkbox"/>	M4E07B0H	132	B	4E595732	BATCHHI	484.0s	35.3s	0.0s	0.1s	7.5%	972,318	IEFIIIC	0.0%	0C00
<input type="checkbox"/>	M4E07B1H	132	B	4E595732	BATCHHI	16.5m	71.9s	0.0s	0.1s	7.2%	3,028,474	IEFIIIC	0.0%	0C00
<input type="checkbox"/>	M4E075H	90	R	4F595732	BATCHHI	142.0s	10.0s	0.0s	0.0s	8.9%	72,482	IEFIIIC	0.0%	0C00

19 Jobs

Only JOB end records (type 30 subtype 5) have been loaded.

# Job M4E07B1H Job Data Set Report – Sorted in Total I/O Time Descending

Job Dataset Report									
File Edit Action									
Job Details:									
Job Name: M4E07B1H		Key Batch: No		Elapsed Time: 991.79 Seconds		CPU Intensity: 7.2%			
Start Date: Apr 25, 2013		Start Time: 7:24 AM		End Date: Apr 25, 2013		End Time: 7:41 AM			
Step	Step Number	DSN	Total IOTime	IO Count	Response Time	Queue Time	Pending Time	Connect Time	Disconn Time
S4E5N227	92	I4E5SEY.M4E57B1S.30QDV3G.LQGHA	188.0s	1879022	0.1	0.0	0.0	0.0	
S4E5H22E	76	I4E5SE.M4E57B1S.PHD.HAWUDFW.J2439Y22	42.1s	619	68.0	0.0	0.1	34.6	
S4E015A4	66	Y325.L576.WPY	25.0s	249682	0.1	0.0	0.0	0.0	
S4E03FCG	44	I4E0SEY.M4E07B1S.HAW2KLS.CDWD	22.5s	7746	2.9	0.0	0.0	2.8	
S4C5N27G	91	I4C5EC.VRUWLOH.M4C57D1S.J2421Y22	19.0s	730	26.0	0.0	0.0	20.7	
S4E5H22E	76	I4E5SE.SE5H2233.M4E57B1S	19.5s	698	28.0	0.0	0.0	21.5	
S4E03FC7	36	VBV35337.W294677.UD222.M4E07B1H.U2910380	15.7s	83	189.0	0.0	1.4	159.3	
S4F5N26F	82	I4F5SF.SF5N226F.M4F57B1S	15.6s	10401	1.5	0.0	0.0	1.4	
S4E5N24E	75	I4E5SE.SE5N2233.M4E57B1S	13.2s	145	90.7	0.0	0.0	84.2	
S4E5N27E	89	I4E5SE.HAWUDFW.M4E57B1S.ILOH	12.8s	3276	3.9	0.0	0.0	2.5	
S4E5N227	92	I4E5SE.VRUWLOH.M4E57B1S.J2421Y22	8.4s	5249	1.6	0.0	0.0	1.5	
S4E03FCJ	47	I4E0SEY.M4E07B1S.HAW2KLS.LQGHA	8.4s	83547	0.1	0.0	0.0	0.0	
S4E5N225	78	I4E5SE.SE5N2253.M4E57B1S	8.1s	145	56.0	0.0	0.1	45.0	
S4E5N227	92	I4E5SEY.M4E57B1S.30QDV3G.GDWD	8.1s	81184	0.1	0.0	0.0	0.0	

# Job M4E07B1H “Life of a Data Set” I4E5SEY.M4E57B1S.SOQDVSG.LQGHA

zBNA: Life of a Dataset

File Edit Action

- Data Set Details: -

DataSet: I4E5SEY.M4E57B1S.SOQDVSG.LQGHA Number of Job Steps: 2


.Job	Step	Step Number	Job Number	Step End	Total I/O Time	I/O Count	Response Time	Queue Time	Pending Time	Connect Time	Disconnect Time
M4E07B1H	S4E5N27D	88	JOB21576	04/25/2013 07:31:58	0.1s	130	1.1	0.0	0.0	1.0	0.0
M4E07B1H	S4E5N227	92	JOB21576	04/25/2013 07:41:01	100.0s	1,079,622	0.1	0.0	0.0	0.0	0.0

Block Size	Read Percent	Compressed	Type	Extended
512	6	No	KSDS index	No
512	100	No	KSDS index	No

**Investigate SMF 64s and consider increasing LSR / NSR buffers to hold Index Set and potentially eliminate ~3 Minutes of I/O time**

OK

# “Top 10” Data Sets Report

 zBNA: Top 10 Data Sets

File   Edit

DSN	Total IOTime
VBV3.VFHHUXQ	51.0m
Y401SR.F7WQSOQW.SODQ.GDWD	36.7m
I329SR.F7WQSURG.SODQ.GDWD	33.8m
I355.QT.DD33.B	33.2m
I355.QT.DF33.B	32.5m
I355.QT.DE33.B	30.5m
I355.QT.DG33.B	28.8m
Y401SR.F7WQSURG.SODQ.GDWD	28.9m
I373.S73BJ324.SUYWLU.IWS	28.7m
I373.S73BJ525.SUYWLU.IWS	27.9m

# “Life of a Data Set” (LOADS) Report – I355.QT.DD33.B - Sorted in Step End Ascending

z3NA: Life of a Dataset

File Edit Action

Data Set Details: Data Set: I355.QT.DD33.B Number of Job Steps: 395

Job	Step	Step Number	Job Number	Step End	Total IOTime	IO Count	Response Time	Queue Time	Pending Time	Connect Time	Disconnect Time
M4E5H7S	S4E5H7S5	5	JOB29302	04/25/2013 00:16:01	1.3s	199	6.7	0.0	0.1	0.1	6.9
M4E5UHS3	VVHS7	11	JOB29797	04/25/2013 00:16:17	0.1s	11	5.1	0.0	0.1	0.3	4.6
M4E077VH	S4E5N27D	40	JOB29932	04/25/2013 00:16:37	0.0s	4	2.4	0.0	0.1	0.1	2.6
M4EUN7GH	S4E5N27D	55	JOB29376	04/25/2013 00:16:40	0.0s	2	3.7	0.0	0.0	0.2	3.9
M4E0N7GF	VVHS2302	25	JOB30315	04/25/2013 00:21:17	0.0s	1	0.3	0.0	0.1	0.1	0.5
M4ECYEDF	VVHS2302	25	JOB30739	04/25/2013 00:31:42	4.6s	850	5.4	0.0	0.1	0.2	4.9
M35703S	S357024	3	JOB31246	04/25/2013 00:34:25	0.0s	126	0.3	0.0	0.0	0.1	0.4
M35702S	S357024	3	JOB31261	04/25/2013 00:34:59	0.7s	2,440	0.3	0.0	0.1	0.1	0.9
M4ECXCOH	S4E5N27D	80	JOB31288	04/25/2013 00:35:30	0.0s	2	7.4	0.0	0.1	0.1	7.6
M35703S	S357020	12	JOB31246	04/25/2013 00:36:19	0.0s	124	0.3	0.0	0.1	0.1	0.5
M35703S	S357028	13	JOB31246	04/25/2013 00:36:24	0.0s	126	0.3	0.0	0.1	0.1	0.5
M4ECXCOF	VVHS2302	25	JOB31578	04/25/2013 00:37:30	0.0s	1	0.3	0.0	0.1	0.1	0.5
M35700S	S357093	5	JOB31515	04/25/2013 00:41:00	0.3s	76	4.4	0.0	0.1	0.2	3.9
M35702S	S357020	12	JOB31261	04/25/2013 00:53:33	12.3s	2,414	5.1	0.0	0.1	0.2	4.4
M35702S	S357028	13	JOB31261	04/25/2013 00:55:14	1.7s	2,437	0.7	0.0	0.1	0.2	0.9
M35709G	S357093	13	JOB32208	04/25/2013 01:01:50	1.4s	219	0.2	0.0	0.1	0.8	5.5
M35709H	S357093	13	JOB32263	04/25/2013 01:02:00	1.2s	253	4.7	0.0	0.1	0.9	3.9
M35709E	S357093	13	JOB32266	04/25/2013 01:02:07	1.8s	322	5.4	0.0	0.1	0.8	4.4
M35709F	S357093	13	JOB32267	04/25/2013 01:02:56	2.1s	343	6.2	0.0	0.1	1.6	4.3
M35709D	S357093	13	JOB32265	04/25/2013 01:04:24	2.1s	329	6.5	0.0	0.1	1.4	4.6

OK



# “Life of a Data Set” (LOADS) Report – I355.QT.DD33.B – Sorted in Total I/O Time

zBNA: Life of a Dataset

File Edit Action

- Data Set Details: -

DataSet: I355.QT.DD33.B

Number of Job Steps: 395

Job	Step	Step Number	Job Number	Step End	Total I/O Time	IO Count	Response Time	Queue Time	Pending Time	Connect Time	Disconnect Time
M354KQR	VVHS23	2	JOB02903	04/25/2013 03:43:08	24.8m	281,099	5.3	0.0	0.0	0.3	4.5
M354GIS	S354GO3	3	JOB03191	04/25/2013 03:22:10	460.0s	82,127	5.6	0.0	0.0	0.5	4.7
M35702S	S357020	12	JOB31261	04/25/2013 00:53:33	12.3s	2,414	5.1	0.0	0.1	0.2	4.4
M4E0YHBH	S4E5N27D	86	JOB10179	04/25/2013 04:20:52	5.6s	1,194	4.7	0.0	0.1	0.6	3.9
M4E0YWGH	S4E5N27D	148	JOB01395	04/25/2013 01:34:20	4.7s	1,145	6.2	0.0	0.1	2.1	3.8
M4E0YEDF	VVHS2302	25	JOB30739	04/25/2013 00:31:42	4.6s	1,060	5.4	0.0	0.1	0.2	4.9
M4E5DGAS	VVHS223	3	JOB02930	04/25/2013 02:20:23	3.2s	1,127	2.4	0.0	0.1	0.5	1.5
M4E0X3QH	S4E5N27D	82	JOB20027	04/25/2013 07:10:23	2.8s	1,407	6.0	0.0	0.1	1.5	4.2
M4E563S	S4E5634	3	JOB16213	04/25/2013 06:09:27	2.7s	1,558	4.9	0.0	0.1	0.2	4.4
M35709D	S357093	13	JOB32265	04/25/2013 01:04:24	2.1s	1,129	6.5	0.0	0.1	1.4	4.8
M35709F	S357093	13	JOB32267	04/25/2013 01:02:56	2.1s	1,143	6.2	0.0	0.1	1.6	4.2
M35709E	S357093	13	JOB32266	04/25/2013 01:02:07	1.0s	1,122	5.4	0.0	0.1	0.0	4.4
M35702S	S357028	13	JOB31261	04/25/2013 00:55:14	1.7s	2,467	0.7	0.0	0.1	0.2	0.2
M35709G	S357093	13	JOB32268	04/25/2013 01:01:50	1.4s	2,119	6.2	0.0	0.1	0.8	5.1
M4F5H7S	S4F5H7S5	5	JOB29802	04/25/2013 00:16:01	1.3s	1,199	6.7	0.0	0.1	0.1	6.1
M35709H	S357093	13	JOB32263	04/25/2013 01:02:00	1.2s	2,611	4.7	0.0	0.1	0.9	3.6
M4E0XWJH	S4E5N27D	82	JOB21988	04/25/2013 07:32:03	1.2s	3,114	3.8	0.0	0.1	0.1	3.4
M4E0YTRH	S4E5N27D	46	JOB23296	04/25/2013 07:47:50	1.1s	2,511	4.3	0.0	0.1	0.2	3.9
M35702S	S357024	3	JOB31261	04/25/2013 00:34:59	0.7s	2,440	0.3	0.0	0.1	0.1	0.0
M4E07HCH	S4E5N27D	82	JOB18469	04/25/2013 06:42:49	0.7s	1,153	4.8	0.0	0.1	0.6	3.9
M4E0Y7ZH	S4E5N27D	125	JOB01105	04/25/2013 01:22:44	0.7s	1,157	4.3	0.0	0.1	0.1	3.9

OK

Investigate I/O technology to reduce I/O  
Response Times

# **What's New?**

## **BSAM/QSAM IBM zEnterprise Data Compression (zEDC)**

# IBM zEnterprise Data Compression (zEDC)

*New data compression offering that can reduce resource usage*



## What is it?

- ✓ *zEDC Express is an IO adapter that does high performance industry standard compression*
- ✓ *Used by z/OS Operating System components, IBM Middleware and ISV products*
- ✓ *Applications can use zEDC via industry standard APIs (zlib and Java)*
- ✓ *Each zEDC Express sharable across 15 LPARs, up to 8 devices per CEC.*
- ✓ *Raw throughput up to 1 GB/s per zEDC Express Hardware Adapter vs typical 50 MB a second in SW*

## What Changes?

It is time to revisit your decisions about compression.

- **Disk Savings:** Many people are already getting value from CMPSC compression and software compression today
- **Performance:** High throughput alternative to existing System z compression for large or active files.
- **Industry Standard:** Low cost compressed data exchange across all platforms
- **Pervasive:** Standard APIs allow quick adoption by middleware products running on Z Systems

## What is the Value?

New sources of customer value

- **QSAM/BSAM** can save up to 4x disk space and in some cases shorten elapsed time, reducing batch windows.
- **Business Partner Data Exchange** can have higher throughput with lower CPU cost
- **Managed File Transfer** saves up to 4x link bandwidth, and up to 80% elapsed time
- **ISV Products** deliver expanded customer value
- **Java for z/OS V7R1** accelerates common compression classes used by applications and middleware
- **Improved availability** with SMF

## QSAM/BSAM Data Set Compression with zEDC - PTF for APAR OA42195

### Reduce the cost of keeping your sequential data online

zEDC compresses data up to 4X, saving up to 75% of your sequential data disk space

Capture new business opportunities due to lower cost of keeping data online

### Better I/O elapsed time for sequential access

Potentially run batch workloads faster than either uncompressed or BSAM/QSAM current compression

### Sharply lower CPU cost over existing compression

Enables more pervasive use of compression

Up to 80% reduced CPU cost compared to tailored and generic compression options

### Simple Enablement

Use a policy to enable zEDC compressed data sets

### Example Use Cases

**SMF Archived Data** can be stored compressed to increase the amount of data kept online up to 4X

**zSecure** output size of Access Monitor and UNLOAD files reduced up to 10X and CKFREEZE files reduced by up to 4X

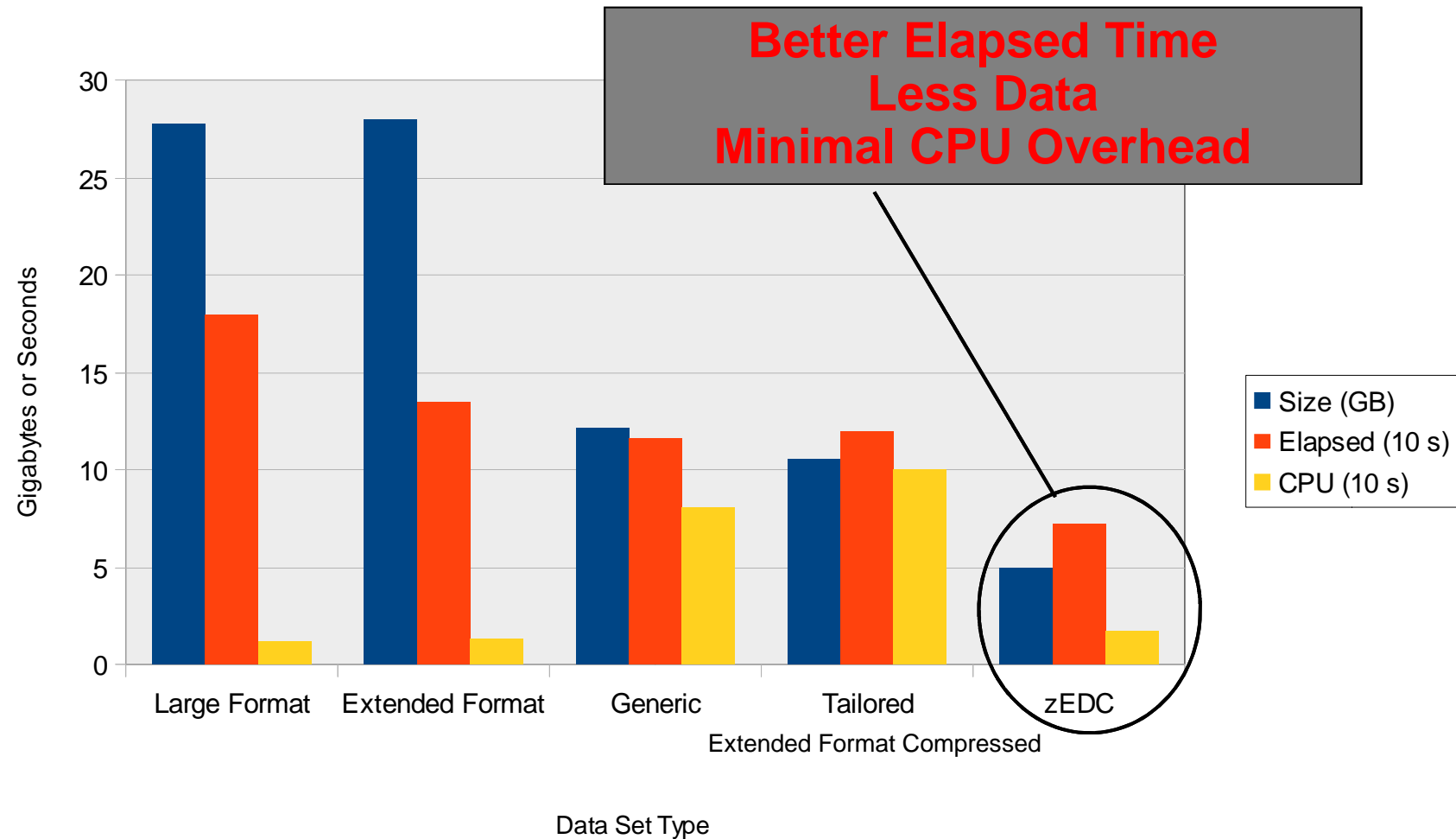
Up to 5X more **XML** data can be stored in sequential files

**The IBM Employee Directory** was stored in up to 3X less space

**z/OS SVC and Stand Alone DUMPs** can be stored in up to 5X less space

Disclaimer: Based on projections and/or measurements completed in a controlled environment. Results may vary by customer based on individual workload, configuration and software levels.

# QSAM/BSAM zEDC – Value!



Disclaimer: Based on projections and/or measurements completed in a controlled environment. Results may vary by customer based on individual workload, configuration and software levels.

# Initial zEDC Compression Reports

## ■ **zEDC Compression Eligible Criteria for DFSMS BSAM/QSAM Data Sets**

- Non-VSAM
- Extended Format or Not Extended Format
- EXCP = NO
- Cannot be Open for Update
- Cannot be Open with EDI processing
- Data Set Size (Initial Allocation) >5 MB (or >8 MB if no secondary allocation)
- Not Compressed (although could convert from Generic/Tailored to zEDC compression)

## ■ **Reports**

- Top zEDC Compression Candidate BSAM/QSAM DASD Data Sets Report includes:
  - Eligible and Extended Format
  - Eligible and not Extended Format (needs to be converted to Extended Format)
  - Eligible already Compressed (already Extended Format – required by Generic/Tailored compression)
- Estimate of Number of zEDC Cards Required by Hour for BSAM/QSAM compression

# zEDC Analysis

IBM System z Batch Network Analyzer - TEST FILE

File Edit Filters Action Graph Reports Help

Applied Filters: SERVICE CLASS: B, JOB NAMES: M3\*, STDF

Set Alternate CPUs  
Flag Transition Jobs  
Job Dataset Report  
Top 10 Dataset Report  
zEDC: Compression

Mainframe Information  
Model: 2817-711  
Partition Name: ONLM  
SYSID: SYS1  
Partition Logical Utilization: 93.7%  
CPC Utilization: 93.7%

Key Batch	Job Name	Steps	Job Class	Acct Code	Service Class	Elapsed Time	CPU Time	zAAP Time	zIIP Time	CPU Intensity	EXCPs	Top Program	Top Pgm %	Condition Code
<input type="checkbox"/>	M36BX4S	3	J	36B96B32	BATPRDDF	38.1m	13.9m	0.0s	0.0s	36.5%	172,542	DSNECP10	10.0%	0000
<input type="checkbox"/>	M373BFD	7	J	37397332	BATPRDDF	58.5m	19.4m	0.0s	0.0s	33.1%	865,814	DSNECP10	48.0%	0000
<input type="checkbox"/>	M3EHL8S	2	J	3EH94932	BATPRDDF	44.5m	12.2m	0.0s	0.0s	27.3%	36,613	DSNECP10	15.0%	0000
<input type="checkbox"/>	M373IZS	3	J	37397332	BATCHHI	1.2h	22.8m	0.0s	0.0s	31.0%	43,231	DSNECP10	22.0%	0000
<input type="checkbox"/>	M4E5HEVS	7	J	4E595732	BATPRDDF	1.1h	15.0m	0.0s	0.0s	23.7%	6,954	DSNECP10	18.0%	0000
<input type="checkbox"/>	M3YHK7SF	26	J	3YH3YH32	BATPRDDF	1.4h	33.1m	0.0s	0.0s	40.1%	731,964	DSNECP10	63.0%	0000
<input type="checkbox"/>	M34DUG3	15	J	34D94432	BATPRDDF	1.3h	23.9m	0.0s	0.0s	29.5%	21,548	DSNECP10	29.0%	0000
<input type="checkbox"/>	M373XQ3	5	J	37397332	BATPRDDF	1.5h	56.6m	0.0s	0.0s	62.5%	6,101	DSNECP10	87.0%	0000
<input type="checkbox"/>	M3YHK7SE	26	J	3YH3YH32	BATPRDDF	1.5h	36.6m	0.0s	0.0s	40.3%	874,506	DSNECP10	64.0%	0000
<input type="checkbox"/>	M3YHK7S3	26	J	3YH3YH32	BATPRDDF	1.5h	33.9m	0.0s	0.0s	36.6%	512,864	DSNECP10	62.0%	0000
<input type="checkbox"/>	M3YHK7SG	26	J	3YH3YH32	BATPRDDF					39.4%	596,359	DSNECP10	62.0%	0000
<input type="checkbox"/>	M3HS23VA	3	J	3HS3HS32	BATPRDDF					37.8%	21,905	DSNECP10	49.0%	0000
<input type="checkbox"/>	M373IAS	3	J	37397332	BATCHHI					22.2%	67,910	DSNECP10	26.0%	0000
<input type="checkbox"/>	M373ON4A	4	J	37397332	BATPRDDF					40.8%	56,388	DSNECP10	63.0%	0000
<input type="checkbox"/>	M3E066SU	2	J	3E09E032	BATPRDDF					13.4%	342	DSNECP10	12.0%	0004
<input type="checkbox"/>	M3E066SA	2	J	3E09E032	BATPRDDF					27.1%	340	DSNECP10	22.0%	0004
<input type="checkbox"/>	M3E066SN	2	J	3E09E032	BATPRDDF					23.7%	320	DSNECP10	13.0%	0004
<input type="checkbox"/>	M34DES3	6	J	34D94432	BATPRDDF					61.6%	31,510	DSNECP10	92.0%	0000
<input type="checkbox"/>	M337F83	5	J	33793732	BATPRDDF					36.3%	2,434,989	DSNECP10	26.0%	0000
<input type="checkbox"/>	M373IYS	3	J	37397332	BATCHHI					34.8%	144,846	DSNECP10	34.0%	0000
<input type="checkbox"/>	M34D7JS	3	J	34D94432	BATPRDDF					43.5%	3,735,605	DSNECP10	21.0%	0000
<input type="checkbox"/>	M3E0COS	3	J	3E09E032	BATPRDDF	2.2h	29.6m	0.0s	0.0s	21.9%	4,404	DSNECP10	26.0%	0000
<input checked="" type="checkbox"/>	M373BJ5	11	J	37397332	BATPRDDF	2.0h	39.0m	0.0s	0.4s	32.2%	14,821,030	SYNCSORT	9.0%	0000
<input type="checkbox"/>	M373CCS	15	J	37397332	BATPRDDF	45.5m	571.8s	0.0s	0.0s	21.0%	510,039	DSNECP10	13.0%	0000
<input type="checkbox"/>	M3E066SO	2	J	3E09E032	BATPRDDF	2.2h	19.6m	0.0s	0.0s	14.9%	344	DSNECP10	15.0%	0004
<input type="checkbox"/>	M3HS451A	9	J	3HS3HS32	BATPRDDF	59.4m	21.8m	0.0s	0.0s	36.6%	121,786	DSNECP10	23.0%	0000
<input type="checkbox"/>	M373CNS	5	J	37397332	BATPRDDF	1.3h	19.9m	0.0s	0.0s	25.3%	392,740	DSNECP10	19.0%	0000
<input checked="" type="checkbox"/>	M3E0IKSN	4	J	3E09E032	BATPRDDF	1.3h	20.3m	0.0s	0.0s	26.5%	1,976,574	DSNECP10	8.0%	0000
<input type="checkbox"/>	M3YFUUE	3	J	3YF3YF32	BATPRDDF	3.0h	48.2m	0.0s	0.0s	27.2%	441	DSNECP10	21.0%	0000
<input type="checkbox"/>	M373FPV	9	J	37397332	BATCHHI	2.2h	20.0m	0.0s	0.0s	15.2%	1,776,060	DSNECP10	17.0%	0000
<input type="checkbox"/>	M373ECS	3	J	37597532	BATPRDDF	2.6h	34.1m	0.0s	0.0s	22.1%	316	DSNECP10	25.0%	0000
<input checked="" type="checkbox"/>	M402GX3L	17	J	40242032	BATPRDDF	54.2m	27.9m	0.0s	0.0s	51.5%	2,949,226	ENGEXE	4.0%	0000
<input type="checkbox"/>	M373BDS	21	J	37397332	BATPRDDF	6.3h	2.0h	0.0s	0.8s	32.0%	18,169,677	DSNECP10	46.0%	0000
<input type="checkbox"/>	M373IUS	14	J	37397332	BATCHHI	55.3m	21.6m	0.0s	0.2s	39.1%	3,407,043	DSNECP10	24.0%	0000
<input type="checkbox"/>	M4E5F3SS	66	J	4E595732	BATPRDDF	5.6h	20.7m	0.0s	0.2s	6.2%	19,960,843	DSNECP10	17.0%	0000

36 Jobs

Progress...  
Reading .dat file for 14 & 15 data.  
Cancel



# zEDC Top Data Sets

zBNA: zEDC Top Data Sets

File Edit Action Graph Report Help

☒ Show Compressed Files  
☒ Show EF Files (not compressed)  
☒ Show PS Files (not EF and not EXCP)

Show by Rate or MB?

☐ by Rate (MB/sec)  
☒ by MB (total)

Estimate PS or EF Comp. Ratio

☐ High (8.1)  
☒ Medium (5.4)  
☐ Low (2.7)  
☐ Custom

Graphing Options

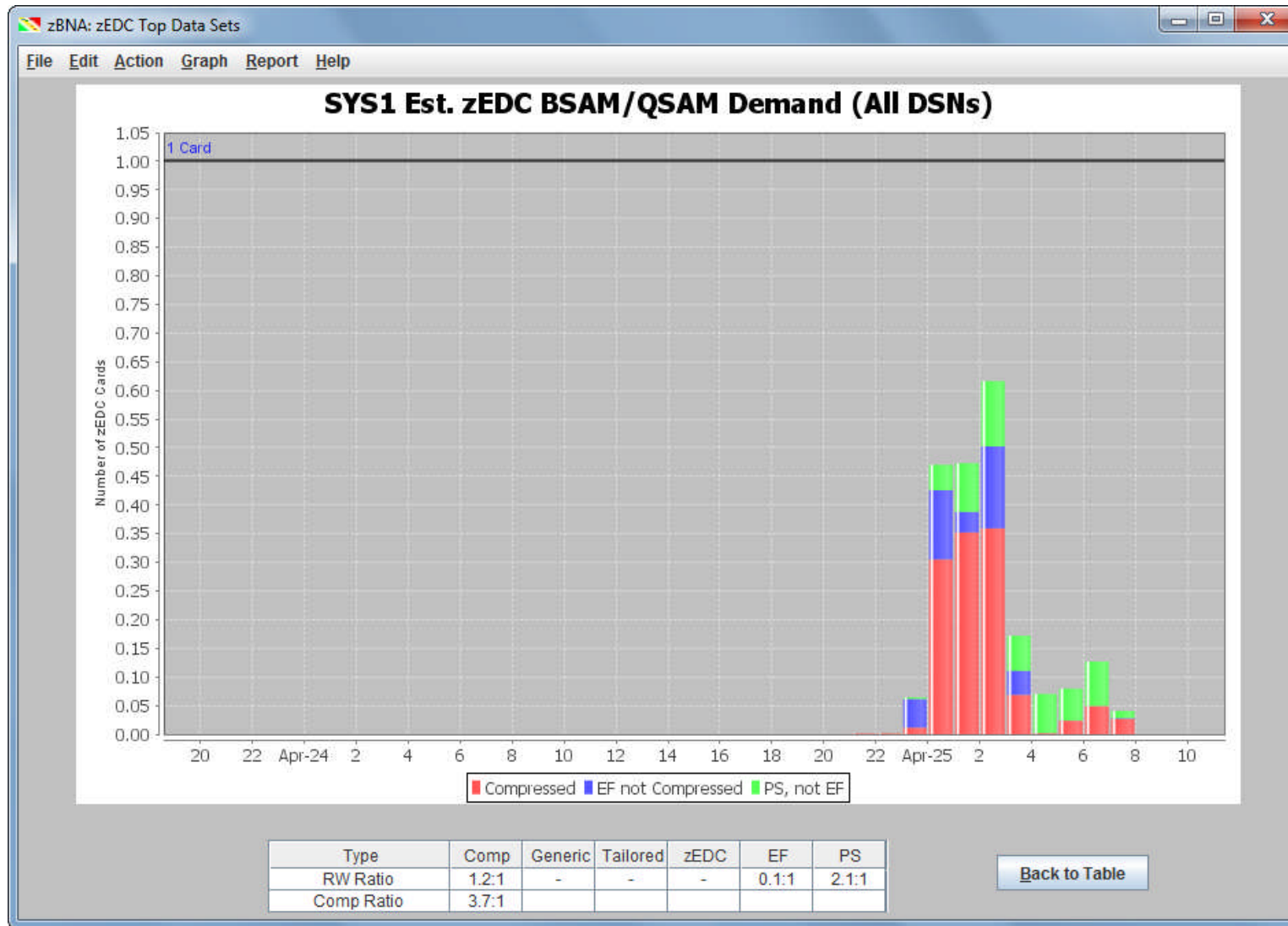
☒ All Datasets  
☐ Top 50 Datasets  
☐ User Selected Datasets

	DSN	File Type	MB	RW Ratio	Comp Ratio	Projections for zEDC		
						Δ I/O Count	Δ I/O Time	Δ CPU Time
<input type="checkbox"/>	I373.S73BJ525.SUYWLU.IWS	EF	663,525	0.1:1	1.0:1	-1,221,974	-21.4m	107.4s
<input type="checkbox"/>	I373.S73BJ324.SUYWLU.IWS	EF	465,642	0.2:1	1.0:1	-1,641,088	-24.9m	69.9s
<input type="checkbox"/>	I373.S73BJ324.SUYWLU.IWS	COMP	281,256	2:1	2.8:1	-1,754,723	-26.6m	-10.4m
<input type="checkbox"/>	I373.S73BJ525.SUYWLU.IWS	COMP	234,674	1:1	2.8:1	-1,468,517	-25.8m	-522.5s
<input type="checkbox"/>	I3SK.I68S.UA592.VXE.HHLG7.J3885Y22	EF	132,169	0:1	1.0:1	-174,833	-202.9s	21.9s
<input type="checkbox"/>	I3SK.I68S.UA592.VXE.HHLG3.J3885Y22	COMP	93,490	1:1	6.8:1	-226,527	-215.2s	-205.6s
<input type="checkbox"/>	I3SK.VXEGWO.VRUW04.HHLG3	COMP	93,431	1:1	6.8:1	-226,383	-271.7s	-205.5s
<input type="checkbox"/>	I3SK.UA592.VXE.HHLG3.J3994Y22	COMP	93,431	1:1	6.8:1	-226,345	-254.5s	-205.5s
<input type="checkbox"/>	I3SK.I68S.UA592.VXE.HHLG5.J3885Y22	COMP	89,614	1:1	6.8:1	-218,802	-209.2s	-197.1s
<input type="checkbox"/>	I3SK.VXEGWO.VRUW04.HHLG5	COMP	89,556	1:1	6.8:1	-218,662	-207.8s	-197.0s
<input type="checkbox"/>	I3SK.UA592.VXE.HHLG5.J3994Y22	COMP	89,556	1:1	6.8:1	-218,625	-251.4s	-197.0s
<input type="checkbox"/>	I3SK.I68S.UA592.VXE.HHLG7.J3885Y22	COMP	89,369	1:1	6.8:1	-218,273	-253.3s	-196.6s
<input type="checkbox"/>	I3SK.I68S.UA592.VXE.HHLG4.J3885Y22	COMP	89,357	1:1	6.8:1	-218,177	-228.3s	-196.6s
<input type="checkbox"/>	I3SK.UA592.VXE.HHLG7.J3992Y22	COMP	89,311	1:1	6.8:1	-218,062	-243.1s	-196.5s
<input type="checkbox"/>	I3SK.VXEGWO.VRUW04.HHLG7	COMP	89,310	1:1	6.8:1	-218,098	-241.7s	-196.5s
<input type="checkbox"/>	I3SK.VXEGWO.VRUW04.HHLG4	COMP	89,299	1:1	6.8:1	-218,033	-250.0s	-196.4s
<input type="checkbox"/>	I3SK.UA592.VXE.HHLG4.J3993Y22	COMP	89,299	1:1	6.8:1	-217,998	-228.9s	-196.4s
<input type="checkbox"/>	I3SK.I68S.UA592.VXE.HHLG6.J3885Y22	COMP	89,275	1:1	6.8:1	-217,992	-218.0s	-196.4s
<input type="checkbox"/>	I3SK.VXEGWO.VRUW04.HHLG6	COMP	89,215	1:1	6.8:1	-217,846	-250.5s	-196.3s
<input type="checkbox"/>	I3SK.UA592.VXE.HHLG6.J3993Y22	COMP	89,215	1:1	6.8:1	-217,810	-282.3s	-196.3s
<input type="checkbox"/>	I3MWSE.UHVROYHG.FODLP.HAW.GDLOB.HQU.J2749Y22	PS	59,795	R	1.0:1	-845,791	-325.7s	7.3s
<input type="checkbox"/>	I373.S73BF42.SUYWLU3.RXWSXW.ILQDO.J2282Y22	COMP	57,968	2:1	3.1:1	-327,471	-254.6s	-128.8s
<input type="checkbox"/>	I3NOSE.UFH.FODLP.HAW.HHLG7	COMP	56,448	1:1	5.2:1	-196,767	-196.8s	-124.5s

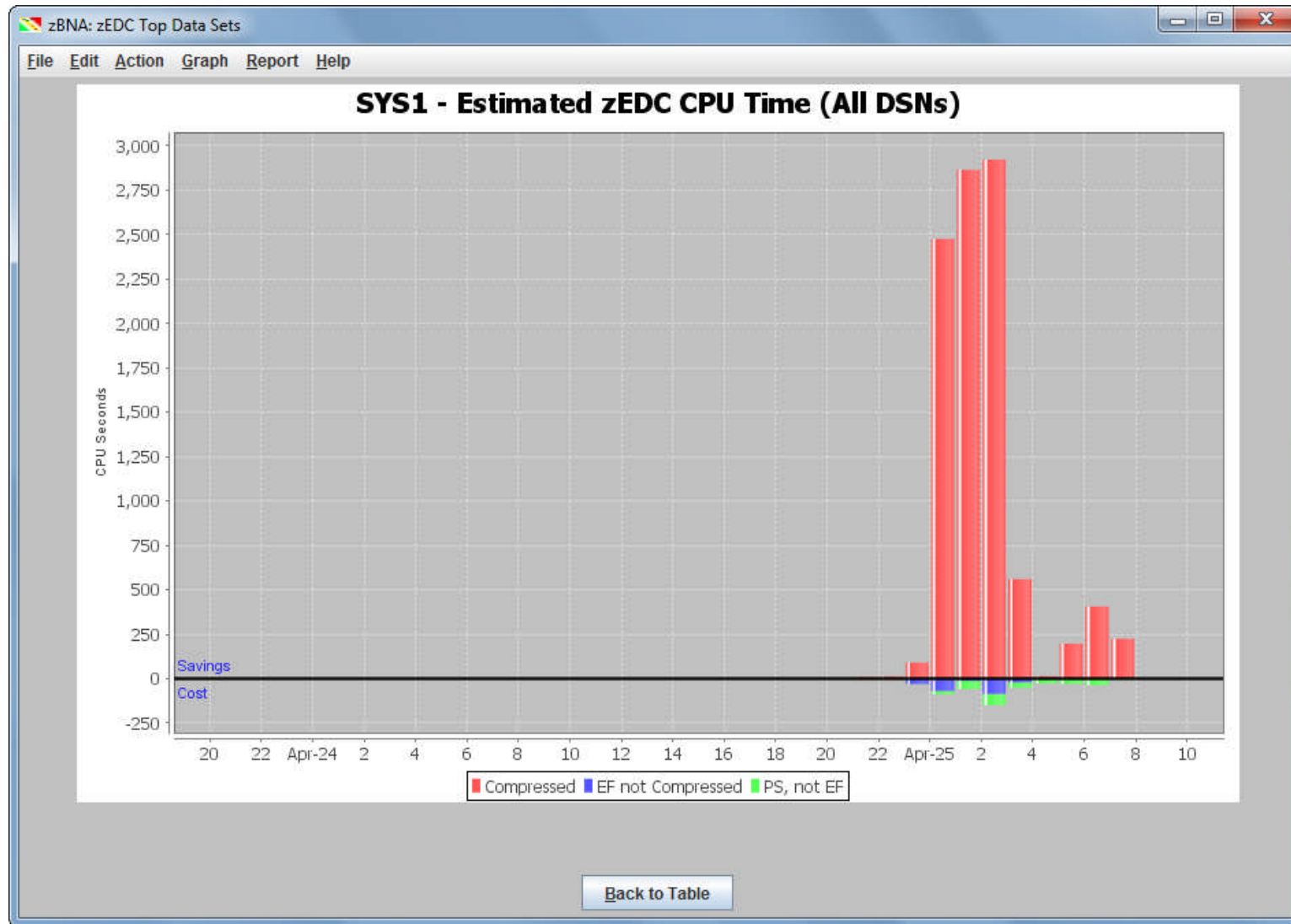
Displaying 50 of a total 3605 datasets; 0 selected



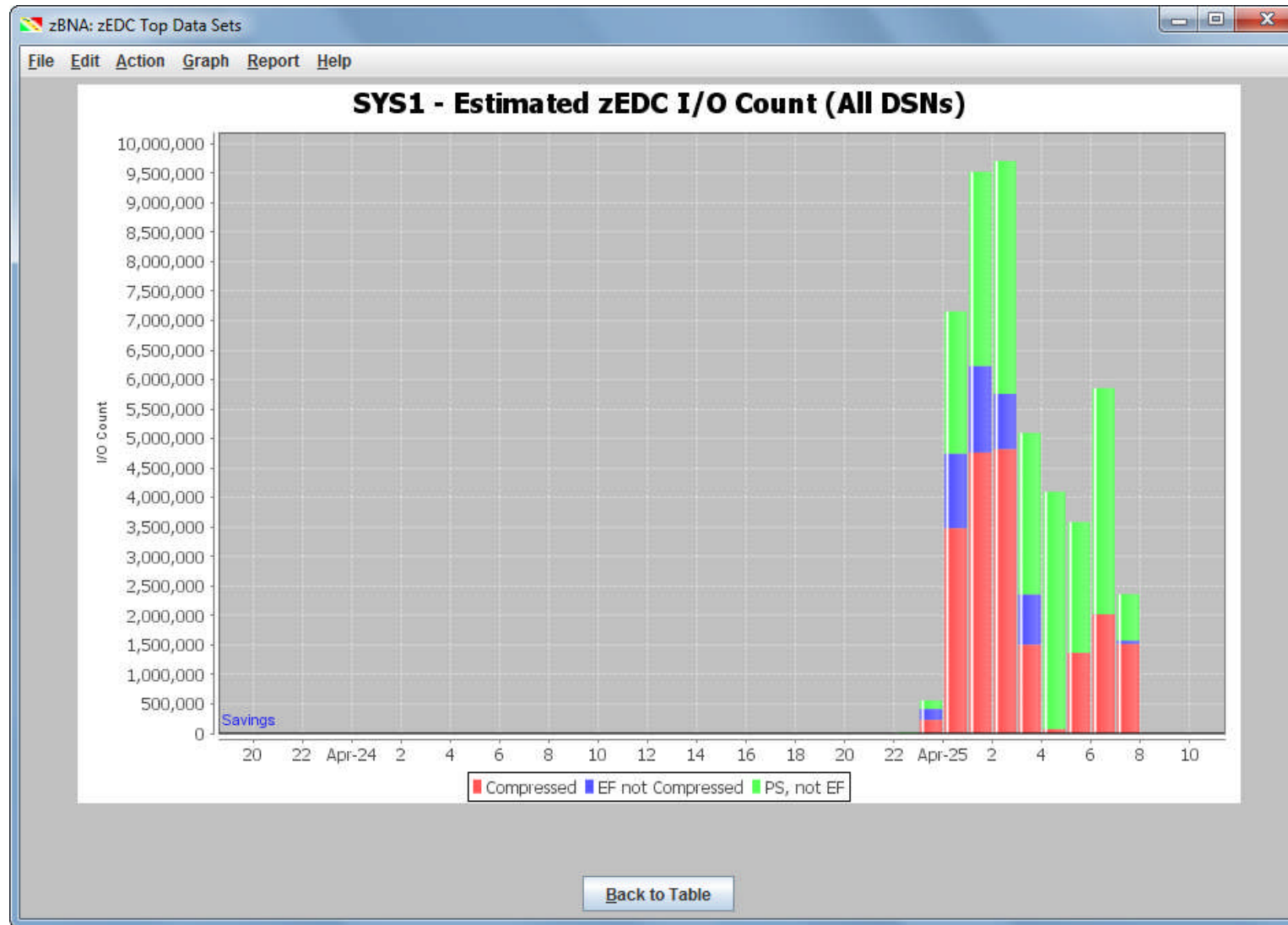
# Estimated zEDC Cards Report – SYS1 All Data Sets



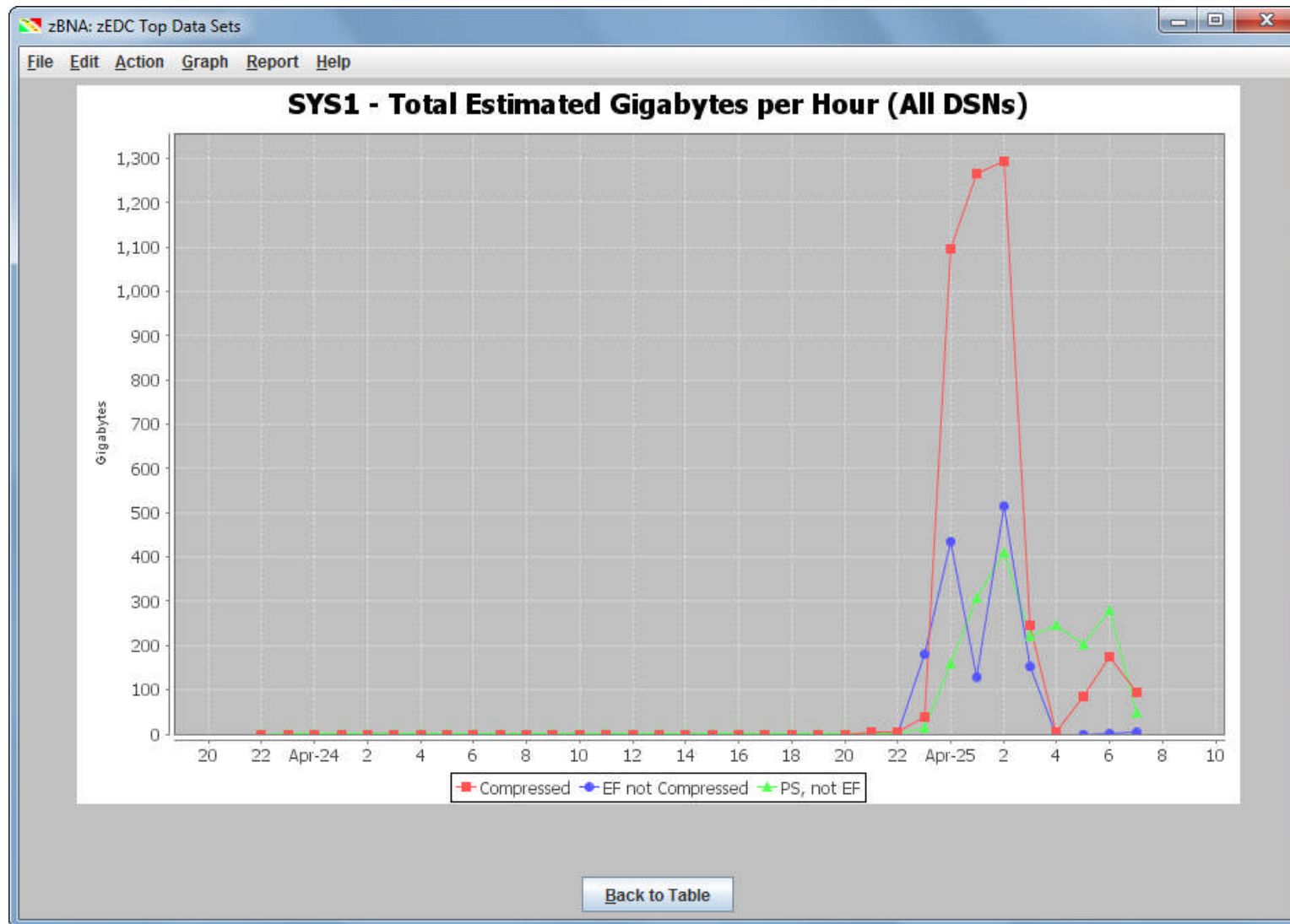
# Estimated CPU Savings Report – SYS1 All Data Sets



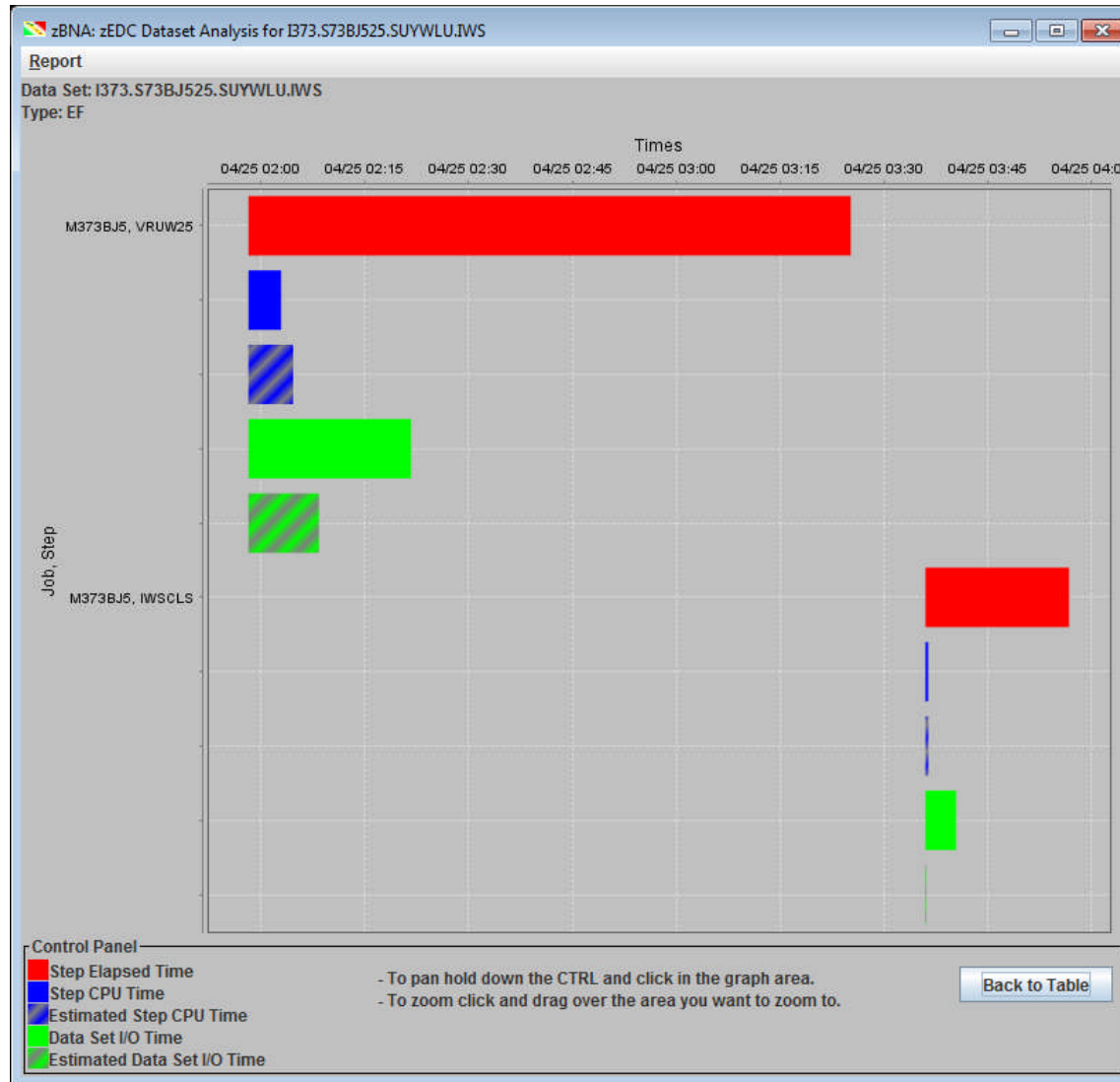
## Estimated I/O Savings Report – SYS1 All Data Sets



## Estimated Gigabytes/Hour Report – SYS1 All Data Sets



# zEDC Data Set Analysis



# zEDC Top Data - DASD Space MB Savings

v1.6.2 – Mar 6, 2015

zBNA: zEDC Top Data Sets

File Edit Action Graph Report Help

☒ Show Compressed Files

☒ Show EF Files (not compressed)

☒ Show PS Files (not EF and not EXCP)

Show by Rate or MB?

☐ by Rate (MB/sec)

☒ by MB (total)

Estimate PS or EF Comp. Ratio

☐ High (8.1)

☒ Medium (5.4)

☐ Low (2.7)

☐ Custom

Graphing Options

☒ All Datasets

☐ Top 50 Datasets

☐ User Selected Datasets

	DSN	File Type	MB Transferred	RW Ratio	Comp Ratio	Projections for zEDC			
						Δ I/O Count	Δ I/O Time	Δ CPU Time	Δ DASD Space MB
<input type="checkbox"/>	I373.S73BJ525.SUYWLU.IWS	EF	663,525	0.1:1	1.0:1	-1,221,974	-21.4m	107.4s	-4,210
<input type="checkbox"/>	I373.S73BJ324.SUYWLU.IWS	EF	465,642	0.2:1	1.0:1	-1,641,088	-24.9m	69.9s	-9,216
<input type="checkbox"/>	I373.S73BJ324.SUYWLU.IWS	COMP	281,256	2:1	2.8:1	-1,754,723	-26.6m	-10.4m	-17,666
<input type="checkbox"/>	I373.S73BJ525.SUYWLU.IWS	COMP	234,674	1:1	2.8:1	-1,468,517	-25.8m	-522.5s	-22,176
<input type="checkbox"/>	I3SK.I68S.UA592.VXE.HHLG7.J3885Y22	EF	132,169	0:1	1.0:1	-174,833	-202.9s	21.5s	-4,223
<input type="checkbox"/>	I3SK.I68S.UA592.VXE.HHLG3.J3885Y22	COMP	93,490	1:1	6.8:1	-226,527	-215.2s	-205.6s	-1,663
<input type="checkbox"/>	I3SK.VXEGWO.VRUW04.HHLG3	COMP	93,431	1:1	6.8:1	-226,383	-271.7s	-205.6s	-1,662
<input type="checkbox"/>	I3SK.UA592.VXE.HHLG3.J3994Y22	COMP	93,431	1:1	6.8:1	-226,345	-254.5s	-205.6s	-1,662
<input type="checkbox"/>	I3SK.I68S.UA592.VXE.HHLG5.J3885Y22	COMP	89,614	1:1	6.8:1	-218,802	-209.2s	-197.1s	-1,638
<input type="checkbox"/>	I3SK.VXEGWO.VRUW04.HHLG5	COMP	89,556	1:1	6.8:1	-218,662	-207.8s	-197.0s	-1,637
<input type="checkbox"/>	I3SK.UA592.VXE.HHLG5.J3994Y22	COMP	89,556	1:1	6.8:1	-218,625	-251.4s	-197.0s	-1,637
<input type="checkbox"/>	I3SK.I68S.UA592.VXE.HHLG7.J3885Y22	COMP	89,369	1:1	6.8:1	-218,273	-253.3s	-196.6s	-1,635
<input type="checkbox"/>	I3SK.I68S.UA592.VXE.HHLG4.J3885Y22	COMP	89,357	1:1	6.8:1	-218,177	-228.3s	-196.6s	-1,634
<input type="checkbox"/>	I3SK.UA592.VXE.HHLG7.J3992Y22	COMP	89,311	1:1	6.8:1	-218,062	-243.1s	-196.6s	-1,634
<input type="checkbox"/>	I3SK.VXEGWO.VRUW04.HHLG7	COMP	89,310	1:1	6.8:1	-218,098	-241.7s	-196.4s	-1,634
<input type="checkbox"/>	I3SK.VXEGWO.VRUW04.HHLG4	COMP	89,299	1:1	6.8:1	-218,033	-250.0s	-196.4s	-1,633
<input type="checkbox"/>	I3SK.UA592.VXE.HHLG4.J3993Y22	COMP	89,299	1:1	6.8:1	-217,998	-228.9s	-196.4s	-1,633
<input type="checkbox"/>	I3SK.I68S.UA592.VXE.HHLG6.J3885Y22	COMP	89,275	1:1	6.8:1	-217,992	-218.0s	-196.4s	-1,633
<input type="checkbox"/>	I3SK.VXEGWO.VRUW04.HHLG6	COMP	89,215	1:1	6.8:1	-217,846	-250.5s	-196.3s	-1,632
<input type="checkbox"/>	I3SK.UA592.VXE.HHLG6.J3993Y22	COMP	89,215	1:1	6.8:1	-217,810	-282.3s	-196.3s	-1,632
<input type="checkbox"/>	I3MWSE.UHVR0YHG.FODLP.HAW.GDLOB.HQU.J2749Y22	PS	59,795	R	1.0:1	-845,791	-325.7s	7.3s	
<input type="checkbox"/>	I373.S73BF42.SUYWLU3.RXWSXW.ILQDO.J2282Y22	COMP	57,968	2:1	3.1:1	-327,471	-254.6s	-128.8s	-3,297
<input type="checkbox"/>	I3N05F.UHLLFODLP.HAW.HHLG3	COMP	56,448	1:1	5.0:1	-106,767	-106.0s	-104.5s	-2,527

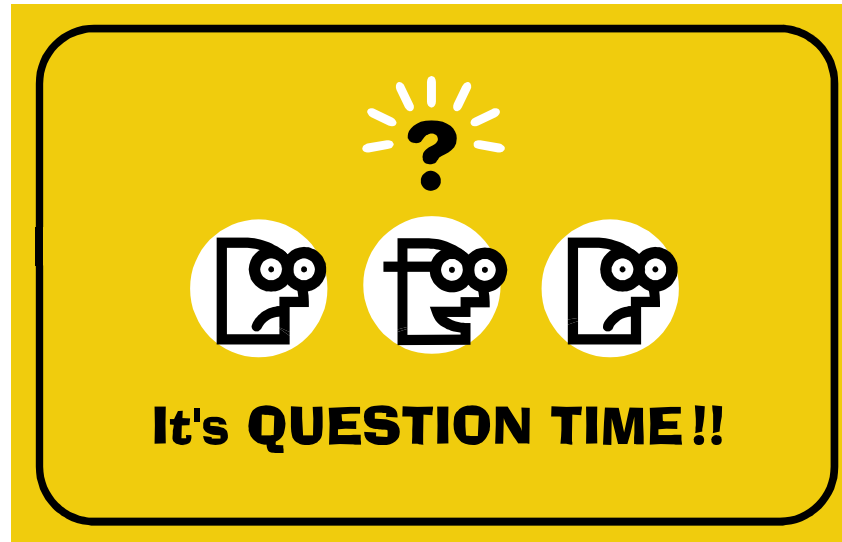
Displaying 50 of a total 3605 datasets; 0 selected

**Note:** These statements represent the current intention of IBM. IBM reserves the right to change or alter the IBM System z Batch Network Analyzer plans in the future or to exclude certain releases beyond those stated. IBM development plans are subject to change or withdrawal without further notice. Any reliance on this statement of direction is at the relying party's sole risk and does not create any liability or obligation for IBM.



# Summary

- CMOS per thread speed concerns will continue to grow and the batch window will need to be reviewed to ensure seamless growth
  - Focus and tune I/O portions
  - Parallelize operations
- zBNA provides an easy to use, graphical interface to identify workloads, if any, which need additional examination
- zBNA can help identify technology options to reduce the Batch Window
- Use the tool and let us know how you like it
  - Available from
    - [www.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/PRS5132](http://www.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/PRS5132)
  - Education Tab has:
    - User's Guide (updated for zBNA 1.6.1)
    - Sample Files
    - Lab exercise written for zBNA 1.4.2
    - Recorded Demo from June 2013



**No zBNA Hands-on Lab this SHARE, but  
you can get sample lab from website**

**Thank You for Attending!**



# Techdocs provides the latest ATS technical collateral [www.ibm.com/support/techdocs](http://www.ibm.com/support/techdocs)



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# Back Up

## **DFSMS - BSAM/QSAM Exploitation** – PTF for APAR OA42195

- z/OS DFSMS (BSAM/QSAM) introduces a new type of compression (zEDC) for non-VSAM extended format data sets. This was provided via PTF in z/OS V2R1.
- Customers who don't currently compress their BSAM/QSAM data may take advantage of the disk space savings available through zEDC compression with minimal CPU overhead. This allows more information to be kept online at a lower cost.
- DASD space requirements for BSAM/QSAM data may be reduced
  - These savings apply to production storage, to copies of production data at remote sites, to data on test systems, and to data archived on disk.
- The CPU cost of compressing BSAM/QSAM data may be reduced
- When using zEDC compression compared to existing BSAM/QSAM compression options, disk space savings may vary depending on the compression options