



B58

Introduction to Performance Toolkit for VM

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Topics

- **Some History**
- **Direction**
- **Functions**
 - **Basic Mode**
 - **Performance Monitoring**
 - **Batch Mode**

Some History

RealTime Monitor

- *Dependent on CP control blocks*
- *Recompile on system*

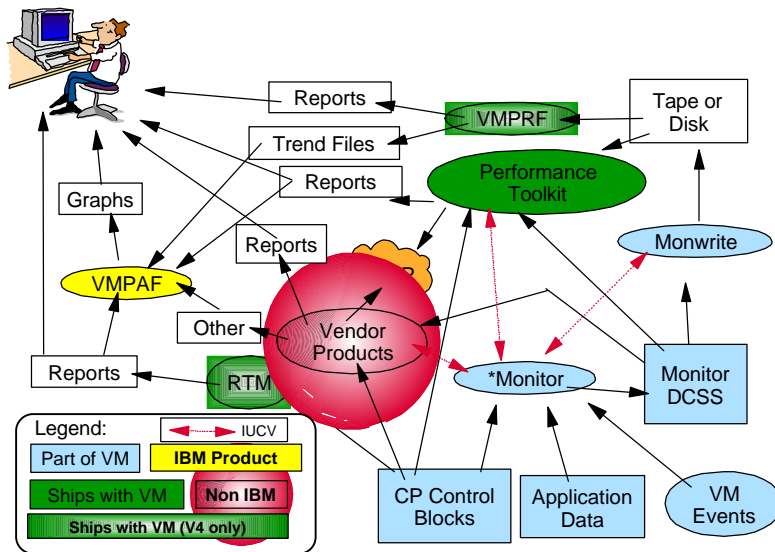
VMPRF

- *Required PL/I or LE*
- *Slow*

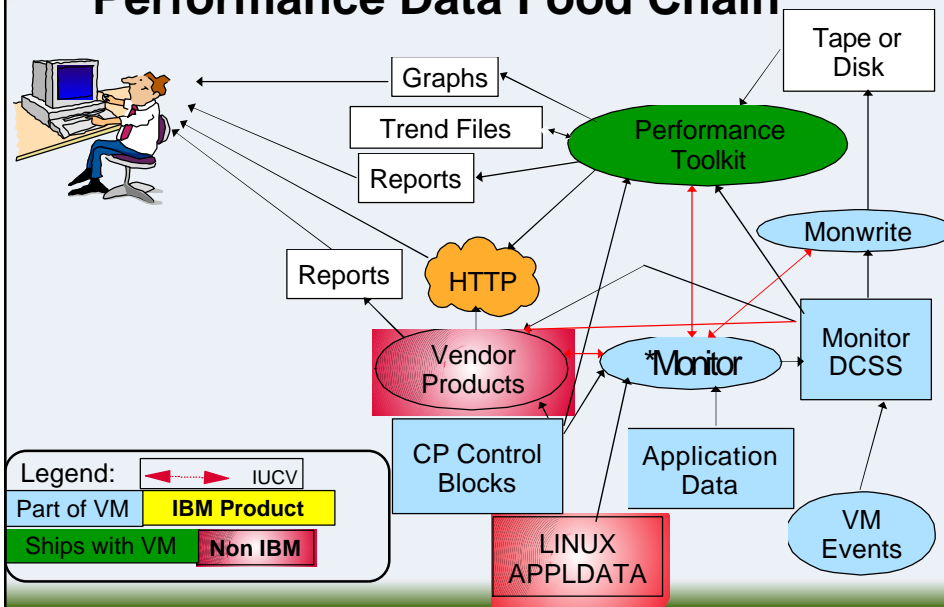
FCON/ESA

- *Most of the function of the others*
- *Plus...TCP/IP, LINUX, Web, Graphics....*

Performance Data Food Chain



Performance Data Food Chain



Performance Product Strategy

VMPRF and RTM phased out

- high development costs

FCON/ESA phased in as Performance Toolkit for VM

- adds significant new function
- focus on a single product

Synergy with other IBM Offerings

Continue to encourage vendor activity

- competition breeds excellence
- greater percentage of customer needs met

Program Functions

- *System Operation in Full-Screen Mode*
(Full Screen Operator CONsole)
- *Realtime Performance Monitoring*
Central monitoring facility for multiple systems
Multiple (remote, WWW) access to realtime performance data
- *Performance History Data Processing*
- *"BATCH" processing similar to VMPRF*

Performance Toolkit Naming

- **FCON = Full Screen Operator Console**
 - FCON/XA, FCON/ESA
- **FCX = 3 letter module prefix**
 - used in messages, displays, etc.
- **Performance Toolkit for VM = full name**
- **PERFKIT = module that invokes it**
- **PERFSVM = default userid it runs in**
- **FCXRES00 = default APPC resource name**
- **5VMPTK10 = installation userid for FL510**
- **5VMPTK20 = installation userid for FL520**
- **5VMPTK30 = installation userid for FL530**

Control Files

- **FCONX \$PROFILE**
 - Invoked at startup
 - Contains setup and commands
- **FCONX REPORTS**
 - List of reports to be automatically generated
- **FCONRMT SYSTEMS**
 - Used for Central Data Collection
 - Identifies Systems from which to collect data
- **FCONRMT AUTHORIZ**
 - Used for Central Data Collection, APPC and WEB

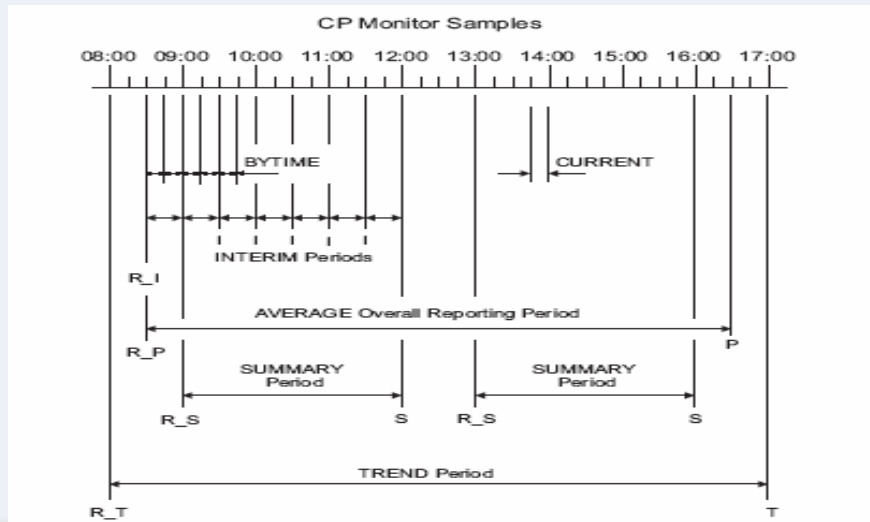
Usages

- **Real time Monitor**
 - Allows viewing of current status of the system
 - Scheduled report generation
 - Recording for historical records
- **MONSCAN**
 - View MONWRITE Data as if you were looking at live system
- **BATCH or VMPRF**
 - Post processing of MONWRITE data
- **Re-display of historical records**
- **Systems Operations**

Time Periods Example

- **CP MONITOR SAMPLE INTERVAL 5 MIN**
- **CP MONITOR SAMPLE RATE 1 SEC**
- **FC MONCOLL RESET 08:30R_P 16:30P**
- **FC MONCOLL RESET 09:00R_S 12:00S 13:00R_S 16:00S (MERGE)**
- **FC MONCOLL RESET 08:00R_T 17:00T (MERGE)**
- **FC MONCOLL RESET 08:30R_I 09:00I 09:30I 10:00I ... (MERGE)**
 - Or use FC SETTING INTERIM 30
- **FC SETTING BYTIME 15**
- **Results:**
 - Reports automatically generated at 16:30 covering 8:30-16:30 along with Interim reports of 30 minute periods.
 - Two Summary files created spanning 9:00-12:00 and also 13:00-16:00
 - Trend file appended to with data spanning 8:00-17:00

Time Periods Picture



Time Periods

- Most data based off of monitor data
 - ▶ Sample Interval – default of 1 minute
 - ▶ Sample Rate – default of 2 seconds high frequency sampling rate
 - ▶ Controlled by **CP MONITOR** command
- Toolkit Related time frames
 - ▶ **CURRENT** – most recent monitor interval
 - ▶ **AVERAGE** – average overall reporting period
 - ▶ **BYTIME** – data rows for each monitor interval or as set
 - ▶ **INTERIM** – multiple reports for each interim period as set
 - ▶ **SUMMARY** – summary period for historic recording
 - ▶ **TREND** – large granularity for historic recording
 - ▶ Controlled by Performance Toolkit **FC MONCOLL RESET** command

Basic Mode - Operator's console

```

FCX001 Performance Toolkit for VM Autoscroll 12
+38 13:04:55 FCXUSL317A User GRUISE IO/s 61.1 exceeded threshold 50.0 for 5
  *|*
+39 13:04:55 FCXUSL317A User EBL9FS1 IO/s 107 exceeded threshold 50.0 for 5
  *|*
+40 13:09:55 FCXUSL317A User RACPVM IO/s 148 exceeded threshold 50.0 for 5
  *|*
+41 13:19:55 FCXUSL317A User EBL18B IO/s 51.9 exceeded threshold 50.0 for 5
  *|*
+42 13:19:55 FCXUSL317A User EBL9FS1 IO/s 108 exceeded threshold 50.0 for 5
  *|*

q t
TIME IS 13:23:46 EDT WEDNESDAY 04/07/04
CONNECT= 04:12:58 VIRTCPU= 000:00.93 TOTCPU= 000:01.13

Command ==>
F1=Help F2=Redisplay F3=Quit F12=Return
  
```

Performance Monitoring

```

Session D - [24 x 90]
File Edit View Communication Actions Window Help
FCX124 Performance Screen Selection (FL520 VM63929) Perf. Monitor

General System Data      I/O Data                History Data (by Time)
1. CPU load and trans.   11. Channel load        31. Graphics selection
2. Storage utilization  12. Control units       32. History data files*
3. Reserved              13. I/O device load*    33. Benchmark displays*
4. Priv. operations      14. CP owned disks*     34. Correlation coeff.
5. System counters      15. Cache extend. func.* 35. System summary*
6. CP IUCV services     16. DASD I/O assist     36. Auxiliary storage
7. SPOOL file display*  17. DASD seek distance* 37. CP communications*
8. LPAR data            18. I/O prior. queueing* 38. DASD load
9. Shared segments      19. I/O configuration   39. Minidisk cache*
A. Shared data spaces   1A. I/O config. changes 3A. Storage mgmt. data*
B. Virt. disks in stor. 21. User resource usage* 3B. Proc. load & config*
C. Transact. statistics 22. User paging load*   3C. Logical part. load
D. Monitor data         23. User wait states*   3D. Response time (all)*
E. Monitor settings     24. User response time* 3E. RSK data menu*
F. System settings      25. Resources/transact.* 3F. Scheduler queues
G. System configuration 26. User communication* 3G. Scheduler data
H. VM Resource Manager

Select performance screen with cursor and hit ENTER
Command ==>
F1=Help F4=Top F5=Bot F7=Bkwd F8=Fwd F12=Return
  
```


FC UCLASS FTP* FTP

General User Resource Utilization (GDLVMK4)
Select a user for user details or [RELEASE](#) for a list of user classes.

Interval 14:37:37-14:38:37, on 2007/03/08 (CURRENT interval, select **INTERVAL** or **ANALYZE** date)

userid	%CPU	TCPU	VCPU	Ratio	Total	DASD	Avoid	Diag98	UR	Pg/s	User Status	Logged	Active	Ready	Share	Nr of
Class	Time	Time	Time	T/V	Time	Time	Time	Time	Time	Time	Time	Time	Time	Time	Time	Time
Mean	.01	0.00	0.00	1.5	0.0	0.0	0.0	0.0	0.0	0.0	---	---	---	---	---	---
FTP	.01	0.01	0.01	1.5	2.0	2.0	1.3	0.0	0.0	0.0	---	---	---	---	---	13

Task Data:

userid	%CPU	TCPU	VCPU	Ratio	Total	DASD	Avoid	Diag98	UR	Pg/s	User Status	Logged	Active	Ready	Share	Nr of
TRM001	21	1764	1242	1.0	0	0	0	0	0	0	ESA, CLO, DISP	1	0	0	0	108
TRM002	77	461	274	1.7	60	2	0	0	10	2	ESA, CLO, DISP	1	0	0	0	3808
TRM003	29	170	112	1.5	20	2	20	13	5	0	ESA, CLO, DISP	1	0	0	0	108
TRM004	24	155	140	1.1	0	0	0	0	0	0	ESA, CLO, DISP	1	0	0	0	108
TRM005	12	60	64	1.6	0	0	0	0	0	0	ESA, CLO, DISP	1	0	0	0	108
TRM006	13	60	62	2.3	0	0	0	0	0	0	ESA, CLO, DISP	1	0	0	0	108
TRM007	13	60	62	2.0	0	0	0	0	0	0	ESA, CLO, DISP	1	0	0	0	108
TRM008	13	60	62	1.0	0	0	0	0	0	0	ESA, CLO, DISP	1	0	0	0	108
TRM009	04	66	62	3.0	0	0	0	0	0	0	ESA, CLO, DISP	1	0	0	0	108
TRM010	04	64	62	1.2	1	1	0	0	0	0	ESA, ---, DORM	1	0	0	0	3804
TRM011	04	64	62	1.2	2	1	1	0	0	0	ESA, ---, DORM	1	0	0	0	2804
TRM012	04	63	62	1.2	4	2	1	0	0	0	ESA, ---, DORM	1	0	0	0	2804
TRM013	02	61	60	1.7	1	1	1	0	0	0	ESA, ---, DORM	1	0	0	0	1504
TRM014	02	61	60	1.2	1	1	1	0	0	0	ESA, ---, DORM	1	0	0	0	2808
TRM015	02	61	60	1.2	1	1	1	0	0	0	ESA, ---, DORM	1	0	0	0	108

Back to USER screen

Session A - [24 x 80]

FCX112 CPU 2084 SER 06F5A Interval 10:16:33 - 10:17:33 Perf. Monitor

<--- CPU Load ---> <--- Virtual IO/s --->
<-Seconds-> T/V

userid	%CPU	TCPU	VCPU	Ratio	Total	DASD	Avoid	Diag98	UR	Pg/s	User Status
Mean	.01	0.00	0.00	1.5	0.0	0.0	0.0	0.0	0.0	0.0	---
MROUTE	.29	1.72	1.66	1.1	0.0	0.0	0.0	0.0	0.0	0.0	ESA, CLO, DIS
TCPIP	.25	1.47	1.06	1.4	1.1	0.0	0.0	1.1	0.0	0.0	ESA, CLO, DIS
SSLSERV	.14	0.82	0.53	1.5	0.0	0.0	0.0	0.0	0.0	0.0	ESA, CLO, DIS
LXRIPV6B	.13	0.78	0.40	2.0	0.0	0.0	0.0	0.0	0.0	0.0	ESA, CL3, DIS
LXGIPV6B	.12	0.74	0.36	2.1	0.0	0.0	0.0	0.0	0.0	0.0	ESA, CL3, DIS
LXRIPV6A	.12	0.72	0.36	2.0	0.0	0.0	0.0	0.0	0.0	0.0	ESA, CL3, DIS
LXGIPV6A	.11	0.68	0.34	2.0	0.0	0.0	0.0	0.0	0.0	0.0	ESA, CL3, DIS
PERFSVME	.07	0.42	0.37	1.1	0.0	0.0	0.0	0.0	0.0	0.0	ESA, ---, DOR
SMAPICL	.06	0.38	0.28	1.4	0.0	0.0	0.0	0.0	0.0	0.0	EME, ---, DOR
PERFSVMD	.05	0.32	0.26	1.2	1.1	1.1	0.0	0.0	0.0	0.0	ESA, ---, DOR
VMSERVS	.03	0.16	0.09	1.8	1.5	1.5	1.5	0.0	0.0	0.0	XC, CLO, DIS
VSHUORK1	.02	0.14	0.10	1.4	0.0	0.0	0.0	0.0	0.0	0.0	ESA, ---, DOR
VSHUORK2	.02	0.14	0.10	1.4	0.0	0.0	0.0	0.0	0.0	0.0	ESA, CL1, DIS
VSHUORK3	.02	0.14	0.10	1.4	0.0	0.0	0.0	0.0	0.0	0.0	ESA, ---, DOR
FARRAN	.01	0.04	0.04	1.0	0.0	0.0	0.0	0.0	0.0	0.0	EME, ---, DOR

FCX001121 Cannot write to A-disk - correct problem and re-initialize PERFK11
Command ==>
F1=Help F4=Top F5=Bot F7=Bkud F8=Fud F10=Left F11=Right F12=Return

23/015
Connected to remote server /host pdhvc.pok.ibm.com using port 23
Interval: 230-02-0214-010001-11 on user01

USER Details

Sosplan A - [24 x 80]

File Edit View Communication Actions Window Help

FCX110 CPU 2084 SER 66F5A Interval 10:25:13 - 10:25:43 Perf. Monitor

Detailed data for user PERFSVME

Total CPU	: .1%	Storage def.	: 64MB	Page fault rate	: .0/s
Superv. CPU	: .1%	Resident <2GB	: 3941	Page read rate	: .0/s
Emulat. CPU	: .0%	Resident >2GB	: 4448	Page write rate	: .0/s
VF total	: .000%	Proj. MSET	: 8368	Pgs moved >2GB	: .0/s
VF overhead	: .000%	Reserved pgs	: 0	Main > XSTORE	: .0/s
VF emulation	: .000%	Locked pages	: 0	XSTORE > main	: .0/s
VF load rate	: .000/s	XSTORE dedic.	: 0MB	XSTORE > DASD	: .0/s
I/O rate	: .2/s	XSTORE pages	: 0	SP00L pg reads	: .0/s
DASD I/O rate	: .2/s	DASD slots	: 0	SP00L pg writes	: .0/s
UR I/O rate	: .0/s	IUCV X-fer/s	: .2/s	MDC insert rate	: .0/s
Diag. X'9B'	: .0/s	Share	: 3%	MDC I/O avoided	: .1/s
*BLOCKIO	: .0/s	Max. share	: ...		

#I/O active	: 0	Active	: 100%	PSW wait	: 0%	I/O act.	: 0%
Stacked blk	: ..	Page wait	: 0%	CF wait	: 0%	Eligible	: 0%
Stat.: ESA,QDS,SIMW		I/O wait	: 0%	Sim. wait	: 100%	Runnable	: 0%

Data Space Name	Size	Mode	PgRd/s	PgWr/s	XRd/s	XWr/s	Higr/s	Steal/s
Command ==>								

F1=Help F4=Top F5=Bot F7=Bkwd F8=Fwd F12=Return

23/015

Connected to remote server host pdwinc.pok.ibm.com using port 22

userid@230-02-0214-01colt11 on user@23

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USER Details – page 2

Sosplan A - [24 x 80]

File Edit View Communication Actions Window Help

FCX110 CPU 2084 SER 66F5A Interval 10:25:13 - 10:25:43 Perf. Monitor

DASD I/O rate	: .2/s	DASD slots	: 0	SP00L pg writes	: .0/s
UR I/O rate	: .0/s	IUCV X-fer/s	: .2/s	MDC insert rate	: .0/s
Diag. X'9B'	: .0/s	Share	: 3%	MDC I/O avoided	: .1/s
*BLOCKIO	: .0/s	Max. share	: ...		

#I/O active	: 0	Active	: 100%	PSW wait	: 0%	I/O act.	: 0%
Stacked blk	: ..	Page wait	: 0%	CF wait	: 0%	Eligible	: 0%
Stat.: ESA,QDS,SIMW		I/O wait	: 0%	Sim. wait	: 100%	Runnable	: 0%

Data Space Name	Size	Mode	PgRd/s	PgWr/s	XRd/s	XWr/s	Higr/s	Steal/s
BASE	64MB	Priv	.0	.0	.0	.0	.0	.0

Device activity and status:

0009 3215 .1		000C 254R		CL *	EOP	NOH NCNT
000D 254P	CL A, CO 01, NOH NCNT	000E 140S		CL A, CO 01, NOH NCNT		
0190 3390 .0	A500,RR, 130Cyl,--->0	0191 3390 .2	C121,WR, 40% MDC eff.			
019D 3390 .0	A500,RR, 150Cyl,--->0	019E 3390 .0	A500,RR, 355Cyl,--->0			
01CC 3390 .0	8D2D,RR, 1Cyl,--->0	0200 3390 .0	8D2D,RR, 10Cyl,--->0			
0201 3390 .0	8B2D,RR, 10Cyl,--->0	029D 3390 .0	8B2D,RR, 8Cyl,--->0			

Command ==>

F1=Help F4=Top F5=Bot F7=Bkwd F8=Fwd F12=Return

23/015

Connected to remote server host pdwinc.pok.ibm.com using port 22

userid@230-02-0214-01colt11 on user@23

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Device Details

```

Session A - [24 x 80]
File Edit View Communication Actions Window Help
FCX110 CPU 2084 SER 66F5A INITIAL 10:27:22 Perf. Monitor

Detailed Analysis for Device C121 ( SYSTEM )
Device type : 3390-3          Function pend.: .1ms      Device busy : 0%
VOLSER      : K4E509        Disconnected : .1ms      I/O contention: 0%
Nr. of LINKs: 7             Connected    : 1.0ms     Reserved    : 0%
Last SEEK   : 1379         Service time: 1.2ms     SENSE SSCH  : ...
SSCH rate/s : .2           Response time: 1.2ms    Recovery SSCH: ...
Avoided/s   : ...         CU queue time: .0ms     Throttle del/s: ...
Status: MDCACHE USED

Path(s) to device C121:  B0      B1
Channel path status :    ON     ON

Device Overall CU-Cache Performance Split
DIR ADDR VOLSER IO/S %READ %RDHIT %WRHIT ICL/S BYP/S IO/S %READ %RDHIT
01 C121 K4E509 .2      8      100      100      .0      .0      No SEQ./ CACHE FW

-----
MDISK Extent Userid Addr IO/s VSEEK Status LINK VI/O/s %MDC
-----
C 651 - 665 GREGORJL 0191 .0 0 WR 1 .0 ...

Command ==>
F1=Help F4=Top F5=Bot F7=Bkwd F8=Fwd F10=Left F11=Right F12=Return
23/015
Connected to remote server host pdwinc.pok.ibm.com using port 22
Userid: 230-02-0214-Endcoll-N on userid: J
    
```

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Device Details – page 2

```

Session A - [24 x 80]
File Edit View Communication Actions Window Help
FCX110 CPU 2084 SER 66F5A Interval 10:27:22 - 10:28:00 Perf. Monitor

Status: MDCACHE USED

Path(s) to device C121:  B0      B1
Channel path status :    ON     ON

Device Overall CU-Cache Performance Split
DIR ADDR VOLSER IO/S %READ %RDHIT %WRHIT ICL/S BYP/S IO/S %READ %RDHIT
01 C121 K4E509 .2      0      0      100      .0      .0      .1      0      0 (N)

-----
MDISK Extent Userid Addr IO/s VSEEK Status LINK VI/O/s %MDC
-----
C 651 - 665 GREGORJL 0191 .0 0 WR 1 .0 ...
C 994 - 1053 PERFSVPA 0191 .0 0 WR 1 .0 ...
C 1319 - 1378 PERFSVMD 0191 .1 0 WR 1 .1 20 ...
C 1379 - 1438 PERFSVME 0191 .1 0 WR 1 .1 40 ...
C 1659 - 1678 PERFSVM 0191 .0 0 WR 1 .0 ...
C 1824 - 1923 TCPHAIN 2591 .0 0 WR 1 .0 ...
C 2674 - 2943 TOOLS 1526 .0 0 WR 1 .0 ...

Command ==>
F1=Help F4=Top F5=Bot F7=Bkwd F8=Fwd F10=Left F11=Right F12=Return
23/015
Connected to remote server host pdwinc.pok.ibm.com using port 22
Userid: 230-02-0214-Endcoll-N on userid: J
    
```

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USERLOG userid

Session B - [24 x 80]

File Edit View Communication Actions Window Help

FCX162 CPU 2094 SER F6A80 Interval 13:39:20 - 13:49:20 Perf. Monitor

Resource Usage Log for User LX00001

Interval	CPU Load				Virtual I/O/s							
End Time	%CPU	TCPU	VCPU	Ratio	Total	DASD	Avoid	Diag98	UR	Pg/s	User	Status
>>Mean>>	26.0	93.21	59.10	1.6	.5	.5	.4	.0	.0	2.9	---	---
13:41:20	28.2	16.92	10.44	1.6	.6	.5	.6	.0	.0	11.4	EME,CLO,DIS	
13:42:20	25.6	15.33	9.795	1.6	.5	.5	.6	.0	.0	2.3	EME,CLO,DIS	
13:43:20	25.4	15.27	9.783	1.6	.5	.4	.4	.0	.0	3.4	EME,CLO,DIS	
13:44:20	26.1	15.63	10.01	1.6	.5	.5	.5	.0	.0	.3	EME,CLO,DIS	
13:45:20	User logged off											
13:46:20	User logged off											
13:47:20	User logged off											
13:48:20	User logged off											
13:49:20	User logged off											

Command ==> _

F1=Help F4=Top F5=Bot F7=Bkwd F8=Fwd F10=Left F11=Right F12=Return

MC b 23/015

Connected to remote server host pdvme.pok.ibm.com using port 23

userid3F-250-02-014-Endcott-N on userid3F

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DEVLOG devno

Session B - [24 x 80]

File Edit View Communication Actions Window Help

FCX168 CPU 2094 SER F6A80 Interval 14:13:21 - 14:17:21 Perf. Monitor

General I/O Data Log for Device 16C8

Interval	Dev. Type	Descr. Label/ID	Mdisk Links	Pa- ths	Rate/s			Time (msec)			R	
End Time					I/O	Avoid	Pend	Disc	Conn	Serv	Resp	CUMt
>>Mean>>	3390	CF16C8	1	1	20.5	16.1	6.9	.8	2.6	10.3	10.3	.0
14:15:21	3390	CF16C8	1	1	20.0	24.1	5.6	2.0	3.8	11.4	11.4	.0
14:16:21	3390	CF16C8	1	1	14.0	14.5	2.6	1.1	3.5	7.2	7.2	.0
14:17:21	3390	CF16C8	1	1	8.2	21.5	1.7	1.0	3.4	6.1	6.1	.0

Command ==> _

F1=Help F4=Top F5=Bot F7=Bkwd F8=Fwd F10=Left F11=Right F12=Return

MC b 23/015

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LINUX Selection Screen – Option 29

```

Session D - [24 x 80]
FCX242      CPU 2094  SER F6A8D      Linux Displays      Perf. Monitor

Linux screens selection
$ Display   Description
. LINUX     RMF PM system selection menu
. LXCPU     Summary CPU activity display
. LXMEM     Summary memory util. & activity display
. LXNETWRK  Summary network activity display

Select performance screen with cursor and hit ENTER
Command --->
F1-Help  F4-Top  F5-Bot  F7-Bkwd  F8-Fwd  F12-Return

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```

LINUX CPU Screen

```

Session D - [24 x 80]
FCX243      CPU 2094  SER F6A8D  Interval 10:04:01 - 11:30:51  Perf. Monitor

Linux
----- Total CPU -----
Userid  Virt  Utilization (%)
-----
>System< 3.5  1.0  .2  .4  .0  .1  .1  1.3  335.0  3.2  2.
LXM00001 5  3.0  .7  1.6  .0  .0  .7  .8  496.2  ...
LXM00002 5  5.9  2.1  3.1  .0  .0  .6  2.0  492.0  ...
LX00001  4  .7  .0  .1  .0  .0  .2  .4  396.8  2.2
LX00002  4  ...
LX00003  3  ...
LX00004  2  .2  .0  .2  .0  .0  .0  .6  196.6  2.5
LX00005  2  ...
LX00006  5  ...
LX00007  5  ...
LX00008  5  ...
LX00009  2  .6  .1  .3  .0  .0  .1  .6  196.5  2.3
LX00010  4  .6  .0  .2  .0  .0  .1  .5  396.0  2.9
LX00011  3  ...
LX00012  5  ...
LX00013  2  ...

Select a highlighted guest for RMF PM Linux details
Command --->
F1-Help  F4-Top  F5-Bot  F7-Bkwd  F8-Fwd  F10-Left  F11-Right  F12-Return

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```

LXCPU LOG userid Screen

Session B - [24 x 80]

FCX246 CPU 2094 SER F6A80 Interval 13:38:25 - 13:42:32 Perf. Monitor

Linux CPU Load Log for User LX00001

Interval	Virt	Total CPU Utilization (%)									
End Time	CPUs	TotCPU	User	Kernel	Nice	IRQ	SoftIRQ	IOWait	Idle	Stolen	Runab
>>Mean>>	1	16.2	.3	5.0	.0	4.0	7.0	.0	.0	83.8	48.1
13:40:29	1	16.3	.3	5.0	.0	4.0	7.0	.0	.0	83.7	48.1
13:41:29	1	16.7	.3	5.1	.0	4.1	7.3	.0	.0	83.3	48.1
13:42:32	1	16.0	.3	4.9	.0	3.9	6.9	.0	.0	84.0	48.1

Command ==> _

F1-Help F4-Top F5-Bot F7-Bkwd F8-Fwd F10-Left F11-Right F12-Return

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LINUX MEMORy Screen

Session D - [24 x 80]

FCX244 CPU 2094 SER F6A80 Interval 10:04:01 - 11:31:08 Perf. Monitor

Linux	Memory Allocation (MB)						Buffers	Cache	Swapping	
	Main		High		Shared	Free			Used	Space (MB)	%Used
User id	M_Total	%Used	H_Total	%Used	Shared	/CaFree	Used	S_Total	%Used	
>System<	528.7	49.9	.0	.0	.0	89.9	85.3	29.3	.0	
LX00001	5020	5.3	.0	.0	.0	117.6	56.2	29.3	.0	
LX00002	3010	8.8	.0	.0	.0	134.2	46.2	29.3	.0	
LX00001	610.2	45.6	.0	.0	.0	143.1	89.3	29.3	.0	
LX00002	460.4	60.1	.0	.0	.0	142.6	91.2	29.3	.0	
LX00003	645.7	43.4	.0	.0	.0	142.0	91.9	29.3	.0	
LX00004	418.1	56.1	.0	.0	.0	143.1	92.8	29.3	.0	
LX00005	608.3	46.0	.0	.0	.0	142.9	92.3	29.3	.0	
LX00006	323.5	70.0	.0	.0	.0	134.0	52.1	29.3	.0	
LX00007	381.6	71.7	.0	.0	.0	137.7	91.1	29.3	.0	
LX00008	555.0	50.7	.0	.0	.0	142.7	92.3	29.3	.0	
LX00009	506.9	55.1	.0	.0	.0	142.9	92.4	29.3	.0	
LX00010	554.1	51.1	.0	.0	.0	142.9	92.1	29.3	.0	
LX00011	330.5	72.7	.0	.0	.0	106.4	91.9	29.3	.0	
LX00012	464.3	53.5	.0	.0	.0	106.3	92.0	29.3	.0	
LX00013	412.2	58.4	.0	.0	.0	105.2	91.1	29.3	.0	

Select a highlighted guest for RMF PM Linux details

Command ==> _

F1-Help F4-Top F5-Bot F7-Bkwd F8-Fwd F10-Left F11-Right F12-Return

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LINUX MEMORy LOG Screen

Session B - [24 x 80]

File Edit View Communication Actions Window Help

FCX247 CPU 2094 SER F6A8D Interval 13:38:25 - 13:42:32 Perf. Monitor

Linux Memory Utilization Log for User LX00001

Interval	Memory Allocation (MB)					Buffers /CaFree	Cache Used	Swapping	
	Main		High		Space (MB)				
End Time	M_Total	%MUsed	H_Total	%HUsed	Shared		S_Total	%SUsed	
>>Mean>>	610.3	54.8	.0	.0	.0	148.0	104.2	29.3	.0
13:40:29	610.3	54.9	.0	.0	.0	148.0	104.2	29.3	.0
13:41:29	610.3	54.6	.0	.0	.0	148.0	104.2	29.3	.0
13:42:32	610.3	54.7	.0	.0	.0	148.1	104.2	29.3	.0

Command ==>

F1-Help F4-Top F5-Bot F7-Bkwd F8-Fwd F10-Left F11-Right F12-Return

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LINUX NETWRK Screen

Session D - [24 x 80]

File Edit View Communication Actions Window Help

FCX245 CPU 2094 SER F6A8D Interval 10:04:01 - 11:31:00 Perf. Monitor

Linux	Inter	Data Transfer/sec				Errors/sec			
		Packets		Bytes		BadPac	Packet	Buffer	Transmit
Userid	faces	P_Recv	P_Xmit	B_Recv	B_Xmit	Recv	X_Mit	Linux	Collisn
>System<	4.1	1.758	.750	239	355	.000	.000	.000	.000
LX000001	8.0	60.42	59.10	7373	46168	.000	.000	.000	.000
LX000002	8.0	5.664	.136	585	13	.000	.000	.000	.000
LX000001	4.0	1.183	.242	142	35	.000	.000	.000	.000
LX000002	4.0	...	...	...	...	...	...	...	...
LX000003	4.0	...	...	...	...	...	...	...	...
LX000004	4.0	1.204	.236	144	34	.000	.000	.000	.000
LX000005	4.0	...	...	...	...	...	...	...	...
LX000006	4.0	...	...	...	...	...	...	...	...
LX000007	4.0	...	...	...	...	...	...	...	...
LX000008	4.0	...	...	...	...	...	...	...	...
LX000009	4.0	1.200	.252	145	36	.000	.000	.000	.000
LX000010	4.0	1.185	.238	142	34	.000	.000	.000	.000
LX000011	4.0	...	...	...	...	...	...	...	...
LX000012	4.0	...	...	...	...	...	...	...	...
LX000013	4.0	...	...	...	...	...	...	...	...

Select a highlighted guest for RMF PM Linux details

Command ==>

F1-Help F4-Top F5-Bot F7-Bkwd F8-Fwd F10-Left F11-Right F12-Return

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LXNETLOG Screen

Session B - [24 x 80]

File Edit View Communication Actions Window Help

FCX247 CPU 2094 SER F6A60 Interval 13:38:25 - 13:42:32 Perf. Monitor

Linux Memory Utilization Log for User LX00001

Interval	Memory Allocation (MB)					Buffers		Cache	Swapping	
	End Time	M_Total	%MUsed	H_Total	%HUsed	Shared	/CaFree	Used	S_Total	%SUsed
>>Mean>>	610.3	54.8	.0	.0	.0	.0	148.0	104.2	29.3	.0
13:40:29	610.3	54.9	.0	.0	.0	.0	148.0	104.2	29.3	.0
13:41:29	610.3	54.6	.0	.0	.0	.0	148.0	104.2	29.3	.0
13:42:32	610.3	54.7	.0	.0	.0	.0	148.1	104.2	29.3	.0

Command ==> _

F1-Help F4-Top F5-Bot F7-Bkwd F8-Fwd F10-Left F11-Right F12-Return

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LINUX RMF Selection Screen

Session D - [24 x 80]

File Edit View Communication Actions Window Help

FCX223 CPU 2094 SER F6A80 Linux Systems Perf. Monitor

Selectable Linux Systems

LX000215	LX000700	LX000001	LX000002	LX000001	LX000002
LX000003	LX000004	LX000005	LX000006	LX000007	LX000008
LX000009	LX000010	LX000011	LX000012	LX000013	LX000014
LX000015	LX000016	LX000017	LX000018	LX000019	LX000020
LX000021	LX000022	LX000023	LX000024	LX000025	LX000026
LX000027	LX000028	LX000029	LX000030	LX000031	LX000032
LX000033	LX000034	LX000035	LX000036	LX000037	LX000038
LX000039	LX000040	LX000041	LX000042	LX000043	LX000044
LX000045	LX000046	LX000047	LX000048	LX000049	LX000050
LX000051	LX000052	LX000053	LX000054	LX000055	LX000056
LX000057	LX000058	LX000059	LX000060	LX000061	LX000062
LX000063	LX000064	LX000065	LX000066	LX000067	LX000068
LX000069	LX000070	LX000071	LX000072	LX000073	LX000074
LX000075	LX000076	LX000077	LX000078	LX000079	LX000080
LX000081	LX000082	LX000083	LX000084	LX000085	LX000086
LX000087	LX000088	LX000089	LX000090	LX000091	LX000092
LX000093	LX000094	LX000095	LX000096	LX000097	LX000098

Select a system for linux details

Command -->

F1-Help F4-Top F5-Bot F7-Bkwd F8-Fwd F12-Return

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LINUX RMF Selection Screen

FCX224 CPU 2094 SER F6A80 Interval 11:34:00 - 11:35:00 Perf. Monitor

Linux Performance Data Selection for System LX00081

System Data

Processes created per second	0.233
Context switches per second	123.3
Apache: Requests per second	...
Bytes per request	...
Busy threads	...
Idle threads	...
404 Errors per minute	...

S Perform. Reports Description

- LXCPU LX00081 CPU utilization details
- LXMEM LX00081 Memory utilization & activity details
- LXNETWRK LX00081 Network activity (overall & by device)
- LXFILSYS LX00081 File system size and utilization

Select Linux performance details

Command ==>

F1-Help F4-Top F5-Bot F7-Bkwd F8-Fwd F12-Return

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LINUX RMF CPU Screen

FCX230 CPU 2094 SER F6A80 Interval 11:35:00 - 11:36:00 Perf. Monitor

Linux CPU Utilization for System LX00081

Processor	Percent CPU Utilization					Accumulated (s)		
	Total	User	Kernel	Nice	Idle	TotTm	UserTm	KernTm
>>Mean>>	0.11	0.03	0.07	0	99.88	---	---	---
cpu0	0.06	0.03	0.03	0	99.93	---	---	---
cpu1	0.08	0.03	0.04	0	99.91	---	---	---
cpu2	0.13	0.05	0.08	0	99.86	---	---	---
cpu3	0.10	0.05	0.05	0	99.89	---	---	---
cpu4	0.13	0.01	0.11	0	99.86	---	---	---

Process Name	Total	User	Kernel	Nice	Idle	TotTm	UserTm	KernTm
slpd.783	0.25	...	0.25	0	---	14.63	0.04	14.59
zmd.871	0.2	0.11	0.08	19	---	12.58	7.86	4.72
events/1.13	0.01	...	0.01	...	---	0.38	...	0.38
events/4.16	0.01	...	0.01	...	---	0.35	...	0.35
gpmddsr.3973	0.01	...	0.01	...	---	0.15	0.12	0.03
httpd2-prefork.2398	0.01	0.01	...	0	---	1.02	0.61	0.41
prccgat.3968	0.01	...	0.01	0	---	0.55	0.09	0.46

Command ==>

F1-Help F4-Top F5-Bot F7-Bkwd F8-Fwd F12-Return

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LINUX RMF Memory Screen

```

Session D - [24 x 90]
File Edit View Communication Actions Window Help
FCX229 CPU 2094 SER F6A80 Interval 11:36:00 - 11:37:00 Perf. Monitor

Linux Memory Util. & Activity Details for System LK00081

Total memory size          575MB      Swap space size          29MB
Total memory used         105MB      % Swap space used        0%
Used for buffer           100MB      Swap-in rate             0/s
Used for shared            0MB        Swap-out rate            0/s
Used for cache            86MB        Page-in rate             0.283/s
Total free memory         328MB      Page-out rate            9.316/s

<----- Size -----> <----- Page Fault Rate/s ----->
      (Bytes)      (kB)      Minor Major <-Incl.Children->
Process Name  VirtSize ResidSet MinPgFlt MajPgFlt MinPFflC MajPFflC
zmd.871       79183900 23652   .....
httpd2-prefork.2398 49635300 6488   .....
httpd2-prefork.3243 49770500 4060   .....
gdm.1840      14221300 3292   .....
httpd2-prefork.3356 49635300 3292   .....
httpd2-prefork.3357 49635300 3292   .....

Command ---->
F1-Help F4-Top F5-Bot F7-Bkwd F8-Fwd F12-Return

```



LINUX RMF Network Screen

```

Session D - [24 x 90]
File Edit View Communication Actions Window Help
FCX227 CPU 2094 SER F6A80 Interval 11:36:00 - 11:37:00 Perf. Monitor

Linux Network Activity for System LK00081

Network <----- Received/s -----> <----- Transmitted/s ----->
Device  RcvPack RcvByte RcvError SndPack SndByte SndError
>Total>  4.08    1792    0         2.61    1343    0
eth313   0.76     79     0         0         0       0
eth314   3.31    1712    0         2.61    1343    0
lo       0         0       0         0         0       0
sit0     0         0       0         0         0       0

Command ---->
F1-Help F4-Top F5-Bot F7-Bkwd F8-Fwd F12-Return

```



LINUX RMF Filesys Screen

Linux Filesystem Usage for System LX00081

DASD I/O Activity

I/O request rate per second	1.01
I/O response time/request (msec)	320.4
I/O response time/sector (msec)	73.70

Filesystem Name	Size	Free	%Used	%Free
>Total	5831	2294	58.8	41.1
/dev/dasda1	586	214	63.4	36.5
/dev/dasdb1	2310	194	91.1	8.8
/dev/dasdf1	283	251	6.3	93.6
/dev/dasdg1	1155	223	79.6	20.3
/dev/dasdh1	489	456	1.7	98.2
/dev/dasdi1	721	669	2.3	97.6
udev	287	287	0	100

Command --->

F1-Help F4-Top F5-Bot F7-Bkwd F8-Fwd F12-Return

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TCPIP Menu – Option 3K

FCX203 CPU 2094 SER F6A00 TCP/IP Displays Perf. Monitor

Server	Log File	Description
System	HIPSOCK	Hipersocket channel activity
System	QDIO	QDIO device activity
System	VNIC	Virtual Network Device activity
System	VSWITCH	Virtual Switch activity
OSPFIPC1	TCPACTLG	General TCP/IP activity log
OSPFIPC1	TCPBPLOG	TCP/IP buffer pools log
OSPFIPC1	TCPCONF	TCP/IP server configuration
OSPFIPC1	TCPDNLG	General TCP/IP data transfer log
OSPFIPC1	TCPDOSLG	TCP/IP denial of service log
OSPFIPC1	TCPICMP	TCP/IP ICMP messages log
OSPFIPC1	TCPIDLOG	TCP/IP I/O activity log
OSPFIPC1	TCPLINKS	TCP/IP links activity log
OSPFIPC2	TCPACTLG	General TCP/IP activity log
OSPFIPC2	TCPBPLOG	TCP/IP buffer pools log
OSPFIPC2	TCPCONF	TCP/IP server configuration
OSPFIPC2	TCPDNLG	General TCP/IP data transfer log
OSPFIPC2	TCPDOSLG	TCP/IP denial of service log

Select performance screen with cursor and hit ENTER

Command --->

F1-Help F4-Top F5-Bot F7-Bkwd F8-Fwd F12-Return

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HIPSOCK

Session D - [24 x 80]

FCX231 CPU 2094 SER F6A00 Interval 13:04:53 - 13:05:53 Perf. Monitor

Channel Path ID	Shrd	Hipersocket Activity/Sec				Own Partition			
		<--- Total for System --->		<--- Failed --->		<--- Transferred --->		<--- Failed --->	
		T_Msgs	T_Units	T_NoBuff	L_Msgs	L_Units	L_NoBuff	L_Other	
FA	Yes	.00	.00	.00	.00	.00	.00	.00	
FB	Yes	.05	41.22	.00	.00	.00	.00	.00	
FC	Yes	.07	65.25	.00	.00	.00	.00	.00	
FD	Yes	.02	3.31	.00	.00	.00	.00	.00	
FE	Yes	.02	6.86	.00	.00	.00	.00	.00	
FF	Yes	.00	.00	.00	.00	.00	.00	.00	

Command ==>

F1=Help F4=Top F5=Bot F7=Bkud F8=Fwd F12=Return

23/015

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luser@F250-02-P014-Enc044-N on user@F2

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TCPACTLG – TCPIP Activity Log

Session A - [24 x 80]

FCX204 CPU 2084 SER 66F5A Interval 12:46:37 - 13:13:37 Perf. Monitor

TCP/IP Activity Log for Server TCPIP

Interval	Connections/s				TCP Segments/s					ARP/s		
	Init	Accept	Failo	Repet	Recvd	Trans	Re- mit	Recvd	X-mit	Repet	Recvd	X-mit
>>Mean>>	.000	.017	.016	.000	.437	.464	.098	.063	.016	.000	.000	.000
13:00:37	.000	.017	.017	.000	.063	.063	.063	.067	.017	.000	.000	.000
13:01:37	.000	.017	.000	.000	.100	.100	.100	.067	.000	.000	.000	.000
13:02:37	.000	.017	.017	.000	.067	.067	.063	.050	.017	.000	.000	.000
13:03:37	.000	.017	.017	.000	.100	.116	.100	.067	.017	.000	.000	.000
13:04:37	.000	.017	.017	.000	.100	.117	.100	.067	.017	.000	.000	.000
13:05:37	.000	.017	.017	.000	.063	.063	.100	.067	.017	.000	.000	.000
13:06:37	.000	.050	.017	.000	.950	1.350	.063	.050	.017	.000	.000	.000
13:07:37	.000	.017	.017	.000	1.460	1.669	.100	.067	.017	.000	.000	.000
13:08:37	.000	.017	.017	.000	1.250	1.300	.063	.050	.017	.000	.000	.000
13:09:37	.000	.000	.017	.000	1.817	1.850	.100	.067	.017	.000	.000	.000
13:10:37	.000	.017	.017	.000	1.133	1.150	.100	.100	.017	.000	.000	.000
13:11:37	.000	.017	.017	.000	1.400	1.417	.100	.050	.017	.000	.000	.000
13:12:37	.000	.017	.017	.000	1.117	1.133	.100	.067	.017	.000	.000	.000

Command ==>

F1=Help F4=Top F5=Bot F7=Bkud F8=Fwd F10=Left F11=Right F12=Return

23/015

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luser@F250-02-P014-Enc044-N on user@F2

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TCPBPLOG – TCPIP Buffer Pool Mgmt Log



Session A - [24 x 80]

File Edit View Communication Actions Window Help

FCX210 CPU 2084 SER 56F5A Interval 12:45:37 - 13:13:37 Perf. Monitor

TCP/IP Buffer Pool Management Log for Server TCPIP

Interval	Envelope				Buffer Pool Level								Segm Ackn
	Acti vity	Cli- ent	<- Enve- lope -->	Raw Sock et	BSD Sock et	TCP Ctl	UDP Ctl	<-Data Buffer-->	Small	Tiny	CBlk		
>>Mean>>	984	83	746	139	48	903	948	2962	68	8964	493	8	60k
>>Min.>>	471	83	335	99	48	647	945	2705	67	8447	481	7	60k
13:03:37	978	83	747	134	48	903	948	2963	68	8963	495	8	60k
13:04:37	979	83	745	135	48	903	948	2963	68	8963	495	8	60k
13:05:37	978	83	749	134	48	903	948	2963	68	8963	495	8	60k
13:06:37	975	83	749	130	48	903	948	2961	68	8963	493	8	60k
13:07:37	978	83	749	132	48	903	948	2961	68	8963	493	8	60k
13:08:37	980	83	747	136	48	903	948	2961	68	8963	493	8	60k
13:09:37	982	83	749	137	48	903	948	2961	68	8964	493	8	60k
13:10:37	980	83	745	135	48	903	948	2961	68	8964	493	8	60k
13:11:37	974	83	749	130	48	903	948	2961	68	8964	493	8	60k
13:12:37	976	83	745	130	48	903	948	2961	68	8964	493	8	60k
13:13:37	978	83	749	133	48	903	948	2961	68	8964	493	8	60k

Command ===>

F1=Help F4=Top F5=Bot F7=Bkwd F8=Fwd F10=Left F11=Right F12=Return

23 / 015

Connected to remote server /host pdwma.pok.ibm.com using port 22

luser@DF-250-02-P014-Enc028-N on user@df

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TCPCONF – TCPIP Server Configuration



Session A - [24 x 80]

File Edit View Communication Actions Window Help

FCX212 CPU 2084 SER 56F5A Status 14:05:21 Perf. Monitor

TCP/IP Configuration for Server TCPIP

Buffer Pools	Total Blocks	Allocation Limit		Free Blocks	Min. Depth	Elem. Size
		Unrestricted	Restricted			
Activity Control Block	1024	51	102	972	946	137
Client Control Block	154	7	15	56	56	344
Data Buffer	9000	450	900	8958	8954	16384
Small Data Buffer	500	25	50	498	498	2048
Tiny Data Buffer	10	1	1	10	10	256
Envelope	750	37	75	750	693	2048
Large Envelope	150	7	15	125	100	9216
Host Pool	0	0	0	0	0	0
Raw IP Control Block	51	2	5	49	49	240
Socket Control Block	1087	50	100	993	903	244
BSD-Style Socket Ctl. Block	1087	50	100	948	948	493
TCP Control Block	3062	150	300	2955	2955	824
UDP Control Block	162	5	10	70	70	276
Address Translation	1512	0	5	1510	1510	176
IP Route	312	0	6	307	307	140

Command ===>

F1=Help F4=Top F5=Bot F7=Bkwd F8=Fwd F12=Return

23 / 015

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TCPICMP – TCPIP ICMP Messages Log

Session A - [24 x 80]

File Edit View Communication Actions Window Help

FCX206 CPU 2084 SER 56F5A Interval 13:58:21 - 14:05:21 Perf. Monitor

TCPIP ICMP Messages Log for Server TCPIP

Interval	ICMP Messages Received/s											
End Time	Total	Error	Un- reach	Time Exceed	Param Probl	Source Quench	Redi- rect	Echo	Stamp	Mask	Total	Err
>>Mean>>	22.65	.000	.000	.000	.000	.000	.000	22.9	.000	.00	23.63	.0
13:58:21	...	...	...	...	...	...	...	...	...	...	...	...
13:59:21	24.18	.000	.000	.000	.000	.000	.000	24.2	.000	.00	24.92	.0
14:00:21	22.00	.000	.000	.000	.000	.000	.000	22.0	.000	.00	22.76	.0
14:01:21	23.91	.000	.000	.000	.000	.000	.000	23.9	.000	.00	24.64	.0
14:02:21	21.95	.000	.000	.000	.000	.000	.000	22.0	.000	.00	22.72	.0
14:03:21	22.15	.000	.000	.000	.000	.000	.000	22.2	.000	.00	22.88	.0
14:04:21	23.32	.000	.000	.000	.000	.000	.000	23.3	.000	.00	24.08	.0
14:05:21	22.65	.000	.000	.000	.000	.000	.000	22.7	.000	.00	23.38	.0

Command --->

F1=Help F4=Top F5=Bot F7=Bkwd F8=Fwd F10=Left F11=Right F12=Return

23/015

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TCPIOLOG – TCPIP I/O Activity Log

Session A - [24 x 80]

File Edit View Communication Actions Window Help

FCX222 CPU 2084 SER 56F5A Interval 13:58:21 - 14:05:21 Perf. Monitor

TCPIP I/O Activity Log for Server TCPIP

Interval	I/O per sec.				QDIO Activity per sec.				Re- ceive	
	Requests	Bytes	Receive	X-mit	Inbound	Outbound	PCI	Polla		
>>Mean>>	.000	.326	79704	321k	52.93	30.19	.000	115.7	32.70	4.410
13:58:21	...	...	...	...	...	...	...	...	...	...
13:59:21	.000	.417	84590	323k	55.33	40.77	.000	135.0	38.93	4.933
14:00:21	.000	.316	71753	346k	55.34	19.93	.000	103.0	27.69	4.459
14:01:21	.000	.301	82230	330k	54.76	25.89	.000	111.0	30.60	4.224
14:02:21	.000	.300	74709	334k	54.83	33.77	.000	122.0	33.43	4.067
14:03:21	.000	.317	78572	272k	49.60	28.10	.000	109.0	31.42	4.667
14:04:21	.000	.317	83060	352k	54.20	33.62	.000	122.5	34.57	4.300
14:05:21	.000	.317	83034	288k	46.45	29.25	.000	107.7	32.27	4.217

Command --->

F1=Help F4=Top F5=Bot F7=Bkwd F8=Fwd F10=Left F11=Right F12=Return

23/015

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TCPLINKS – TCPIP LINK Activity Log

Session A - [24 x 80]

File Edit View Communication Actions Window Help

FCX206 CPU 2084 SER 56F5A Interval 13:58:21 - 14:04:21 Perf. Monitor

TCPIP Links Activity Log for Server TCPIP

Interval	End Time	Link Name	Received/s					Trans		
			Bytes	Uni-cast	Non-Unicast	Dis-card	Error	Unknown Protocol	Bytes	Uni-cast
14:03:21		ETRING1	22174	44.90	.000	.00	.000	.000	106.2	1.000
14:03:21		STK00IPV6A	.000	.000	.000	.00	.000	.000	9400	12.90
14:03:21		VNETRING	.000	.000	.000	.00	.000	.000	.000	.000
14:03:21		VNETRINI	.000	.000	.000	.00	.000	.000	.000	.000
14:03:21		VSWITCHLINK	.000	.000	.000	.00	.000	.000	.000	.000
14:04:21		ISRING	8411	7.867	.000	.00	.000	.000	28593	36.93
14:04:21		ETRING	52319	67.70	19.03	.00	.000	1.133	313k	221.8
14:04:21		ETRING1	22330	49.62	.000	.00	.000	.000	108.1	1.017
14:04:21		STK00IPV6A	.000	.000	.000	.00	.000	.000	11176	15.55
14:04:21		VNETRING	.000	.000	.000	.00	.000	.000	.000	.000
14:04:21		VNETRINI	.000	.000	.000	.00	.000	.000	.000	.000
14:04:21		VSWITCHLINK	.000	.000	.000	.00	.000	.000	.000	.000

Command ===>

F1=Help F4=Top F5=Bot F7=Bkwd F8=Fwd F10=Left F11=Right F12=Return

23/015

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TCPDATLG – TCPIP Gen'l Data Trans Log

Session A - [24 x 80]

File Edit View Communication Actions Window Help

FCX206 CPU 2084 SER 56F5A Interval 13:58:21 - 14:03:21 Perf. Monitor

TCPIP Data Transfer Log for Server TCPIP

Interval	End Time	IP Packets		Incoming/s					Outgoing/s			Fragm.	
		Total	Headr	For-warded	Unknwn	Dis-card	User DelTo	Prot Supty	Dis-card	No Rcvl	Recl Da		
>>Mean>>		117.9	.000	.000	21.60	.000	.00	54.89	194.7	.000	.000	56.62	15
13:58:21													
13:59:21		133.1	.000	.000	31.88	.000	.00	56.20	193.5	.000	.000	61.37	16
14:00:21		105.4	.000	.000	11.25	.000	.00	56.37	215.3	.000	.000	52.63	14
14:01:21		118.3	.000	.000	17.23	.000	.00	55.96	199.7	.000	.000	60.62	15
14:02:21		120.7	.000	.000	25.65	.000	.00	55.33	205.2	.000	.000	54.43	14
14:03:21		112.0	.000	.000	22.02	.000	.00	50.68	159.9	.000	.000	54.17	14

Command ===>

F1=Help F4=Top F5=Bot F7=Bkwd F8=Fwd F10=Left F11=Right F12=Return

23/015

Connected to remote server/host pdvma.pok.ibm.com using port 22

user@DF-250-02-P014-Enc001-N on user@DF

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TCPDOSLG – TCPIP Denial of Service Log

```

Session A - [24 x 80]
File Edit View Communication Actions Window Help
FCX233 CPU 2084 SER 56F5A Interval 13:58:21 - 14:04:21 Perf. Monitor
TCP/IP Denial of Service Log for Server TCPIP
Interval <----- Denial of Service Packet Discards/Sec ----->
End Time Smurf Fraggle PoDeath BLAT Stream R4P3D KOD KOX SynFlood
>>Mean>> .000 .000 .000 .000 .000 .000 .000 .000 .000
13:58:21 .000 .000 .000 .000 .000 .000 .000 .000 .000
13:59:21 .000 .000 .000 .000 .000 .000 .000 .000 .000
14:00:21 .000 .000 .000 .000 .000 .000 .000 .000 .000
14:01:21 .000 .000 .000 .000 .000 .000 .000 .000 .000
14:02:21 .000 .000 .000 .000 .000 .000 .000 .000 .000
14:03:21 .000 .000 .000 .000 .000 .000 .000 .000 .000
14:04:21 .000 .000 .000 .000 .000 .000 .000 .000 .000

Command ==>
F1=Help F4=Top F5=Bot F7=Bkwd F8=Fud F12=Return
23/015
Connected to remote server/host govma.pok.ibm.com using port 22
user@23-250-02-40-14-Endc0tt-R on user@23
© IBM Corporation 2007 2007 System z Technical Conference
  
```

Accessing performance data from other userids

While PERFKIT is running in the PERFSVM machine, you can view performance data without signing directly on using:

- VMC in a PIPE
- VMCX for a full screen view using VMCF
- FCONAPPC for a full screen using APPC (Preferred)

FCONAPPC setup information

PERFKIT uses the FCONRMT AUTHORIZ file to determine who can do what.

NODEID USERID authorizations

Where authorizations can be:

- DATA
- CMD
- S&FSERV

Care must be taken when allowing CMD, any CP command that PERFSVM is allowed can be issued from the FCONAPPC session

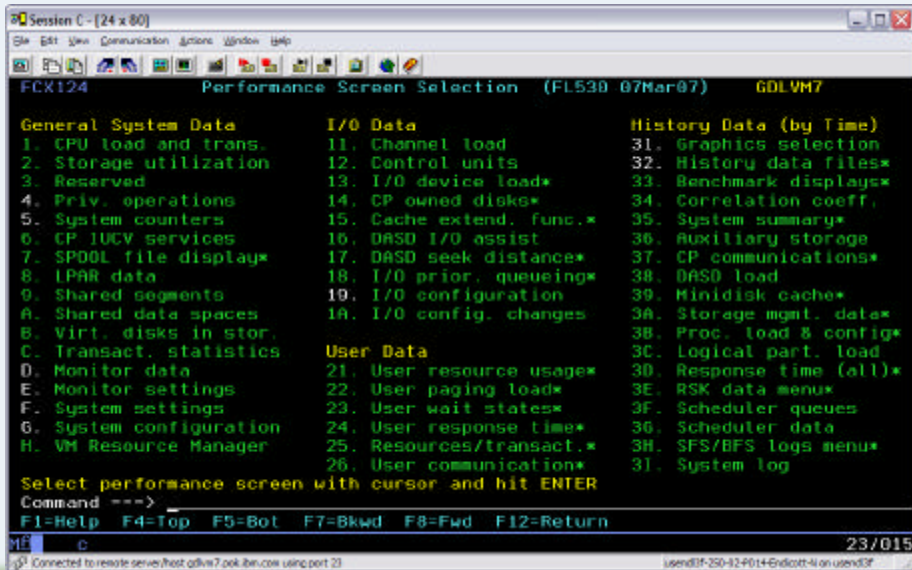
FCONAPPC resourcename

The PERFSVM machine ships using APPC resource name FCXRES00

To access data from another userid start PERFKIT in that userid then enter **FCONAPPC FCXRES00**

The menu screen will be shown:

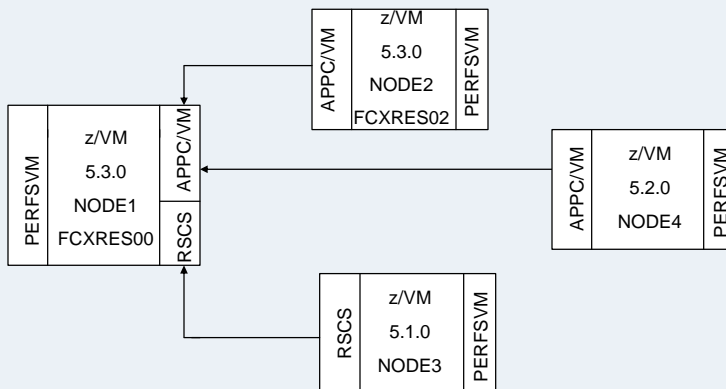
FCONAPPC resourcename



Central Data Collection



- Allows efficient central performance monitoring for my remote systems
- Concurrent multiple access to the central machine's data
- Performance data retrieval from local and remote machines similar to native monitoring





Central Data Collection

NODE1 Setup Files

File FCONRMT SYSTEMS

```

*System Definition file for remote monitoring
*Node-ID PERFKIT-ID VM_Type Append Nickname
*|      |      |      |      |
NODE2  PERFSVM  z/VM5.3  N    FCXRES02
NODE3  PERFSVM  z/VM5.2  N    FCXRES03
NODE4  PERFSVM  z/VM5.1  N

```

File FCONRMT AUTHORIZ

```

*Authorization file for local and remote data retrieval and
*command execution
*Node-ID  User-ID  Authorized for ..
* NO ENTRIES NEEDED FOR COLLECTION

```

NOTE: To enable the Web Server, you will need entries for node 1

```

NODE1  PERFSVM  z/VM5.2  N    FCXRES00

```

```

NODE1  PERFSVM  S&FSERV  DATA

```



Central Data Collection

NODE2 Setup files

File FCONRMT SYSTEMS

```

*System Definition file for remote monitoring
*Node-ID PERFKIT-ID VM_Type Append Nickname
*|      |      |      |      |
*NO ENTRIES NEEDED

```

File FCONRMT AUTHORIZ

```

*Authorization file for local and remote data retrieval and
*command execution
*Node-ID  User-ID  Authorized for ..
NODE2    PERFSVM  S&FSERV  DATA

```

Directory Entry for PERFSVM at NODE2

```

IUCV *IDENT FCXRES02 GLOBAL
IUCV ALLOW

```

UCOMDIR NAMES A

```

:nick.FCXRES00      :luname.*IDENT
                    :tpn.FCXRES02
                    :security.SAME

```

Central Data Collection

NODE3 Setup files

File FCONRMT SYSTEMS

```
*System Definition file for remote monitoring
*Node-ID PERFKIT-ID VM_Type Append Nickname
*|      |      |      |      |
*NO ENTRIES NEEDED
```

File FCONRMT AUTHORIZ

```
*Authorization file for local and remote data retrieval and
*command execution
*Node-ID  User-ID  Authorized for ..
NODE3    PERFSVM  S&FSERV DATA
```

Directory Entry for PERFSVM at NODE2

```
IUCV *IDENT FCXRES03 GLOBAL
IUCV ALLOW
```

UCOMDIR NAMES A

```
:nick.FCXRES00      :lname.*IDENT
:tpn.FCXRES03
:security.SAME
```

Central Data Collection

NODE4 Setup Files

File FCONRMT SYSTEMS

File FCONRMT AUTHORIZ

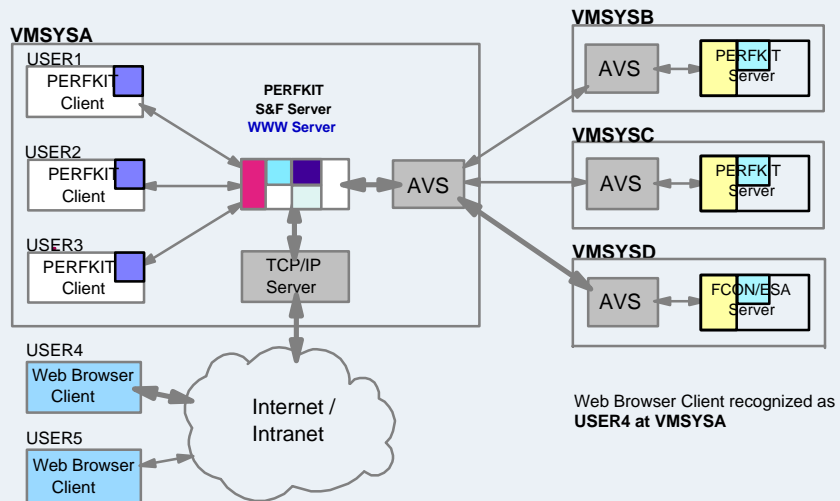
No entries needed in either of these files, just need:
FC MONCOLL REMSEND ON RSCS nodeid userid
 In FCONX \$PROFILE or entered manually

Central Data Collection

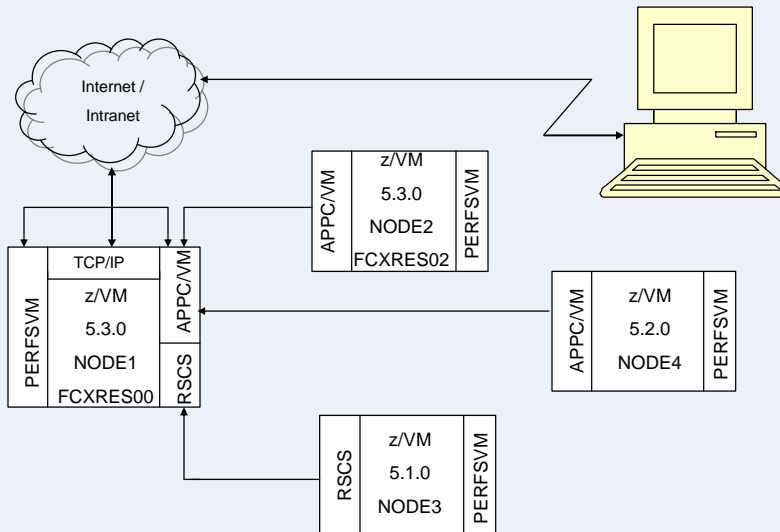
Summary:

- PERFKIT FL520 will "pull" data from other PERFKIT FL520 systems using APPC/VM when that system is identified in the FCONRMT SYSTEMS file with a resource name
- PERFKIT FL520 will receive data "pushed" from other PERFKIT FL510 systems using RSCS

Web Access



Web Setup



Web Setup



Performance Toolkit for VM includes an internet interface intended to:

- Provide a graphical user interface based on standard web browsers, thus automatically allowing it's use from any of the common supported platforms
- Allow the use of the interface with a minimum of additional prerequisites

The PERFKIT web interface is designed to process only the subset of HTTP requests it expects for a performance retrieval session.

The internet interface works directly with the "store and forward" logic.

Web Setup

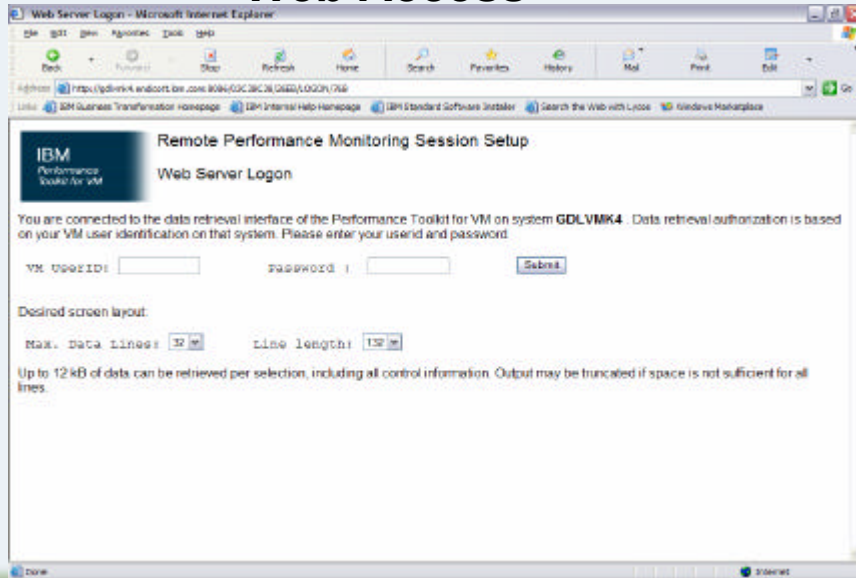
To setup web access you need to:

1. Implement S&F Server - See [Central Data Collection](#)
2. Implement IUCV connection to TCPIP machine
3. Activate the interface
4. Test the interface

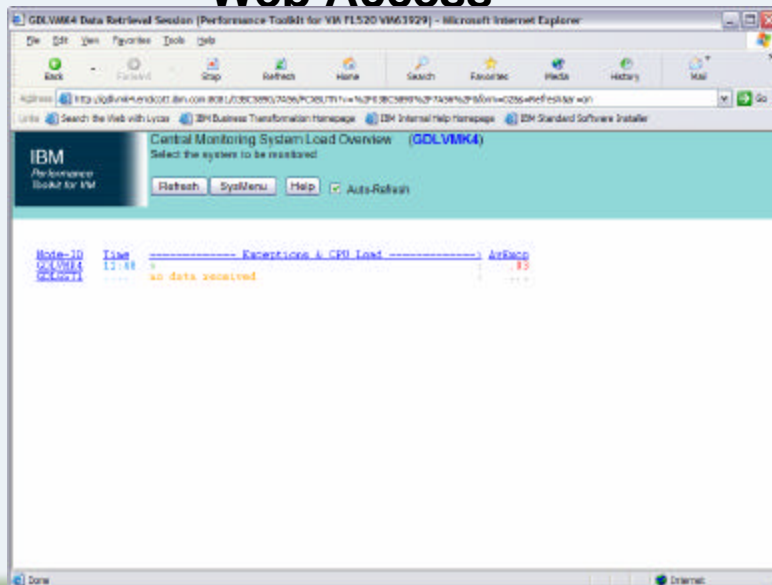
Web Access



Web Access



Web Access



Initial Performance Data Selection Menu (GDLVMK4)
Select performance screen

Command Refresh Systems Help Auto-Refresh

General System Data	I/O Data	History Data (by Time)
1 CPU load and usage	11 Channel load	31 Coexistence selection
2 Storage utilization	12 Control units	32 History data files
3 Performance	13 I/O device load*	33 Benchmark displays*
4 I/O operations	14 I/O control display*	34 Configuration control
5 System consoles	15 I/O control - func *	35 Config. assistance
6 I/O services	16 DMSD I/O assist	36 Auxiliary storage
7 I/O file display	17 DMSD seek distances*	37 I/O communication
8 I/O data	18 I/O error queueing*	38 I/OI jobs
9 Shared segments	19 I/O configuration	39 I/OI jobs
10 Shared data spaces	1A I/O control changes	3A Storage pool data
11 I/O data by time		3B I/OI - load & monitoring
C Transport statistics	User Data	3C Logical perf. load
D Monitor data	21 User resource usage*	3D Resource time profile
E Monitor activities	22 User waiting loads*	3E I/O data usage*
F System activities	23 User wait system*	3F Scheduler queues
G System configuration	24 User response time*	3G Scheduler data
H VM Resource Monitor	25 Resources/processor *	3H I/OI jobs menu*
I Exceptions	26 User communication*	3I I/OI data menu*
J User defined data*	27 Multitasking usage*	3J I/OI communication
	28 User configuration*	3K User wait status
	29 I/OI services*	3L

Pointers to related or more detailed performance data can be found on displays marked with an asterisk (*).

Example - Performance Data Display

Hyperlink selection of:

Sort sequence →

Context help →

Device details →

General I/O Device Load and Performance (GDLFCFT)
Select a device for I/O device details

Command Refresh Systems Menu Forw Help Auto-Refresh

Refresh

Interval 11:00:30-11:09:42 on 2004/05/06 (CURRENT interval, select [Interval](#))

Device Descr	Link	Pa	Rate/s	I/O Avoid	Perd	Disc	Conn	Serv	Resp	CUVt	Qu
>> All DMSD <<			0	0	5	13	0	5	19	8	0
2000 3380-K XASRES	0	1	0	1	6	1	1	8	3	5	0
2001 3380-K SYST01	0	1	0	1	0	1	1	1	4	1	4
2002 3380-K SPSPK1	0	1	0	0	3	0	3	6	6	6	0
2003 3380-K SPSPK2	0	1	0	0	2	0	3	5	5	0	0
2004 3380-K CMS1	0	1	0	0	2	0	3	6	6	0	0
2005 3380-K CMS2	0	1	0	0	2	1	3	6	6	0	0
2006 3380-K CMS3	0	1	0	0	2	1	3	6	6	0	0
2007 3380-K LP1	0	1	0	0	2	0	3	5	5	0	0
2008 3380-K RTST01	0	1	0	0	3	0	3	6	6	0	0
2009 3380-K RTST02	0	1	0	0	2	0	3	5	5	0	0
200A 3380-K RTST03	0	1	0	0	1	0	3	4	4	0	0
200B 3380-K VTAN01	0	1	0	0	2	1	3	6	6	0	0
200C 3380-K VTAN02	0	1	0	0	3	1	2	6	6	0	0

GDLMV4 Data Retrieval Session (Performance Toolkit for VM FL520 VM63857) - Microsoft Internet Explorer

Address: http://pdhmk4.andcart.ibm.com/601403940206/GM4/SO/USER/NCPU

General User Resource Utilization (GDLMV4)
Select a user for user details or [DLUSER](#) for a list of table users

Interval 13:54:14-13:55:14, on 2006/09/11 (CURRENT interval, select [Interval](#) or [ADDRESS](#) data)

Interval	NCPU	TCPU	VCPU	Ratio	Total	INSD	Avoid	DiscSD	IB	Pas	Mem	Status	Loaded	Active	Pages	Skare	Use
SYSTEM	01	007	085	1.6	1	0	0	0	0	0	0	---	1	0	0	0	0
BP00001	20	117	122	1.1	0	0	0	0	0	0	---	---	---	---	---	---	---
BP00002	16	056	063	1.5	0	0	0	0	0	0	---	---	---	---	---	---	---
BP00003	12	075	036	2.1	0	0	0	0	0	0	---	---	---	---	---	---	---
BP00004	12	072	036	2.0	0	0	0	0	0	0	---	---	---	---	---	---	---
BP00005	12	072	030	1.9	0	0	0	0	0	0	---	---	---	---	---	---	---
BP00006	12	068	040	1.7	0	0	0	0	0	0	---	---	---	---	---	---	---
BP00007	09	058	028	2.0	0	0	0	0	0	0	---	---	---	---	---	---	---
BP00008	05	021	013	1.3	0	0	0	0	0	0	---	---	---	---	---	---	---
BP00009	05	032	025	1.3	2	2	1	0	0	0	---	---	---	---	---	---	---
BP00010	01	001	082	1.5	3	0	0	0	0	0	---	---	---	---	---	---	---
BP00011	01	004	030	1.3	0	0	0	0	0	0	---	---	---	---	---	---	---
BP00012	01	003	083	1.0	0	0	0	0	0	0	---	---	---	---	---	---	---
BP00013	01	004	084	1.0	0	0	0	0	0	0	---	---	---	---	---	---	---
BP00014	0	0	0	---	0	0	0	0	0	0	---	---	---	---	---	---	---
BP00015	0	0	0	---	0	0	0	0	0	0	---	---	---	---	---	---	---
BP00016	0	0	0	---	0	0	0	0	0	0	---	---	---	---	---	---	---
BP00017	0	0	0	---	0	0	0	0	0	0	---	---	---	---	---	---	---
BP00018	0	0	0	---	0	0	0	0	0	0	---	---	---	---	---	---	---
BP00019	0	0	0	---	0	0	0	0	0	0	---	---	---	---	---	---	---
BP00020	0	0	0	---	0	0	0	0	0	0	---	---	---	---	---	---	---
BP00021	0	0	0	---	0	0	0	0	0	0	---	---	---	---	---	---	---
BP00022	0	0	0	---	0	0	0	0	0	0	---	---	---	---	---	---	---
BP00023	0	0	0	---	0	0	0	0	0	0	---	---	---	---	---	---	---
BP00024	0	0	0	---	0	0	0	0	0	0	---	---	---	---	---	---	---
BP00025	00	001	080	---	0	0	0	0	0	0	---	---	---	---	---	---	---
BP00026	00	001	080	---	0	0	0	0	0	0	---	---	---	---	---	---	---
BP00027	00	001	080	---	0	0	0	0	0	0	---	---	---	---	---	---	---
BP00028	00	001	080	---	0	0	0	0	0	0	---	---	---	---	---	---	---

GDLMV4 Data Retrieval Session (Performance Toolkit for VM FL520 VM63857) - Microsoft Internet Explorer

Address: http://pdhmk4.andcart.ibm.com/601403940206/PE/04/001

General User Resource Utilization (GDLMV4)
Select a user for user details or [DLUSER](#) for a list of table users

Interval 14:21:14-14:22:14, on 2006/09/11 (CURRENT interval, select [Interval](#) or [ADDRESS](#) data)

Interval	NCPU	TCPU	VCPU	Ratio	Total	INSD	Avoid	DiscSD	IB	Pas	Mem	Status	Loaded	Active	Pages	Skare	Use
SYSTEM	01	007	085	1.6	1	0	0	0	0	0	---	---	1	0	0	0	0

Help Text

NCPU
Percent of total CPU used.
This value is based on the utilization of a single processor. Values exceeding 100% are possible for virtual MF users.

Returns

BP00001	05	001	025	1.2	-1	-1	-1	-0	-0	-0	---	---	---	---	---	---	-0.8.044
BP00002	01	001	082	1.5	-0	-0	-0	-0	-0	-0	---	---	---	---	---	---	-0.100
BP00003	01	001	085	1.8	-0	-0	-0	-0	-0	-0	---	---	---	---	---	---	-0.3000
BP00004	01	004	081	1.9	-0	-0	-0	-0	-0	-0	---	---	---	---	---	---	-0.100
BP00005	0	0	0	---	0	0	0	0	0	0	---	---	---	---	---	---	100
BP00006	0	0	0	---	0	0	0	0	0	0	---	---	---	---	---	---	100
BP00007	0	0	0	---	0	0	0	0	0	0	---	---	---	---	---	---	100
BP00008	0	0	0	---	0	0	0	0	0	0	---	---	---	---	---	---	100
BP00009	0	0	0	---	0	0	0	0	0	0	---	---	---	---	---	---	100
BP00010	00	001	080	---	-0	-0	-0	-0	-0	-0	---	---	---	---	---	---	100
BP00011	00	001	080	---	-0	-0	-0	-0	-0	-0	---	---	---	---	---	---	100
BP00012	0	0	0	---	0	0	0	0	0	0	---	---	---	---	---	---	100
BP00013	0	0	0	---	0	0	0	0	0	0	---	---	---	---	---	---	100

IBM Performance Toolkit for VM
Resource Utilization Details for Selected User (GOLVMK4)

Interval 13:57:44-13:57:54, on 2006-09-11

Detailed data for user PERCOVE

Total CPU	0%	Storage dat	648D	Page fault rate	0/s
Superv CPU	0%	Residstat >OSB	?	Page read rate	0/s
Realist CPU	0%	Residstat >OSR	7781	Page write rate	0/s
WP total	0	Prcoy FBST	7682	Page missed >OSB	0/s
WP overhead	0	Reserved pag	0	Page > STORE	0/s
WP emulation	0	Locked pages	0	STORE > read	0/s
WP load rate	0/s	ESTORE deact	0	STORE > WCD	0/s
I/O rate	2/s	ESTORE pages	0	SMOOL pg read	0/s
DASD I/O rate	2/s	DASD state	0	SMOOL pg write	0/s
DR I/O rate	0/s	IOCV T-fee/s	2.8/s	EDC loadbit rate	0/s
Disp I/O	0/s	Share	3%	EDC I-O avoided	2/s
WSEDCIO	0/s	How share	...		

FL/I/O active : 0 Active : 108% PSW wait : 0% I/O act. : 0%
 Stashed bitc : 0 Page wait : 0% CF wait : 0% Eligible : 0%
 Stat : ESA.CDS.SIBW I/O wait : 8% Svc wait : 180% Runnable : 0%

Data Space Base

Base	Size	Node	PgD/s	PgR/s	IRD/s	IRW/s	Hg/s	Stal/s
BASE	648B	Prav	0	0	0	0	0	0

Device activity and status

Device	CL	CO	SI	NOB	RCPT	IOCC	254R	CL	A	EOF	NOE	NOBT
0009 3215	I					000E	241D	0	0	0	0	0
0010 254P	CL	A	CO	SI	NOB	RCPT	000E	241D	0	0	0	0
0150 3198	I	0009	RR	100Cyl	--->0		0101	1390	0	0	0	0
0150 2798	I	0009	RR	600Cyl	--->0		0102	1390	0	0	0	0
0156 3198	I	0010	RR	150Cyl	--->0		0103	1390	0	0	0	0
0200 2798	I	0009	RR	100Cyl	--->0		0201	1390	0	0	0	0
0200 3198	I	0010	RR	100Cyl	--->0		0202	1390	0	0	0	0

IBM Performance Toolkit for VM
Performance Details for a Single IO Device (GOLVMK4)

Interval INITIAL-13:59:40, on 2006-09-11

Detailed Analysis for Device AS07 | SYSTEM

Device type	3340-1	Func/Job desc	1/s	Device busy	8%
VOLLSE	254078	Disconnected	2/s	I/O contention	0%
Nr of LINKs	4	Connected	1/s	Reserved	0%
Last SEEK	1478	Service time	1.5/s	SENSE SENSE	...
SENSE ratio/s	0	Response time	1.5/s	Recovery SENSE	...
Recover/s	0	CD queue time	1/s	Tarotile del/s	...

Paths to device AS07 : EO EI
 Channel path status : ON ON

Device Details

Device	Device	Device	CP-Cache	Performance	Split						
IF	ADDR	WOLSE	I/O-S	NREAD	NROBIT	NHBIT	IOL-S	BYP-S	I/O-S	NREAD	NROBIT
EO	AS07	254078	1	0	0	110	0	0	1	0	0

SENSE Detect

Device	Device	Device	CP-Cache	Performance	Split						
IF	ADDR	WOLSE	I/O-S	NREAD	NROBIT	NHBIT	IOL-S	BYP-S	I/O-S	NREAD	NROBIT
EO	AS07	254078	1	0	0	110	0	0	1	0	0

Web Setup

2. Implement IUCV connection to TCPIP machine

- Decide on a TCP/IP port number to be used
- Update the PROFILE TCPIP on the TCPIP machine

PORT

.....

nn TCP PERFSVM NOAUTOLOG; Performance Toolkit for VM Internet Server

Or for SSL:

nn TCP PERFSVM NOAUTOLOG SECURE *filename/label*; Performance Toolkit for VM Internet Server SSL

.....

- Update FCONX \$PROFILE to activate the webserver interface

FC MONCOLL WEBSERV ON TCPIP TCPIP **nn** IDTEST CP

Or for SSL:

FC MONCOLL WEBSERV ON SSL TCPIP TCPIP 81 IDTEST RACF

SEE The PERFKIT book for more information on userid verification in the "Internet Interface" Section

- Activate the interface – Restart PERFKIT, you should see messages similar to:

FCXTCP571I Connected to TCP/IP server TCPIP on path 0004

FCXTCP575I Host IP address is 11.22.33.44:**nn**

FCXTCP590I WebServer interface activated

- Activate your web browser and select the URL for Performance Toolkit

<http://11.22.33.44:nn> or for SSL <https://11.22.33.44:nn>

Graphics

Graphics

PERFKIT Graphics include:

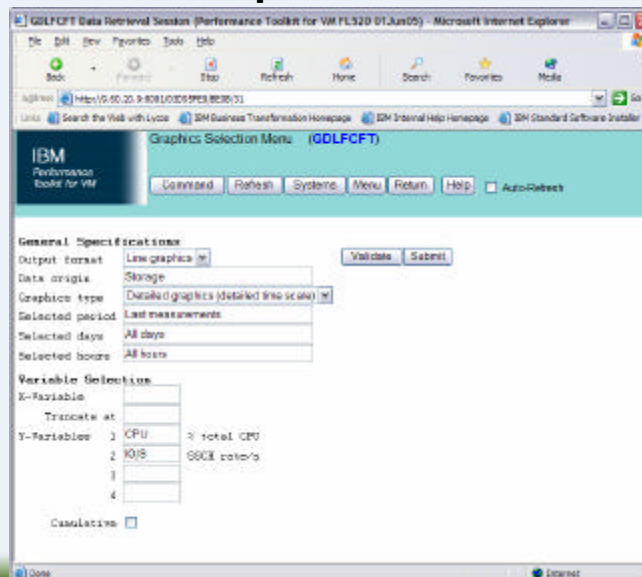
- PLOTS – using 3270 and characters like *, o, =, /
- GDDM Graphics – using 3270 and GDDM
- Browser – using your web browser

Graphs can be created from:

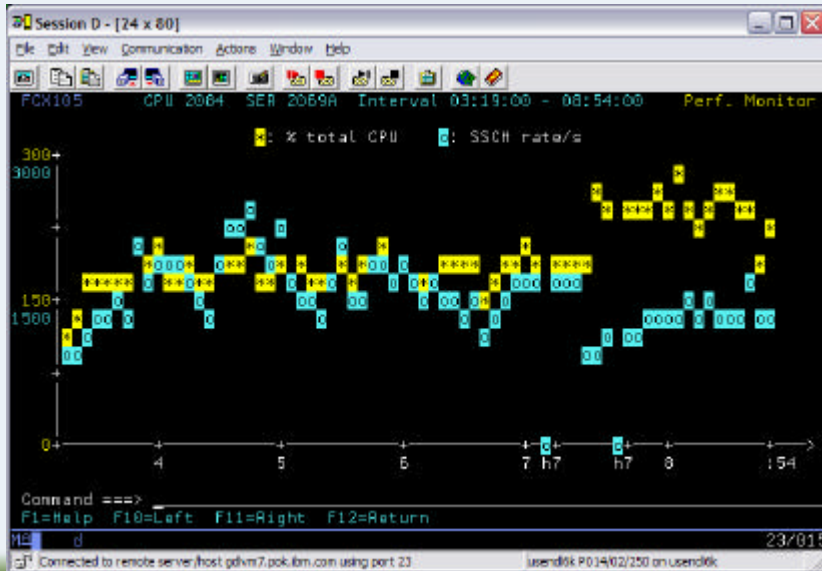
- Storage – using data just collected
- History Files – using data saved from an earlier time

Enter **GRAPHICS** from monitor mode or select option **31**

Graphics



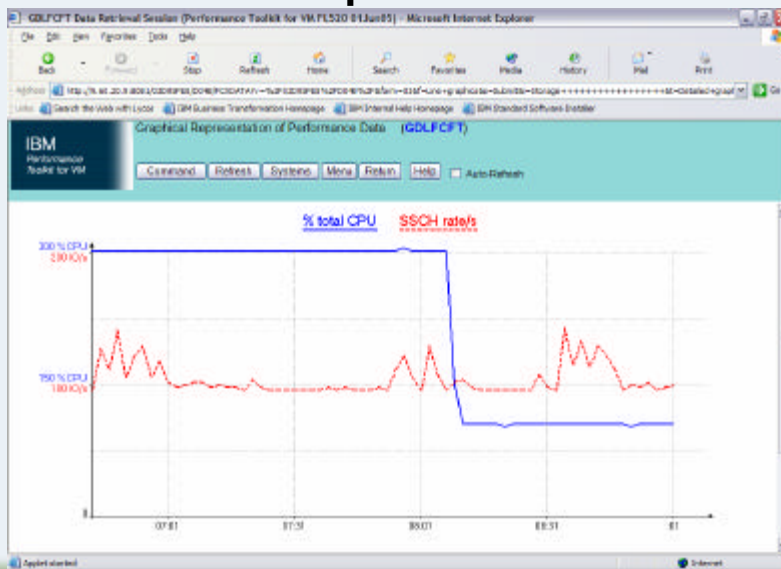
Graphics - PLOT



Graphics - GDDM



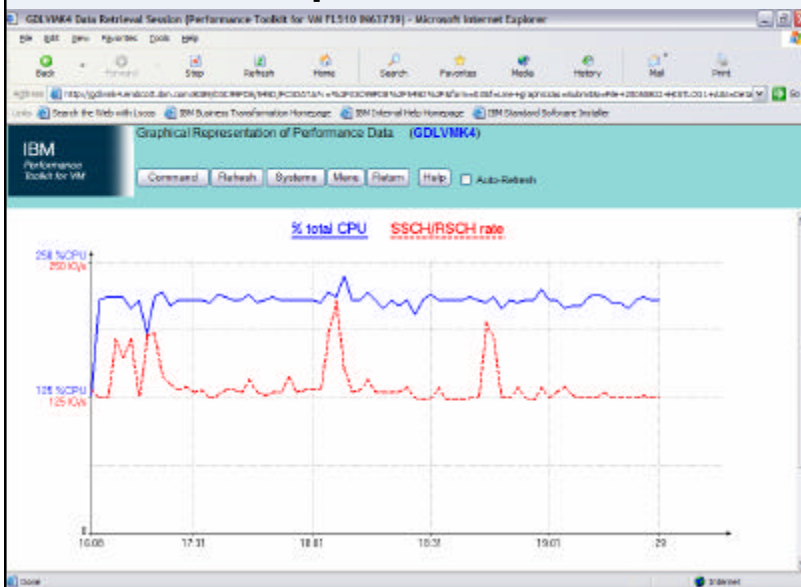
Graphics - WEB



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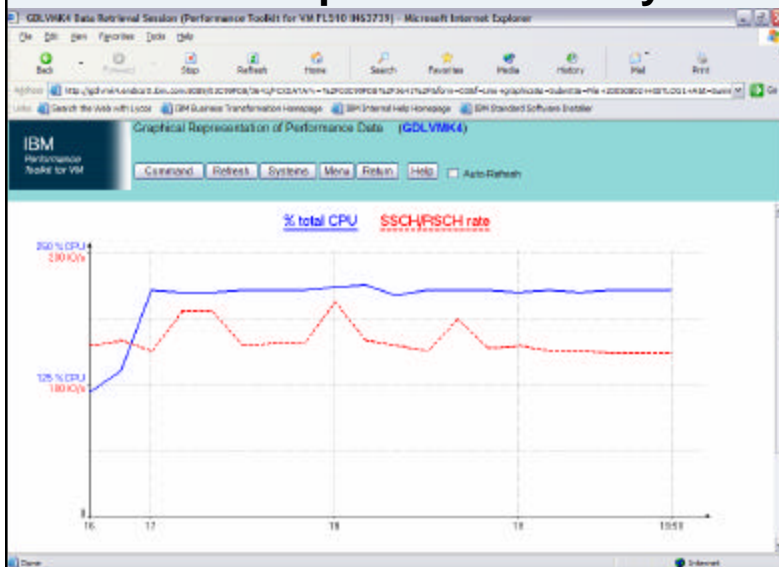
Graphics – Detailed



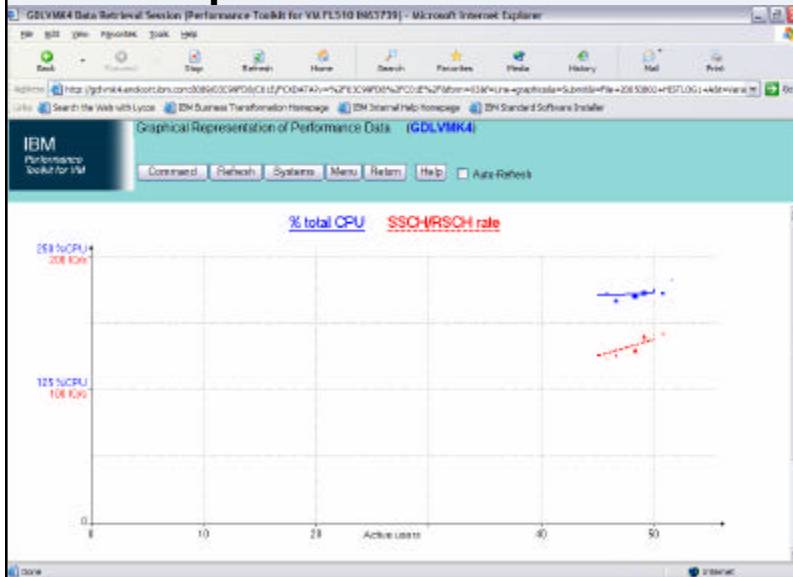
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Graphics - Summary



Graphics – Variable Correlation



Cumulative Graphs

IBM Performance Toolkit for VM

Graphics Selection Menu (GDLVWK4)

Command Refresh Systems Menu Return Help Auto Refresh

General Specifications

Output format:

Data origin:

Graphics type:

Selected period:

Selected days:

Selected hours:

Variable Selection

X-Variable:

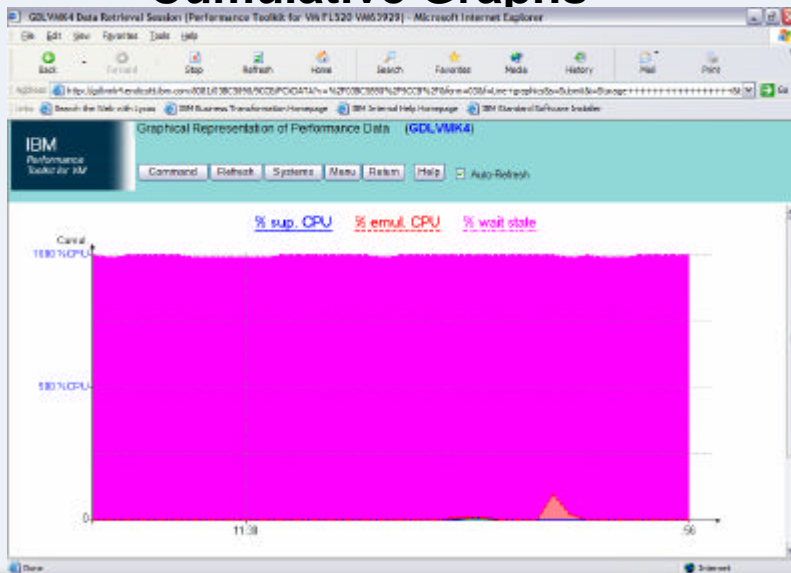
Truncate at:

Y-Variables:

1	%CPU	sup. CPU
2	%EM	emul. CPU
3	%WAIT	wait state
4		

Cumulative

Cumulative Graphs



Graphics - review

Option **31** or **GRAPHICS**

Select Format

- LINE for PLOT for WEB
- GDDM or PLOT for 3270

Select Data Origin

- Storage or history files

Select Type – Detailed, Summary or Correlation

Select Period, Days (ALL, M-F, MON ...), Hours

Select Variables – from pulldown or REDISP headings

Batch Processing

- **BATCH MODE**
 - PERFKIT BATCH masterfn masterft masterfm DISK fn ft fm
 - specify master file to use
 - specify MONDATA file to be used as input
- **VMPRF "migration aid" MODE**
 - PERFKIT VMPRF masterfn masterft masterfm DISK fn ft fm
 - specify VMPRF MASTER file to use
 - Creates masterfn FCXEQUIV file with PERFKIT REPORTS
 - Creates fn RUNFILE similar to VMPRF with PERFKIT Settings
- **Real time mode of operation**
 - Create REPORT, TREND, SUMMARY data throughout the day
 - using FC MONCOLL RESET settings in FCONX \$PROFILE
 - Use BATCH mode to post process as needed
 - Use MONSCAN or TRNDSCAN to "walk through" history data

Batch Mode – MASTER file

- **Input files**
 - SETTINGS FCONX SETTINGS *
 - REPORTS FCONX REPORTS *
 - SUMREC FCONX SUMREC *
 - TRENDREC FCONX TRENDREC *

Batch Mode – MASTER file

- **Output files**
 - LOG BATCH LOG B
 - LISTING BATCH LISTING B
 - RUNFILE BATCH RUNFILE B
 - SUMMARY BATCH SUMMARY B
 - TREND BATCH TREND B

BATCH SETTINGS file

- * Perfkit Settings File
- * Limit reduction to Noon to 15:45
FC MONCOLL RESET 12:00r_p 15:45p
- * Interim reports generated for every 15 minute period
FC SET INTERIM 15 MINUTES
- * The log-like reports show a row for every minute
FC SET BYTIME 1 MINUTES
- * Detailed reports (logs) for these users and devices
FC BENCHMRK USER BITNER

Perfkit feature levels

- **FL440 – with z/VM 4.4.0 – no longer in service**
 - First introduction
 - Mostly RTM replacement
- **FL510 – with z/VM 5.1.0**
 - Added BATCH mode
 - Mostly VMPRF replacement
 - Linux Appldata support
- **FL520 – with z/VM 5.2.0**
 - Mostly 64 bit
 - New/Changed reports for system execution space
- **FL530 – with z/VM 5.3.0**
 - New virtual network reports
 - New/changed reports for mixed engines
 - Passphrase support
 - Sharing data with OMEGAMON XE
 - Use of VMDUMPTL
 - Ship text

Performance Toolkit for VM FL440

- **z/VM Version 4.4 provides monitor data for**
 - Virtual Switch activity
 - VM Resource Manager operation
 - Processor type information
- **New Displays**
 - VSWITCH display
 - VMRM display with VM Resource Manager data
 - PROCSUM display
- **Modified Displays**
 - Processor type added on LPAR and LPARLOG displays

Performance Toolkit for VM FL510

- **LINUX APPLDATA support**
 - Use APPLDATA
 - Reduce dependence on RMF/DDS
- **VMPRF replacement function**
 - "BATCH" mode
 - "VMPRF" migration aid mode
- **Support new z/VM capability**
 - New report for SCSI devices
- **Web access thru Secure Socket Layer (SSL)**

Performance Toolkit for VM FL520

- **Changed Reports**
 - PAGELOG was split into PAGELOG, STORLOG, AVAILLOG
- **New Reports**
 - QEBSM, QEBSMLOG
 - UQDIO, UQDIOLOG
 - DEMANDLOG
 - SXS AVAIL, SXSPAGE, SXSDEFER, SXSUTIL

Performance Toolkit for VM FL530

- **Changed Reports**
 - CPU, LPAR, LPARLOG, PROCLOG, SCHEDLOG, SCSCONF
- **New Reports**
 - LOCKLOG
 - GVSWITCH, EVSWITCH
 - GVNIC, VNIC, EVNIC

Performance Toolkit for VM FL530 continued

- VMDUMPTL formatted dumps
- Shipping text files to reduce the size of the service packages
- WEB signon using DMSPASS for authentication with passphrase support
- FC MONCOLL SEGOUT used by OMEGAMON XE

References

- **General information**
 - <http://www.vm.ibm.com/related/perfkit/>
- **Performance Toolkit Book**
 - http://publibz.boulder.ibm.com/bookmgr_OS390/libraryserver/zvmv5r2/
- **Comparison to VMPRF**
 - <http://www.vm.ibm.com/related/perfkit/pkitprf.html>
- **Comparison to RTM**
 - <http://www.vm.ibm.com/related/perfkit/pkitrtm.html>
- **RMF PM setup information**
 - <http://www-1.ibm.com/servers/eserver/zseries/zos/rmf/rmfhtmls/pmweb/pmlin.htm>
- **Redbook:**
 - <http://www.redbooks.ibm.com/abstracts/sg246059.html>
- **Whitepaper: What's new in Performance Toolkit for VM in z/VM V5.1**
 - <http://www.vm.ibm.com/library/gm130637.pdf>

**THANK
YOU**