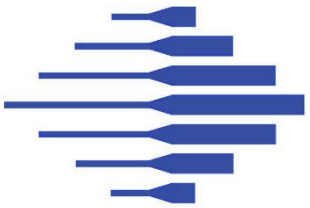


VELOCITY SOFTWARE

Long Term Performance Graphs

Tim Kessler

Capacity Graphs

- Long term graphs to analyze trends
- Daily, weekly, monthly and trending
  - Daily – One or 15 minute intervals
  - Trending - Daily, weekly and monthly
- Created during nightly ZMAP processing
  - Fast data retrieval and graphing
- Uses ESAEXTR
- Defined in ZMAP RUNCHART PARMS file
  - Samples provided
  - Some need customization

VELOCITY SOFTWARE

RUNCHART Velocity Software Inc. ZMAP PROD4245

RUNCHART PARMS Configuration

	Type	Days	Start	Stop	Extract	LPAR, Node or User name
Chart:	MINUTE	1	08:00	17:00	LCPUMIN	nodename
Chart:	MINUTE	1	08:00	17:00	LSTORMN	nodename
Chart:	MINUTE	1	08:00	17:00	LXSWAP	nodename
Chart:	MINUTE	1	08:00	17:00	LBLKIO	nodename
Chart:	DAILY	1	00:00	24:00	LPARCPUS	
Chart:	DAILY	1	00:00	24:00	LPARCPUS	lparname
Chart:	DAILY	1	00:00	24:00	UXACT	System:
Chart:	DAILY	1	00:00	24:00	UWAIT	username
Chart:	DAILY	1	00:00	24:00	LSTORE	nodename
Chart:	DAILY	1	00:00	24:00	CLASCPU	
Chart:	DAILYT	60	00:00	24:00	LPARCPUM	
Chart:	DAILYT	60	00:00	24:00	CLASCPU	
Chart:	WEEK	7	00:00	24:00	UXACT	System:
Chart:	WEEK	7	08:00	17:00	LCPU	nodename
Chart:	WEEK	7	08:00	17:00	CLASCPUP	
Chart:	WEEK	7	00:00	24:00	LPARCPUS	
Chart:	MONTH	31	00:00	24:00	UXACT	System:
Chart:	MONTH	31	*	*	LCPUM	nodename
Chart:	MONTH	31	*	*	LSTOREM	nodename
Chart:	MONTH	31	08:00	17:00	CLASCPUM	
Chart:	MONTH	31	00:00	24:00	LPARCPUM	
Chart:	MONTHT	24	00:00	24:00	LPARCPUM	
Chart:	MONTHT	24	00:00	24:00	CLASCPUM	
Chart:	NDAYS	31	*	*	LCPU	nodename
Chart:	NDAYS	31	*	*	LSTORE	nodename
Chart:	NDAYS	35	*	*	UDIO	username
Chart:	NDAYS	35	*	*	USTOR	username
Chart:	NDAYS	35	*	*	UCPU	username
Chart:	NDAYS	35	*	*	LPARCPUS	

PF1: Help PF2: Validate/Save PF3: Exit PF5: Add line PF6: Delete line
PF10: Default PF12: Cancel

Capacity Graphs

- Specify type
  - MINUTE, DAILY(T), WEEK(T), MONTH(T), NDAYS
  - T = Trending – Append to existing data
  - NDAYS = Last n days – history required
- Days
  - For trending and NDAYS specify number of days, weeks or months
- Start Stop
  - Specify time range or *

VELOCITY SOFTWARE

Capacity Graphs

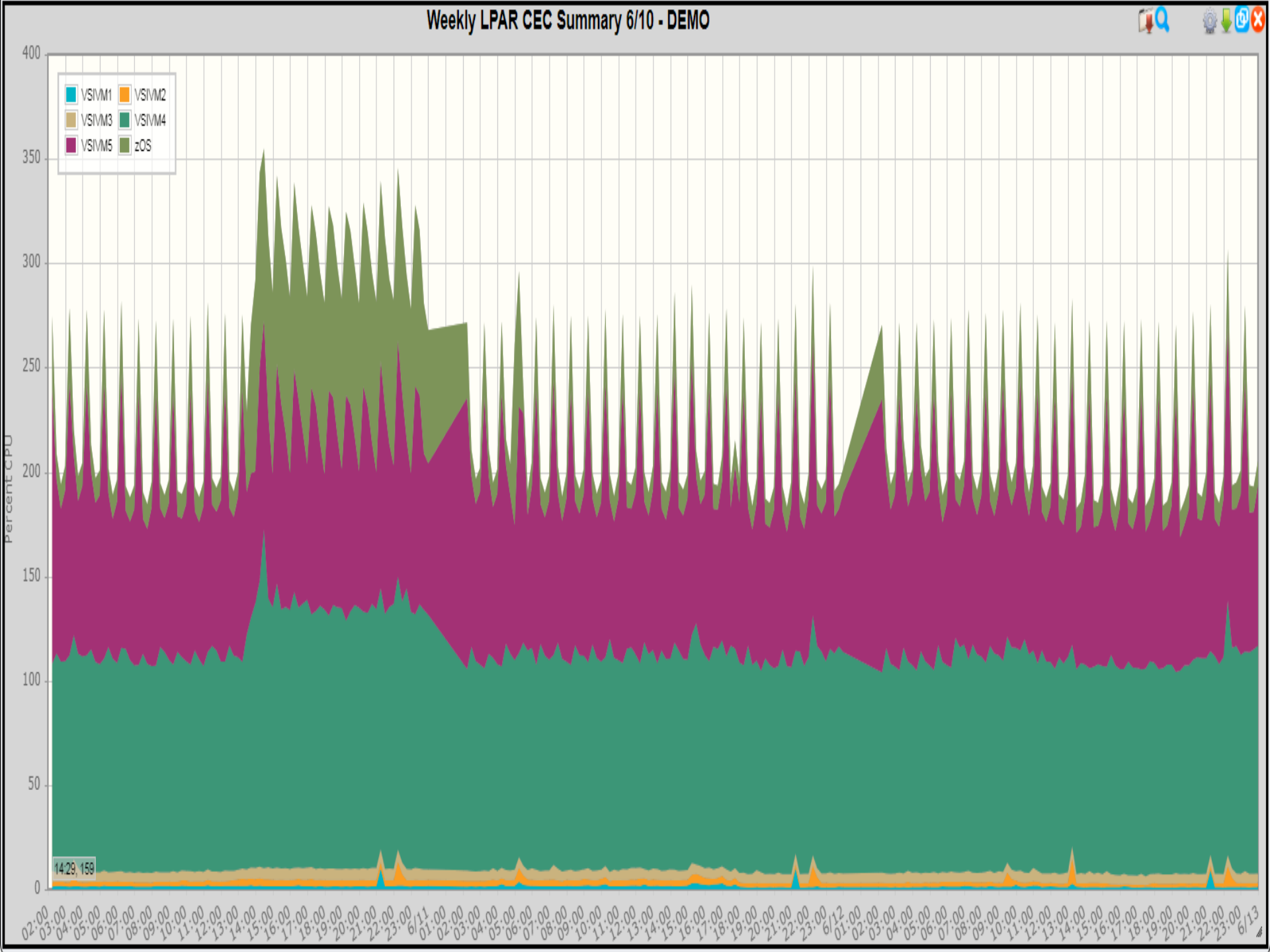
- EXTRACT
  - Name of ESAEXTR file
  - Names shown are shipped as samples
    - Documented in zVIEW manual
  - First letter significant
    - C = Class
    - L = Linux
    - P or LP = LPAR
    - U = User
  - zVIEW menu name (V5)
    - Inserted into RUNCHART PARMS with ZMAP installation

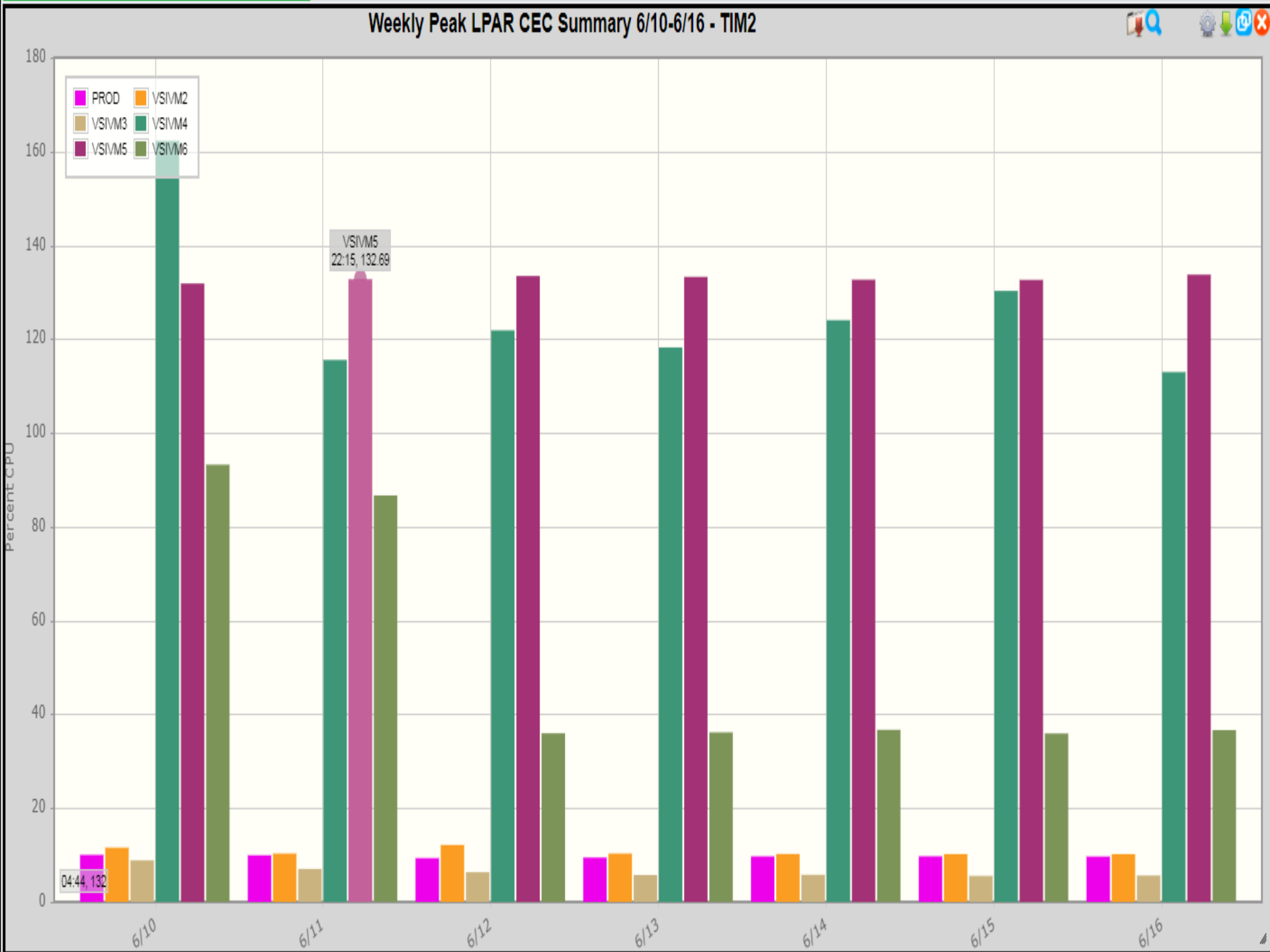
VELOCITY SOFTWARE

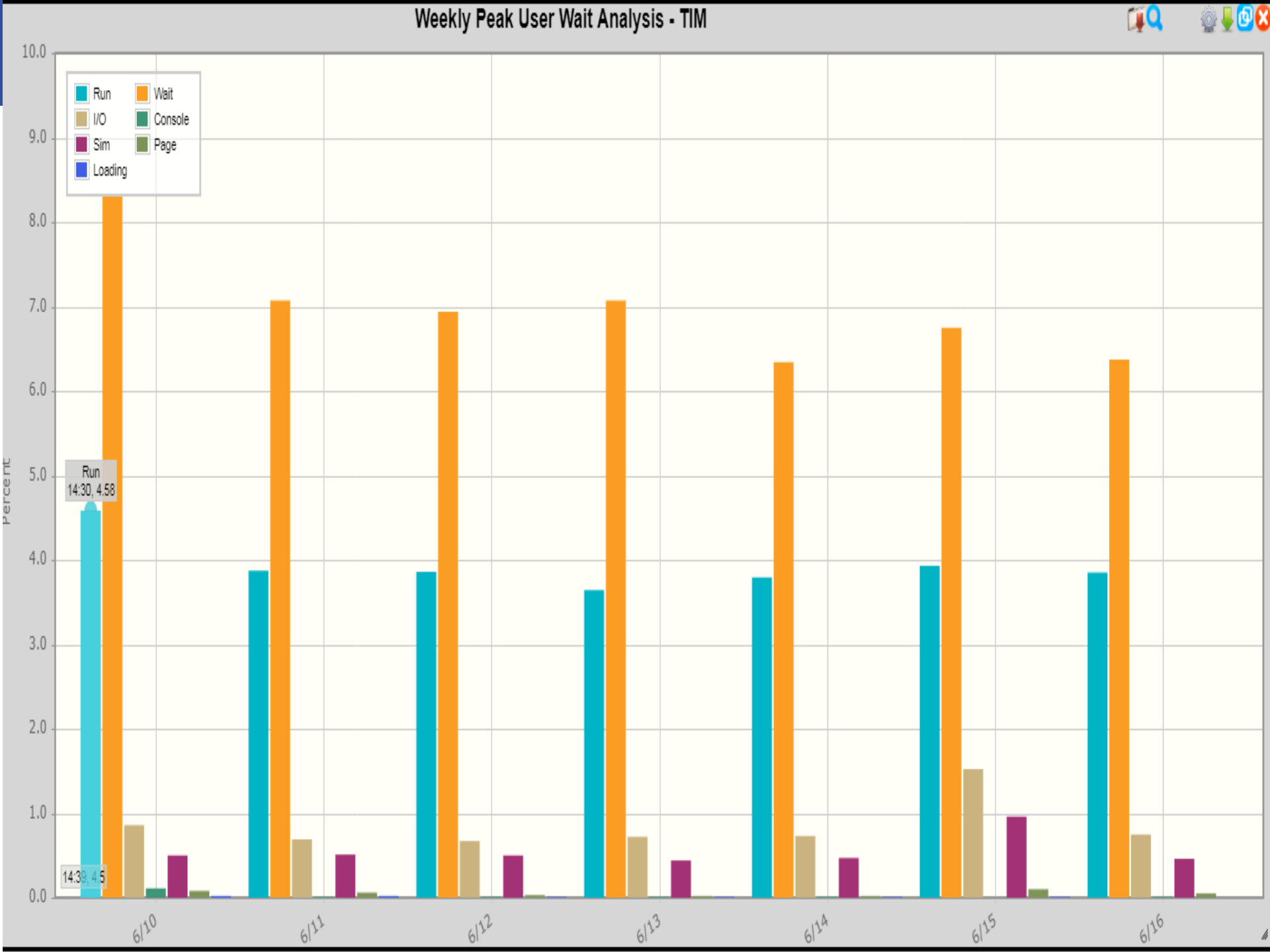
Capacity Graphs

- Parm
  - Restrict data to specific class, LPAR, node or user
  - Lowercase values must be specified
  - Graph multiple variables for one class,user,node or LPAR or one value for all classes, users, node or LPAR
  - Extracts with no parm value can be further restricted
    - * on end allowed for wildcard character
    - Graph limited to one variable
  - PEAK (V5)
    - Peak average for interval per day or graph interval
    - Peak value and time for each variable

VELOCITY SOFTWARE

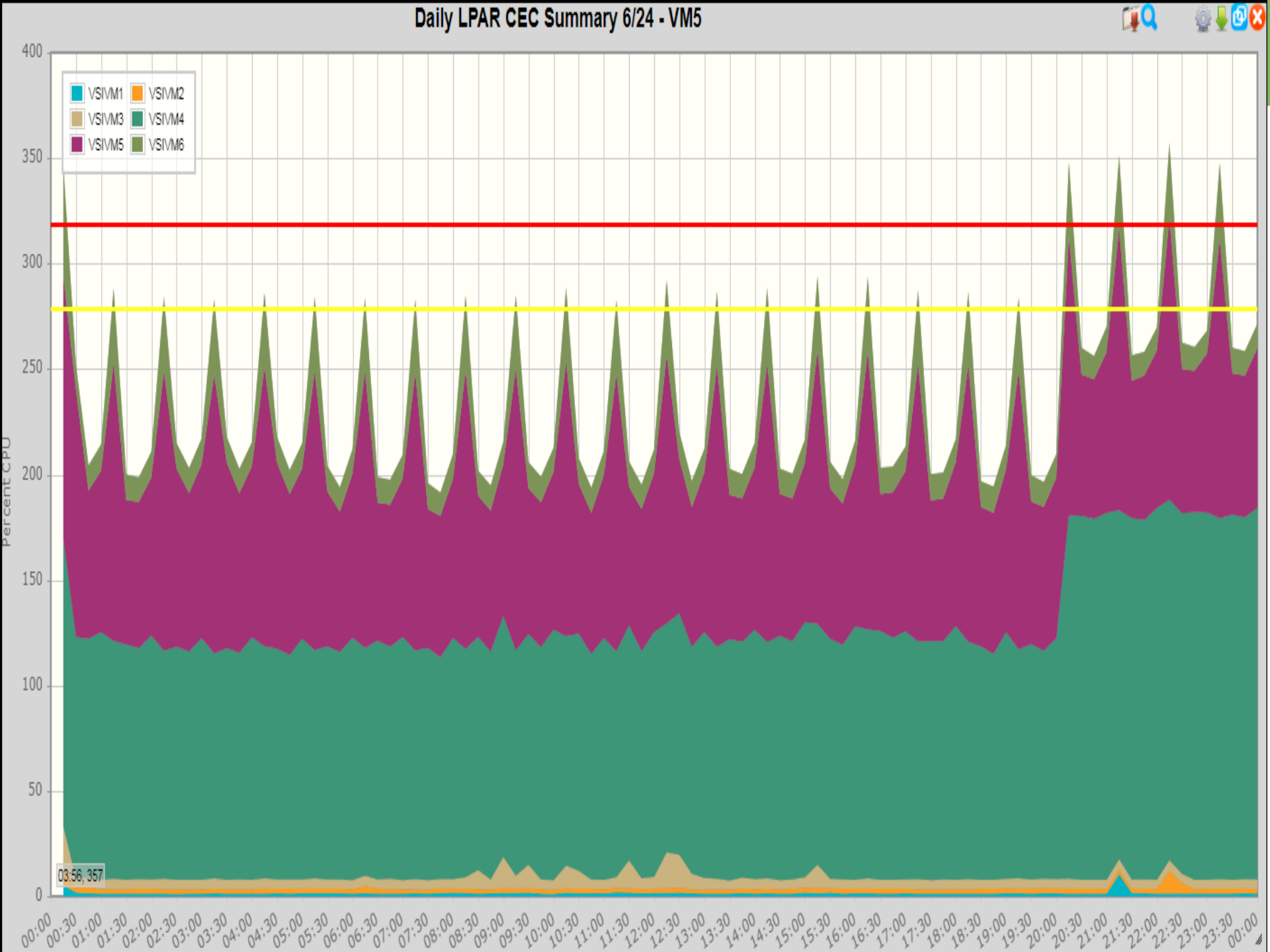

Weekly LPAR CEC Summary 6/10 - DEMO
VSIVM1
VSIVM2
VSIVM3
VSIVM4
VSIVM5
zOS
Percent CPU
400
350
300
250
200
150
100
50
0
14:29, 159
02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00 6/11 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00 6/12 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00 6/13


Weekly Peak LPAR CEC Summary 6/10-6/16 - TIM2
PROD
VSIVM2
VSIVM3
VSIVM4
VSIVM5
VSIVM6
VSIVM5
22:15, 132.69
04:44, 132
Percent CPU
180
160
140
120
100
80
60
40
20
0
6/10
6/11
6/12
6/13
6/14
6/15
6/16


Weekly Peak User Wait Analysis - TIM
Run
Wait
I/O
Console
Sim
Page
Loading
Percent
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
Run
14:30, 4.58
6/10
6/11
6/12
6/13
6/14
6/15
6/16

- Graph customization – ESAEXTR TITLE stmts
  - Variables specified in title
    - Start date and time, end date and time, and userid
    - *TITLE = 'LPAR CEC Summary &USERID &SDATE‘*
    - For ranges use *&sdate-&edate* and *&stime-&etime*
  - Graph type
    - Vertical and horizontal bar, stacked bar, area and stacked area, line
    - *TITLE = '*Type VBAR'*
  - Names for variables in legend
    - Multiple variables for one server
    - *TITLE = '*LABELS Run CPU_Wait Page_Wait I/O_Wait’*
  - Y axis label
    - *TITLE = '*Yaxis Percent'*

- Graph customization – TITLE *ZVIEW (V5)
  - *TITLE = '*ZVIEW directive'*
  - *YAXIS – Y axis scale range*
    - **ZVIEW YAXIS:0 200*
    - **ZVIEW YAXIS:0 NCPUS*100*
  - *Thresholds*
    - *Warning and critical values (yellow and red)*
    - **ZVIEW THRESHOLD:70 90*
  - *Others?*
    - *File name*
    - *Legend on/off*


Daily LPAR CEC Summary 6/24 - VM5
VSIVM1
VSIVM2
VSIVM3
VSIVM4
VSIVM5
VSIVM6
Percent CPU
400
350
300
250
200
150
100
50
0
03:56, 357
00:00
00:30
01:00
01:30
02:00
02:30
03:00
03:30
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04:30
05:00
05:30
06:00
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22:30
23:00
23:30
00:00

Capacity Graphs

- ESAEXTR Variables
  - Usually *X = 'STOPTIME'*
  - Single or multiple *Y = 'variable name'*
    - *Use ZMAP PDR or HISTORY KEYWORDS for variable names*
- *CRITERIA*
  - Optional and can have multiple
    - Treated as AND condition
  - *CRITERIA = 'SYTCUP.LCUPNAME ¬= Totals:'*
  - *CRITERIA = 'USRCON.CLASSID = &parm' (V5)*

VELOCITY SOFTWARE

Capacity Graphs

- INTERVAL
  - *INTERVAL = 'xx'*
  - IN for interval data (default)
    - Data points every 15 minutes
  - SU for summary data
    - Summarized intervals as follows:

      DAILY Hour
      DAILYT Day
      WEEK Day
      WEEKT Week
      MONTH Day
      MONTHT Month
    - Override in *extractname* ESAMAP file (base NDAYS ESAMAP)
      - *history_interval* parameter (seconds)
  - IN support for trending graphs (V5)

VELOCITY SOFTWARE

- Multiple EXTRACT: (V5)
  - Provides for OR conditions
  - All Y variables must be the same

```
EXTRACT:
TITLE = 'Users in Class &userid CPU - &SDATE'
X = 'STOPTIME'
Y = 'USERID'
Y = 'useact.vmdttime/seconds*100'   ; total cpu%
Criteria = 'USRCON.CLASSID = &parm'
CRITERIA = 'USERTYPE = USER'
INTERVAL = 'IN
EXTRACT:
X = 'STOPTIME'
Y = 'USERID'
Y = 'useact.vmdttime/seconds*100'   ; total cpu%
Criteria = 'USERID = SUSELNX2'
CRITERIA = 'USERTYPE = USER'
INTERVAL = 'IN'
```

Capacity Graphs

- Manually run on ZMAP
  - Test new capacity graphs
  - Catch up on old data
  - RUNCHART *charttype input extractname* debug
    - *charttype* – MINUTE, DAILY(T), WEEK(T), MONTH(T), NDAYS
    - *input* – (yyyy)mmdd, (yyyy)ww, (yyyy)mm, *
      - Default or * previous interval except MONTH(T) current month
      - DAILYT can use * to create initial trending days
    - *extractname* – File name of ESAEXTR file

- Make sure to LOG OFF ZMAP when finished!

VELOCITY SOFTWARE

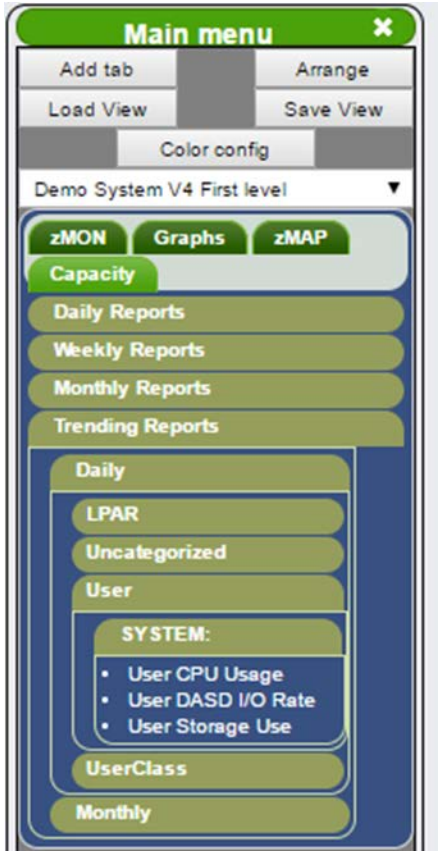
Capacity Graphs

- RUNAUTO PARMS – CHARTCNT
  - CHARTCNT 6 8 7 3 1
  - Number of monthly, weekly, daily, minute and ndays graphs to keep
- RUNAUTO PARMS – ADISKBLKS
  - Number of disk blocks to free before starting ZMAP run
  - Minimum 15,000
  - 20,000 if creating lots of capacity graphs
- If trending graphs important, backup ZMAP 191
- Complete documentation in zVIEW manual

VELOCITY SOFTWARE

Capacity Graphs

- Steps for capacity graphs
  - Identify resources you want to regularly monitor
  - Create ESAEXTR file
  - Update RUNCHART PARMS
  - Run ZMAP or wait until next day
    - Refresh (F5) zVIEW for new graphs
  - Select graphs in Capacity tab
  - Save as view
    - Relative dates in tab parms
      - Yesterday, Last business, Last week, Last month
    - Use URL to access view
  - Download (png, jpg, pdf) graphs



VELOCITY SOFTWARE


Monthly User Class CPU - DEMO
Monthly DASD I/O Rate 4/5-4/30 - DEMO
Per Second
ED0A ED0D ED0E ED0F ED03 ED12 ED13 0000
0150 0306 071B 071C 071D 072D 0720 0721
0727 0728 0729 073A 073B 073E 073F 0740
0741 0744 0745 0746 0747 0748 082F 0820
0833 0840 085B 0857 0860 0862 0865
Monthly Storage Use by Type 4/5-4/30 - DEMO
Megabytes
Fixed Nonpageable Free
Frame Avail <2G Avail >2G
Sys Ex Space User NSS/DCSS
Sys Addr Space User Addr Space VDisk
MDC Diag 98
Monthly User Class CPU - DEMO
Percent CPU
*TheUsrs KeyUser NCS
ORACLE REDHAT Servers
SUSE TheUsrs TEST
UBUNTU Velocity Web
ZIUC
Aug 16, 34

Questions ?