

Velocity in Nedbank

10 November 2014



GROUP TECHNOLOGY

A Very Short Story!



VELOCITY Software Inc.

z/VM, Enterprise Linux on System-z and Network Performance Monitoring is Velocity Software single focus point. This includes but not limited to performance monitor and capacity planning, all package in one solution.

The Question is why this is important for running Linux on System – z and why did Nedbank go this route?

This is not a demonstration of Velocity Software!



Legal Disclaimer.

To keep the lawyers happy!

I do this of my own free will. I do not work for Velocity, IBM, CA, SuSe, RedHat or any other Vendor that may be mentioned during this presentation. I do not get any Financial or any other reward from any of the vendors.



Why Performance / Capacity Management?

THE TRADITIONAL VIEW OF OPEN SYSTEMS:

- Open Systems traditional is application specific and not multiple Enterprise Applications in one environment.
- Outages are not necessary very visible and impact is minimized.
- Open System's Capacity is as a rule very under-utilized – I am going to get clobbered!
- Resources are not normally shared – little interference.
- Capacity Planning is normally re-active or done via Procurement.
- Monitoring tools is only for recreational purposes!



Why is it different running Linux on z/VM:

- Resources (CPU, Memory, I/O, Networks) are all shared – well except disk platters!
- Resources utilized to the maximum, we strive to burn the Capacity!
- Allocation is normally from Development to Production.
- Nedbank currently 239 Guest, 417 Virtual CPU's on 12 x Physical IFL's. Everybody is waiting for something to go wrong!
- Abuse by one server can impact others – Discipline, Discipline, Discipline!



Nedbank Background

- Nedbank started the journey to running Linux on System-z in 2010 with a POC running SuSe guests on a z/VM.
- The main aim was consolidation of our middleware environments – specific core consolidation / reduction - thus licencing consolidation / reduction.
- However before the final decision was made, SuSe / Novell got taken over by a consortium (the word Microsoft is mentioned). Nedbank select Enterprise RedHat Linux.
- For the initial implementation of z/VM we did what everybody did – cherry pick from the IBM z/VM “Smarties” box. We chose the blue “Smarties” – IBM Performance Monitor. Very good IBM Salesmen.
- Immediately we saw an issue, Performance monitor cannot give us a single view from the z-Server level down to the guest level.
- Everybody started to his own preferred Linux tools e.g. SAR, TOP, NMON!
- The final straw was BMC’s BCO agent pricing. Mad!
- Chaos of note!



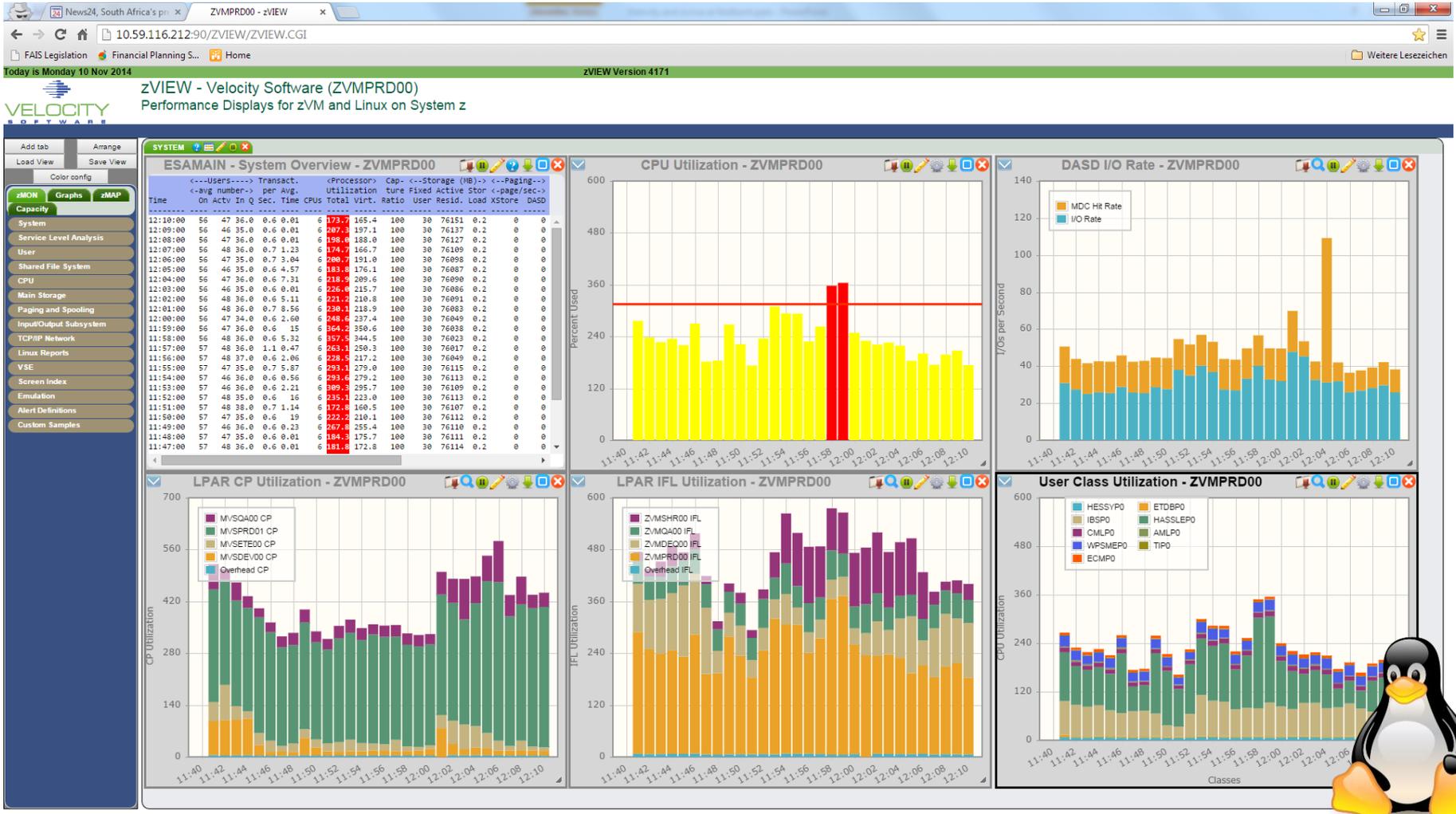
Velocity & Nedbank

- We were in desperate situation to address the issues around Performance Monitoring and Capacity Planning for the Entire Enterprise Linux environment at Nedbank.
 - We did what everybody do, I think – Asked Klaus Bergmann!
 - He put us in touch with Velocity. Skype workshops followed with Velocity.
 - On Nedbank's visit to IBM Böblingen Labs early 2013, we saw a Velocity used within IBM's own Linux environments. That sold it.
 - Although CA in South Africa also supply Velocity we decided to acquired directly from Velocity Inc. Massive legal issues later, but we licenced with Velocity Inc. directly during October 2013.
-
- What make Velocity so special?



Why Velocity?

- Well it works for the youngsters!



Why Velocity?(continue)

- But the best is it works for the young by hart – Stuff that works!

```
ZVMPRD00 - EXTRA! X-treme
File Edit View Tools Session Options Help
Screen: ESAUSP2 Velocity Software          ESAMON 4.133 11/10 12:12-12:13
1 of 3 User Percent Utilization          CLASS * USER *          2827 88DF6

<-----Main Storage----->
Time      UserID  <Processor> <Resident-> Lock <-WSSize-->
----- /Class  Total  Virt  Total  Actv  -ed  Total  Actv
_12:13:00 System:    168    164    27M    20M   3225    27M    19M
ZWPSP003  57.00  56.45  3519K  1759K    79  3518K  1759K
ZBPBFD3  25.74  24.43  3101K  1551K   107  3101K  1551K
ZBPBFS1  18.72  18.17  3883K  1941K    80  3883K  1941K
ZPSOAPS1 16.82  16.59  2579K  1289K    79  2579K  1289K
CMLPPOS0  8.74   8.52   213K   213K   110   213K   213K
ZPECMDB1  6.47   6.38  1380K   690K    80  1380K   690K
ZPAMLWN1  5.14   5.05   732K   732K    78   732K   732K
ACKBAR    4.29   4.21   130K   130K    78   130K   130K
ZBPBFHT1  3.98   3.94   115K   115K    78   115K   115K
ZWPSP001  3.34   3.28  2316K  2316K    78  2316K  2316K
ZBPBFED1  2.40   2.36   118K   118K    78   118K   118K
ZPSOADB1  2.10   1.99   393K   393K    78   393K   393K
ZDB2P003  1.75   1.72   524K   524K    94   524K   524K

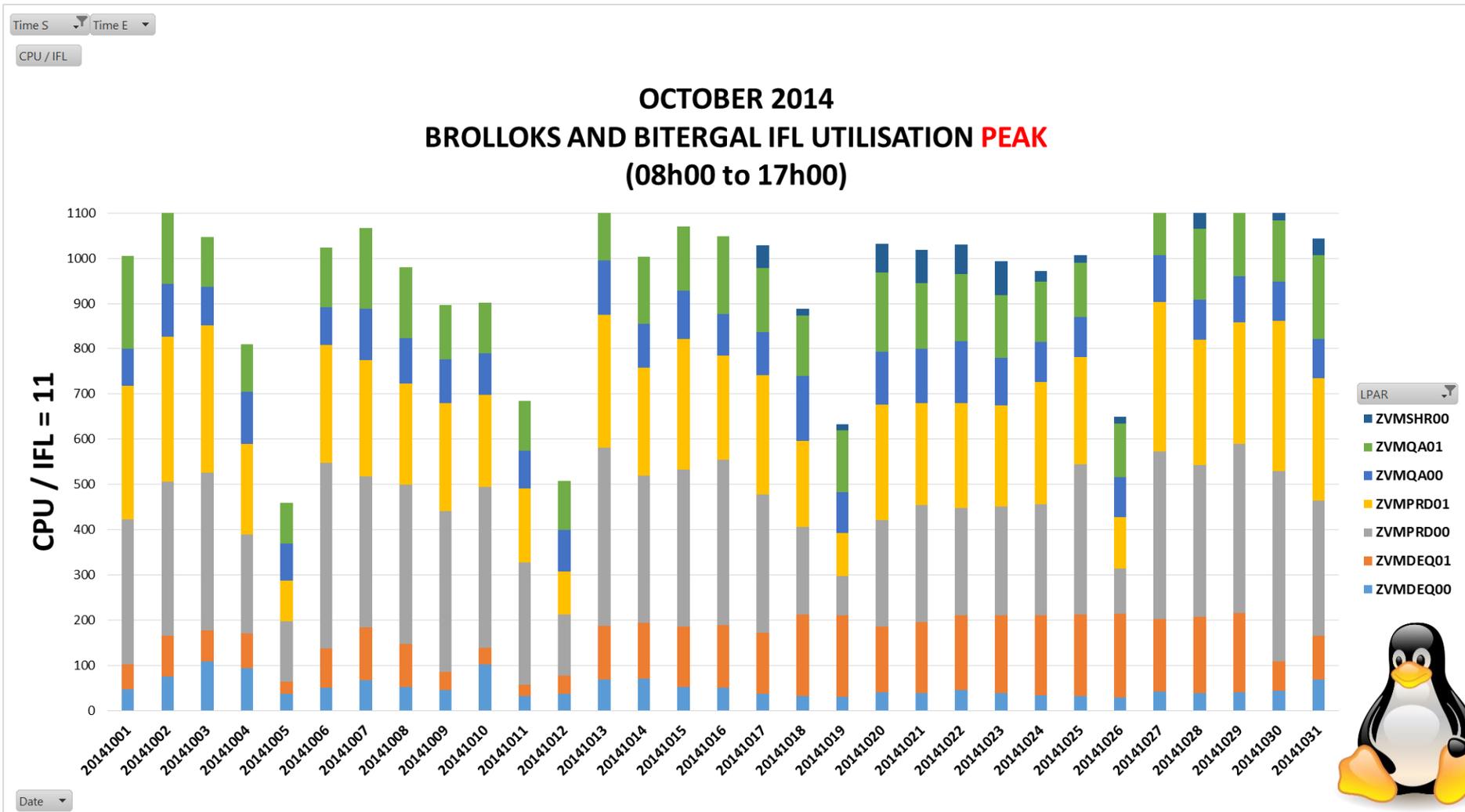
PF1=Help      PF2=Zoom      PF3=Quit      PF4=Select    PF5=Plot      PF6=ESAUSR2
PF8=Forward   PF9=Sort      PF10=Parms    PF11=More     PF12=Cancel

====>
[4]B :00.3 08/01
```



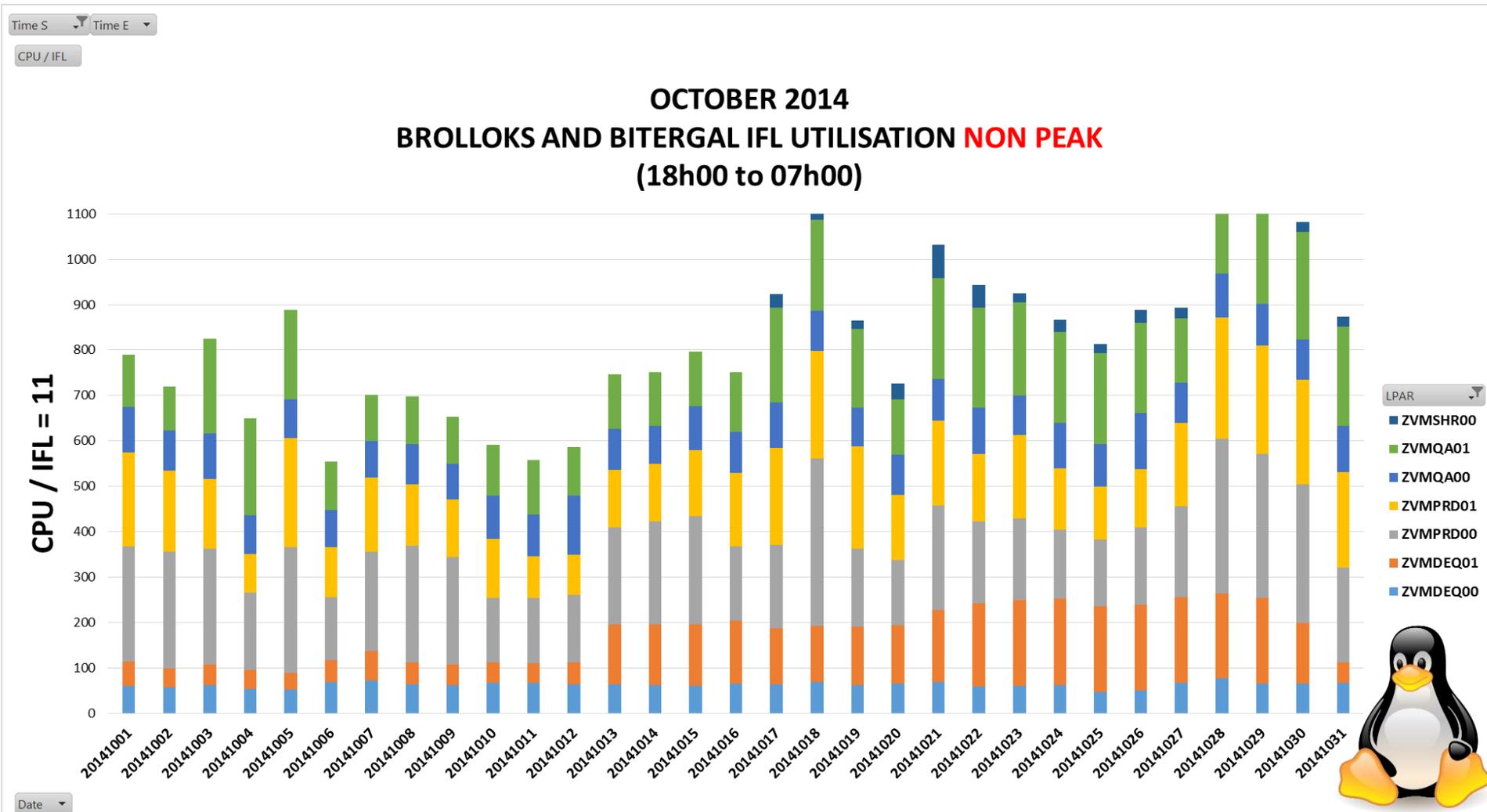
Why Velocity?(continue)

- It Works for Capacity Planning - CEC / LPAR Level – IFL utilisation Peak.



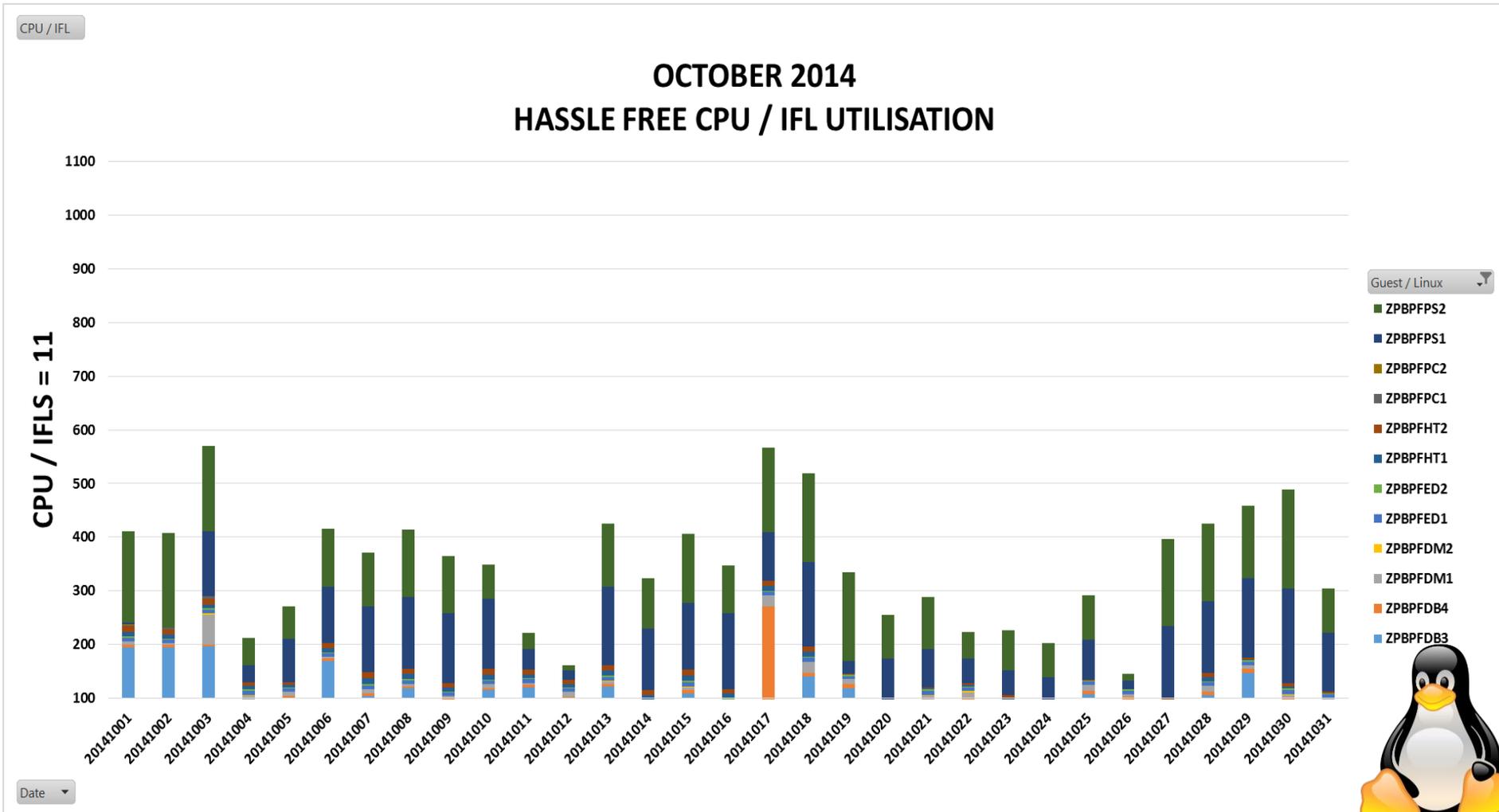
Why Velocity?(continue)

- It Works for Capacity Planning - CEC / LPAR Level – IFL utilisation Non Peak.



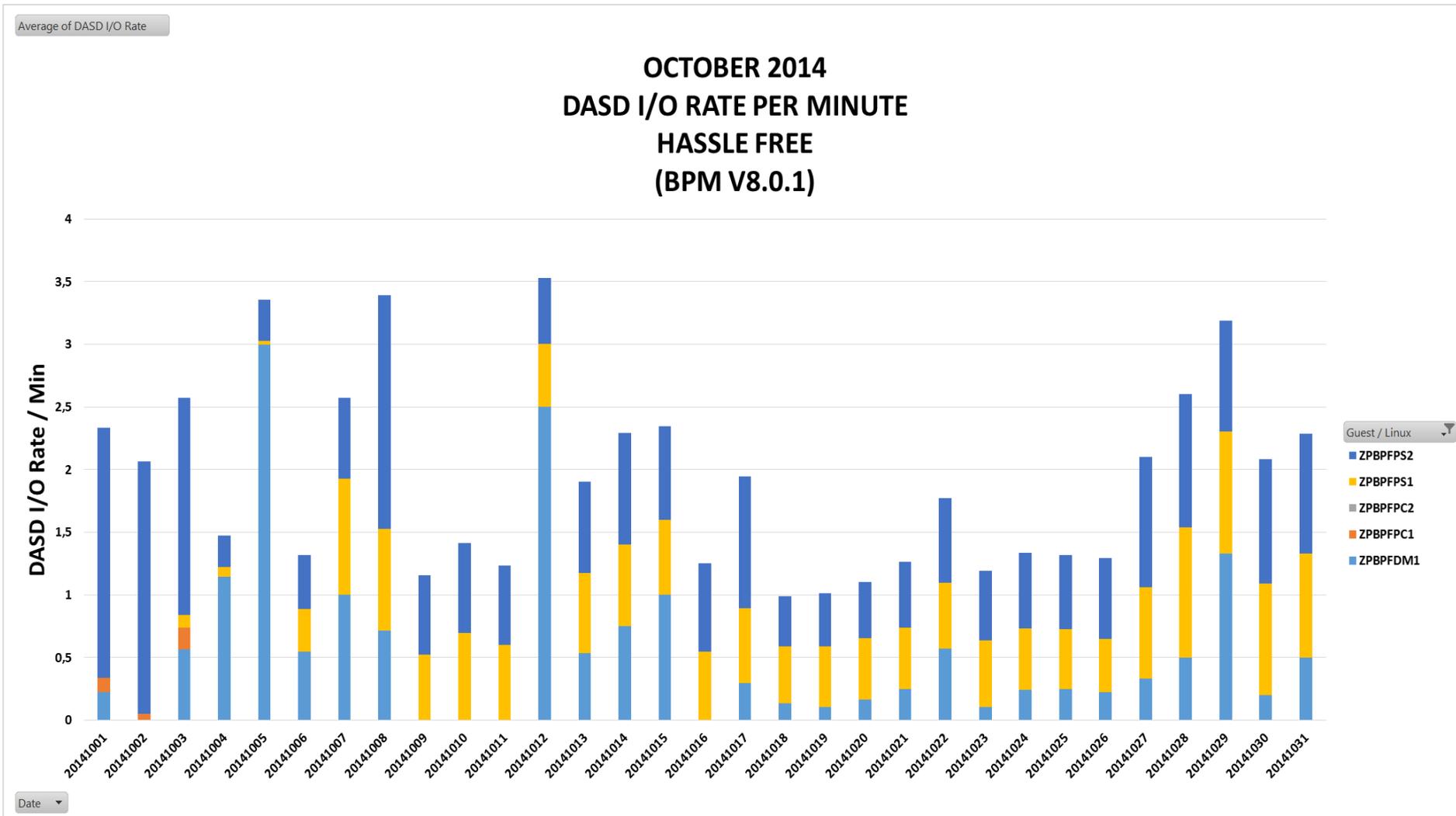
Why Velocity?(continue)

- It Work for Capacity Planning at Linux Guest Level.



Why Velocity?(continue)

- Multiple aspects of environment is monitored.



Why Velocity?

- Performance Management – What happened yesterday at 13:00?

```
ZVMPRD00 - EXTRA! X-treme
File Edit View Tools Session Options Help
Screen: ESAUSP2 Velocity Software
1 of 3 User Percent Utilization
ESAMON 4.133 11/07 12:45-15:00
CLASS * USER * 2827 88DF6

<-----Main Storage----->
Time UserID <Processor> <Resident-> Lock <-WSSize-->
/Class Total Virt Total Actv -ed Total Actv
-----
_13:00:00 System: 352 346 19M 13M 3254 22M 15M
ZPBPFPS1 152 150 3527K 1764K 80 3932K 1966K
ZWPSP003 79.41 78.79 3542K 1771K 79 4274K 2137K
ZPBPFDB3 45.54 43.67 2281K 1141K 101 2751K 1376K
ZPSOAPS1 19.19 18.93 1854K 927K 80 2242K 1121K
CMLPPOS0 11.98 11.78 73149 73149 110 94760 94760
ZPECMDB1 6.69 6.59 257K 128K 79 327K 163K
ZPBPFED1 5.28 5.25 61874 61874 78 66378 66378
ACKBAR 4.06 4.04 57035 57035 78 57777 57777
ZPSOADB1 2.66 2.54 122K 122K 73 147K 147K
ZPAMLWN1 0.85 0.84 122K 122K 21 148K 148K
ZTCP 0.08 0.07 591 591 1 637 637
SFSZVPS 0.07 0.04 121 121 1 138 138
TCPIP 0.07 0.04 1130 1130 702 428 428

PF1=Help PF2=Zoom PF3=Quit PF4=Select PF5=Plot PF6=ESAUSR2
PF7=Backward PF8=Forward PF9=Sort PF10=Parms PF11=More PF12=Cancel
====>
[4]B :00.1 08/0
```



Why Velocity?

- Performance Monitor – What happened this morning at 10:00 with BPM?

```
ZVMPRD00 - EXTRA! X-treme
File Edit View Tools Session Options Help
Screen: ESAUSP2 Velocity Software
1 of 3 User Percent Utilization
ESAMON 4.133 11/10 09:00-13:19
CLASS HASSLEP0 USER 2827 88DF6

<-----Main Storage----->
Time UserID <Processor> <Resident-> Lock <-WSSize-->
/Class Total Virt Total Actv -ed Total Actv
-----
10:02:00 ZBPFFPS1 112 109 3889K 1945K 80 3889K 1945K
ZBPFFDB3 73.14 69.37 3102K 1551K 97 3102K 1551K
ZBPFFHT1 6.05 6.00 131K 131K 78 131K 131K
ZBPFFED1 2.63 2.57 114K 114K 78 114K 114K
10:01:00 ZBPFFPS1 99.56 97.40 3889K 1945K 80 3889K 1945K
ZBPFFDB3 58.61 55.70 3102K 1551K 85 3102K 1551K
ZBPFFHT1 4.27 4.23 131K 131K 78 131K 131K
ZBPFFED1 2.59 2.53 114K 114K 78 114K 114K
10:00:00 ZBPFFPS1 130 127 3889K 1945K 80 3889K 1945K
ZBPFFDB3 72.98 69.41 3102K 1551K 174 3102K 1551K
ZBPFFHT1 5.51 5.46 131K 131K 78 131K 131K
ZBPFFDM1 4.09 4.06 904K 904K 78 904K 904K
09:59:00 ZBPFFPS1 148 145 3889K 1945K 80 3889K 1945K
ZBPFFDB3 97.98 93.68 3102K 1551K 86 3102K 1551K

PF1=Help PF2=Zoom PF3=Quit PF4=Select PF5=Plot PF6=ESAUSR2
PF7=Backward PF8=Forward PF9=Sort PF10=Parms PF11=More PF12=Cancel
====>

4B :00.1 04/
Connected to host 10.59.116.212 Keys: 155169 Saved: 0199 NU
```



Why Velocity?(continue)

- Network view – We said that it can handle the Network also!

```
ZVMPRD00 - EXTRA! X-treme
File Edit View Tools Session Options Help
Screen: ESAVSW Velocity Software ESAMON 4.133 11/10 13:09-13:26
1 of 3 Virtual Switch Utilization VSWITCH 0000-FFFF 2827 88DF6

Time Dev Sys Switch- F Time <-Bytes--> <Packets >
      No. ID name V Secs </ Second> </ Second>
-----
13:26:00 A710 3E48 PRDSWTH2 8 300 VSPCTRL1 178 332 1 1
13:26:00 A70A 3E42 TSMSWTH 8 300 VSPCTRL1 11346 921K 157 630
13:26:00 A61A 3E32 PRDSWTH3 8 300 DTCVSW2 0 0 0 0
13:26:00 A60C 3E24 PRDSWTH2 8 300 VSPCTRL3 0 0 0 0
13:26:00 A606 3E1E PRDSWTH 8 300 VSPCTRL2 0 0 0 0
13:26:00 A510 3E08 PRDSWTH1 8 300 VSPCTRL4 0 0 0 0
13:26:00 A506 3DFE PRDSWTH3 8 300 VSPCTRL1 10 6 0 0
13:26:00 A110 3D88 PRDSWTH1 8 300 VSPCTRL1 2306 5371 14 15
13:26:00 A01A 3D72 TSMSWTH 8 300 DTCVSW1 0 0 0 0
13:26:00 A010 3D68 PRDSWTH 8 300 VSPCTRL1 4392K 4M 5737 5514
13:25:00 A710 3E48 PRDSWTH2 8 300 VSPCTRL1 264 409 2 1
13:25:00 A70A 3E42 TSMSWTH 8 300 VSPCTRL1 8333 601K 109 413
13:25:00 A61A 3E32 PRDSWTH3 8 300 DTCVSW2 0 0 0 0
13:25:00 A60C 3E24 PRDSWTH2 8 300 VSPCTRL3 0 0 0 0

PF1=Help PF3=Quit PF4=Select PF5=Plot PF6=Reset
PF8=Forward PF9=Sort PF10=Parms PF11=More PF12=Cancel

====>
[4B] :00.1 08/0
Connected to host 10.59.116.212 Keys: 155201 Saved: 0199 NUM
```



Why Velocity?(continue)

- One Product for z/VM, Linux guests and Networks.
- Do not utilize huge amounts of CPU (< 1%) to capture the data.
- View from CEC and LPAR Level – Chopper View.
- Devil is in the detail – Drill down to the relevant server view.
- Big benefit as Velocity give the real CPU utilisation CEC, LPAR and Guest level, represented as % of Real IFL utilisation. This is a huge benefit as it give a normalized utilisation profile across all.
- Standard Capacity Planning reports – Daily, Weekly & Monthly.
- History capabilities – One Minutes Interval within 24 hours. Fifteen Minutes interval after 24 Hours.
- Automated Alerts on performance thresholds and even include Linux File System utilisation.
- Exceptional support – Really very-very exceptional support that includes Capacity Planning and help on interpretation.



Questions???

I Told you it is a short story!

