

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!

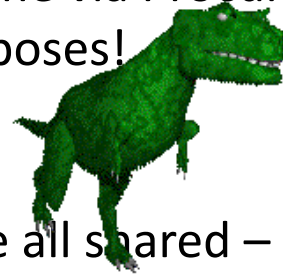
I do this of my own free will. I do not work for Velocity, IBM, CA, SuSe, RedHat or any other Vendor that may be mentioned during this presentation. I do not get any Financial or any other reward from any of the vendors.



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!



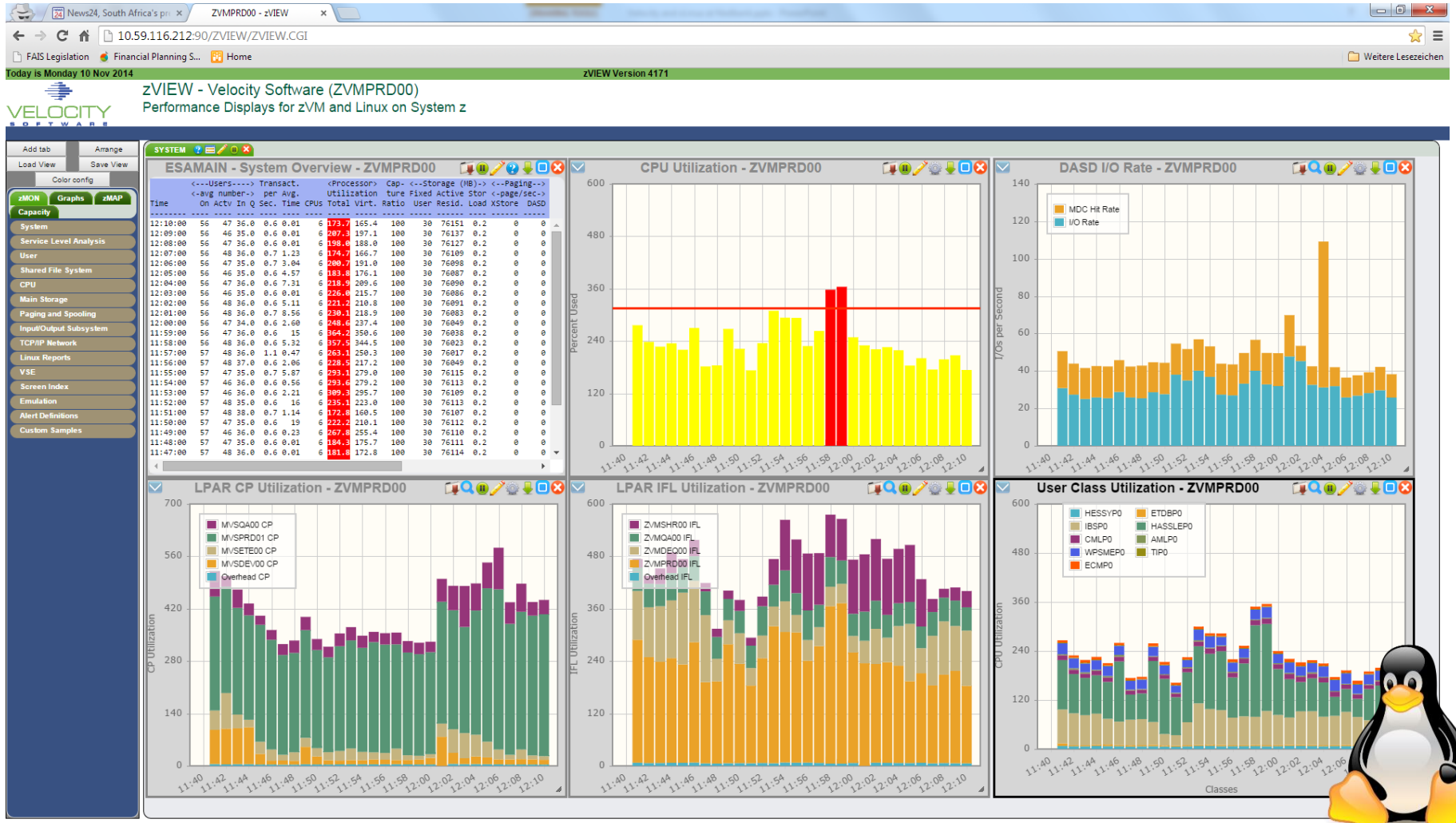
Velocity & Nedbank

- 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!

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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

Time      UserID  <Processor>  <-----Main Storage----->
          /Class  Total  Virt  <Resident->  Lock <-WSSize-->
          -----  -----  -----  -----  -----  -----
_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
          ZBPBFP1   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

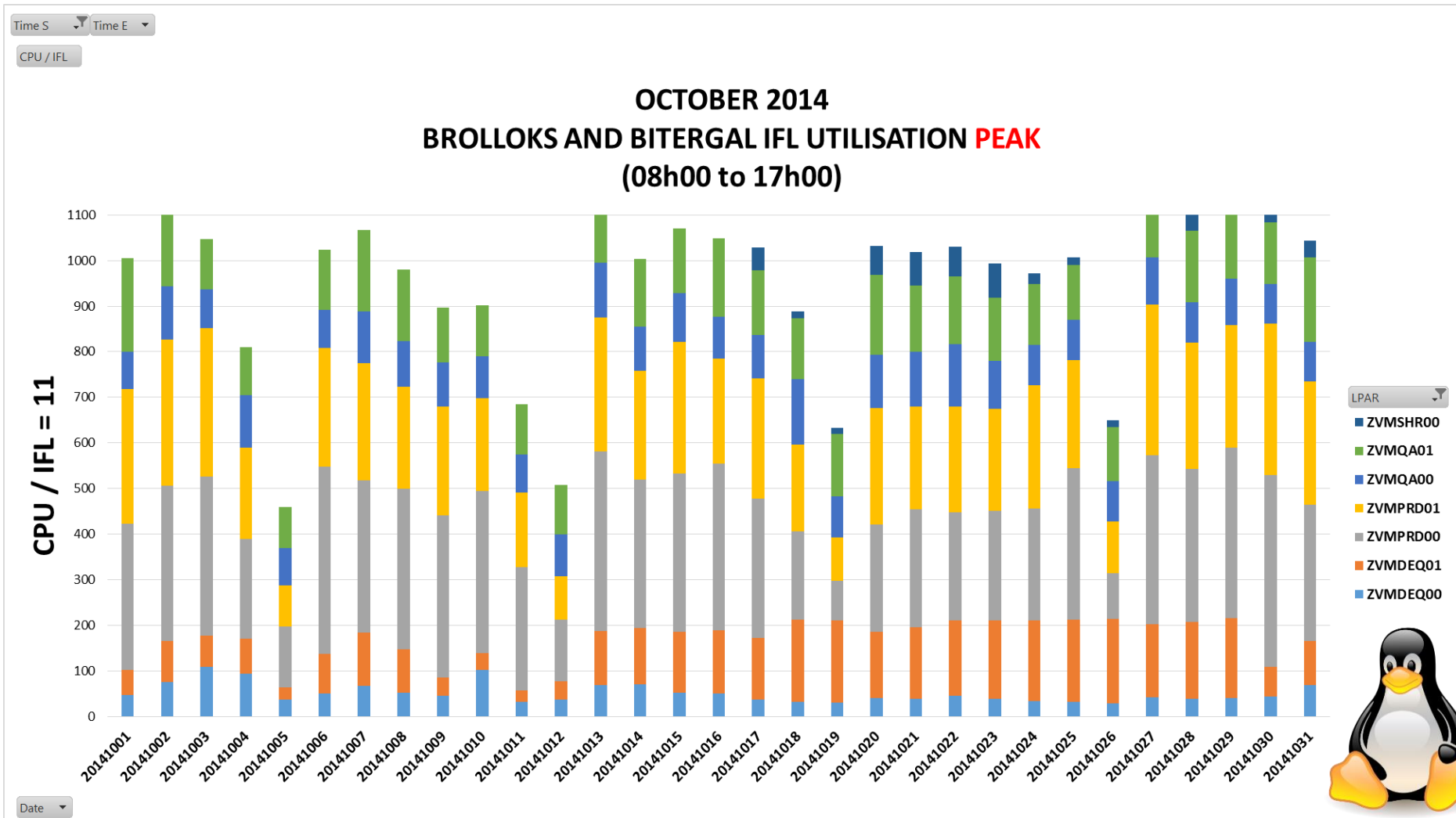
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PF8=Forward    PF9=Sort      PF10=Parms    PF11=More     PF12=Cancel

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[4]B  :00.3 08/01
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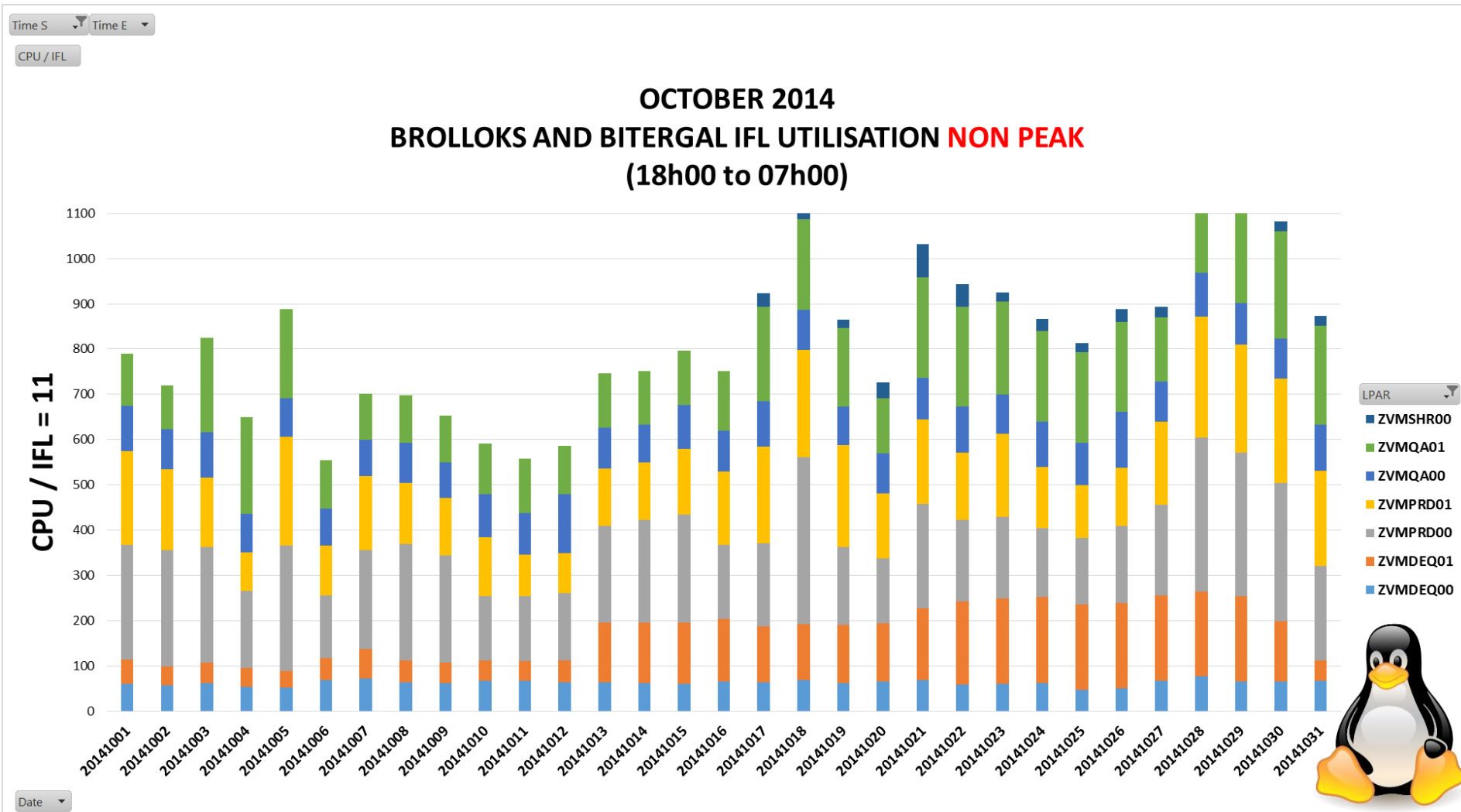
Why Velocity?(continue)

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



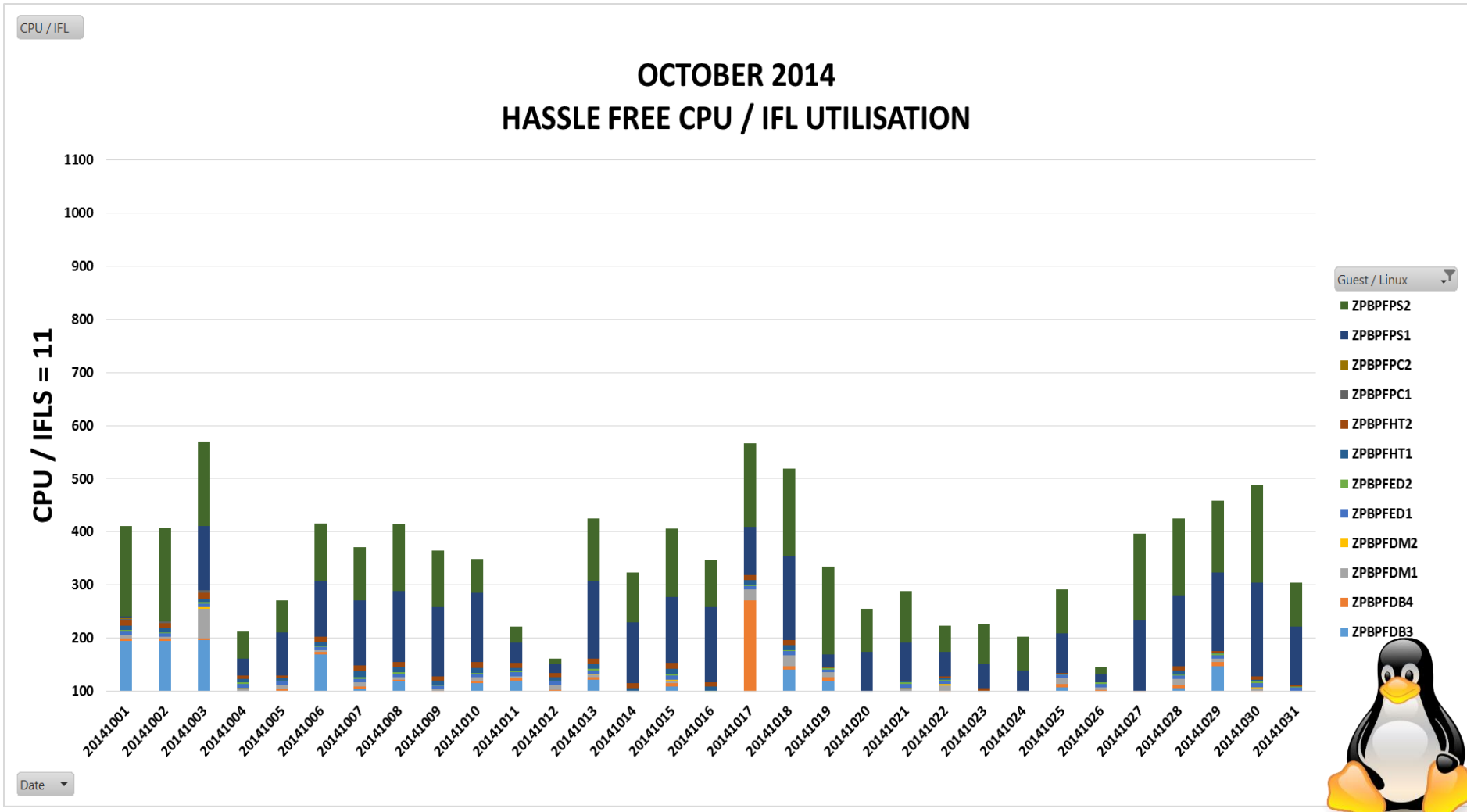
Why Velocity?(continue)

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



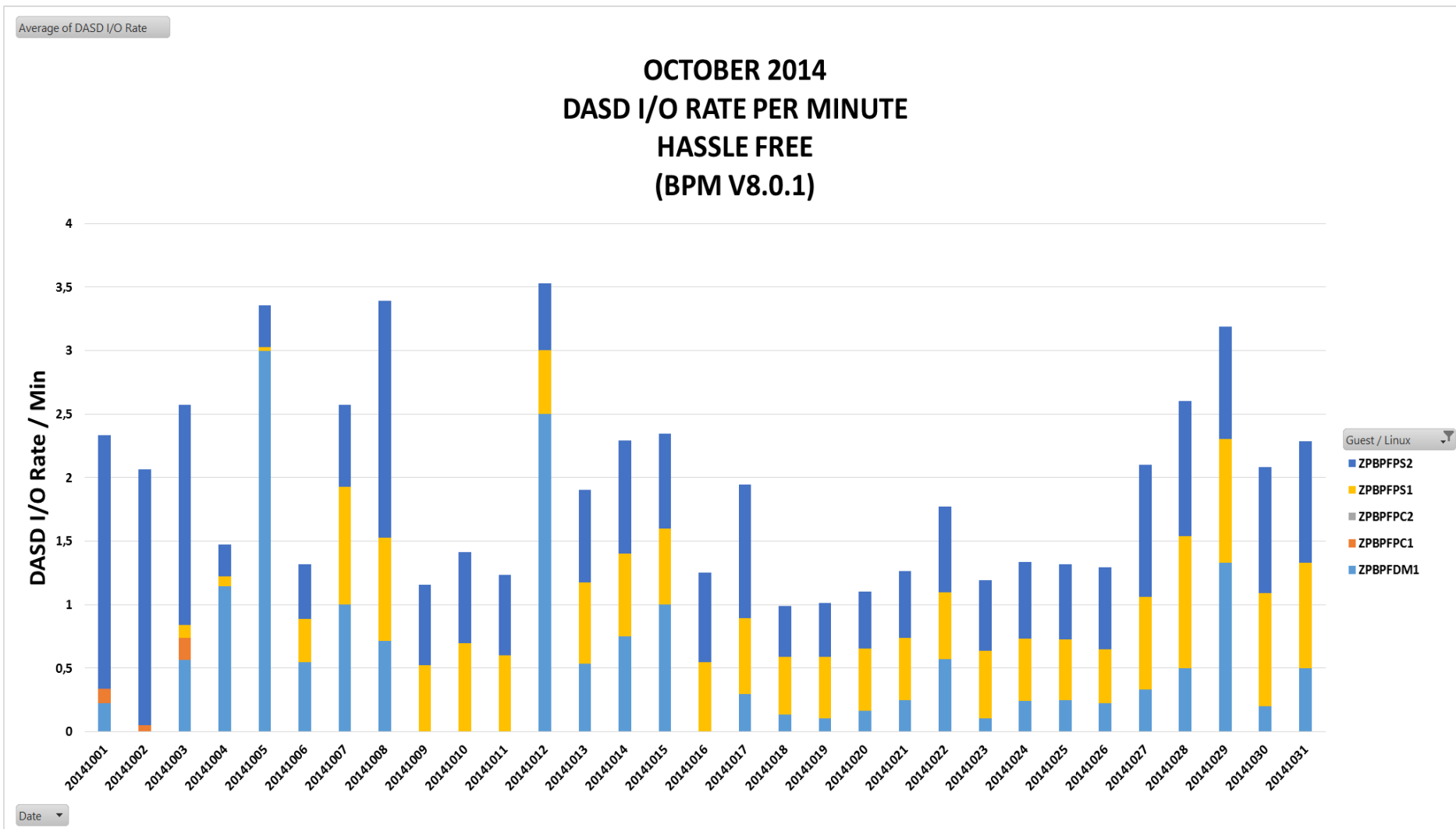
Why Velocity?(continue)

- 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


Time	UserID /Class	<Processor>		<-----Main Storage----->		Lock -ed	<-WSSize-->	
		Total	Virt	<Resident-> Total	Actv		Total	Actv
_13:00:00	System:	352	346	19M	13M	3254	22M	15M
	ZBPFPFS1	152	150	3527K	1764K	80	3932K	1966K
	ZWPSP003	79.41	78.79	3542K	1771K	79	4274K	2137K
	ZBPFPDB3	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
	ZBPFPED1	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
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4B :00.1 08/0

Connected to host 10.59.116.212

Keys: 155133 Saved: 0199 NUM



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


Time	UserID /Class	<Processor>		<-----Main Resident-->		<Storage----->		<-----WSSize-->	
		Total	Virt	Total	Actv	Lock -ed	Total	Actv	
10:02:00	ZBPFPFS1	112	109	3889K	1945K	80	3889K	1945K	
	ZBPFPDB3	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	ZBPFPFS1	99.56	97.40	3889K	1945K	80	3889K	1945K	
	ZBPFPDB3	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	ZBPFPFS1	130	127	3889K	1945K	80	3889K	1945K	
	ZBPFPDB3	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	ZBPFPFS1	148	145	3889K	1945K	80	3889K	1945K	
	ZBPFPDB3	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
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4B :00.1 04/

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Keys: 155169 Saved: 0199



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
1 of 3 Virtual Switch Utilization

ESAMON 4.133 11/10 13:09-13:26
VSWITCH 0000-FFFF 2827 88DF6

Time	Dev No.	Sys ID	Switch-name	F S	Time Out V Secs	Control Userid	<-Bytes--> </ Second>		<Packets> </ 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

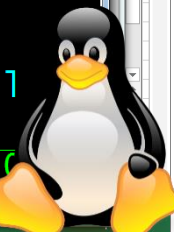
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PF8=Forward PF9=Sort PF10=Parms PF11=More PF12=Cancel

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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!

