

**Starting soon**

# **nmon for AIX & Linux New Features for 2015**

Nigel Griffiths  
POWER Advanced Technology Support  
IBM Europe





# nmon for AIX & Linux New Features for 2015

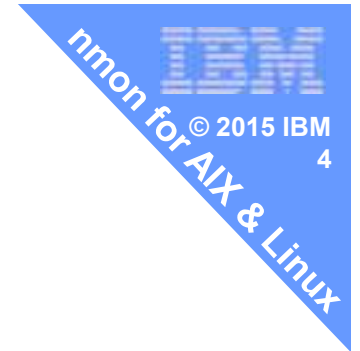
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## Contents

- nmon for AIX
  - Bug status – oops!
- nmon for Linux
  - Interest level
  - Recent updates
  - Couple of cool Linux config commands
  - Is someone stealing your CPU ???
- nmon data graphing
  - nmon Analyser
  - nmon2web
  - nmonchart & nmonchart via website ?
- OVER TO YOU !!

# nmon PCPU and SCPU for AIX



- Physical CPU PURR based
- Scaled CPU (allowing for GHz in power saving mode)
  - If not power saving = pointless.
  - Added without asking me!!
- Worst case is 3000 lines of output per snapshot
  - POWER8 Power E880, 192 CPU cores with SMT=8
- Examples where this increases nmon files by 40%
  - With zero value
- To be made optional in the 2015 7.1 TL4 ... **TBC**



## Large VIOS SEA & NPIV stats to file – ooops!

- To be blunt it shows up that these features were added without sufficient thought nor large machine experience.
  - SECLITRAFFIC Headers is 17 KB in length and 630 columns of data
  - NPIV Headers is 30 KB in length and 1460 columns
- This causes Excel (and other tool) to explode as they can't cope with the unexpected volume of data.
  - A special nmon Analyser was built but will have the same problem again if more stats are gathered on an even larger configuration.



# AIX 7.1 TL2 SP5

- Threads!
  - PID
  - TID
  - %CPU
  - Bound\_CPU
- Stats in the nmon file are not graphable ☹️

yes>/dev/null

```
topas nmon--5=Top-by-I/O-use--Host=vm61--Refresh=2 secs--18:28.16
```

Top-Threads- (430)			
PID	TID	%CPU	Bound_CPU
10485962	22609947	60.0	-
7405626	29753557	0.0	-
6160600	16842781	0.0	-
0	3	0.0	-
5701772	26804279	0.0	-
5308460	17563741	0.0	-
1572912	2752597	0.0	-
1572912	2687059	0.0	-
1572912	2621521	0.0	-
1572912	2818135	0.0	-
6619340	11862125	0.0	-
6684908	16711689	0.0	-
6684908	14221519	0.0	-
5701772	15794245	0.0	-
5308460	24576003	0.0	-
5701772	15859767	0.0	-
5308460	21954721	0.0	-
589842	1441837	0.0	-
6619340	11796587	0.0	-
5701772	32047131	0.0	-
6684908	9961589	0.0	-
6684908	16449539	0.0	-
1507374	2293831	0.0	-
1048608	1572913	0.0	1
1114146	1835065	0.0	2
1179684	1703989	0.0	3
1245222	1769527	0.0	4
1310760	1835065	0.0	5

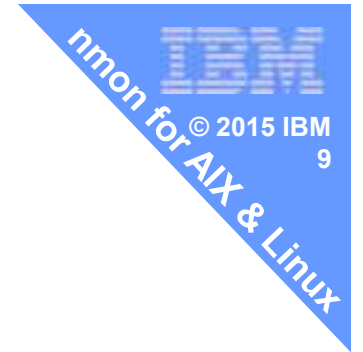
## For AIX that is it !!!

- Why is that?
- POWER5 → POWER6 → POWER7 → POWER8
- Very little changes to the architecture model
- So the stats are the same
  - SMT2 → 4 → 8
    - Built in as a variable
  - Cores per chip 2 → 8 → 12 but all are physical CPUs
    - Added lssrad -av output to BBBP

## For AIX that is it !!!

- Bigger Faster but behaves the same
  - Memory → grown
  - Networks → x40
  - Disks → Flash
  
- Two things that have changed
  - **Entitlement=100% utilisation**  
move to physical CPU use - instead of usr/sys/wait/idle
  - **Utilisation rework: 1 SMT=63%**  
to show more threads can do more work
    - Presentations from Stephen Nasypany ATS USA





- How many downloads in total?
- How many per month?
- Which country most often?



- How many downloads in total? ~305,500
- How many per month? ~6,900 and rising
- Which country most often? China (25%)  
(62% to Windows)

- Big and Little Endian on POWER
  - Actually hard to determine
- New PowerKVM support
  - Host – actually running PowerKVM Note SMT=1 / no lparcfg
  - Guest – limited lparcfg & heuristics to work it out
- Native Power host
  - Physical machine with no lparcfg
- Splash screen tells you more of the environment
  - GHz, CPU and core counts
  - Power stats Entitlement, VP, Logical CPU, SMT, capped
  - Intel bogomips, Hyperthreads

# Internal release of nmon for Linux on Power

```
nmon-15beta1-----Hostname=vm73-----Refresh= 2secs -----13:47.08-----
-----
#####
## # ## # ## # ## #
# # # # # # # # # #
# # # # # # # # # #
#####

For help type H or ...
nmon -? - hint
nmon -h - full

To start the same way every time
set the NMON ksh variable

PowerVM POWER7 (architected), altivec supported CHRP IBM 8246-421
PowerVM Entitlement=0.20 VirtualCPUs=1 LogicalCPUs=4
PowerVM SMT=4 Capped=0
Processor Clock=3957.000000MHz Big Endian

Use these keys to toggle statistics on/off:
c = CPU          l = CPU Long-term    - = Faster screen updates
m = Memory       j = Filesystems      + = Slower screen updates
d = Disks        n = Network          V = Virtual Memory
r = Resource     N = NFS              v = Verbose hints
k = kernel       t = Top-processes    . = only busy disks/procs
h = more options q = Quit
```

**PowerVM Client**

```
nmon-15beta1-[H for help]-----Hostname=localhost-----Refresh= 2secs -----14:54.09-----
-----
#####
## # ## # ## # ## #
# # # # # # # # # #
# # # # # # # # # #
#####

For help type H or ...
nmon -? - hint
nmon -h - full

To start the same way every time
set the NMON ksh variable

PowerKVM Host POWER8E (raw), altivec supported
PowerKVM Host owns all 20 CPUs & SMT-off in the host OS
PowerKVM Host machine : PowerNV 8247-22L
Processor Clock=3425.000000MHz Big Endian

Use these keys to toggle statistics on/off:
c = CPU          l = CPU Long-term    - = Faster screen updates
m = Memory       j = Filesystems      + = Slower screen updates
d = Disks        n = Network          V = Virtual Memory
r = Resource     N = NFS              v = Verbose hints
k = kernel       t = Top-processes    . = only busy disks/procs
h = more options q = Quit
```

**PowerKVM Host**

PowerVM: CPU mode, E, VP Capped, SMT, MHz Model

PowerKVM: # of CPUs, SMT=off, Model, MHz, Endian

PowerKVM guest: POWER8, VP, LP MHz, Endian

PowerKVM guest: POWER8, VP, LP MHz, Endian

```
nmon-15beta1-----Hostname=sles12-----Refresh= 2secs -----00:51.30-----
-----
#####
## # ## # ## # ## #
# # # # # # # # # #
# # # # # # # # # #
#####

For help type H or ...
nmon -? - hint
nmon -h - full

To start the same way every time
set the NMON ksh variable

PowerKVM Guest POWER8E (raw), altivec supported
PowerKVM Guest VirtualCPUs=2 LogicalCPUs=2
PowerKVM Guest SMT=1
Processor Clock=3425.000000MHz Little Endian

Use these keys to toggle statistics on/off:
c = CPU          l = CPU Long-term    - = Faster screen updates
m = Memory       j = Filesystems      + = Slower screen updates
d = Disks        n = Network          V = Virtual Memory
r = Resource     N = NFS              v = Verbose hints
k = kernel       t = Top-processes    . = only busy disks/procs
h = more options q = Quit
```

**SLES12 LE**

```
nmon-15beta1-[H for help]-----Hostname=ubuntu1410-----Refresh= 2secs -----00:36.57-----
-----
#####
## # ## # ## # ## #
# # # # # # # # # #
# # # # # # # # # #
#####

For help type H or ...
nmon -? - hint
nmon -h - full

To start the same way every time
set the NMON ksh variable

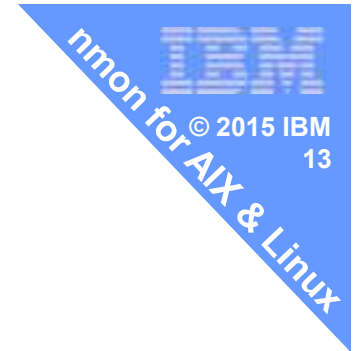
PowerKVM Guest POWER8E (raw), altivec supported
PowerKVM Guest VirtualCPUs=1 LogicalCPUs=1
PowerKVM Guest SMT=1 Capped=55160160
Processor Clock=3425.000000MHz Little Endian

Use these keys to toggle statistics on/off:
c = CPU          l = CPU Long-term    - = Faster screen updates
m = Memory       j = Filesystems      + = Slower screen updates
d = Disks        n = Network          U = Virtual Memory
r = Resource     N = NFS              v = Verbose hints
k = kernel       t = Top-processes    . = only busy disks/procs
h = more options q = Quit
```

**Ubuntu1410 LE**

# nmon – part 2

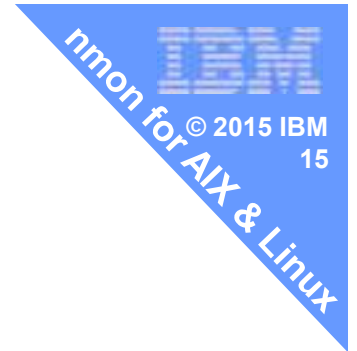
for Linux



- BBB section added
  - lsblk
  - lscpu
  - lshw
  - hostid → hex number output but used in some licensing
- NFS reworked *again*
  - new stats in /proc can be 40 to 59 of them
  - Seems like new ones every 10 minutes!!
  - Dynamically works out what it can find
  - Changes to online screens and output
  - Don't blame the messenger
  - Only docs is the nfsstat command output

## Example: lsblk

```
[root@lemon ~]# lsblk
NAME                                MAJ:MIN RM   SIZE RO TYPE MOUNTPOINT
sda                                  8:0    0    1T  0 disk
|-sda1                               8:1    0     8M  0 part
|-sda2                               8:2    0   512M  0 part /boot
|-sda3                               8:3    0     1K  0 part
|-sda5                               8:5    0    20G  0 part
 \-ibmpkvm_vg_root-ibmpkvm_lv_root
                                253:0    0    20G  0 lvm  /
|-sda6                               8:6    0    10G  0 part
 \-ibmpkvm_vg_log-ibmpkvm_lv_log 253:3    0    10G  0 lvm  /var/log
|-sda7                               8:7    0     8G  0 part
 \-ibmpkvm_vg_swap-ibmpkvm_lv_swap
                                253:1    0     8G  0 lvm  [SWAP]
\-sda8                               8:8    0 1018.1G  0 part
  -ibmpkvm_vg_data-ibmpkvm_lv_data
                                253:2    0   1018G  0 lvm
    /var/lib/libvirt/images
sdb                                  8:16    0     1T  0 disk
sr0                                  11:0    1 1011.6M  0 rom
[root@lemon ~]#
```



## Example: lscpu

```
[root@lemon ~]# lscpu
Architecture:          ppc64
CPU op-mode(s):        32-bit, 64-bit
Byte Order:            Big Endian
CPU(s):                 160
On-line CPU(s) list:   0,8,16,24,32,40,48,56,64,72,80,88,96,104,112,120,128,136,144,152
Off-line CPU(s) list:  1-7,9-15,17-23,25-31,33-39,41-47,49-55,57-63,65-
                        71,73-79,81-87,89-95,97-103,105-111,113-119,121-127,129-135,137-
                        143,145-151,153-159
Thread(s) per core:    1
Core(s) per socket:    5
Socket(s):             4
NUMA node(s):          4
Model:                 8247-22L
CPU max MHz:           3690.0000
CPU min MHz:           2061.0000
L1d cache:             64K
L1i cache:             32K
L2 cache:              512K
L3 cache:              8192K
NUMA node0 CPU(s):    0,8,16,24,32
NUMA node1 CPU(s):    40,48,56,64,72
NUMA node16 CPU(s):   80,88,96,104,112
NUMA node17 CPU(s):   120,128,136,144,152
[root@lemon ~]#
```

## Example: lshw

```
[root@lemon ~]# lshw -quiet
lemon
  description: IBM Power System S822L
  product: 8247-22L
  vendor: IBM
  serial: 219986A
  width: 64 bits
  capabilities: smp
*-core
  description: Motherboard
  physical id: 0
  capabilities: ibm_powernv ibm_firenze
*-memory
  description: System memory
  physical id: 1
  size: 128GiB
  *-bank:0
    location: U78CB.001.WZS02W8-P1-C16
    part: 00JA656
    description: 16GB CDIMM
    product: 00JA656
    physical id: 0
```

**AND 100's of further lines of output**



NFS → here nfs v2 and nfs v3 to AIX



```

nmon-15c-----Hostname=violate-----Refresh= 2secs -----11:31.56-----
Network Filesystem (NFS) I/O Operations per second
Version 2      Client  Server      Version 3      Client  Server
  null         0.0     0.0         null           0.0     0.0
  getattr      0.0     0.0         getattr       2526.2   0.0
  setattr      0.0     0.0         setattr       0.0     0.0
  root         0.0     0.0         lookup        0.0     0.0
  lookup       0.0     0.0         access        88.5    0.0
  readlink    0.0     0.0         readlink      0.0     0.0
  read        0.0     0.0         read          0.0     0.0
  wrcache     0.0     0.0         write         0.0     0.0
  write       0.0     0.0         create        0.0     0.0
  create      0.0     0.0         mkdir         0.0     0.0
  remove     0.0     0.0         symlink       0.0     0.0
  rename     0.0     0.0         mknod        0.0     0.0
  link       0.0     0.0         remove        0.0     0.0
  symlink    0.0     0.0         rmdir        0.0     0.0
  mkdir      0.0     0.0         rename        0.0     0.0
  rmdir     0.0     0.0         link          0.0     0.0
  readdir    0.0     0.0         readdir       0.0     0.0
  fsstat     0.0     0.0         readdirplus   328.4   0.0
--NFS-Totals->---Client---Server--
NFSv2 Totals->      0.0     0.0
NFSv3 Totals->    2943.1   0.0
NFSv4 Totals->      0.0     0.0
  
```

# NFS → here nfsv4 client and nfs4 server

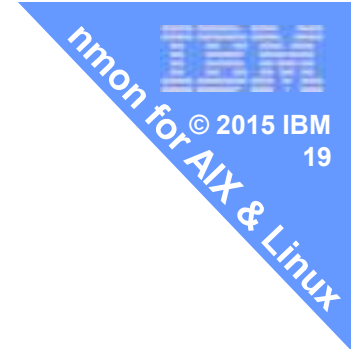
Ubuntu 14.10  
NFS Client 54 stats  
NFS Server 59 stats

```
nmon-15c [H for help] Hostname=violet Refresh= 2secs 11:35.31
Network Filesystem (NFS) I/O Operations per second
Version 4 Client (54 Stats found)
  null 0.0 getattr 0.0
  read 0.0 lookup 0.0
  write 0.0 lookup_root 0.0
  commit 0.0 remove 0.0
  open 0.0 rename 0.0
  open_conf 0.0 link 0.0
  open_noat 0.0 symlink 0.0
  open_dgrd 0.0 create 0.0
  close 0.0 pathconf 0.0
  setattr 0.0 statfs 0.0
  fsinfo 0.0 readlink 0.0
  renew 0.0 readdir 0.0
  setclntid 0.0 server_caps 0.0
  confirm 0.0 delegreturn 0.0
  lock 0.0 getacl 0.0
  lockt 0.0 setacl 0.0
  locku 0.0 fs_locations 0.0
  access 0.0
--NFS-Totals-->---Client---Server---
NFSv2 Totals-> 0.0 0.0
NFSv3 Totals-> 414.4 0.0
NFSv4 Totals-> 0.0 0.0
```

```
nmon-15c Hostname=violet Refresh= 2secs 11:35.56
Network Filesystem (NFS) I/O Operations per second
Version 4 Server (59 Stats found)
  op0-unused 0.0 open 0.0 setclntidconf 0.0 set_ssv 0.0
  op1-unused 0.0 openattr 0.0 verify 0.0 test_stateid 0.0
  op2-future 0.0 open_conf 0.0 write 0.0 want_deleg 0.0
  access 0.0 open_dgrd 0.0 rlockowner 0.0 destory_clid 0.0
  close 0.0 putfh 0.0 bc_ctl 0.0 reclaim_comp 0.0
  commit 0.0 putpubfh 0.0 blind_conn 0.0
  create 0.0 putrootfh 0.0 exchange_id 0.0
  delegpurge 0.0 read 0.0 create_ses 0.0
  delegreturn 0.0 readdir 0.0 destroy_ses 0.0
  getattr 0.0 readlink 0.0 free_statid 0.0
  getfh 0.0 remove 0.0 getdirdelag 0.0
  link 0.0 rename 0.0 getdevinfo 0.0
  lock 0.0 renew 0.0 getdevlist 0.0
  lockt 0.0 restorefh 0.0 layoutcommit 0.0
  locku 0.0 savefh 0.0 layoutget 0.0
  lookup 0.0 secinfo 0.0 layoutreturn 0.0
  lookup_root 0.0 setattr 0.0 secunfononam 0.0
  nverify 0.0 setclntid 0.0 sequence 0.0
--NFS-Totals-->---Client---Server--
NFSv2 Totals-> 0.0 0.0
NFSv3 Totals-> 567.5 0.0
NFSv4 Totals-> 0.0 0.0
```

# nmon version 15c – part 3

for Linux



- CPU Steal supported

- Man proc:

- `steal` (since Linux 2.6.11)

- `Stolen` time, which is the time spent in other operating systems when running in a virtualized environment

- “missing CPU clock cycles” but NOT being used by the VM

- Over committed Intel ISP systems like 100 VMs per Core can get 45% to 80% Steal

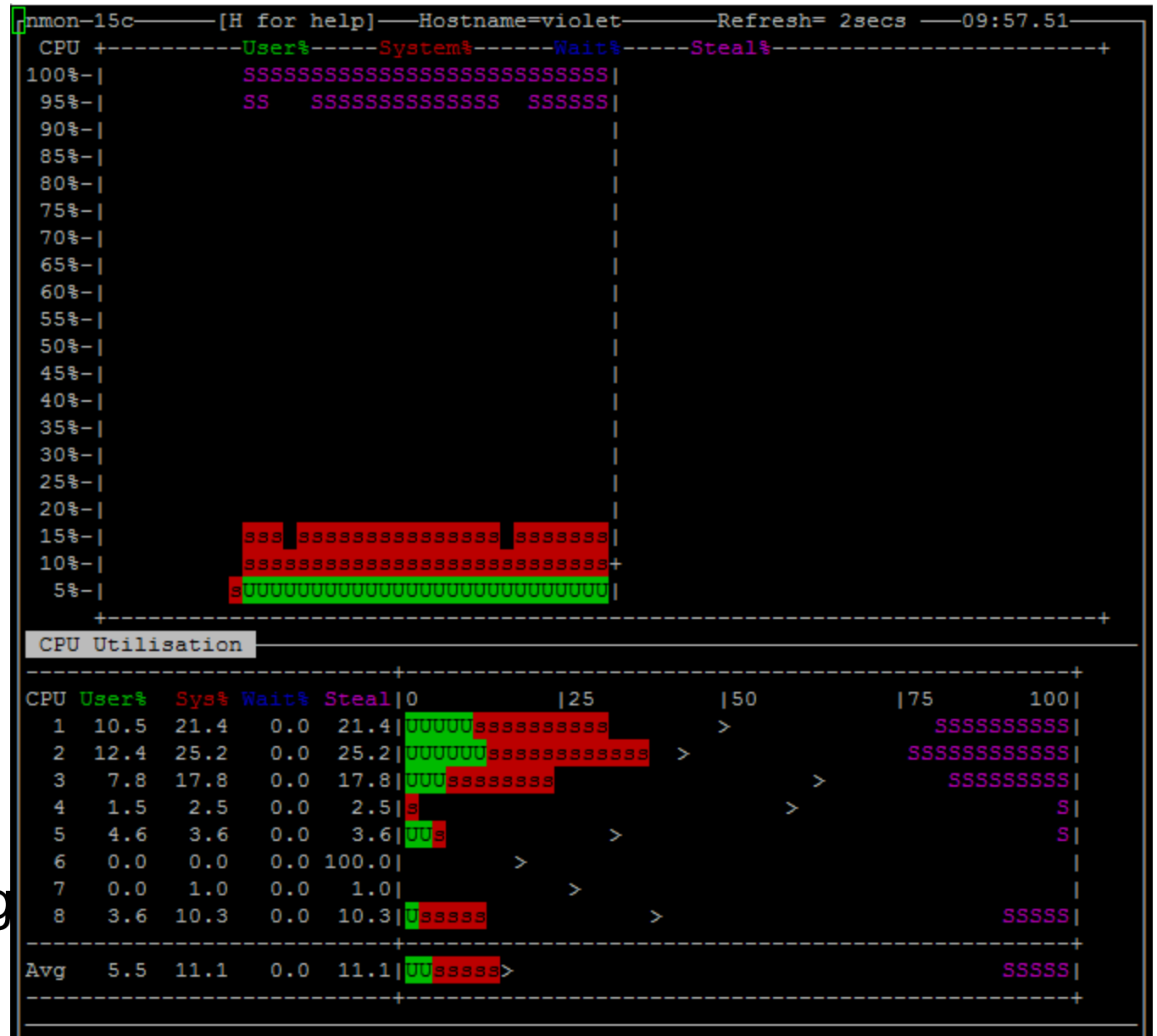
- So you can detect when you are fighting for CPU time



## CPU Steal

Time that this VM could have run but CPUs off running another VM !!

Not displayed  
With this VM's  
Usr+Sys+WaitIO  
as it is not running  
this VMs work.



Sort of CPU time missing from this VM

# nmon15e - Part 4

nmon  
for Linux

- Fine tuning nmon's file system stats to match df output
- Any one know why on Linux: df -g does not work? df -m is OK

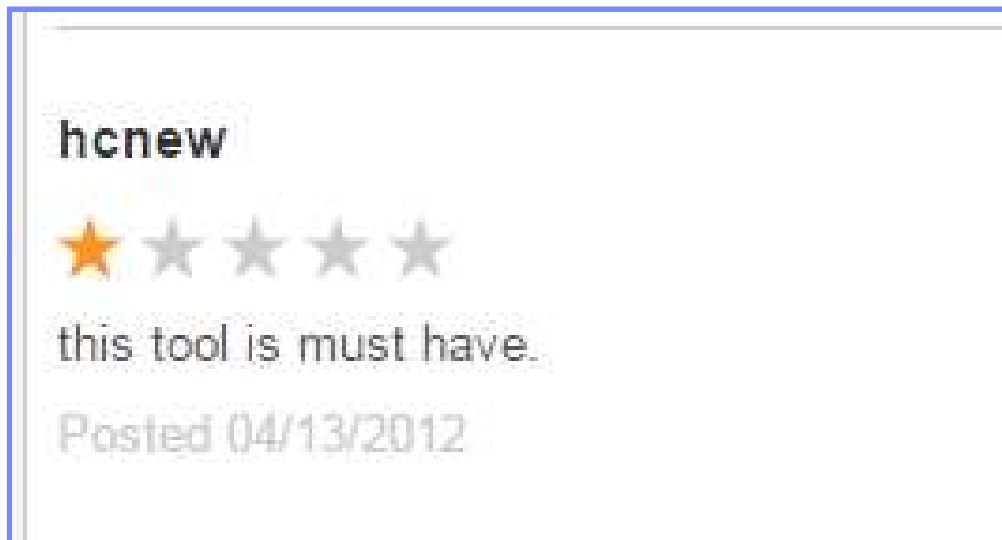


## Sorry but: `df -h` is ugly

```
root@violet:~# df -h
Filesystem      Size  Used Avail Use% Mounted on
udev            16G   0    16G   0% /dev
tmpfs           3.2G  114M  3.1G   4% /run
/dev/sda1      170G  5.9G  156G   4% /
tmpfs           16G   148K  16G   1% /dev/shm
tmpfs           5.0M   0    5.0M   0% /run/lock
tmpfs           16G   0    16G   0% /sys/fs/cgroup
tmpfs           3.2G   28K  3.2G   1% /run/user/112
tmpfs           3.2G   20K  3.2G   1% /run/user/0
```

## Can you help?

- <https://sourceforge.net/projects/nmon/reviews/>
- Please give nmon a good star rating but not like this idiot!! (5 stars is good!)



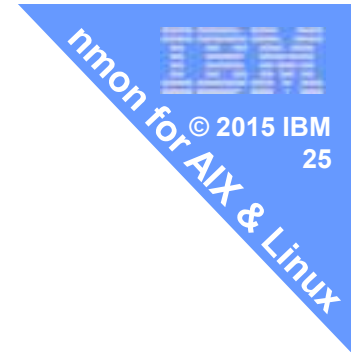
# Graphing nmon files for trends /peaks



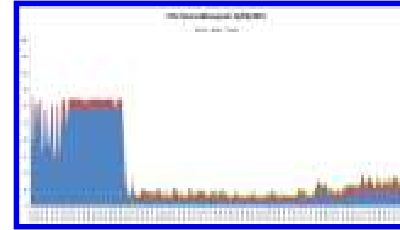
- nmon Analyser?
- nmon2web
- nmon2rrd
- pGraph
- Other Excel based tooling?



# nmon Analyser



## nmon Analyser 4.2



**The other half is due to the nmon Analyser  
Excel spreadsheets from Stephen Atkins, UK**

**Another personal time project**

**The sole designer/developer:**

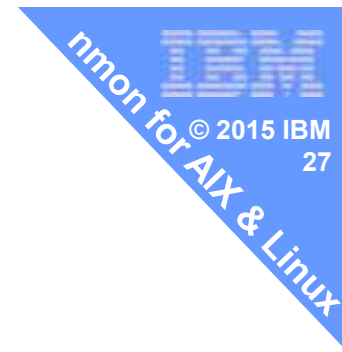
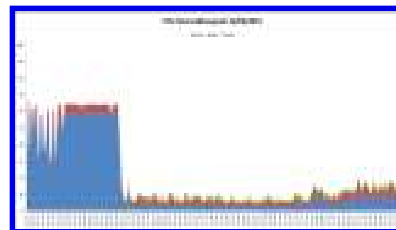
- nmon analyser
- nmon Consolidation
- Topas CEC analyser



- Now supported by Ron McCargar
- Thanks Ron & his manager

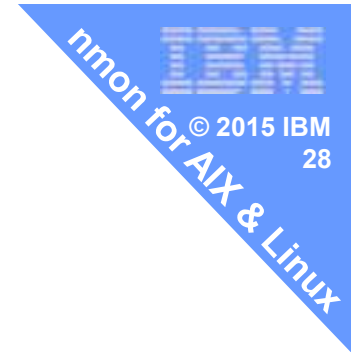


# nmon Analyser 4.2 → 4.5



- Bigger nmon files
- **Newer Excel versions 2007+**
- **New update 4.2 includes bug fixes as V4 gets lots of further testing from users.**
- The elapsed time value produced on AAA was corrected (it did not include the time to open the file(s) and sort the data).
- Added a new option on the Analyser sheet called BIGDATA. Use this if you have large lines (up to 32K) or > 1048576 rows.
- The analyzer would fail on Excel 2007 if > 1048576 rows were encountered. Use BIGDATA=YES.
- The maximum allowed rows per .nmon file is now unlimited (based on available Excel/PC memory)
- The SORTINP setting has been removed. Data is now always sorted.
- On the SYS\_SUMM sheet the CPU% values were wrong and have been changed to the sum of users% + Sys% for each line.
- On the SYS\_SUMM sheet added the following additional fields from the LPAR tab (if it exists): Virtual CPUs, Other LPARs, Pool CPUs, Entitled, Weight
- On the LPAR tab the 1st and 3rd graphs showed incorrect values.
- Updated nmon analyzer to check for either hdiskpower, emcpower or just power when determining if EMC data is present.
- Analysis supports any number of columns up to the Excel maximum of 16684. On large data sets (> 10 MB) you most likely will require 64-bit Windows however and a minimum of 8 GB of RAM.
- Note: Some tabs such as DISK\* still use a max of 255 columns per sheet.
- NPIV header was incorrectly shown at the bottom of the sheet previously.
- NPIV and SEALICTRAFFIC sheets will no longer show any graphs (due to potential huge size.)

# nmon2web

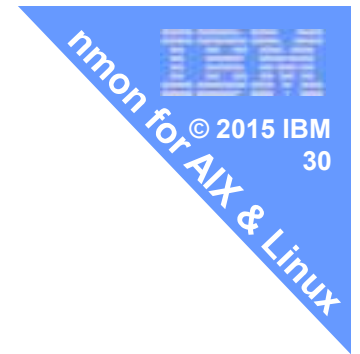


## Nmon2web - need your support

- Bruce Spencer who wrote nmon2web retired or as he puts it became a professional Grandpa !
  - no longer has access to machines or even DeveloperWorks
  - No one looking after the code or answering questions
- Perhaps move the code to Sourceforge or Github project
  - Code is in the open and Bruce has agreed
- It is written in Perl with a small web front end in PHP (I think)
- Very little has gone wrong in past 3 years
- **Anyone a nmon2web user?**
  - Answer questions from newbies!
  - Sorted out a few bugs?
  - Would you be interested?
- Biggest nmon2web user for a customer: IBMer Sascha Wycisk



# nmonchart



# Graphing nmon files for trends /peaks

## The problem

- Analyser takes man-power + time graphing
  - Imaging having 30 machines with 10 LPARs each!!
- Analyser is not perfect due to Excel limits & bugs
- Excel is “old school” after 20 years!
- Linux guys passionately not using Excel”
  
- Want Web 2.0 enabled = smart-phone or tablets
  - Keep it simple : Keep it quick : Do it on the web

# Then I found Google chart

<https://developers.google.com/chart/>  
Written in JavaScript

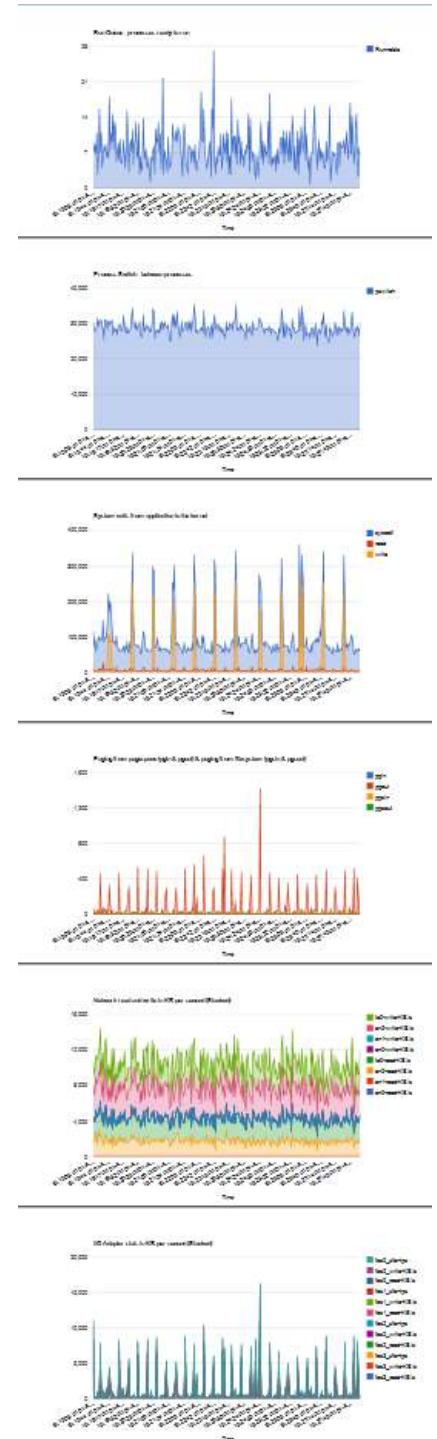
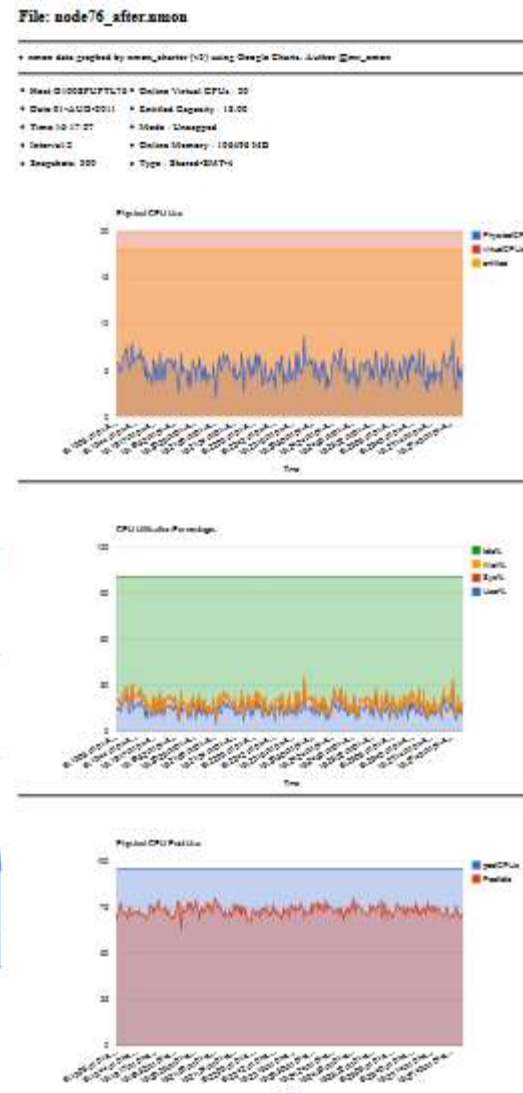
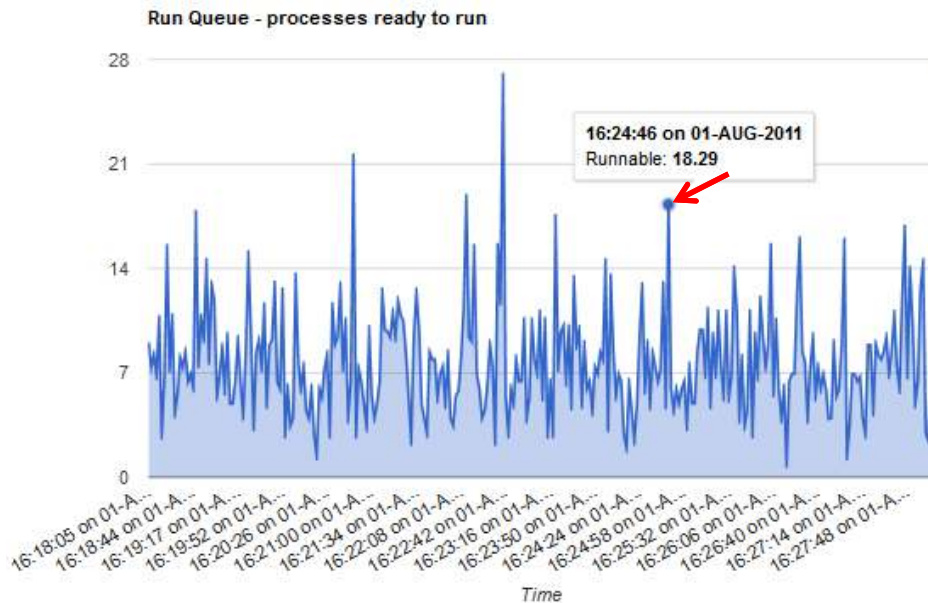
- Website page .html
- Pulls in a Google library
- Pretty simple data format
- Natural fit for nmon output
  
- KISS





# New nmon charting tool

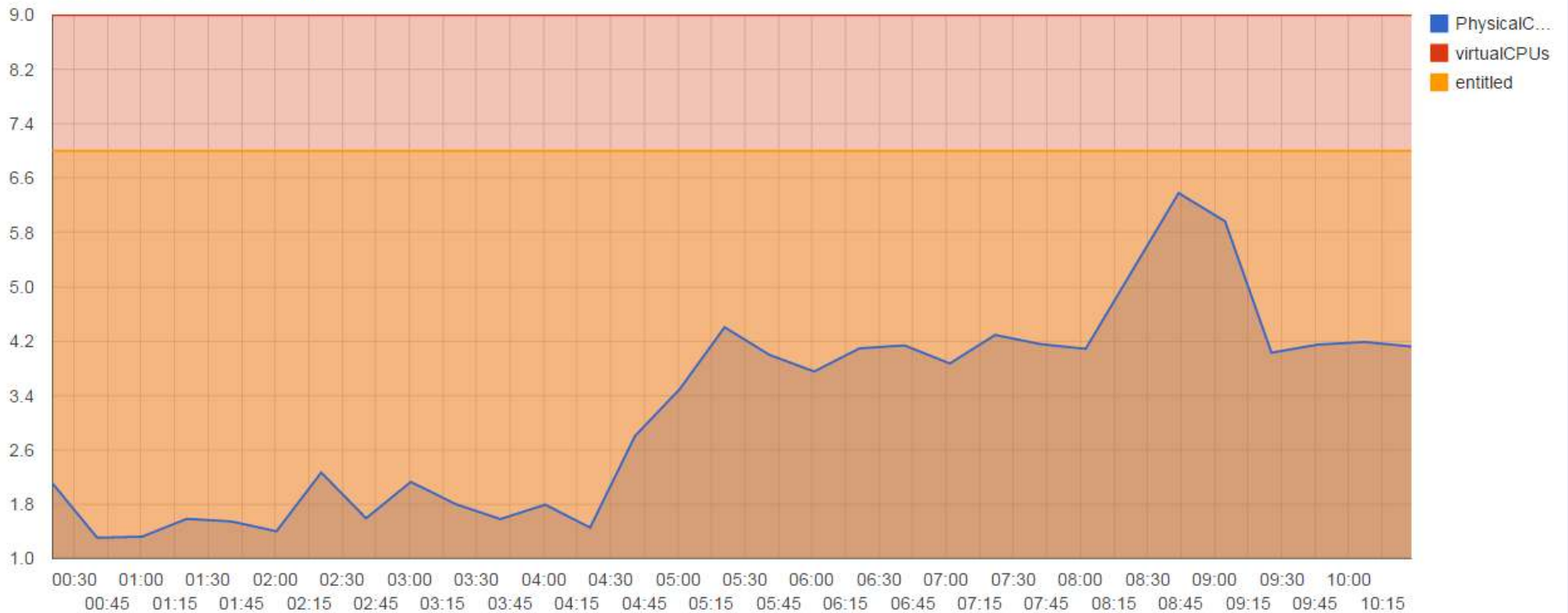
- Using Google charts JavaScript library
- 800 line ksh script to generator Javascript
- 1 to 5 seconds of CPU to make the JavaScript .html
- Your browser does the hard work graphing
  - 1 to 2 second per graph
- Currently 30 top graphs



nmon data file: sampleC.nmon

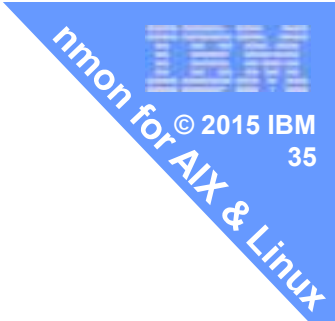
PHYSICAL\_CPU POOLIDLE CPU\_UTIL CPU\_USE RUNQ PSWITCH SYSCALL READWRITE FORKEXEC FILEIO REALMEM VIRTMEM FSCACHE PAGING SWAPIN TOPSUM TOPCMD  
NET NETPACKET NETSIZE ADAPT\_KBS ADAPT\_TPS DISKBUSY DISKBUSYu DISKREAD DISKREADu DISKWRITE DISKWRITEu DISKBSIZE DISKXFER JFS IPC

### VM Physical CPU Use of Shared CPU

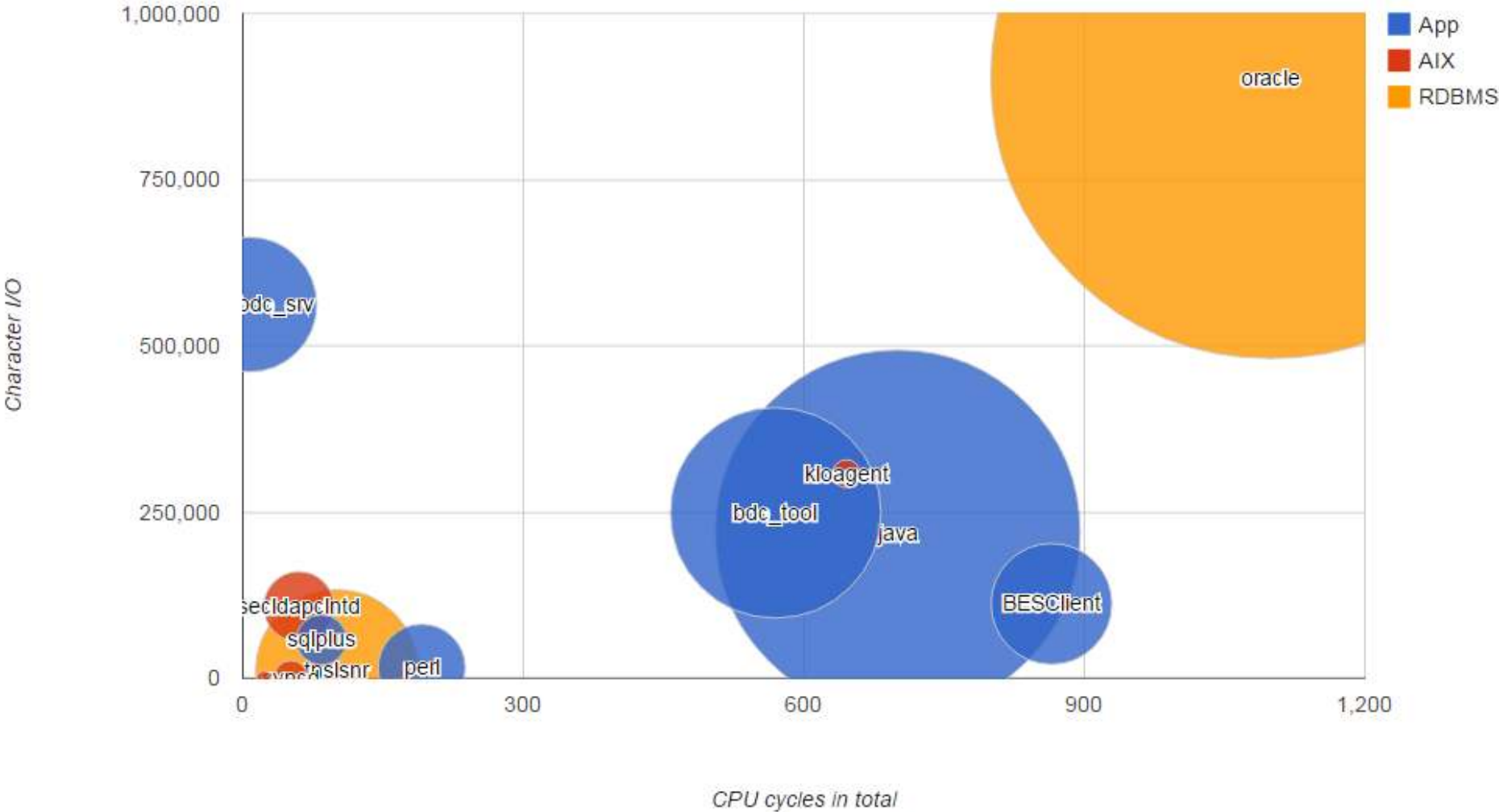


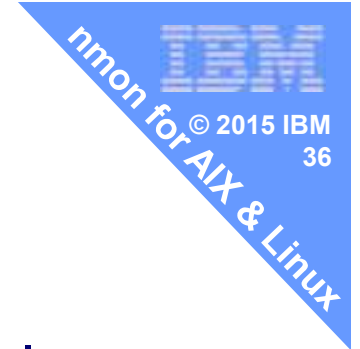
- Host:sampleC
- Date:01-DEC-2014
- Time:00:00:06
- Interval:1200
- Snapshots: 31
- Online Virtual CPUs : 7
- Entitled Capacity : 7.00
- Mode : Uncapped
- Online Memory : 63488 MB
- Type : Shared-SMT-4
- System Model: IBM.8205-E6C
- Machine Serial Number: 06F412R
- Processor Type: PowerPC\_POWER7
- Processor Implementation Mode: POWER 7
- Processor Version: PV\_7\_Compat
- Processor Clock Speed: 3720 MHz
- CPU Type: 64-bit
- Kernel Type: 64-bit
- LPAR Info: 2 sampleC
- Platform Firmware level: AL740\_095
- AIX Level 6100-07-030.07
- Power Saving Mode : Disabled
- Graphed by nmonchart v 20
- Author: Nigel Griffiths @mr\_nmon

# New nmon charting tool



Correlation between CPU, character I/O, memory by command





## New nmon charting tool

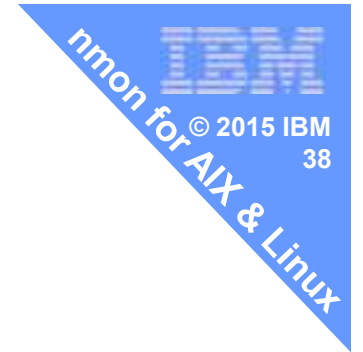
I experimented on the usefulness

- Internal to IBM (Sorry)
  - [http://w3.aixncc.uk.ibm.com/nmon\\_upload.html](http://w3.aixncc.uk.ibm.com/nmon_upload.html)
- This got me 100 machines and 200 nmon files
- From a w-i-d-e variety of machine types, OSes & ages
- Even corrupted files!!
- Good test bed to prove it works
- About to start a external submarine proto-type

## nmonchart - release

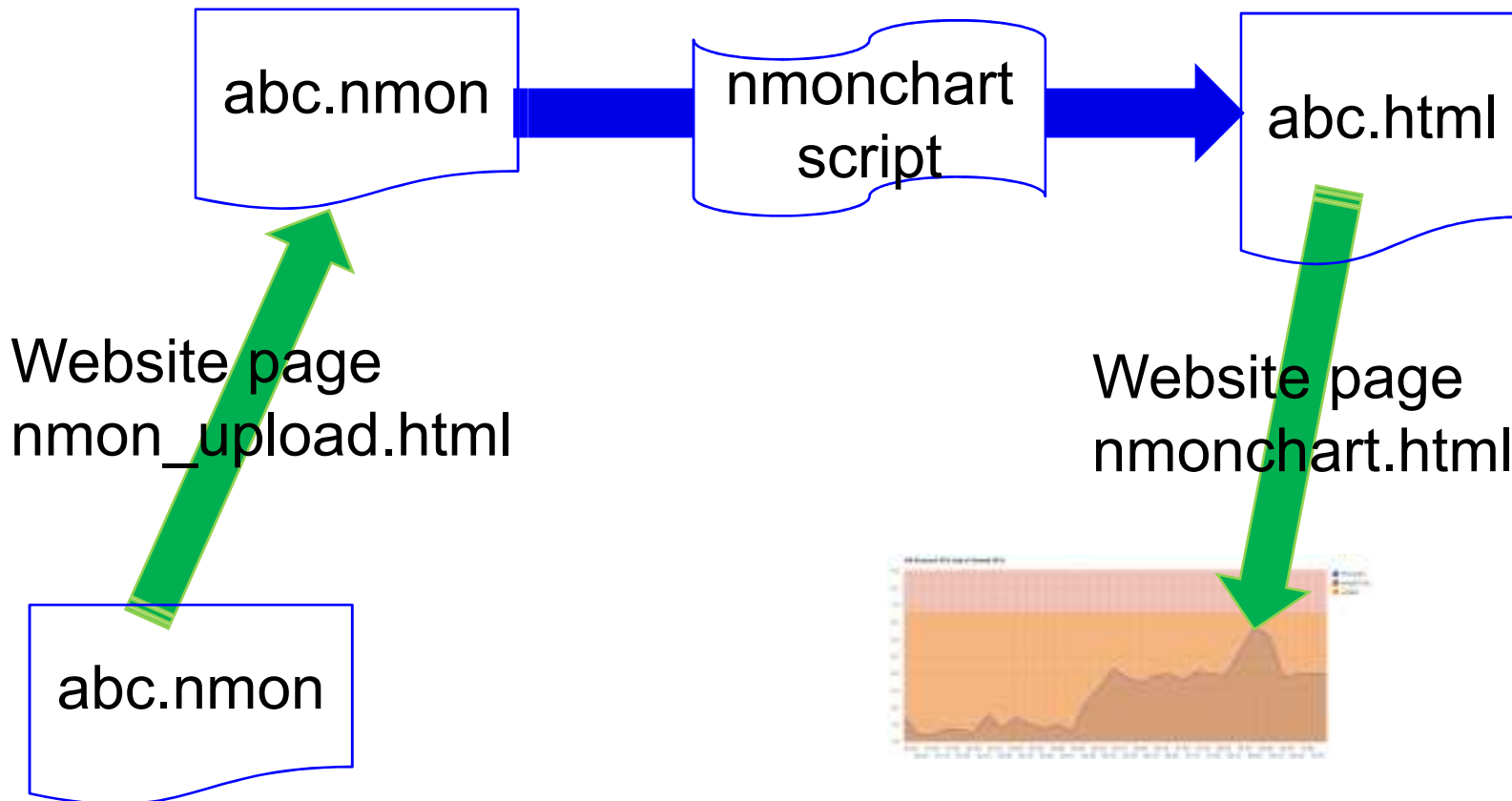
- In May
  - <http://nmon.sourceforge.net/pmwiki.php?n=Site.Nmonchart>
- What actually is it?
  - 800 line Korn shell script
  - `$ nmonchart nmonfile outputfile`
- Tested on AIX, Ubuntu on Intel & Debian on ARM
  - and it works around differences in echo and sort
  - awk also reports data in a different order, it does not matter!
- Also a sample nmon file
- Also my **very beta** scripts for a upload service

# nmonchart as a service



## Version 1 - KISS

- You upload your nmon file
- Few seconds later it has generated the webpage
- You go and take a look



# I have secured budget for a POWER8 VM

- Just an experiment – at this stage



- On OVH now called RunAbove



– <https://cloud.runabove.com/signup/?launch=power8>

- Yes a POWER8 VM

- But I will need help on

- Setting up the upload service
- Perhaps user accounts for passwords
- Security !

- Volunteers welcome → point me at useful web code



## Version 2 – web / app enabled

- Google chart can live fetch data from a service
- So a possible future extension & mobile app
- Also experimented with graphing POWER8
  - Temperature (Centigrade) and
  - Electricity (Watts)
  - Can be extracted from the service processor (see AIXpert blog)

**A repository with web/mobile frontend**

**So you select machine & date then it sends you the graphs to a browser!**

## Nmon files and Security

- AIXpert Blog <http://tinyurl.com/AIXpert>
- **nmon Data Files: Are they a Security Risk?**
- Hot data
  - Hostname: `acme42`
  - IP addresses: `9.137.62.1`
  - File system mount including product names: `/ora01`
  - Top processes names: `db2sync`
  - IBM Machine type-model + Serial number: `MMB-10A525P`
- Security risk? `IMHO nope`
- Confidential risk? `IMHO very low`
- License risk? `IMHO only if you are illegal`
- **What do you think about making nmon files public?**

## Are you keeping up to date?



### mr\_nmon on twitter

- Only used to POWER / AIX technical content, hints, tips and links



125 techie hands-on videos on **YouTube** at <http://www.youtube.com/nigelargriffiths>

### AIXpert Blog

- Lots of mini articles & thoughts
- <http://tinyurl.com/AIXpert>

### Also:

- <http://tinyurl.com/ibmAIXVUG>
- <http://tinyurl.com/newAIXwiki>





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*nmon for AIX & Linux*

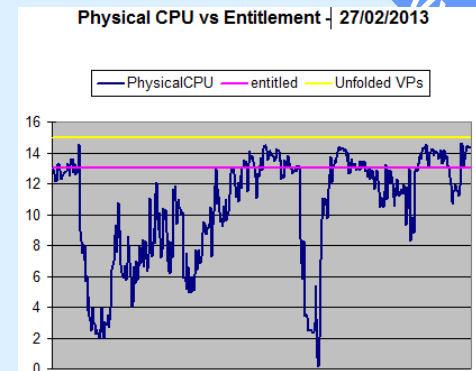
## What 1<sup>st</sup> things do I look for in an nmon file?

- Firmware level (BBBP Isconf)
- AIX level - release, TL and SP (BBBP oslevel -s)
- Not using classic nmon (AAA)
  
- If any over 2 years old the nmon user are either a newbie or a time waster.
- From this I know how professional they are!!
  
- If you don't service your car for three+ years:  
 Why should the car maker spend time investigating your problem or take the blame for the top speed !
  
- Then period of time covered and the interval
  - Long intervals hide peaks
  
- Then what version of the Analyser was used
  - Only use the latest 3.4a

# Then

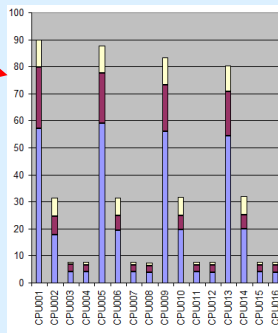
## What 2<sup>nd</sup> things do I look for in an nmon file?

- LPAR tab physical CPU use
  - Shared Uncapped – how often over Entitlement
  - Most utilisation numbers are pointless now IMHO



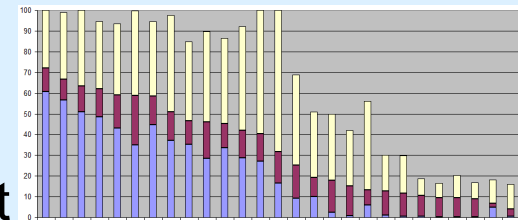
- CPU\_SUMM tab

- Shows use of SMT



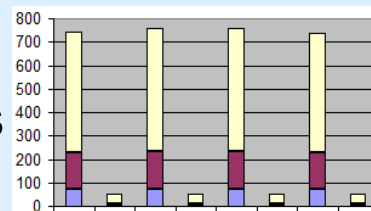
- DISKBUSY tab

- No disks over 50%
- Most disks active – i.e. not old school disk layout



- IOADAPT tab

- Disk I/O even across FC adapters

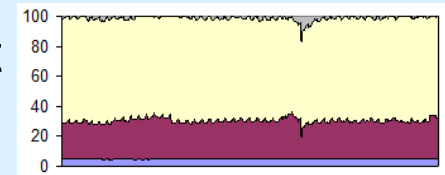


- MEM tab

- Check free memory is NOT large. If it is – tune to use it

- MEMNEW tab

- Is filesystem cache use as expected. RDBMS DIO/CIO should be small



# Then

## What 3<sup>rd</sup> things do I look for in an nmon file?

- NET tab
  - Is it pretty!
  - Does it peak at a well know network speed?
- Page tab
  - Should be low but do see high filesystem paging these days = memory mapped files.
- POOL tab
  - See if Pool is exhausted
- Proc
  - Compare RunQ with SMT thread available
- Top - if present
  - Check is the top CPU processes expected

