

Monitoring FreeBSD systems



By Andrew Fengler

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Overview

Reasoning behind monitoring

General Unix monitoring

Getting information we need

Interpreting the information

Avoiding certain pitfalls

FreeBSD specific pitfalls

About me

Sysadmin at ScaleEngine

Manage a fleet of over 100 servers

Worldwide distribution

Why do we monitor computer systems?

Monitor the state of services we care about

Monitor what our services depend on

Detecting future problems

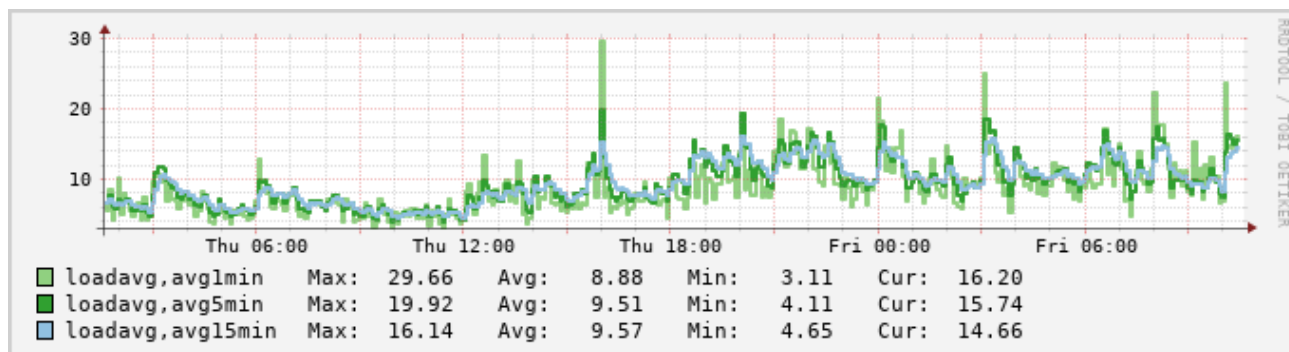
CPU

Time vs utilization percent

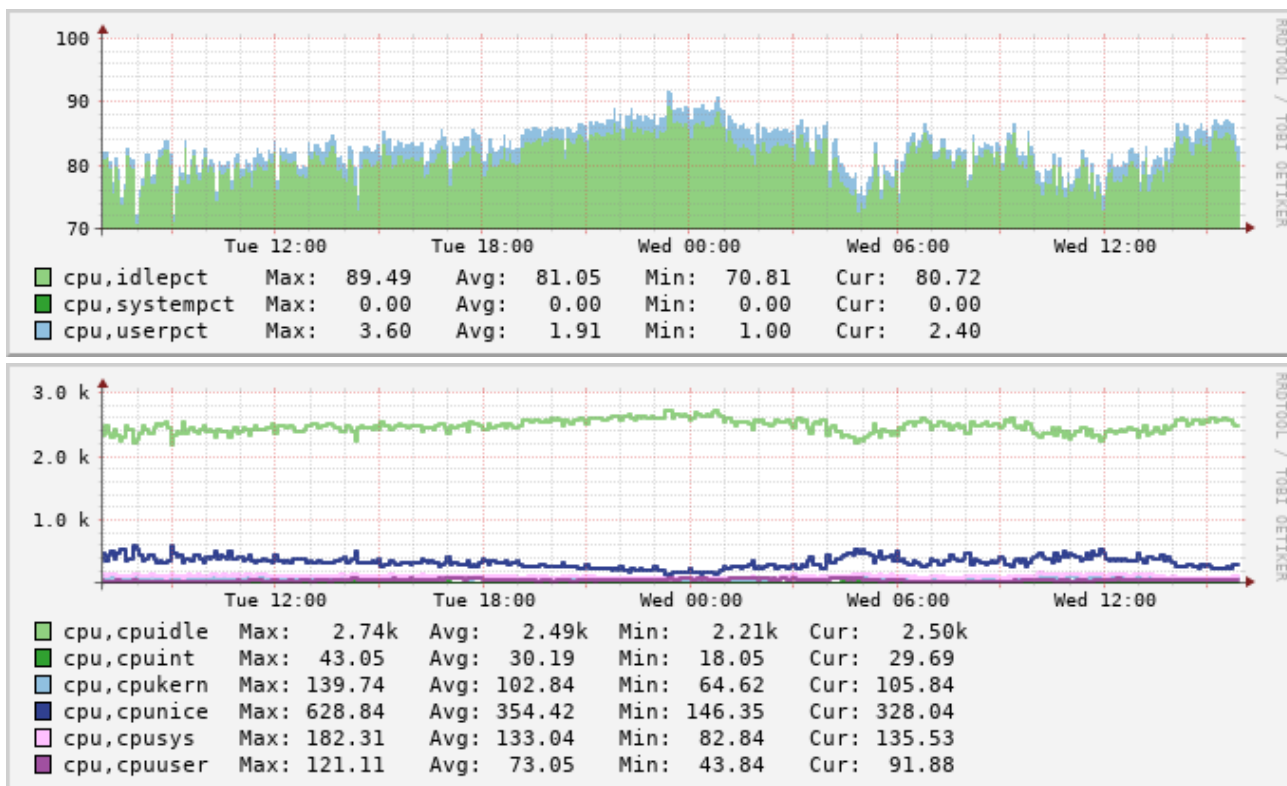
```
$ snmpget -c public -v 2c server.example.com UCD-SNMP-MIB::ssCpuIdle.0
UCD-SNMP-MIB::ssCpuIdle.0 = INTEGER: 83
$ snmpget -c public -v 2c server.example.com UCD-SNMP-MIB::ssCpuRawIdle.0
UCD-SNMP-MIB::ssCpuRawIdle.0 = Counter32: 1653347551
```

Running counter vs snapshot

loadavg is considered harmful



CPU Graphs



Memory

Monitor what you have left

Be aware of ARC

```
Mem: 9588K Active, 103M Inact, 2786M Wired, 4992K Cache, 55M Free  
ARC: 1935M Total, 603M MFU, 1202M MRU, 560K Anon, 19M Header, 111M Other
```

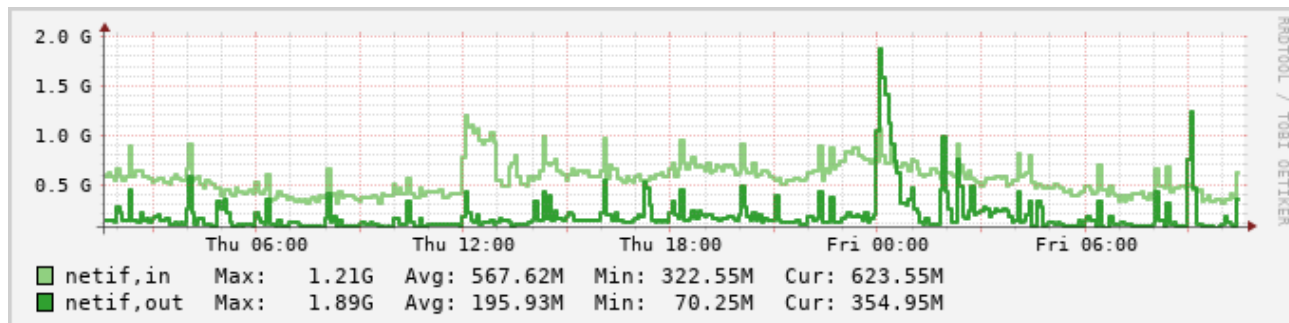
```
$ sysctl kstat.zfs.misc.arcstats  
$ sysctl vm.stats  
$ sysctl vm.stats.vm.v_page_size
```

```
$ sysctl kstat.zfs.misc.arcstats.memory_throttle_count  
kstat.zfs.misc.arcstats.memory_throttle_count: 22
```

Network

Network Speed

```
$ snmpget -c public -v 2c server IF-MIB::ifHCOutOctets.2
IF-MIB::ifHCOutOctets.2 = Counter64: 26790537050371
$ snmpget -c public -v 2c server IF-MIB::ifHCInOctets.2
IF-MIB::ifHCInOctets.2 = Counter64: 17901892810225
```



Network quality

Interface speed

```
$ ifconfig | grep media
media: Ethernet autoselect (1000baseT )
```

Bandwidth Usage

Disks

Usage

```
$ zfs list -pH -o name,used,avail
mjolnir 46128820224      67251605504
mjolnir/ROOT      12187820032      67251605504
mjolnir/ROOT/default  12187729920      67251605504
mjolnir/tmp      157851648        67251605504
mjolnir/usr      29228777472      67251605504
mjolnir/usr/home  27944427520      67251605504
```

Disk Health

Overall-health

SMART overall-health self-assessment test result: PASSED

Reallocated sector count(5)

5	Retired_Block_Count	0x0033	100	100	003	Pre-fail	Always	-	0
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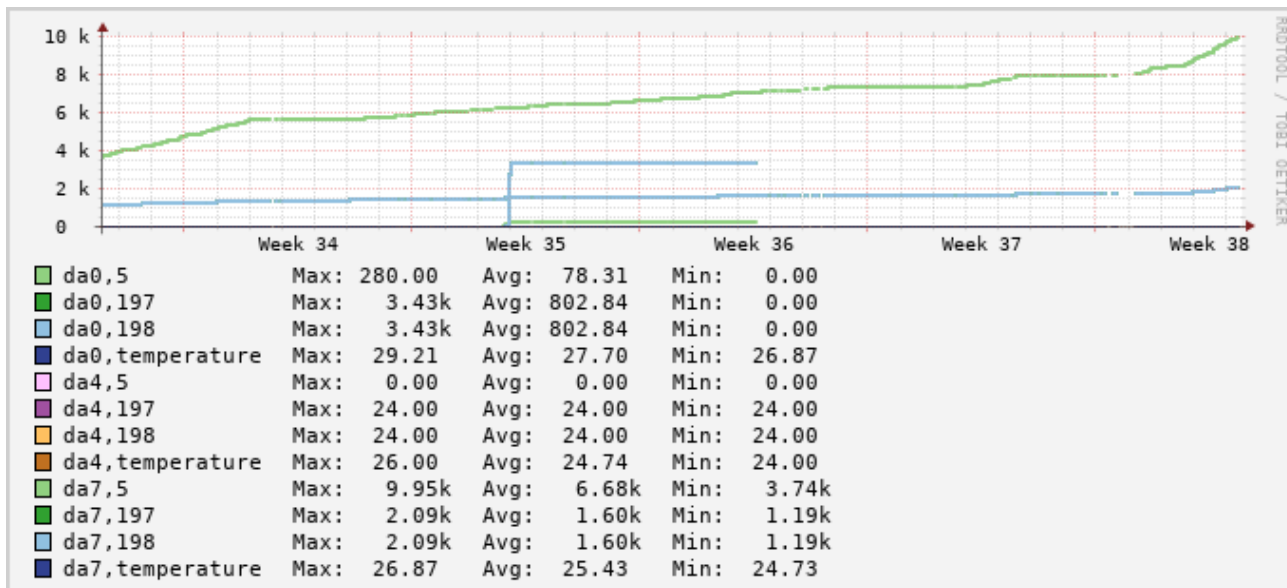
Current Pending Sector/Offline Uncorrectable (197/198)

197	Current_Pending_Sector	0x0022	100	100	000	Old_age	Always	-	0
198	Offline_Uncorrectable	0x0008	100	100	000	Old_age	Offline	-	0

Zpool Health

```
$ zpool list
NAME      SIZE  ALLOC  FREE  EXPANDSZ  FRAG    CAP  DEDUP  HEALTH  ALTROOT
mjolnir  109G  43.0G  66.0G      -       27%   39%  1.00x  ONLINE  -
```

SMART graphs



Other fun things to check

Uptime

```
interval * 2 - 1
```

NTP

```
$ ntpdate -q 0.pool.ntp.org  
server 89.149.59.102, stratum 2, offset -0.007518, delay 0.04460
```

Temperature

```
dev.cpu.n.temperature
```

GPUs

```
$ nvidia-smi -q -x  
...  
    <utilization>  
        <gpu_util>6 %</gpu_util>  
        <memory_util>4 %</memory_util>  
        <encoder_util>14 %</encoder_util>  
        <decoder_util>42 %</decoder_util>  
    </utilization>  
...
```

Other notes

Jails

We named the cow Bessie

Portability

ls, cut, uname, grep, sort, ps, ifconfig, test, route, netstat, sockstat, anything involving networks or disk

Graphs

Don't go overboard

Filter Rules

Filter name:

Apply filter when:

Manually Run

Getting New Mail:

Archiving

After Sending

Match all of the following Match any of the following Match all messages

.....

Perform these actions:

Questions?

Presentation at:

<http://www.fengler.ca/articles/monitoring.html>