Monitor PowerKVM using Ganglia, Nagios
April 2014

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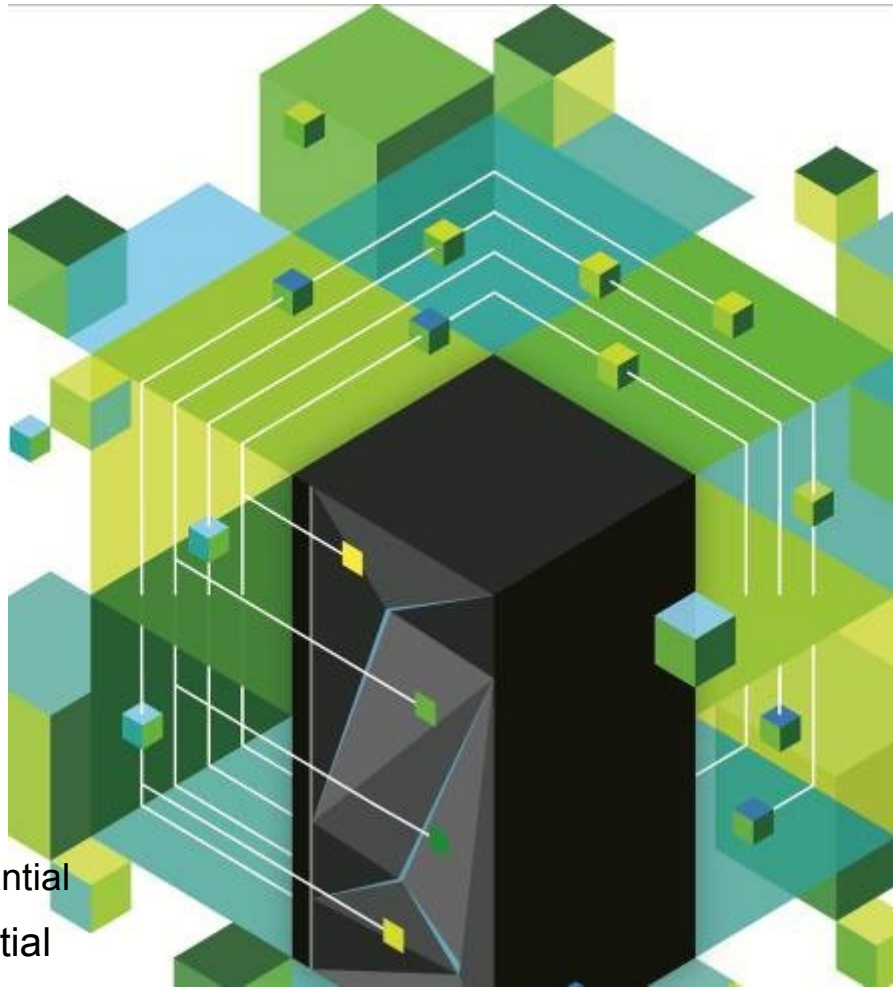

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Agenda

- Monitor using Ganglia
- Monitor using Nagios

Ganglia Overview

- Scalable Distributed Monitoring System
- Targeted at monitoring high performance computing systems
- Light weight and easy to manage agent
- Monitoring agent retrieve and provide system usage data to an Ganglia server

Ganglia Monitoring PowerKVM node

- Monitor PowerKVM nodes & Virtual machines running on it.
- List all VM's running on PowerKVM nodes and their current/past states.
- CPU, Memory, Disk & Network, SSL Metrics
- TCP, UDP, TCPEXT Metrics
- Add PowerKVM node to Ganglia server

Append “data_source "name" ip to gmetad.conf

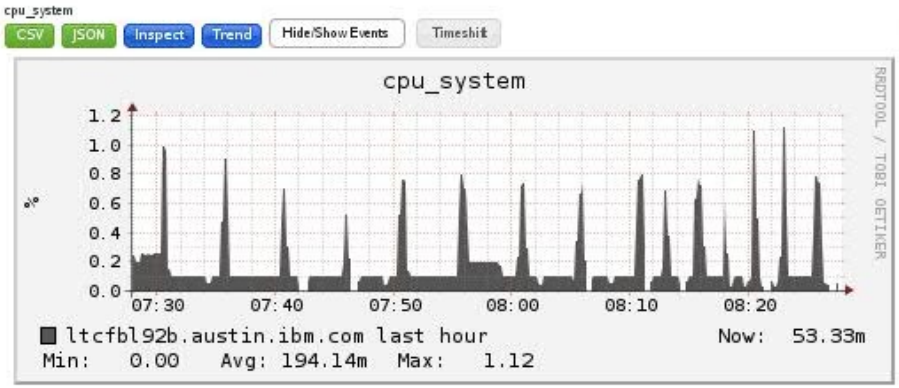
For ex: #cat /etc/ganglia/gmetad.conf

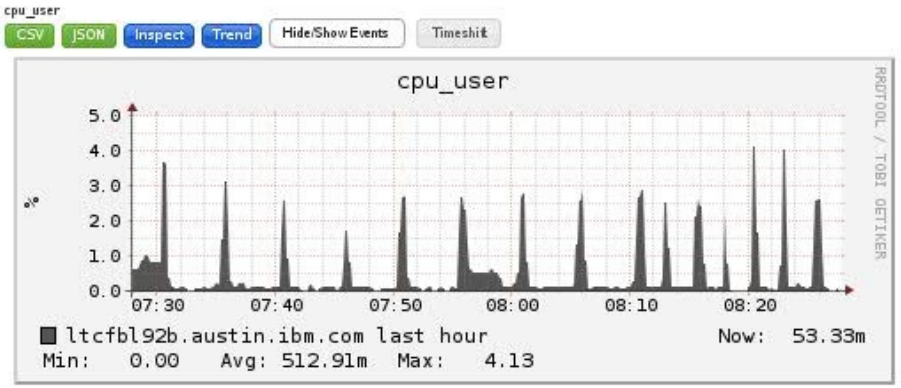
data_source "powerkvm3-lp1" 9.3.189.149

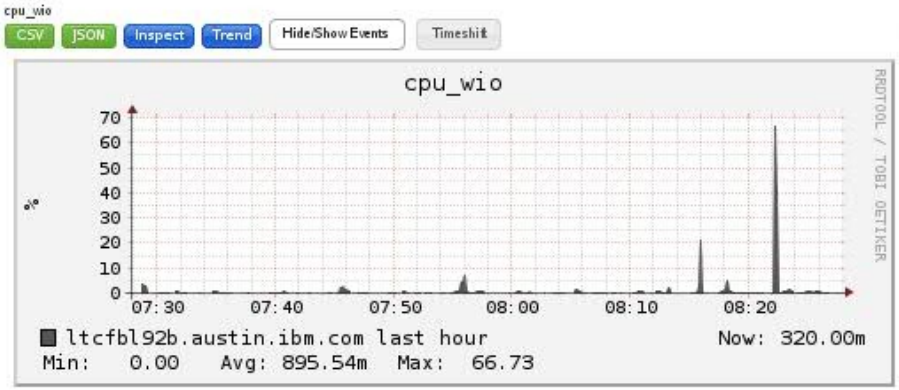
data_source "powerkvm1-lp1" 9.3.189.145

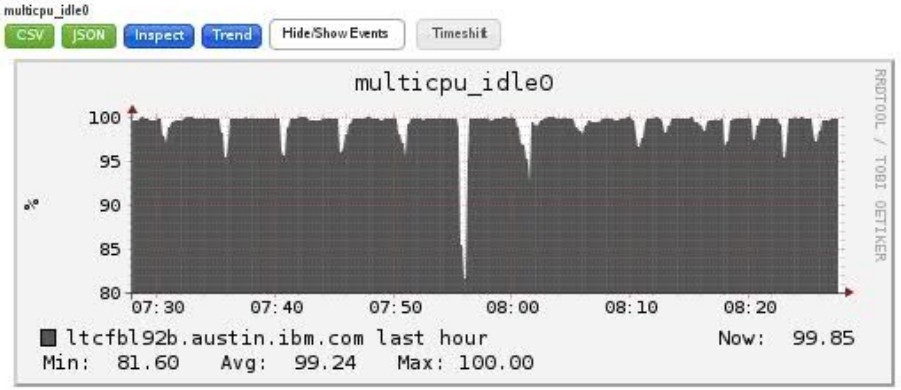
Restart deamon gmetad

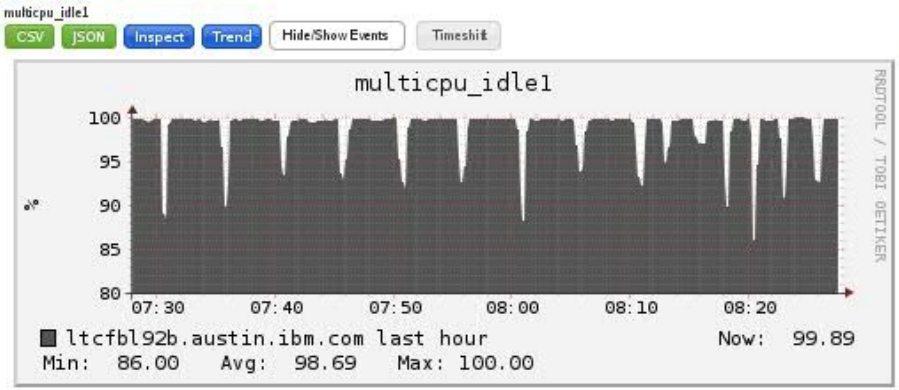
CPU Metrics by Ganglia

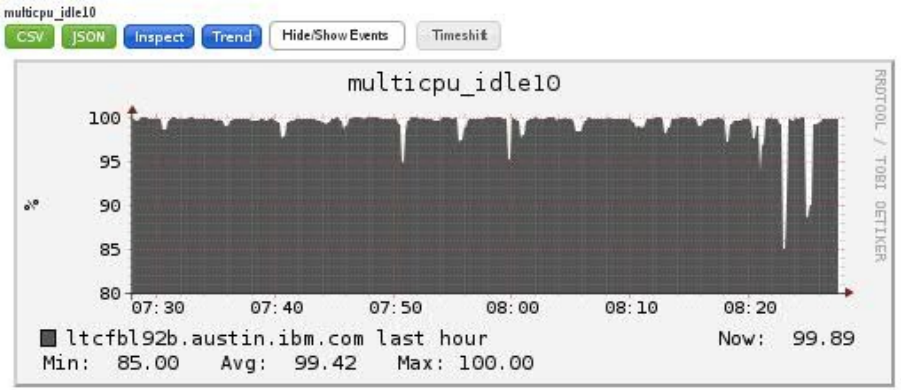




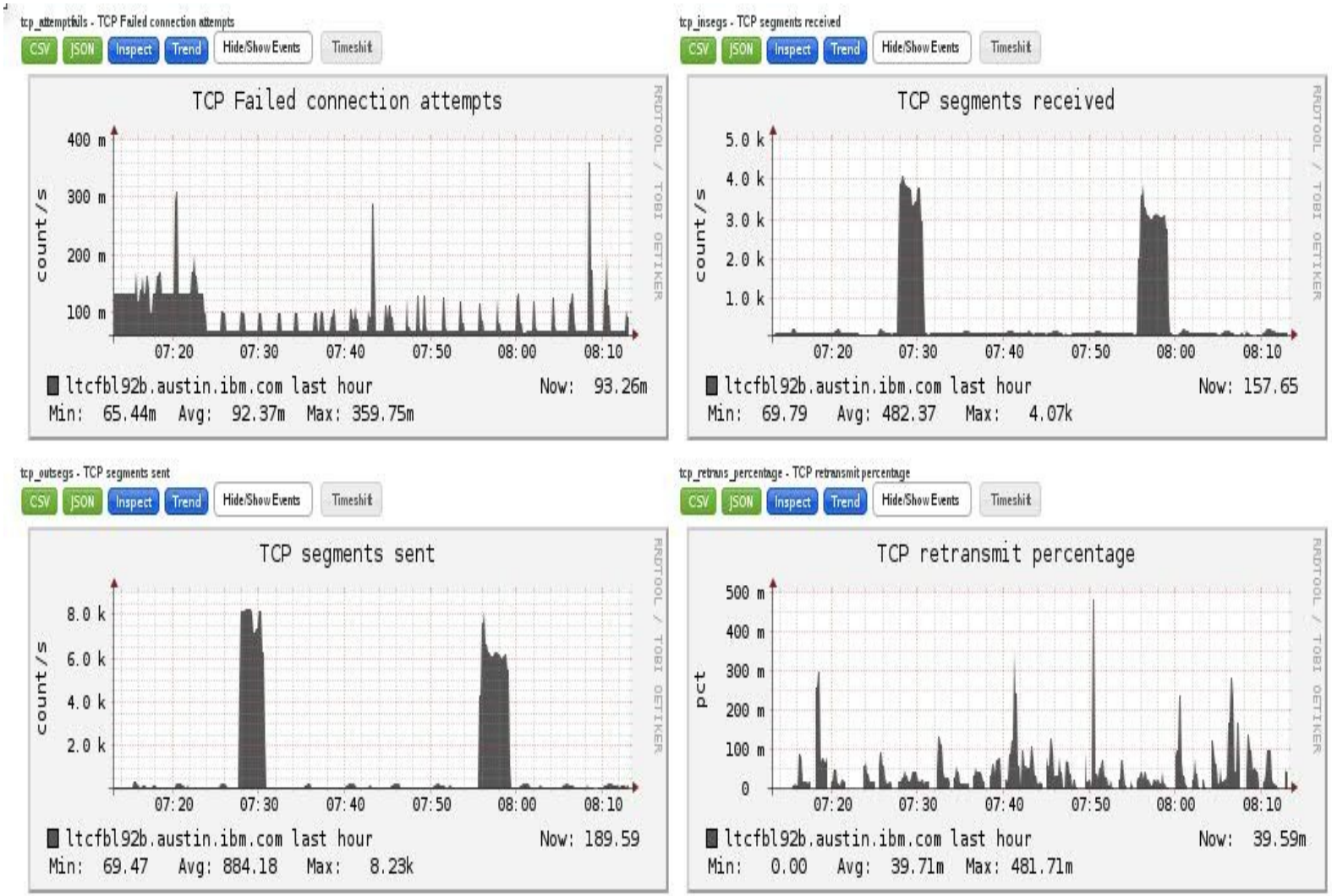








Network Metrics by Ganglia



Nagios Overview

- Nagios is a system and network monitoring application. It watches PowerKVM hosts and services that user specify
- Nagios monitoring will be enabled via NRPE (nagios remote plugin-executor) which is the preferred method for remote monitoring of hosts.
- Alerting user when things go bad and when they get better.
- Nagios plugins that will be available by default
    - Load average
    - Disk usage
    - Process Count and Resource Usage
    - Log analysis
- custom python scripts as nagios plugins provide any additional monitoring capability

Add powerKVM node to nagios server

- Add PowerKVM node to nagios server
  - #cat /etc/nagios/nrpe.cfg

```
log_facility=daemon
pid_file=/var/run/nrpe/nrpe.pid
server_port=5666
nrpe_user=nrpe
nrpe_user=nrpe
allowed_hosts=9.121.60.165
dont_blame_nrpe=0
allow_bash_command_substitution=0
debug=0
command_timeout=60
connection_timeout=300
command[check_users]=/usr/lib64/nagios/plugins/check_users -w 5 -c 10
command[check_load]=/usr/lib64/nagios/plugins/check_load -w 15,10,5 -c 30,25,20
command[check_hda1]=/usr/lib64/nagios/plugins/check_disk -w 20% -c 10% -p /dev/hda1
command[check_zombie_procs]=/usr/lib64/nagios/plugins/check_procs -w 5 -c 10 -s Z
command[check_total_procs]=/usr/lib64/nagios/plugins/check_procs -w 150 -c 200
include_dir=/etc/nrpe.d/
command[df_var]=df /var/ | sed -re 's/.* ([0-9]+)%.*/\1/' | grep -E '^[0-9]'
command[load5]=cut /proc/loadavg -f 1 -d " "
```

  - service nrpe start

- Add PowerKVM node to nagios server
- create configuration file each powerkvm node in nagios server
- cat /etc/nagios/objects/pkvm1.cfg

```
define host {
use                 linux-server
host_name           pkvm.ibm.com
alias               pkvm1
address             198.211.107.218
}

define service {
use                         generic-service
host_name                   pkvm1.ibm.com
service_description         PING
check_command               check_ping!100.0,20%!500.0,60%
}

define service {
use                         generic-service
host_name                   pkvm1
service_description         SSH
check_command               check_ssh
notifications_enabled       0
}
```

Host state Breakdowns by Nagios

Host State Breakdowns:

State	Type / Reason	Time	% Total Time	% Known Time
UP	Unscheduled	7d 0h 0m 0s	100.000%	100.000%
	Scheduled	0d 0h 0m 0s	0.000%	0.000%
	Total	7d 0h 0m 0s	100.000%	100.000%
DOWN	Unscheduled	0d 0h 0m 0s	0.000%	0.000%
	Scheduled	0d 0h 0m 0s	0.000%	0.000%
	Total	0d 0h 0m 0s	0.000%	0.000%
UNREACHABLE	Unscheduled	0d 0h 0m 0s	0.000%	0.000%
	Scheduled	0d 0h 0m 0s	0.000%	0.000%
	Total	0d 0h 0m 0s	0.000%	0.000%
Undetermined	Nagios Not Running	0d 0h 0m 0s	0.000%	
	Insufficient Data	0d 0h 0m 0s	0.000%	
	Total	0d 0h 0m 0s	0.000%	
All	Total	7d 0h 0m 0s	100.000%	100.000%

State Breakdowns For Host Services:

Service	% Time OK	% Time Warning	% Time Unknown	% Time Critical	% Time Undetermined
5 minute load average	100.000% (100.000%)	0.000% (0.000%)	0.000% (0.000%)	0.000% (0.000%)	0.000%
Percent disk space used on /var	100.000% (100.000%)	0.000% (0.000%)	0.000% (0.000%)	0.000% (0.000%)	0.000%
number of cinder volumes	100.000% (100.000%)	0.000% (0.000%)	0.000% (0.000%)	0.000% (0.000%)	0.000%
number of glance images	100.000% (100.000%)	0.000% (0.000%)	0.000% (0.000%)	0.000% (0.000%)	0.000%
number of keystone users	100.000% (100.000%)	0.000% (0.000%)	0.000% (0.000%)	0.000% (0.000%)	0.000%
number of nova vm instances	100.000% (100.000%)	0.000% (0.000%)	0.000% (0.000%)	0.000% (0.000%)	0.000%
Average	100.000% (100.000%)	0.000% (0.000%)	0.000% (0.000%)	0.000% (0.000%)	0.000%

Host Log Entries:

[View full log entries]

Event Start Time	Event End Time	Event Duration	Event/State Type	Event/State Information
04-05-2014 00:00:00	04-05-2014 07:52:08	0d 7h 52m 8s	HOST UP (HARD)	PING OK - Packet loss = 0%, RTA = 0.03 ms
04-06-2014 00:00:00	04-07-2014 00:00:00	1d 0h 0m 0s	HOST UP (HARD)	PING OK - Packet loss = 0%, RTA = 0.05 ms
04-07-2014 00:00:00	04-08-2014 00:00:00	1d 0h 0m 0s	HOST UP (HARD)	PING OK - Packet loss = 0%, RTA = 0.05 ms
04-08-2014 00:00:00	04-09-2014 00:00:00	1d 0h 0m 0s	HOST UP (HARD)	PING OK - Packet loss = 0%, RTA = 0.06 ms
04-09-2014 00:00:00	04-10-2014 00:00:00	1d 0h 0m 0s	HOST UP (HARD)	PING OK - Packet loss = 0%, RTA = 0.05 ms
04-10-2014 00:00:00	04-11-2014 00:00:00	1d 0h 0m 0s	HOST UP (HARD)	PING OK - Packet loss = 0%, RTA = 0.05 ms
04-11-2014 00:00:00	04-12-2014 00:00:00	1d 0h 0m 0s	HOST UP (HARD)	PING OK - Packet loss = 0%, RTA = 0.05 ms
04-12-2014 00:00:00	04-13-2014 00:00:00	1d 0h 0m 0s	HOST UP (HARD)	PING OK - Packet loss = 0%, RTA = 0.06 ms
04-13-2014 00:00:00	04-14-2014 00:00:00	1d 0h 0m 0s	HOST UP (HARD)	PING OK - Packet loss = 0%, RTA = 0.05 ms
04-14-2014 00:00:00	04-15-2014 00:00:00	1d 0h 0m 0s	HOST UP (HARD)	PING OK - Packet loss = 0%, RTA = 0.05 ms
04-15-2014 00:00:00	04-16-2014 00:00:00	1d 0h 0m 0s	HOST UP (HARD)	PING OK - Packet loss = 0%, RTA = 0.05 ms
04-16-2014 00:00:00	04-16-2014 20:12:32	0d 20h 12m 32s+	HOST UP (HARD)	PING OK - Packet loss = 0%, RTA = 0.04 ms

Program wide performance by Nagios

Program-Wide Performance Information

Services Actively Checked:

Time Frame	Services Checked
<= 1 minute:	1 (16.7%)
<= 5 minutes:	6 (100.0%)
<= 15 minutes:	6 (100.0%)
<= 1 hour:	6 (100.0%)
Since program start:	6 (100.0%)

Metric	Min.	Max.	Average
Check Execution Time:	0.02 sec	0.74 sec	0.407 sec
Check Latency:	0.02 sec	0.23 sec	0.121 sec
Percent State Change:	0.00%	0.00%	0.00%

Services Passively Checked:

Time Frame	Services Checked
<= 1 minute:	0 (0.0%)
<= 5 minutes:	0 (0.0%)
<= 15 minutes:	0 (0.0%)
<= 1 hour:	0 (0.0%)
Since program start:	0 (0.0%)

Metric	Min.	Max.	Average
Percent State Change:	0.00%	0.00%	0.00%

Hosts Actively Checked:

Time Frame	Hosts Checked
<= 1 minute:	0 (0.0%)
<= 5 minutes:	1 (100.0%)
<= 15 minutes:	1 (100.0%)
<= 1 hour:	1 (100.0%)
Since program start:	1 (100.0%)

Metric	Min.	Max.	Average
Check Execution Time:	4.01 sec	4.01 sec	4.008 sec
Check Latency:	0.22 sec	0.22 sec	0.223 sec
Percent State Change:	0.00%	0.00%	0.00%

Hosts Passively Checked:

Time Frame	Hosts Checked
<= 1 minute:	0 (0.0%)
<= 5 minutes:	0 (0.0%)
<= 15 minutes:	0 (0.0%)
<= 1 hour:	0 (0.0%)
Since program start:	0 (0.0%)

Metric	Min.	Max.	Average
Percent State Change:	0.00%	0.00%	0.00%

Check Statistics:

Type	Last 1 Min	Last 5 Min	Last 15 Min
Active Scheduled Host Checks	0	1	3
Active On-Demand Host Checks	0	0	0
Parallel Host Checks	0	1	3
Serial Host Checks	0	0	0
Cached Host Checks	0	0	0
Passive Host Checks	0	0	0
Active Scheduled Service Checks	1	5	16
Active On-Demand Service Checks	0	0	0
Cached Service Checks	0	0	0
Passive Service Checks	0	0	0
External Commands	0	0	0

Buffer Usage:

Type	In Use	Max Used	Total Available
External Commands	0	0	4096