Performance Monitoring and Stress Tests

How to get a stable system

Sarah Julia Kriesch

AdaLovelace@opensuse.org

openSUSE

Overview

- About me
- Performance Monitoring
- Stress Tests
- Tools for Performance Monitoring
- jmeter
- Action
- questions

About me

- 2009 – 2012 education: Computer Science Expert (System Integration)
- 2012 – 2014 Junior Linux System Administrator (1&1 Internet AG – Monitoring & Infrastructure)
- 2014 – 2016 Systems Engineer & ITO Coordinator (BrandMaker)
- since June 2016 DevOps Engineer (prolead technologies)
- since 2013 openSUSE Member (wiki, translation, Advocate, conferences)
- since 2013 GUUG Member

Performance Monitoring

- Performance Tuning
- watching systems and the load during high speed time
- SaaS, local, remote available
- different tools for different situations

Stress Tests

- Testing systems for Performance Tuning
- Improvement of stability of systems
- Finding bugs
- Tool jmeter

Don't use it on live systems!

Performance Monitoring Tools

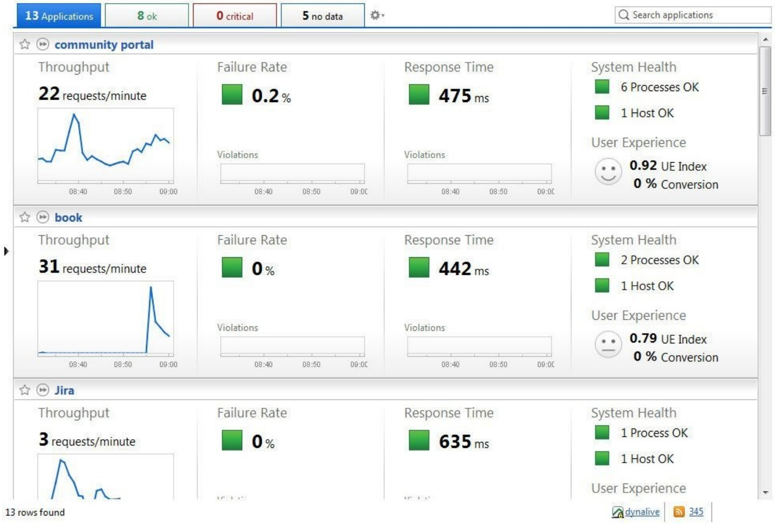
Gomez

- Monitoring for big environments

- systems with many cusomers

- Pro:
  - Monitoring all the time
  - Simulation of user actions
  - Reportings about the user performance everywhere on the world

- Contra:
  - very expensive



13 Applications | 8 ok | 0 critical | 5 no data

Search applications

community portal

Throughput: 22 requests/minute

Failure Rate: 🟩 0.2 %

Response Time: 🟩 475 ms

System Health: 🟩 6 Processes OK, 🟩 1 Host OK

User Experience: 0.92 UE Index, 0 % Conversion

book

Throughput: 31 requests/minute

Failure Rate: 🟩 0 %

Response Time: 🟩 442 ms

System Health: 🟩 2 Processes OK, 🟩 1 Host OK

User Experience: 0.79 UE Index, 0 % Conversion

Jira

Throughput: 3 requests/minute

Failure Rate: 🟩 0 %

Response Time: 🟩 635 ms

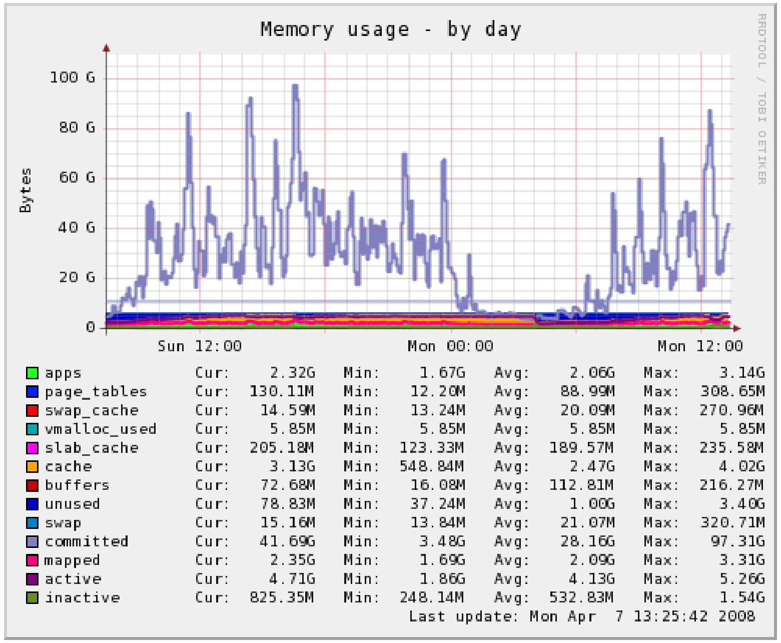
System Health: 🟩 1 Process OK, 🟩 1 Host OK

User Experience

13 rows found

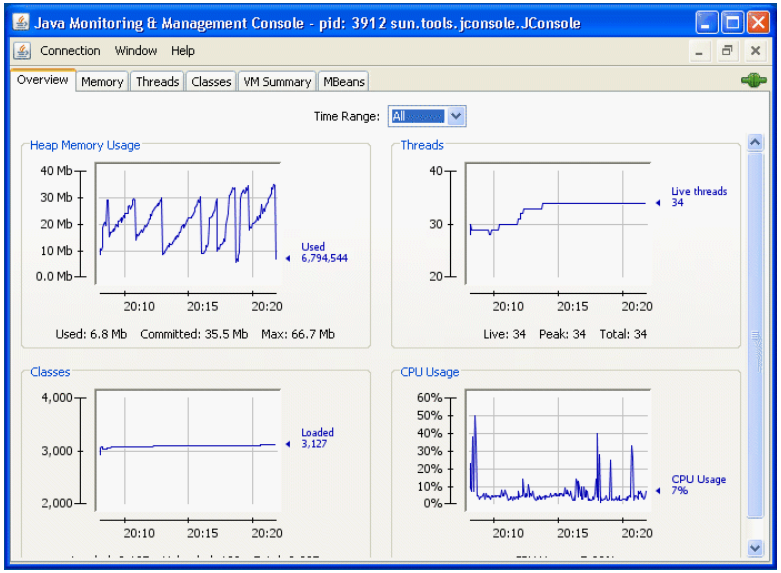
Munin

- Performance Monitoring for applications
- web application
- using JMX-Port
- Pro:
  - Monitoring of different servers
  - all data on one place
  - good overview
- Contra:
  - For details in seconds other tools



jconsole

- Monitoring of applications
- using JMX port
- integrated in Java package on the client
- Pro:
  - details in seconds
  - good plugins
- Contra:
  - Monitoring starts after starting tool on client



Time Range: All

Used: 6.8 Mb Committed: 35.5 Mb Max: 66.7 Mb

Live: 34 Peak: 34 Total: 34

RHQ Plugin

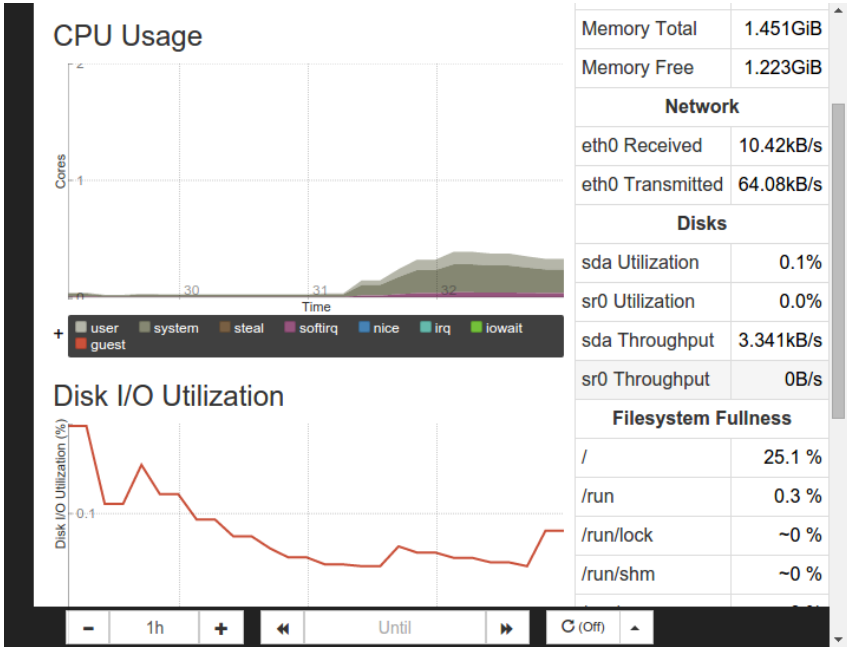
- Java Monitoring (JBoss) by RedHat
- Plugin for Nagios/ Icinga
- Pro:
  - Integratable into the monitoring system
- Contra:
  - You'll get wrong data!

Jolokia plugin by Roland Huss

- Java Monitoring
- JMX4Perl
- Plugin for Nagios/ Icinga
- something like jconsole in Nagios/ Icinga
- JMX4Perl
- Pro:
  - Integratable into the monitoring system
- Contra:
  - additional software necessary for the server

prometheus

- own monitoring system
- Performance Monitoring integrated
- choosing and adding checks like you want to have
- flexibility
- Pro:
  - good live data
  - easy handling for admins
- Contra:
  - Difficult installation and configuration

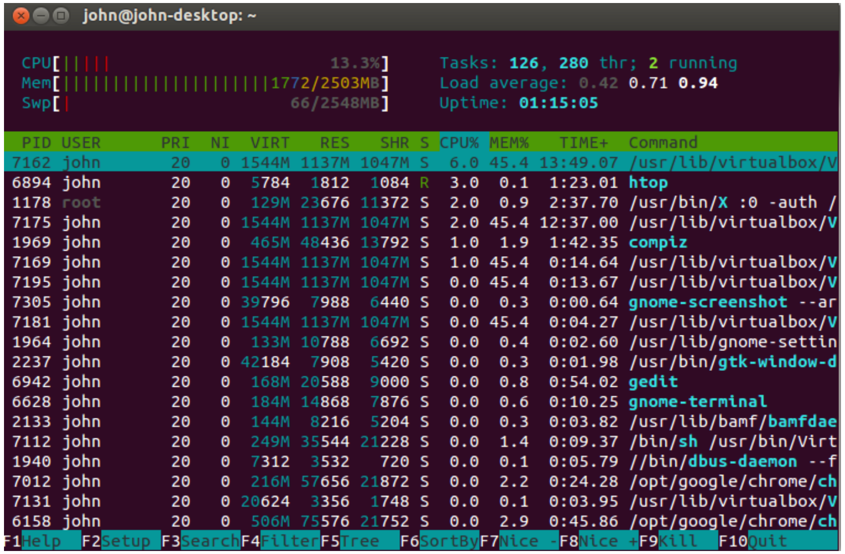


Memory Total	1.451GiB
Memory Free	1.223GiB
Network	
eth0 Received	10.42kB/s
eth0 Transmitted	64.08kB/s
Disks	
sda Utilization	0.1%
sr0 Utilization	0.0%
sda Throughput	3.341kB/s
sr0 Throughput	0B/s
Filesystem Fullness	
/	25.1 %
/run	0.3 %
/run/lock	~0 %
/run/shm	~0 %

htop

- graphical output of atop
- not in standard repostories
- http://download.opensuse.org/repositories/server:/monitoring/

- Pro:
  - really good overview of the load
  - Good overview of processes



```
  CPU[|||||                        13.3%]     Tasks: 126, 280 thr; 2 running
  Mem[|||||||||||||||||||||1772/2503MB]     Load average: 0.42 0.71 0.94
  Swp[|                       66/2548MB]     Uptime: 01:15:05

  PID USER      PRI  NI  VIRT   RES   SHR S CPU% MEM%   TIME+  Command
 7162 john       20   0 1544M 1137M 1047M S  6.0 45.4 13:49.07 /usr/lib/virtualbox/V
 6894 john       20   0  5784  1812  1084 R  3.0  0.1  1:23.01 htop
 1178 root       20   0  129M 23676 11372 S  2.0  0.9  2:37.70 /usr/bin/X :0 -auth /
 7175 john       20   0 1544M 1137M 1047M S  2.0 45.4 12:37.00 /usr/lib/virtualbox/V
 1969 john       20   0  465M 48436 13792 S  1.0  1.9  1:42.35 compiz
 7169 john       20   0 1544M 1137M 1047M S  1.0 45.4  0:14.64 /usr/lib/virtualbox/V
 7195 john       20   0 1544M 1137M 1047M S  0.0 45.4  0:13.67 /usr/lib/virtualbox/V
 7305 john       20   0 39796  7988  6440 S  0.0  0.3  0:00.64 gnome-screenshot --ar
 7181 john       20   0 1544M 1137M 1047M S  0.0 45.4  0:04.27 /usr/lib/virtualbox/V
 1964 john       20   0  133M 10788  6692 S  0.0  0.4  0:02.60 /usr/lib/gnome-settin
 2237 john       20   0 42184  7908  5420 S  0.0  0.3  0:01.98 /usr/bin/gtk-window-d
 6942 john       20   0  168M 20588  9000 S  0.0  0.8  0:54.02 gedit
 6628 john       20   0  184M 14868  7876 S  0.0  0.6  0:10.25 gnome-terminal
 2133 john       20   0  144M  8216  5204 S  0.0  0.3  0:03.82 /usr/lib/bamf/bamfdae
 7112 john       20   0  249M 35544 21228 S  0.0  1.4  0:09.37 /bin/sh /usr/bin/Virt
 1940 john       20   0  7312  3532   720 S  0.0  0.1  0:05.79 //bin/dbus-daemon --f
 7012 john       20   0  216M 57656 21872 S  0.0  2.2  0:24.28 /opt/google/chrome/ch
 7131 john       20   0 20624  3356  1748 S  0.0  0.1  0:03.95 /usr/lib/virtualbox/V
 6158 john       20   0  506M 75576 21752 S  0.0  2.9  0:45.86 /opt/google/chrome/ch
F1Help  F2Setup F3SearchF4FilterF5Tree  F6SortByF7Nice -F8Nice +F9Kill  F10Quit
```

Stress Tests

jmeter

- Apache project
- Pinging the server from the client
- best practice:
  - teamwork
  - use cluster ssh
  - 1/ 2 guys are using the application

Links

- Gomez: http://www.ca.com/de/products/ca-application-performance-management.html
- Munin: http://munin-monitoring.org/
- jconsole: http://docs.oracle.com/javase/7/docs/technotes/guides/management/jconsole.html
- RHQ: https://docs.jboss.org/author/display/RHQ/Home
- Jolokia: https://jolokia.org/tutorial.html
- prometheus: https://prometheus.io/
- Jmeter:http://jmeter.apache.org/
- Jmeter video training: http://info.blazemeter.com/jmeter-training-course?utm_source=BM&utm_medium=BM_blog&utm_campaign=5_Ways_to_Launch_blog

“Quotations look good like this”

- Name

Questions?

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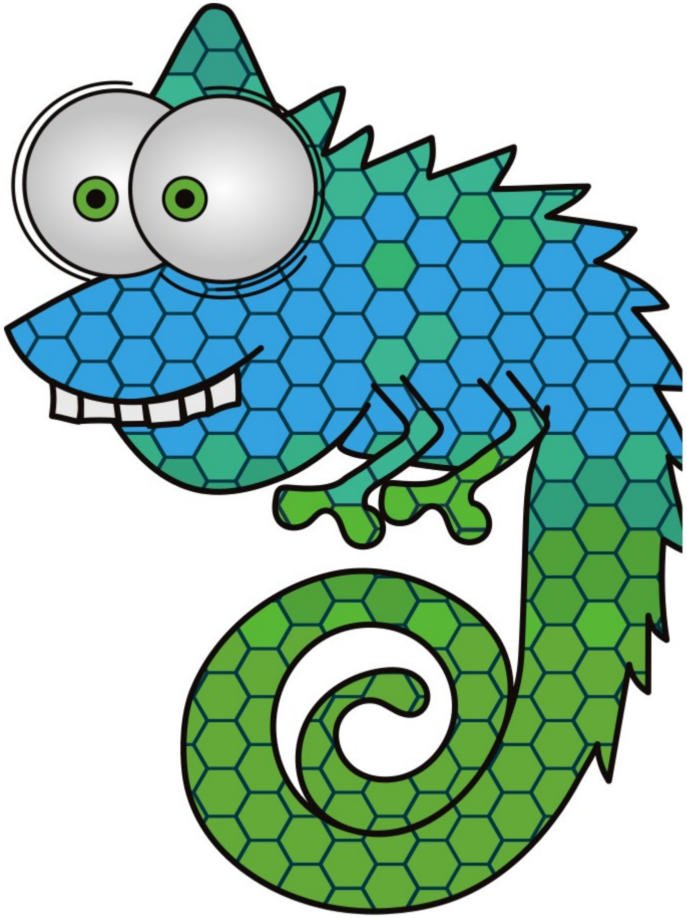
Thank you.



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Richard Brown
rbrown@opensuse.org

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