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The server experts
TK
SERVER

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Raise your Uptime

How to monitor heterogeneous server environments with Linux

LPI Forum Warsaw, 28th September 2012

Agenda

1) Introduction

2) Why monitoring?

3) Icinga Setup and Usage

4) IPMI

5) Conclusions

1) Introduction

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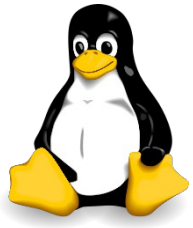
who I am ...

Werner Fischer

Linux user since 2001

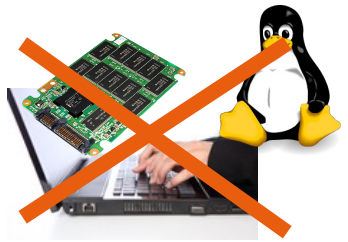


Teamlead R&D at

SERVER

who I'm not

Kernel or H/W dev.



2) Why monitoring?

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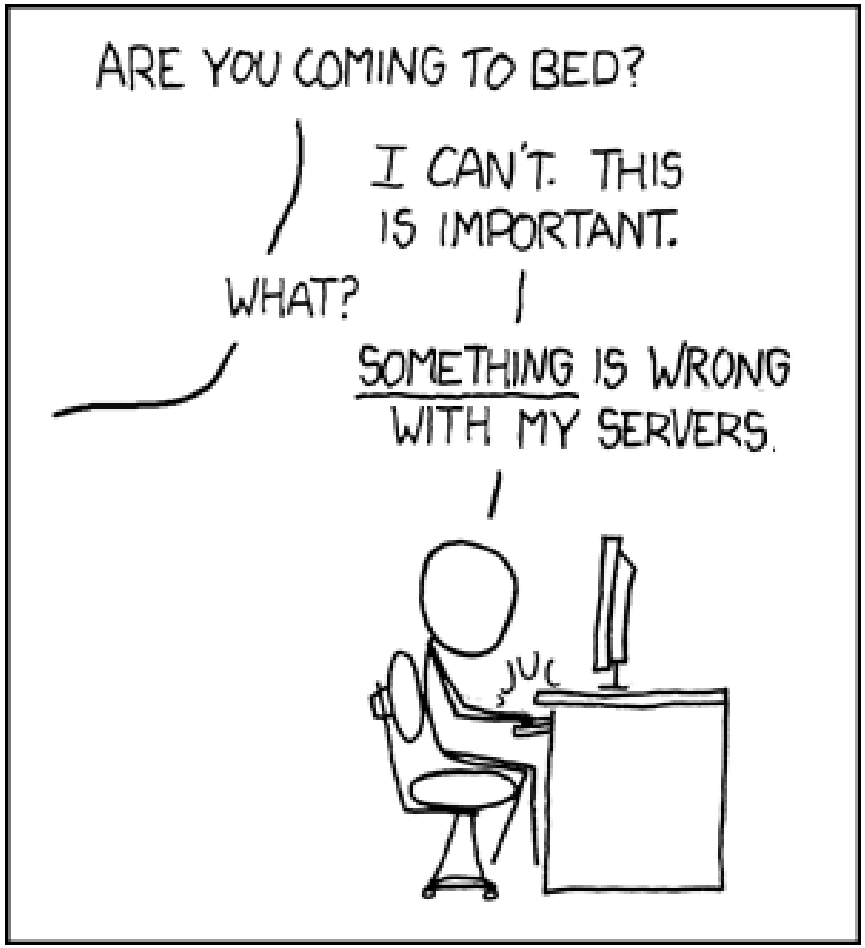

You'll get alerts in realtime

It tells you the "SOMETHING"

It'll save you a lot of time!

2) Why monitoring?

- So why do monitoring?
  - Check Availability
    → send realtime alerts
  - Check Performance
    → discover trends
  - Collect SLA Data
    → prove uptimes

2) What can I monitor?

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- Hardware
  - Server (IPMI)
  - Storage Systems
  - Environment
- Operating Systems
  - CPU, Memory, Disk
  - Processes
  - Log files
  - ...
- Services
  - eg. DNS, FTP, HTTP
  - SSH, SMTP, …
  - TCP & UDP ports
- Applications
  - SAP
  - all Databases
  - Directory services
  - ...

3) Icinga Setup

- To setup your monitoring environment:
  - Install Ubuntu 12.04
  - sudo apt-get install icinga
- To get nice diagrams:
  - sudo apt-get install pnp4nagios

3) Use Icinga

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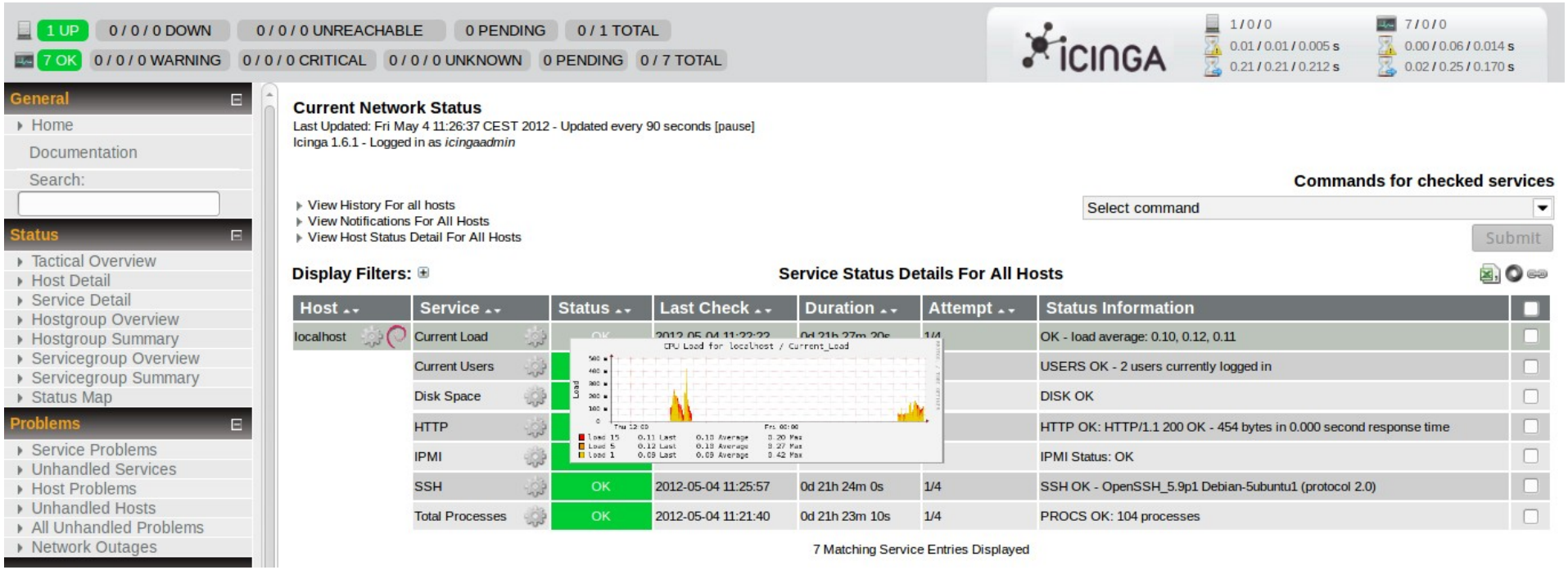
- Icinga Classic web interface



4) IPMI Introduction

- IPMI = Intelligent Platform Management Interface
  - Developed 1998 by Intel, HP, NEC, Dell
  - Current IPMI v2.0 since 2004
- Purpose:

1. Monitoring (temp, fans,...)
2. Recovery Control (power on/off/reset)
3. Logging (system event log)
4. Inventory (FRU information)

4) IPMI Introduction

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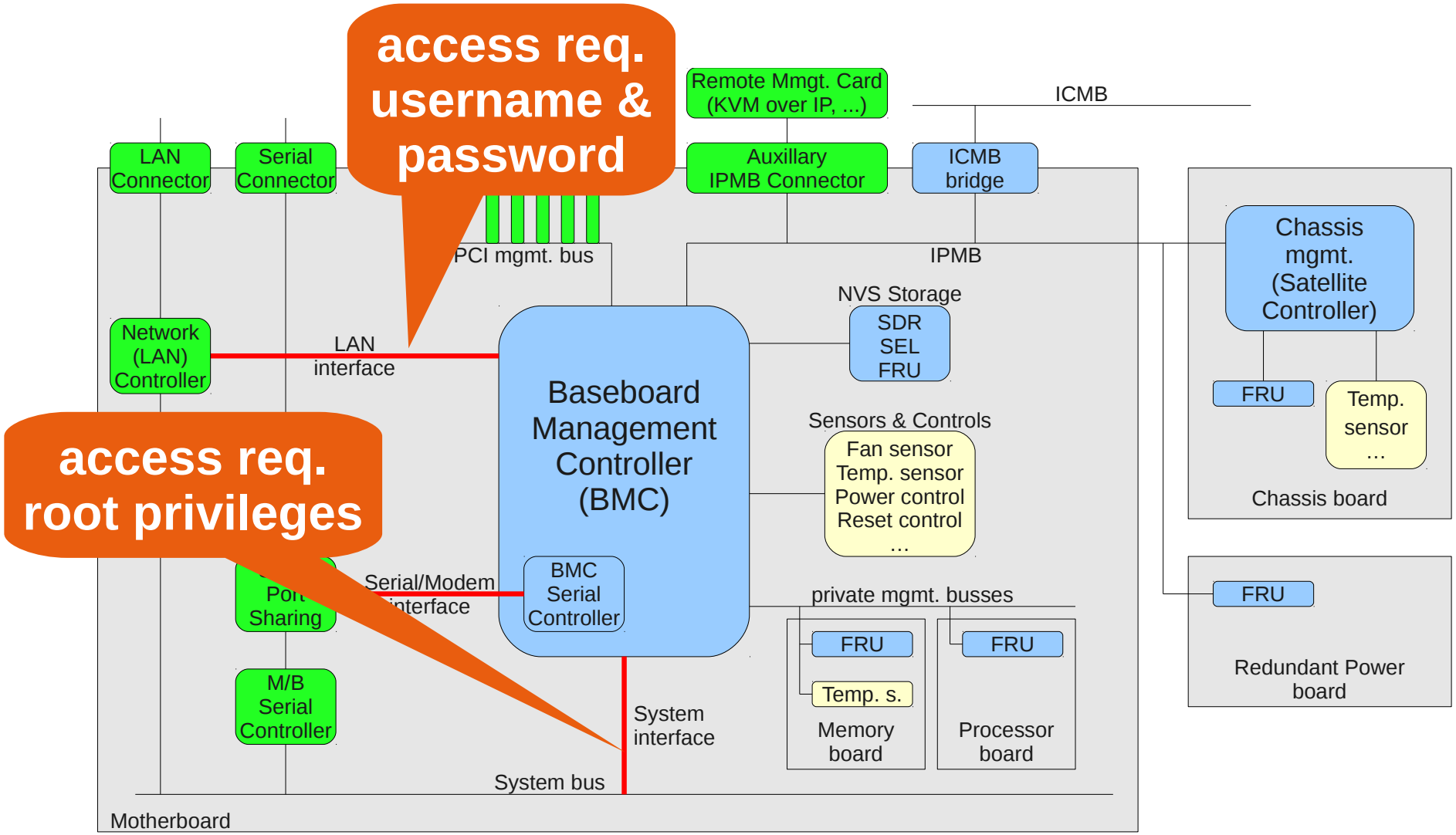
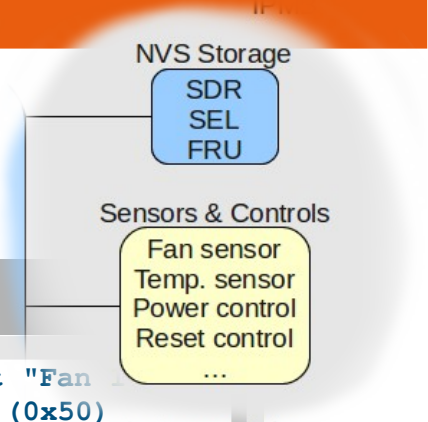


4) IPMI Sensor Classes



- No need to configure threshold values

Discrete sensors

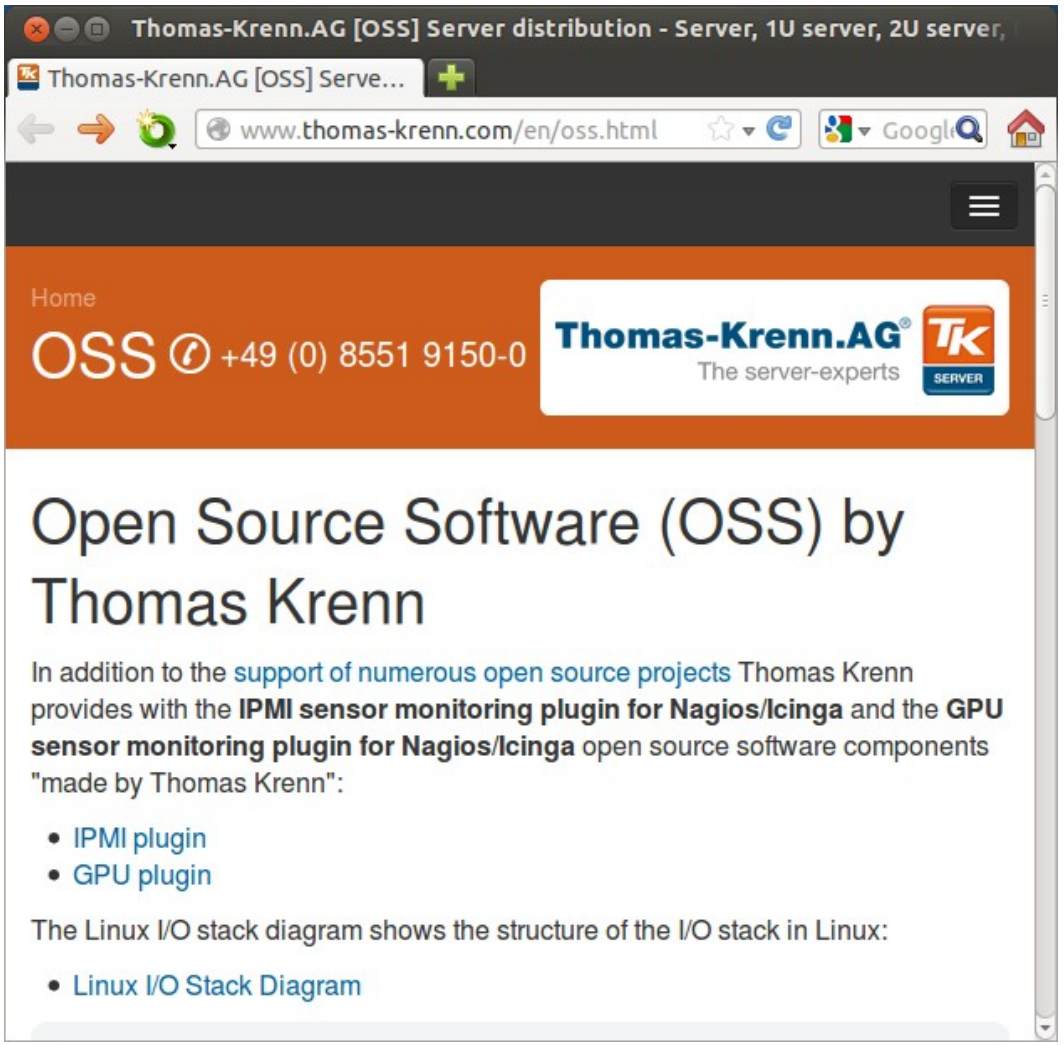
```
[root@test ~]# ipmitool sdr get "PS2 Status"
Sensor ID              : PS2 Status (0x71)
 Entity ID             : 10.2 (Power Supply)
 Sensor Type (Discrete): Power Supply
 States Asserted       : Power Supply
                         [Presence detected]
                         [Power Supply AC lost]
 Assertion Events      : Power Supply
                         [Presence detected]
                         [Power Supply AC lost]
 Assertions Enabled    : Power Supply
                         [Presence detected]
                         [Failure detected]
                         [Predictive failure]
                         [Power Supply AC lost]
[...]
 Deassertions Enabled  : Power Supply
[...]
```

Threshold sensors

```
[root@test ~]# ipmitool sdr get "Fan
Sensor ID              : Fan 1 (0x50)
 Entity ID             : 29.1 (Fan Device)
 Sensor Type (Analog)  : Fan
 Sensor Reading        : 5719 (+/- 0) RPM
 Status                : ok
 Nominal Reading       : 6708.000
 Normal Minimum        : 2451.000
 Normal Maximum        : 10965.000
 Lower critical        : 1720.000
 Lower non-critical    : 1978.000
 Positive Hysteresis   : 86.000
 Negative Hysteresis   : 86.000
 Minimum sensor range  : Unspecified
 Maximum sensor range  : Unspecified
 Event Message Control : Per-threshold
 Readable Thresholds   : lcr lnc
 Settable Thresholds   : lcr lnc
 Threshold Read Mask   : lcr lnc
 Assertion Events      :
 Assertions Enabled    : lnc- lcr-
 Deassertions Enabled  : lnc- lcr-
```

4) IPMI Plugin

- Developed by Thomas Krenn
- Open Source (GPL v3)
- www.thomas-krenn.com/en/oss



4) IPMI Service Check

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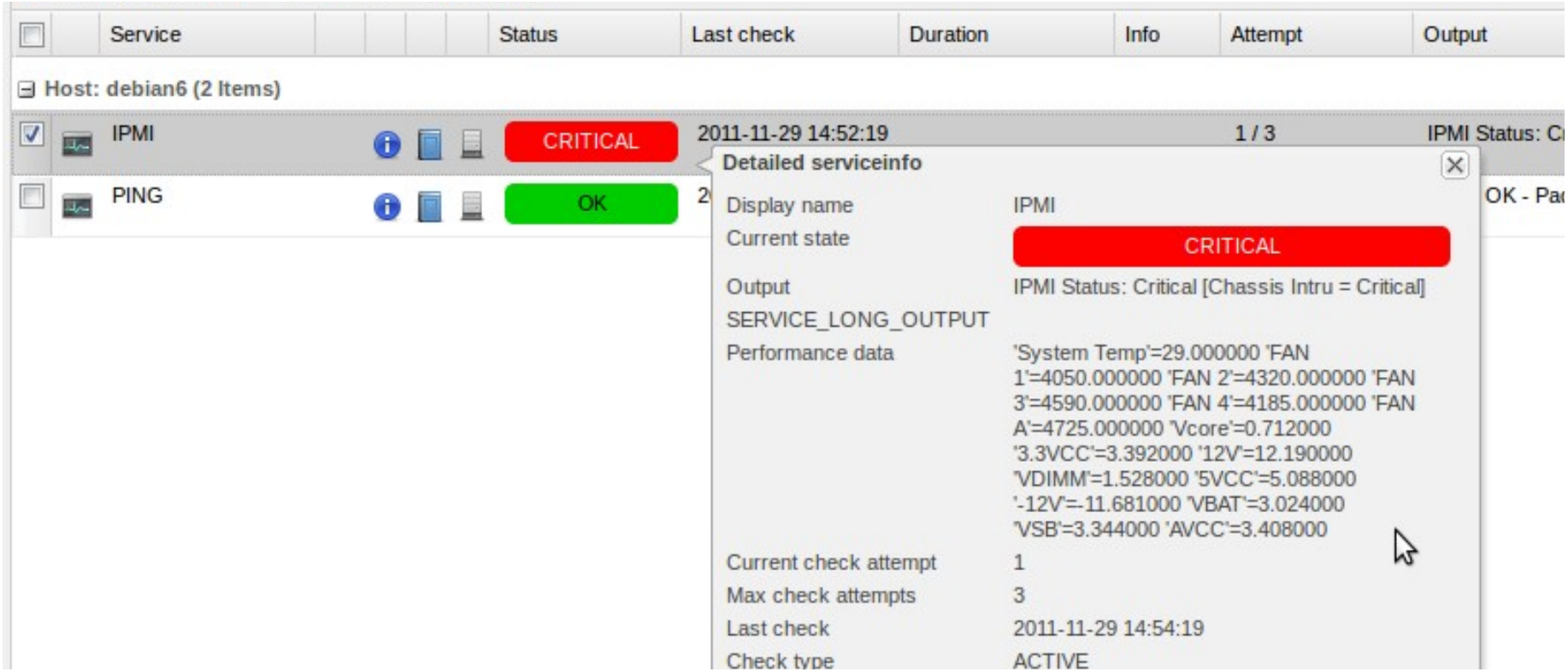
- IPMI service check shows hardware issues:



5) Conclusions

1. Monitor hardware with Icinga & IPMI
2. Problems? They will tell you!
3. It'll save you time & money