ZABBIX

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Free Software that helps

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About me

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Author of Zabbix

Founder and CEO of Zabbix SIA, company-developer of Zabbix software

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What is my talk about?

- Proprietary vs Free Software
- What is Zabbix?
- History of Zabbix
- What do we have now?
- How can Zabbix help you?
- What's next? Zabbix 2.0
- Looking further: Zabbix 2.x

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Software

Proprietary v.s. Free Software

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World of free software

- Apache
- Linux
- MySQL
- OpenOffice
- PHP
- PostgreSQL

Proprietary software

- Mac OS/X
- Microsoft Office
- SAP
- HP OpenView
- Oracle
- IBM Tivoli

ORACLE

SAP

Mac OS X

Tivoli. software

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What is Free Software?

Free. Is is not about price, it is about freedom!

- Think as free as in **free speech**, not as in **free beer**:
  - Freedom to run program for any purpose
  - Freedom to study how the program works
  - Freedom to redistribute the software
  - Freedom to improve the program and release your improvements

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Proprietary Software?

- **It comes with certain limitations**
  - No source code is available
  - Contract imposed limitations (number of users)
  - For non-commercial use only
  - Technical restrictions (number of CPUs), size of data
  - Be careful: any of your freedom can be restricted for your money!

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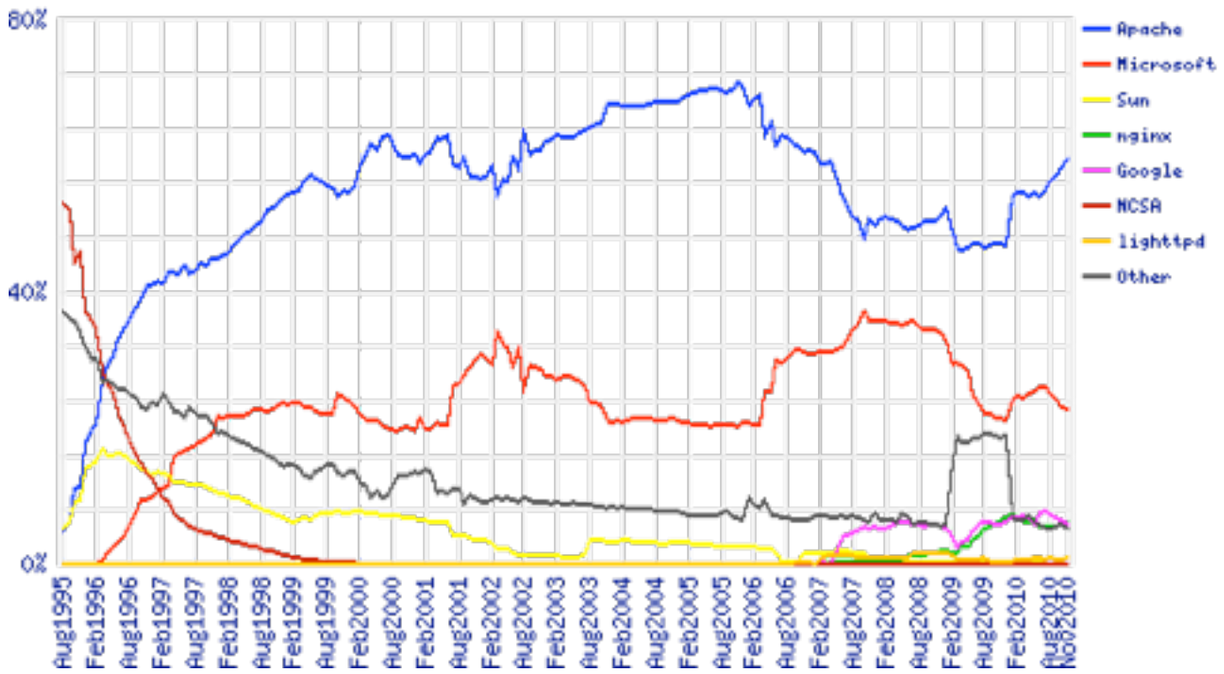
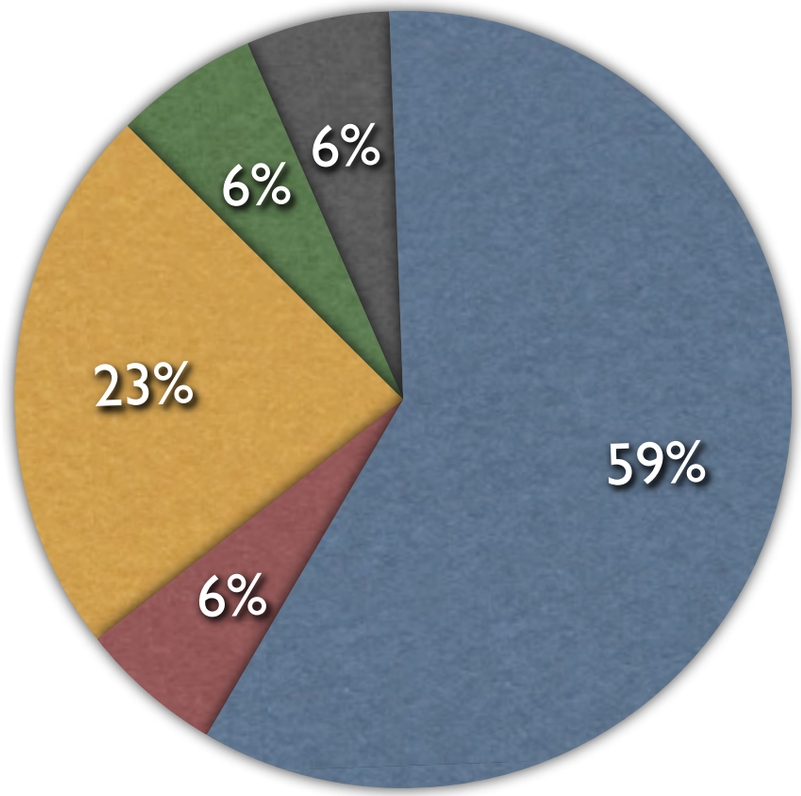
Success of Free Software

- **Internet is powered by solutions based on Free Software**
- Most of domains use Open Source
- Apache serves more servers than MS





Apache
Microsoft
Other
Nginx
Google

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My observations

- Free Software is everywhere and growing
  - Large corporations are scared by patents
    - In many cases, “Free” comes as a requirement
- Nearly all internet start-ups are purely based on Free Software (even monsters like Google and Facebook)
- Stupid strategy: build your startup on top of proprietary software or technology

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History of Zabbix

It's Free!

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Zabbix: a typical Open Source story

- Everything started with an idea of a better monitoring tool
- Was released as a free software
- A company was established for commercial services
- It is quite typical story:
  - MySQL, PostgreSQL, Linux (RedHat, SuSE), etc etc

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Progress we made

9.5 years ago

- 1-2 downloads per day
- No WEB site, no forums
- No company
- No commercial services
- Very small community

Today

- 500 downloads per day
- Company behind Zabbix
- Customers around the World
- More than 20 partners
- >20.000 users on Forums

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What do we have now?

Software, company

Zabbix Software

- Zabbix 1.8.3 released, 1.8.4 is on the way

- One of the most popular Open Source monitoring systems
- One of the most complete solutions according to Wikipedia:

Zabbix	Yes	Yes	Yes	Yes	Yes	Supported	Yes	Yes	Yes	Yes	Full Control	Yes	Yes	Oracle, MySQL, PostgreSQL, SQLite	GPL	Yes	Yes	Yes

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Zabbix Company

- Our team grew to 13 people
- Customers with more than 100.000 of monitored devices
- We have 4 Premium Partners (Japan, UK, Austria, Spain)
- More than 20 Partners and Resellers around the World

NTT Communications
NTT Communications Company
NTT ComTechnology

FREQUENTIS

sia

iNet100

MIRACLE

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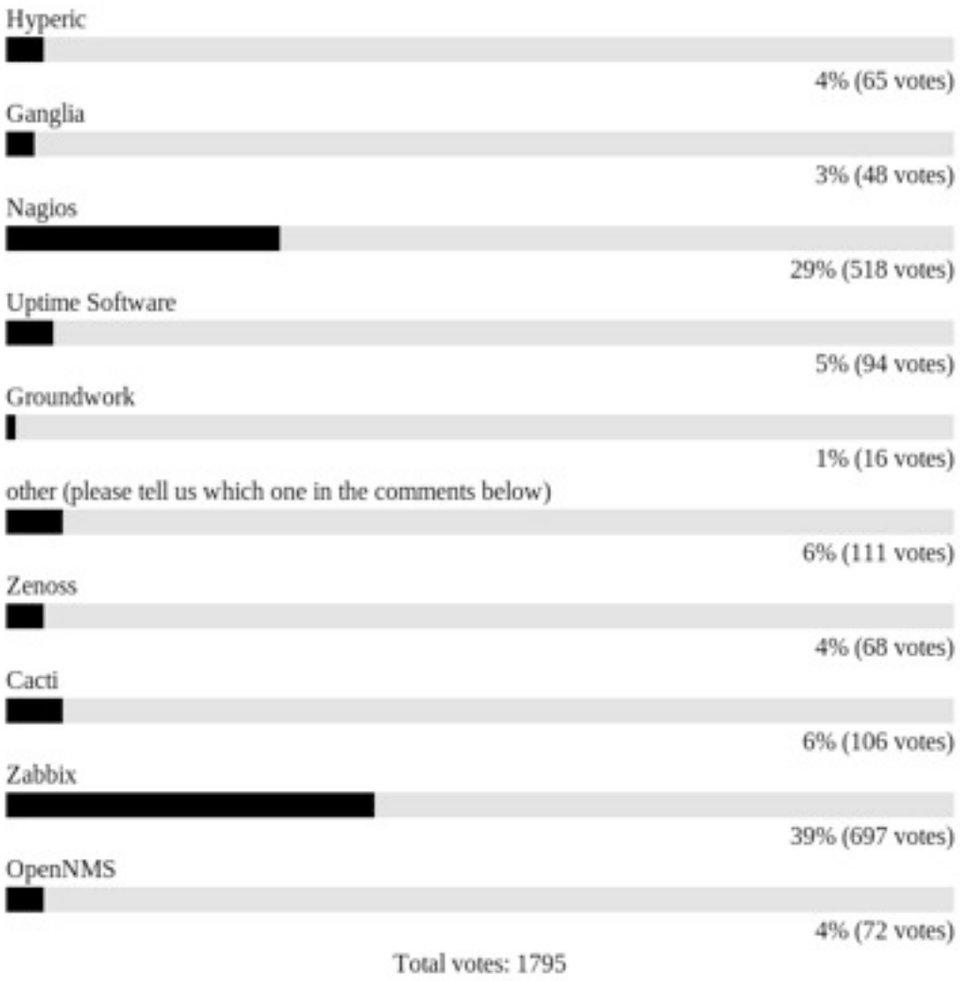
Success story?

Ubuntu Survey

Linux Journal: Zabbix is #2 after Nagios

7 of Top 10 Latvian banks are on Zabbix

Dienas Business: “Zabbix competes with HP and IBM”



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What is Zabbix?

I'm sure some of you know this already.

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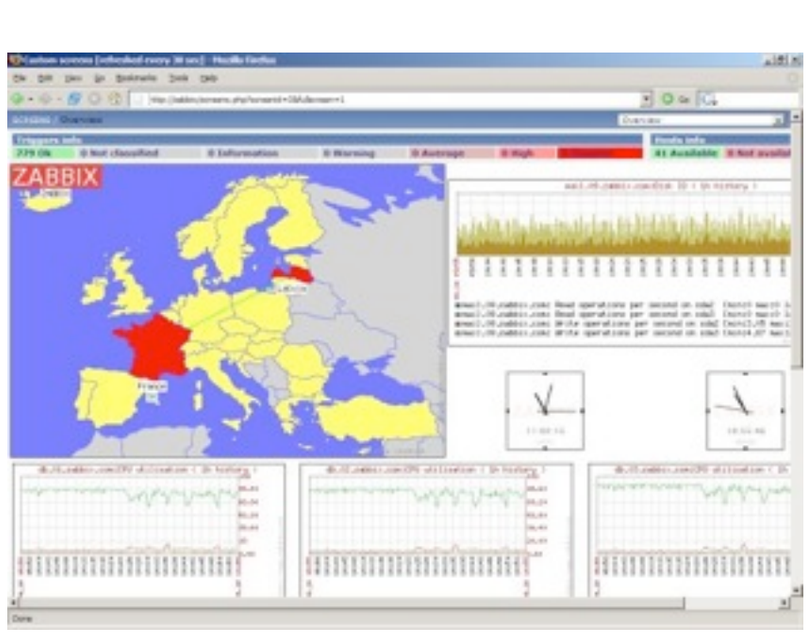
Let's look at Zabbix

Zabbix - open source software for monitoring of IT infrastructure

- It takes care about critical services and applications
- It helps to maintain 24x7 availability
- It warns about problems even before they happened
- **It has great business importance!**



All included!

- **Possible models**
  - Enterprise versions
  - All included
- Professional services

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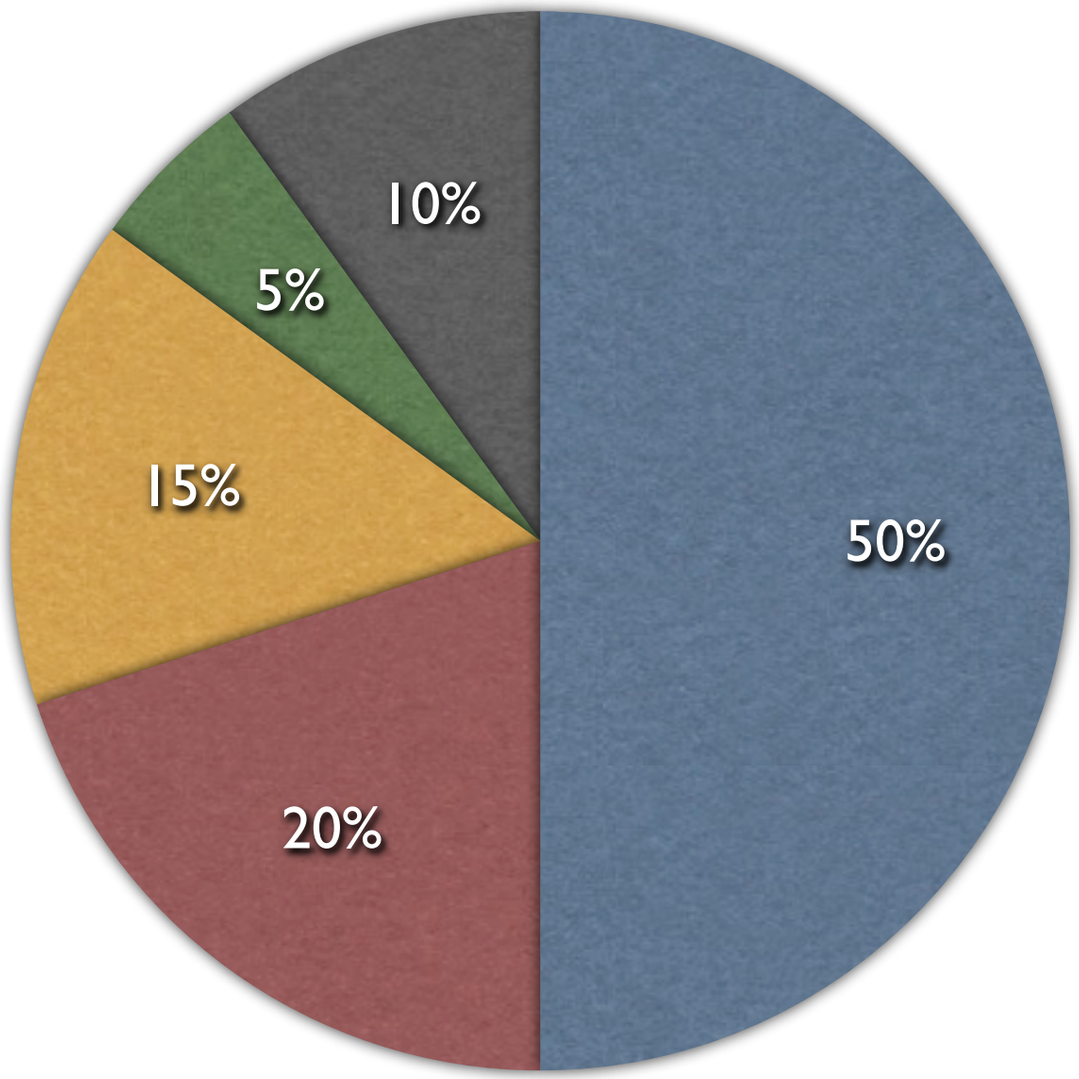
How do we make a living



- Commercial support
- Sponsored development
- Implementation
- Consultancy
- Training

Community vs Customers

Both are very important to us!

- **Community**
  - Zabbix wouldn't not be so popular without community
  - Word of mouth marketing
- **Customers and partners**
  - Growth of our company depends on customers and partners

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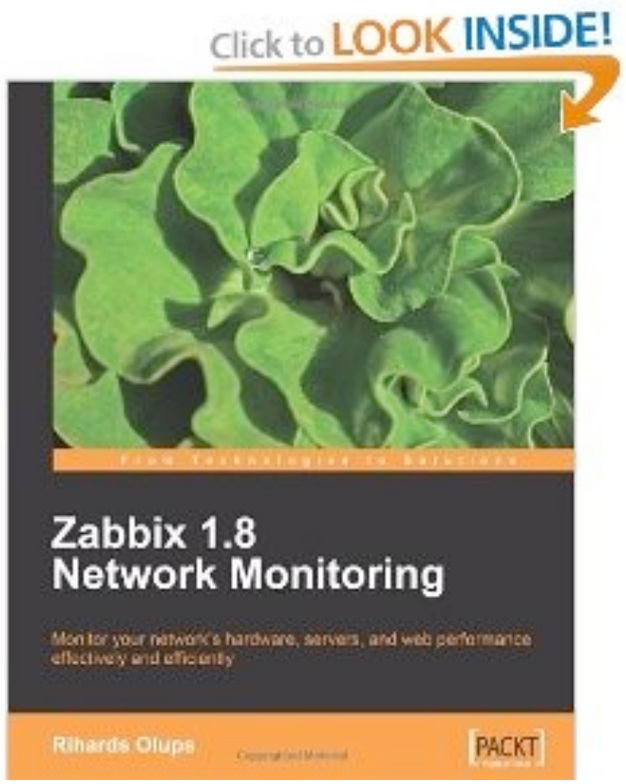
Cooperation with community

- Roadmap discussion
- Pre-release (alpha, beta) testing
- Early feedback
- Translations
- Free support to new users

Zabbix Community

- I am very very proud of our community
- Two books on Zabbix are available: in English and in Japanese
- Zabbix is no longer a stranger, it's a well known solution



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Our customers

- Customers from small shops to multi-national companies
- Customers have guaranteed commercial support
- We have resources to develop our product

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NTT Communications Company
NTT ComTechnology

XS4ALL

RENNER

netia

Basler Versicherungen

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Community and customers make our product better

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How can Zabbix help

Problems solved by Zabbix

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Why monitor?

- **Reasons**
  - Downtimes are expensive, well, extremely expensive
- **Goals**
  - To identify and fix problems early. Do not wait customers calling!
  - To measure and analyze availability and performance
  - More productive work of system administrators
  - To improve quality of provided services
  - To plan hardware upgrades/restructure in advance
  - To cut administrative costs by automating, no manual monitoring

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Typical use cases

- What's current systems state?
- What's the root cause of my problem?
- I want to be warned if something happens
- My system has to do something in case of a problem
- I want to have long-term information (trends) to plan hardware upgrades
- I need SLA numbers for all my services

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How Zabbix works

Data collection

- Agent data
- SNMP performance and availability info
- Internally calculated: aggregates, internal checks, calculated items
- SNMP traps
- Log files
- Windows event logs

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How Zabbix works

Data collection

CPU load

5.4

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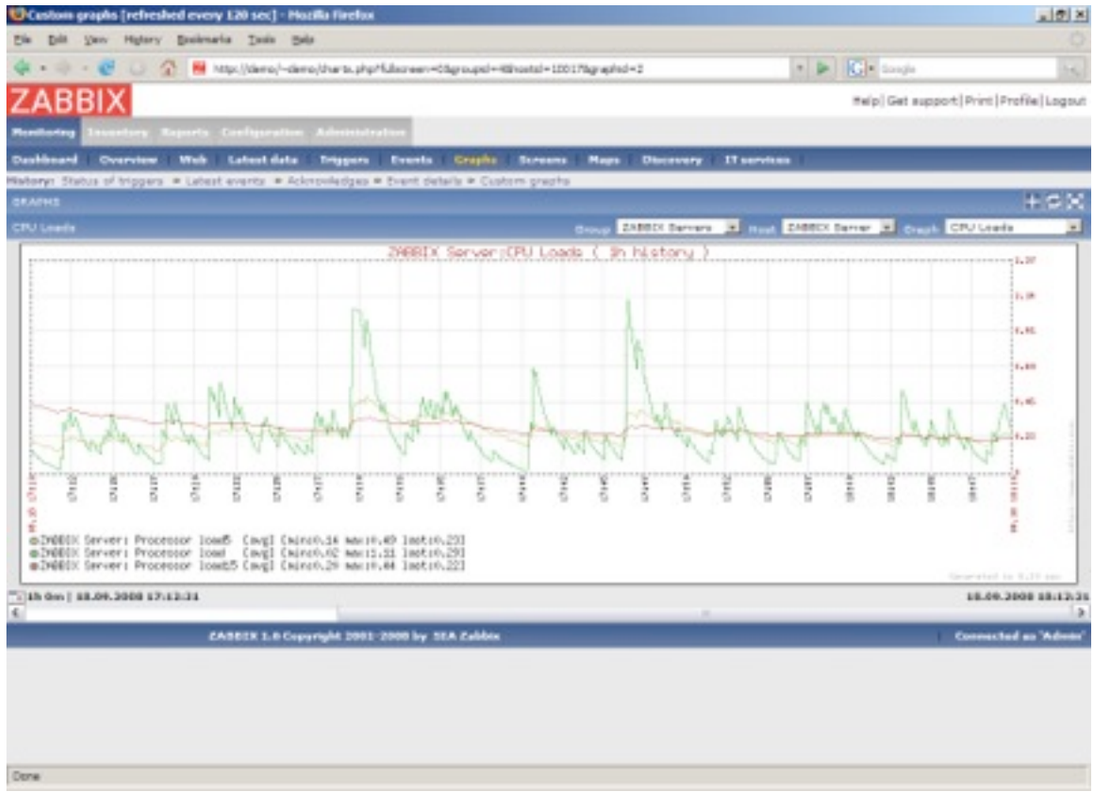
How Zabbix works

Data collection

Zabbix logic

CPU load

5.4



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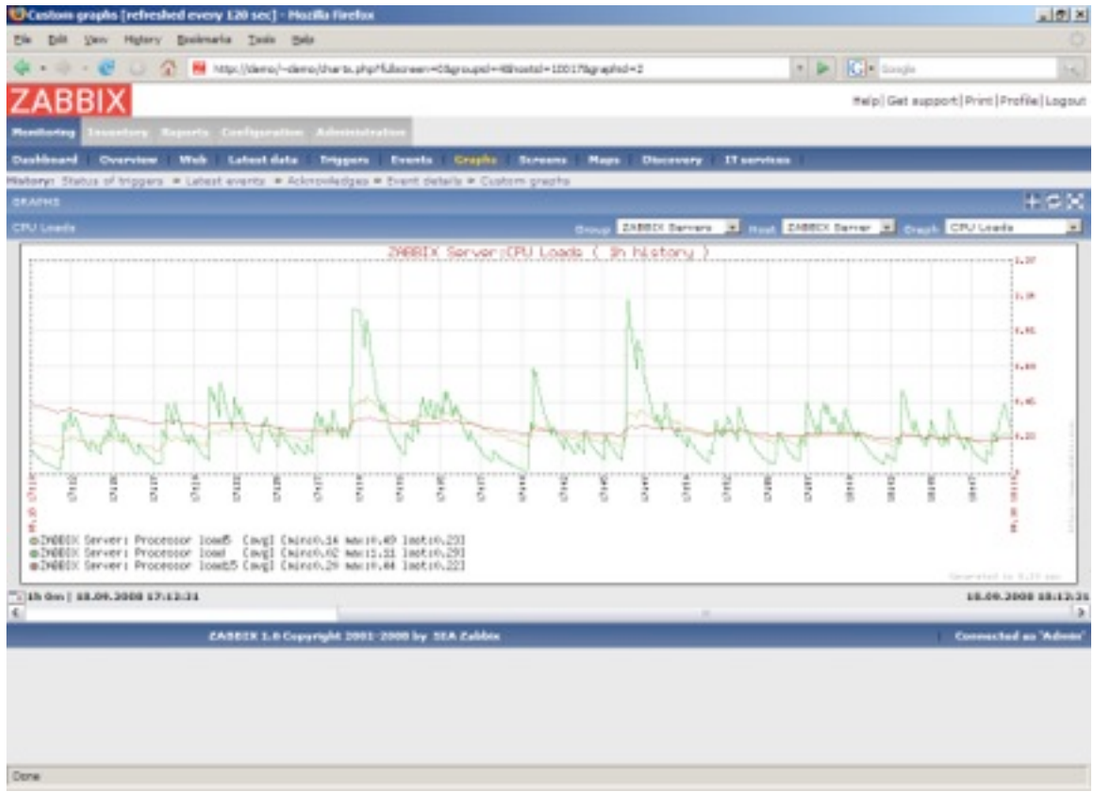
How Zabbix works

Data collection

Zabbix logic

CPU load

5.4



Problem if CPU load is more than 5

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How Zabbix works

Data collection

↓

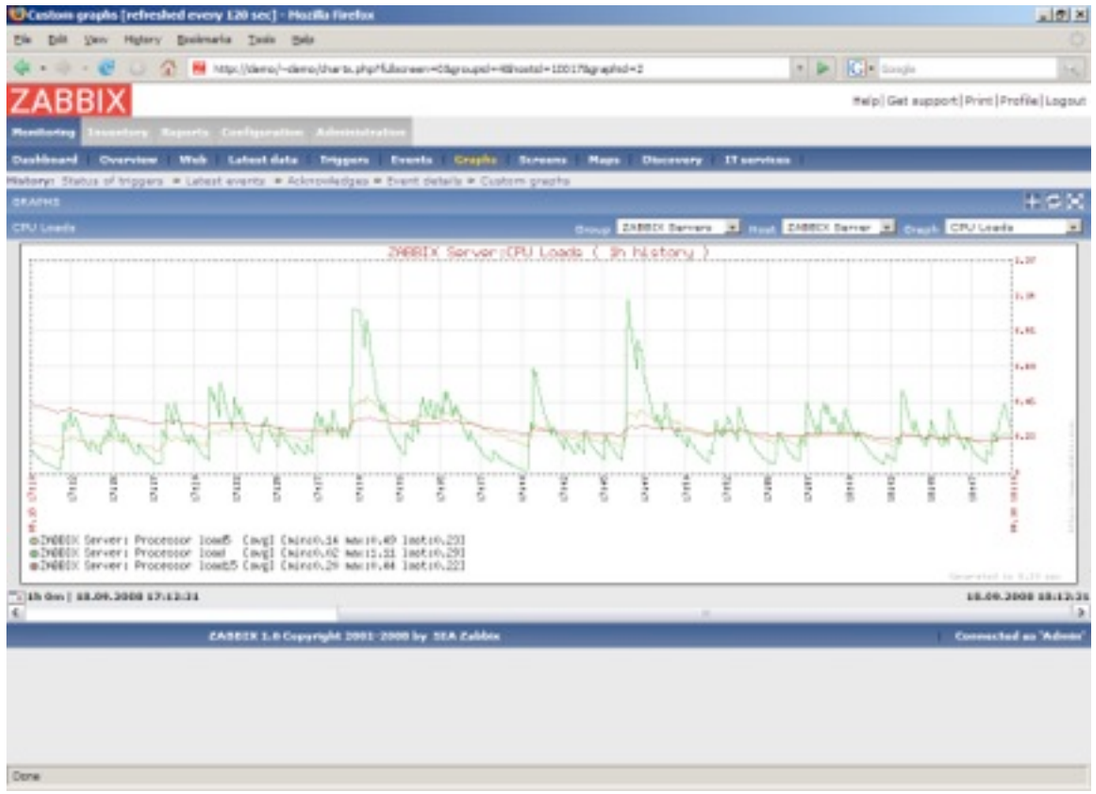
Zabbix logic

↓

Notifications
Automatic actions

CPU load
5.4

Problem if
CPU load
is more than 5



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How Zabbix works

Data collection

Zabbix logic

Notifications
Automatic actions

CPU load
5.4

Problem if
CPU load
is more than 5

Send SMS

"Server is overloaded"

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Important design decisions

- **WEB front-end**
  - Open and customizable
- **Everything is stored in a relational database**
  - No threads
- **No complex locking and access to shared resources**
- **C language for Server and Agent**
  - The best performance
  - The lowest footprint and resource usage
- **Can be used in embedded environment**
  - SQLite, very small footprint
- **Distributed client server architecture**
  - Large scale environments
  - All Zabbix features works in DM environments

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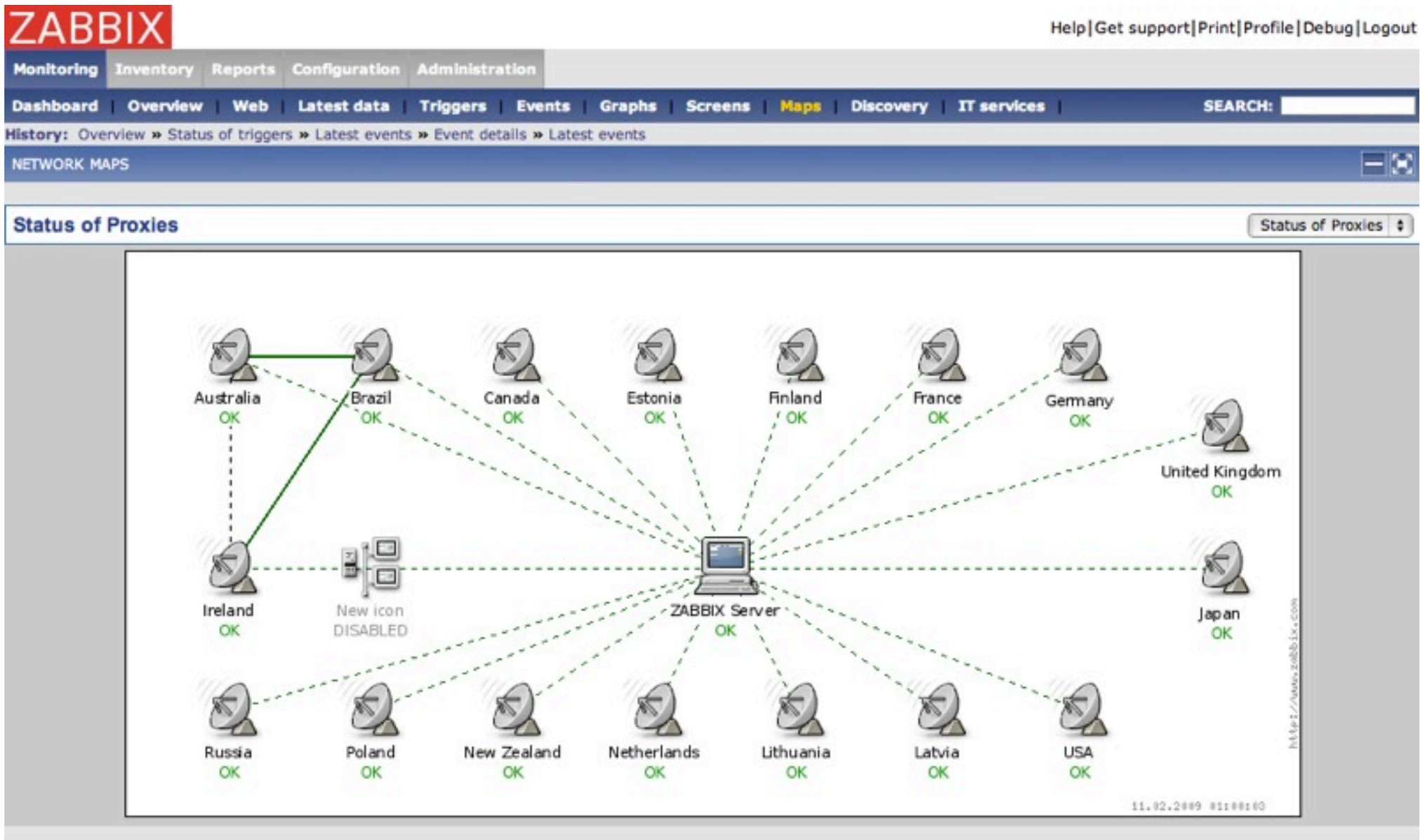
Maps


ZABBIX
Help | Get support | Print | Profile | Debug | Logout
Monitoring
Inventory
Reports
Configuration
Administration
Dashboard | Overview | Web | Latest data | Triggers | Events | Graphs | Screens | Maps | Discovery | IT services | SEARCH:
History: Overview » Status of triggers » Latest events » Event details » Latest events
NETWORK MAPS
Status of Proxies
Status of Proxies
Australia
OK
Brazil
OK
Canada
OK
Estonia
OK
Finland
OK
France
OK
Germany
OK
United Kingdom
OK
Ireland
OK
New icon
DISABLED
ZABBIX Server
OK
Japan
OK
Russia
OK
Poland
OK
New Zealand
OK
Netherlands
OK
Lithuania
OK
Latvia
OK
USA
OK
http://www.zabbix.com
11.02.2009 01:00:03

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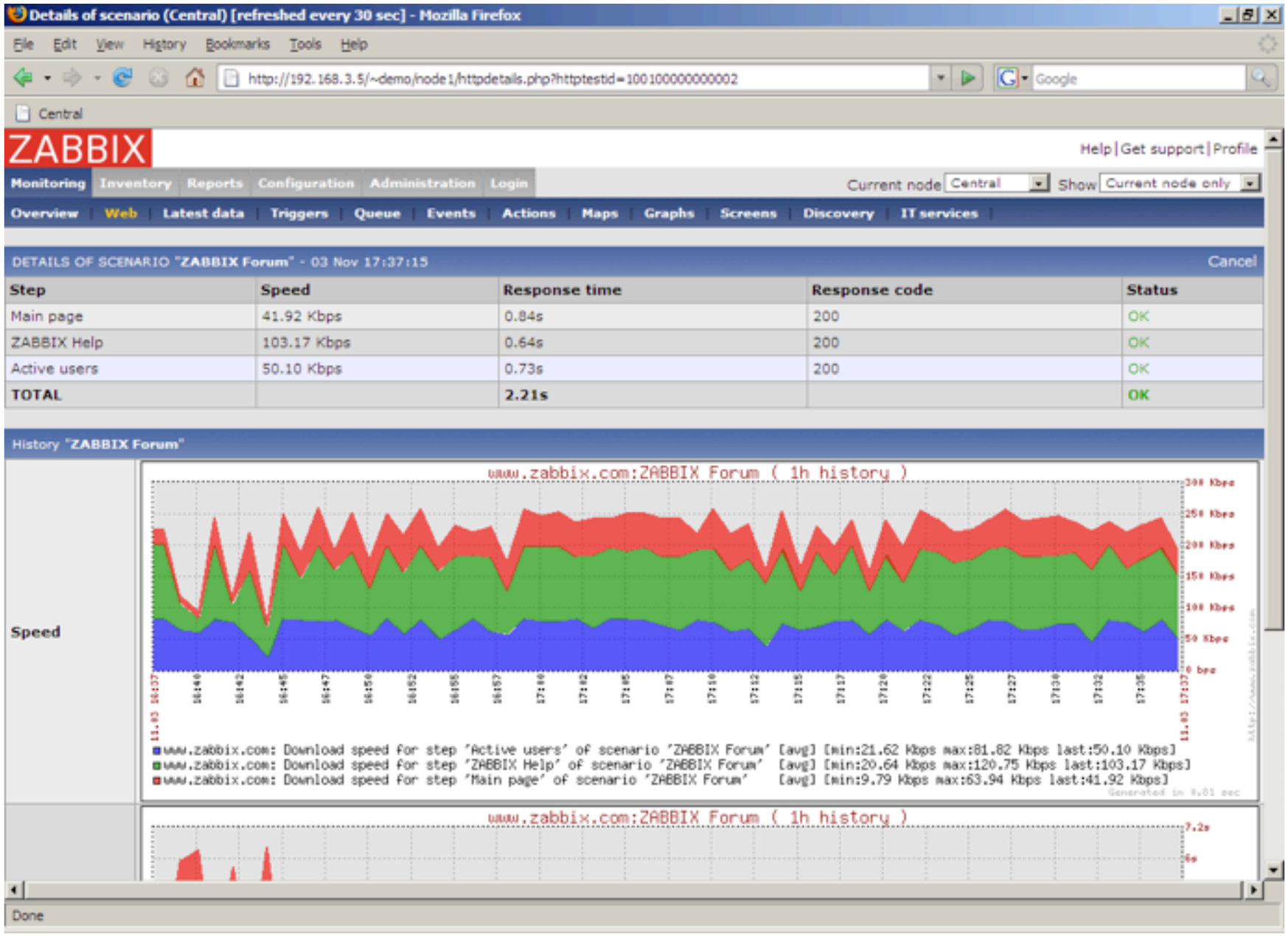
WEB monitoring



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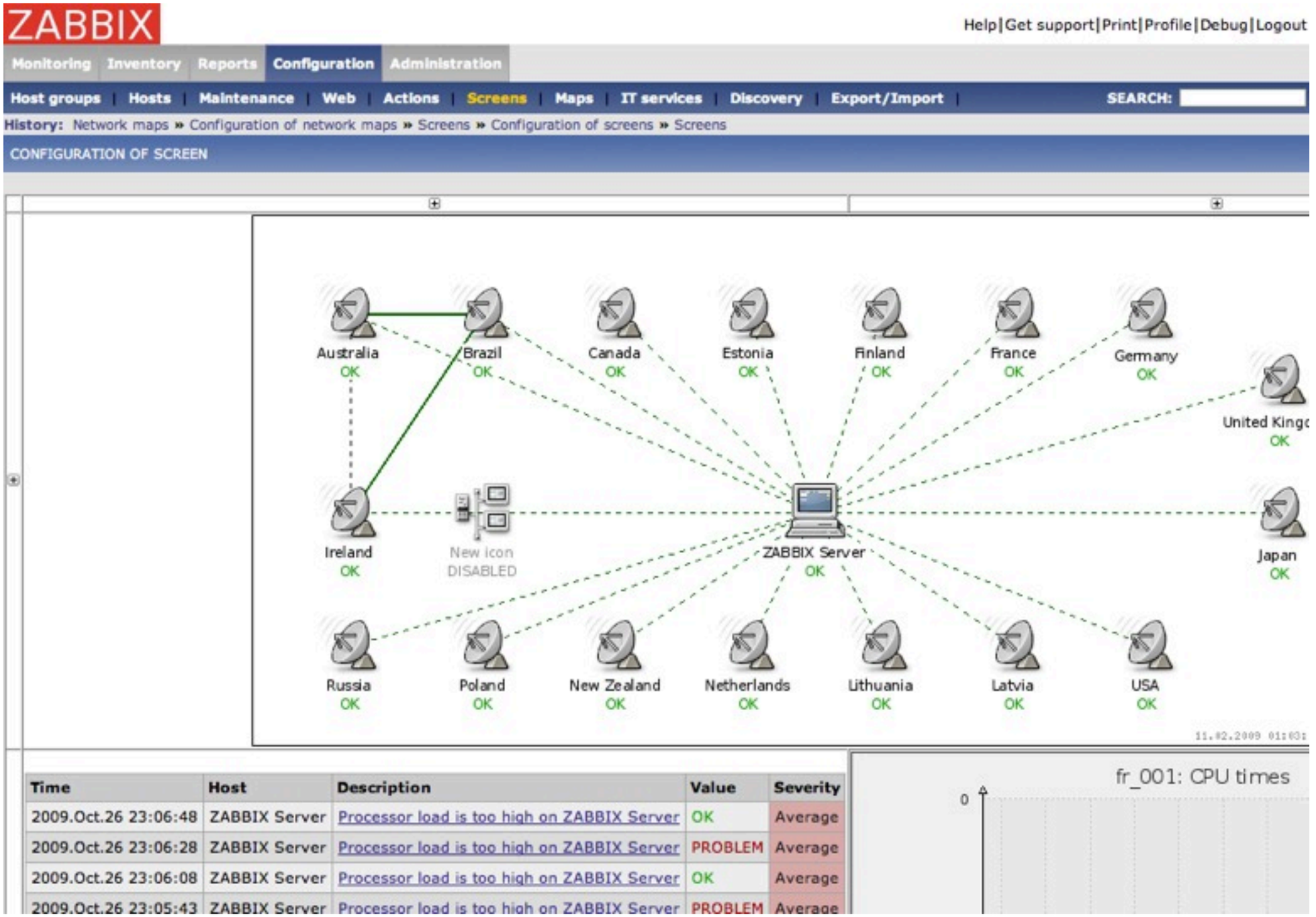
User Screens



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Monitoring of performance and availability

- Availability of
  - Services, SLA
  - Network
    - Consistency checks
    - Availability of memory and disk resources
- Performance
  - CPU
  - Disk IO
  - Bandwidth

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So, what's next?

Zabbix 2.0!

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General Directions

- Better user experience
  - GUI
  - Easy to deploy
- Simplify everything: initial setup and maintenance
  - Official packages for all platforms (DEB, RPM, binaries)
  - Appliances (images for VMWare, ISO images, installation CDs)
- Better Quality Assurance: Release Candidates, Unit testing, string freeze phase for translators, etc

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Database integrity

- Why it is important
  - Consistency of data
  - It help to catch all sorts of bugs at very early stage
- Drawbacks
  - Lower performance
- What it is all about
  - Foreign keys
  - Cascade operations (deletes, updates)

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Low level discovery

- Current situation
  - Host level discovery only
  - Difficult to use templates for hosts having different file systems, network interfaces, etc
- Zabbix 2.0
  - Automatic discovery of network devices, file systems, processes, etc
  - Discovery of SNMP interfaces and JMX counters
  - One template for hosts having different resources!

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Multiple network interfaces

- Current situation
  - One IP address per monitored device
    - Unable to monitor different resources on different IPs
- Zabbix 2.0
  - Monitored device to support multiple IPs
  - One IP: monitoring by SNMP, another: Zabbix Agent

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JMX remote monitoring

- Current situation
  - Use of ZapCat or other 3rd party tool
- Zabbix 2.0
  - Native support of JMX monitoring
  - Discovery of JMX counters
  - Monitoring of Java infrastructure: JBoss, WebLogic, WEBSphere, Tomcat
  - Monitoring of Java Applications

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Automatic update of Hardware profiles

- Current situation
  - Host profiles should be manually updated
- Zabbix 2.0
  - Can be automatically collected
  - Manual processing as well

By camknowns, Flickr

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WHEN???

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No promises!

To be released when ready

Initial estimate:

first quarter of 2011

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Zabbix 2.x

Something to expect soon

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NoSQL storages

- Zabbix Supports: MySQL, PostgreSQL, Oracle, DB2, SQLite
  - Problem: maximum 15.000 of values per second
  - Cannot scale!
  - Performance drops significantly when size of historical data increases
- Solution:
  - Use NoSQL storages for historical data (Cassandra, Hadoop, Hbase, Hypertable, MongoDB, CouchDB, Neo4J)
  - Theoretically, performance can be higher than 100.000 of values per second
  - Can be horizontally scaled. More servers - more performance!
  - API for history data, you can choose any engine!

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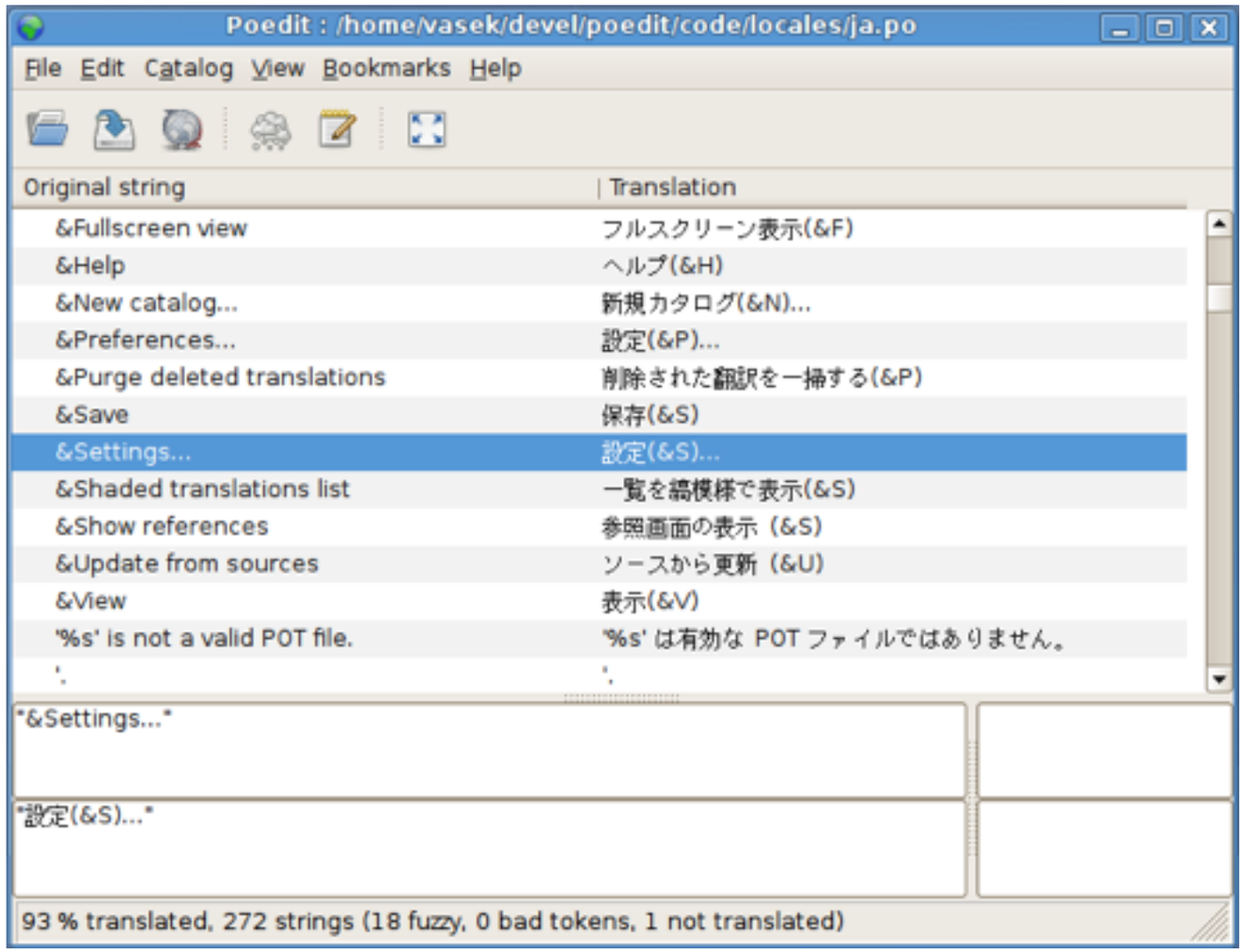
GNU Translation framework

- Zabbix Interface
- Server, Proxy and Agents
- GNU Translation framework
- Obligatory string freeze phase



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Zabbix in a Cloud

- Integration with cloud APIs
  - Amazon EC2
  - Rackspace Cloud
  - VMWare
- Monitoring
- Management (add or remove resources on demand)
  - High CPU load -> add a new cloud server
  - Lack of disk storage -> add a new cloud storage

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Zabbix for virtual environments

- Virtual environments
  - KVM
  - XEN
  - VMWare
- Monitoring
- Management (add or remove resources on demand)
  - High CPU load -> add a new cloud server
  - Lack of disk storage -> add a new cloud storage

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Global task scheduler

- I took the idea from a question during IT Expo 2009 in Tokyo :)
- We already have everything to make it possible
- Kind of global calendar for the whole monitored environment
- Can be used to:
  - Schedule backups and other periodical tasks
  - Start/shut down physical and virtual servers, cloud resources
  - Conditional execution of commands depending on existing problems. Example: Turn off cluster nodes at night only if CPU load is low.

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WWW.ZABBIX.COM

The presentation will be available
on www.zabbix.com soon!