

# MySQL Performance Monitoring with Zabbix

An alternative to the MySQL Enterprise  
Monitor?

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# How many of you ...

- ... monitor their database servers?
- ... monitor their (MySQL) databases?
- ... monitor performance metrics?
- ... all the others: Why not?



# Linux monitoring

Solution	Votes	%	
Zabbix	394	33.2	
Nagios	373	31.4	
Uptime Software	91	7.7	
other	77	6.5	
Cacti	62	5.2	
Hyperic	52	4.4	
Zenoss	51	4.3	
Ganglia	41	3.5	
OpenNMS	34	2.9	
Groundwork	12	1.0	

- Question: What is your favourite Linux monitoring application?
- 1187 votes, April 2010
- Manipulated?
- Lit: Linux Journal, [1]



# What to monitor?

- **Devices / Software**
    - Server, Router, Switches, I/O systems etc.
    - Operating System, Networks, Applications, etc.
  - **Incidents**
    - DB down, Replication stopped, Server not reachable, etc.
  - **Critical Events**
    - Disk more than n% full or less than m Gbyte free, Replication more than n seconds lagging, Data node down, 100% CPU utilization, etc.
- **Alert, immediate intervention, fire fighting**



# What to monitor?

- Trends (includes time!)
  - Graphs
- How long does it take until ...
  - ... my disk is full?
  - ... my Index Memory is filled up?
- When does it happen?
  - Peak? Backup?
- How often does it happen? Does it happen periodically?
  - Once a day? Always at Sunday night?
- How does it correlate to other informations?
  - I/O problems during our backup window?
- Reading the patterns!
  - this can help us to find the root cause of problems...



# How to monitor?

- **Basic solutions:**
  - **top, vmstat, iostat, mytop, innotop, SHOW GLOBAL STATUS, SHOW INNODB STATUS**
  - **CLI!, no graphs, no log term information, but good for adhoc analysis!**
- **Graphical solutions**
  - **Nagios, Cactii, Zabbix, ...**
  - **Typically NOT specialised in DB monitoring...**



# Focus

- **Database + Server**
- **Trends**

**Not the other stuff...**

- **Problem:**
  - **Monitoring solutions are generic**
  - **A database is a specific application!**



# MySQL monitoring

Solution	Votes	%	
none	365	40.2	
Nagios	211	23.3	
home grown solution	85	9.4	
other	78	8.6	
Big Brother	38	4.2	
IBM Tivoli	37	4.1	
HP OpenView	31	3.4	
Mytop	23	2.5	
CA-Unicenter	15	1.7	
Ganglia	14	1.5	
Moodss	5	0.6	
Hyperic	5	0.6	

- Question: What monitoring software do you use?
- 907 votes, January 2005
- Pre-MySQL Enterprise Monitor era
- Lit: MySQL, [1]





# The MySQL Enterprise Monitor [4]

The screenshot displays the MySQL Enterprise Monitor interface. On the left is a tree view of servers. The main area contains several graphs: CPU Utilization, Database Activity, Memory Usage - OS Virtual, Opened Tables, Row Accesses, and Row Writes. A 'Waiting on Customer Support Issues' section shows a summary of issue 38820. Below this is an 'All Servers Heat Chart' table with columns for various metrics and a legend for server and agent status.

**All Servers Critical Events**

Current	Server	Category	Rule	Time	
✓	MyMaster:3308	Heat Chart	CPU Usage Excessive	Jul 15, 2009 4:56:55 AM	close
⚠	MyWeb:13306	Performance	Indexes Not Being Used Efficiently	Jul 14, 2009 8:02:23 PM	close
✓	MyWeb:13306	Performance	Prepared Statements Not Being Used Effectively	Jul 14, 2009 5:35:26 PM	close
⚠	MyMaster:3308	Replication	INSERT ON DUPLICATE KEY UPDATE Bug May Break Replication	Jul 14, 2009 5:31:50 PM	close
⚠	MyQA:3307	Memory Usage	Key Buffer Size May Not Be Optimal For System RAM	Jul 14, 2009 5:27:28 PM	close
✓	MyWeb:13306	Administration	MySQL Server Has Been Restarted	Jul 14, 2009 5:27:25 PM	close
⚠	MyWeb:13306	Memory Usage	Key Buffer Size May Not Be Optimal For System RAM	Jul 14, 2009 5:27:25 PM	close
⚠	MyDev:3306	Memory Usage	Key Buffer Size May Not Be Optimal For System RAM	Jul 14, 2009 5:27:04 PM	close
⚠	MyQA:3307	Security	Server Has Anonymous Accounts	Jul 14, 2009 5:26:55 PM	close
⚠	MySlave:3310	Memory Usage	Key Buffer Size May Not Be Optimal For System RAM	Jul 14, 2009 5:26:53 PM	close
⚠	MyMaster:3308	Memory Usage	Key Buffer Size May Not Be Optimal For System RAM	Jul 14, 2009 5:26:51 PM	close
⚠	MyMaster:3308	Security	Server Has Accounts Without A Password	Jul 14, 2009 5:26:48 PM	close



# The MySQL Enterprise Monitor

- **Pros**

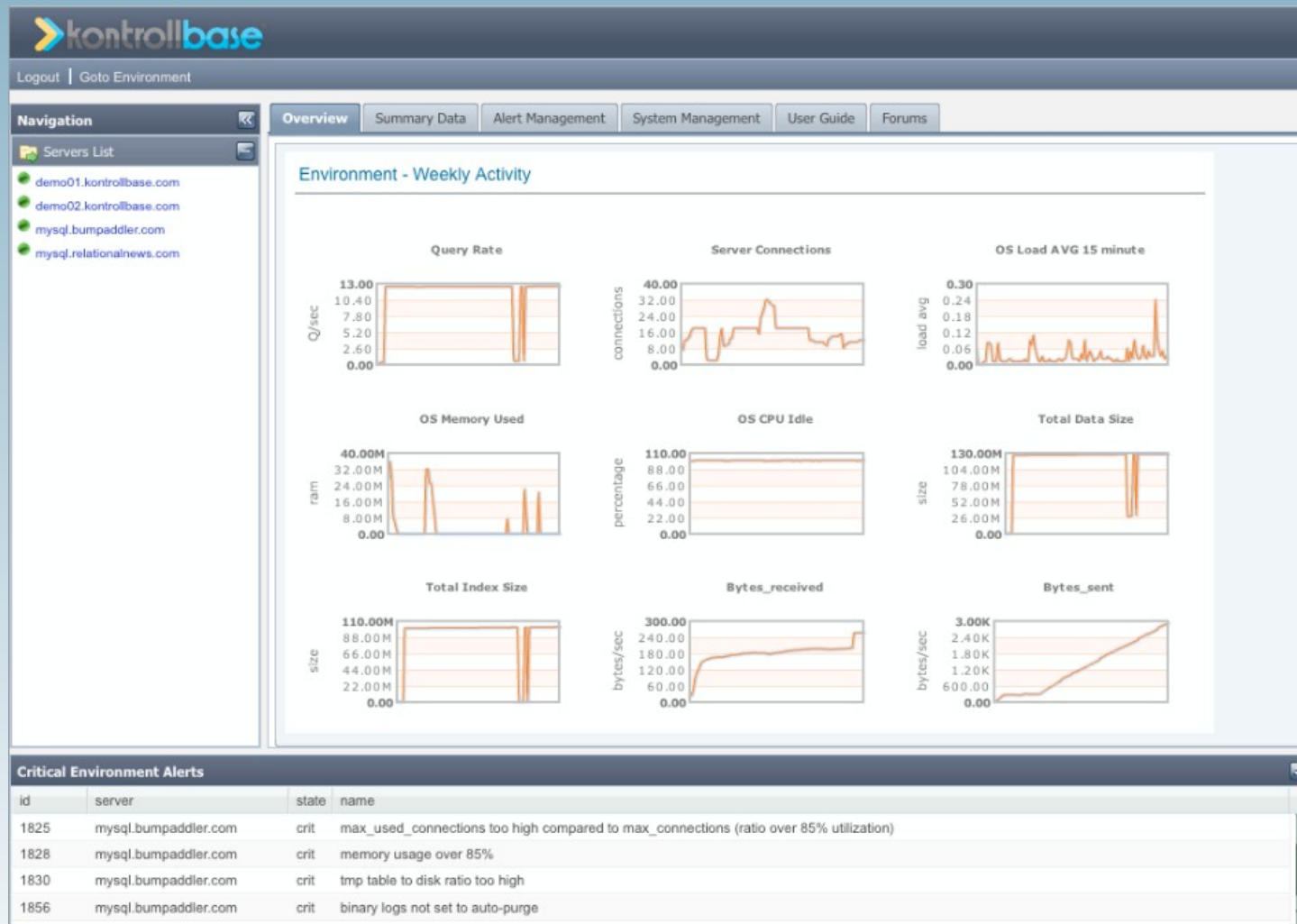
- Tailored for MySQL
- Easy install
- Handy GUI
- Query Analyser (caution!)
- Replication Monitor

- **Cons**

- Only for paying customers
- Proprietary code
- Does NOT monitor MySQL Cluster yet [2], [3]
- Very resource intensive (Java App Server!)
- Future: Integration into Oracle Enterprise Manager???
- MariaDB, Aria, XtraDB, PBXT, Drizzle, Sphinx SE, ... ?



# Kontrollbase [5]



# Kontrollbase

- **Pros**

- Tailored for MySQL
- Lightweight application (PHP)
- Open Source (New BSD)
- Easy install ???
- Replication Monitor

- **Cons**

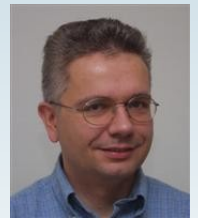
- Did not work for me (non default installations :-(!
- Answer from developer: “it works for me and my customers...”
- Found a few “bugs”.
- Does NOT monitor MySQL Cluster?
- Query Analyser
- MariaDB, Aria, XtraDB, PBXT, Drizzle, Sphinx SE, ... ?



# And now?

- MEM → €€€ → nogo
- Kontrollbase → no work → nogo
- Self written? → no time → nogo
- Nagios? → complicated? Shudder... → nogo
- Other solutions?

- A friend told me that he will evaluate Zabbix for monitoring MySQL...



# Zabbix [6]

## It claims: [7]

- All in one solution
  - **Open Source**
  - **Performance monitoring**
  - **Agents for all platforms**
  - **Availability** and **SLA reporting**
  - **Collection of any data**
  - **Great graphs** and **network maps**
- Scalability
  - **Up-to 100k monitored devices**
  - Up-to 1M of metrics
  - Thousands of checks per second
  - **Small to large distributed setups**
  - Easy maintenance

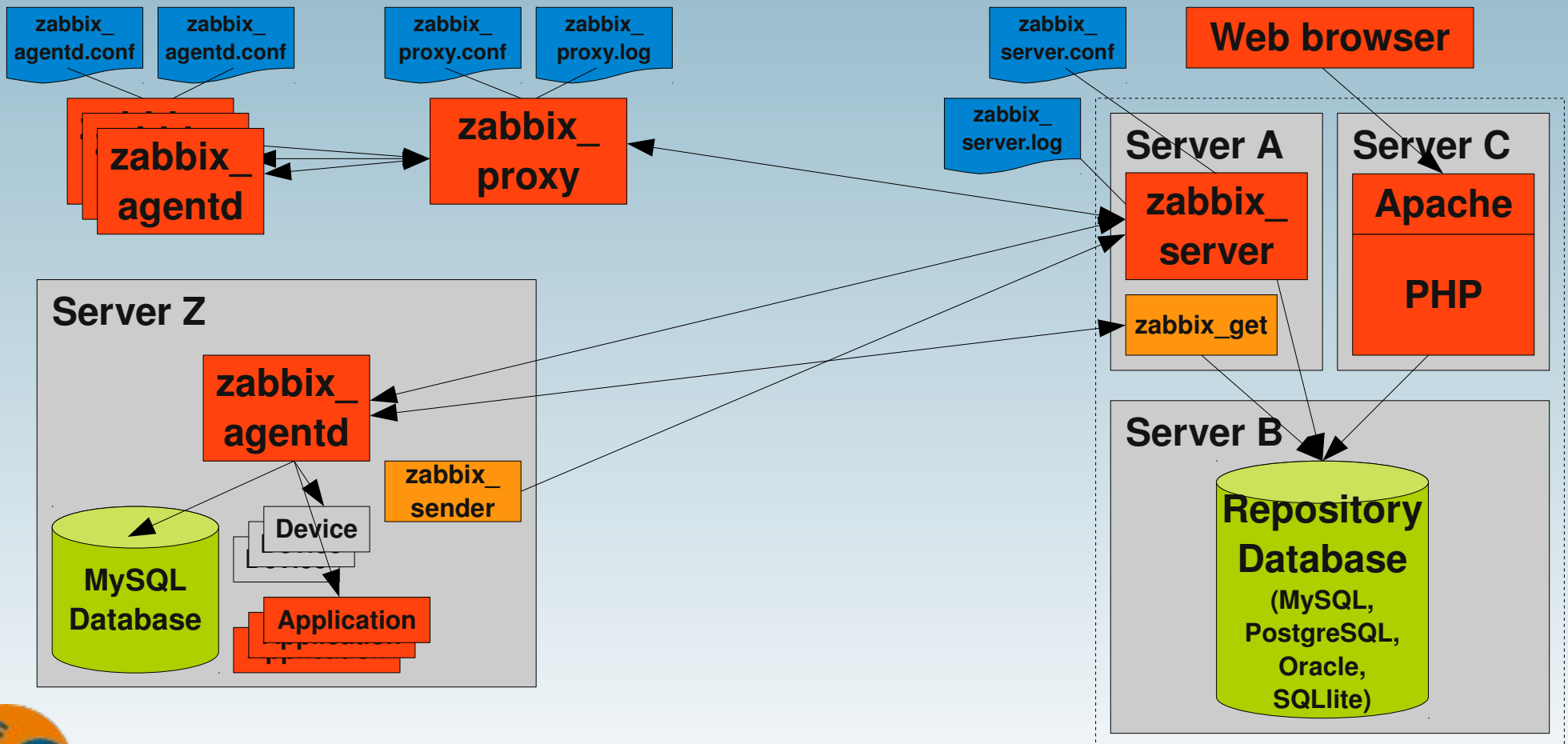
- **Commercial support**
  - Annual support agreements
  - Trouble-free deployment
  - Professional Services
  - Technical Account Manager
  - **Zabbix Training**
  - Upgrade Services

**etc, etc... Wow!**



# Zabbix architecture

- Zabbix is a typical Agent – Server set-up:



# Installation of Zabbix

- **Download**
  - <http://www.zabbix.com/download.php>
  - **Server (Source only, for Linux and Windows only)**
  - **Agent (Binaries for: AIX, FreeBSD, HP-UX, Linux, OpenBSD, Solaris, Windows)**
  - **Packages from your favourite Linux Distro**
- **Documentation**
  - <http://www.zabbix.com/documentation/1.8/manual/installation>
  - [http://www.howtoforge.com/zabbix\\_network\\_monitoring](http://www.howtoforge.com/zabbix_network_monitoring)
- **Recommendation:**
  - **One thing after the other**
  - **Server first, Web interface next, then agents**





# Install Zabbix server

- Create zabbix user
- Untar source tarball
- Create zabbix database and populate it
  - A MySQL (PostgreSQL, ...) installation is needed...
- `./configure ; make ; make install`
  - Some packages may be missing...
  - Does not take too long (< 10 min)
- Create configuration file for zabbix server
  - (misc/conf/zabbix\_server.conf)
- Start the zabbix server



# Install the Zabbix web interface

- Apache/PHP is required
- Copy PHP files to \$DocumentRoot/zabbix
- <http://localhost/zabbix>
- Change php.ini
  - Default settings are by far not enough!
  - `date.timezone = Europe/Zurich`
- Restart webserver
- Finish configuration
- Login with admin/zabbix

	Current value	Required	Recommended	
PHP version	5.2.10-2ubuntu6.4	5.0	5.3.0	Ok
PHP memory limit	64M	128M	256M	Fail
PHP post max size	8M	16M	32M	Fail
PHP upload max filesize	10M	2M	16M	Ok
PHP max execution time	30	300	600	Fail
PHP max input time	60	300	600	Fail
PHP timezone	no			Fail
PHP databases support	MySQL			Ok
PHP BC math	yes			Ok
PHP MB string	yes			Ok
PHP Sockets	yes			Ok
PHP Session	yes			Ok
PHP GD	2.0	2.0	2.0.34	Ok
GD PNG Support	yes			Ok
libxml module	2.7.5	2.6.15	2.7.6	Ok
ctype module	yes			Ok

**Fail**

Please correct all issues and press "Retry" button

Retry



# The Zabbix Web Interface

- It works!

The screenshot displays the Zabbix web interface. At the top, the 'ZABBIX' logo is on the left, and navigation links for 'Help', 'Get support', 'Print', 'Profile', and 'Logout' are on the right. Below the logo, a menu bar includes 'Monitoring', 'Inventory', 'Reports', 'Configuration', and 'Administration'. A secondary menu bar contains 'Dashboard', 'Overview', 'Web', 'Latest data', 'Triggers', 'Events', 'Graphs', 'Screens', 'Maps', 'Discovery', and 'IT services', along with a search box. The main content area is titled 'PERSONAL DASHBOARD' and shows the 'Status of Zabbix' widget. This widget contains a table with the following data:

Parameter	Value	Details
Zabbix server is running	Yes	-
Number of hosts (monitored/not monitored/templates)	42	0 / 1 / 42
Number of items (monitored/disabled/not supported)	0	0 / 0 / 0
Number of triggers (enabled/disabled)[problem/unknown/ok]	0	0 / 0 [ 0 / 0 / 0 ]
Number of users (online)	2	2
Required server performance, new values per second	0	-

The 'Yes' value in the first row is circled in red. Below the table, it says 'Updated: 17:08:41'. The footer of the interface shows 'Zabbix 1.8.3rc4 Copyright 2001-2010 by SIA Zabbix' and 'Connected as 'Admin''.



# The Zabbix agent

- **Either from compiling or use the provided binary**
- **Create zabbix user**
- **Create configuration file for zabbix agent**
  - **(misc/conf/zabbix\_agentd.conf)**
- **Start the zabbix agent**
  - **Use zabbix\_agentd NOT zabbix\_agent**
  - **Also install an agent on the server machine!**



# The Zabbix Agent

- And now... Hurray!
- Ups, it does NOT work :-)
- Configuration → Hosts → Status → Click on “Not Monitored” to enable...
- Happened sometimes to me
- Patience helps...

The screenshot shows the Zabbix web interface. The top navigation bar includes: Monitoring, Inventory, Reports, Configuration, Administration. The main menu includes: Dashboard, Overview, Web, Latest data, Triggers, Events, Graphs, Screens, Maps, Discovery, IT services. The breadcrumb trail is: History: Host groups » Hosts » Dashboard » Host groups » Hosts. The page title is PERSONAL DASHBOARD.

**Status of Zabbix**

Parameter	Value	Details
Zabbix server is running	Yes	-
Number of hosts (monitored/not monitored/templates)	43	1 / 0 / 42
Number of items (monitored/disabled/not supported)	102	97 / 0 / 5
Number of triggers (enabled/disabled)[problem/unknown/ok]	44	44 / 0 [ 7 / 11 / 26 ]
Number of users (online)	2	1
Required server performance, new values per second	3.32	-

Updated: 17:44:15

**System status**

Host group	Disaster	High	Average	Warning	Information	Not classified
Zabbix servers	0	0	7	0	0	0

Updated: 17:44:15

**Host status**

Host group	Without problems	With problems	Total
Zabbix servers	0	1	1

Updated: 17:44:15

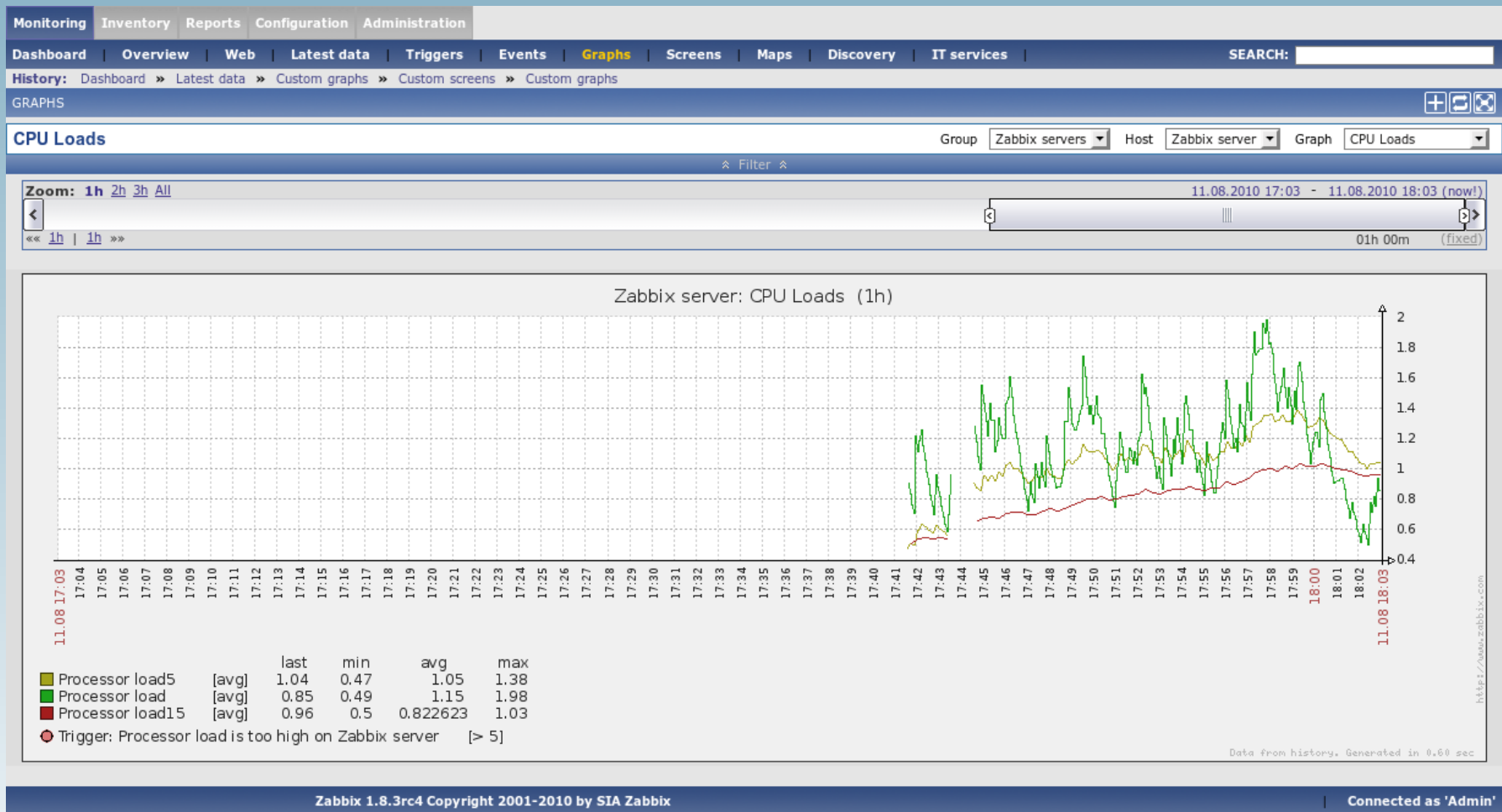
**Last 20 issues**

Host	Issue	Last change	Age	Ack	Actions
Zabbix server	Syslogd is not running on Zabbix server	11 Aug 2010 17:42:38	1m 37s	No	-
Zabbix server	Inetd is not running on Zabbix server	11 Aug 2010 17:42:35	1m 40s	No	-
Zabbix server	Apache is not running on Zabbix server	11 Aug 2010 17:42:34	1m 41s	No	-
Zabbix server	POP3 server is down on Zabbix server	11 Aug 2010 17:42:30	1m 45s	No	-
Zabbix server	News (NNTP) server is down on Zabbix server	11 Aug 2010 17:42:29	1m 46s	No	-
Zabbix server	IMAP server is down on Zabbix server	11 Aug 2010 17:42:28	1m 47s	No	-
Zabbix server	FTP server is down on Zabbix server	11 Aug 2010 17:42:26	1m 49s	No	-

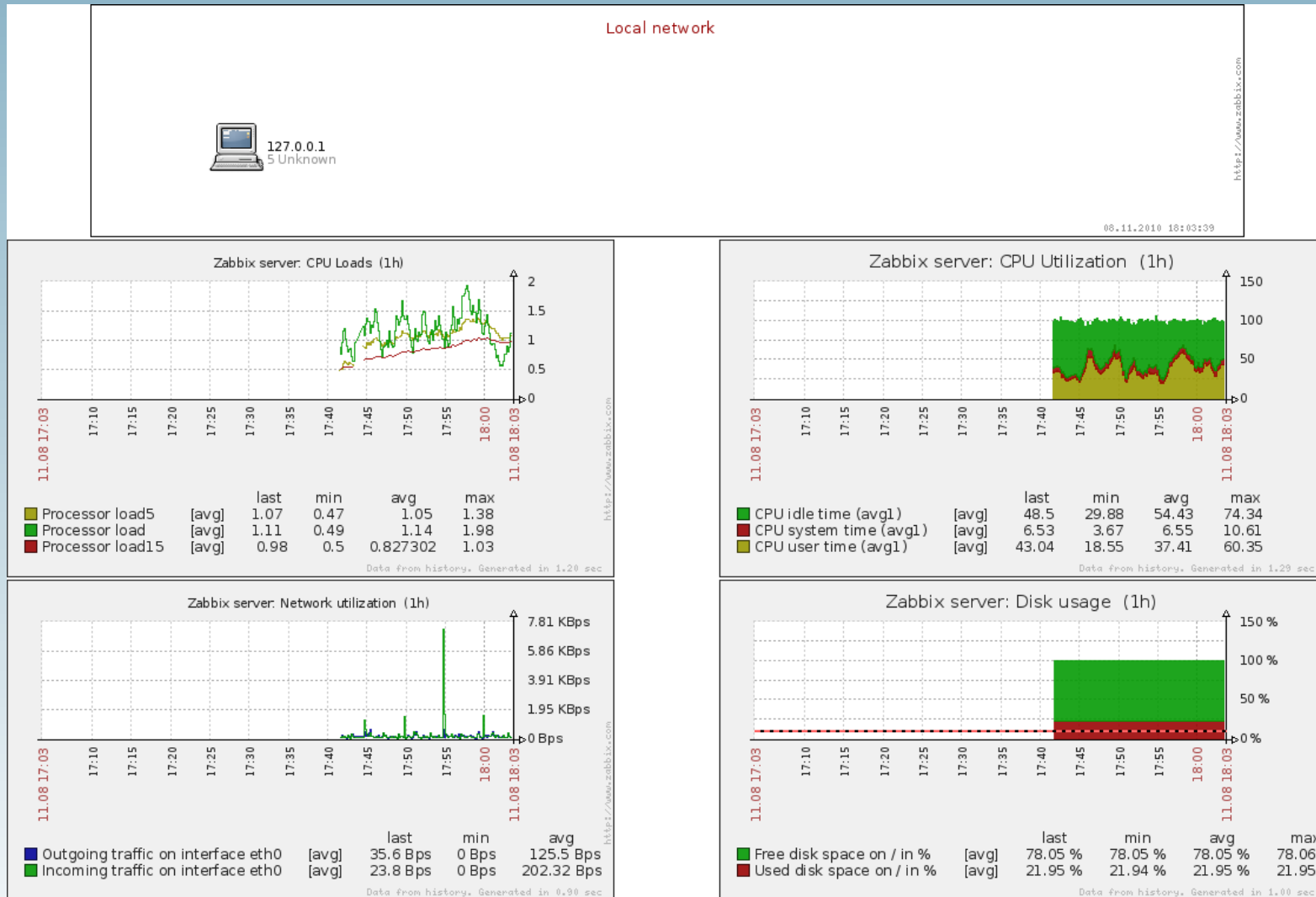
Updated: 17:44:15



# We want Graphs!



# Screens



# Latest data

Dashboard | Overview | Web | **Latest data** | Triggers | Events | Graphs | Screens | Maps | Discovery | IT services | SEARCH:

History: Custom screens » Custom graphs » Custom screens » Network maps » Latest data

LATEST DATA

ITEMS Group  Host

Filter

Show items with description like

Description	Last check	Last value	Change	History
<b>Availability</b> (39 Items)				
<b>CPU</b> (8 Items)				
CPU idle time (avg1)	11 Aug 2010 18:05:40	45.37	-1.64	<a href="#">Graph</a>
CPU nice time (avg1)	11 Aug 2010 18:05:41	0.149105	-	<a href="#">Graph</a>
CPU system time (avg1)	11 Aug 2010 18:05:42	6.34	+0.280593	<a href="#">Graph</a>
CPU iowait time (avg1)	11 Aug 2010 18:05:34	0.43082	+0.06634	<a href="#">Graph</a>
CPU user time (avg1)	11 Aug 2010 18:05:43	47.7	+2.94	<a href="#">Graph</a>
Processor load	11 Aug 2010 18:05:43	1.09	-0.09	<a href="#">Graph</a>
Processor load15	11 Aug 2010 18:05:27	1.01	-	<a href="#">Graph</a>
Processor load5	11 Aug 2010 18:05:39	1.11	-0.04	<a href="#">Graph</a>
<b>Filesystem</b> (34 Items)				
<b>General</b> (5 Items)				
<b>Integrity</b> (6 Items)				
<b>Log files</b> (1 Items)				
<b>Memory</b> (4 Items)				
Buffers memory	11 Aug 2010 18:05:22	22.85 MB	+384 KB	<a href="#">Graph</a>
Cached memory	11 Aug 2010 18:05:23	224.78 MB	+2.38 MB	<a href="#">Graph</a>
Free memory	11 Aug 2010 18:05:24	36.54 MB	+2.34 MB	<a href="#">Graph</a>
Shared memory	11 Aug 2010 18:05:25	0 B	-	<a href="#">Graph</a>
<b>Network</b> (4 Items)				
Incoming traffic on interface eth0	11 Aug 2010 18:05:40	44.8 Bps	+7 Bps	<a href="#">Graph</a>
Incoming traffic on interface lo	11 Aug 2010 18:05:42	90.01 KBps	+12.2 Bps	<a href="#">Graph</a>
Outgoing traffic on interface eth0	11 Aug 2010 18:05:43	201 Bps	+153.8 Bps	<a href="#">Graph</a>
Outgoing traffic on interface lo	11 Aug 2010 18:05:40	94.23 KBps	+86.91 KBps	<a href="#">Graph</a>
<b>OS</b> (5 Items)				
<b>Performance</b> (12 Items)				





# The database

- Nice, but what about my Database?

```
# /etc/zabbix/zabbix_agentd.conf

### Set of parameters for monitoring MySQL server (v3.23.42 and later)
### Change -u<username> and add -p<password> if required
#UserParameter=mysql.ping,mysqladmin -uroot ping|grep alive|wc -l
#UserParameter=mysql.uptime,mysqladmin -uroot status|cut -f2 -d":"|cut -f1 -d"T"
#UserParameter=mysql.threads,mysqladmin -uroot status|cut -f3 -d":"|cut -f1 -d"Q"
#UserParameter=mysql.questions,mysqladmin -uroot status|cut -f4 -d":"|cut -f1 -d"S"
#UserParameter=mysql.slowqueries,mysqladmin -uroot status|cut -f5 -d":"|cut -f1 -d"O"
#UserParameter=mysql.qps,mysqladmin -uroot status|cut -f9 -d":"
#UserParameter=mysql.version,mysql -V
```

- Enable those and restart the agent...
- → Nothing will happen!
- We have to add a template to the server first
  - Template\_App\_MySQL



# MySQL Latest Data


**ZABBIX** Help | Get support | Print | Profile | Logout

Monitoring | Inventory | Reports | Configuration | Administration

Dashboard | Overview | Web | **Latest data** | Triggers | Events | Graphs | SEARCH:

Screens | Maps | Discovery | IT services

History: Hosts » Configuration of items » Latest data » History » Latest data

LATEST DATA 

ITEMS Group: Zabbix servers Host: Zabbix server

⌘ Filter ⌘

Show items with description like

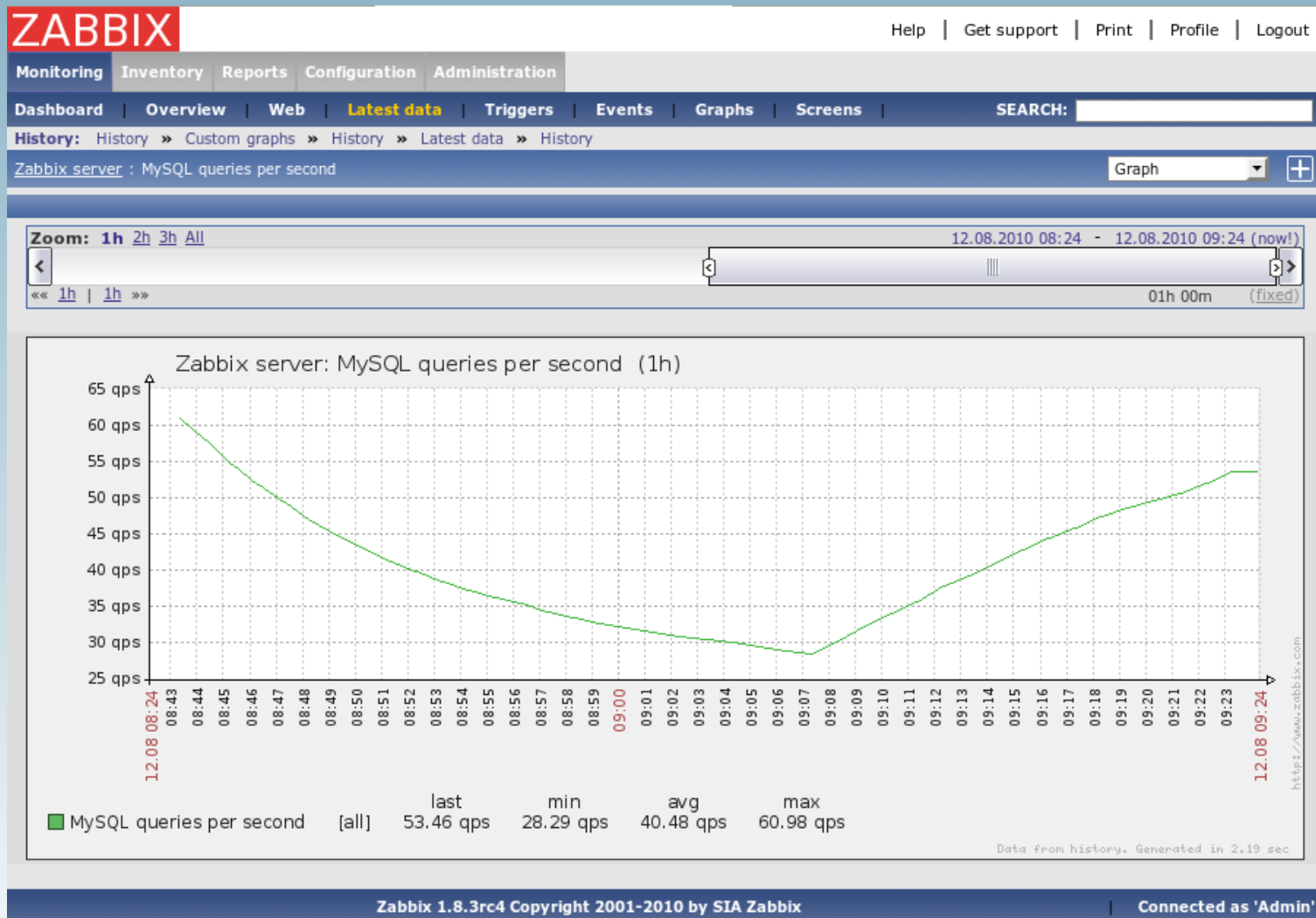
Filter Reset

Description	Last check	Last value	Change	History
⊕ Availability (51 Items)				
⊕ CPU (8 Items)				
⊕ Filesystem (44 Items)				
⊕ General (7 Items)				
⊖ - other - (6 Items)				
MySQL is alive	12 Aug 2010 08:45:22	1	-	<a href="#">Graph</a>
MySQL number of slow queries	12 Aug 2010 08:45:24	0	-	<a href="#">Graph</a>
MySQL number of threads	12 Aug 2010 08:45:25	22	-	<a href="#">Graph</a>
MySQL queries per second	12 Aug 2010 08:45:23	54.59 qps	-3.28 qps	<a href="#">Graph</a>
MySQL uptime	12 Aug 2010 08:45:26	00:15:04	+00:01:00	<a href="#">Graph</a>
MySQL version	12 Aug 2010 08:39:27	-	-	<a href="#">History</a>

Zabbix 1.8.3rc4 Copyright 2001-2010 by SIA Zabbix | Connected as 'Admin'



# MySQL Queries per second



# 1<sup>st</sup> impression

- Not really much data for MySQL :-)
- No efficient gathering method
- No nice graphs
- Is that all?

→ Zabbix seems to be very flexible, so let's do it ourself!

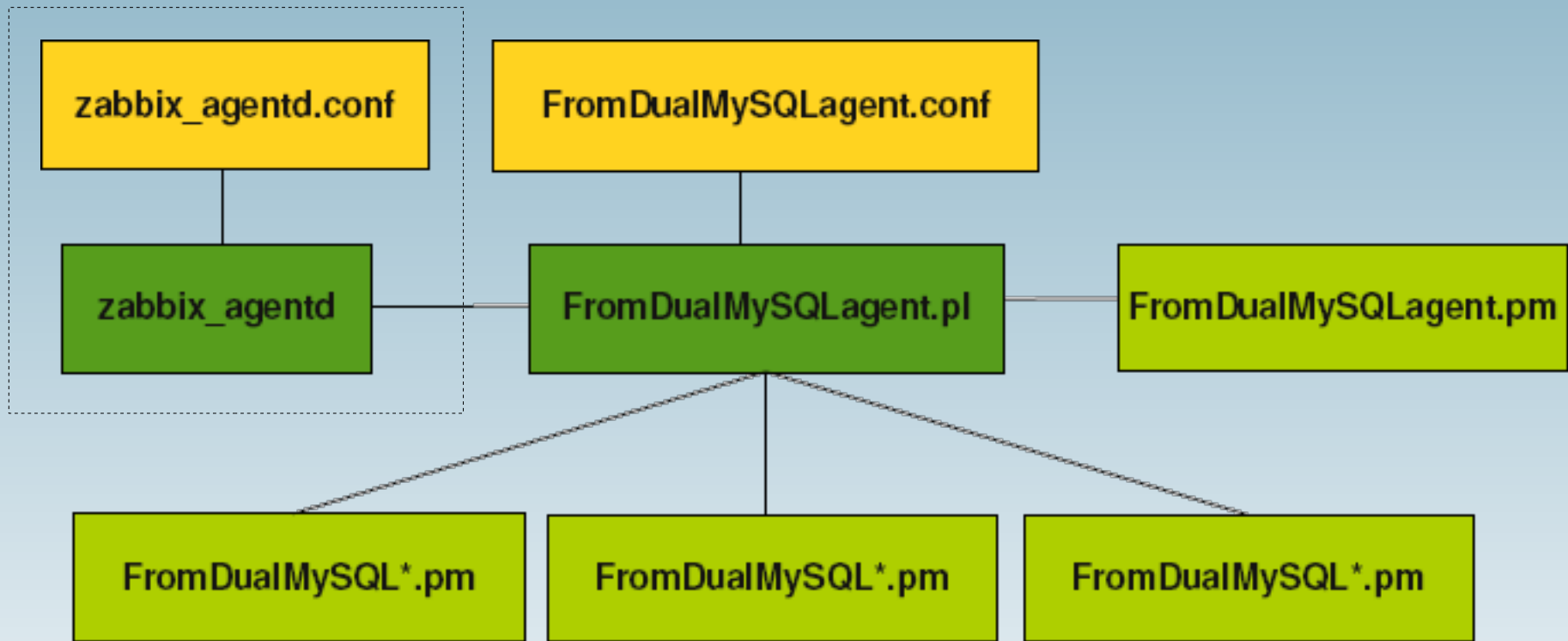


# Requirements

- **Fit into Zabbix architecture**
- **Must support several mysqld per server**
- **Should provide much more information**
- **Must support other Storage Engines as well**
  - **MySQL Cluster, XtraDB, Aria, PBXT, Sphinx SE**
- **Simple**
- **Flexible**
- **Modular**
- **Work on Unixoides (and Windows?)**



# FromDual Performance Monitor for MySQL / Zabbix Architecture



# Available modules [10]

- **Aria (for Aria SE, ex. Maria SE (crash-safe MyISAM))**
- **InnoDB (commercial)**
- **Master (for Master – Slave replication)**
- **MyISAM (for MyISAM SE)**
- **MySQL (non SE related stuff for MariaDB and MySQL)**
- **NDB (commercial, for MySQL Cluster SE, pre 7.1 and 7.1)**
- **PBXT (for PBXT SE)**
- **Process (for UNIX processes)**
- **Slave (for Master – Slave replication)**
- **XtraDB (for XtraDB SE (derivat of InnoDB))**
- **Sphinx (for the Sphinx SE plug-in (in planning))**
- **Other modules on request...**



# FromDual Monitor for Zabbix

- Install Zabbix as described before.
- Download FromDual Performance Monitor for MySQL [9]
- Read installation documentation [10]
- Load the FromDual templates
- Create a host group (optional)
- Create a host (= database!)
  - Careful! Hostname MUST match the name in the FromDual agent configuration file!!!
- Link the chosen templates to the host
- Configure FromDual agent
- Hook FromDual agent into Zabbix agent:

```
# /etc/zabbix/zabbix_agentd.conf
```

```
UserParameter=FromDual.MySQL.check,/etc/zabbix/FromDualMySQLagent.pl \  
/etc/zabbix/FromDualMySQLagent.conf
```

- Restart Zabbix agent





# Templates

Templates		+			
<input type="checkbox"/>	<a href="#">Template Cisco PIX 525</a>	<a href="#">Applications</a> (0)	<a href="#">Items</a> (35)	<a href="#">Triggers</a> (0)	<a href="#">Graphs</a> (0)
<input type="checkbox"/>	<a href="#">Template Dell OpenManage</a>	<a href="#">Applications</a> (0)	<a href="#">Items</a> (15)	<a href="#">Triggers</a> (15)	<a href="#">Graphs</a> (0)
<input type="checkbox"/>	<a href="#">Template Dell PowerConnect 5224</a>	<a href="#">Applications</a> (2)	<a href="#">Items</a> (216)	<a href="#">Triggers</a> (3)	<a href="#">Graphs</a> (24)
<input type="checkbox"/>	<a href="#">Template Dell PowerConnect 5324</a>	<a href="#">Applications</a> (2)	<a href="#">Items</a> (262)	<a href="#">Triggers</a> (3)	<a href="#">Graphs</a> (24)
<input type="checkbox"/>	<a href="#">Template Dell PowerConnect 6248</a>	<a href="#">Applications</a> (0)	<a href="#">Items</a> (832)	<a href="#">Triggers</a> (0)	<a href="#">Graphs</a> (52)
<input type="checkbox"/>	<a href="#">Template Dell PowerEdge</a>	<a href="#">Applications</a> (0)	<a href="#">Items</a> (2)	<a href="#">Triggers</a> (2)	<a href="#">Graphs</a> (1)
<input type="checkbox"/>	<a href="#">Template FreeBSD</a>	<a href="#">Applications</a> (12)	<a href="#">Items</a> (102)	<a href="#">Triggers</a> (44)	<a href="#">Graphs</a> (0)
<input type="checkbox"/>	<a href="#">Template FromDual.MySQL.aria</a>	<a href="#">Applications</a> (1)	<a href="#">Items</a> (10)	<a href="#">Triggers</a> (0)	<a href="#">Graphs</a> (3)
<input type="checkbox"/>	<a href="#">Template FromDual.MySQL.innodb</a>	<a href="#">Applications</a> (2)	<a href="#">Items</a> (12)	<a href="#">Triggers</a> (0)	<a href="#">Graphs</a> (4)
<input type="checkbox"/>	<a href="#">Template FromDual.MySQL.master</a>	<a href="#">Applications</a> (3)	<a href="#">Items</a> (10)	<a href="#">Triggers</a> (0)	<a href="#">Graphs</a> (3)
<input type="checkbox"/>	<a href="#">Template FromDual.MySQL.myisam</a>	<a href="#">Applications</a> (1)	<a href="#">Items</a> (9)	<a href="#">Triggers</a> (0)	<a href="#">Graphs</a> (3)
<input type="checkbox"/>	<a href="#">Template FromDual.MySQL.mysql</a>	<a href="#">Applications</a> (6)	<a href="#">Items</a> (64)	<a href="#">Triggers</a> (0)	<a href="#">Graphs</a> (22)
<input type="checkbox"/>	<a href="#">Template FromDual.MySQL.ndb</a>	<a href="#">Applications</a> (2)	<a href="#">Items</a> (35)	<a href="#">Triggers</a> (2)	<a href="#">Graphs</a> (5)
<input type="checkbox"/>	<a href="#">Template FromDual.MySQL.pbxt</a>	<a href="#">Applications</a> (5)	<a href="#">Items</a> (60)	<a href="#">Triggers</a> (0)	<a href="#">Graphs</a> (21)
<input type="checkbox"/>	<a href="#">Template FromDual.MySQL.process</a>	<a href="#">Applications</a> (3)	<a href="#">Items</a> (34)	<a href="#">Triggers</a> (0)	<a href="#">Graphs</a> (4)
<input type="checkbox"/>	<a href="#">Template FromDual.MySQL.slave</a>	<a href="#">Applications</a> (2)	<a href="#">Items</a> (6)	<a href="#">Triggers</a> (3)	<a href="#">Graphs</a> (3)
<input type="checkbox"/>	<a href="#">Template FromDual.MySQL.xtradb</a>	<a href="#">Applications</a> (2)	<a href="#">Items</a> (12)	<a href="#">Triggers</a> (0)	<a href="#">Graphs</a> (4)



# Host configuration

**ZABBIX** Help | Get support | Print | Profile | Logout

Monitoring | Inventory | Reports | **Configuration** | Administration

Host groups | Templates | **Hosts** | Maintenance | Web | Actions | Screens | Slides | Maps | IT services | Discovery |

History: Configuration of screens » Custom screens » Dashboard » Host groups » Templates

CONFIGURATION OF HOSTS Create Host | Import Host

**HOSTS** Group MySQL Databases ▾

Displaying 1 to 3 of 3 found

<input type="checkbox"/>	Name ↑	Applications	Items	Triggers	Graphs	DNS	IP	Port	Templates	Status	Availability
<input type="checkbox"/>	<a href="#">mariadb-5.1.49</a>	<a href="#">Applications (23)</a>	<a href="#">Items (205)</a>	<a href="#">Triggers (3)</a>	<a href="#">Graphs (63)</a>	-	192.168.1.49	10050	<a href="#">Template FromDual.MySQL.aria</a> , <a href="#">Template FromDual.MySQL.master</a> , <a href="#">Template FromDual.MySQL.mysam</a> , <a href="#">Template FromDual.MySQL.mysql</a> , <a href="#">Template FromDual.MySQL.pbxt</a> , <a href="#">Template FromDual.MySQL.process</a> , <a href="#">Template FromDual.MySQL.slave</a> , <a href="#">Template FromDual.MySQL.xtradb</a>	Monitored	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/>	<a href="#">mariadb-5.2.1</a>	<a href="#">Applications (22)</a>	<a href="#">Items (195)</a>	<a href="#">Triggers (3)</a>	<a href="#">Graphs (60)</a>	-	192.168.1.49	10050	<a href="#">Template FromDual.MySQL.aria</a> , <a href="#">Template FromDual.MySQL.mysam</a> , <a href="#">Template FromDual.MySQL.mysql</a> , <a href="#">Template FromDual.MySQL.pbxt</a> , <a href="#">Template FromDual.MySQL.process</a> , <a href="#">Template FromDual.MySQL.slave</a> , <a href="#">Template FromDual.MySQL.xtradb</a>	Monitored	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/>	<a href="#">mysql-cluster-gpl-7.1.5</a>	<a href="#">Applications (17)</a>	<a href="#">Items (164)</a>	<a href="#">Triggers (2)</a>	<a href="#">Graphs (41)</a>	-	192.168.1.49	10050	<a href="#">Template FromDual.MySQL.innodb</a> , <a href="#">Template FromDual.MySQL.master</a> , <a href="#">Template FromDual.MySQL.mysam</a> , <a href="#">Template FromDual.MySQL.mysql</a> , <a href="#">Template FromDual.MySQL.ndb</a> , <a href="#">Template FromDual.MySQL.process</a>	Monitored	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Export selected ▾

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# Overview / Dashboard

**ZABBIX**

Monitoring | Inventory | Reports | Configuration | Administration

Dashboard | Overview | Web | Latest data | Triggers | Events | Graphs | Screens | Maps | Discovery | IT services

History: Configuration of triggers » Dashboard » Status of triggers » Acknowledges » Status of triggers

PERSONAL DASHBOARD

Favourite graphs

...

Graphs »

Favourite screens

...

Screens »

Favourite maps

...

Maps »

Status of Zabbix

Parameter	Value	Details
Zabbix server is running	Yes	-
Number of hosts (monitored/not monitored/templates)	58	6 / 0 / 52
Number of items (monitored/disabled/not supported)	907	878 / 0 / 29
Number of triggers (enabled/disabled)[problem/unknown/ok]	97	97 / 0 [ 21 / 6 / 70 ]
Number of users (online)	2	1
Required server performance, new values per second	29.2	-

Updated: 13:58:15

System status

Host group	Disaster	High	Average	Warning	Information	Not classified
<a href="#">Linux servers</a>	0	0	11	0	0	0
<a href="#">MySQL Cluster</a>	0	0	0	0	0	0
<a href="#">MySQL Databases</a>	0	2	0	1	0	0
<a href="#">Zabbix servers</a>	0	0	0	0	0	0

Updated: 13:58:15

Host	Issue	Age	Ack	Actions
mariadb-5.2.1	SQL thread stopped	1m 46s	No	-
mariadb-5.2.1	IO thread stopped	3m 23s	Yes	-

Host status

Host group	Without problems	With problems	Total
<a href="#">Linux servers</a>	0	1	1
<a href="#">MySQL Cluster</a>	1	0	1
<a href="#">MySQL Databases</a>	2	1	3
<a href="#">Zabbix servers</a>	0	1	1

Updated: 13:58:15

Last 20 issues

Web monitoring

Discovery status

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# Triggers

**ZABBIX** Help | Get support | Print | Profile | Logout

Monitoring | Inventory | Reports | Configuration | Administration

Dashboard | Overview | Web | Latest data | **Triggers** | Events | Graphs | Screens | Maps | Discovery | IT services | SEARCH:

History: Hosts » Applications » Dashboard » Latest data » Status of triggers

STATUS OF TRIGGERS [16 Aug 2010 14:44:09] 

**TRIGGERS** Group  Host

Displaying 1 to 3 of 3 found

Filter

<input type="checkbox"/>	Severity	Status	Last change ↓↑	Age	Acknowledged	Host	Name	Comments
<input type="checkbox"/>	Warning	OK	<a href="#">16 Aug 2010 14:39:38</a>	4m 32s	<a href="#">Acknowledge (1)</a>	<a href="#">mariadb-5.2.1</a>	<a href="#">Slave lagging behind Master</a>	<a href="#">Show</a>
<input type="checkbox"/>	High	OK	<a href="#">16 Aug 2010 14:39:38</a>	4m 32s	<a href="#">Acknowledged</a>	<a href="#">mariadb-5.2.1</a>	<a href="#">IO thread stopped</a>	<a href="#">Show</a>
<input type="checkbox"/>	High	OK	<a href="#">16 Aug 2010 14:39:38</a>	4m 32s	<a href="#">Acknowledge (1)</a>	<a href="#">mariadb-5.2.1</a>	<a href="#">SQL thread stopped</a>	<a href="#">Show</a>

Bulk acknowledge

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# Events

**ZABBIX** Help | Get support | Print | Profile | Logout

Monitoring | Inventory | Reports | Configuration | Administration

Dashboard | Overview | Web | Latest data | Triggers | **Events** | Graphs | Screens | Maps | Discovery | IT services | SEARCH:

History: Hosts » Applications » Dashboard » Latest data » Status of triggers

HISTORY OF EVENTS ON 16 Aug 2010 14:44:37 

**EVENTS** Group  Host  Source

Displaying 1 to 6 of 6 found

Filter

Time	Description	Status	Severity	Duration	Ack	Actions
<a href="#">2010.Aug.16 14:39:38</a>	<a href="#">SQL thread stopped</a>	OK	High	5m	No	-
<a href="#">2010.Aug.16 14:39:38</a>	<a href="#">IO thread stopped</a>	OK	High	5m	No	-
<a href="#">2010.Aug.16 14:39:38</a>	<a href="#">Slave lagging behind Master</a>	OK	Warning	5m	No	-
<a href="#">2010.Aug.16 13:56:29</a>	<a href="#">SQL thread stopped</a>	PROBLEM	High	43m 9s	No	-
<a href="#">2010.Aug.16 13:54:52</a>	<a href="#">IO thread stopped</a>	PROBLEM	High	44m 46s	Yes	-
<a href="#">2010.Aug.16 13:52:46</a>	<a href="#">Slave lagging behind Master</a>	PROBLEM	Warning	46m 52s	No	-

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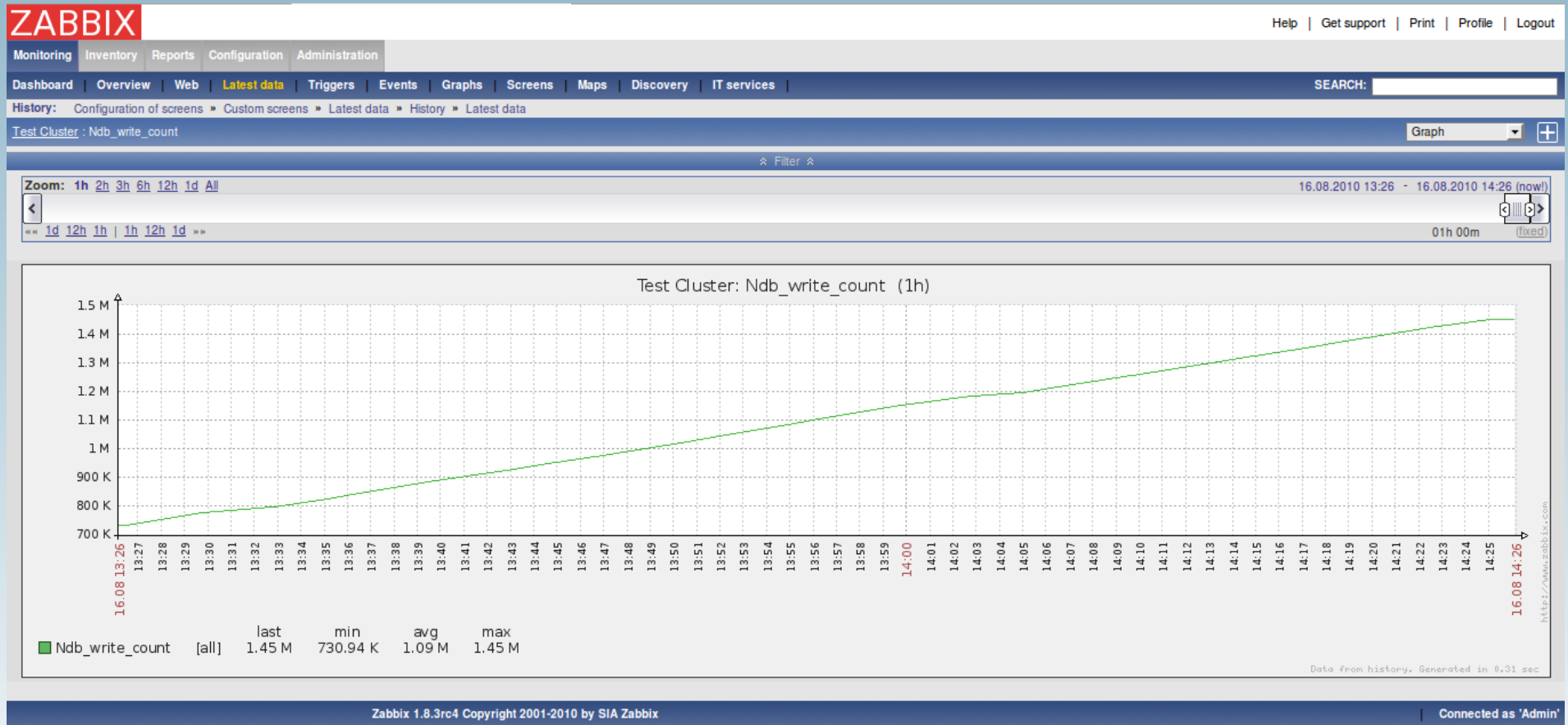


# Latest data

ITEMS				
Group <span>MySQL Cluster</span> Host <span>Test Cluster</span>				
Filter				
Description	Last check	Last value	Change	History
+ <b>Connections</b> (10 Items)				
+ <b>CPU</b> (12 Items)				
- <b>Data node</b> (15 Items)				
Ndb_trans_count	16 Aug 2010 14:25:07	1449125	+24590	<a href="#">Graph</a>
Ndb_abort_count	16 Aug 2010 14:25:08	14809	-	<a href="#">Graph</a>
Ndb_attr_info_count	16 Aug 2010 14:25:08	16664923	+282785	<a href="#">Graph</a>
Ndb_commit_count	16 Aug 2010 14:25:08	1434315	+24590	<a href="#">Graph</a>
Ndb_concurrent_operations	16 Aug 2010 14:25:08	0	-	<a href="#">Graph</a>
Ndb_data_memory_total	16 Aug 2010 14:25:08	134217728	-	<a href="#">Graph</a>
Ndb_data_memory_used	16 Aug 2010 14:25:08	123469824	+2097152	<a href="#">Graph</a>
Ndb_index_memory_total	16 Aug 2010 14:25:08	17301504	-	<a href="#">Graph</a>
Ndb_index_memory_used	16 Aug 2010 14:25:08	15106048	+458752	<a href="#">Graph</a>
Ndb_operations	16 Aug 2010 14:25:08	3916415	+49180	<a href="#">Graph</a>
Ndb_range_scans	16 Aug 2010 14:25:08	0	-	<a href="#">Graph</a>
Ndb_read_count	16 Aug 2010 14:25:08	88	-	<a href="#">Graph</a>
Ndb_scans	16 Aug 2010 14:25:08	0	-	<a href="#">Graph</a>
Ndb_simple_read_count	16 Aug 2010 14:25:08	0	-	<a href="#">Graph</a>
Ndb_write_count	16 Aug 2010 14:25:08	1449045	+24590	<a href="#">Graph</a>
+ <b>MySQL</b> (1 Items)				
+ <b>Performance</b> (34 Items)				
+ <b>Process</b> (4 Items)				
+ <b>Query Cache</b> (9 Items)				
+ <b>SQL node</b> (20 Items)				
+ <b>Table</b> (9 Items)				
+ <b>Virtual Memory</b> (17 Items)				



# Raw graph from latest data



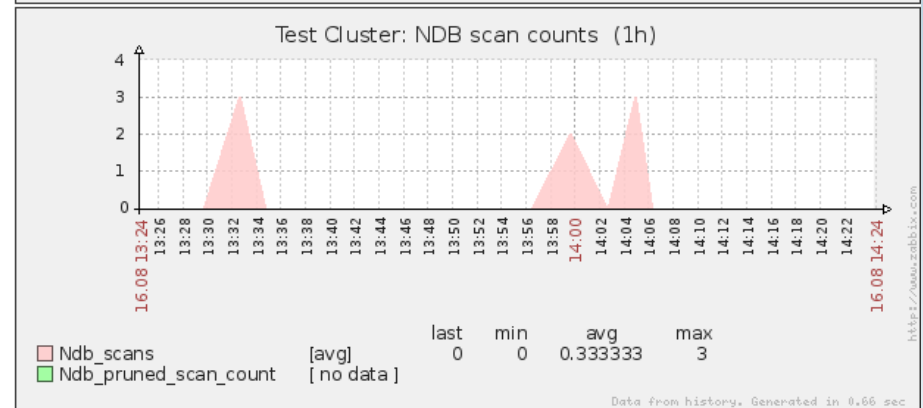
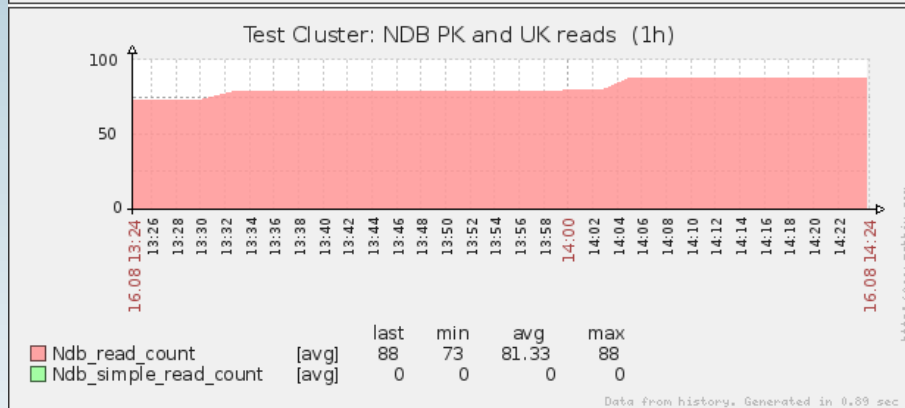
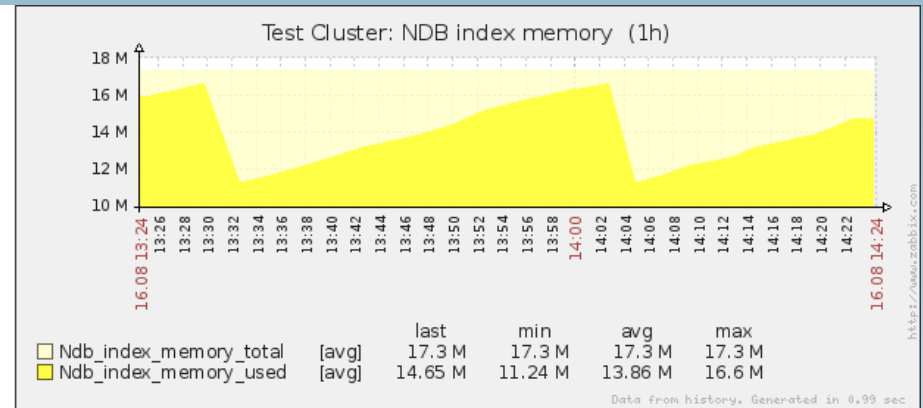
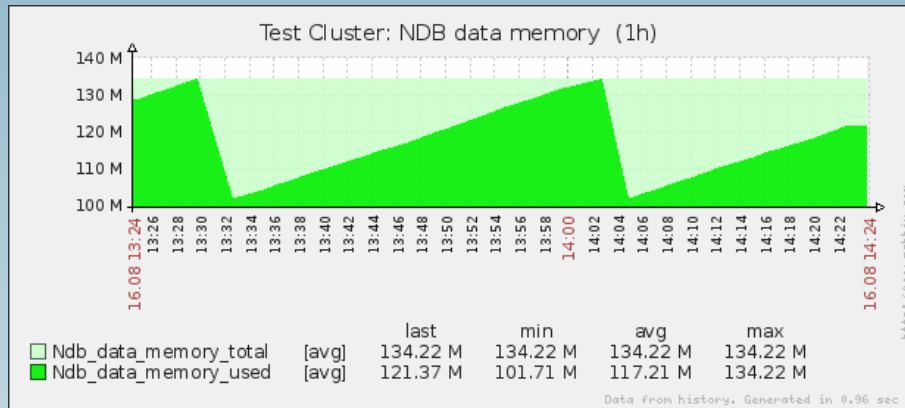
# Maps for scale-out set-ups

The screenshot displays the ZABBIX web interface. At the top, the ZABBIX logo is visible. Below it, a navigation menu includes 'Monitoring', 'Inventory', 'Reports', 'Configuration', and 'Administration'. A secondary menu lists 'Dashboard', 'Overview', 'Web', 'Latest data', 'Triggers', 'Events', 'Graphs', 'Screens', 'Maps', 'Discovery', and 'IT services'. The 'History' section shows a breadcrumb trail: 'Configuration of network maps » Network maps » Configuration of network maps » Network maps » Custom graphs'. The current page is titled 'NETWORK MAPS' and 'Our little Scale-out set-up'. The main content area features a network diagram with a central 'Master' node (represented by a laptop icon) connected to three 'Slave' nodes (Slave 1, Slave 2, and Slave 3, also represented by laptop icons). The diagram is titled 'Our little Scale-out set-up'. A small URL 'http://www.zabbix.com' is visible in the bottom right corner of the diagram area, and a timestamp '08.16.2010 14:22:09' is located at the bottom right of the screenshot.

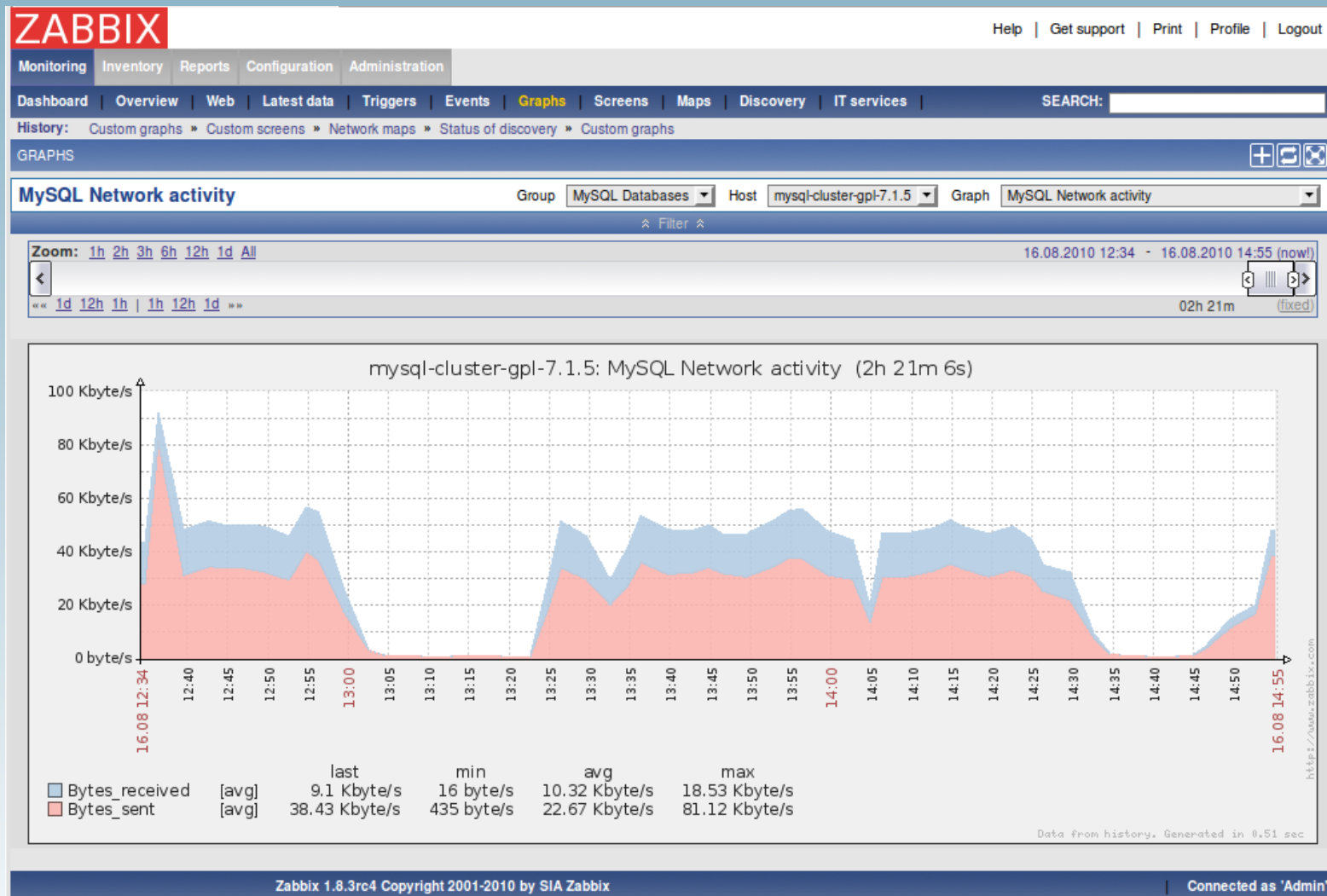




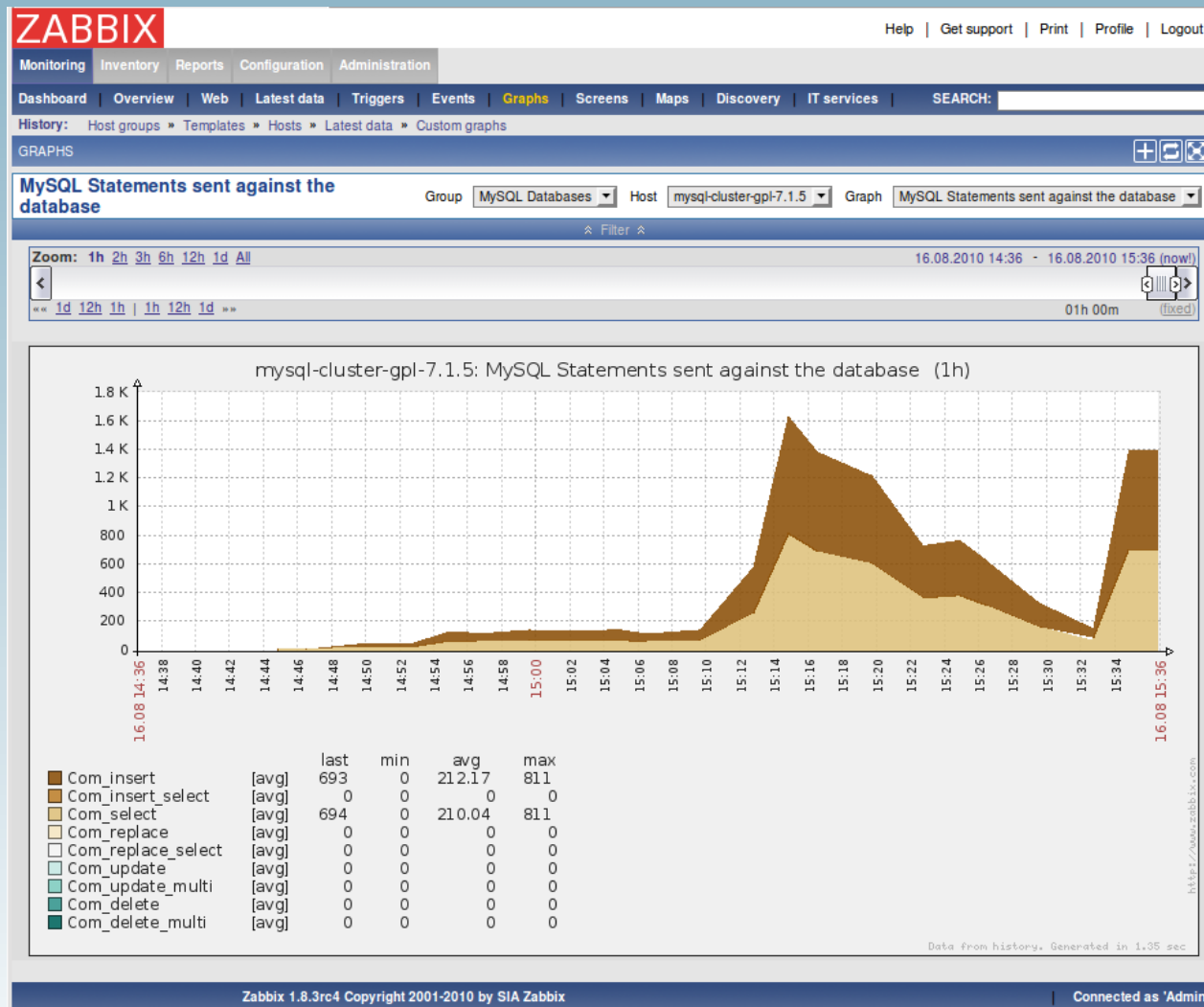
# Screen for MySQL Cluster



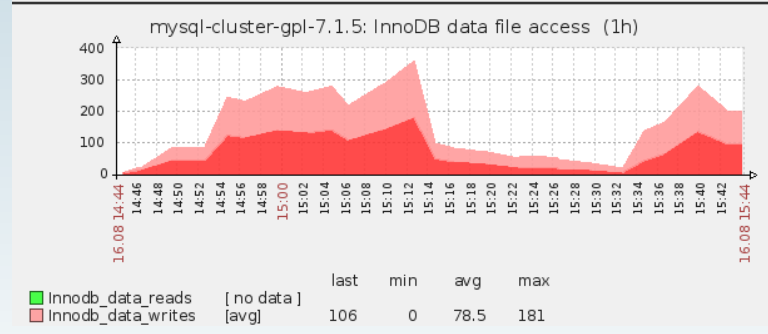
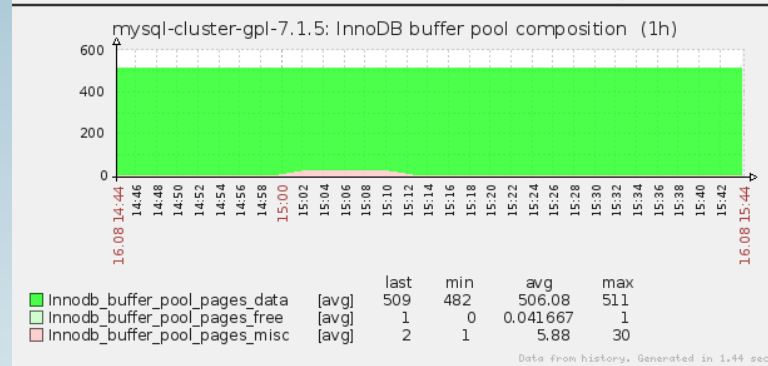
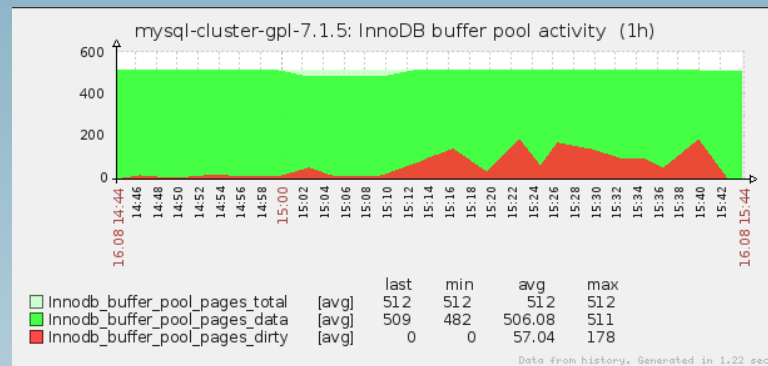
# Graph (MySQL Network traffic)



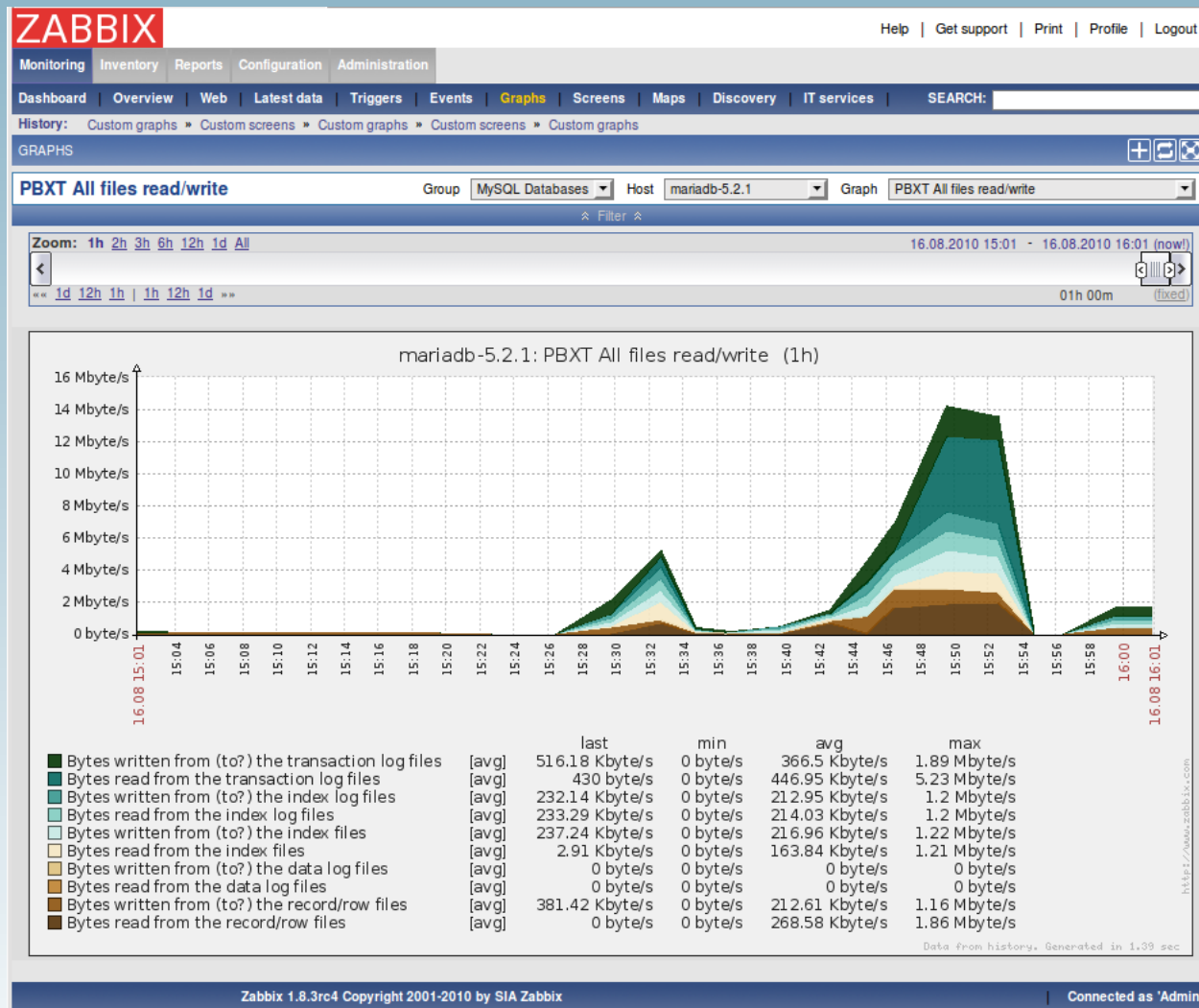
# Graph (MySQL statements)



# Screen (InnoDB buffer pool)



# Graph (PBXT file read/write)



# Problems / Discussion

- One can do nearly everything (!)
- It is a lot of work until everything is in place.
- The whole set-up is tricky and needs some time until understood.
- It is not so smooth like MEM. Installation is more labourish.
- There is no Query Analyser (QUAN) yet. Zabbix developer say it could be possible with v2.0!
- Usability is not perfect yet (links are not ending up where I expect it).
- No binaries available for server, only commercial!
- Installation docu is not fool-prove?
- Needs some experience to find problems
  - but, its cool, give it a try if you have no solution in place yet!



# Literature

- [1] MySQL Monitoring solutions: <http://www.fromdual.com/mysql-monitoring-solutions>
- [2] Cluster Monitoring CMON: <http://johanandersson.blogspot.com/2008/08/cluster-monitoring-cmon.html>
- [3] Configure MySQL Enterprise Monitor to monitor MySQL Cluster: <http://www.clusterdb.com/mysql-cluster/configure-mysql-enterprise-monitor-to-monitor-mysql-cluster/>
- [4] The MySQL Enterprise Monitor: <http://www.mysql.com/products/enterprise/monitor.html>
- [5] Kontrollbase: <http://kontrollsoft.com/software-kontrollbase>,  
<http://code.google.com/p/kontrollbase/>
- [6] Zabbix: <http://www.zabbix.org/>
- [7] Zabbix features: <http://www.zabbix.org/features.php>
- [8] Zabbix documentation: <http://www.zabbix.com/documentation.php>
- [9] Download MySQL Performance Monitor: <http://www.fromdual.com/download>
- [10] Installation documentation: <http://www.fromdual.com/mysql-performance-monitor>

