

# Zabbix Support: Overcoming challenges together





Rule # 1:

Don't share details about the issue.

# Examples

Issue summary: URGENT

Issue description: Zabbix is not working

Issue summary: Agent ping is not reporting

Issue description: Agent ping is not reporting. Please check

Issue summary: jmx connection error

Issue description: need the session ASAP



Rule # 2:

Documentation is for the weak.

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# Documentation is for the weak.

It is sooo boring!

There are so many other ways how to spend your free time!

# Examples

*Customer:* "last(10m)" generates too many events

*Support:* "last(10m)" - most recent value always (not latest values for 10 minutes). Use min/max!

*Customer:* we are having issues where the DB is growing really fast after the upgrade from 1.8 to 3.0

*Support:* housekeeper is disabled after the upgrade. Read upgrade procedure before the upgrade and enable housekeeper after!

*Customer:* I am using "nodata" trigger with enabled "multiple problem event generation" option. We are getting several events for a single problem, duplicate emails, etc.

*Support:* do not use "multiple problem event generation" option with time-based functions!



Rule # 3:

Zabbix says that performance is  
important.

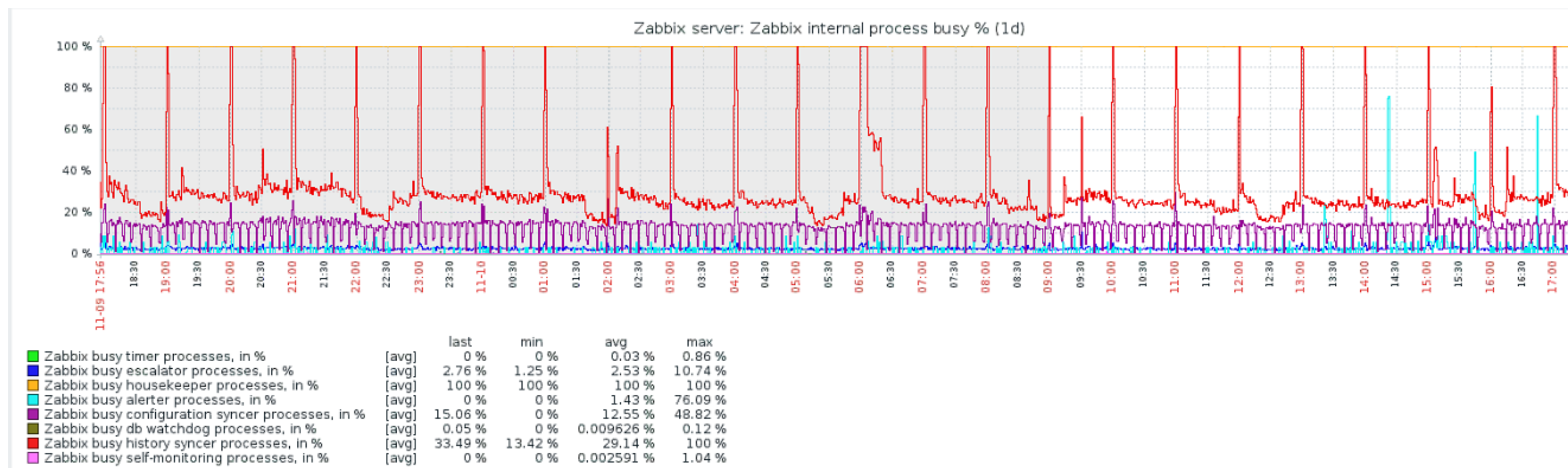
Rule # 3:

Zabbix says that performance is  
important.

Wrong! Use Defaults.

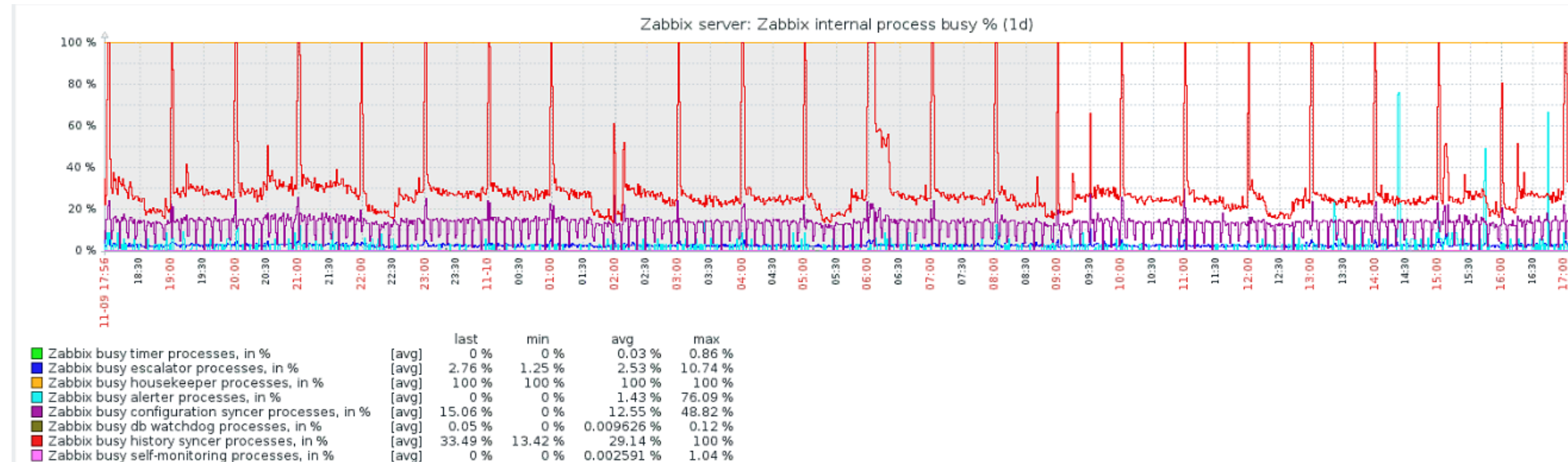
# Customer issue

Customer: Zabbix housekeeper process more than 75% busy



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Zabbix DB size is 1.6TB

All Zabbix components are installed on the same server with 4CPU and 8GB of RAM

MySQL uses default configuration file (e.g. innodb\_buffer\_pool\_size is 128MB)



Don't share details  
Don't read Documentation  
Performance isn't important

~~Don't~~ share details  
~~Don't~~ read Documentation  
Performance isn't important



# Wrong

Zabbix isn't working - tried to fix it rebooting Zabbix Server without any luck.

High Queue Across Multiple Proxies - we have truncated the tables proxy & ids but no luck.

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High Queue Across Multiple Proxies - we have truncated the tables proxy & ids but no luck.

# Right

Localize the issue.

Find the issue's root cause and fix it.

# Localize the issue

# Localize the issue

Database: slow query for database (LogSlowQueries), SQL statements

Zabbix: "Template App Zabbix Server" (Proxy) + Queue

Frontend: debug

# Database

```
# grep slow /var/log/zabbix/zabbix_server.log
```

```
slow query: 9.054528 sec, "insert into events (eventid, source, object, objectid, clock...
```

```
slow query: 8.501505 sec, "update hosts set lastaccess=1421211815 where hostid...
```

```
slow query: 6.754405 sec, "insert into history (itemid,clock,ns,value) values...
```

# Database

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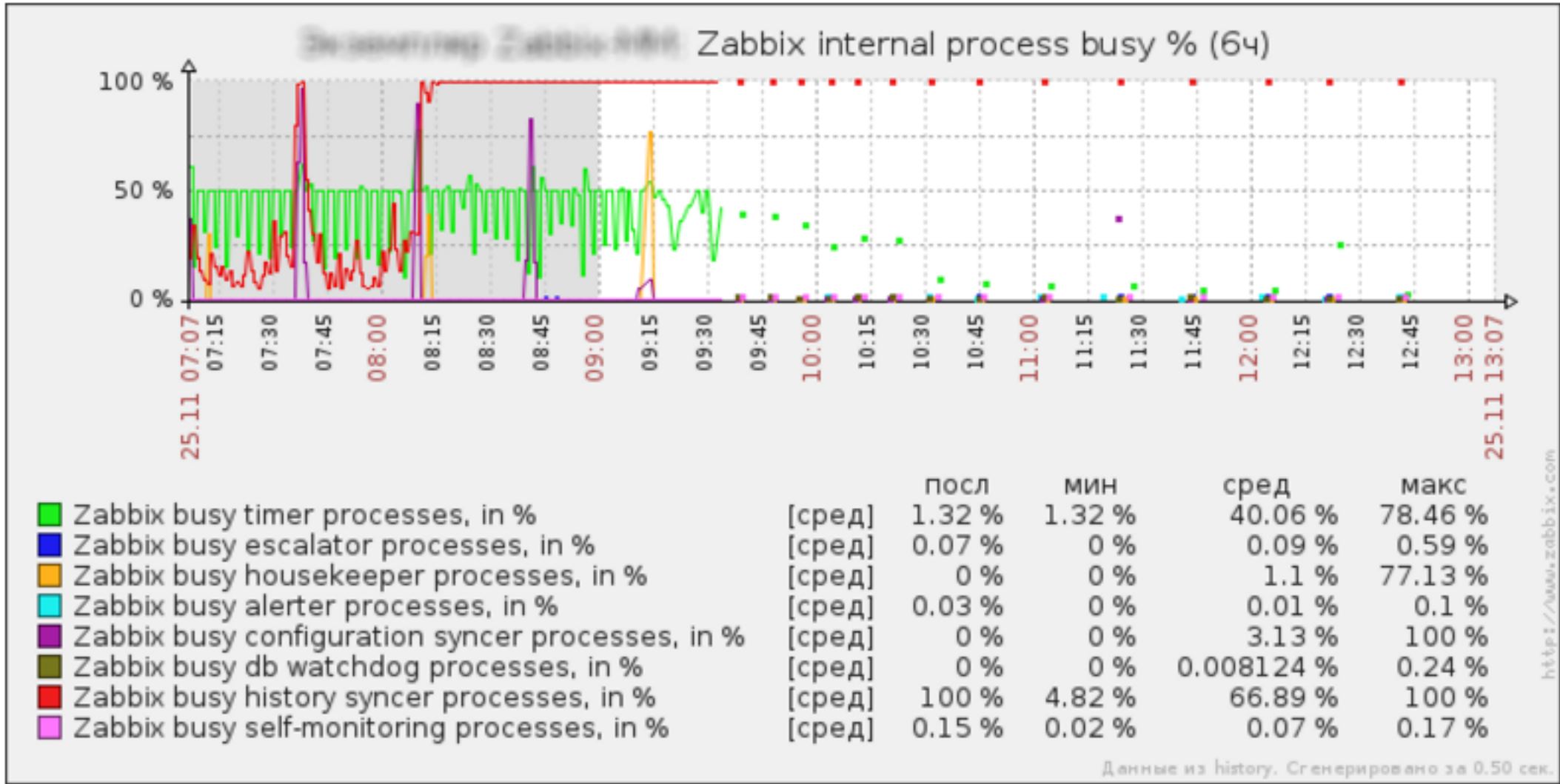
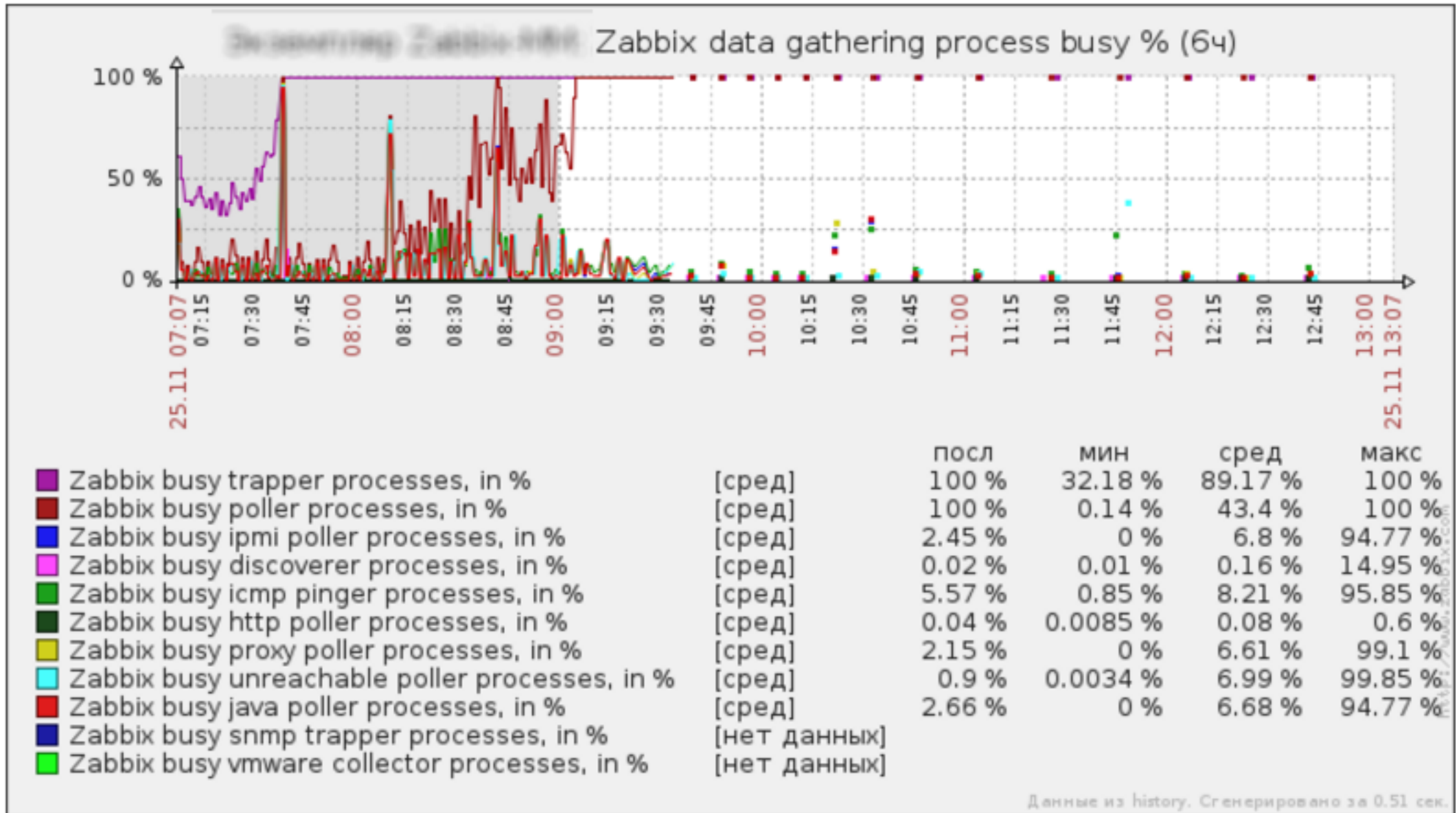
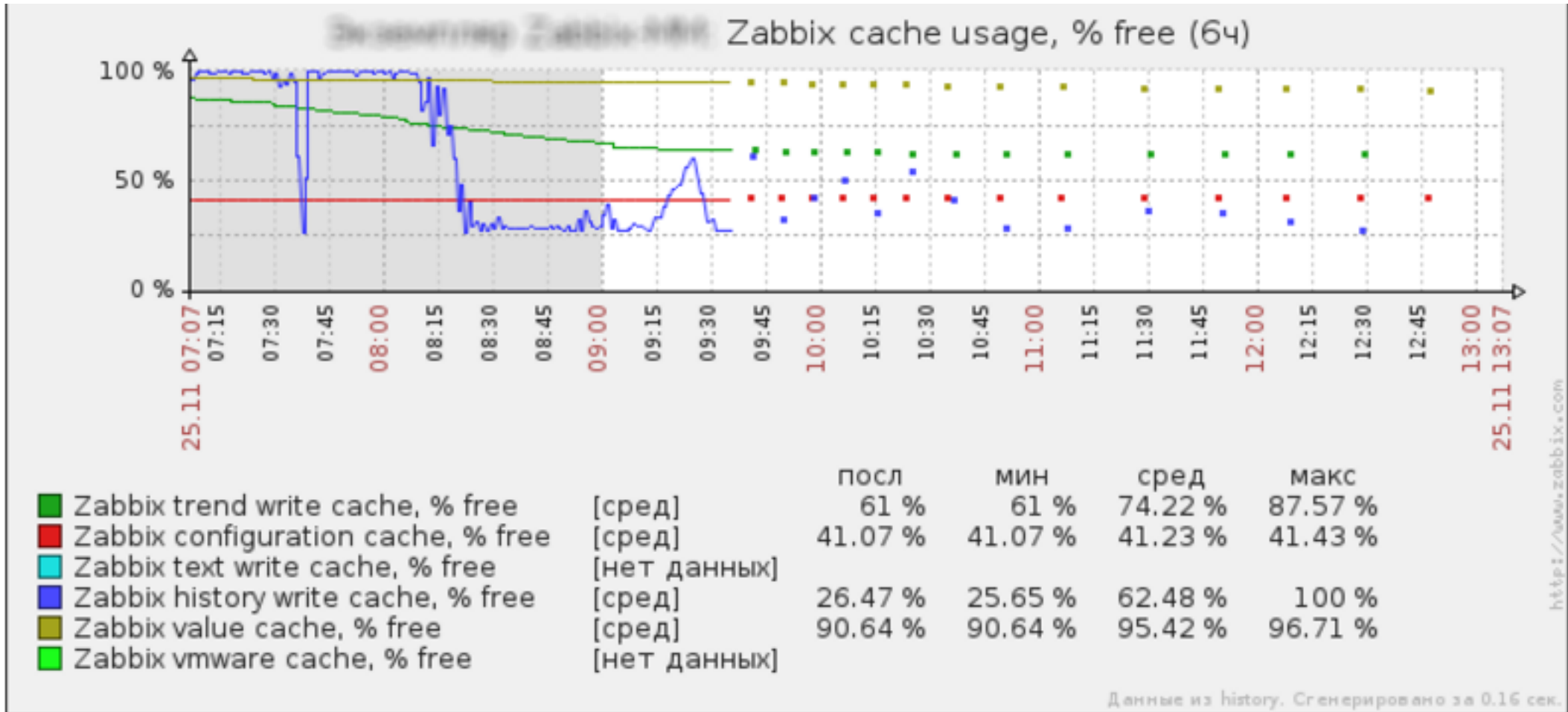
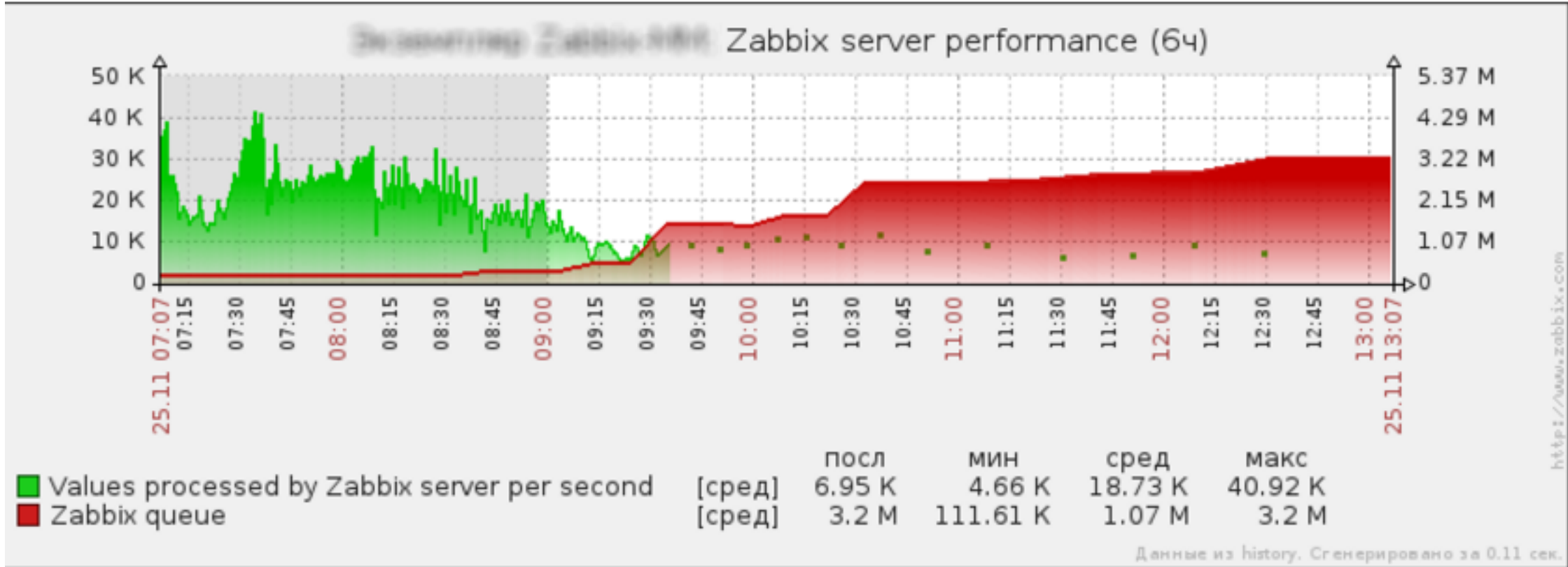
```
slow query: 6.754405 sec, "insert into history (itemid,clock,ns,value) values...
```

```
slow query: 37.949541 sec, "select i.itemid, i.hostid, h.proxy_hostid, i.type,  
i.data_type...
```

```
slow query: 70.877295 sec, "select distinct t.triggerid, t.description, t.expression,  
t.error...
```

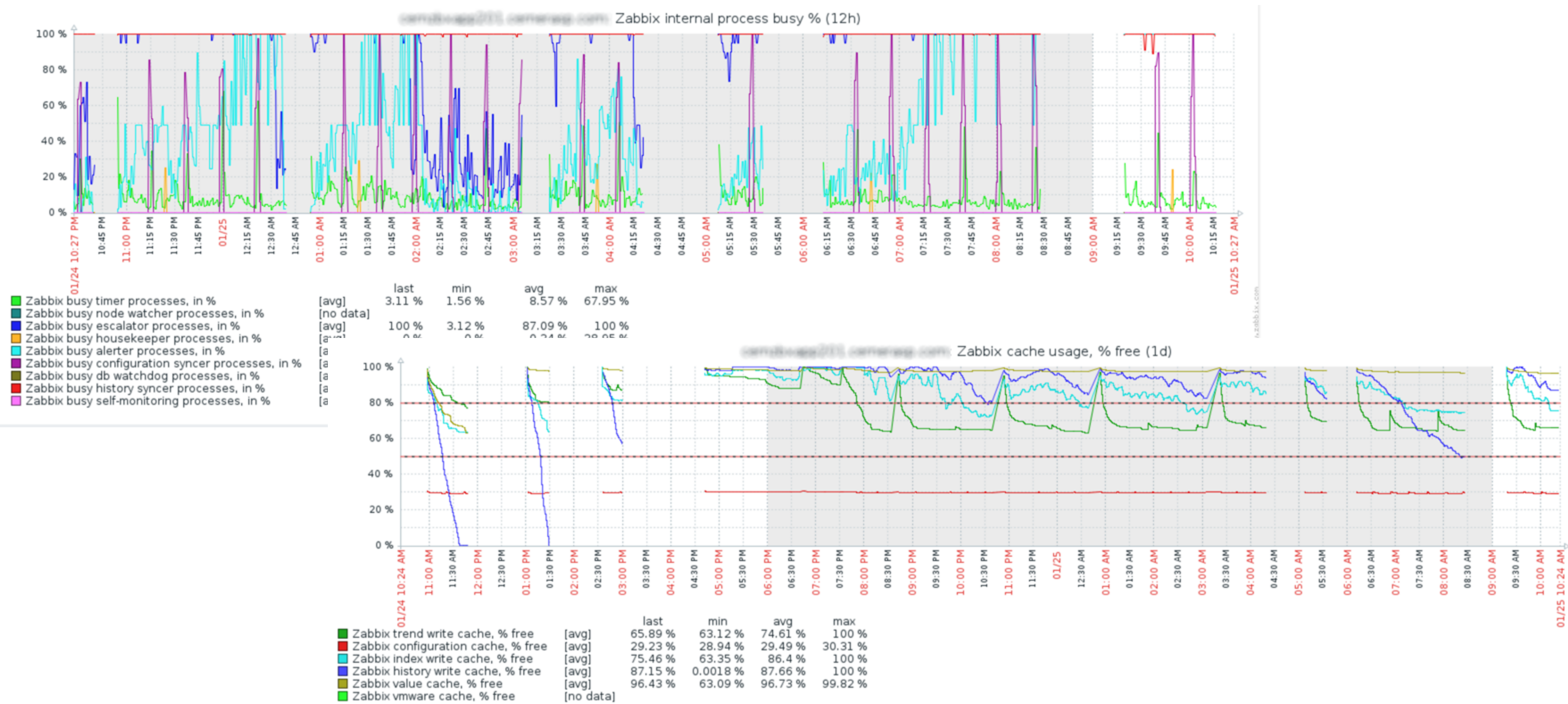


# Zabbix health





# Zabbix health



# Zabbix queue

General   DM   Authentication   Users   Media types   Scripts   Audit   Queue   Notifications   Installation												Search	
History: Search » Latest events » Dashboard » Latest data » Queue													
QUEUE OF ITEMS TO BE UPDATED													Overview by proxy ▼
Proxy	5 seconds	10 seconds	30 seconds	1 minute	5 minutes	More than 10 minutes							
	10	25	58	63	25	162							
	0	2	1	301	563	74111							
	0	0	0	0	0	0							
	0	11	5	395	747	89487							
	0	0	0	0	0	0							
	0	6	16	359	602	128153							
	0	1	0	5	2	68432							
	0	7	0	164	291	45159							
	2	6	0	0	0	43							
	0	0	0	0	0	0							
	0	3	1	270	714	61453							
	0	2	2	68	137	17658							
	0	0	0	53	51	8956							
	0	0	0	55	78	27690							
	0	0	0	0	0	0							
	0	0	0	0	0	0							
	0	0	0	0	0	0							
Server	0	8	8	1	69	28							



# Frontend debug

ZABBIX

MonitoringInventoryReportsConfigurationAdministration

Z Share ?

GeneralProxiesAuthenticationUser groupsUsersMedia typesScriptsQueue

User groups

Create user group

Filter

<input type="checkbox"/> Name ▲	#	Members	Frontend access	Debug mode	Status
<input type="checkbox"/> Enabled debug mode	Users 1	<a href="#">oleg</a>	<a href="#">System default</a>	Enabled	Enabled

ZABBIX

MonitoringInventoryReportsConfigurationAdministration

Z Share ?

Host groupsTemplatesHostsMaintenanceActionsEvent correlationDiscoveryServices

Templates

Group all

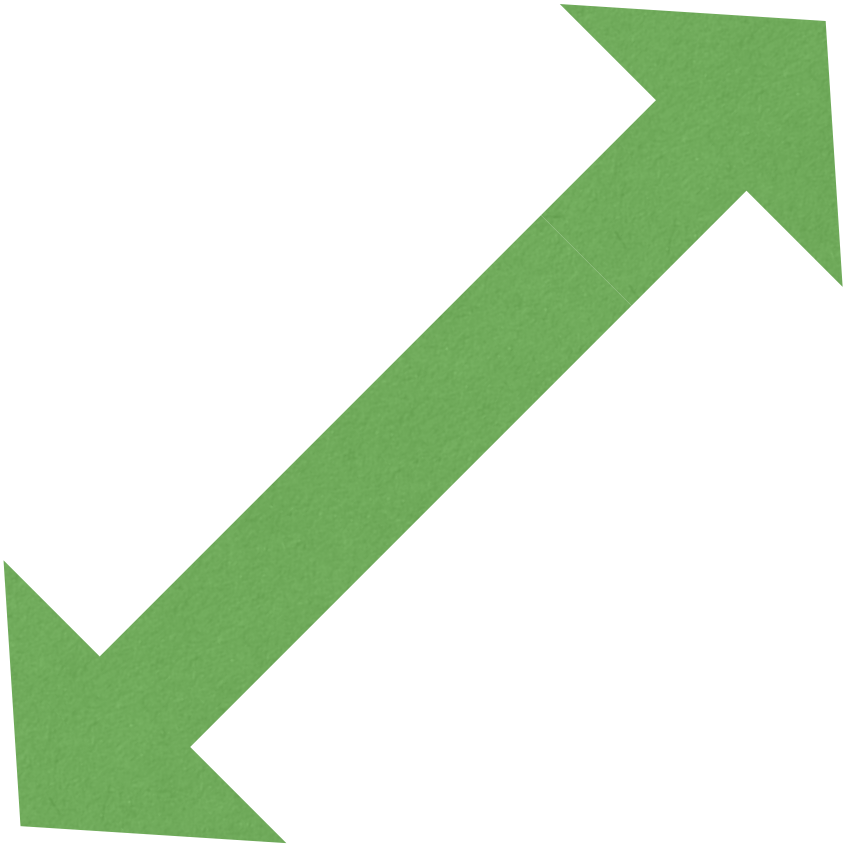
Create template

Import

Filter

<input type="checkbox"/> Name ▲	Applications	Items	Triggers	Graphs	Screens	Discovery	Web	Linked templates	Linked to
<input type="checkbox"/> Template App FTP Service	Applications 1	Items 1	Triggers 1	Graphs	Screens	Discovery	Web		
<input type="checkbox"/> Template App HTTP Service	Applications 1	Items 1	Triggers 1	Graphs	Screens	Discovery	Web		
<input type="checkbox"/> Template App HTTPS Service	Applications 1	Items 1	Triggers 1	Graphs	Screens	Discovery	Web		
<input type="checkbox"/> Template App IMAP Service	Applications 1	Items 1	Triggers 1	Graphs	Screens	Discovery	Web		
<input type="checkbox"/> Template App LDAP Service	Applications 1	Items 1	Triggers 1	Graphs	Screens	Discovery	Web		
<input type="checkbox"/> Template App MySQL	Applications 1	Items 14	Triggers 1	Graphs 2	Screens 1	Discovery	Web		
<input type="checkbox"/> Template App NNTP Service	Applications 1	Items 1	Triggers 1	Graphs	Screens	Discovery	Web		
<input type="checkbox"/> Template App NTP Service	Applications 1	Items 1	Triggers 1	Graphs	Screens	Discovery	Web		
<input type="checkbox"/> Template App POP Service	Applications 1	Items 1	Triggers 1	Graphs	Screens	Discovery	Web		
<input type="checkbox"/> Template App SMTP Service	Applications 1	Items 1	Triggers 1	Graphs	Screens	Discovery	Web		

Debug



# Frontend debug

\*\*\*\*\* Script profiler \*\*\*\*\*

Total time: 0.960905

Total SQL time: 0.749027

SQL count: 5636 (selects: 4065 | executes: 1571)

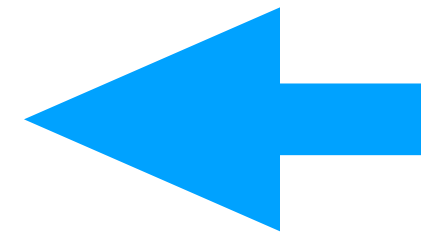
Peak memory usage: 180.5M

Memory limit: 2G

# Frontend debug

\*\*\*\*\* Script profiler \*\*\*\*\*

**Total time: 10.960905**



Web server issue

**Total SQL time:** 0.749027

SQL count: 5636 (selects: 4065 | executes: 1571)

Peak memory usage: 180.5M

Memory limit: 2G



# Web server is slow?

Tune configuration

Try nginx

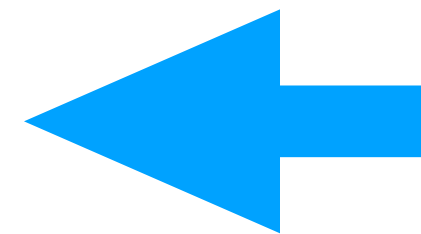
Apache	nginx
Total time: 6.47	Total time: 1.02

# Frontend debug

\*\*\*\*\* Script profiler \*\*\*\*\*

**Total time: 10.960905**

**Total SQL time: 10.749027**



Database issue

SQL count: 5636 (selects: 4065 | executes: 1571)

Peak memory usage: 180.5M

Memory limit: 2G

# Localize the issue

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Command line utilities: innotop/pg\_top, atop, ps, tcpdump, SQL, debug/strace



# innotop / pg\_top

A real-time, advanced investigation tools for MySQL/PostgreSQL

When	Load	Cxns	QPS	Slow	Se/In/Up/De%	QCacheHit	KCacheHit	BpsIn	BpsOut
Now	0.00	218	2.04k	4	93/ 0/ 0/ 0	0.00%	100.00%	274.71k	2.35M
Total	0.00	2.00k	1.60k	173.93k	81/ 2/ 3/ 0	0.00%	100.00%	372.98k	4.11M

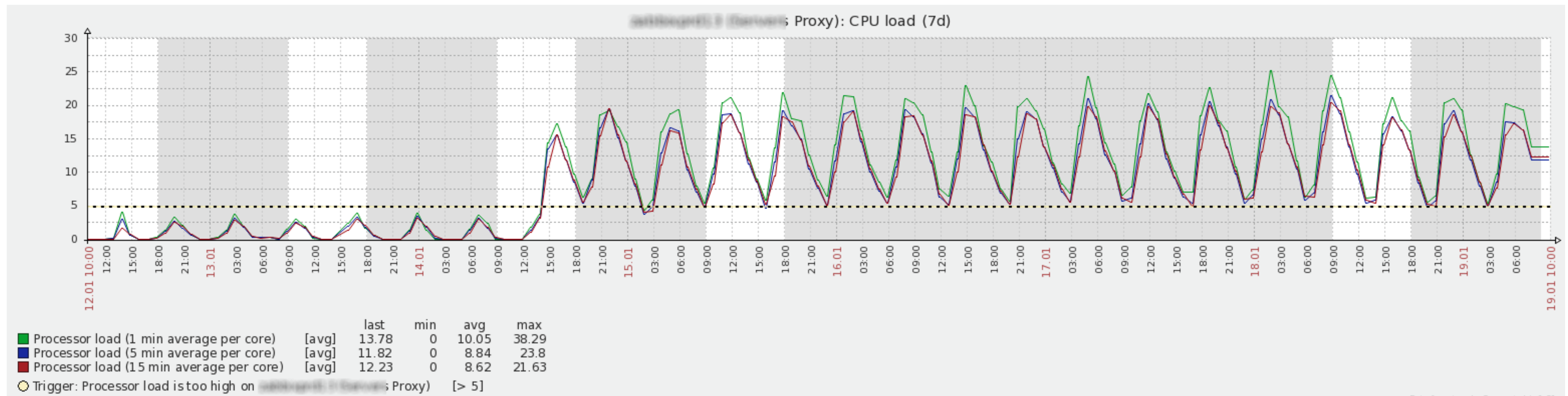
  

Cmd	ID	State	User	Host	DB	Time	Query
Daemon	1	Waiting on empty q	event_sc	localhost		5+21:18:05	
Query	3879265	Sending data	root		zabbix	05:12	SELECT DISTINCT t.triggerid,t.priority,h.name AS hostname,h.host,h.hostid FROM triggers t,functions f,items i,hos
Query	3879583	Sending data	root		zabbix	04:40	SELECT DISTINCT t.triggerid,t.state,t.error,t.url,t.expression,t.description,t.priority,t.lastchange FROM trigger
Query	3879654	Sending data	root		zabbix	04:30	SELECT DISTINCT t.triggerid,t.state,t.error,t.url,t.expression,t.description,t.priority,t.lastchange FROM trigger
Query	3879818	Sending data	root		zabbix	04:29	SELECT DISTINCT t.triggerid,t.priority,h.name AS hostname,h.host,h.hostid FROM triggers t,functions f,items i,hos
Query	3879915	Sending data	root		zabbix	04:29	SELECT DISTINCT t.triggerid,t.state,t.error,t.url,t.expression,t.description,t.priority,t.lastchange FROM trigger
Query	3879931	Sending data	root		zabbix	04:29	SELECT DISTINCT t.triggerid,t.state,t.error,t.url,t.expression,t.description,t.priority,t.lastchange FROM trigger
Query	3879934	Sending data	root		zabbix	04:28	SELECT DISTINCT t.triggerid,t.priority,h.name AS hostname,h.host,h.hostid FROM triggers t,functions f,items i,hos
Query	3879940	Sending data	root		zabbix	04:28	SELECT DISTINCT t.triggerid,t.state,t.error,t.url,t.expression,t.description,t.priority,t.lastchange FROM trigger
Query	3879970	Sending data	root		zabbix	04:27	SELECT DISTINCT t.triggerid,t.state,t.error,t.url,t.expression,t.description,t.priority,t.lastchange FROM trigger
Query	3880048	Sending data	root		zabbix	04:15	SELECT DISTINCT t.triggerid,t.state,t.error,t.url,t.expression,t.description,t.priority,t.lastchange FROM trigger
Query	3880122	Sending data	root		zabbix	03:38	SELECT DISTINCT t.triggerid,t.priority,h.name AS hostname,h.host,h.hostid FROM triggers t,functions f,items i,hos
Query	3878927	Sending data	root		zabbix	03:28	SELECT DISTINCT COUNT(DISTINCT t.triggerid) AS rowcount FROM triggers t,functions f,items i,hosts_groups hg WHER
Query	3880276	Sending data	root		zabbix	03:25	SELECT DISTINCT t.triggerid,t.priority,h.name AS hostname,h.host,h.hostid FROM triggers t,functions f,items i,hos
Query	3880041	Sending data	root		zabbix	02:05	SELECT DISTINCT COUNT(DISTINCT t.triggerid) AS rowcount FROM triggers t,functions f,items i,hosts_groups hg WHER
Query	3880848	Sending data	root		zabbix	02:00	SELECT DISTINCT t.triggerid,t.state,t.error,t.url,t.expression,t.description,t.priority,t.lastchange FROM trigger
Query	3880722	Sending data	root		zabbix	01:59	SELECT DISTINCT t.triggerid,t.state,t.error,t.url,t.expression,t.description,t.priority,t.lastchange FROM trigger
Query	3879118	Sending data	root		zabbix	01:47	SELECT DISTINCT COUNT(DISTINCT t.triggerid) AS rowcount FROM triggers t,functions f,items i,hosts_groups hg WHER
Query	3881015	Sending data	root		zabbix	01:37	SELECT DISTINCT t.triggerid,t.state,t.error,t.url,t.expression,t.description,t.priority,t.lastchange FROM trigger
Query	3880981	Sending data	root		zabbix	01:31	SELECT DISTINCT t.triggerid,t.priority,h.name AS hostname,h.host,h.hostid FROM triggers t,functions f,items i,hos
Query	3879535	Sending data	root		zabbix	01:29	SELECT DISTINCT COUNT(DISTINCT t.triggerid) AS rowcount FROM triggers t,functions f,items i,hosts_groups hg WHER
Query	3880240	Sending data	root		zabbix	01:28	SELECT DISTINCT t.triggerid,t.priority,h.name AS hostname,h.host,h.hostid FROM triggers t,functions f,items i,hos
Query	3881198	Sending data	root		zabbix	01:23	SELECT DISTINCT t.triggerid,t.state,t.error,t.url,t.expression,t.description,t.priority,t.lastchange FROM trigger
Query	3881267	Sending data	root		zabbix	01:20	SELECT DISTINCT t.triggerid,t.state,t.error,t.url,t.expression,t.description,t.priority,t.lastchange FROM trigger
Query	3881352	Sending data	root		zabbix	01:11	SELECT COUNT(DISTINCT t.triggerid) AS rowcount FROM triggers t WHERE NOT EXISTS (SELECT NULL FROM functions f
Query	3881468	Sending data	root		zabbix	00:47	SELECT DISTINCT t.triggerid,t.priority,h.name AS hostname,h.host,h.hostid FROM triggers t,functions f,items i,hos
Query	3881593	Sending data	root		zabbix	00:46	SELECT DISTINCT h.hostid,h.name FROM hosts h,hosts_groups hg WHERE h.flags IN (0,4) AND EXISTS (SELECT NULL FROM



# top / atop

CPU load is too high on Zabbix proxy 1: **550** NVPS, 2 CPU, **~10** CPU load (1min avg)



Zabbix proxy 2: **1000** NVPS, 2 CPU, **~0.2** CPU load (1min avg)



# atop

Run "atop" to write system and process activity to a file (e.g. 2 seconds interval during 5 minutes):

```
# atop -w /tmp/atop.raw 2 150
```

Reading atop reports/logs

```
# atop -r /tmp/atop.raw
```



# atop

ATOP -		2016/01/27 19:55:49 ----- 2s												
PRC	sys	0.39s	user	3.21s	#proc	886	#tslpi	1641	#tslpu	0	#zombie	0	#exit	11
CPU	sys	21%	user	164%	irq	3%	idle	12%	wait	0%	curf	2.60GHz	curscal	?%
cpu	sys	15%	user	78%	irq	1%	idle	6%	cpu001 w	0%	curf	2.60GHz	curscal	?%
cpu	sys	6%	user	86%	irq	2%	idle	6%	cpu000 w	0%	curf	2.60GHz	curscal	?%
CPL	avg1	17.33	avg5	11.10	avg15	10.19	csw	13327	intr	10450			numcpu	2
MEM	tot	7.1G	free	230.7M	cache	2.4G	buff	221.3M	slab	289.1M	vmbal	0.0M	hptot	0.0M
SWP	tot	4.0G	free	4.0G							vmcom	10.0G	vmlim	7.5G
LVM	_root-lv_var		busy	1%	read	0	write	49	MBr/s	0.0	MBw/s	0.1	avio	0.31 ms
LVM	root-lv_root		busy	0%	read	0	write	42	MBr/s	0.0	MBw/s	0.1	avio	0.21 ms
DSK	sda		busy	1%	read	0	write	41	MBr/s	0.0	MBw/s	0.2	avio	0.59 ms
NET	transport		tcpi	2061	tcpo	2391	udpi	319	udpo	329	tcpao	449	tcpo	25
NET	network		ipi	2833	ipo	3175	ipfrw	0	deliv	2811	icmpi	430	icmpo	427
NET	eth0	0%	sp	10 Gbps	pcki	2835	pcko	3211	si	1458 Kbps	so	1725 Kbps	erro	0
NET	lo	----	sp	0 Mbps	pcki	10	pcko	10	si	2 Kbps	so	2 Kbps	erro	0
NPROCS	SYS CPU	USRCPU	VSIZE	RSIZE	PSIZE	SWAPSZ	RDDSK	WRDSK	RNET	SNET	CPU	RUID	1/1	
674	0.17s	3.02s	853.8G	107.8G	0K	0K	0K	3996K	0	0	160%	zabbix		
1	0.18s	0.10s	27868K	10888K	0K	0K	0K	36K	0	0	14%	111522		
1	0.01s	0.06s	6.3G	1.5G	0K	0K	0K	112K	0	0	4%	mysql		
6	0.03s	0.03s	2.4G	219.6M	0K	0K	0K	672K	0	0	3%	root		

ATOP - 2016/01/27 19:55:49 ----- 2s														
PRC	sys	0.39s	user	3.21s	#proc	886	#tslpi	1641	#tslpu	0	#zombie	0	#exit	11
CPU	sys	21%	user	164%	irq	3%	idle	12%	wait	0%	curf	2.60GHz	curscal	7%
cpu	sys	15%	user	78%	irq	1%	idle	6%	cpu001 w	0%	curf	2.60GHz	curscal	7%
cpu	sys	6%	user	86%	irq	2%	idle	6%	cpu000 w	0%	curf	2.60GHz	curscal	7%
CPL	avg1	17.33	avg5	11.10	avg15	10.19	csw	13327	intr	10450			numcpu	2
MEM	tot	7.1G	free	230.7M	cache	2.4G	buff	221.3M	slab	289.1M	vmbal	0.0M	hptot	0.0M
SWP	tot	4.0G	free	4.0G							vmcom	10.0G	vmlim	7.5G
LVM	_root-lv_var		busy	1%	read	0	write	49	MBr/s	0.0	MBw/s	0.1	avio	0.31 ms
LVM	root-lv_root		busy	0%	read	0	write	42	MBr/s	0.0	MBw/s	0.1	avio	0.21 ms
DSK	sda		busy	1%	read	0	write	41	MBr/s	0.0	MBw/s	0.2	avio	0.59 ms
NET	transport		tcp	2061	tcpo	2391	udpi	319	udpo	329	tcpao	449	tcpo	25
NET	network		ip	2833	ipo	3175	ipfrw	0	deliv	2811	icmpi	430	icmpo	427
NET	eth0	0%	sp	10 Gbps	pcki	2835	pcko	3211	si	1458 Kbps	so	1725 Kbps	erro	0
NET	lo	----	sp	0 Mbps	pcki	10	pcko	10	si	2 Kbps	so	2 Kbps	erro	0
PID	TID	S	CPU	COMMAND-LINE (horizontal scroll with <- and -> keys)										1/15
26137	-	R	14%	atop -w /tmp/atop.raw 2 150										
4437	-	S	4%	/usr/sbin/mysqld --basedir=/usr --datadir=/var/lib/mysql --plugin-dir=/usr/lib64/mysql/plugin --us										
4934	-	S	2%	zabbix_proxy: poller #99 [got 93 values in 2.441397 sec, idle 1 sec]										
5042	-	S	2%	zabbix_proxy: poller #207 [got 13 values in 2.256012 sec, idle 1 sec]										
4975	-	S	2%	zabbix_proxy: poller #140 [got 13 values in 2.967135 sec, idle 1 sec]										
5030	-	S	2%	zabbix_proxy: poller #195 [got 13 values in 2.812026 sec, idle 1 sec]										
5082	-	S	2%	zabbix_proxy: poller #247 [got 93 values in 2.449143 sec, idle 1 sec]										
5091	-	S	2%	zabbix_proxy: poller #256 [got 11 values in 2.284384 sec, idle 1 sec]										
4958	-	S	2%	zabbix_proxy: poller #123 [got 11 values in 2.296942 sec, idle 1 sec]										
5026	-	S	2%	zabbix_proxy: poller #191 [got 11 values in 2.284992 sec, idle 1 sec]										
5044	-	S	2%	zabbix_proxy: poller #209 [got 14 values in 2.250463 sec, idle 1 sec]										
5033	-	S	2%	zabbix_proxy: poller #198 [got 11 values in 2.294783 sec, idle 1 sec]										
5157	-	S	2%	zabbix_proxy: poller #285 [got 93 values in 2.448609 sec, idle 1 sec]										
4920	-	S	2%	zabbix_proxy: poller #85 [got 11 values in 2.396930 sec, idle 1 sec]										
4973	-	S	2%	zabbix_proxy: poller #138 [got 93 values in 2.447355 sec, idle 1 sec]										
5241	-	S	2%	zabbix_proxy: poller #299 [got 11 values in 2.295149 sec, idle 1 sec]										
4880	-	S	2%	zabbix_proxy: poller #45 [got 16 values in 2.257333 sec, idle 1 sec]										
4981	-	S	2%	zabbix_proxy: poller #146 [got 11 values in 2.293003 sec, idle 1 sec]										
5003	-	S	2%	zabbix_proxy: poller #168 [got 17 values in 3.083583 sec, idle 1 sec]										
3107	-	S	2%	connector64 start instance										
4846	-	S	1%	zabbix_proxy: poller #11 [got 4 values in 2.427427 sec, idle 1 sec]										
5000	-	S	1%	zabbix_proxy: poller #165 [got 14 values in 2.281458 sec, idle 1 sec]										
4873	-	S	1%	zabbix_proxy: poller #38 [got 3 values in 0.024655 sec, idle 1 sec]										
4947	-	S	1%	zabbix_proxy: poller #112 [got 11 values in 2.286709 sec, idle 1 sec]										
4862	-	S	1%	zabbix_proxy: poller #27 [got 13 values in 2.423200 sec, idle 1 sec]										
4839	-	S	1%	zabbix_proxy: poller #4 [got 93 values in 2.421633 sec, idle 1 sec]										
4895	-	S	1%	zabbix_proxy: poller #60 [got 13 values in 2.262932 sec, idle 1 sec]										
5114	-	S	1%	zabbix_proxy: poller #278 [got 15 values in 2.777082 sec, idle 1 sec]										
4994	-	S	1%	zabbix_proxy: poller #159 [got 11 values in 2.283459 sec, idle 1 sec]										
4854	-	S	1%	zabbix_proxy: poller #19 [got 11 values in 2.283773 sec, idle 1 sec]										
4969	-	S	1%	zabbix_proxy: poller #134 [got 11 values in 2.297702 sec, idle 1 sec]										
5166	-	S	1%	zabbix_proxy: poller #293 [got 11 values in 2.307474 sec, idle 1 sec]										
5013	-	S	1%	zabbix_proxy: poller #178 [got 13 values in 2.279250 sec, idle 1 sec]										
5051	-	S	1%	zabbix_proxy: poller #216 [got 11 values in 2.294699 sec, idle 1 sec]										
5101	-	S	1%	zabbix_proxy: poller #266 [got 20 values in 2.987151 sec, idle 1 sec]										
4905	-	S	1%	zabbix_proxy: poller #70 [got 12 values in 2.256722 sec, idle 1 sec]										
5072	-	S	1%	zabbix_proxy: poller #237 [got 11 values in 2.295006 sec, idle 1 sec]										
5036	-	S	1%	zabbix_proxy: poller #201 [got 11 values in 2.292497 sec, idle 1 sec]										
5053	-	S	1%	zabbix_proxy: poller #218 [got 13 values in 2.712862 sec, idle 1 sec]										
4923	-	S	1%	zabbix_proxy: poller #88 [got 93 values in 2.439562 sec, idle 1 sec]										
4884	-	S	1%	zabbix_proxy: poller #49 [got 12 values in 2.263833 sec, idle 1 sec]										
5041	-	S	1%	zabbix_proxy: poller #206 [got 16 values in 2.268101 sec, idle 1 sec]										
4885	-	S	1%	zabbix_proxy: poller #50 [got 12 values in 2.268390 sec, idle 1 sec]										
4896	-	S	1%	zabbix_proxy: poller #61 [got 13 values in 2.275156 sec, idle 1 sec]										
5045	-	S	1%	zabbix_proxy: poller #210 [got 11 values in 2.284065 sec, idle 1 sec]										
5001	-	S	1%	zabbix_proxy: poller #166 [got 93 values in 2.416968 sec, idle 1 sec]										
5020	-	S	1%	zabbix_proxy: poller #185 [got 11 values in 2.307196 sec, idle 1 sec]										
5022	-	S	1%	zabbix_proxy: poller #187 [got 16 values in 2.278309 sec, idle 1 sec]										

Decrease number of proxy processes (750 -> 500)

Increase number of CPU cores



# ps

Run "ps" to get information about running processes:

```
# ps ax | grep sync
```

```
zabbix_server: history syncer #1 [syncd 1845 items in 0.257111 sec, syncing history]
```

```
zabbix_server: history syncer #2 [syncd 24 items in 0.060314 sec, idle 4 sec]
```

```
zabbix_server: history syncer #3 [syncd 0 items in 0.000018 sec, idle 4 sec]
```

```
zabbix_server: history syncer #4 [syncd 0 items in 0.000009 sec, syncing history]
```

# ps

Run "ps" to get information about running processes:

```
# ps ax | grep sync
```

```
zabbix_server: history syncer #1 [synced 1845 items in 0.257111 sec, syncing history]
```

```
zabbix_server: history syncer #2 [synced 24 items in 0.060314 sec, idle 4 sec]
```

```
zabbix_server: history syncer #3 [synced 0 items in 0.000018 sec, idle 4 sec]
```

```
zabbix_server: history syncer #4 [synced 0 items in 0.000009 sec, syncing history]
```

## During an issue:

```
zabbix_server: history syncer #1 [synced 1000 items in 285.198752 sec, syncing history]
```

```
zabbix_server: history syncer #2 [synced 1000 items in 285.177799 sec, syncing history]
```

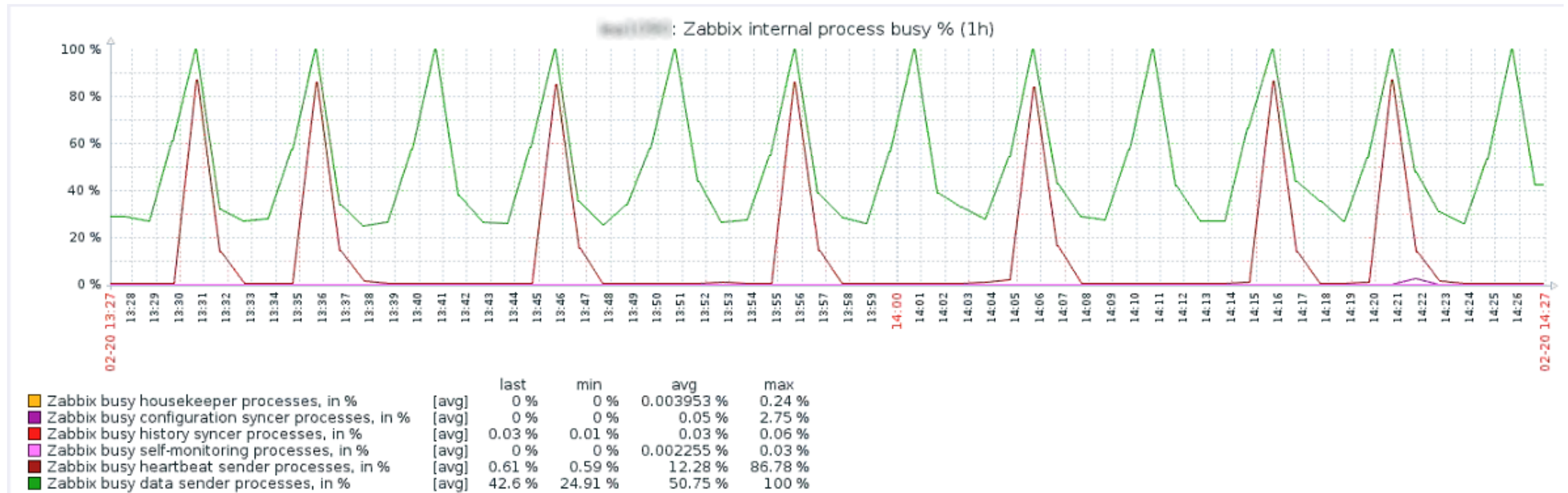
```
zabbix_server: history syncer #3 [synced 1000 items in 284.936376 sec, syncing history]
```

```
zabbix_server: history syncer #4 [synced 1000 items in 285.280719 sec, syncing history]
```

# tcpdump

*Customer:* we have an issue with a proxy

Data sender and heartbeat processes spikes every few minutes



# tcpdump

Use "tcpdump" to capture packets:

```
tcpdump -w proxy.pcap host <Zabbix_IP> and port 10051
```

Analyze data



# tcpdump

No issue

No.	Time	Source	Destination	Protocol	Length	Info
594	173.268238	192.168.1.107	192.168.1.100	TCP	74	58747→10051 [SYN] Seq=0
595	173.446588	192.168.1.107	192.168.1.100	TCP	66	58747→10051 [ACK] Seq=1
596	173.446993	192.168.1.107	192.168.1.100	TCP	373	58747→10051 [PSH, ACK]
597	173.631738	192.168.1.107	192.168.1.100	TCP	66	58747→10051 [ACK] Seq=3
598	173.632131	192.168.1.107	192.168.1.100	TCP	66	58747→10051 [FIN, ACK]
599	174.640747	192.168.1.107	192.168.1.100	TCP	74	58748→10051 [SYN] Seq=0
600	174.821537	192.168.1.107	192.168.1.100	TCP	66	58748→10051 [ACK] Seq=1
601	174.821843	192.168.1.107	192.168.1.100	TCP	645	58748→10051 [PSH, ACK]
602	175.005414	192.168.1.107	192.168.1.100	TCP	66	58748→10051 [ACK] Seq=5
603	175.005721	192.168.1.107	192.168.1.100	TCP	66	58748→10051 [FIN, ACK]

SYN - connection establish request on server port (10051)

PSH - "push" the data straight to the server

FIN - connection finish request

# tcpdump

During the network issue

No.	Time	Source	Destination	Protocol	Length	Info
604	176.016180	192.168.1.100	192.168.1.100	TCP	74	58749→10051 [SYN] Seq=0 Win=14600 Len=
605	179.022491	192.168.1.100	192.168.1.100	TCP	74	[TCP Retransmission] 58749→10051 [SYN]
606	185.030502	192.168.1.100	192.168.1.100	TCP	74	[TCP Retransmission] 58749→10051 [SYN]
607	197.046474	192.168.1.100	192.168.1.100	TCP	74	[TCP Retransmission] 58749→10051 [SYN]
608	208.591896	192.168.1.100	192.168.1.100	TCP	74	58777→10051 [SYN] Seq=0 Win=14600 Len=
609	208.773326	192.168.1.100	192.168.1.100	TCP	66	58777→10051 [ACK] Seq=1 Ack=1 Win=14720
610	208.773385	192.168.1.100	192.168.1.100	TCP	125	58777→10051 [PSH, ACK] Seq=1 Ack=1 Win=
611	208.954701	192.168.1.100	192.168.1.100	TCP	66	58777→10051 [ACK] Seq=60 Ack=36 Win=14
612	208.954762	192.168.1.100	192.168.1.100	TCP	66	58777→10051 [FIN, ACK] Seq=60 Ack=37 W

30-90 seconds to establish a connection!

SYN - connection establish request on server port (10051)

PSH - "push" the data straight to the server

FIN - connection finish request

# SQL statements

*Customer:* we found network latency issues on many of the proxies which prevents sending data to Zabbix server

```
mysql> select max(id)-(select nextid from ids where table_name = "proxy_history" limit 1)
from proxy_history;
```

+-----+
825
+-----+

+-----+
16825939
+-----+

How to read result:

Proxy sends up to 1000 of values per one connection

0 - 5000 - great

> 100 000 and increasing - bad

> 100 000, but decreasing - wait (it was an issue, but now proxy sends data to the server)



# SQL statements

The window size in a TCP connection defines how much data could be sent without the need of acknowledgement. In high-latency-networks the acknowledgement takes a while (e.g.  $\sim 150\text{ms}$ ), that means after sending part of the data, proxy data sender waits for  $\sim 150\text{ms}$ . A possible solution is tuning the TCP stack or try Zabbix 3.4 (ZBXNEXT-1804)

# SQL statements

The window size in a TCP connection defines how much data could be sent without the need of acknowledgement. In high-latency-networks the acknowledgement takes a while (e.g. ~150ms), that means after sending part of the data, proxy data sender waits for ~150ms. A possible solution is tuning the TCP stack or try Zabbix 3.4 (ZBXNEXT-1804), or

- send more than 1000 values per connection

```
#define ZBX_MAX_HRECORDS 10000
```

*Customer:* good news! The proxy queue reduced to 3871 from millions of records

# Zabbix debug

*Customer:* alerter process has 100 % utilization

Use runtime control options to enable debug for the process:

```
# zabbix_server -R log_level_increase=alerter
```

Check Zabbix server log file:

```
# grep 23153 /var/log/zabbix/zabbix_server.log
```



# Zabbix debug

Example:

```
23153:20151229:004407.963 In zbx_popen() command:'/usr/local/share/zabbix/alertScripts/ZBX_Notifications_1.0.sh  
'ZBX' 'PROBLEM
```

```
23153:20151229:004407.964 End of zbx_popen():6
```

```
23153:20151229:004428.873 In zbx_waitpid()
```

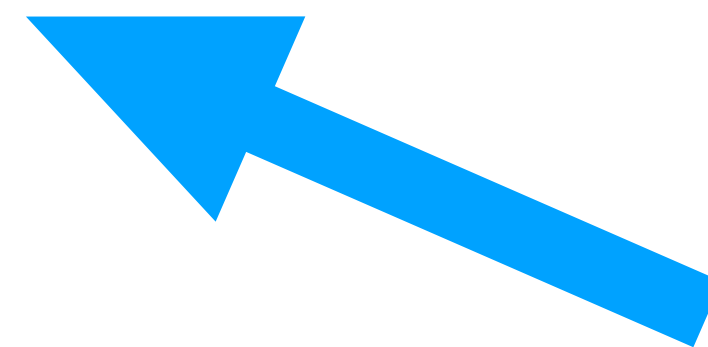
# Zabbix debug

Example:

```
23153:20151229:004407.963 In zbx_popen() command:'/usr/local/share/zabbix/alertScripts/ZBX_Notifications_1.0.sh  
'ZBX' 'PROBLEM'
```

```
23153:20151229:004407.964 End of zbx_popen():6
```

```
23153:20151229:004428.873 In zbx_waitpid()
```



alerter waits for 21 seconds

# strace

*Customer:* alerter process has 100 % utilization

Run "ps" to get alerter's process ID:

```
# ps aux | grep alerter
```

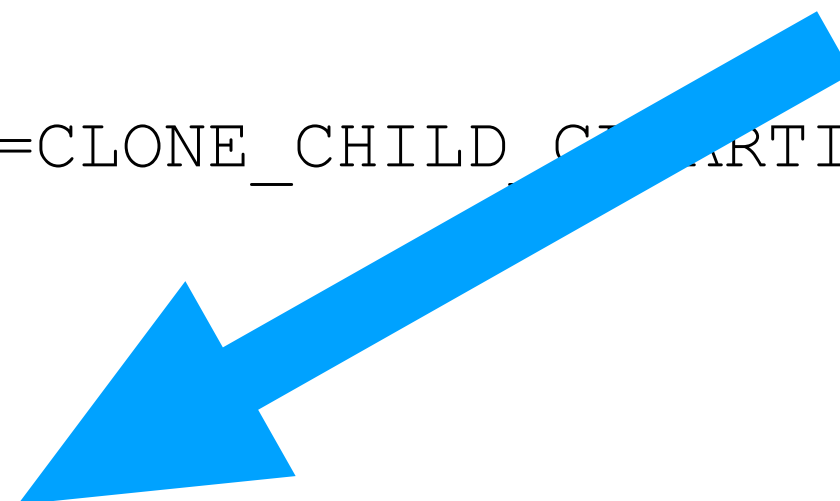
Run "strace" to record system calls which are called by the process:

```
# strace -tt -s 256 -p <alerter_pid> -o debug.txt
```

# strace

```
04:06:48.506607 alarm(0) = 28
04:06:48.506662 poll([{fd=5, events=POLLIN|POLLPRI}], 1, 0) = 0 (Timeout)
04:06:48.506697 write(5, ";\0\0\0\3update alerts set status=1,error='' where alertid=13373979", 63) =
63
04:06:48.506759 read(5, "0\0\0\1\0\1\0\2\0\0\0(Rows matched: 1 Changed: 1 Warnings: 0", 16384) = 52
04:06:48.507468 access("/usr/local/share/zabbix/alertScripts//ZBX_Notifications_1.0.sh", X_OK) = 0
04:06:48.507562 alarm(40) = 0
04:06:48.507620 pipe([6, 7]) = 0
04:06:48.507685 clone(child_stack=0, flags=CLONE_CHILD_CLEARTID|CLONE_CHILD_SETTID|SIGCHLD,
child_tidptr=0x7f4ff677f9f0) = 8712
04:06:48.509574 close(7) = 0
04:06:48.509636 read(6, "", 4095) = 0
04:06:58.998277 - SIGCHLD (Child exited) @ 0 (0) -
```

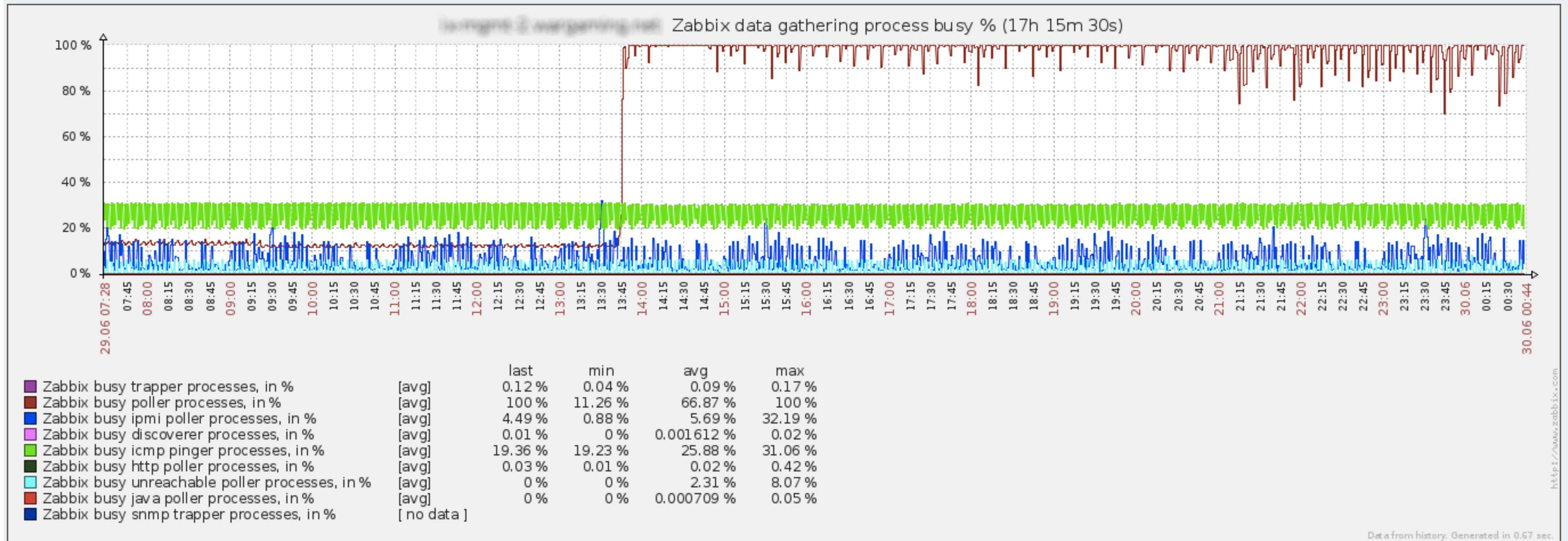
alerter waits for 10 seconds





# strace

*Customer:* pollers processes have ~100 % utilization



# strace

Run "ps" to get a poller's process ID:

```
# ps aux | grep poller
```

```
# strace -tt -s 256 -p <poller_pid> -o debug.txt
```

poller waits for 25 seconds

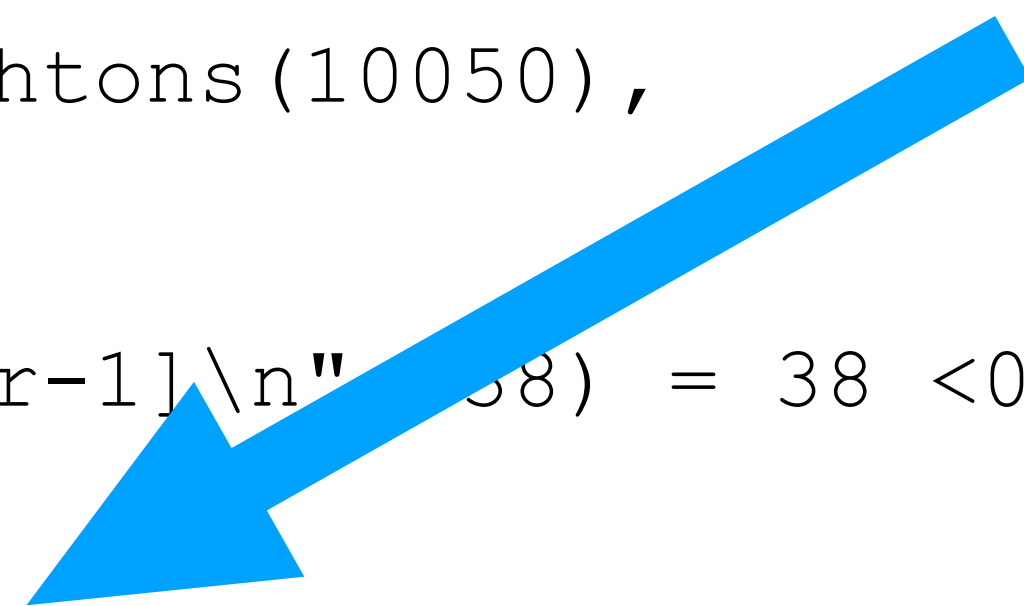
```
20:26:56.006121 connect(7, {sa_family=AF_INET, sin_port=htons(10050),  
sin_addr=inet_addr("10.10.10.10")}, 16) = 0 <0.000126>
```

```
20:26:56.006280 write(7, "users.online[onlineUsers,server-1]\n", 38) = 38 <0.000024>
```

```
20:26:56.006345 read(7, "ZBXD\1", 5) = 5 <23.254467>
```

```
20:27:19.260890 read(7, "\1\0\0\0\0\0\0\0", 8) = 8 <0.000019>
```

```
20:27:19.260963 read(7, "0", 2047) = 1 <0.000017>
```



Thank you!