

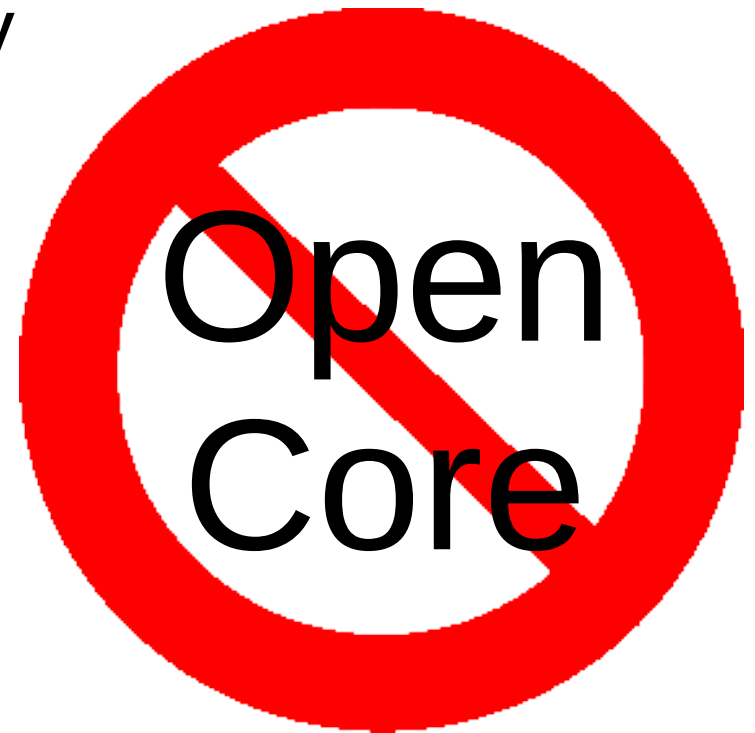
Zabbix: monitoring millions of metrics ...and a Zabbix 3.0 sneak peek

What is Zabbix?

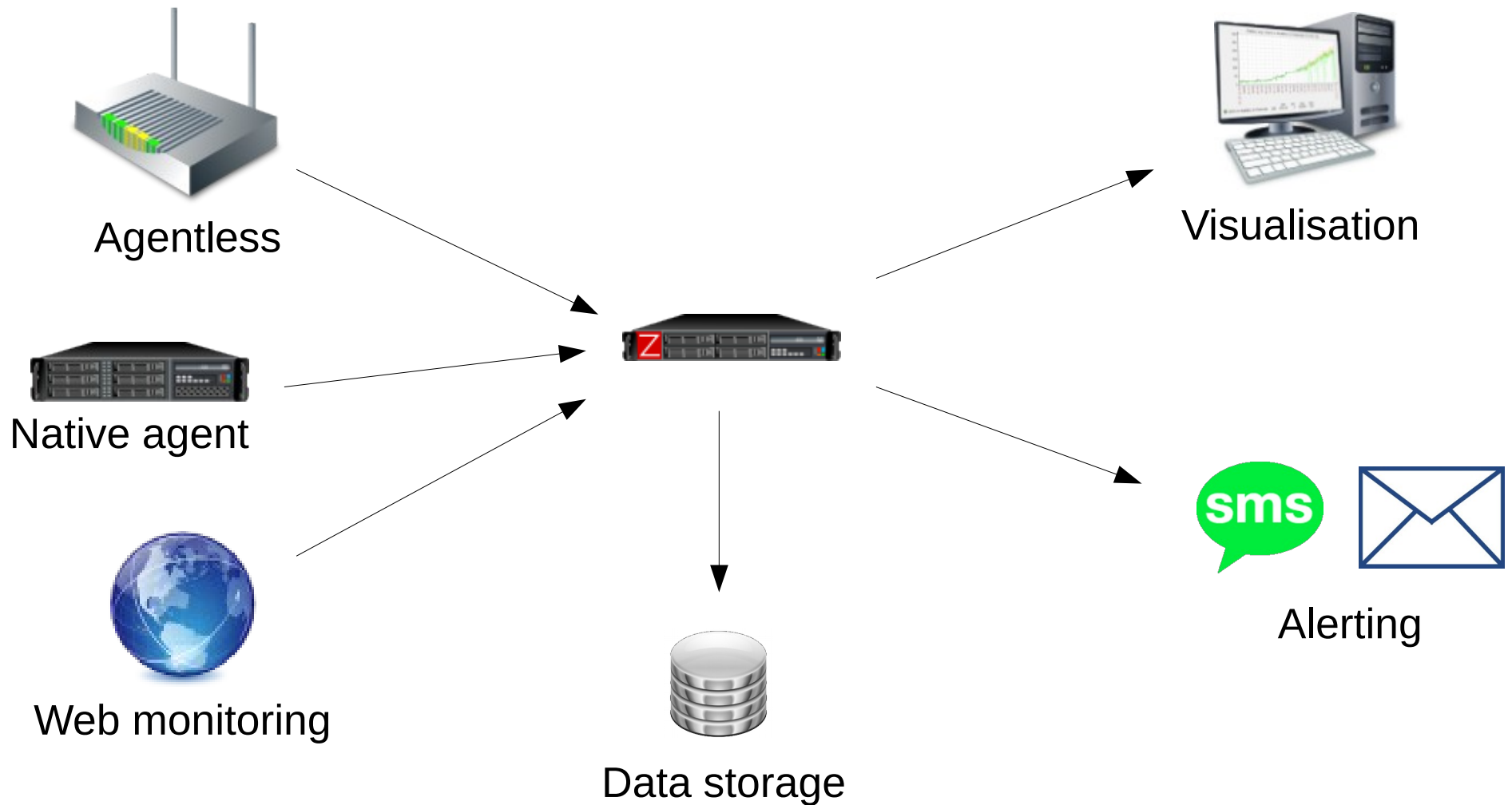
- Monitoring solution
- One package, less plugins
- Mature (not old) – first public release in 2001

True open source

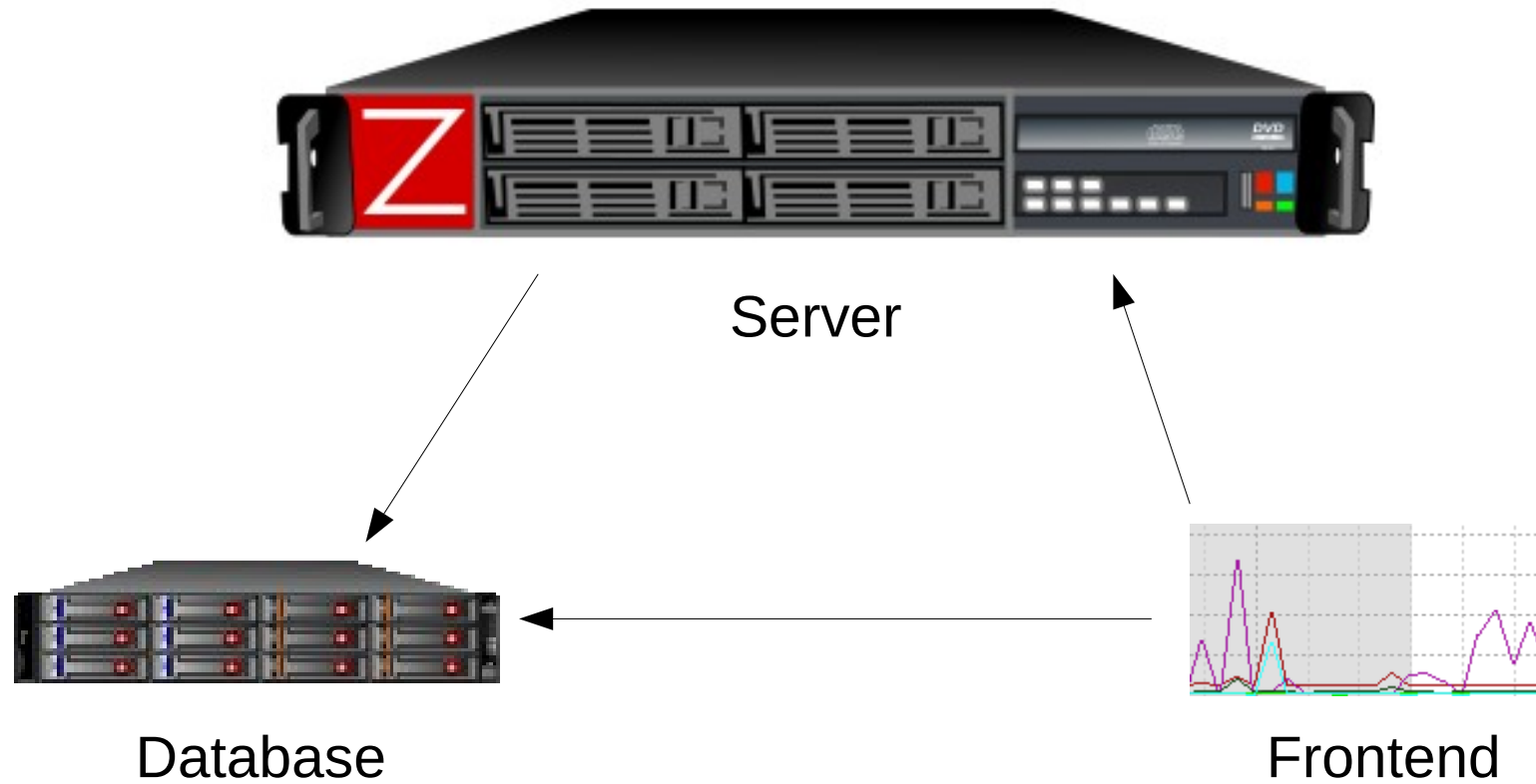
- No "enterprise", "professional" model
- Zabbix = true opensource
- We promise to stay that way



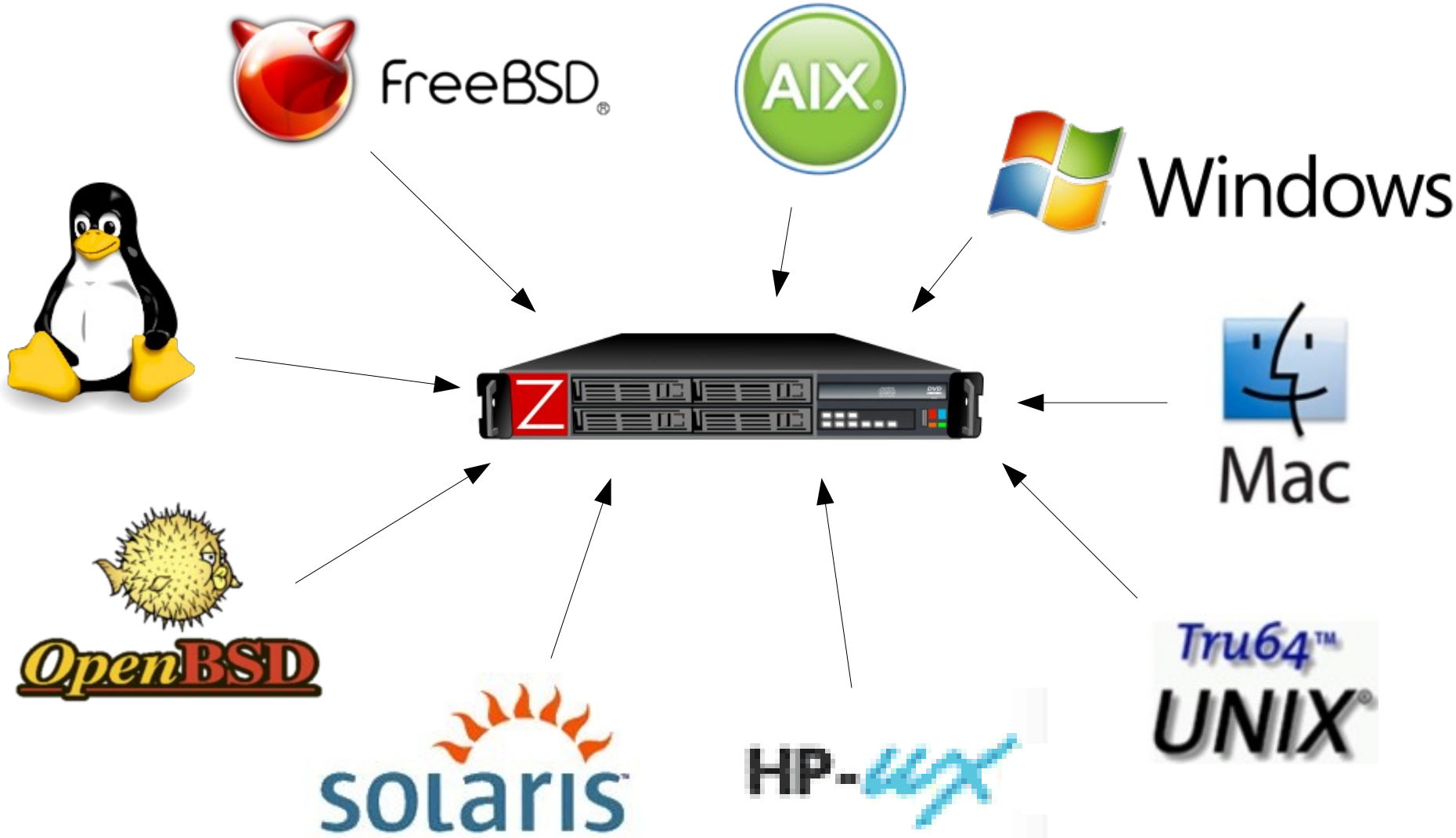
Main functionality



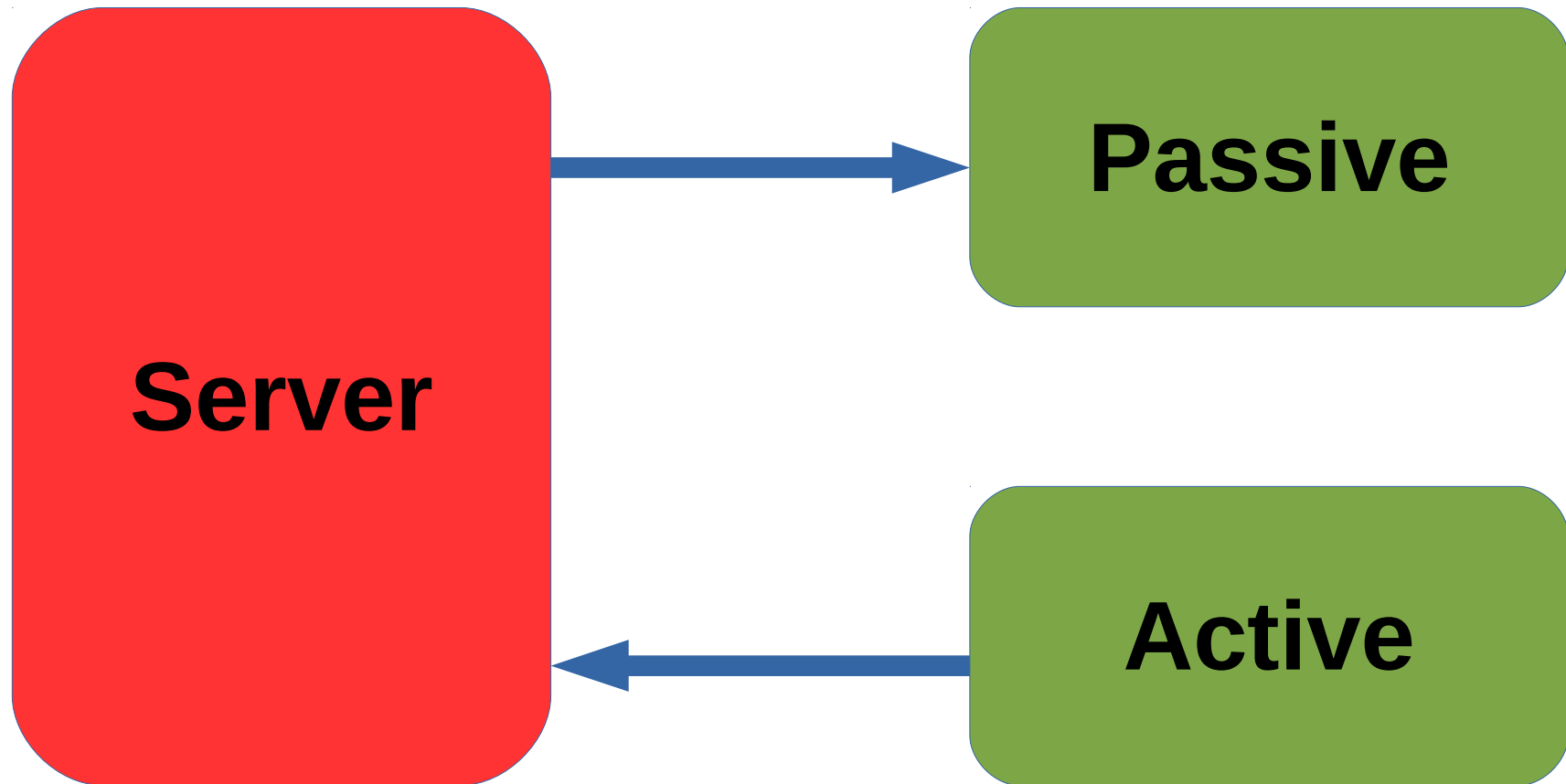
Components



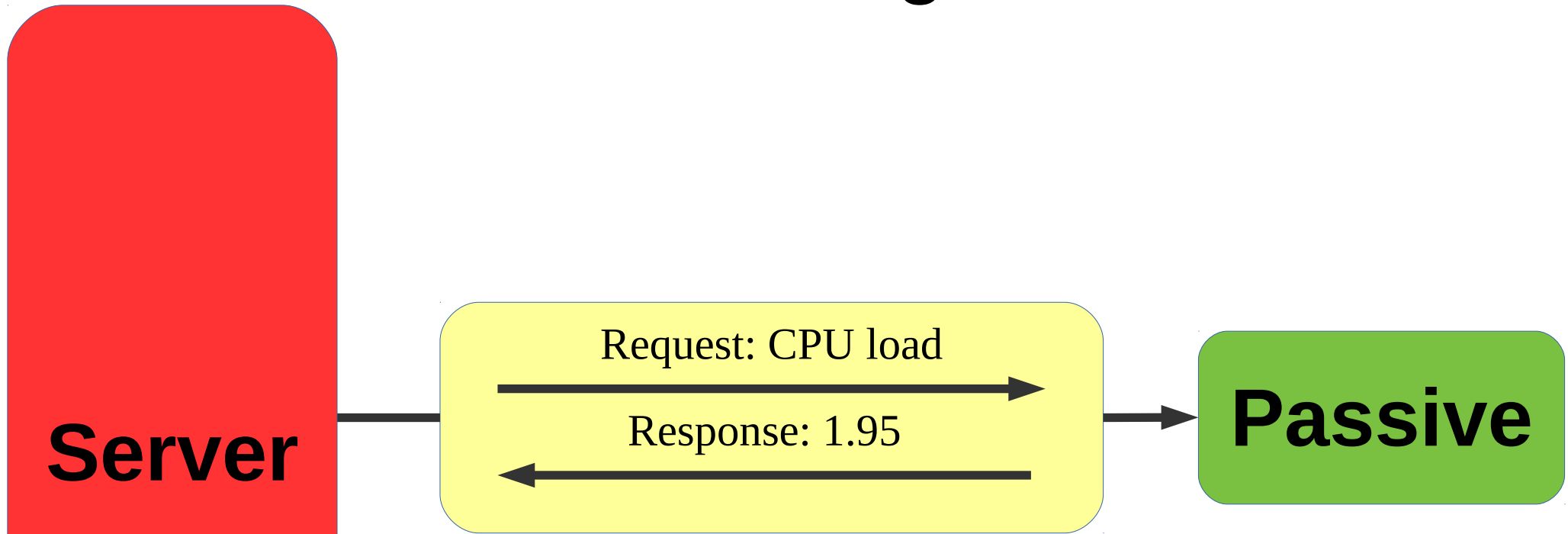
Native agent



Direction of communication



Passive agent



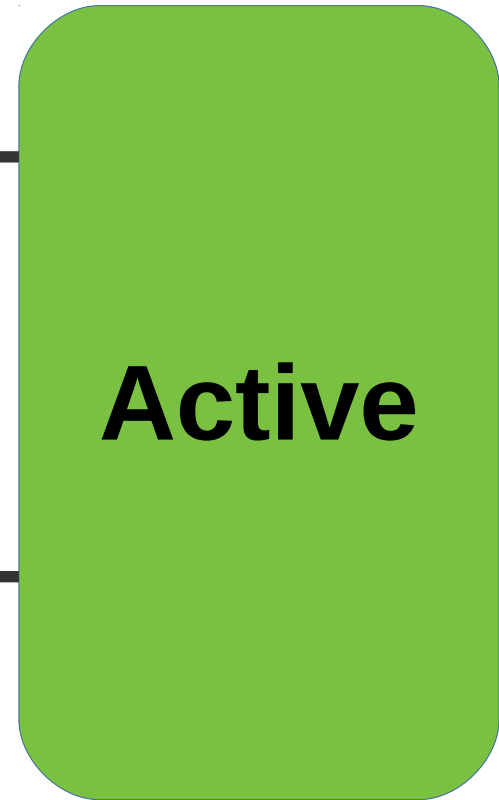
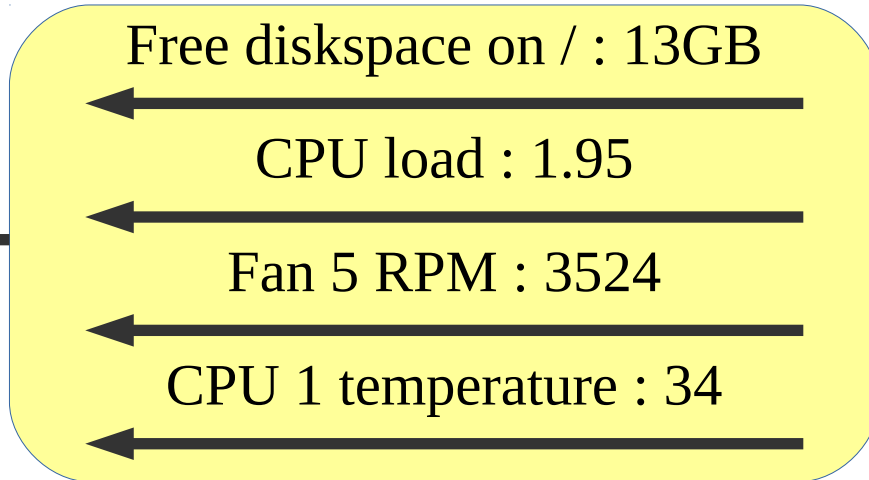
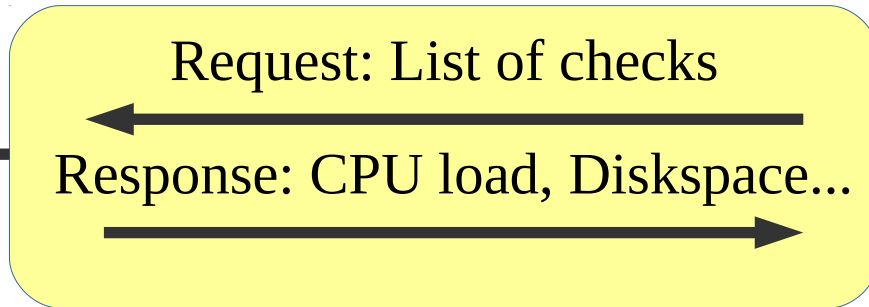
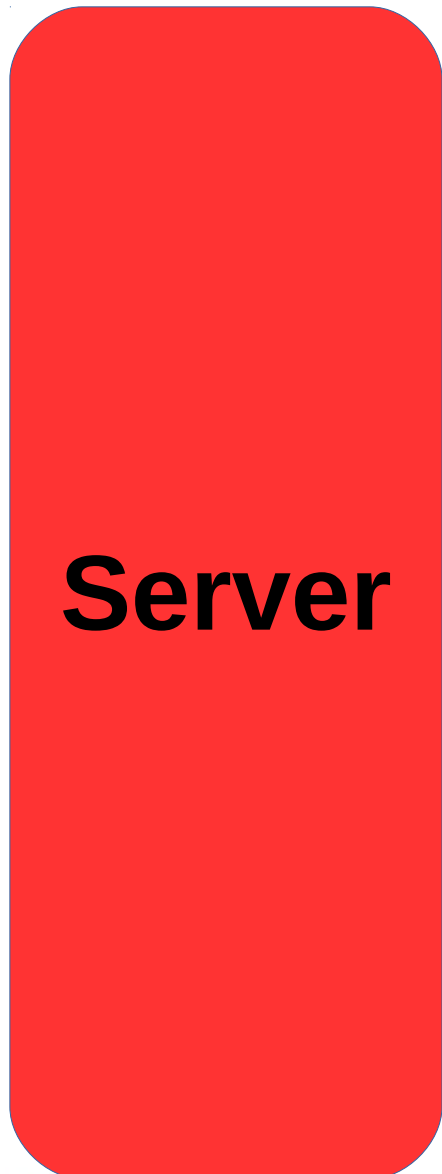
Server

Request: CPU load

Response: 1.95

Passive

Active agent



Agent capabilities

- CPU
- Memory
- Filesystem
- Logfiles
- ...more than 70 different things built-in

```
proc.num[inetd]           [u|0]
proc.mem[inetd]          [u|0]
system.cpu.switches      [u|522013252]
system.cpu.intr          [u|244599437]
system.cpu.util[all,user,avg1] [m|ZBX_NOTSUPPORTED] [Collector is not started.]
system.cpu.load[all,avg1] [d|0.080000]
system.cpu.num[online]   [u|1]
system.cpu.discovery     [m|ZBX_NOTSUPPORTED] [Collector is not started.]
system.uname             [s|Linux rich 3.14.3 #2 Wed May 7 12:20:42 CDT 2014 i6
system.hw.chassis        [s|
system.hw.cpu            [t|processor 0: GenuineIntel Intel(R) Pentium(R) D CPU
```

Agentless? Sure.

- TCP checks
- SNMP
- IPMI
- JMX
- VMware
- SSH, telnet

Advanced methods

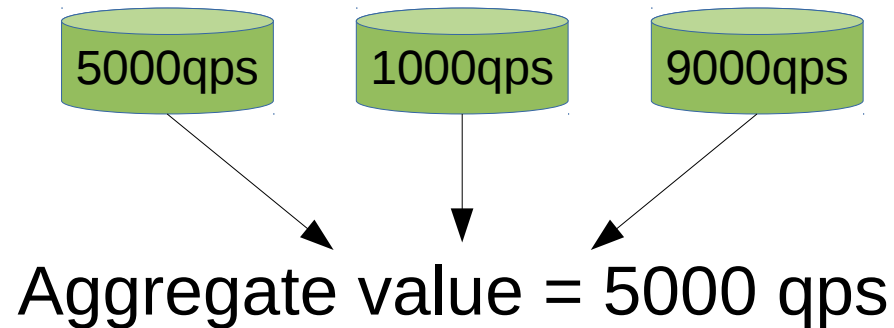
- Calculated

Total – free = used

- Aggregate

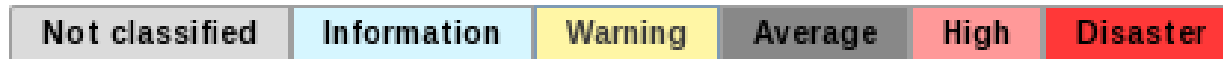
Total free disk space for all file servers

Average qps for all database servers



What's a problem?

- Extremely flexible problem conditions
 - Check multiple values
 - Comparison, math, boolean logic
- Functions **last**, **min**, **max**, **avg**, **delta** etc
- 6 severity levels

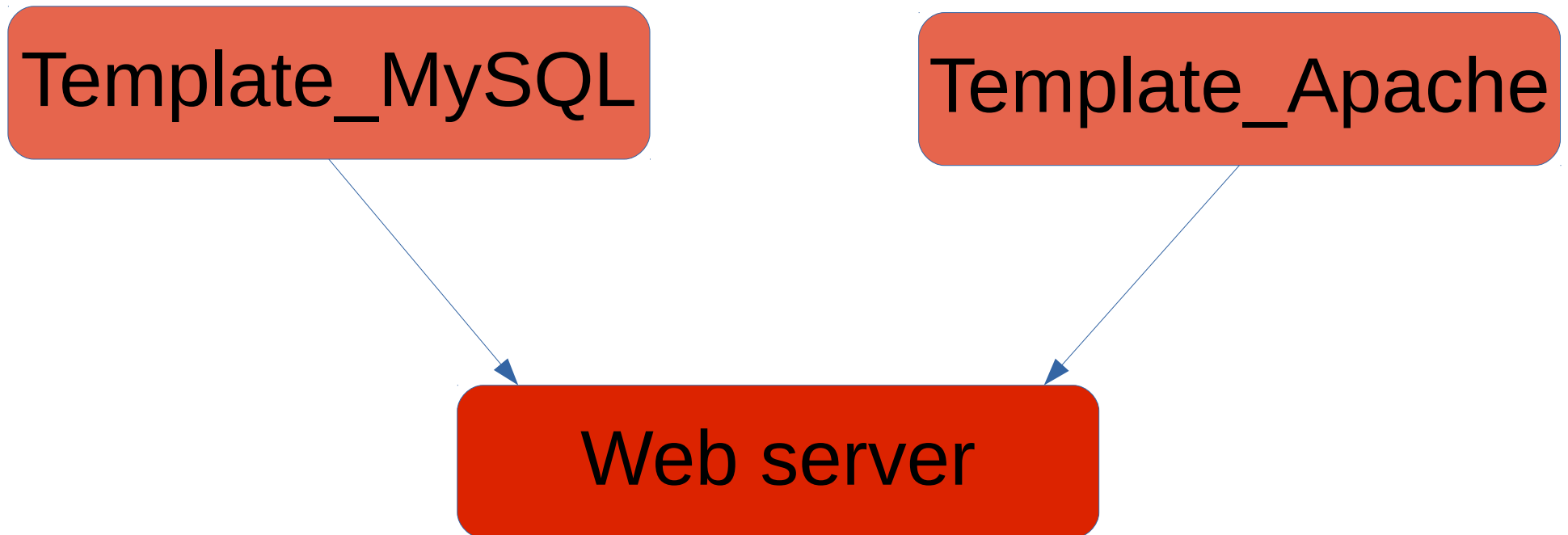


Detecting problems – really flexible

- Average over last 10 minutes, count of matching values over last 30 minutes
- Average for the last hour relative to the same hour day/two days/week ago
- Check multiple hosts

Templating

- Manage uniform config across many hosts
- Variable usage



Bundled frontend

- Monitoring
- Visualisation
- Configuration

Value mapping

Aizkraukle UPS: Battery Status

Timestamp	Value
2009.Jul.31 04:31:56	Normal (2)
2009.Jul.31 04:29:55	Normal (2)

Regexp builder

Expressions Test

Test string Error 5532:

Test expressions

Result	Expression	Expression type	Result
	Error 5[3-4][0-9]{2}:	Result is FALSE	TRUE
	Error 5[0-9]{3}:	Result is TRUE	TRUE
	Combined result		TRUE

Save Cancel

Expressions Test

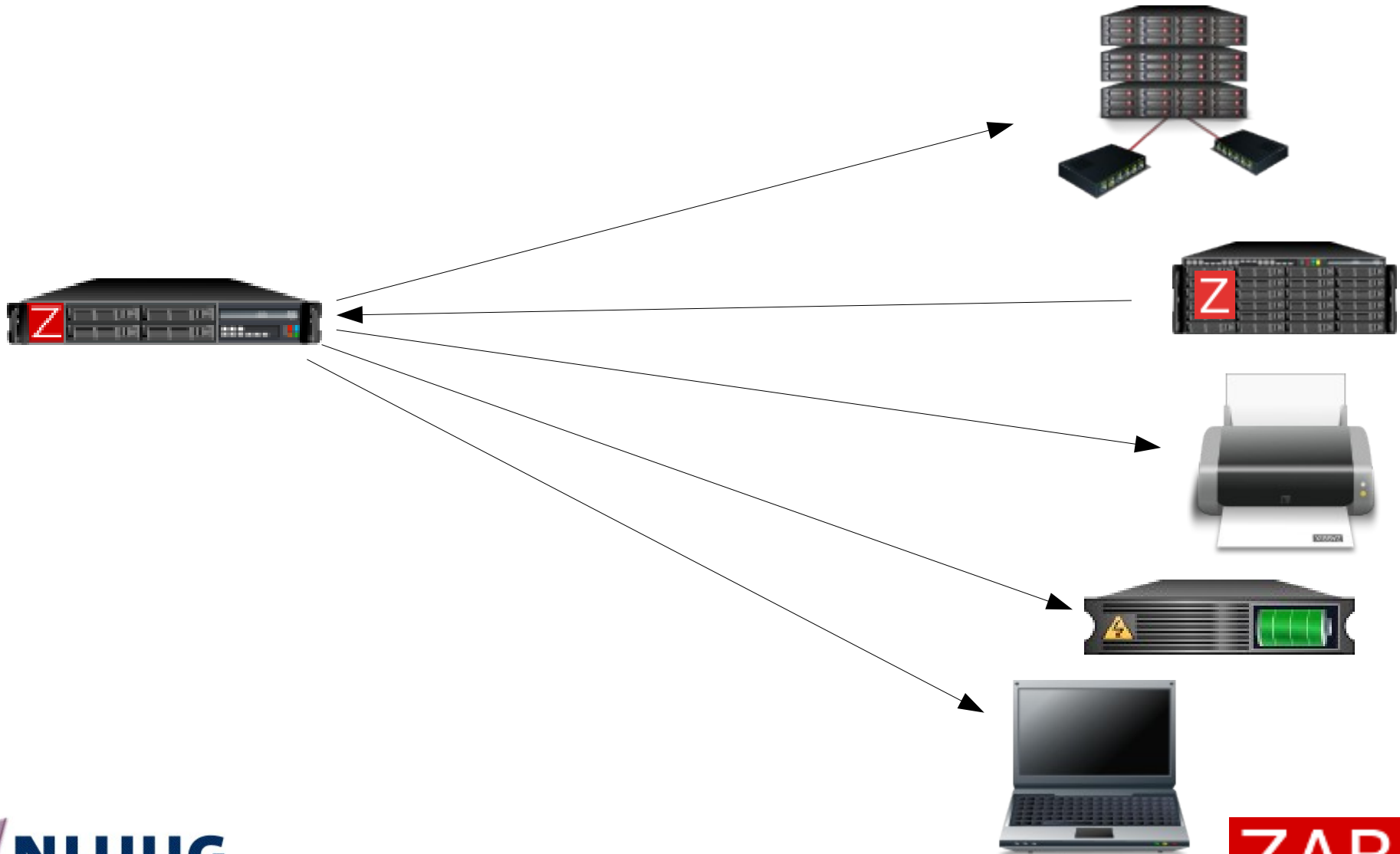
Test string Error 5432:

Test expressions

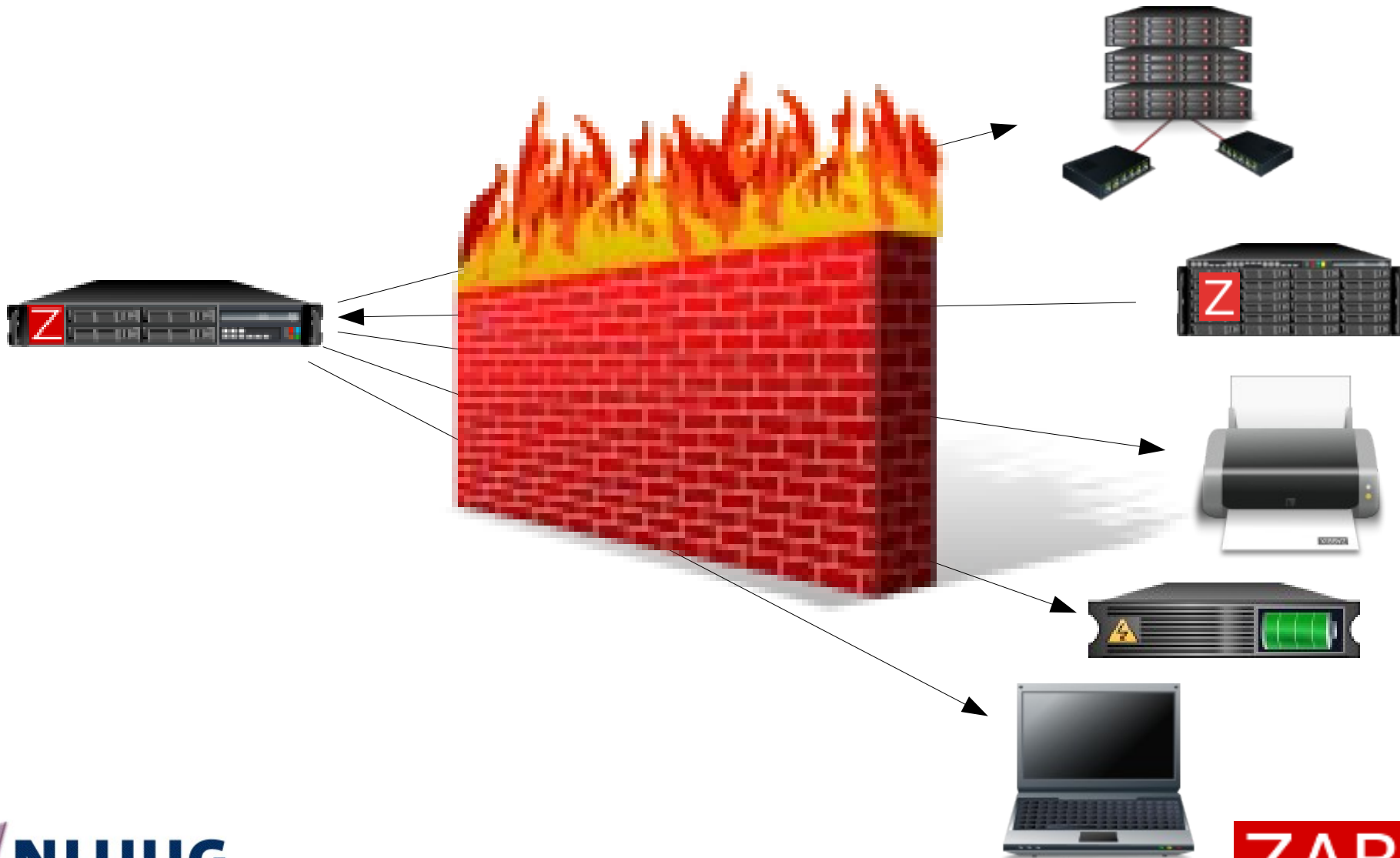
Result	Expression	Expression type	Result
	Error 5[3-4][0-9]{2}:	Result is FALSE	FALSE
	Error 5[0-9]{3}:	Result is TRUE	TRUE
	Combined result		FALSE

Save Cancel

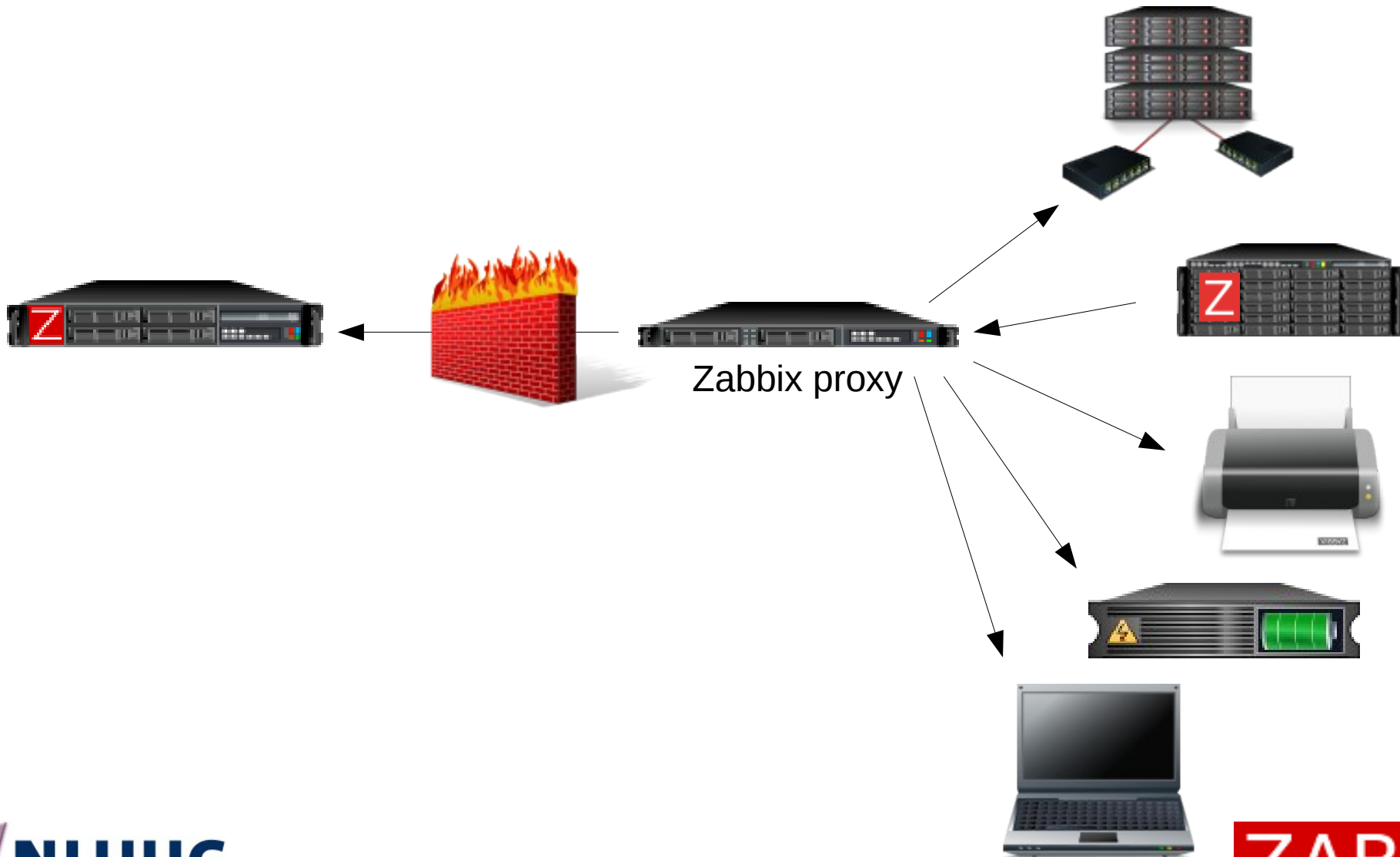
Remote environments...



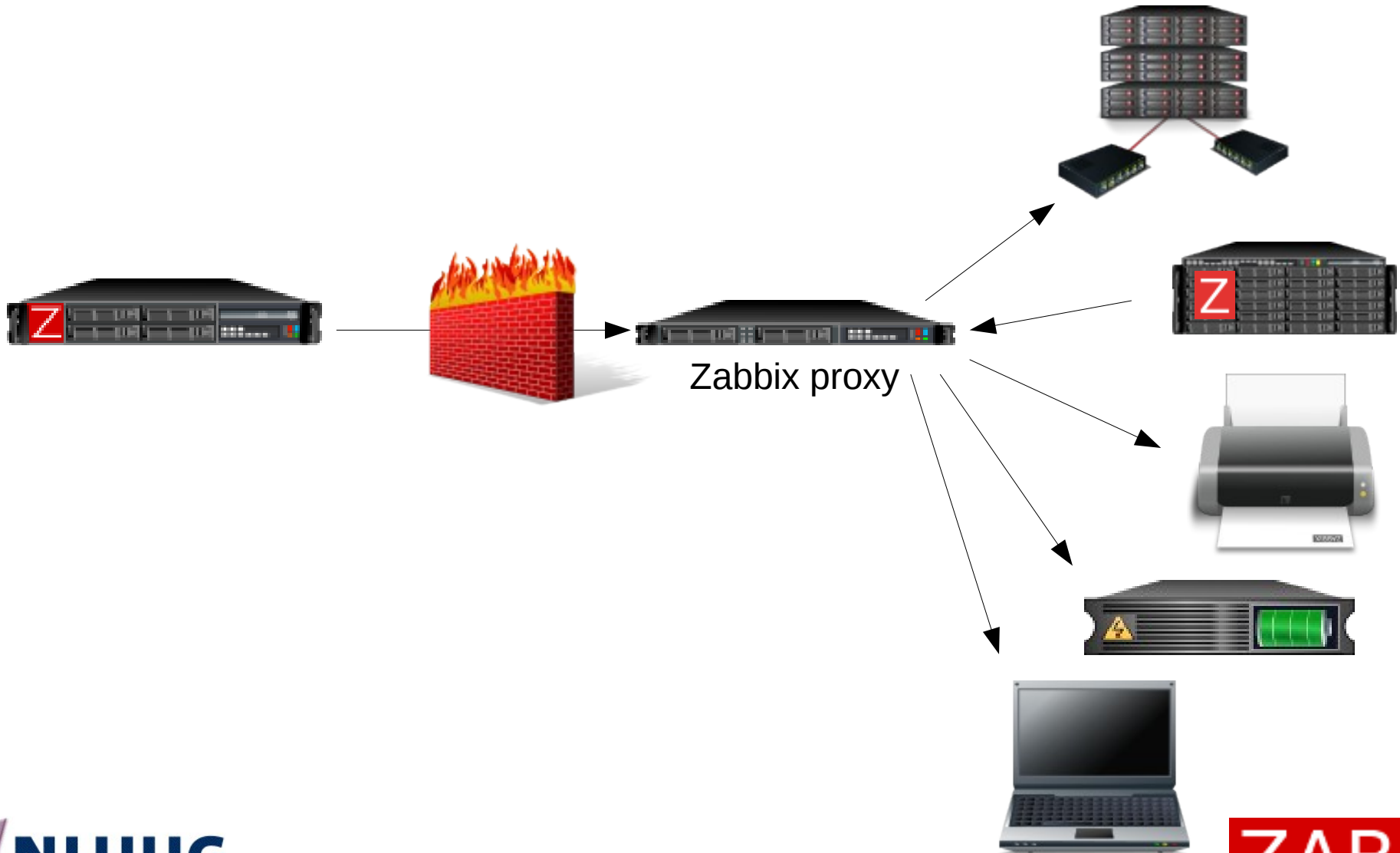
...can be a problem



Solution – Zabbix proxy



DMZ – passive proxy



Extendability

- Run any command on the agent or server
- Run any command in response to events
- Feed timestamped data in Zabbix
- No language restrictions

Pushing custom values

- Sender

```
> zabbix_sender -z 10.11.12.13 -s "Shop 13" -k customer.count -o 113
```

- Timestamps, multiple values from file

```
"Shop 13" customer.count 1393393587 123  
"Shop 12" customer.count 1393393587 19  
"Shop 11" customer.count 1393393587 45  
"Shop 10" customer.count 1393393587 87  
"Shop 09" customer.count 1393393587 13  
"Shop 08" customer.count 1393393587 66
```


Upgrade policies

- No database changes in one major release
- All old agents supported
 - Yes, Zabbix agent from 2001 works with the current server

Automating

- JSON-RPC API
- XML import/export (for some entities)

Scaling

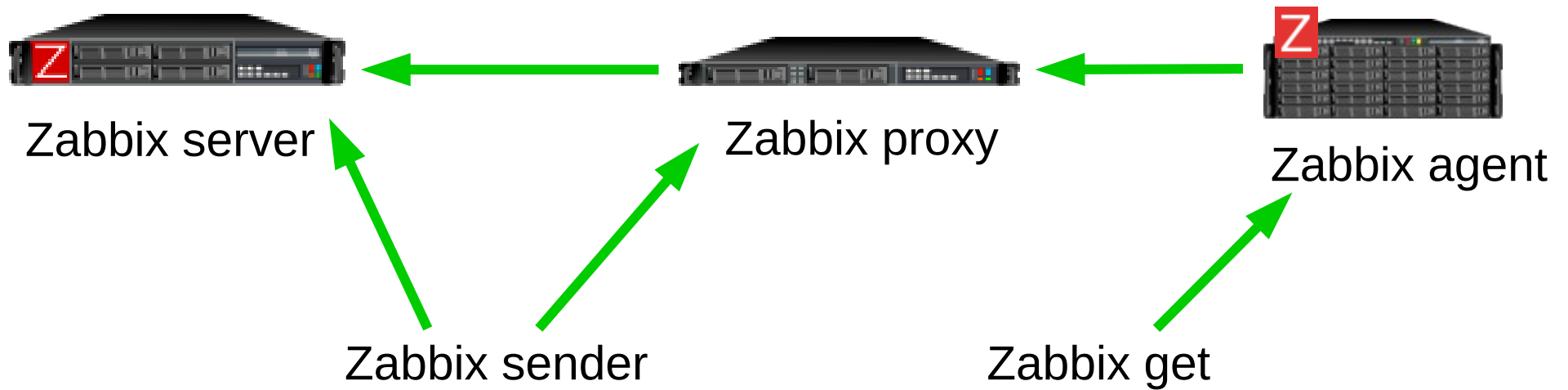
- Distributed collection with proxies
- Value buffering on the active agent
- Various caching on the server
 - A million of values per minute, storing, evaluating

3.0

Sad things

Forced item polling - sorry

Built-in encryption



Encryption methods

- SSL/TLS
- Preshared key

What can we rely on?

- Libraries can become unsupported
- Security issues can be discovered
- Distributions can break libraries
- Zabbix encryption will support:
 - OpenSSL
 - GnuTLS
 - PolarSSL (mbed TLS now)

Improved low level discovery

- Dependencies between trigger prototypes
 - 70% \longrightarrow depends on 90%
 - ...but not for discovered filesystems

Resolving macros/variables

Macro	Effective value	Template value	Global value (configure)
<code>{CPU_LOAD_THRESHOLD}</code>	⇒ 0.9	Remove	← C_Template_Linux: "1"
<code>{SNMP_COMMUNITY}</code>	⇒ public	Change	← "public"

[Add](#)

Easier scheduled maintenance

- Maintenance for hosts/groups
- Requires write (admin) access
- Will have option for users to control this

User-created visualisation

- Creating maps, screens, slideshows – admin only
- Allow that for normal users

User macro/variable context

{`$VARIABLE`}

free diskspace < {`$VARIABLE`}

...and now for {`$VARIABLE:/home`}

Item scheduling

- Frequency → schedule
- Think "cron"

SMTP auth

- Previously – relaying MTA or a script
- Now – libcurl based direct support
 - ...also a custom SMTP port

Windows service discovery

- Monitor all services individually
- Discover services that are
 - ("start automatically" and "stopped")

PERSONAL DASHBOARD



Favourite graphs

No graphs added.

[Graphs »](#)

Favourite screens

No screens added.

[Screens »](#) [Slide shows »](#)

Favourite maps

No maps added.

[Maps »](#)

Status of Zabbix

Parameter	Value	Details
Zabbix server is running	No	localhost:10051
Number of hosts (enabled/disabled/templates)	46	4 / 1 / 41
Number of items (enabled/disabled/not supported)	47	46 / 0 / 1
Number of triggers (enabled/disabled [problem/vok])	27	27 / 0 [9 / 18]
Number of users (online)	4	1
Required server performance, new values per second	1.08	-

Updated: 11:31:55

System status

Host group	Disaster	High	Average	Warning	Information	Not classified
Important SNMP hosts	0	0	0	0	0	0
Linux servers	0	2	3	4	0	0
SNMP devices	0	0	0	0	0	0
Test group	0	2	3	4	0	0
Virtual machines	0	1	2	2	0	0
Zabbix servers	0	1	1	2	0	0

Updated: 11:31:55

Host status

Host group	Without problems	With problems	Total
Important SNMP hosts	1	0	1
Linux servers	0	2	2
SNMP devices	2	0	2

PERSONAL DASHBOARD  Favourite graphs  

No graphs added.

[Graphs »](#)Favourite screens  

No screens added.

[Screens »](#) [Slide shows »](#)Favourite maps  

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Required server performance, new values per second	1.08	-

Updated: 11:30:51

System status  

Host group	Disaster	High	Average	Warning	Information	Not classified
Important SNMP hosts	0	0	0	0	0	0
Linux servers	0	2	3	4	0	0
SNMP devices	0	0	0	0	0	0
Test group	0	2	3	4	0	0
Virtual machines	0	1	2	2	0	0
Zabbix servers	0	1	1	2	0	0

Updated: 11:30:51

Host status  

Host group	Without problems	With problems	Total
Important SNMP hosts	1	0	1
Linux servers	0	2	2
SNMP devices	2	0	2
Test group	1	2	3
Virtual machines	0	1	1

Dashboard 🔧 🗄️

Favourite graphs ⋮ ^

No graphs added.

[Graphs](#)

Favourite screens ⋮ ^

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Status of Zabbix ⋮ ^

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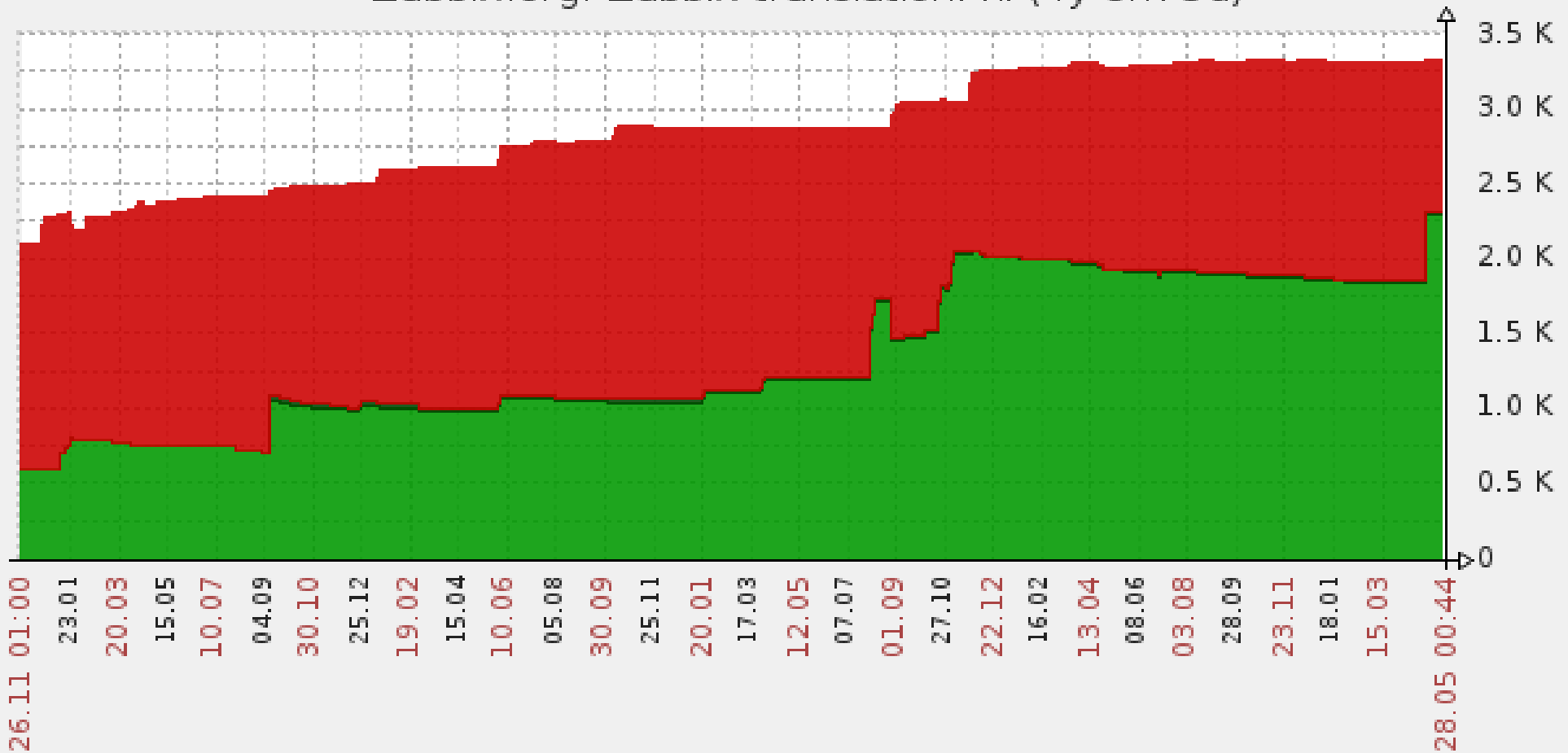
Updated: 11:28:34

System status ⋮ ^

HOST GROUP	DISASTER	HIGH	AVERAGE	WARNING	INFORMATION	NOT CLASSIFIED
Important SNMP hosts	0	0	0	0	0	0
Linux servers	0	2	3	4	0	0
SNMP devices	0	0	0	0	0	0
Test group	0	2	3	4	0	0
Virtual machines	0	1	2	2	0	0
Zabbix servers	0	1	1	2	0	0

Community Popularity

Zabbix.org: Zabbix translation: nl (4y 6m 3d)

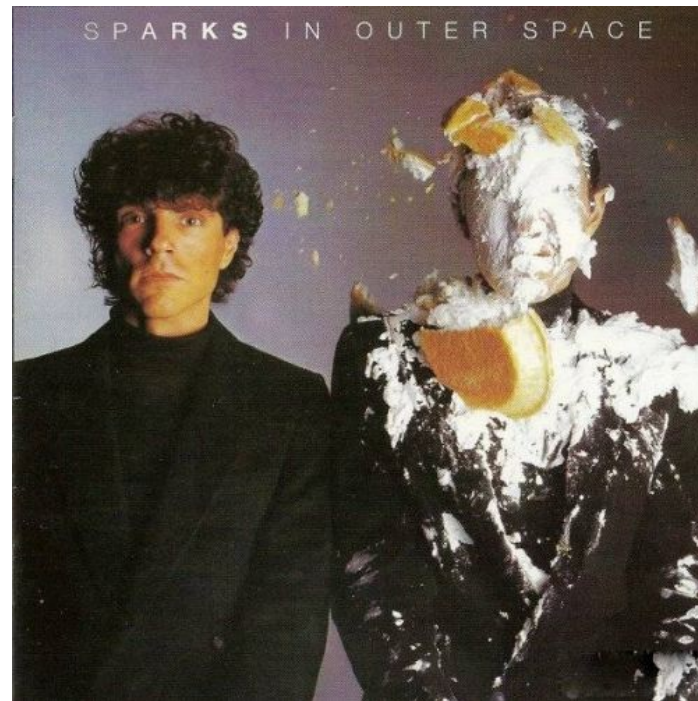


		last	min	avg	max
■ Strings in nl translation: untranslated	[avg]	1.01 K	1 K	1.52 K	1.83 K
■ Strings in nl translation: fuzzy	[avg]	10	0	15.87	38
■ Strings in nl translation: translated	[avg]	2.29 K	582	1.33 K	2.29 K

Data from trends. Generated in 0.23 sec.

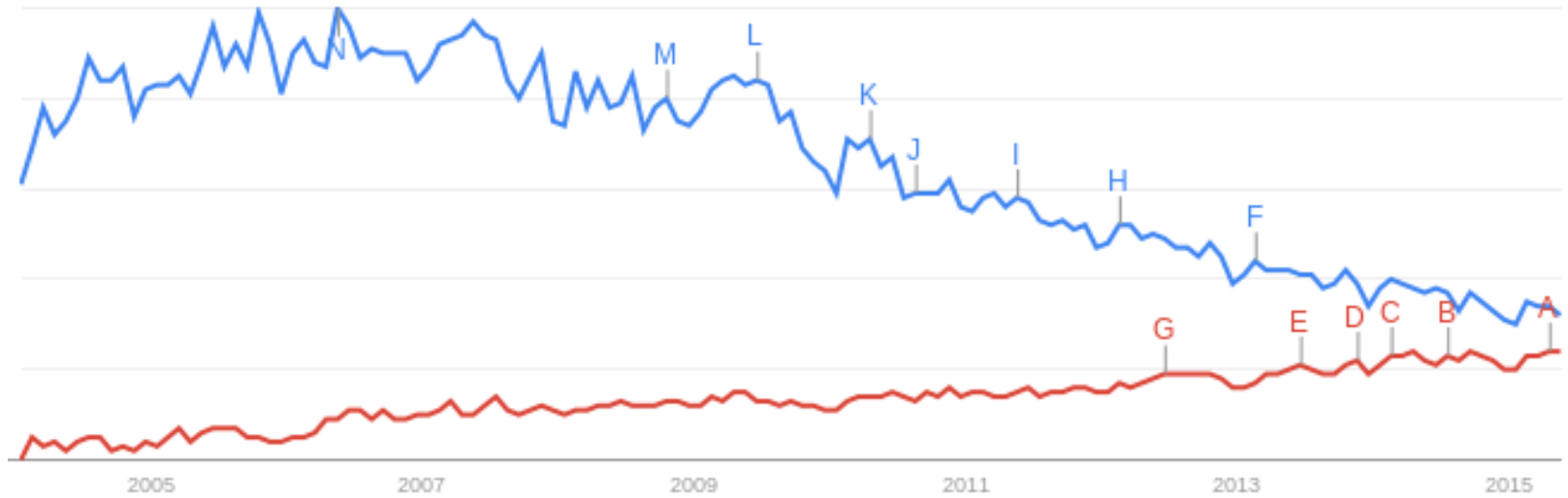
http://www.zabbix.com

Popularity

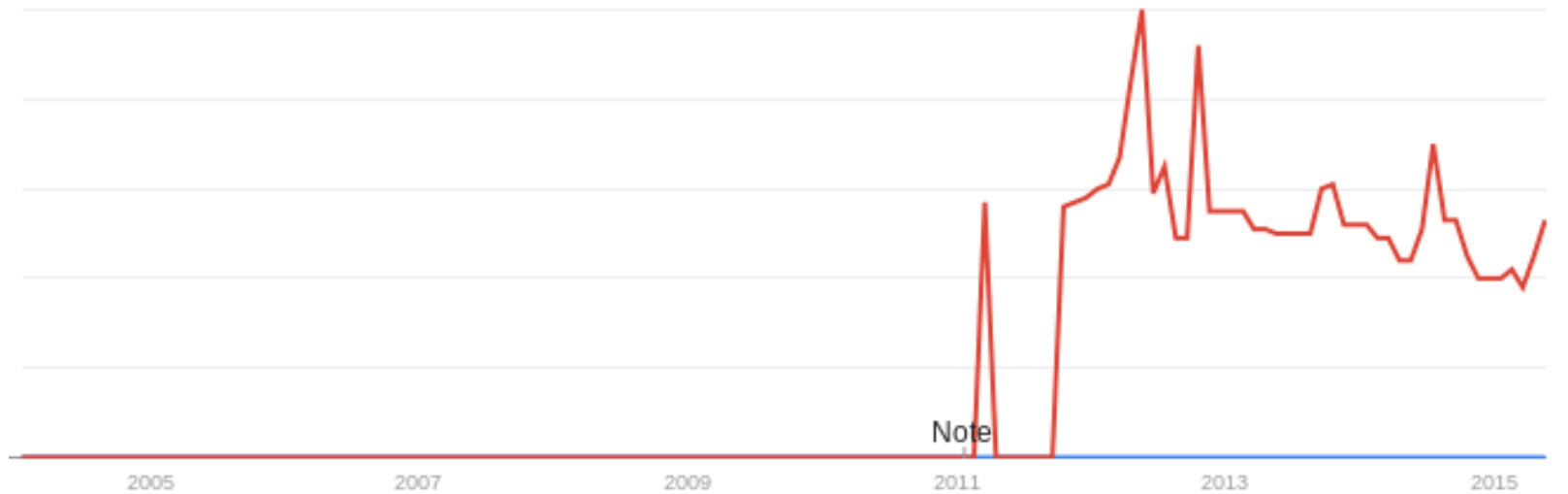


Popularity

Worldwide

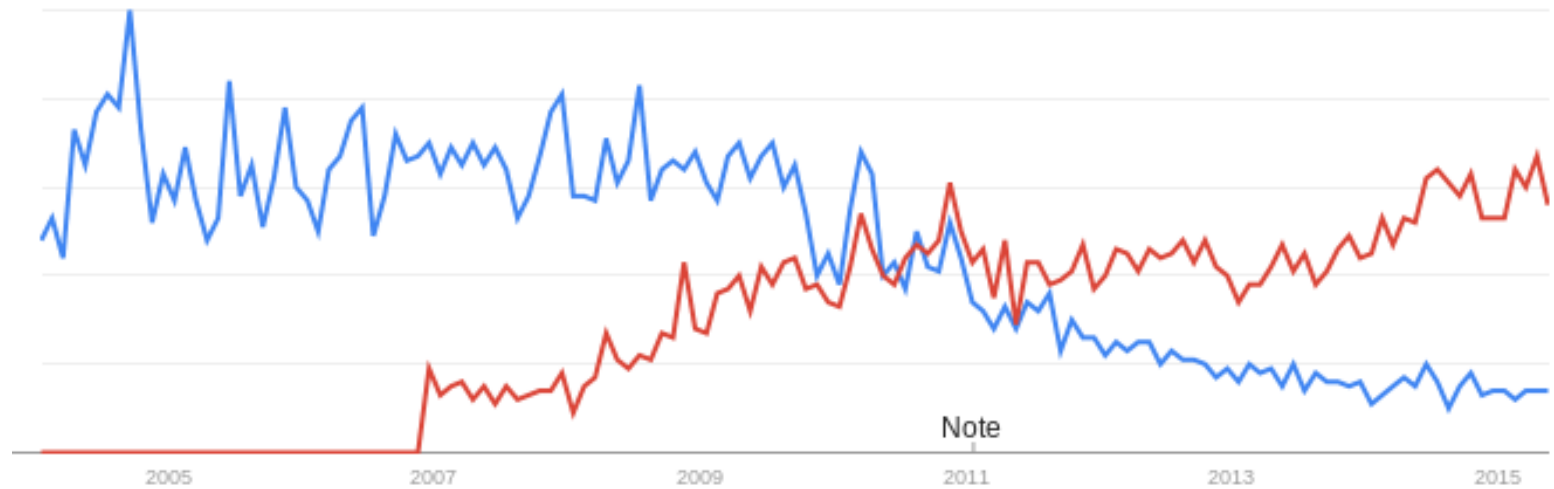


Latvia

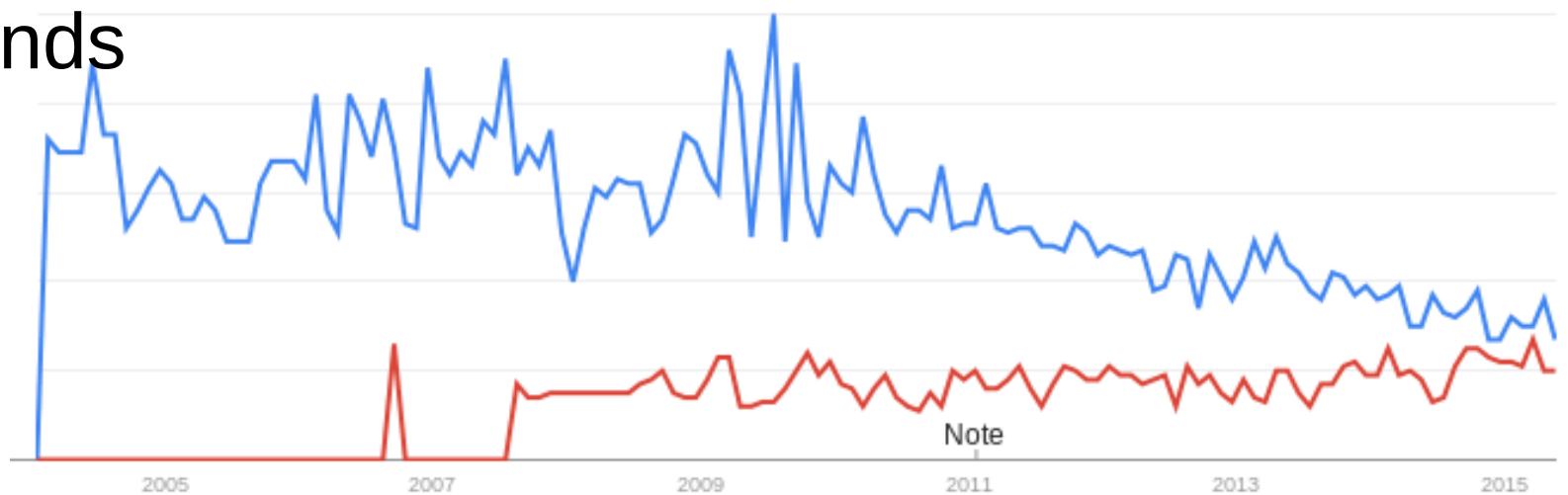


Popularity

Japan



Netherlands



Try it out

Virtual appliance – easy, upgradeable



Friendly community

IRC: **#zabbix** on Freenode

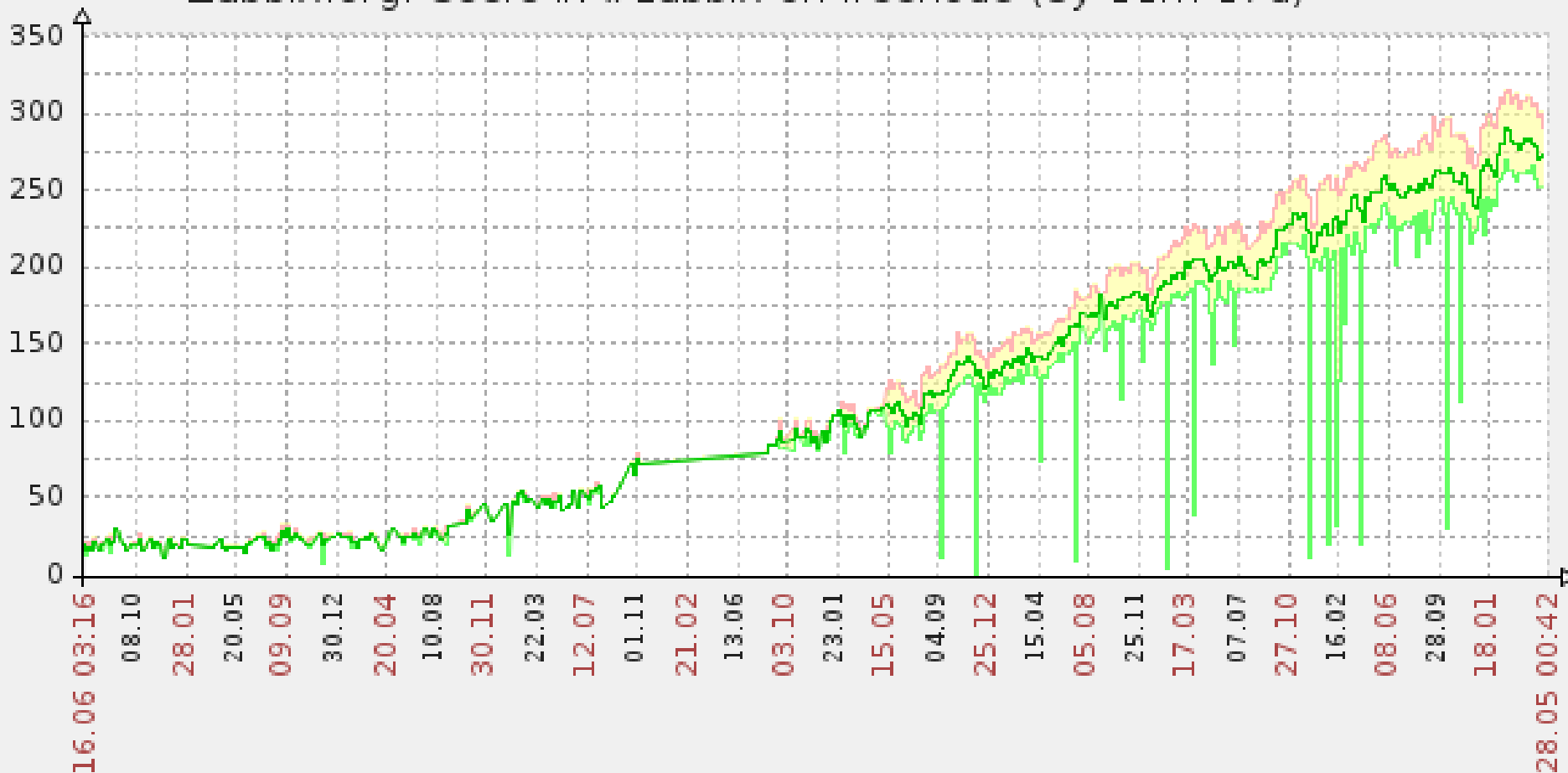
Forum: <http://www.zabbix.com/forum>

Blog: <http://blog.zabbix.com>

Visit us in the Zabbix office (Riga)



Zabbix.org: Users in #zabbix on freenode (8y 11m 17d)



	last	min	avg	max
Users in #zabbix on freenode [all]	272.33	0	133.39	315

Data from trends. Generated in 0.23 sec.

<http://www.zabbix.com>



Question time, yay

When will 3.0 be out?

...you can probably guess

When it's ready. Yep, we missed the planned dates.