

# Upgrading Zabbix for a better sleep

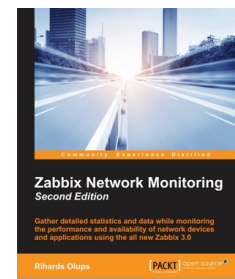
# Who am I?

Worked at Zabbix for some wonderful time



Two books on Zabbix

- Zabbix 1.8 network monitoring
- Zabbix network monitoring second edition



Writing articles on [www.zabbixbook.com](http://www.zabbixbook.com)



OpenStreetMap mapper

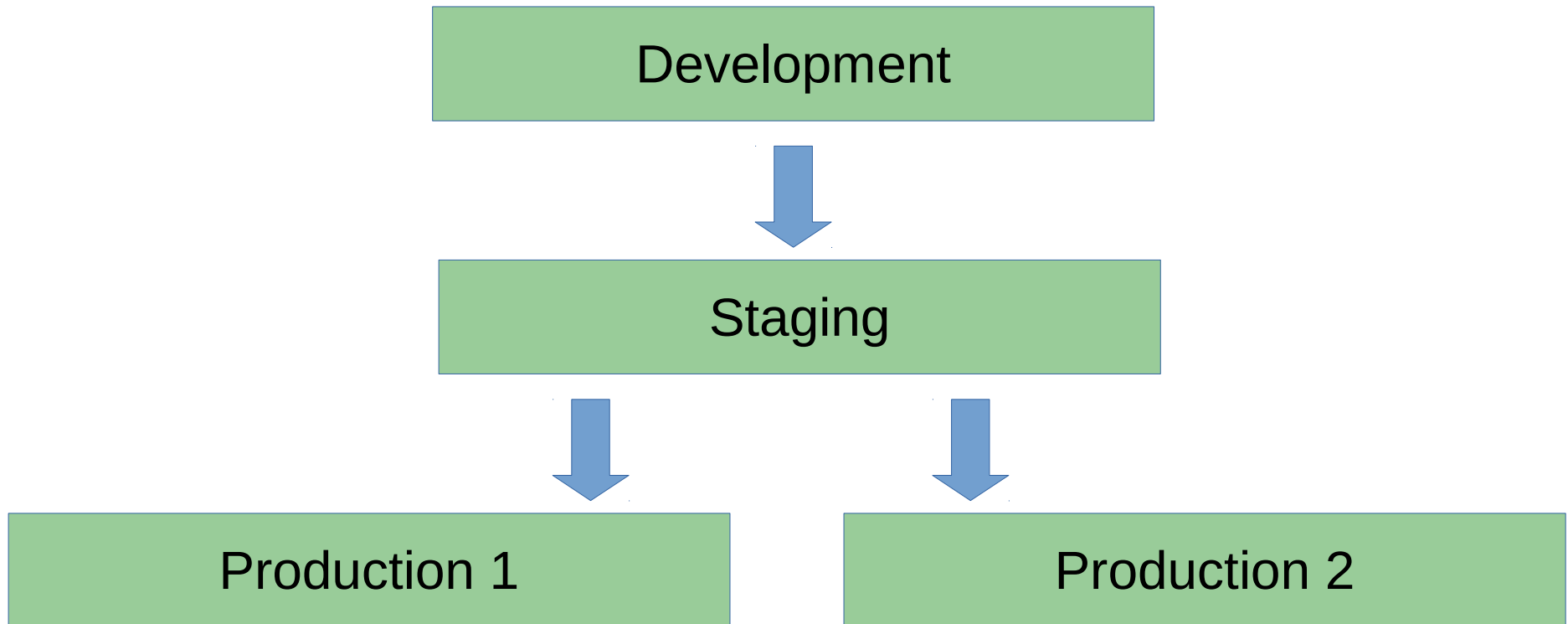


# This experience based on...

Zabbix usage in one division of Nokia

Disclaimer: usage is not endorsement

# Our environment



# Why upgrade?

# Why upgrade?

New features, improvements



Support running out (both LTS and non-LTS)



Security improvements



# Reality kicks in

No time for support systems (think Zabbix)

Non-production systems upgraded

Production moving to another DC -> new install

# Chasing shiny things

Zabbix team done a great job on 3.2 + 3.4

Decided to go for 3.4 (non-LTS)

Commitment to move to 4.0



# Upgrade process

# What does an upgrade involve

Selling the upgrade



Actual upgrade



Potential problems



# Selling the update

Awesome management understands the need

A carrot has never hurt anybody

# No escalation, please



Search [Z] Share ? [User] [Power]

Discovery IT services dev

**Auto-acknowledge all alerts for 15 minutes** [Wrench] [Expand]

Value Details

... ^

The image shows a screenshot of a Zabbix web interface. At the top, there is a navigation bar with 'Discovery' and 'IT services' as active tabs, and 'dev' as a user indicator. Below this is a prominent blue notification banner that reads 'Auto-acknowledge all alerts for 15 minutes', accompanied by a wrench icon and an expand/collapse icon. The main content area below the banner shows a table with columns for 'Value' and 'Details'. A vertical menu on the right side of the table contains a three-dot menu icon and an upward-pointing arrow icon.

# Improved Jira integration



Acknowledge

- Only selected event
- Selected and all unacknowledged PROBLEM events 7 events
- Selected and all unacknowledged events 13 events

Jira integration

[Search JIRA](#)

[Create JIRA issue](#)

Acknowledge

Cancel

# Actionsim by Volker



<http://www.zabbixbook.com/2017/04/12/still-wondering-about-missing-notification-in-2017/>

**Messages**

Action	Time passed	Time	Step	Step config	Operation	Type	Recipient	Info
test action	0	09/12/2017 01:30:00 PM	1	1	To user	Any	user (User Name)	

**Remote commands**

Action	Time passed	Time	Step	Step config	Operation	Command	Type
No remote commands							

**Action condition matches**

Match	Label	Condition type	Trigger Value	Operator	Condition Value
TRUE	test action A and B				
TRUE	A	Maintenance status	not in	is	not in
TRUE	B	Trigger value	PROBLEM	=	PROBLEM
DISABLED	Report problems to Zabbix administrators				

**Media type not defined for user**

# Potential concerns

Zabbix proxies – not yet

Java GW (protocol changed in 3.4)

Agents – backwards compatible, yay

# What could go wrong

DB upgrade could fail - not very common

SystemD could restart server during the upgrade



# DB upgrade

SQL scripts long time ago, server now

```
7344:20170630:183622.330 current database version (mandatory/optional):
7344:20170630:183622.330 required mandatory version: 03000000
7344:20170630:183622.330 starting automatic database upgrade
7344:20170630:183622.335 completed 0% of database upgrade
7344:20170630:183622.372 completed 1% of database upgrade
...
7344:20170630:183623.698 completed 99% of database upgrade
7344:20170630:183623.698 completed 100% of database upgrade
7344:20170630:183623.698 database upgrade fully completed
```

# DB upgrade magic

More powerful, a bit harder to debug

```
static int      DBpatch_3030007(void)
{
    DB_ROW      row;
    DB_RESULT   result;
    zbx_vector_uint64_t  dserviceids;
    zbx_uint64_t  dserviceid;
    int         ret = SUCCEED;

    zbx_vector_uint64_create(&dserviceids);

    /* After dropping fields type and key_ from table dservices there is no guarantee that a u
    index with fields dcheckid, ip and port can be created. To create a unique index for the s
    fields later this will delete rows where all three of them are identical only leaving the
    result = DBselect(
        "select ds.dserviceid"
        " from dservices ds"
        " where not exists ("
            "select null"
            " from dchecks dc"
            " where ds.dcheckid = dc.dcheckid"
                " and ds.type = dc.type"
                " and ds.key_ = dc.key_"
        "));

    while (NULL != (row = DBfetch(result)))
```

# OS reinstall, uh

## Historical baggage

- cronjobs
- local script changes, not committed to svn
- Perl, Python modules used by various scripts
- SNMP MIB files
- ...forgotten things

# Other changes, waiting to bite

## Notification content updates

Latest data, acknowledge, other URLs changed

```
-- default message
update actions set def_longdata=
    replace(def_longdata, 'oldstring', 'newstring');

-- default recovery message; was recovery_msg in older versions
update actions set r_longdata=
    replace(r_longdata, 'oldstring', 'newstring');

-- operation message override
update opmessage set message=
    replace(message, 'oldstring', 'newstring');
```

# Getting along

# Delayed alerts

Alerts delayed – hard to debug on 2.2  
3.4 might help, but until then...

# Mail roundtrip monitoring

## Send a timestamped email

```
From:      zabbix
To:        public_mailbox
Subject:   Zabbix email roundtrip monitoring
```

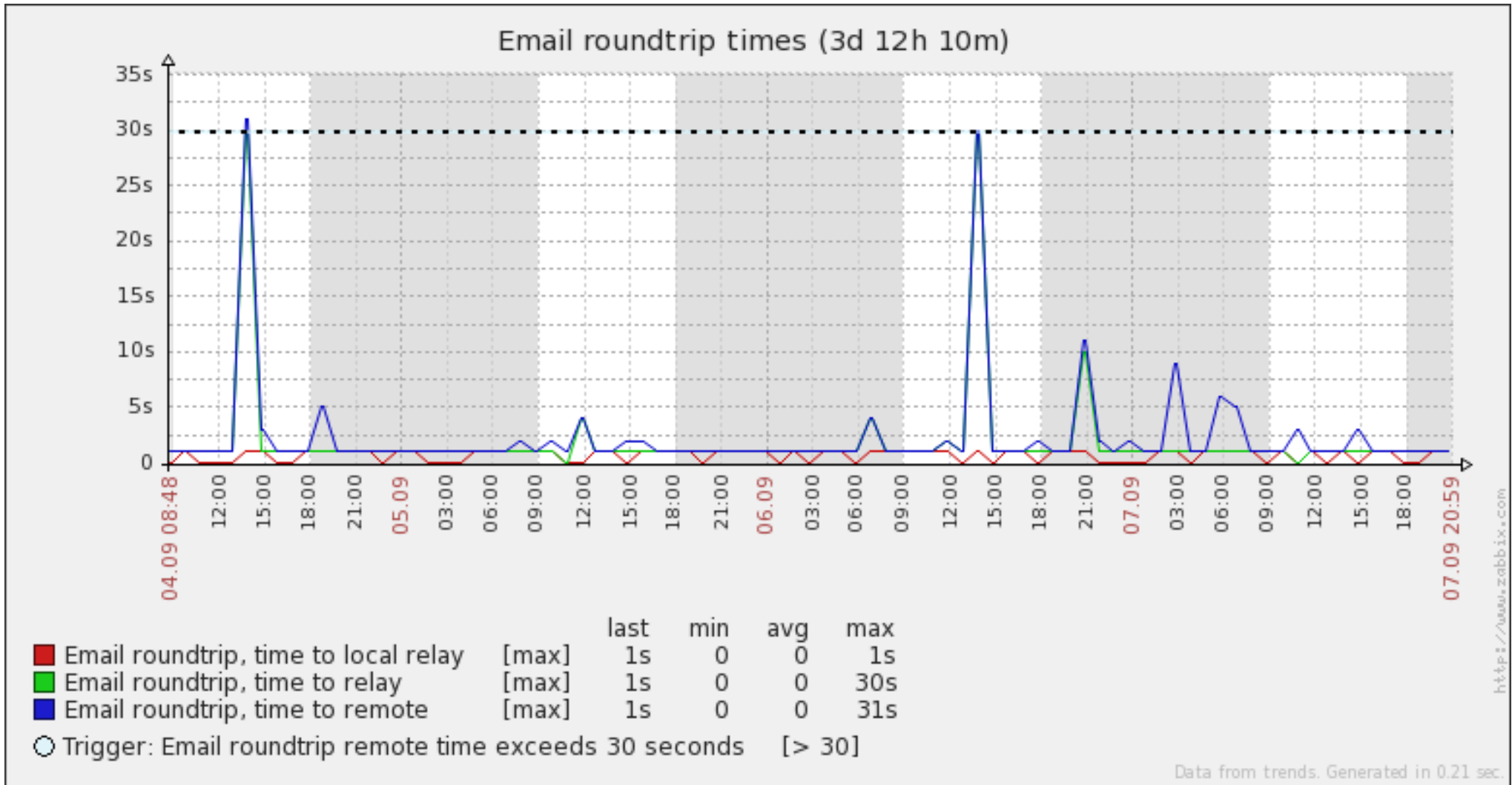
**1505307315**

## Retrieve with *getmail*

```
[destination]
type = MDA_external
path = /home/zabbix/bin/roundtrip_email
```

Timestamp in the body <-> header data

# Email delays exposed





# Alert count monitoring

How to know how many are we sending?

Query API for all historical data

- Send in 10 minute steps
- Further runs pick up from the previous time

LLD to create items for all media types

```
ZBX_ALERT_PENDING      => 0
ZBX_ALERT_SUCCEEDED   => 1
ZBX_ALERT_FAILED       => 2
```

# Created items

Zabbix alerts: Failed alerts to "Email"

Zabbix alerts: Failed alerts to "Send to Pager (short)"

Zabbix alerts: Failed alerts to "Send to Prowl"

Zabbix alerts: Failed alerts to "Send to Pushover"

Zabbix alerts: Pending alerts to "Email"

Zabbix alerts: Pending alerts to "Send to Pager (short)"

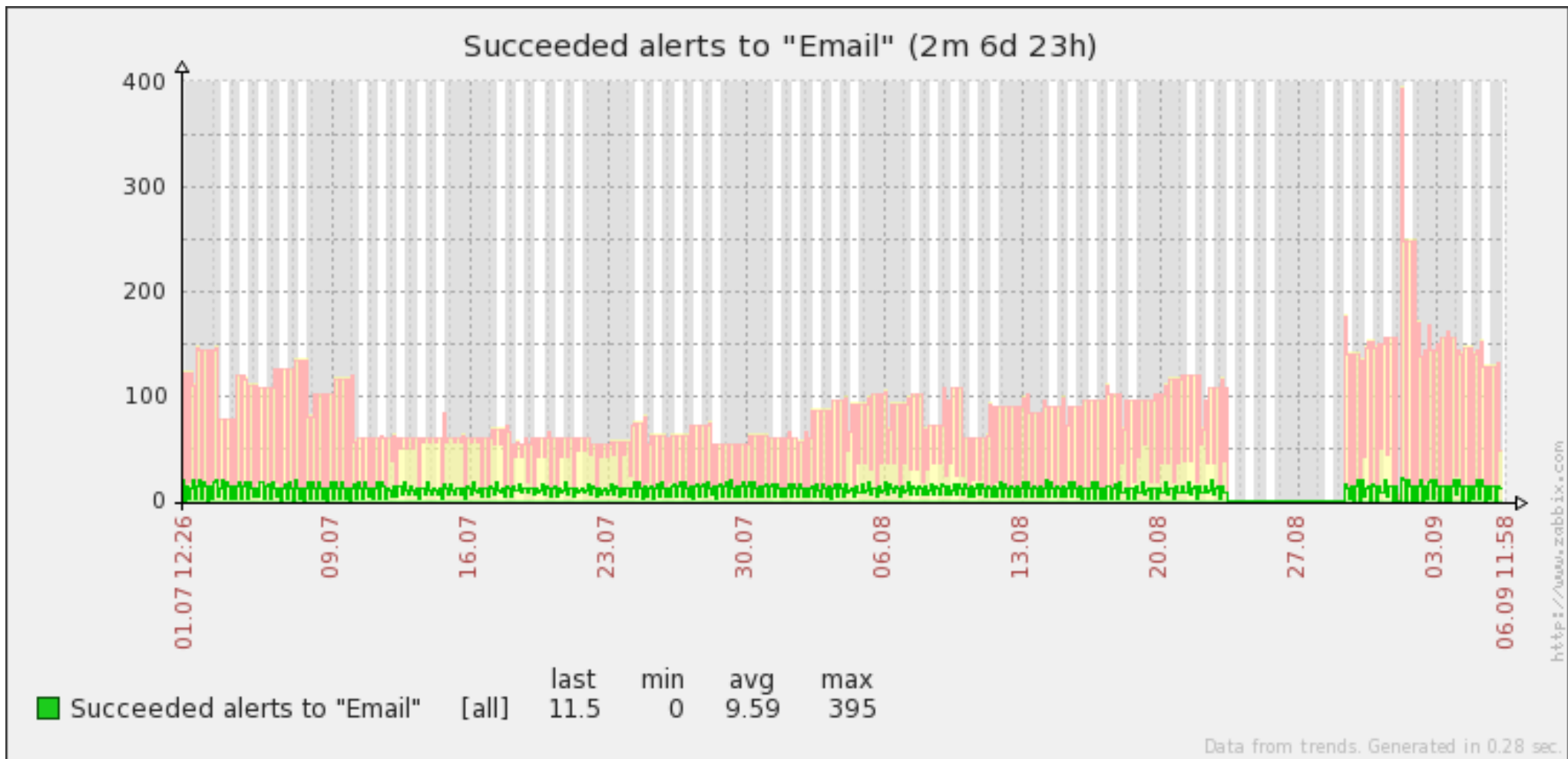
Zabbix alerts: Pending alerts to "Send to Prowl"

Zabbix alerts: Pending alerts to "Send to Pushover"

Zabbix alerts: Succeeded alerts to "Email"

Zabbix alerts: Succeeded alerts to "Send to Pager (short)"

# Staging alerts



# Too many alerts

```
-- determine the number of pending alerts  
select count(*) from alerts where status=0 and alerttype=0;
```

# Set them all to failed

```
-- determine the number of pending alerts  
select count(*) from alerts where status=0 and alerttype=0;  
-- set all the unsent alerts to failed  
update alerts set status=2 where status=0 and alerttype=0;
```

# Possible values

```
-- determine the number of pending alerts
select count(*) from alerts where status=0 and alerttype=0;
-- set all the unsent alerts to failed
update alerts set status=2 where status=0 and alerttype=0;
```

## Status\*:

```
ALERT_STATUS_NOT_SENT => 0
ALERT_STATUS_SENT     => 1
ALERT_STATUS_FAILED   => 2
```

## Type:

```
ALERT_TYPE_MESSAGE => 0 - Message (Email, SMS, Jabber, script etc)
ALERT_TYPE_COMMAND => 1 - Remote command
```

\* 3.4 also has ALERT\_STATUS\_NEW

# Sprinkle a bit of security

Auto-lock inactive user accounts

Sessions not available in the API -> use DB

- `sessions.status` – 0 active, 1 inactive

Housekeeper removes old sessions

- `config.hk_sessions_mode` – 0 disabled, 1 enabled
- `config.hk_sessions` – retention, in days

# Identify and auto-lock

```
$ perl lock_users.pl
4 accounts past the threshold
-----
User          Last login
mhare         No login info, first seen more than a week ago
hatter        No login info, first seen more than a week ago
khearts       No login info, not seen before
ccat          Thu Jan  5 10:23:50 2017
qhearts       Fri Jan 27 11:20:24 2017
...
dutchess      Mon Sep 11 20:38:34 2017
alice         Mon Sep 11 20:38:35 2017
```



# Lessons reinforced

The more versions omitted, the more work

- Split the problem

Don't complicate things for a temporary need

- Make the 'old' method more involved
- Make the transition method more involved

Zabbix professional services for upgrade\*

\* bias – I like them

# Let's get in touch

IRC – **#zabbix** on Freenode

Contact form –

<http://www.zabbixbook.com/about/>

Conference – ask me pointed questions

NEW: [https://zabbix.org/wiki/Docs/DB\\_schema](https://zabbix.org/wiki/Docs/DB_schema)