

ZABBIX 2013 Conference

Migration to Zabbix

By Erik Skyttthe, DBC, Denmark



DBC: [http://www.dbc.dk/english/about dbc](http://www.dbc.dk/english/about_dbc)

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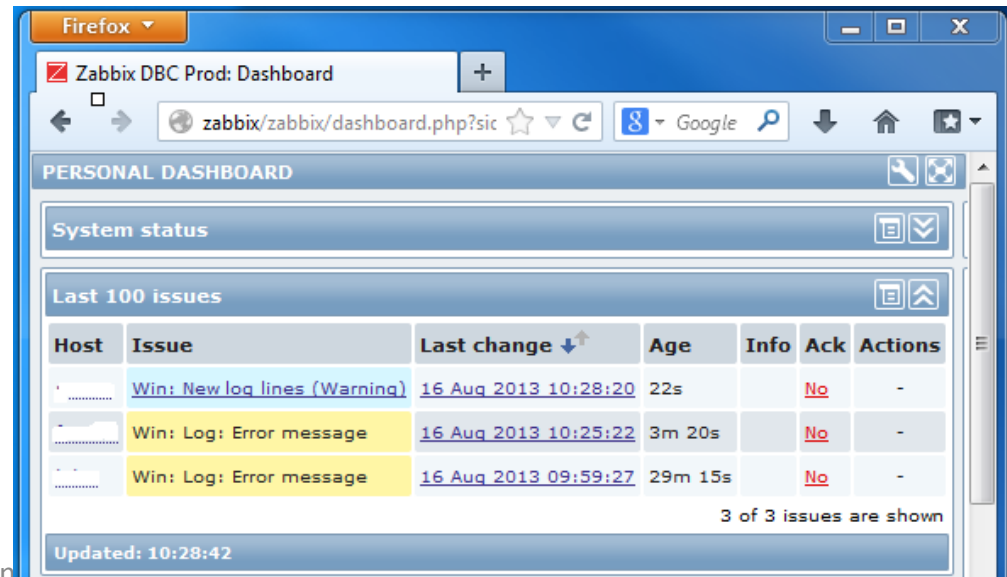


DBC's main task is to develop and maintain the bibliographic and IT-infrastructure in **Danish libraries** by:

- Producing the **Danish National Bibliography** and user oriented cataloging
- Developing and maintaining **Dan*Bib** as Union Catalog for public, educational and academic libraries as part of an automated ILL
- Developing and maintaining **library.dk** as the common access for citizens to Danish publications and Danish library holdings.
- DBC's IT systems are based on **open source** and service oriented architecture ... E.g <https://github.com/ding2/ding2>
- Monitored installation:
 - ~ 500 devices (Linux, Windows, SAN, Network, Xen, VMware, environment ...)
 - Huge base of in-house developed applications (some very old)
 - Zabbix agents versions from 1.1.4 -> 2.0.x, Zabbix Server 2.0.5
 - Newer applications and services based on Java, Drupal, Solr, Postgress ...
 - Huge demand for application monitoring
 - No proxies (so far)

Before Zabbix

- **Hobbit / Xymon** - Infrastructure and web monitoring
- **MRTG** - Trending for network devices
- **Munin** - Detailed Linux trending (subgroup of servers)
- - Lots of “plugins”
- - *UserParameter=netstat.active, **munin-run netstat** | grep active | cut -f2 -d" "*
- **CA Unicenter syslog tool** – SMS to operations



Zabbix deployment

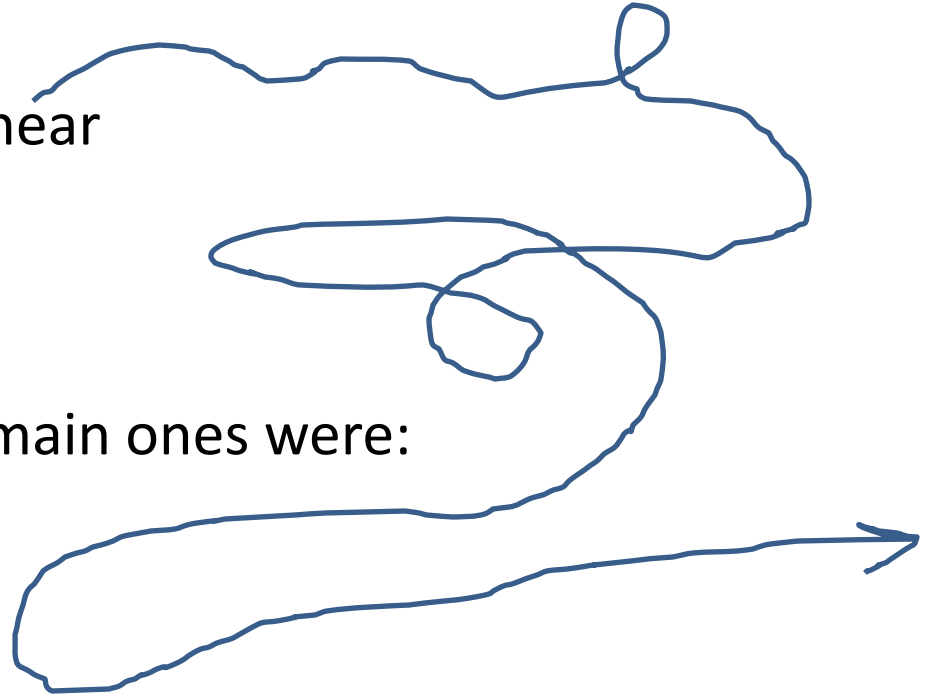
- Hobbit (and other tools) running in parallel - No big bang
 - Easy to compare alarms and state of both systems
- One to one copy of ~ 70 % of triggers and items
- Linux: Good overview because of central config files
- Windows: More work because of decentralized config files
- Lower the amount of high triggers - from old monitoring system
 - Too many and too often high alerts
- Trigger severities: **Information, Warning, High,**
 - Few Disaster triggers for major problems (e.g. SAN)

Zabbix extensions

- Because Hobbit did manage most of the infrastructure ...
- Zabbix startup project focused on:
 - Application and main systems monitoring
 - Trending
 - Solution of main prod problems:
 - “Zabbix Trading - Attack Productions Problems”
 - http://www.zabbix.com/conf2012_agenda.php
- Infrastructure monitor extension
 - VMware, SAN, firewalls, syslog ...

Zabbix deployment

- Implementation path: not linear
 - And not from bottom to top
 - More top to bottom ...
- Driven by many factors but main ones were:
 - Problems with system
 - Importance of system
 - Active Persons
- Zabbix love:
 - **The easy way to put data into Zabbix !!!**
 - Userparameters
 - Zabbix_sender
 - Perf counter



Design

- **Important:** Agreement on common **system / applications relationships** and **terms** in firm
- Everyone is talking the same language and share common understanding of application hierarchy and dependencies
- DBC: defined in ITIL Group
- **CMDB** or **List** with Main and sub systems:

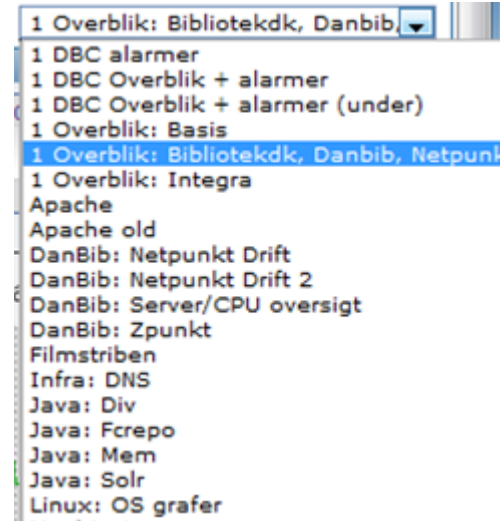
Main System	Sub System
Operation	Server
	Network
	SAN
...	...
Business System X	Webserver
	Middelware
	Backend

Design

- **System / application names used in Zabbix from CMDB:**
- Groups (for all main systems)
- Screen names (drill down menus)
- Maps (main systems)
- Template names (easy search)
- Item names / graphs (lasted data)
- Item descriptions (service desk integration)
- Trigger names (trigger list)
- Trigger descriptions (service desk and SMS)
- Host names (logical host used for some systems)

Design

- Screen names:
 - Drill down menus
- Search functions
 - Find templates etc.



- Trigger names:
 - Address receiver group
 - Quick overview/relation
 -
 -
 -
 -

Main: Sub system: Messages

Win: log: Error message

Linux: TCP port: Email service down

Win: Service: "Citrix XML": Stopped (6)

WebServices: openxid.addi.dk: Error

Danbib: Netpunkt: Targeted process down

ORS: 10 tasks in error state

Design

- Item names
 - Grouping of latest data
 - (Linux OS template)
- Template names (hierarchy)

[3 Memcache](#)

[3 MySQL Template](#)

[3 Netstat TCP Template](#)

[3 Oracle Template](#)

[4 ADHL](#)

[4 Artesis Openscan17 tracelog](#)

[4 Artesis Openscan20 tracelog](#)

[4 Artesis Opensearch2.1 tracelog](#)

[4 Artesis Opensearch11 tracelog](#)

[4 Artesis Opensearch20 tracelog](#)

[4 Basis yaz-client tests](#)

Disk: Used space on /usr/local in %

Disk: Used space on /var in %

Host uptime (in sec)

Host: Agent ping (TCP)

Host: Agent version

Host: information - uname

Host: Ping

Log: linux log

Memory: Available

Memory: Buffers

Memory: Cached

Memory: Total

Net: Traffic in eth0

Net: Traffic out eth0

Port: Email/SMTP service is running

Port: SSH service is running

Process: cron is running

Service desk integration

- **Action message:**

%SUMMARY={HOST.NAME}: {TRIGGER.NAME}

%FROM_USERID=zabbix@dbc.dk

%DEVICE={HOST.NAME}

%TYPE=I

%PRIORITY=1 - Høj

%ZEXTERNALSYSTEMTICKET={EVENT.DATE}-{TRIGGER.ID}

%{ITEM.DESCRPTION}

%DESCRIPTION={HOST.NAME}:{TRIGGER.NAME}

%{TRIGGER.COMMENT}

Starttid: {EVENT.DATE} {EVENT.TIME}

Alarm indhold: {ITEM.VALUE}

*<a href="http://zabbix/zabbix/events.php?triggerid={TRIGGER.ID}"
target="_blank">http://zabbix/zabbix/events.php?triggerid={TRIGGER.ID}*

- **Item description:**

%AFFECTED_SERVICE=Danbib (Main system)

%ZAFFECTEDCOMPONENT=Netpunkt (Sub system)


Service desk integration

- General Action for service desk mails and SMS to people “on call”
 - Goal: Reduce amount of actions

Conditions	Operations
Maintenance status not in "maintenance" Trigger value = "PROBLEM" Trigger name like "(vagt)" Host group <> "Sandkasse"	Send message to user groups: Vagt Send message to users: servicedesk

Trigger split:
“Business”
“Technical”

- CA Unicenter Service Desk:

Requester	Affected End User	Hoved Produkt	Komponent	Incident Area	Status	Priority
	zabbix	Danbib		Netpunkt	Closed	1 - Høj
 Detail						
Reported By		Assignee	Group			
zabbix		Skyttthe, Erik	IT-Infra			
Summary			External System Ticket			
host: Danbib: Netpunkt: Nep targetd process not running (vagt)			2013.05.22-20246			
Description						
host: Danbib: Netpunkt: Nep targetd process not running (vagt) Frontend process for Netpunkt system. Restart process! Starttid: 2013.05.22 13:31:40 Alarm indhold: 5 http://zabbix/zabbix/events.php?triggerid=20246						

Tie the different areas together

- “There are too many menus in Zabbix 2.0”! ...”



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

History: Network maps » Dashboard » Acknowledges » Dashboard » Acknowledges

PERSONAL DASHBOARD

Last 20 issues

Host	Issue	Last change	Age	Info	Ack	Actions
testhost1	Linux: testhost1 has just been restarted (TEST)	08 Mar 2013 13:46:01	38s	?	No	-
testhost3	Linux: testhost3 has just been restarted (TEST)	08 Mar 2013 13:45:38	1m 1s	?	No	-
testhost1	Danbib: Antal "sortserver.3.ksh danbib" processer <> 5 (TEST)	08 Mar 2013 13:45:37	1m 2s		No	3
testhost2	Win: Disk: 98% used on d: (TEST)	08 Mar 2013 13:45:36	1m 4s		No	-
testhost1	Win: Disk: 98% used on d: (TEST)	08 Mar 2013 13:45:35	1m 5s		Yes (1)	-
winlog	Win: New log lines (Warning)	08 Mar 2013 13:42:11	4m 29s		No	-

6 of 6 issues are shown

Updated: 13:46:40

Favourite screens

- Linux: Server info
- Win: Server info
- 1 DBC Overblik + alarmer
- 1 Overblik: Bibliotekdk, Danbib, Netpunkt, Zpunkt

Screens »

Favourite maps

- 1 DBC Overblik
- Alle hosts

Tie the different areas together

- DBC Main Screen
 - Links to all the other Screens, Maps, Graphs and documentation

The screenshot displays the Zabbix DBC Main Screen, which is a dashboard for monitoring various IT systems. The dashboard is organized into a grid of icons, each representing a different system or service. Each icon includes a status indicator (OK, Problems, or Maintenance) and a link to the corresponding screen or map.

System Status Icons:

- Integra/TMS Hostning: OK
- DanBib Netpunkt/Zpunkt: 1 Problem
- Bibliotekdkk: 3 Problems
- Webprodukter og Diverse hosts: OK
- Artesis: OK
- Integra Centralsystem: OK
- Basis: OK
- Webservices
- Bibliotekdkk-Brønd
- Brønd: OK
- Mail: OK
- Posthus
- DDB (Fjernadgang): OK
- Windows DBC: OK
- Biblioteksmedier
- Udvikling: 2 Problems, 1 Maintenance
- Integration: OK
- Staging: OK
- Sandkasse
- Test: OK
- Alle hosts
- NetApp - SAN
- Netværk: OK
- VmWare: OK
- Databaser: OK
- Drift hosts: OK
- Maskinstuer: OK

Sidebar Menu:

- Go to
- Submap
- URLs
- Events
- ORS task status
- ORS task status (old)
- Wiki: NAB overvågning
- Wiki: ORS-team
- Wiki: Syskon dok

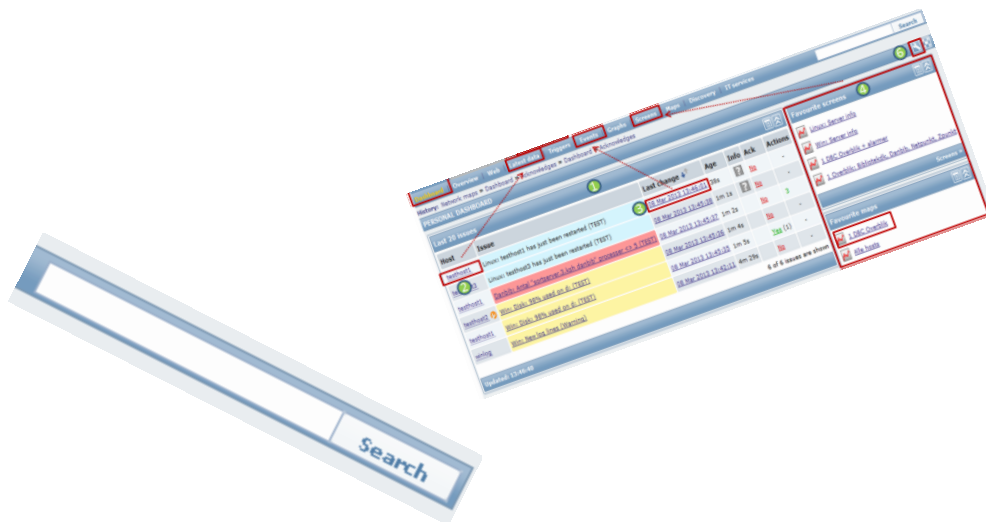
The sidebar menu is highlighted with a red circle, indicating its importance as a navigation tool. A vertical URL is visible on the right side of the sidebar: <http://www.zabbix.com>.

- Zabbix as index for Wiki and other IT documentation

Tie the different areas together

- **Navigating in DBC Zabbix:**

- Main DBC screen
- Dashboard (links)
- Search function



- **Internal Zabbix Workshop focus:**

- Dashboard, Latest data, Events, Screens

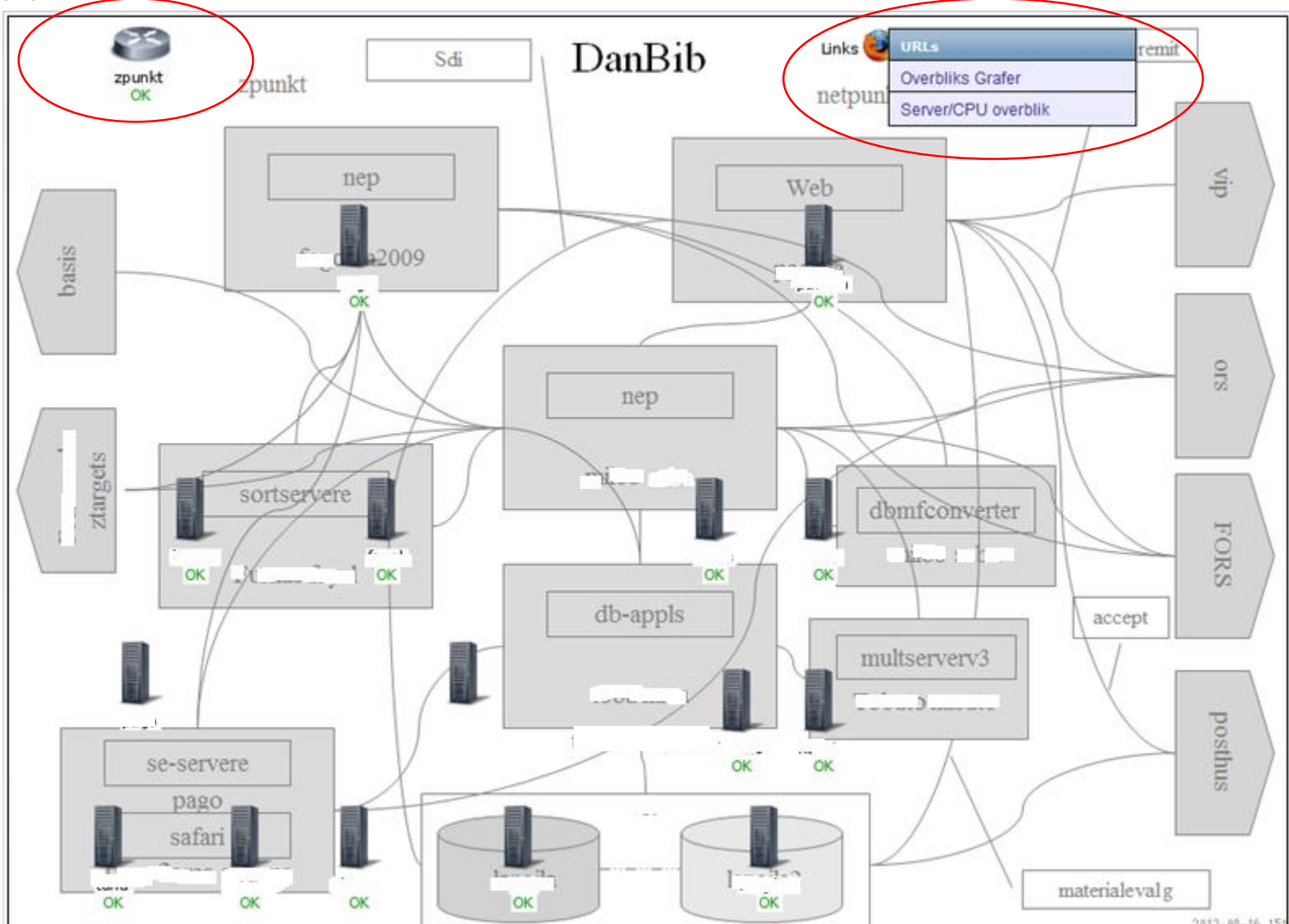
- **Main screen:**

- Nice overview when major problems occur (lots of triggers)
- E.g. main SAN problems



Building application screens

- Application Screen – overview ...



Building application screens

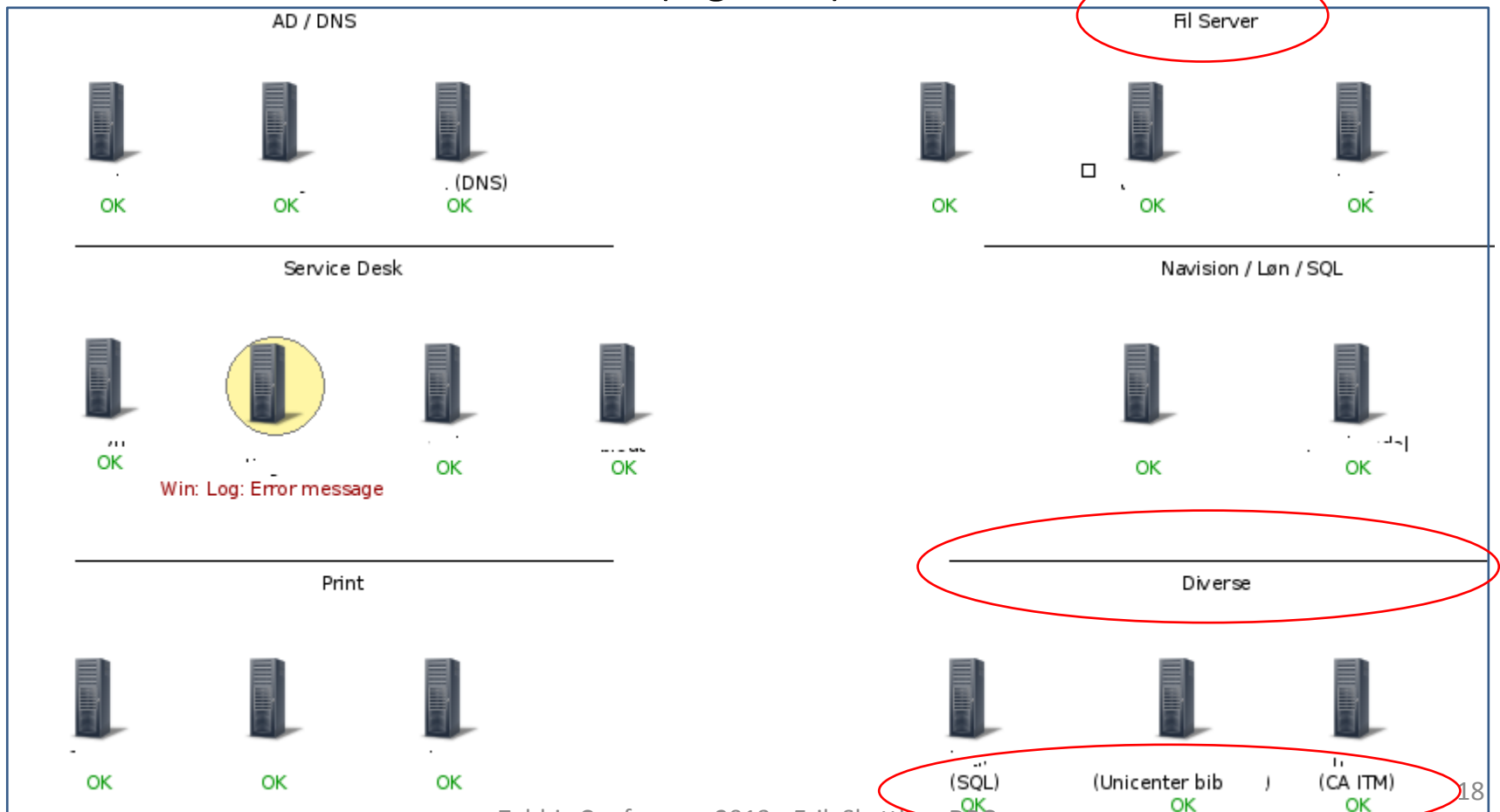
- Add application documentation as background
- Quick application overview
- Quick status over different parts of an application
 - E.g. Frontend, Middleware, Backend
- Added “link” icon
- Added “logical host” – to show general application triggers



- Add applications hosts
- Remember to decolorize the background image

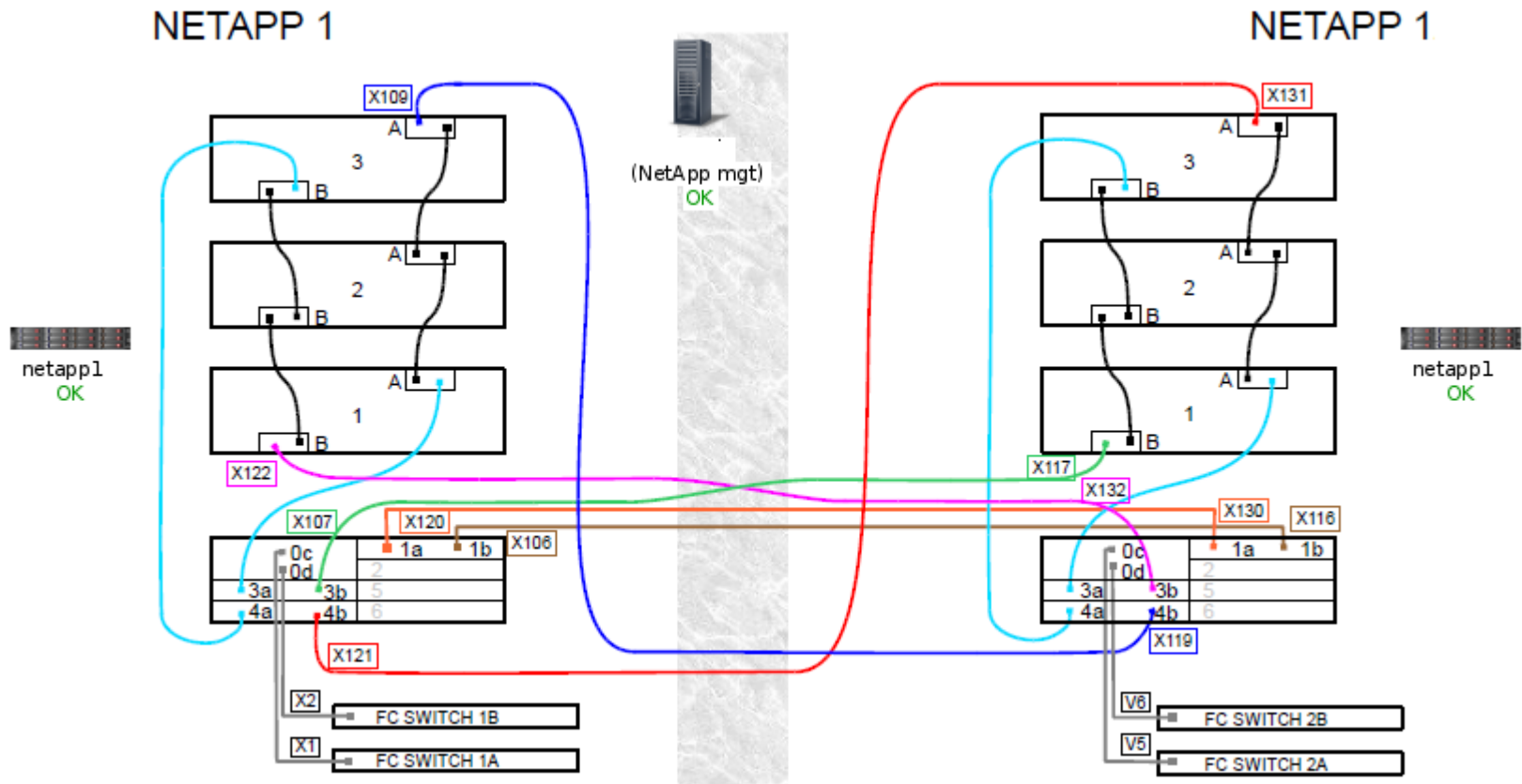
Building application screens

- Use of “headline” and “separator” icons
 - More easy to organize hosts etc.
 - No need to change background
 - Add information in host label (e.g. DNS)



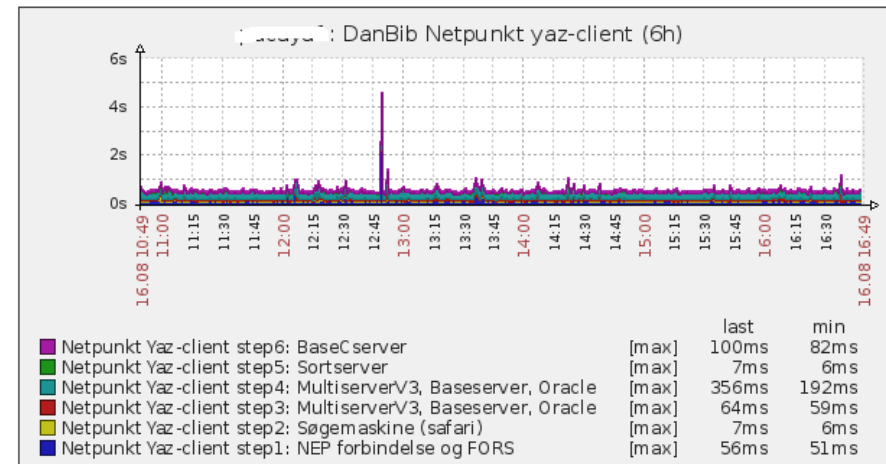
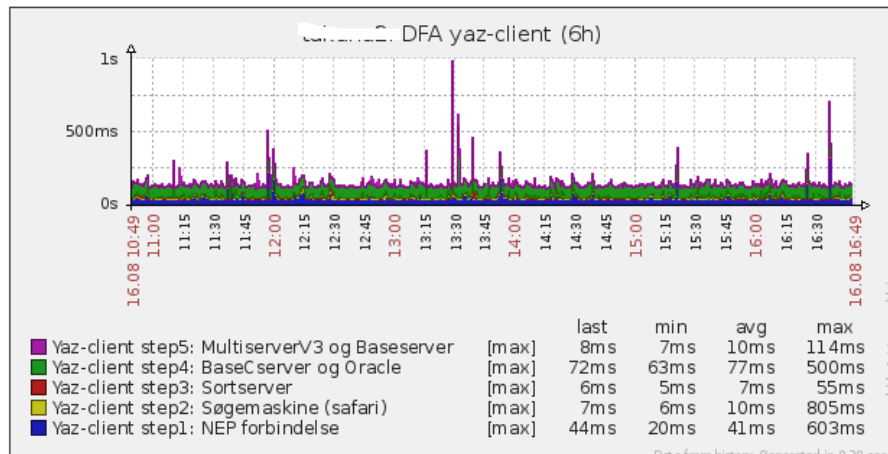
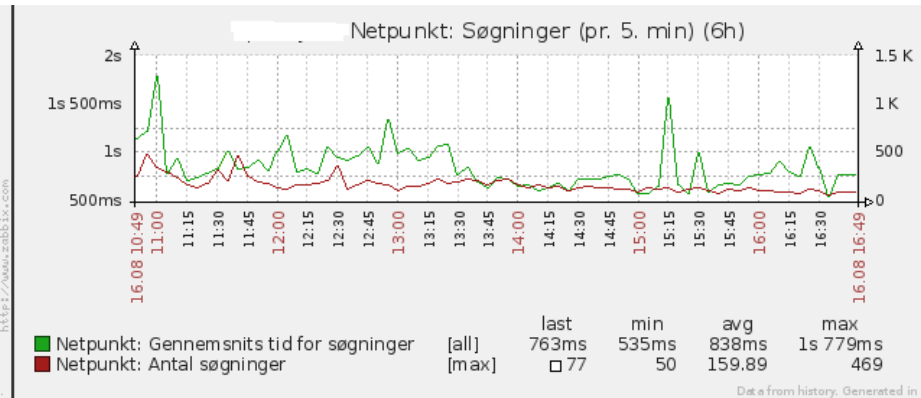
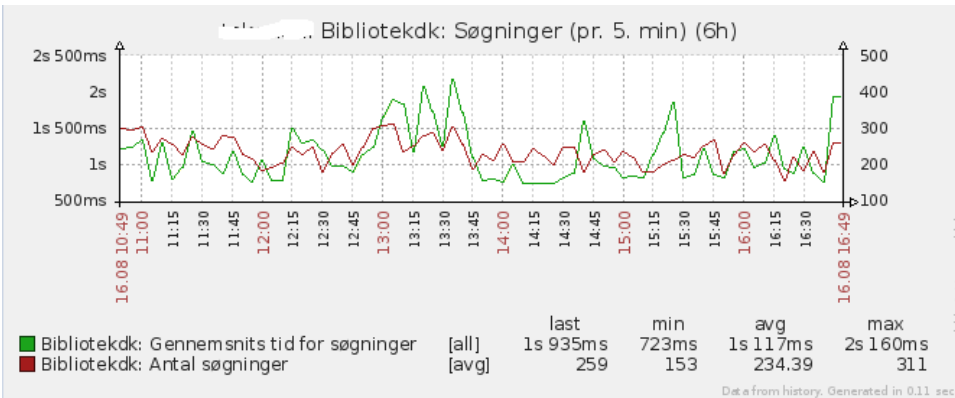
Building application screens

- Add technical documentation as backgrounds
 - = Quick access to documentation



Building application screens

- Make overview screens – graphs for one or more applications
 - Management love them



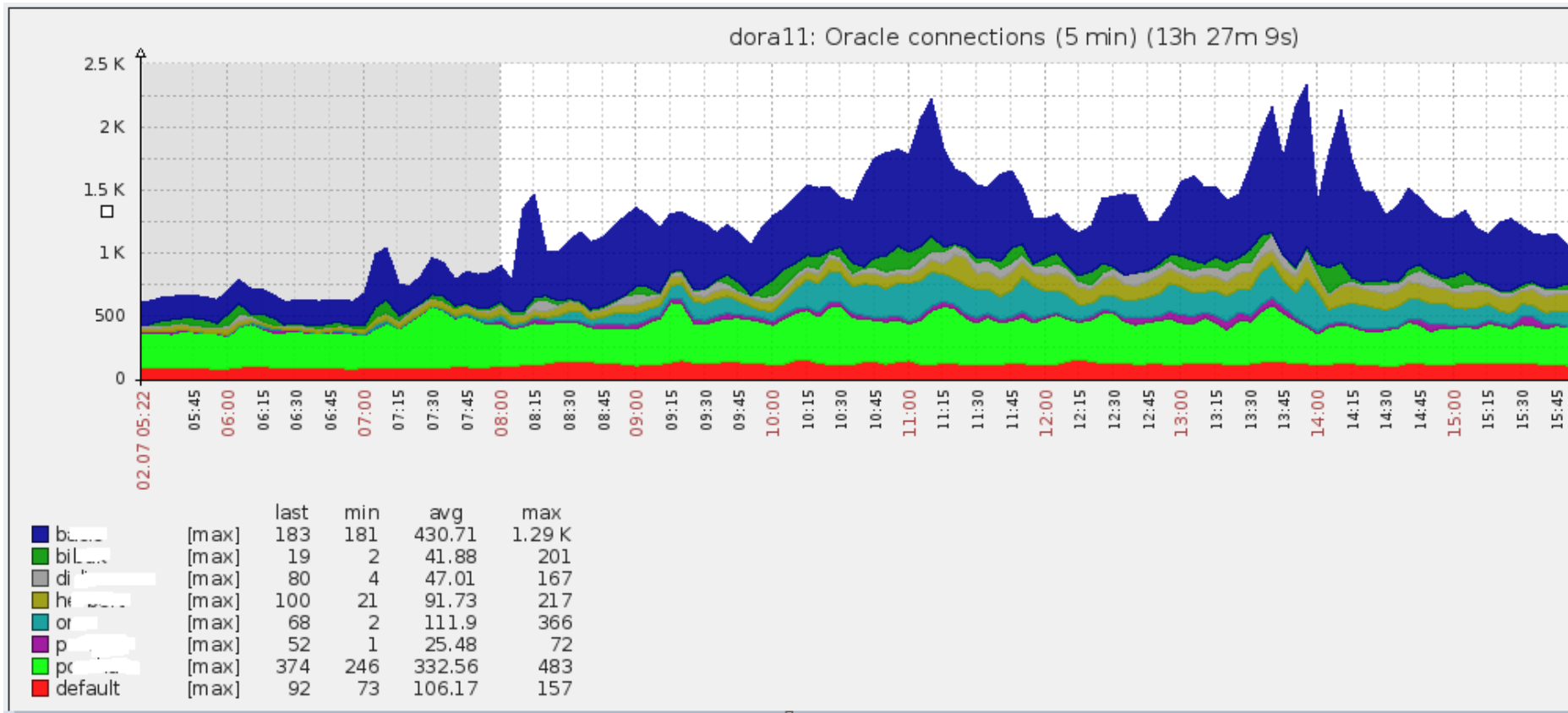
Users - different focus and tools

- **System admins**
 - Most functions and screens
- **Developers (important partner!)**
 - Application and Service screens and items, java items etc.,
- **Support/operators**
 - Dashboard, Main Screen, Overview Screens, Service Desk integration
- **Application specialists**
 - Application and service screens, (Trending), email
- **Application / product owners / project managers ...**
 - Application screens, reports, email alerts
- **Management**
 - Overview Screens (when problems), “Traffic lights” , reports, email alerts
- *Zabbix not isolated to IT/technical people!*

Special monitoring

- Oracle connections

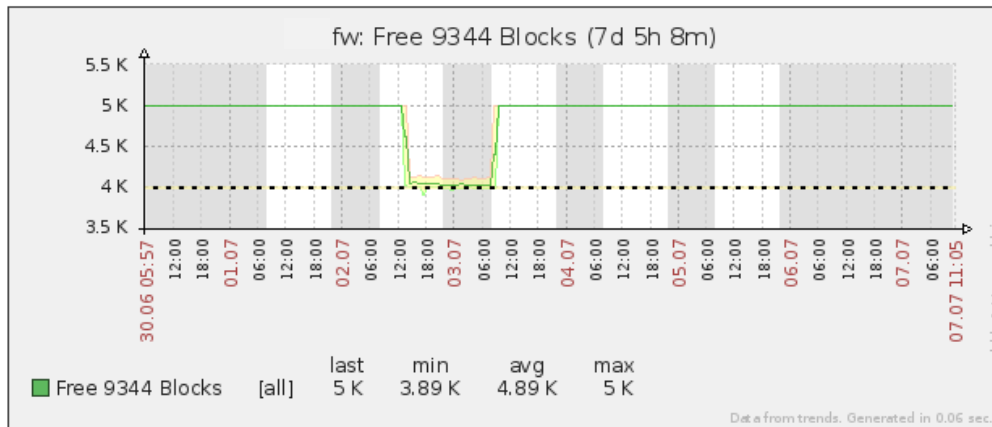
- saved over time and sorted in groups
- (Oracles own tool focuses on real time monitoring)



- Python script reads oracle session file - *listener.log*

Special monitoring

- **Firewall problem**
 - Heavy Packet loss etc.
 - Cisco ASA Mem Blocks 9344
 - SNMP OID: .1.3.6.1.4.1.9.9.147.1.2.2.1.1.4.9344.8

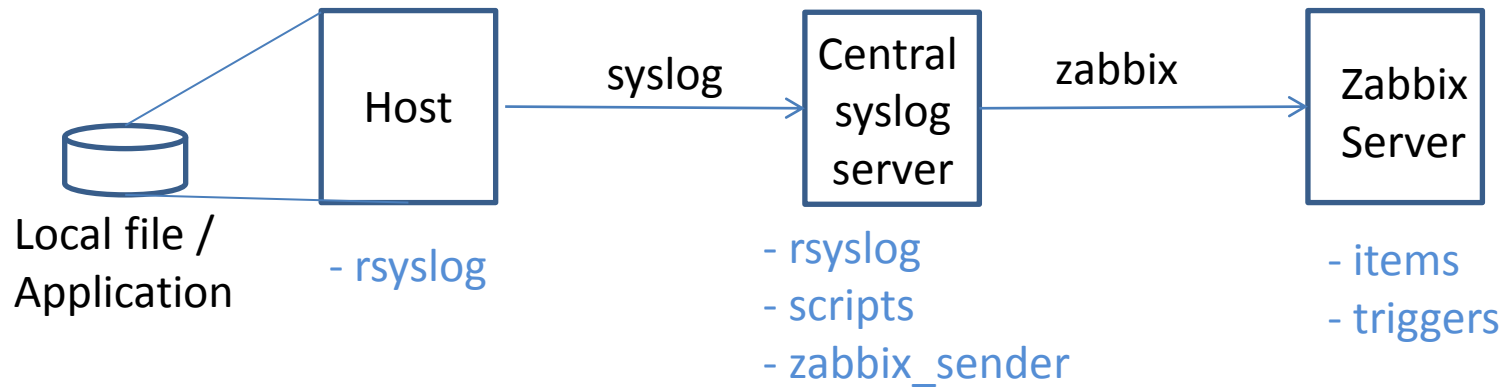


- Item, triggers and SMS actions easy/fast setup
- Problem solved after upgrade of Firewall firmware ...



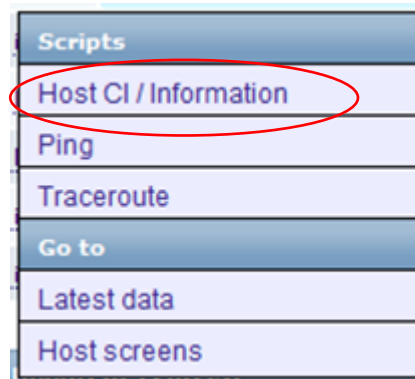
Special monitoring

- **Syslog / log management**
- Windows logging from old Hobbit system
- Linux logging



Miscellaneous

- **Host based templates**
 - more templates
 - but better overview
 - and management of configuration and changes
- **Quick CMDB host information**
 - Scripts: `/bin/grep - "^{HOST.HOST}" /etc/zabbix/hostlist.txt`



- E.g. output: *“Medius projekt VMware Server”*

Miscellaneous

- **Future**
 - More application monitoring
 - Web monitoring based on python scripts and selenium
 - ...
- **Zabbix tutorials:**
- <http://www.zbxtutorials.org/>
- <http://www.zabbix.com/forum/showthread.php?t=22211>
- **Fun stuff**
 - <http://www.youtube.com/watch?v=RKBs6Sm0uRg>