

Opensource ICT Solutions

ZABBIX

Zabbix Summit 2023

Zabbix in an MSP environment



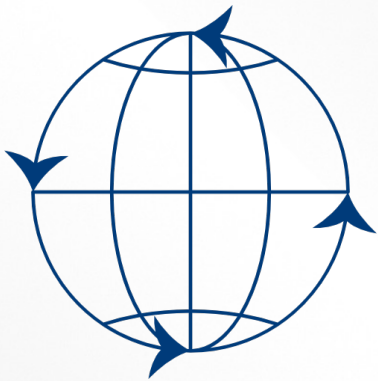
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Whoami



Brian van Baekel

Zabbix trainer / Consultant



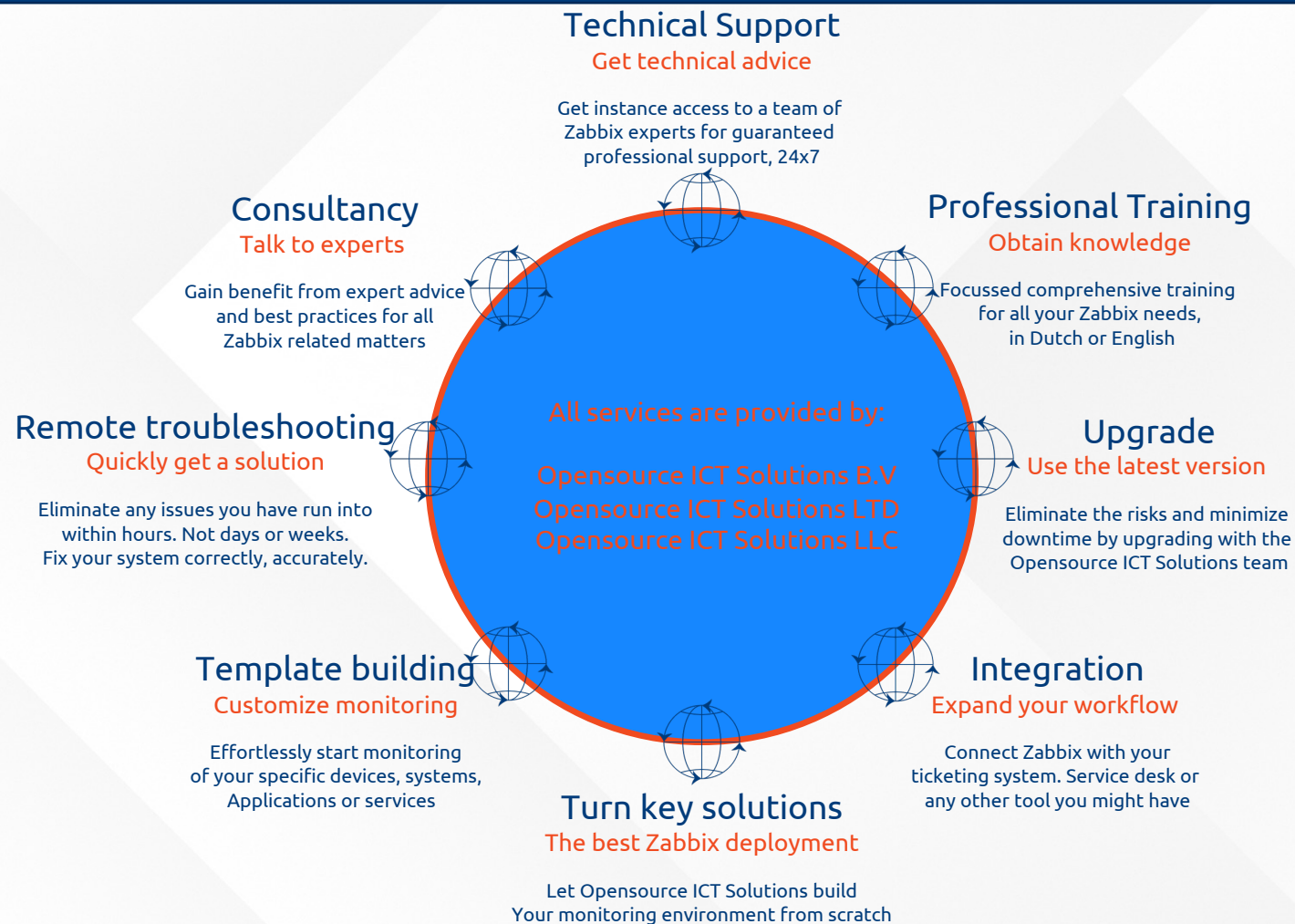
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Your Zabbix partner in:

- The Netherlands
- United Kingdom
- United States



Services overview



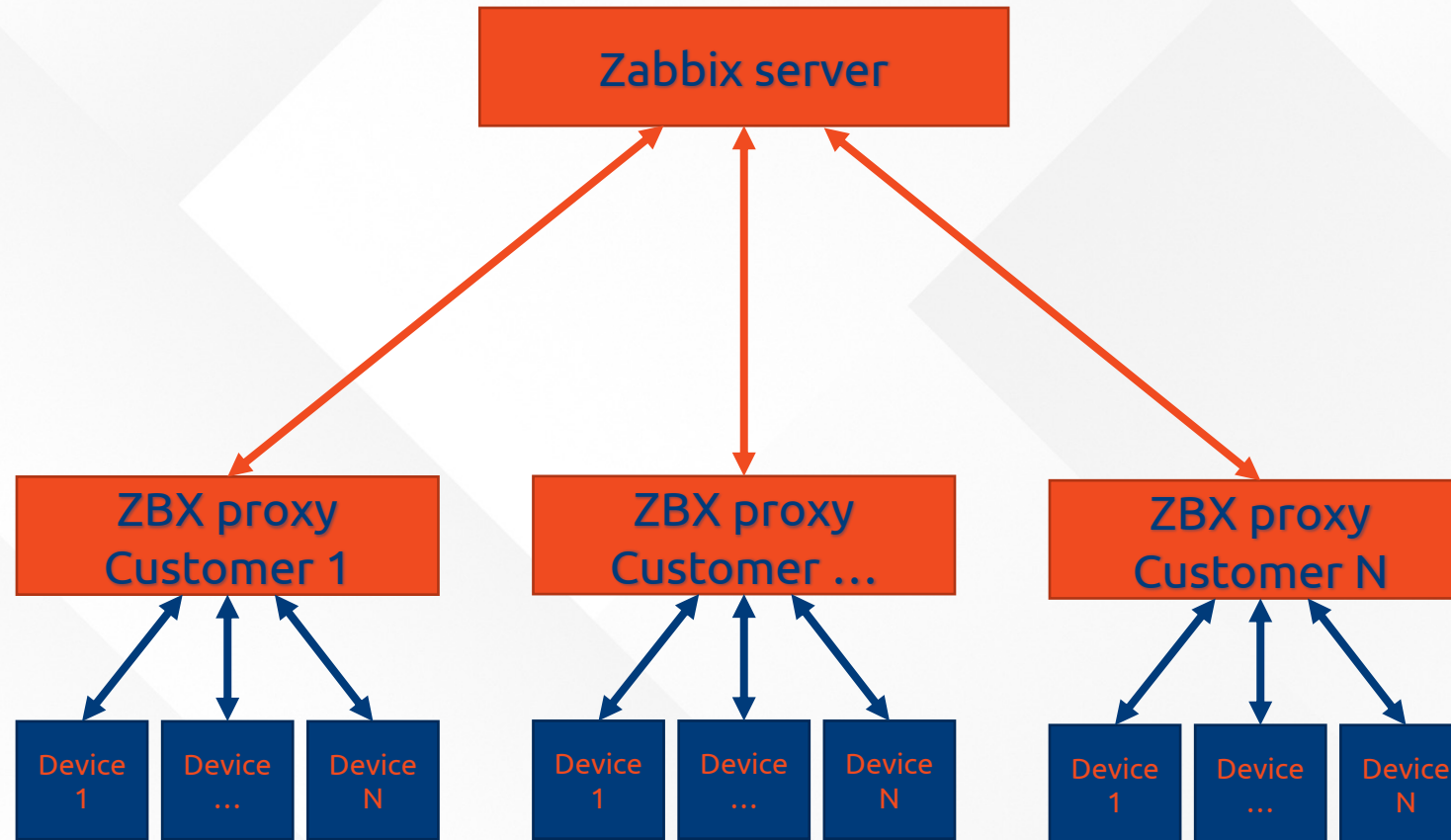
<https://oicts.com>

What are we going to discuss?

- Zabbix in an Managed Services Provider setup



Typical setup



Note: We are not discussing HA yet!

- Consideration:
 - A single instance (global)
 - Many small ones (one per customer)



Benefits - manageability

- One instance
 - Easy to manage
 - License costs (OS, DB etc)
 - Upgrade: just 1 component (but higher impact)



- Many instances
 - Each instance is smaller -> less performance tuning needed
 - Upgrade: many small upgrades, with smaller impact per upgrade



Benefits – single pane of glass

- Single server: One view to see them all
- Many servers: “impossible” without custom coding or Grafana
 - But still: consistency is possible/easy

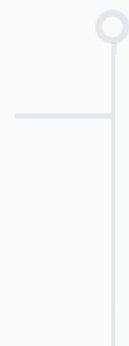
Zabbix 7.2

Planned release date: Q2 2024

Distributed monitoring

- One dashboard for multiple data sources

Ability to display data from multiple Zabbix servers on a single dashboard to enable multi-DC monitoring scenario



Benefits - uniformity

- Uniformal configuration
 - Templates, naming conventions etc.
- Uniformal monitoring
 - When using templates, the monitoring is always consistent between various systems
- Uniformal alerting
 - Setup a structure once and Copy/Paste it for every customer



Benefits – quicker deployments

- Enrol a new customer in minutes rather than days

Home / Product /

Download and install Zabbix

Zabbix Packages

Zabbix Cloud Images

Zabbix Containers

Zabbix Appliance

Zabbix Sources

Zabbix Agents

1 Choose your platform

ZABBIX VERSION	OS DISTRIBUTION	OS VERSION	ZABBIX COMPONENT
6.4	Alma Linux	9	Server, Frontend, Agent
6.2	CentOS	8	Proxy
6.0 LTS	Debian	7	Agent
5.0 LTS	Oracle Linux	6	Agent 2
4.0 LTS	Raspberry PI OS		Java Gateway
	Red Hat Enterprise Linux		
	Rocky Linux		
	SUSE Linux Enterprise Server		
	Ubuntu		
	Ubuntu (arm64)		

[Release Notes 6.4](#)

New proxy

Proxy

Encryption

* Proxy name

New Customer Proxy

Proxy mode

Active

Passive

Proxy address

Description

New host

Host

IPMI

Tags

Macros

Inventory

Encryption

Value mapping

* Host name

New host 1

Visible name

New host 1

Templates

type here to search

Select

* Host groups

type here to search

Select

Interfaces

No interfaces are defined.

[Add](#)

Description

Monitored by proxy

New Customer Proxy

Enabled

☒

Add

Cancel



Benefits - automation

- Integration with
 - CMDB?
 - Ticketing?
 - Authentication?
- API calls are available

```
{
  "jsonrpc": "2.0",
  "method": "host.create",
  "params": {
    "host": "Linux server",
    "interfaces": [
      {
        "type": 1,
        "main": 1,
        "useip": 1,
        "ip": "192.168.3.1",
        "dns": "",
        "port": "10050"
      }
    ],
    "groups": [
      {
        "groupid": "50"
      }
    ],
    "tags": [
      {
        "tag": "Host name",
        "value": "Linux server"
      }
    ],
    "templates": [
      {
        "templateid": "20045"
      }
    ],
    "macros": [
      {
        "macro": "${USER_ID}",
        "value": "123321"
      },
      {
        "macro": "${USER_LOCATION}",
        "value": "0:0:0",
        "description": "latitude, longitude and altitude coordinates"
      }
    ],
    "inventory_mode": 0,
    "inventory": {
      "macaddress_a": "01234",
      "macaddress_b": "56768"
    }
  },
  "id": 1
}
```



Drawbacks

- Yes, there are drawbacks. Of course there are.



- Zabbix down? You are blind.



This site can't be reached

zbxmssrv refused to connect.

Try:

- Checking the connection
- [Checking the proxy and the firewall](#)

ERR_CONNECTION_REFUSED

Details

Reload

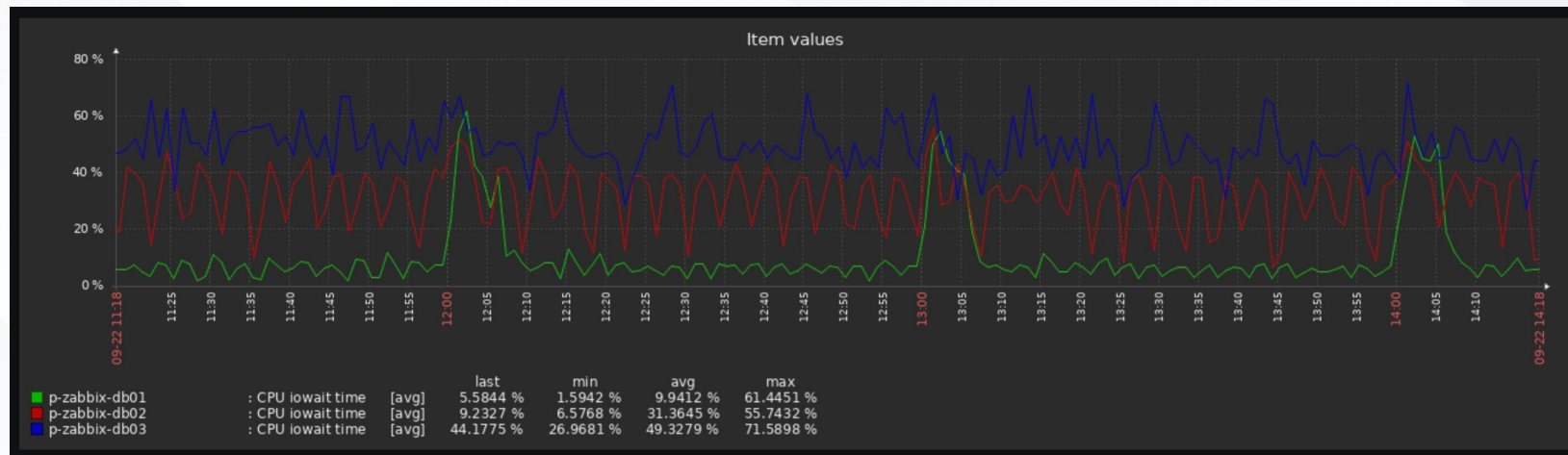


Drawbacks/considerations - growing

- How to scale your instance?

<input type="checkbox"/>	Time ▾	Severity	Recovery time	Status	Info	Host	Problem
<input type="checkbox"/>	07:52:05	Average		PROBLEM		Zabbix server	⬆ Lack of available memory (<250M of 1.77 GB)
<input type="checkbox"/>	07:49:40	Average		PROBLEM		Zabbix server	Zabbix server: Utilization of icmp pinger processes over 75%
<input type="checkbox"/>	07:37:53	Average		PROBLEM		Zabbix server	Zabbix server: More than 75% used in the configuration cache ?
<input type="checkbox"/>	07:28:09	Average		PROBLEM		Zabbix server	⬆ Load average is too high (per CPU load over 1.5 for 5m) ?

And so it begins...



Drawbacks/considerations - growing

- How many hosts?
- How many items?
- Update interval?
- History storage period?
- Trends?
- Expansion?




- What to think about before starting?



Considerations - naming

- Naming! Of course. Names should be unique in Zabbix

New host ? ×

 **Details ▲** Cannot add host
Host with the same name "My awesome Windows host" already exists.

Host IPMI Tags Macros Inventory Encryption Value mapping

* Host name

Visible name

Templates

* Host groups

Interfaces No interfaces are defined.
[Add](#)

Description

Monitored by proxy

Enabled ☒



Considerations Host groups

- Used for logical grouping and permissions

Host groups

<input type="checkbox"/> Name ▲
<input type="checkbox"/> Windows

<input type="checkbox"/> Name ▲
<input type="checkbox"/> Hess
<input type="checkbox"/> Hess/Linux
<input type="checkbox"/> Hess/Windows

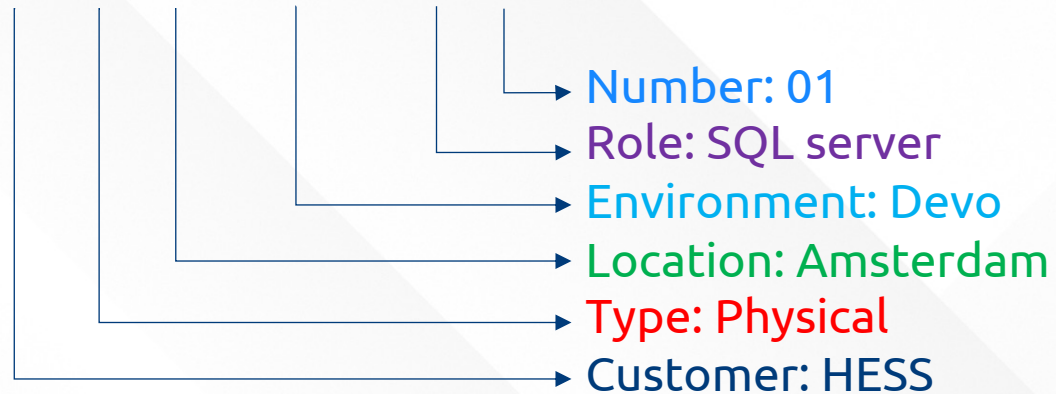
Who What Where??

Considerations – naming - hosts

- Host names, conventions etc

<4 digit customername>-<type><3letter location code>-<env><role><2 digit incrementing number>

HESS-PAMS-DEVO-SQL01



Type:

- *Physical
- *Virtual
- *Service
- *Website
- *

Location:

- *AMS
- *MID
- *LON
- *WIL
- *

Environment:

- *Development
- *Test
- *Acceptance
- *Production
- *Education

Role:

- *SQL
- *DHCP
- *WEB
- *LINUX
- *LAMP
- *



Considerations – naming - templates

- Templates, naming conventions

- | | |
|--------------------------|--------------------------------|
| <input type="checkbox"/> | IIS by Zabbix agent active |
| <input type="checkbox"/> | Linux by Zabbix agent |
| <input type="checkbox"/> | Linux by Zabbix agent active |
| <input type="checkbox"/> | Windows by Zabbix agent |
| <input type="checkbox"/> | Windows by Zabbix agent active |

What

How



Considerations – naming - actions

- Actions? Of course!

Trigger actions ▾

Name

Status

Any

Enabled

Disabled

Apply

Reset

<input type="checkbox"/> Name ▲	Conditions	Operations
<input type="checkbox"/> Hess/Report Linux problems/All media	Host group equals <i>Hess/Linux</i>	Send message to user groups: Hess/Linux via all media
<input type="checkbox"/> Hess/Report Windows problems/All media	Host group equals <i>Hess/Windows</i>	Send message to user groups: Hess/Windows via all media

Who

What


How



Considerations – naming - dashboards?

- How to work with hundreds of dashboards

Dashboards




<input type="checkbox"/>	Name ▲
<input type="checkbox"/>	Brian dashboard
<input type="checkbox"/>	Databases MySQL
<input type="checkbox"/>	Global view
<input type="checkbox"/>	Josh
<input type="checkbox"/>	Laura dash
<input type="checkbox"/>	Linux servers
<input type="checkbox"/>	MSSQL databases
<input type="checkbox"/>	Nathan Liefing personal
<input type="checkbox"/>	NGINX
<input type="checkbox"/>	Windows servers
<input type="checkbox"/>	Zabbix server
<input type="checkbox"/>	Zabbix server health

0 selected Delete



Dashboards



<input type="checkbox"/>	Name ▲
<input type="checkbox"/>	Applications/Databases/MSSQL
<input type="checkbox"/>	Applications/Databases/MySQL
<input type="checkbox"/>	Applications/NGINX
<input type="checkbox"/>	Global view
<input type="checkbox"/>	Personal/Brian
<input type="checkbox"/>	Personal/Josh
<input type="checkbox"/>	Personal/Laura dash
<input type="checkbox"/>	Personal/Nathan Liefing
<input type="checkbox"/>	Servers/Linux
<input type="checkbox"/>	Servers/Windows
<input type="checkbox"/>	Zabbix/Server
<input type="checkbox"/>	Zabbix/Server health

0 selected Delete



- Ahhh. The. Most. Important. Ever.



Permissions – Admin/SuperAdmin rights

- SuperAdmin == root
- Admin follows permissions(read/read-write) set per usergroup
- User = Readonly permissions as set per usergroup



Permissions – custom roles

User roles

* Name

Customer 1 role

User type

User

Access to UI elements

Dashboards

☒

Monitoring

☒ Problems

☒ Latest data

☐ Discovery

☒ Hosts

☒ Maps

Services

☒ Services

☐ SLA

☒ SLA report

Inventory

☒ Overview

☒ Hosts

Reports

☐ System information

☒ Triggers top 100

☐ Notifications

☐ Scheduled reports

☐ Audit log

☒ Availability report

☐ Action log

Data collection

☐ Template groups

☐ Hosts

☐ Discovery

☐ Host groups

☐ Maintenance

☐ Templates

☐ Event correlation

Alerts

☐ Trigger actions

☐ Autoregistration actions

☐ Scripts

☐ Service actions

☐ Internal actions

☐ Discovery actions

☐ Media types

Users

☐ User groups

☐ Users

☐ Authentication

☐ User roles

☐ API tokens

Administration

☐ General

☐ Housekeeping

☐ Macros

☐ Audit log

☐ Proxies

☐ Queue

* At least one UI element must be checked.

Default access to new UI elements

☒

Access to services

Read-write access to services

None

All

Service list

Customer 1

X

type here to search

Select

Read-write access to services with tag

tag

value

Read-only access to services

None

All

Service list

Permissions - dashboards

- Who can see what?
- Permissions are fully respected



Permissions - dashboards

Customer 1

[All dashboards](#) / [Customer 1](#)

Host availability

	Available	Not available	Unknown	Total
Zabbix agent	0	0	0	0
SNMP	0	0	0	0
JMX	0	0	0	0
IPMI	0	0	0	0

Map



cust1-agent1: Zabbix agent ping

Up
(1)
Zabbix agent ping

Permissions - dashboards

Customer 1

[All dashboards](#) / [Customer 1](#)

Host availability				
	Available	Not available	Unknown	Total
Zabbix agent	0	0	0	0
SNMP	0	0	0	0
JMX	0	0	0	0
IPMI	0	0	0	0

Map

No permissions to referred object or it does not exist!

Item value

No permissions to referred object or it does not exist!

- And actions? How about those?

Super Admin

ZABBIX MSP

Trigger actions ▾

Name Status **Any** Enabled Disabled

Apply **Reset**

<input type="checkbox"/> Name ▲	Conditions	Operations
<input type="checkbox"/> Customer1/Report Linux problems/All media	Host group equals <i>customer1</i>	Send message to user groups: c
<input type="checkbox"/> Hess/Report Linux problems/All media	Host group equals <i>Hess/Linux</i>	Send message to user groups: h
<input type="checkbox"/> Hess/Report Windows problems/All media	Host group equals <i>Hess/Windows</i>	Send message to user groups: h

0 selected **Enable** **Disable** **Delete**

- And actions? How about those?

Customer 1
(Admin type,
RW on customer1 hostgroup)

☰ Trigger actions ▾

Name

Status Any Enabled Disabled

Apply Reset

<input type="checkbox"/> Name ▲	Conditions	Operations
<input type="checkbox"/> Customer1/Report Linux problems/All media	Host group equals <i>customer1</i>	Send message to user groups: customer1 via all media

0 selected Enable Disable Delete

- Equally important.

Super Admin

ZABBIX

MSP

Dashboards

Monitoring

Services

Inventory

Reports

Data collection

Template groups

Host groups

Templates

Hosts

Maintenance

Event correlation

Maintenance periods

Host groups

type here to search

Select

State

Any

Active

Name

Apply

Reset

<input type="checkbox"/>	Name ▲	Type	Active since	Active till
<input type="checkbox"/>	Customer 1 maintenance	With data collection	2023-04-01 00:00	2023-04-02 0
<input type="checkbox"/>	Customer 2 maintenance	With data collection	2023-04-01 00:00	2023-04-02 0

0 selected

Delete

- Equally important.

Customer 1
(Admin type,
RW on customer1 hostgroup)

Maintenance periods

Host groups

Select

Name

State

Any

Active

Ap

Apply

Reset

<input type="checkbox"/>	Name ▲	Type	Active since	Active till
<input type="checkbox"/>	Customer 1 maintenance	With data collection	2023-04-01 00:00	2023-04-02 00:00

0 selected

Delete

Permissions – conclusion

- Yes, it is possible to use Zabbix in a MSP environment, permission wise
- NO do not make your customers SuperAdmin, ever.
- Provision them as 'User' and only upon request as 'Admin' to their own groups.

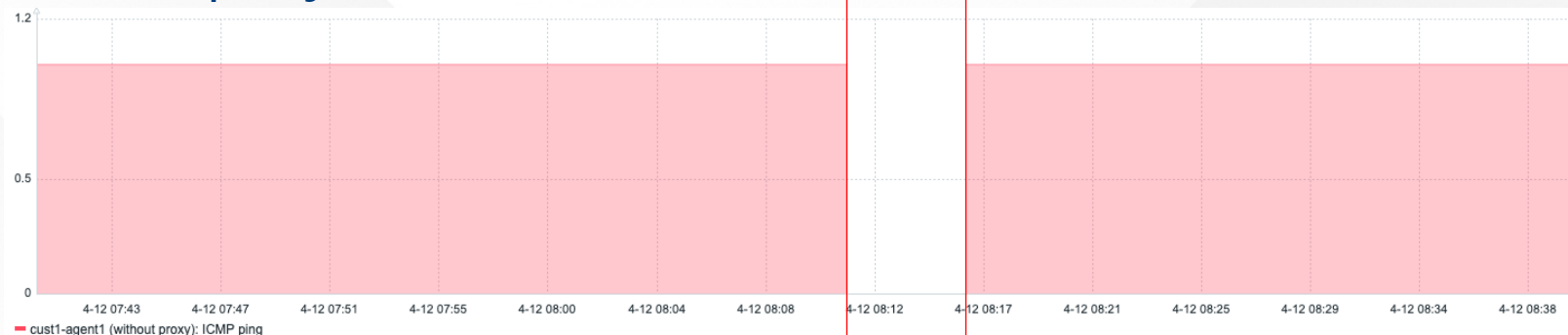


HA setups....

- Important: How to make sure your Zabbix server is -always- available.

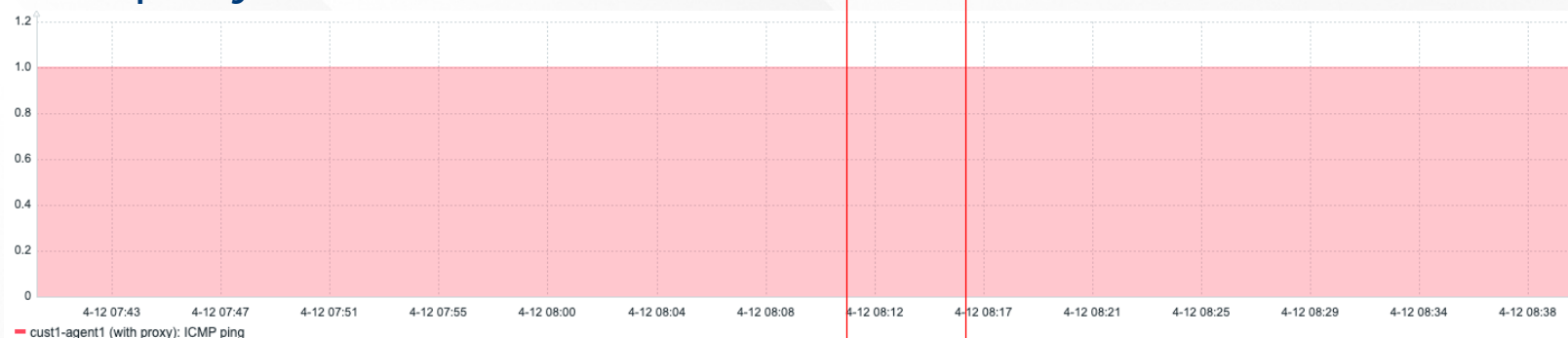
- What happens when the Zabbix server is unavailable?

Without proxy

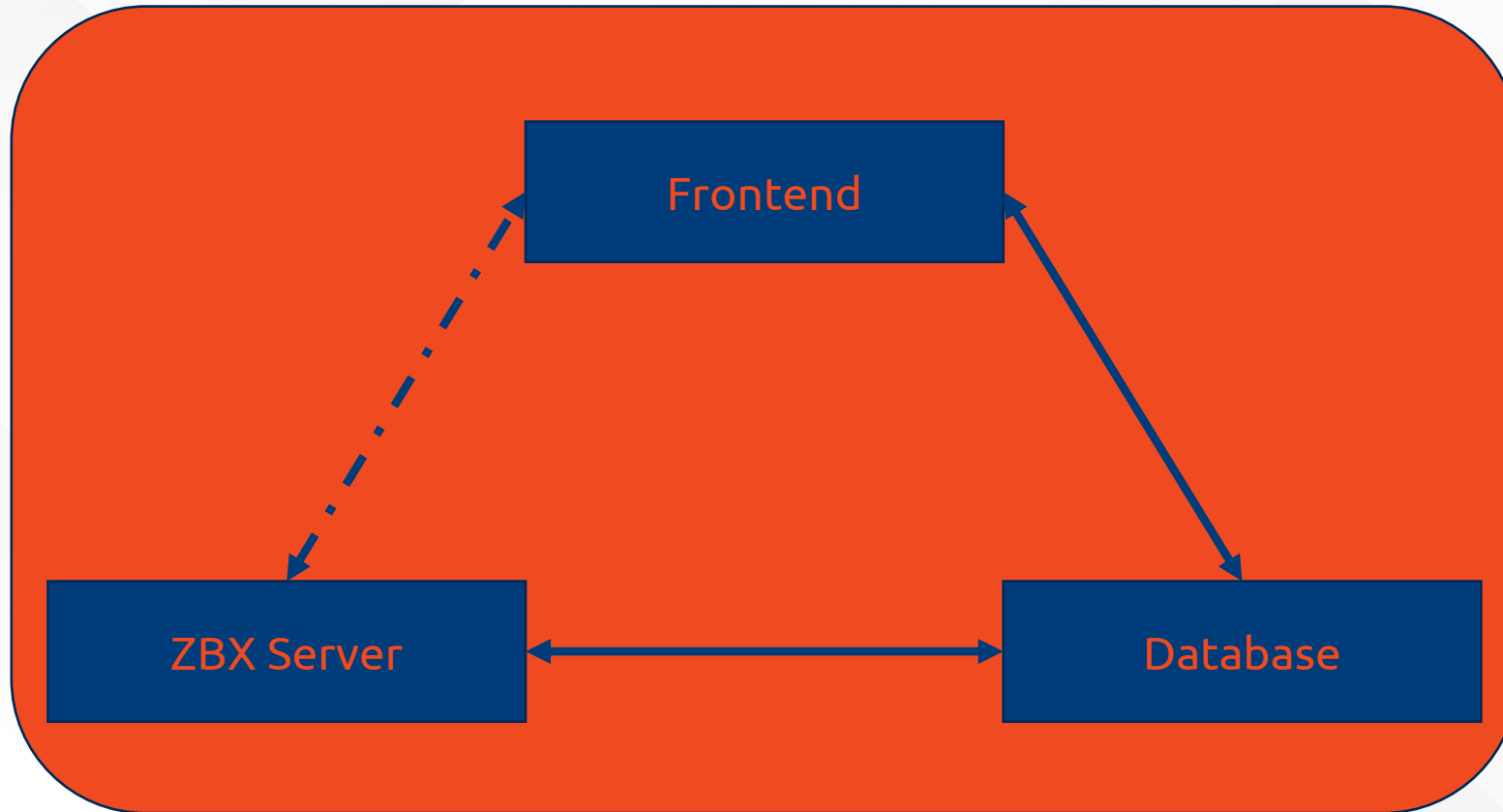


Zabbix server down

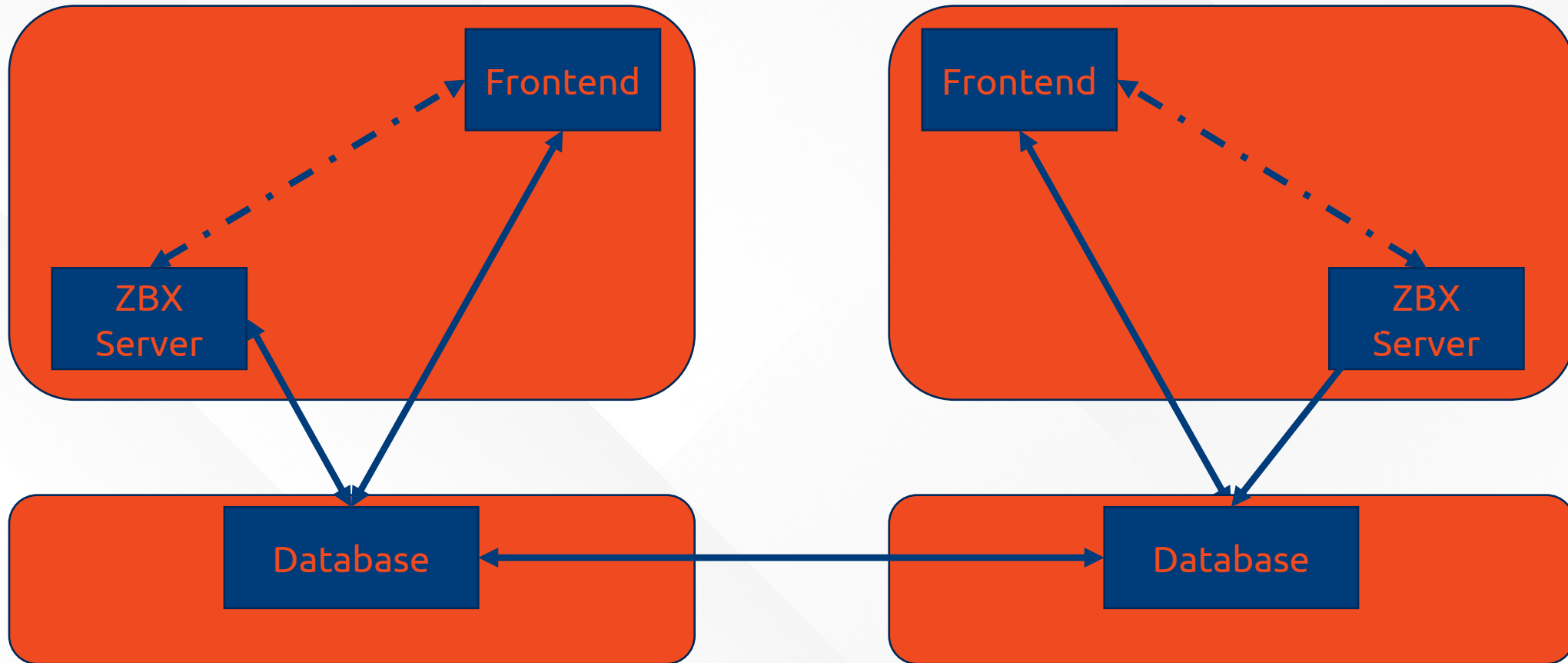
With proxy



HA setups



HA setups



Upgrades

- Zabbix <6.4:
 - Upgrade Server + Proxies at “the same time” due to incompatibility
 - Agents can be done later
- Zabbix >6.4:
 - Upgrade Server
 - Upgrade Proxy (can be done at convenient moment)
 - Upgrade agent

Proxies

<input type="text" value="Name"/>					Mode	Any	Active	Pass
					Apply		Reset	
<input type="checkbox"/> Name ▲	Mode	Encryption	Version	Last seen (age)				
<input type="checkbox"/> Los Angeles proxy	Active	None	6.0.2 ⓘ	1s				
<input type="checkbox"/> QA environment proxy	Active	None	5.0.30 ⓘ	2s				
<input type="checkbox"/> Riga proxy	Active	None	6.4.0	2s				



Wrapping up

- Zabbix in a MSP environment? Yes!
- But a few considerations must be taken in account before building the environment





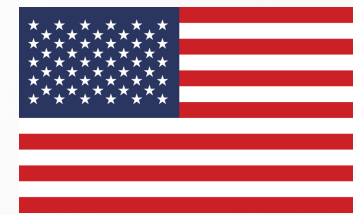
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Lets see if there are any questions!

