



Proxy High-Availability and Load Balancing in 7.0

Edgars Melderis

Technical support engineer

Why might you need HA for proxy?

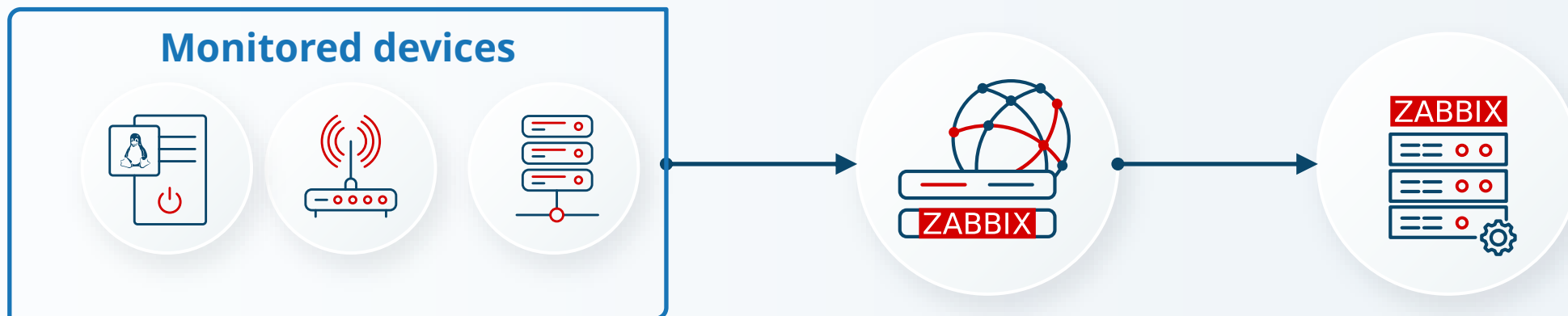


Zabbix is important part of IT infrastructure

Without visibility of the infrastructure, you're driving blind

Zabbix also must be “always available”

Proxies are important, one proxy fails, many hosts unknown





Historical solutions for HA

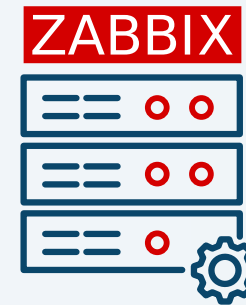
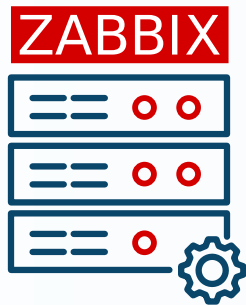
Zabbix server HA

HA introduced in 6.0

Works out of the box

Does not require expertise in HA architecture

Uses Zabbix database to check the node status



z z z

Historical solutions for Proxy HA

3rd party tools used for proxy HA

No load balancing, one proxy active + one in standby

Knowledge about 3rd party tool mandatory

Lots of additional configuration needed

Custom solutions with load balancing using API scripting.

The background features a dark blue globe with a network of glowing blue lines and dots overlaid, suggesting a global network or data flow. The text is positioned on the left side of the image.

Native Proxy HA and load balancing ZBXNEXT-8758

ZABBIX PROXY GROUPS

Zabbix proxies can be organized in proxy groups to provide:

- ▶ Proxy High Availability
- ▶ Proxy Load Balancing



Proxy Group A

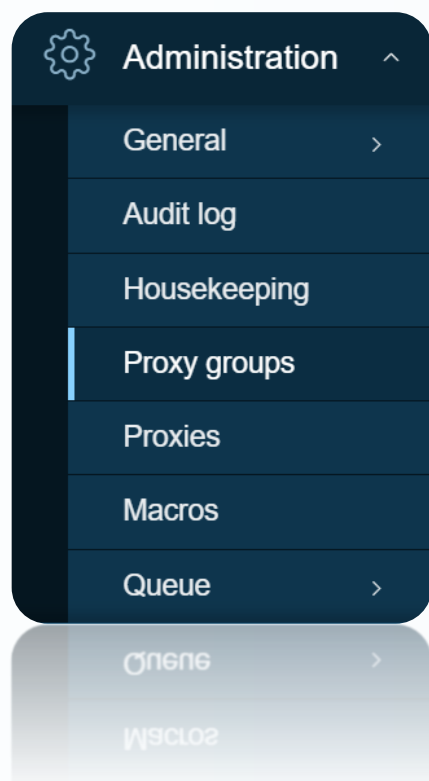


Proxy Group B



Proxy group management is accessible by Administration > Proxy groups menu:

- ▶ Create new proxy groups
- ▶ Manage configuration of existing proxy groups
- ▶ Delete proxy groups (all group members should be removed first)

A screenshot of the 'Proxy group' configuration form in Zabbix. The form has a title bar with a question mark and a close button. It contains the following fields:

- * Name: A text input field containing 'Netherlands'.
- * Failover period: A text input field containing '1m'.
- * Minimum number of proxies: A text input field containing '5'.
- Description: A text area containing 'Proxies for Netherlands'.
- Proxies: A text field showing 'Amsterdam, Den_Haag, Eindhoven, Haarlem, Harderwijk, ...'.

At the bottom right, there are four buttons: 'Update' (blue), 'Clone', 'Delete', and 'Cancel'.

<input type="checkbox"/> Name ▲	State	Failover period	Online proxies	Minimum proxies	Proxies
<input type="checkbox"/> Belgium	Online	1m	7	3	7 Antwerp, Brussels, Charleroi, Dikkebus, Eupen, Ghent, Tournai
<input type="checkbox"/> Luxemburg	Online	1m	2	1	2 Luxembourg, Troisvierges
<input type="checkbox"/> Netherlands	Online	1m	11	7	11 Amsterdam, Den Haag, Eindhoven, Haarlem, Harderwijk, Maaskantje, Maastricht, Rotterdam, Utrecht, Zaanstad, Zierikzee

Each proxy group has a minimum number of proxies setting:

- ▶ Required to not overload remaining members with too heavy load
- ▶ Falling below this number will take entire proxy group offline

Proxy group

* Name

* Failover period

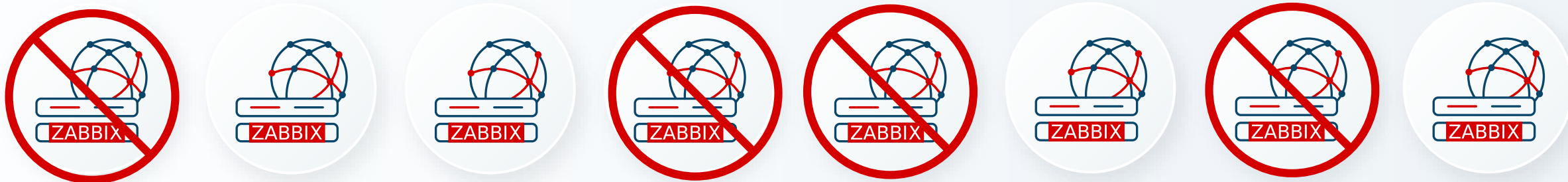
* Minimum number of proxies

Description

Proxies [Amsterdam](#), [Den_Haag](#), [Eindhoven](#), [Haarlem](#), [Harderwijk](#), ...

Offline

This group can loose up to 3 members before going offline



Proxies are assigned to proxy groups using the proxy configuration form:

- ▶ By default, all proxies work in standalone mode
- ▶ It is possible to choose one of the existing proxy groups to make it a member of the group
- ▶ Each proxy can belong to a single proxy group only

The screenshot shows the 'Proxy' configuration form in Zabbix. It has three tabs: 'Proxy' (selected), 'Encryption', and 'Timeouts'. The form contains the following fields and controls:

- Proxy name:** A text input field containing 'Utrecht'.
- Proxy group:** A dropdown menu showing 'Netherlands' with a close button (X). To its right is a 'Select' button.
- Address for active agents:** A section with two sub-fields: 'Address' (containing 'utrecht.zabbix.com') and 'Port' (containing '10051').
- Proxy mode:** Two radio buttons, 'Active' (selected) and 'Passive'.
- Proxy address:** An empty text input field.
- Description:** A large empty text area.

At the bottom of the form are five buttons: 'Update' (highlighted in blue), 'Refresh configuration', 'Clone', 'Delete', and 'Cancel'.

The screenshot shows the 'Proxy groups' selection dialog. It has a title bar with a close button (X). The dialog contains a list of proxy groups:

- Name
- Belgium
- Luxemburg
- Netherlands

At the bottom right of the dialog is a 'Cancel' button.

Host monitoring options



Host monitoring can be assigned to:

- ▶ Zabbix server
- ▶ A specific Zabbix proxy
- ▶ A proxy group

Monitored by

Server

Proxy

Proxy group

Netherlands X

Select

Enabled

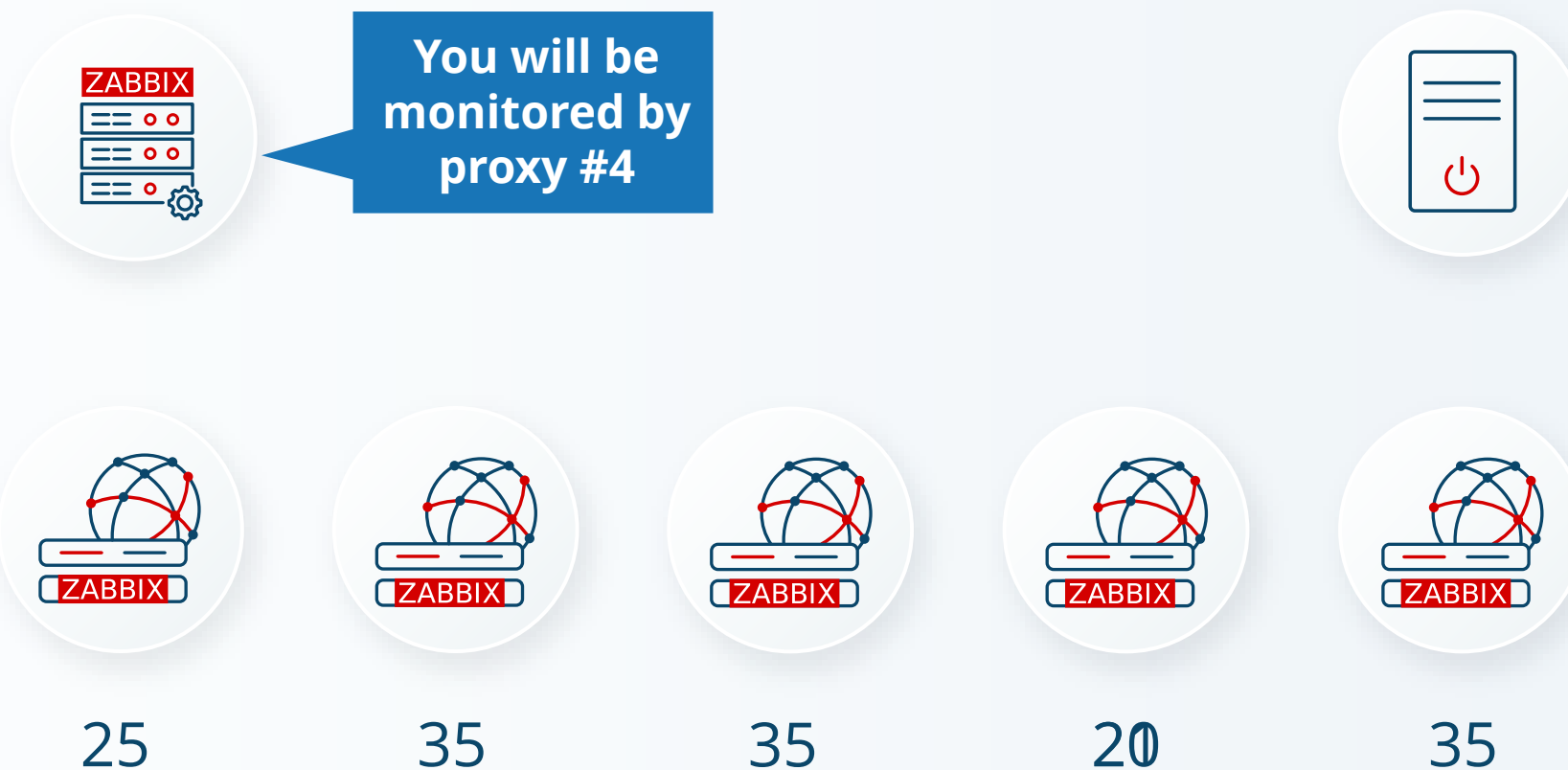


Assigned proxy Maaskantje

**Zabbix server
automatically assigned
proxy from a proxy group**

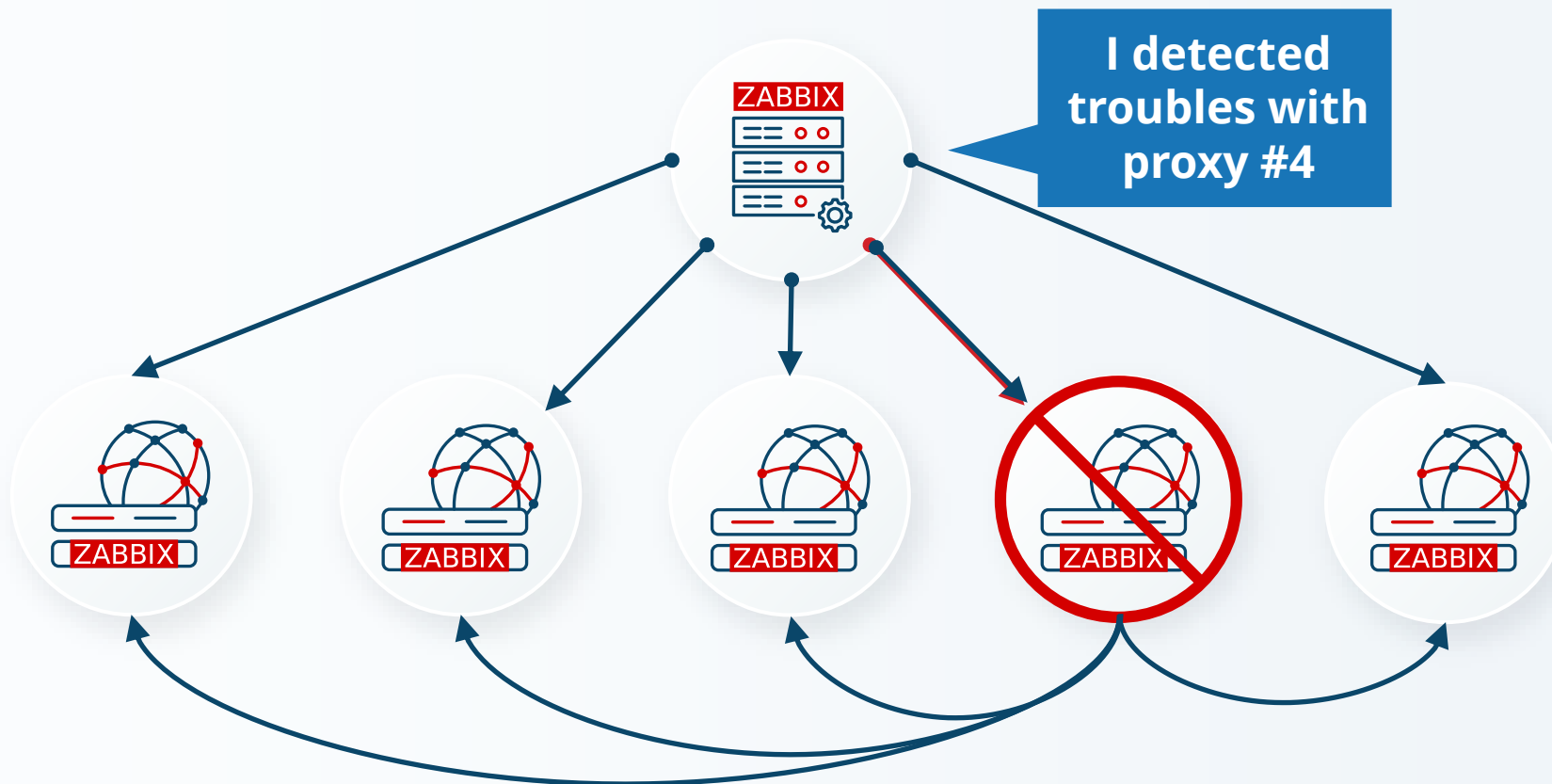
Proxy group manager automatically assigns hosts:

- ▶ It knows status of all proxies and number of assigned hosts
- ▶ New hosts will be distributed to online proxies with the least assigned hosts



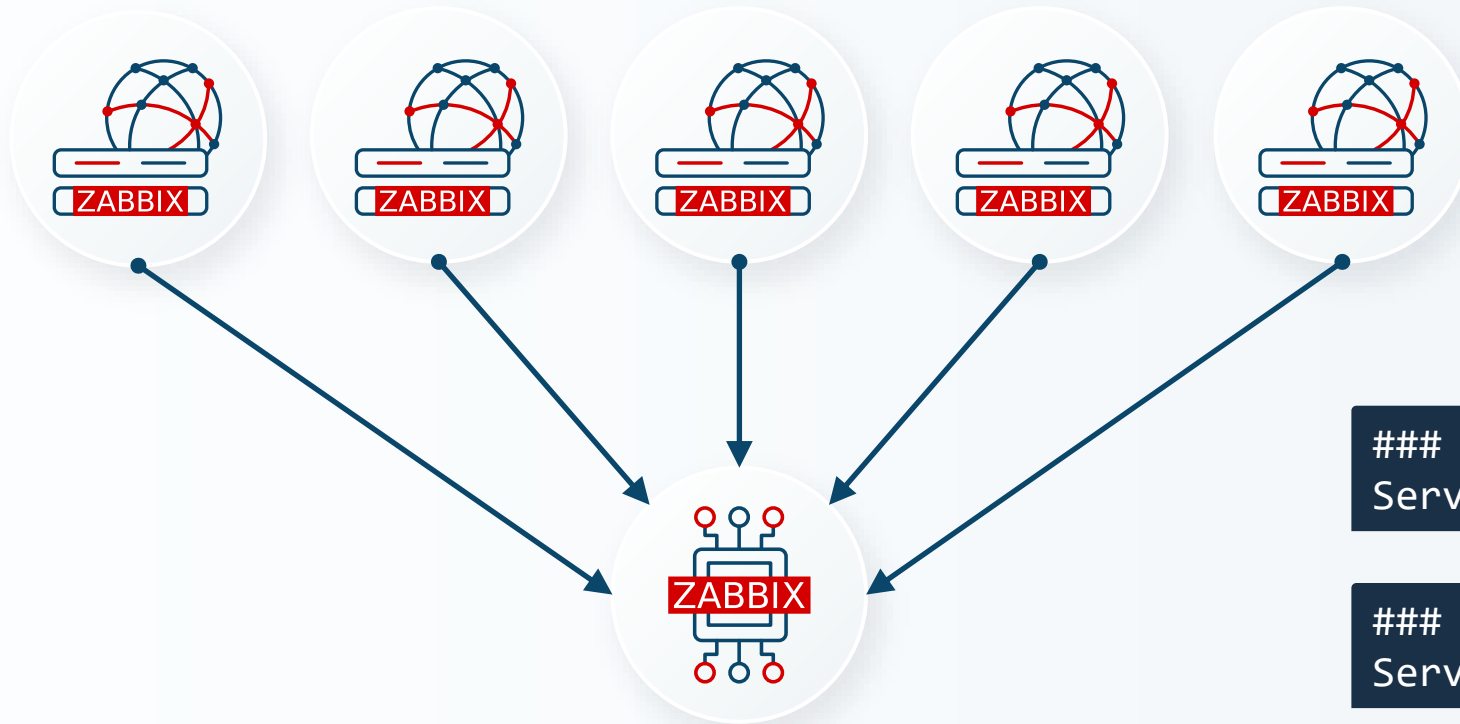
Zabbix server tracks status of all proxies in a proxy group:

- ▶ It informs other proxies if some proxy goes offline
- ▶ If a proxy goes offline host reassignment to other proxies is performed without delay



A Zabbix agent in passive mode must accept connections from all members of its proxy group:

- ▶ Use comma separated list of node IP addresses or DNS names
- ▶ Specify entire network segments

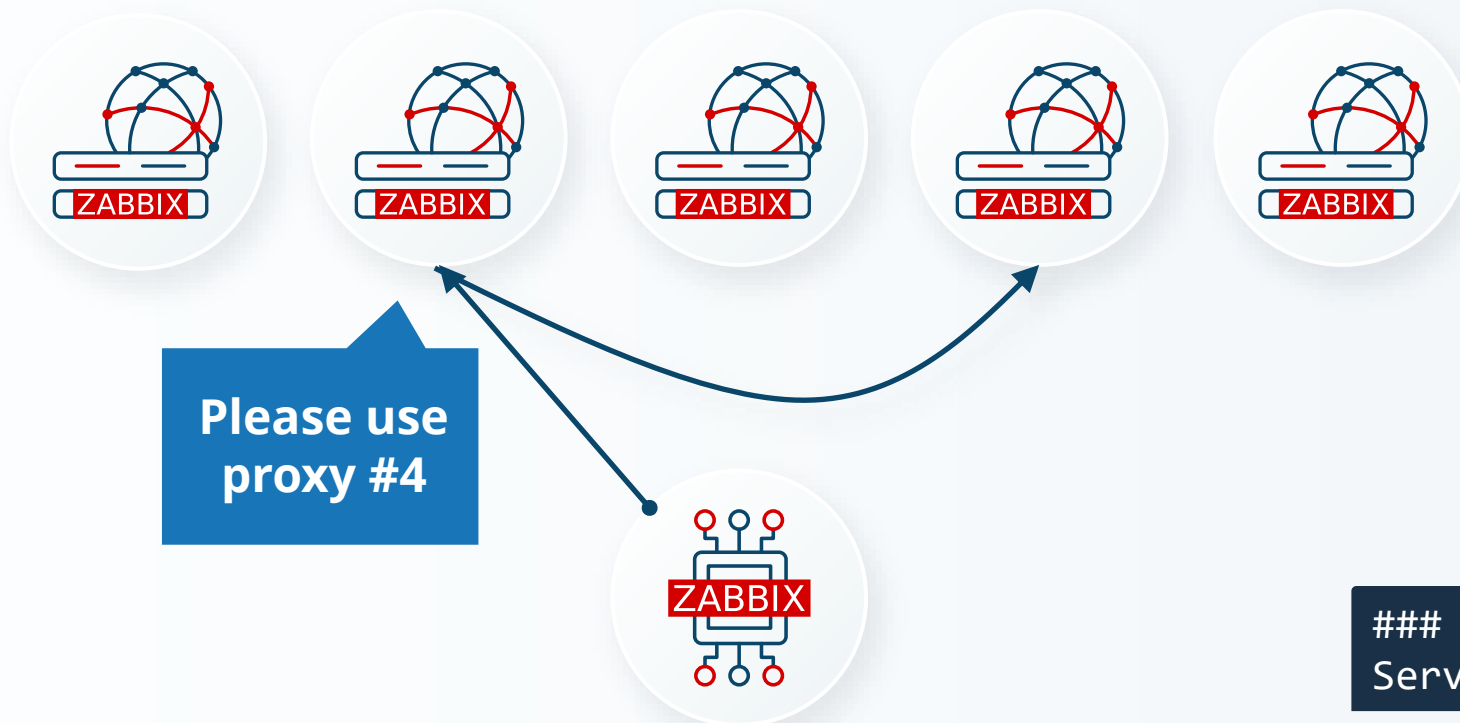


```
### Option: Server  
Server=proxy1,proxy2,proxy3,proxy4,proxy5
```

```
### Option: Server  
Server=192.168.0.1/24
```


A Zabbix agent in active mode uses the ServerActive parameter:

- ▶ Multiple proxies can be specified using semicolons
- ▶ It is not required to specify all members of the proxy group
- ▶ Any proxy group member can redirect Zabbix agent to the currently assigned proxy

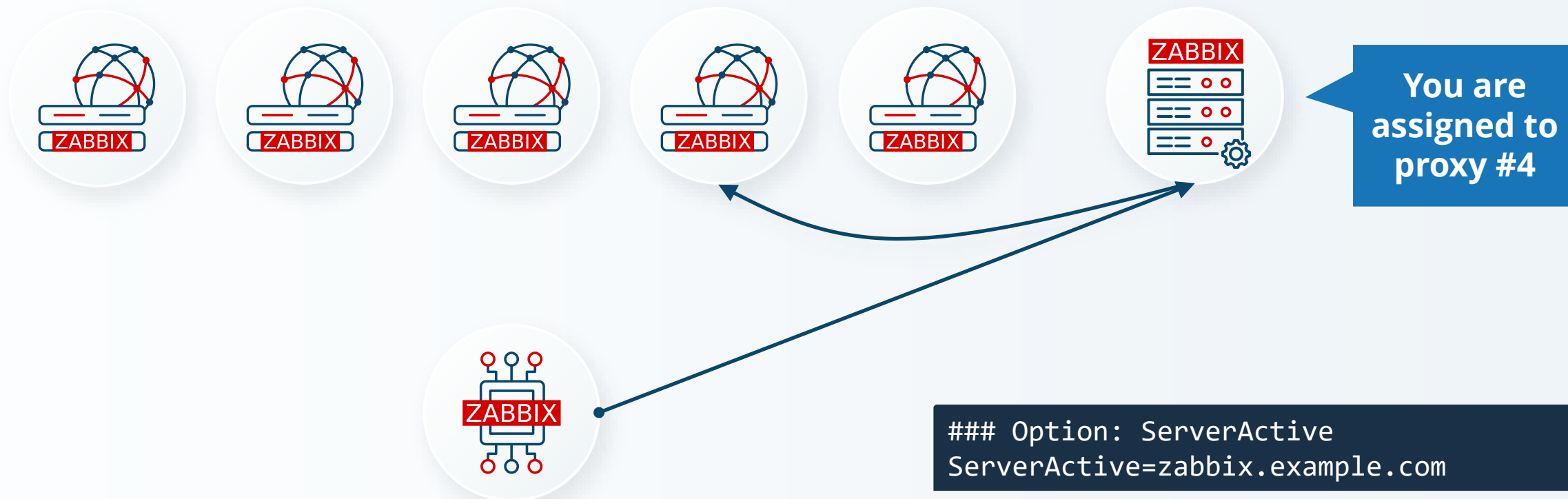


```
{  
  "response": "failed",  
  "redirect": {  
    "address": "192.168.0.5:10051",  
    "revision": 41846  
  }  
}
```

```
### Option: ServerActive  
ServerActive=proxy2;proxy3
```

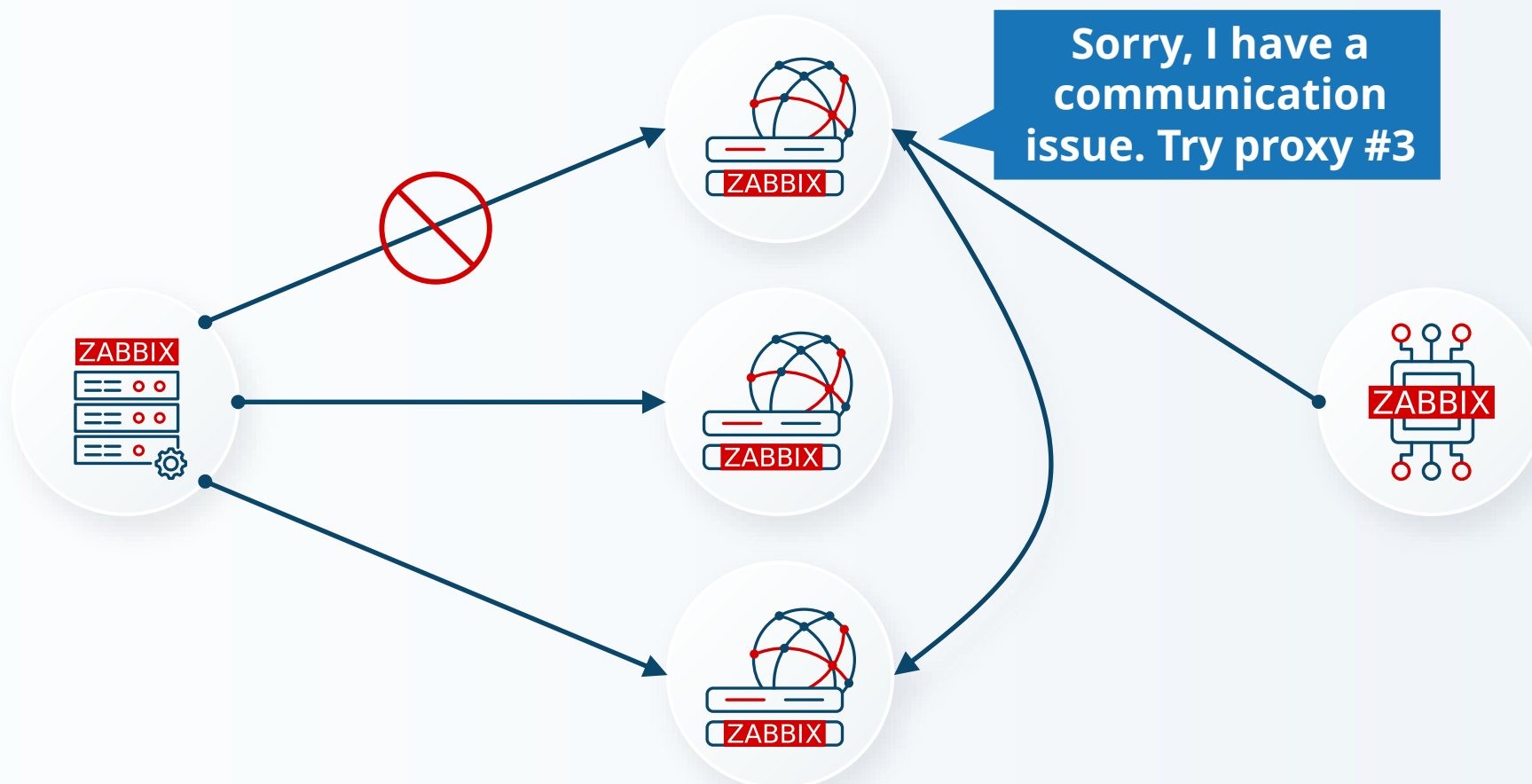
It is even possible to use the Zabbix server for redirection to the assigned proxy:

- ▶ Specify the Zabbix server address instead of proxy addresses
- ▶ The proxy group manager knows all hosts and assigned proxies and will redirect agent



If a Proxy loses network connection to Zabbix server but is still running:

- ▶ Proxy manager on Zabbix server will automatically reassign hosts
- ▶ Proxy marks itself as offline and will redirect agent in active mode to other proxies



The proxy group is considered unbalanced if the following conditions are met:

- ▶ The number of hosts assigned to a proxy differs from the average by twice or more
- ▶ Difference is not less than 10 hosts
- ▶ Hosts exceeding the average are unassigned from proxies
- ▶ The unassigned hosts are then assigned to proxies with fewer hosts



20



30



60



20



15

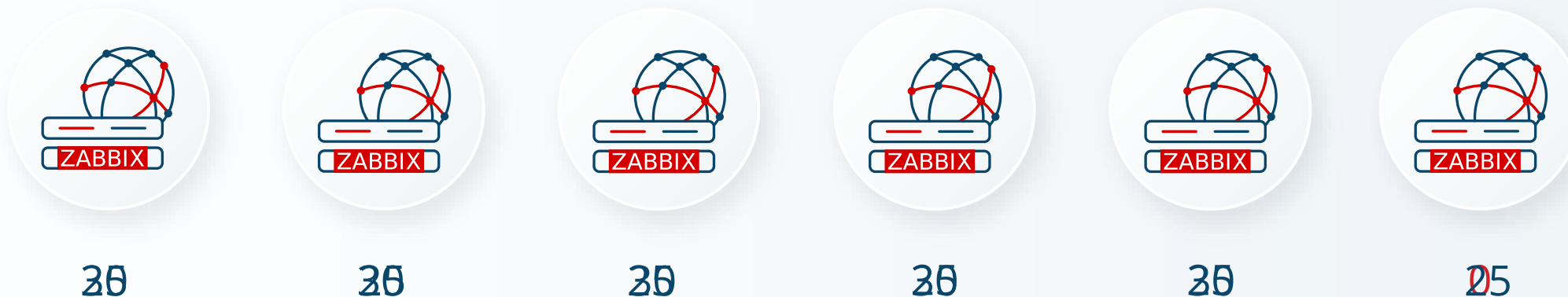
Average = 30

Unbalanced
60 / 30 = 2

Unbalanced
15 / 30 = 0.5

When a new proxy is added, the group is automatically rebalanced

- ▶ New average is calculated
- ▶ Excess hosts are unassigned
- ▶ Unassigned hosts are reassigned between proxies



New average = 25

All proxies are healthy

<input type="checkbox"/> Name ▲	Mode	Encryption	State	Version	Last seen (age)	Item count	Required vps	Hosts
<input type="checkbox"/> Netherlands: Amsterdam	Active	None	Online	7.0.0	1s	0	0	9 cormcwnvjf, julyaeamvm, kwonexbfo, luubeylbrp, mbxedmwkcq, orjiovnwag, svltizwivo, uxbrgeklib, zfgeczgbfi
<input type="checkbox"/> Belgium: Antwerp	Active	None	Online	7.0.0	1s	0	0	10 aoktdjalvu, bmlrffgnq, cbbinfrfxa, fcwvighhar, hmsacleftf, npdjgrtmam, pajwxsgfdx, rpjvgciqb, rqojamcld, tdkzrxuoa
<input type="checkbox"/> Belgium: Brussels	Active	None	Online	7.0.0	0	0	0	10 akkhikymsh, bsiltqonin, fygverbaio, gwujetdrmp, jbzwrmlixo, mbmqjtinaon, mcnixomqxs, pevtdqrfz, wkqzilxufv, wzrxsvpcy
<input type="checkbox"/> Belgium: Charleroi	Active	None	Online	7.0.0	1s	0	0	10 bpbzfzazqk, eknnoecjs, gktfsgxdwv, lwzenksgzc, nrrotkblrd, nuuomjrbif, rdczogefml, rohivzyvzb, ryceazjkzn, uaskdvxgzh
<input type="checkbox"/> Netherlands: Den Haag	Active	None	Online	7.0.0	1s	0	0	9 berevklbno, dbdqvchfhe, mkjnsffnuj, mmhlibkwypx, pgigbmneyz, rmapsbfkxh, ulbucvidhq, wxxceotjsd, xdjinsdmi
<input type="checkbox"/> Belgium: Dikkebus	Active	None	Online	7.0.0	1s	0	0	10 bgzndcutbr, dkohrkioax, exomgilcfu, grmqgxrydz, josecszem, nxneljdmcq, phcbvrgits, tyztgkrhkp, ysvpiwujty, zsgjnrxydc
<input type="checkbox"/> Netherlands: Eindhoven	Active	None	Online	7.0.0	1s	0	0	9 bqoueybtpb, csgghzzfce, gdzcuqwut, mtfdpzbne, ngtoamqzje, syrdowzjc, usagtuytvv, uxayguflqf, ylsnsbdoju
<input type="checkbox"/> Belgium: Eupen	Active	None	Online	7.0.0	1s	0	0	10 gokafkopbx, hjuvezqifp, jincooxix, jitawibijr, jnwuaqzcsx, omhgtjtjtpq, qrxymrmvbr, wnnpeecpov, wxmursoevk, ywjmrurwepk
<input type="checkbox"/> Belgium: Ghent	Active	None	Online	7.0.0	1s	0	0	10 bzyzndpsgz, dhsitmetl, frjagismic, greegknnam, lxryqmwdyu, nugkemydhp, nyhxcuegq, rlsmljmjq, wjkuaesgz, wsvvnzpbtb
<input type="checkbox"/> Netherlands: Haarlem	Active	None	Online	7.0.0	1s	0	0	10 bpctjjtcfu, bzxkrxfbya, gfbblfuoi, kneokmihfs, ltbueedg, oitdbaupf, rifnznmmfa, rqxagbispi, uxhalmpphv, zwdlgmwskn
<input type="checkbox"/> Netherlands: Harderwijk	Active	None	Online	7.0.0	1s	0	0	9 boboqspnxf, dapqqmgfq, ilvzyysndw, kamvjpvgea, nilxrtmzl, oqmoceiaz, qwhihadnm, sbrgabppli, yezyfpbrja
<input type="checkbox"/> Luxembourg: Luxembourg	Active	None	Online	7.0.0	1s	0	0	18 aelswaqxs, akofwctzrg, bawdqkakkz, bpwtdobqsa, ftetwaadqw, jgzszxtgwg, ogcqfoshcw, pomdwwvfj, ssqdejehivq, uffsjqxqfi, uycvc
<input type="checkbox"/> Netherlands: Maaskantje	Active	None	Online	7.0.0	1s	0	0	9 cgnkwrklpi, ezyxkdhpih, hxxhehqahe, jrqqvunucm, sdeflnujgx, vkqdmgyfeu, xfbzsvzuao, xsfetiocr, ysephncsvm
<input type="checkbox"/> Netherlands: Maastricht	Active	None	Online	7.0.0	1s	0	0	9 afwfsikbel, fdscwcbphc, jjoqncndu, mjsnvpugo, pavkbaopdo, qerbvpkhtn, ropskeqada, sgjggfnad, yakphkewe
<input type="checkbox"/> Netherlands: Rotterdam	Active	None	Online	7.0.0	1s	0	0	9 bshuixavrv, eocuxzntr, fkdaxthoel, hdyxyvdkx, hqaabesdmp, sytyotdphb, tliqantvyj, ymhznhdix, vnzstxdmj
<input type="checkbox"/> Belgium: Tournai	Active	None	Online	7.0.0	1s	0	0	10 ajmpdifwpr, hqwpnfxsa, hxiqnywgqr, istekwjwkg, jqtvtumov, othcqmromt, qmhcfmygfm, spgvlssnfp, sqgpxhjugt, tkrgeipezs
<input type="checkbox"/> Luxembourg: Troisvierges	Active	None	Online	7.0.0	1s	0	0	17 azlzwgpzir, csqjyyzmcg, edrwnondhu, elqkdqppk, fnnelozjks, gevjtbralv, ihgcrtmils, iifyacqvhd, mblquikctw, sbxqfciye, spbdwhw
<input type="checkbox"/> Netherlands: Utrecht	Active	None	Online	7.0.0	1s	0	0	9 ecdvfhiamt, ewfrankjnm, gmlewnagim, kscaykzszm, olcvomtzpg, quhvfunaw, rvyttqgcx, tiuxurcngb, wfurxmgcmn
<input type="checkbox"/> Netherlands: Zaanstad	Active	None	Online	7.0.0	1s	0	0	9 brseaefsw, dgeypajru, micgrpzbuz, mmacmwxcma, odefjfunbe, oufcwepohv, sjzcddkupe, ummjrdpzjm, wabzkgghioo
<input type="checkbox"/> Netherlands: Zierikzee	Active	None	Online	7.0.0	1s	0	0	9 cyviwbeku, czitbddnqn, gmncdqyvi, iohreqcbjm, nspnaryvv, nuttnjkuef, prmtzbbrmw, tdmuokbehf, zktmllwxx

A proxy went offline

<input type="checkbox"/> Name ▲	Mode	Encryption	State	Version	Last seen (age)	Item count	Required vps	Hosts
<input type="checkbox"/> Netherlands: Amsterdam	Active	None	Offline	7.0.0	1m 10s	0	0	
<input type="checkbox"/> Belgium: Antwerp	Active	None	Online	7.0.0	6s	0	0	10 aoktdjalvu, bmlrffignq, cbbinfrfa, fcwvighar, hmsacleff, npdjgrtmam, pajwxsgfdx, rpjvgciqb, rqojamcitr, tdkzrxuoa
<input type="checkbox"/> Belgium: Brussels	Active	None	Online	7.0.0	6s	0	0	10 akkhikymsh, bsiltqonin, fygverbaio, gwujetdmp, jbzwrmlixo, mbmqjtinaon, mcnixomqxs, pevtdqrfz, wkqzilxufv, wzrxsvpcy
<input type="checkbox"/> Belgium: Charleroi	Active	None	Online	7.0.0	6s	0	0	10 bpbfzzazqk, eknnoecjs, gktsfgxdwv, lwzenksgzc, nrrotkblrd, nuuomjrbif, rdczogefml, rohivyzvzb, ryceazjkzn, uaskdvxgzh
<input type="checkbox"/> Netherlands: Den Haag	Active	None	Online	7.0.0	6s	0	0	10 berevklbno, dbdqvchfhe, mbxedmwkcq, mkjnsffnui, mmhikbwypx, pgigbmneyz, rmapsbfkxh, ulbucvidhq, wxxceotjsd, xdjinsdmi
<input type="checkbox"/> Belgium: Dikkebus	Active	None	Online	7.0.0	6s	0	0	10 bgzndcutbr, dkohrkioax, exomgilcfu, grmqgxrydz, josecszem, nxneljdmcq, phcbvrglts, tyztgrhkp, ysvpjwujty, zsgjnrxydc
<input type="checkbox"/> Netherlands: Eindhoven	Active	None	Online	7.0.0	6s	0	0	10 bqoueybtbp, csgfhzzfce, gdzcjuqwut, mtfdpzbbne, ngtoamqzje, syrdowzjzc, usagtuytvv, uxayguflqf, uxbrgeklkb, ylsnsbdoju
<input type="checkbox"/> Belgium: Eupen	Active	None	Online	7.0.0	6s	0	0	10 gokafkopbx, hjuvezqifp, jincooxixc, jitawibjrl, jnwuaqzcsx, omhgttjtpq, qrxymmvbr, wnnpeecpov, wxmursoevk, ywjmruekp
<input type="checkbox"/> Belgium: Ghent	Active	None	Online	7.0.0	6s	0	0	10 bzyzndpsgz, dhsitmetl, frjagismic, greegknam, lxryqmwdyu, nugkemydhp, nyhxcuegq, rslmijmjq, wjkxuaesgz, wsvvzpbtb
<input type="checkbox"/> Netherlands: Haarlem	Active	None	Online	7.0.0	6s	0	0	10 bpctjicfu, bzkwxrxfbya, gfbblfuop, kneokmihfs, lbtbueedg, oitdbaupfl, rifnznmmfa, rxxagbispi, uxhalmpphv, zwdlmgwskn
<input type="checkbox"/> Netherlands: Harderwijk	Active	None	Online	7.0.0	6s	0	0	10 bobopsnpxf, dapqqmgfq, ilvzyysndw, kamvjpega, nlxrtmzll, oqmoceleaz, orjiovnwag, qwhihadnmm, sbrgabppl, yezyfpbrja
<input type="checkbox"/> Luxembourg: Luxembourg	Active	None	Online	7.0.0	5s	0	0	18 aelsfwaqxs, akofwctzrg, bawdqkaklz, bpwtdobqsa, fletwaadqw, jgzszxtgw, ogcqfoshcw, pomdwvffj, ssqdehivq, uffsjqxqfi, uycwcw
<input type="checkbox"/> Netherlands: Maaskantje	Active	None	Online	7.0.0	6s	0	0	10 cgnkwrklpi, ezyxkdhjph, hxxhehqahe, jrqvunucm, kwonexlfo, sdeflnujgx, vkqdmgyfeu, xfbzsvzuao, xsfeticcr, ysephncsvm
<input type="checkbox"/> Netherlands: Maastricht	Active	None	Online	7.0.0	6s	0	0	10 afwfsikbel, cormcwnjfl, fdscwcbphc, jjoqznchdu, mjsrnpuugo, pavkbaopdo, qerbvpkhtn, ropskeqada, sgtjggfnad, yakphkewe
<input type="checkbox"/> Netherlands: Rotterdam	Active	None	Online	7.0.0	6s	0	0	10 bshuixavr, eocuzxnttr, fkdaxfhoel, hdyxyvdpx, hqaabesdmp, svltizwivo, sytyotdphb, tiqantvyj, ymhznhdix, zvnstxdmj
<input type="checkbox"/> Belgium: Tournai	Active	None	Online	7.0.0	6s	0	0	10 ajmpdifwpr, hqwpnfxsa, hxlqnywgqr, istekwjk, jqtuvumov, othcmromt, qmhcfmygfm, spgvssnfp, sqgpxhjujt, tkrgeipezs
<input type="checkbox"/> Luxembourg: Troisvierges	Active	None	Online	7.0.0	6s	0	0	17 azlzwgpir, csqjyzmzg, edronndhu, elqkdqppk, fnnelozjks, gevjtralb, ihgcrqtmis, iifyacqvh, mblquikctw, sbxqficye, spbdwhwo
<input type="checkbox"/> Netherlands: Utrecht	Active	None	Online	7.0.0	6s	0	0	10 ecdvfhlamt, ewfrankjnm, gmlewnagim, julyaeamvm, kscaykzsm, olcomitzpg, quhvfunaw, ryvsttgccx, tiuxurcnbg, wfurxmcmn
<input type="checkbox"/> Netherlands: Zaanstad	Active	None	Online	7.0.0	6s	0	0	10 brseawfsw, dgeypajru, luubeylbr, micgrpzbuz, mmacmwxcm, odeffunbe, oufcwepohv, sjzcddkupe, ummjrdpzm, wabzkhioo
<input type="checkbox"/> Netherlands: Zierikzee	Active	None	Online	7.0.0	6s	0	0	cyviwbeku, czitbddnq, gmncdqyvh, iohreqcbjm, nspnaryvv, nuttnjkeuf, prmtzbbmw, tdmuokbehf, zfgeczgbfi, zktmllwxx

Hosts are redistributed

<input type="checkbox"/> Name ▲	State	Failover period	Online proxies	Minimum proxies	Proxies
<input type="checkbox"/> Belgium	Online	1m	7	3	7 Antwerp, Brussels, Charleroi, Dikkebus, Eupen, Ghent, Tournai
<input type="checkbox"/> Luxemburg	Online	1m	2	1	2 Luxembourg, Troisvierges
<input type="checkbox"/> Netherlands	Online	1m	11	5	11 Amsterdam, Den_Haag, Eindhoven, Haarlem, Harderwijk, Maaskantje, Maastricht, Rotterdam, Utrecht, Zaanstad, Zierikzee

Displaying 3 of 3 found

<input type="checkbox"/> Name ▲	State	Failover period	Online proxies	Minimum proxies	Proxies
<input type="checkbox"/> Belgium	Online	1m	7	3	7 Antwerp, Brussels, Charleroi, Dikkebus, Eupen, Ghent, Tournai
<input type="checkbox"/> Luxemburg	Online	1m	2	1	2 Luxembourg, Troisvierges
<input type="checkbox"/> Netherlands	Online	1m	6	5	11 Amsterdam, Den_Haag, Eindhoven, Haarlem, Harderwijk, Maaskantje, Maastricht, Rotterdam, Utrecht, Zaanstad, Zierikzee

Displaying 3 of 3 found

<input type="checkbox"/> Name ▲	State	Failover period	Online proxies	Minimum proxies	Proxies
<input type="checkbox"/> Belgium	Online	1m	7	3	7 Antwerp, Brussels, Charleroi, Dikkebus, Eupen, Ghent, Tournai
<input type="checkbox"/> Luxemburg	Online	1m	2	1	2 Luxembourg, Troisvierges
<input type="checkbox"/> Netherlands	Offline	1m	4	5	11 Amsterdam, Den_Haag, Eindhoven, Haarlem, Harderwijk, Maaskantje, Maastricht, Rotterdam, Utrecht, Zaanstad, Zierikzee

Displaying 3 of 3 found

NOTES

Hosts created by LLD rules are pinned to the master host

All proxies are equal, there are no priorities or weights

SNMP traps are not supported

Hosts are autoregistered to a proxy group

Some item types depend on configuration «on the other side» (database checks, external etc)

The ZABBIX logo is displayed in white uppercase letters within a red rectangular box. The background of the slide features a dark blue globe with a network of glowing blue lines and dots, suggesting a global network or data flow.

ZABBIX

Thank you!

Edgars Melderis

Technical support engineer