



RING-ADMINS @ NLNOG.NET

NLNOG RING INTRO

THE PROBLEM

- ▶ Debugging network-related issues between networks can be hard
- ▶ Having vantage points in many different networks can help
- ▶ Having proper debugging tools helps even more!

THE SOLUTION: THE NLNOG RING

- ▶ You provide a (virtual) machine in your network
- ▶ You get shell (SSH) access to machines of all participants in return
- ▶ ... and access to some cool tools to do debugging and testing

MAP: [HTTPS://MAP.RING.NLNOG.NET](https://map.ring.nlno.org.net)
LIST OF NODES: [HTTPS://RING.NLNOG.NET/NODES](https://ring.nlno.org.net/nodes)



NLNOG RING TOOLS

- ▶ **ring-ping**: ping a specified target from a number of RING nodes
- ▶ **ring-trace**: visualise traceroutes to a target from a selection of RING nodes in a diagram
- ▶ **ring-http**: compare answers to HTTP requests to a specified URL
- ▶ **ring-sqa**: alert on sudden changes in the number of other RING nodes that can be reached
- ▶ **ring-all**: perform any available Linux CLI command on a set of nodes and gather all results
- ▶ And of course: there's an extensive set of CLI tools available, for example: **mtr**, **traceroute**, **tcptraceroute**, **ping**, **curl**, **dig**, **python**, etc

TOOL: RING-PING

Ping a target from a random selection of nodes:

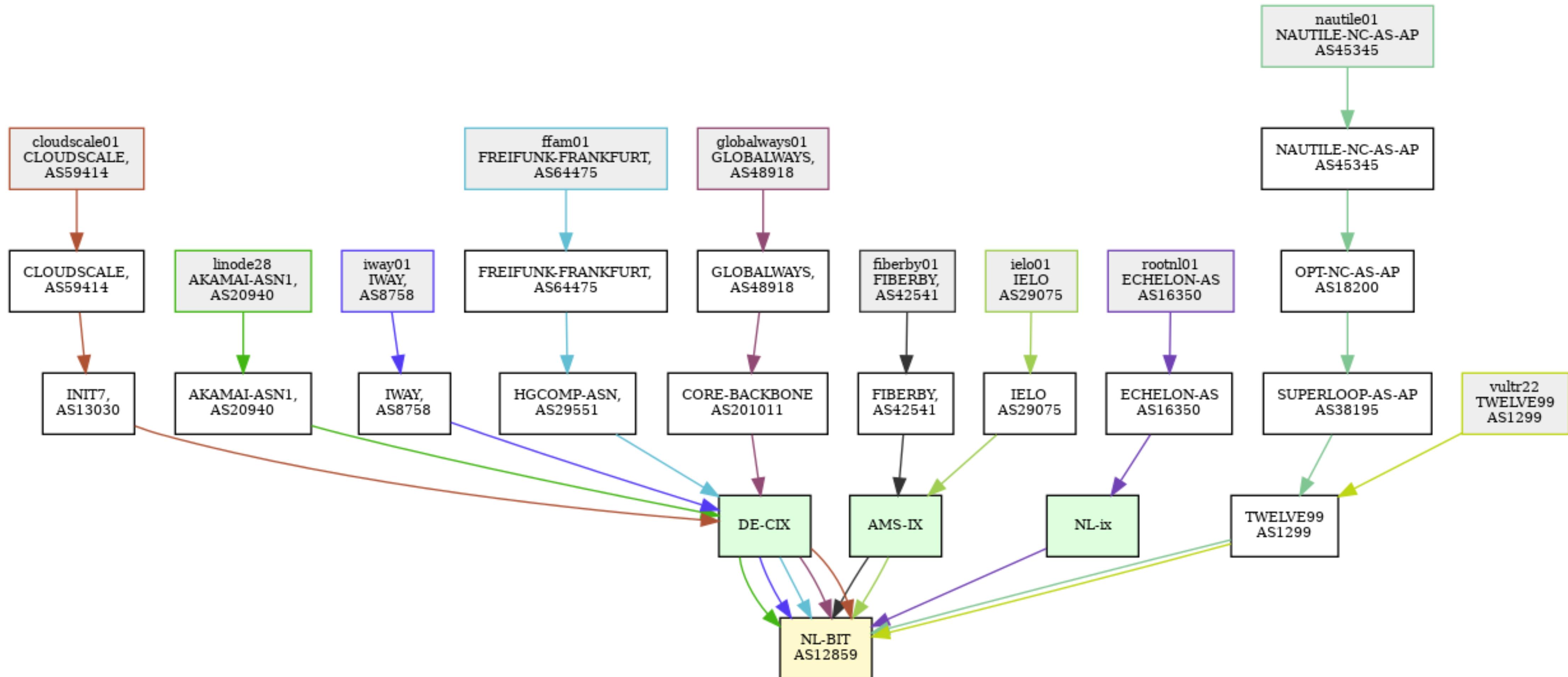
```
teun@bit01:~$ ring-ping -vi -n 25 www.nl nog.net
skyway01: 7.424
amazon14: 8.907
linode20: 1.629
ovh09: 20.183
digitalocean09: 146.617
upcloud05: 25.470
custodian01: 7.609
mfiles01: 29.981
kasenet01: 37.695
amazon06: 146.226
wavex01: 134.818
chaosdarmstadt01: 8.247
sabay01: 213.630
a101: 30.917
cloudvps04: 2.627
uepg01: 208.279
digitalocean06: 13.411
rgnet01: 138.519
upcloud11: 21.702
proxsys01: 1.247
freifunkkr01: 12.249
nynex01: 7.236
datagrouptransit01: 31.785
anexia01: 22.404
ebox01: 90.348
25 servers: 54.77ms average 22.40ms median
teun@bit01:~$
```

```
teun@bit01: ~
teun@bit01: ~ (ssh)
teun@bit01: ~
```

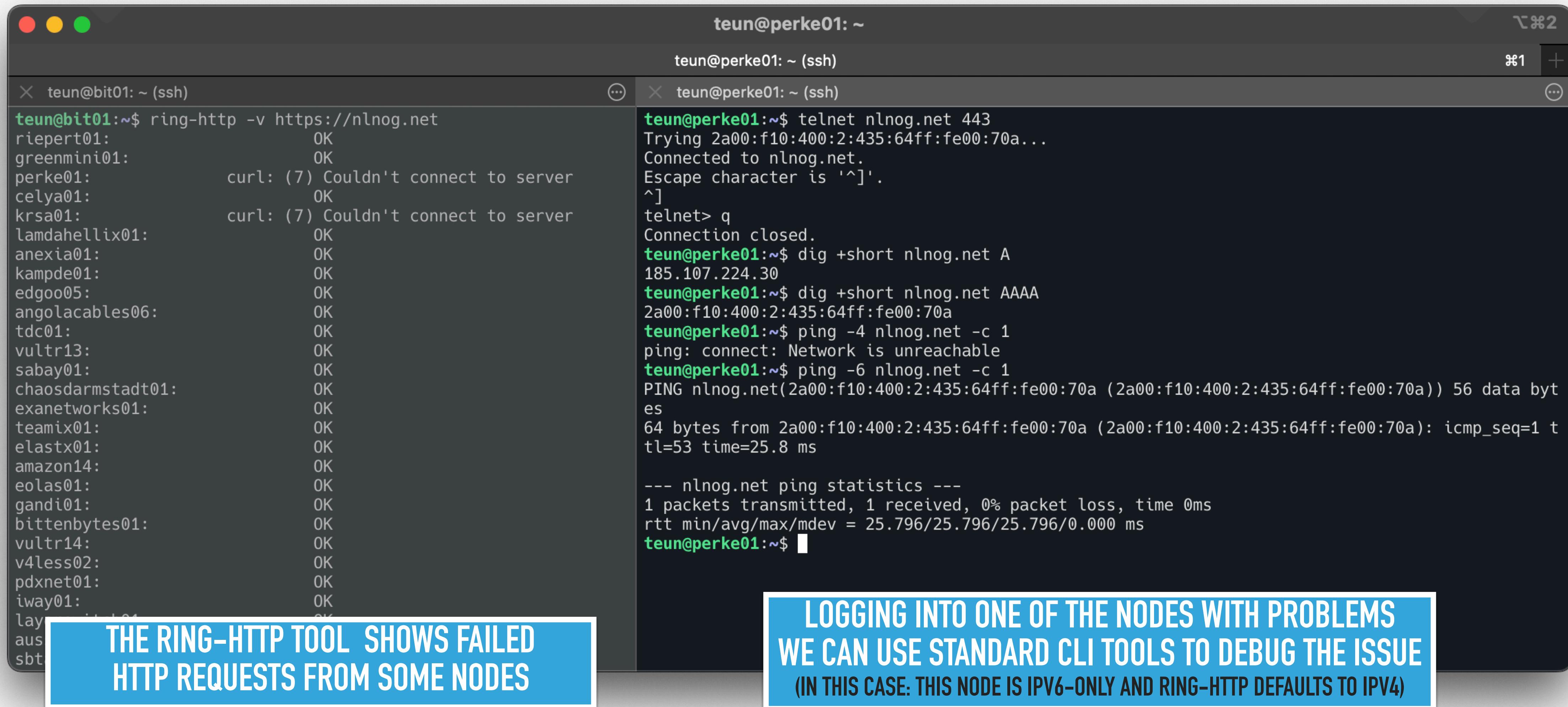
[Germany - AS196763 (ripe ncc, KEY-SYSTEMS-AS Kaiserstrasse 172-174, DE)]
[United Kingdom - AS16509 (arin, AMAZON-02, US)]
[Netherlands - AS63949 (apnic, AKAMAI-LINODE-AP Akamai Connected Cloud, SG)]
[Poland - AS16276 (ripe ncc, OVH, FR)]
[California, United States - AS14061 (arin, DIGITALOCEAN-ASN, US)]
[Netherlands - AS202053 (ripe ncc, UP CLOUD, FI)]
[United Kingdom - AS50300 (ripe ncc, CUSTDC, GB)]
[Finland - AS203602 (ripe ncc, MFILES-AS, FI)]
[Finland - AS199087 (ripe ncc, KASENET, FI)]
[United States - AS16509 (arin, AMAZON-02, US)]
[Kenya - AS;;]
[Germany - AS8365 (ripe ncc, MANDA, DE)]
[Cambodia - AS7712 (apnic, CNE-AS-AP Cambodian Network Exchange Co., Ltd., KH)]
[Bulgaria - AS8717 (ripe ncc, A1, BG)]
[Netherlands - AS35470 (ripe ncc, XL-AS, NL)]
[Brazil - AS53046 (lacnic, UNIVERSIDADE ESTADUAL DE PONTA GROSSA, BR)]
[Germany - AS14061 (arin, DIGITALOCEAN-ASN, US)]
[United States - AS3130 (ripe ncc, RGNET-SEA RGnet Seattle Westin, EE)]
[Poland - AS202053 (ripe ncc, UP CLOUD, FI)]
[Netherlands - AS44858 (ripe ncc, PROXSYS-AS, NL)]
[Germany - AS202329 (ripe ncc, VZFFNRMO, DE)]
[Germany - AS62023 (ripe ncc, NYNEX NYNEX satellite OHG primary AS, DE)]
[Ukraine - AS3326 (ripe ncc, DATAGROUP Datagroup PJSC, UA)]
[Austria - AS42473 (ripe ncc, AS-ANEXIA ANEXIA Internetdienstleistungs GmbH, AT)]
[Canada - AS1403 (arin, EBOX, CA)]

TOOL: RING-TRACE

Perform traceroutes from RING nodes and visualise results:



TOOLS: RING-HTTP AND AN EXTENSIVE LINUX SSH TOOLSET



```
teun@bit01: ~ (ssh)
teun@bit01:~$ ring-http -v https://nl nog.net
riepert01:          OK
greenmini01:        OK
perke01:           curl: (7) Couldn't connect to server
celya01:            OK
krsa01:            curl: (7) Couldn't connect to server
lamdahellix01:     OK
anexia01:          OK
kampde01:          OK
edg005:             OK
angolacables06:    OK
tdc01:              OK
vultr13:            OK
sabay01:            OK
chaosdarmstadt01: OK
exanetworks01:     OK
teamix01:          OK
elastx01:          OK
amazon14:          OK
eolas01:            OK
gandi01:            OK
bittenbytes01:     OK
vultr14:            OK
v4less02:          OK
pdxnet01:          OK
iway01:             OK
lay...             OK
aus...             OK
sbt...             OK

teun@perke01: ~ (ssh)
teun@perke01:~$ telnet nl nog.net 443
Trying 2a00:f10:400:2:435:64ff:fe00:70a...
Connected to nl nog.net.
Escape character is '^]'.
^]
telnet> q
Connection closed.

teun@perke01:~$ dig +short nl nog.net A
185.107.224.30
teun@perke01:~$ dig +short nl nog.net AAAA
2a00:f10:400:2:435:64ff:fe00:70a
teun@perke01:~$ ping -4 nl nog.net -c 1
ping: connect: Network is unreachable
teun@perke01:~$ ping -6 nl nog.net -c 1
PING nl nog.net(2a00:f10:400:2:435:64ff:fe00:70a) (2a00:f10:400:2:435:64ff:fe00:70a) 56 data bytes
64 bytes from 2a00:f10:400:2:435:64ff:fe00:70a (2a00:f10:400:2:435:64ff:fe00:70a): icmp_seq=1 ttl=53 time=25.8 ms

--- nl nog.net ping statistics ---
1 packets transmitted, 1 received, 0% packet loss, time 0ms
rtt min/avg/max/mdev = 25.796/25.796/25.796/0.000 ms
teun@perke01:~$
```

THE RING-HTTP TOOL SHOWS FAILED HTTP REQUESTS FROM SOME NODES

**LOGGING INTO ONE OF THE NODES WITH PROBLEMS
WE CAN USE STANDARD CLI TOOLS TO DEBUG THE ISSUE
(IN THIS CASE: THIS NODE IS IPV6-ONLY AND RING-HTTP DEFAULTS TO IPV4)**

RING NODE REQUIREMENTS

- ▶ A physical or virtual machine running Ubuntu 22.04
- ▶ You represent the ASN hosting the RING node and provide working contact information for this ASN
- ▶ A publicly accessible IPv6 address (and optionally IPv4)
- ▶ At least 20GB disk space and 2GB RAM
- ▶ No firewalling to and from the internet
- ▶ NLNOG RING Admins get full control (sudo access)

MORE INFORMATION, APPLICATION & CONTACT

- ▶ Information and application form: [**https://ring.nlnog.net**](https://ring.nlnog.net)
- ▶ Email: [**ring-admins@nlnog.net**](mailto:ring-admins@nlnog.net)
- ▶ IRC Channel: **#ring** on the IRCNet network
- ▶ Discord Channel: **#ring** on NLNOG's Discord server
([**https://nlnog.net/discord**](https://nlnog.net/discord))
- ▶ Configurations, code and playbooks:
[**https://github.com/nlnog/ring-ansible**](https://github.com/nlnog/ring-ansible)