



RING-ADMINS @ NLNOG.NET

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



700+ NODES  
50+ NETWORKS  
55+ COUNTRIES



# 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:

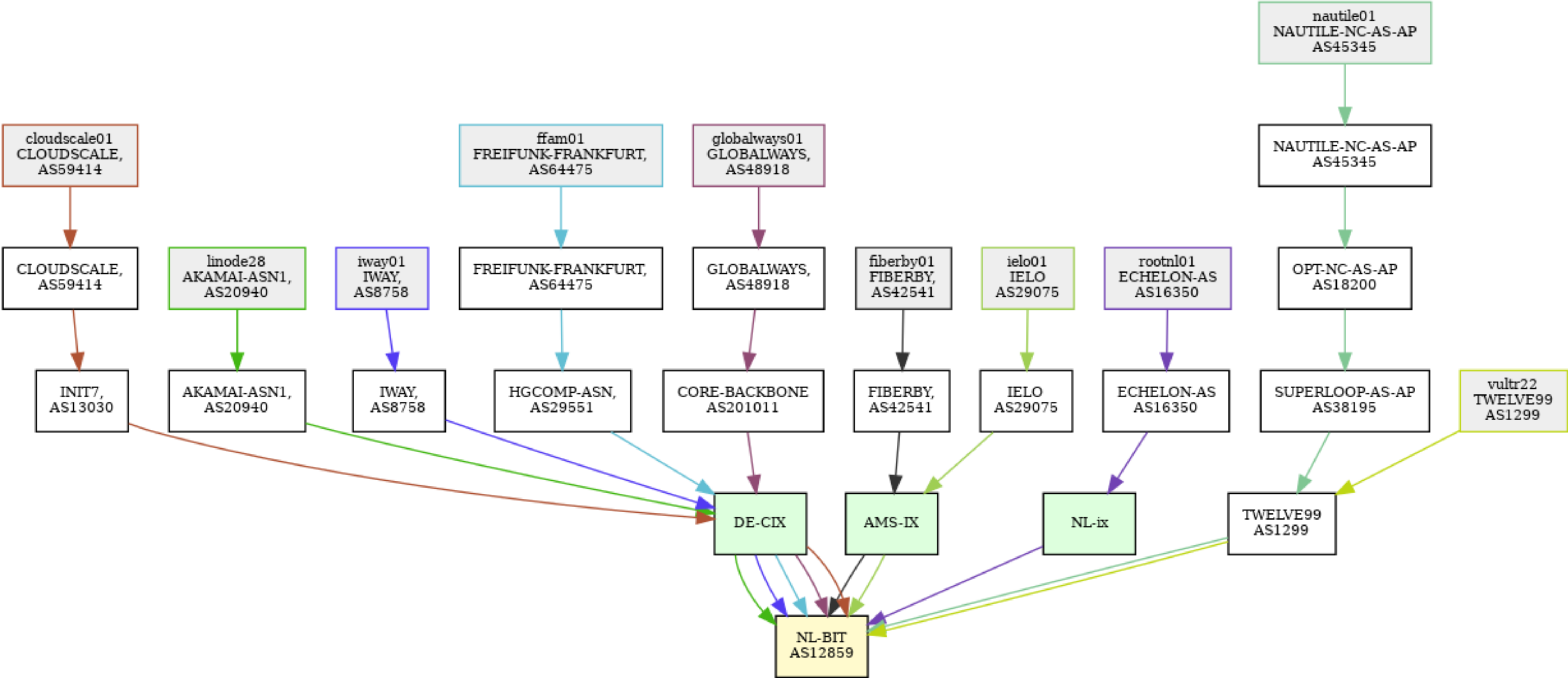
```

teun@bit01: ~
teun@bit01: ~ (ssh)
teun@bit01:~$ ring-ping -vi -n 25 www.nlnog.net
skyway01: 7.424 [ Germany - AS196763 (ripenc, KEY-SYSTEMS-AS Kaiserstrasse 172-174, DE) ]
amazon14: 8.907 [ United Kingdom - AS16509 (arin, AMAZON-02, US) ]
linode20: 1.629 [ Netherlands - AS63949 (apnic, AKAMAI-LINODE-AP Akamai Connected Cloud, SG) ]
ovh09: 20.183 [ Poland - AS16276 (ripenc, OVH, FR) ]
digitalocean09: 146.617 [ California, United States - AS14061 (arin, DIGITALOCEAN-ASN, US) ]
upcloud05: 25.470 [ Netherlands - AS202053 (ripenc, UPCLOUD, FI) ]
custodian01: 7.609 [ United Kingdom - AS50300 (ripenc, CUSTDC, GB) ]
mfiles01: 29.981 [ Finland - AS203602 (ripenc, MFILES-AS, FI) ]
kasenet01: 37.695 [ Finland - AS199087 (ripenc, KASENET, FI) ]
amazon06: 146.226 [ United States - AS16509 (arin, AMAZON-02, US) ]
wavex01: 134.818 [ Kenya - AS;; ]
chaosdarmstadt01: 8.247 [ Germany - AS8365 (ripenc, MANDA, DE) ]
sabay01: 213.630 [ Cambodia - AS7712 (apnic, CNE-AS-AP Cambodian Network Exchange Co., Ltd., KH) ]
a101: 30.917 [ Bulgaria - AS8717 (ripenc, A1, BG) ]
cloudvps04: 2.627 [ Netherlands - AS35470 (ripenc, XL-AS, NL) ]
uepg01: 208.279 [ Brazil - AS53046 (lacnic, UNIVERSIDADE ESTADUAL DE PONTA GROSSA, BR) ]
digitalocean06: 13.411 [ Germany - AS14061 (arin, DIGITALOCEAN-ASN, US) ]
rgnet01: 138.519 [ United States - AS3130 (ripenc, RGNET-SEA RGnet Seattle Westin, EE) ]
upcloud11: 21.702 [ Poland - AS202053 (ripenc, UPCLOUD, FI) ]
proxsys01: 1.247 [ Netherlands - AS44858 (ripenc, PROXSYS-AS, NL) ]
freifunkkr01: 12.249 [ Germany - AS202329 (ripenc, VZFFNRM0, DE) ]
nynex01: 7.236 [ Germany - AS62023 (ripenc, NYNEX NYNEX satellite OHG primary AS, DE) ]
datagrouptransit01: 31.785 [ Ukraine - AS3326 (ripenc, DATAGROUP Datagroup PJSC, UA) ]
anexia01: 22.404 [ Austria - AS42473 (ripenc, AS-ANEXIA ANEXIA Internetdienstleistungs GmbH, AT) ]
ebox01: 90.348 [ Canada - AS1403 (arin, EBOX, CA) ]
25 servers: 54.77ms average 22.40ms median
teun@bit01:~$

```

# 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://nlnog.net

riepert01: OK

greenmini01: OK

perke01: curl: (7) Couldn't connect to server

celya01: OK

krasa01: curl: (7) Couldn't connect to server

lamdahellix01: OK

anexia01: OK

kampde01: OK

edgoo05: 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 nlnog.net 443

Trying 2a00:f10:400:2:435:64ff:fe00:70a...

Connected to nlnog.net.

Escape character is '^]'.

^]

telnet> q

Connection closed.

teun@perke01:~\$ dig +short nlnog.net A

185.107.224.30

teun@perke01:~\$ dig +short nlnog.net AAAA

2a00:f10:400:2:435:64ff:fe00:70a

teun@perke01:~\$ ping -4 nlnog.net -c 1

ping: connect: Network is unreachable

teun@perke01:~\$ ping -6 nlnog.net -c 1

PING nlnog.net(2a00:f10:400:2:435:64ff:fe00:70a (2a00:f10:400:2:435:64ff:fe00:70a)) 56 data byt

es

64 bytes from 2a00:f10:400:2:435:64ff:fe00:70a (2a00:f10:400:2:435:64ff:fe00:70a): icmp\_seq=1 t

tl=53 time=25.8 ms

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nlnog.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>
- ▶ 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>)
- ▶ Configurations, code and playbooks: <https://github.com/nlnog/ring-ansible>