Open NetNorad

Jose Leitao & Daniel Rodriguez | NIE | Dublin

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facebook scale

as of June 2017

1.32 billion daily
active users

2.01 billion monthly
active users

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Loss on the net

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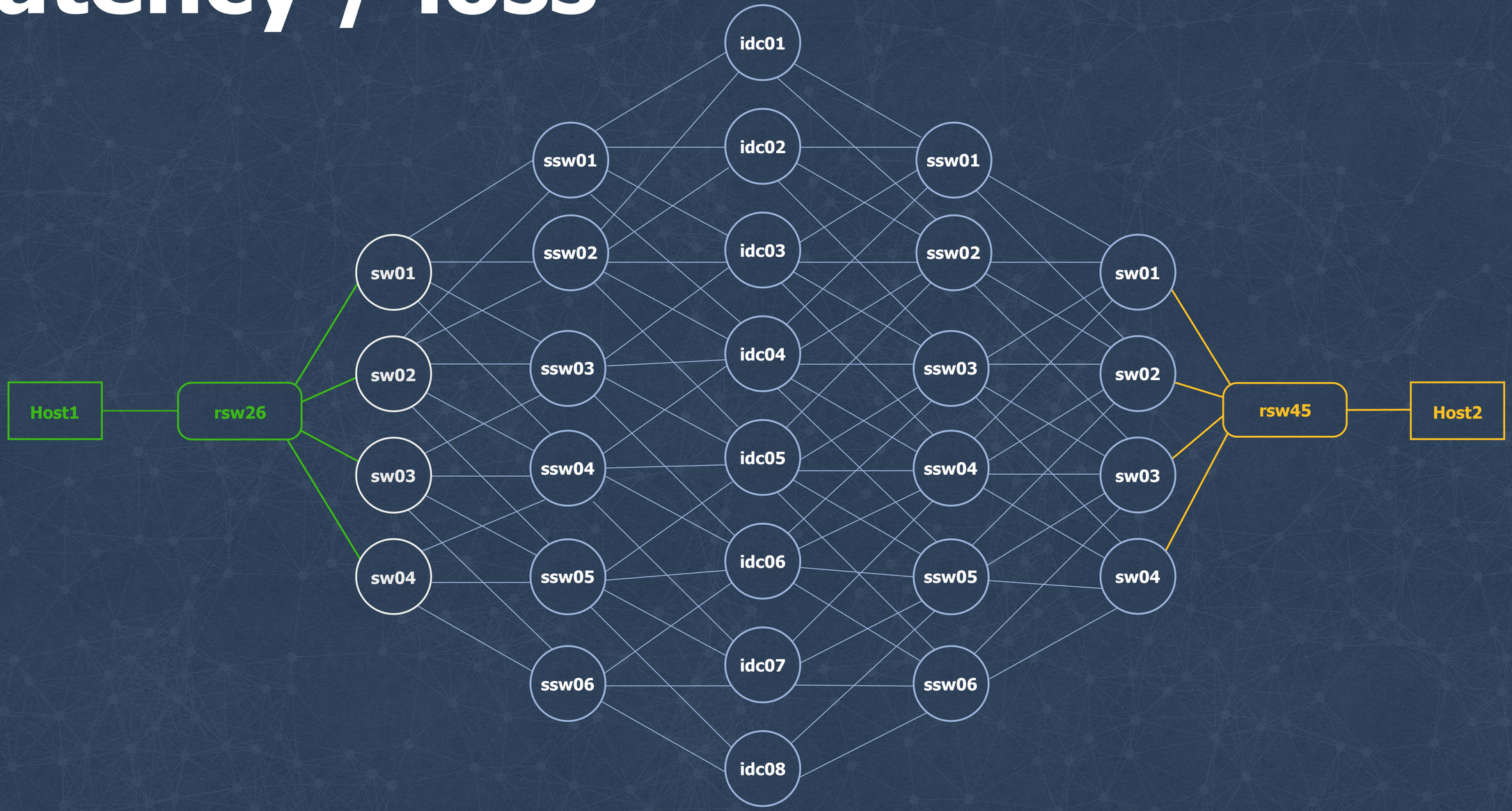
Latency / loss



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NetNORAD

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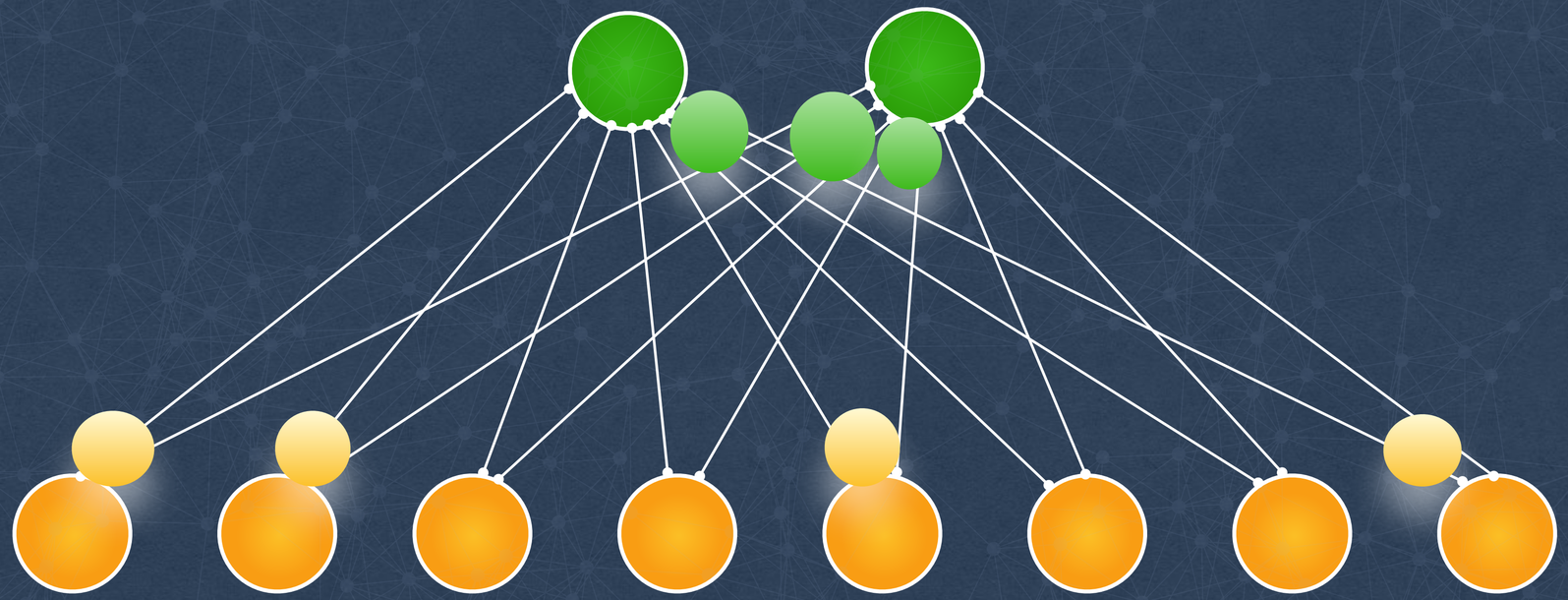
Ping all the things!



Run pingers on some machines

Run responders on all machines

Collect and analyze data

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Evolution

Run /bin/ping from a python agent

Raw Sockets, Fast TCP Probes

Raw Sockets, Fast ICMP Probes

UDP Probes and Responder

UDP Probes and Responder + Fast ICMP Probes

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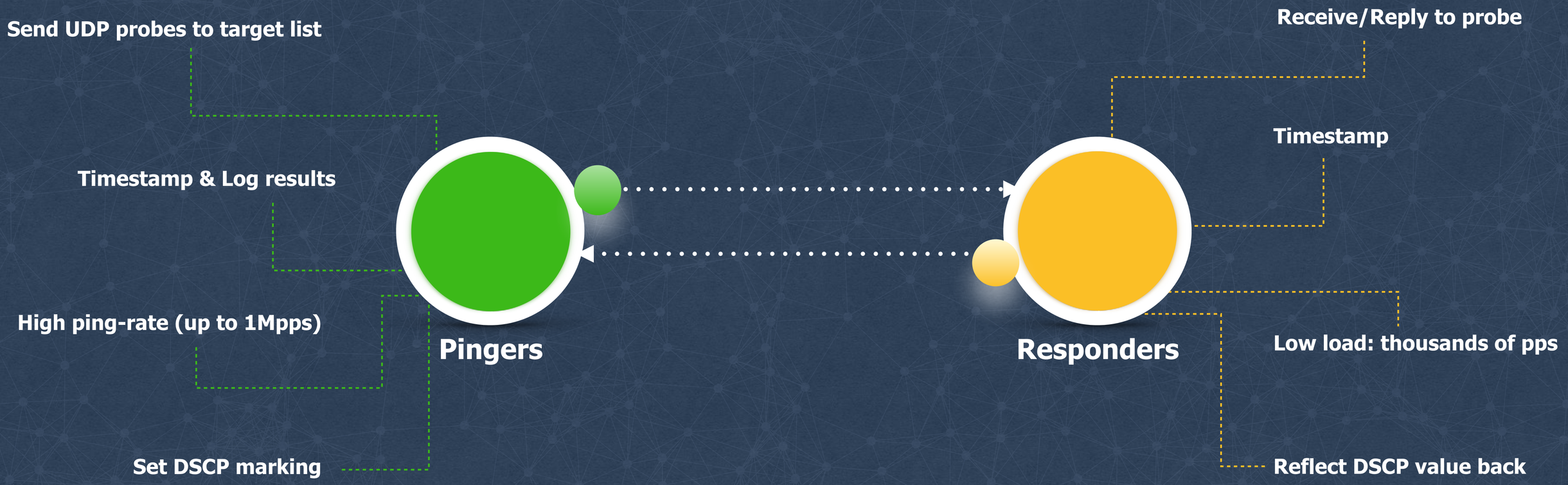
Pinger and responder



github.com/facebook/UdpPinger

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Why UDP?

- No TCP RST packets
- Efficient ECMP coverage
- Extensible

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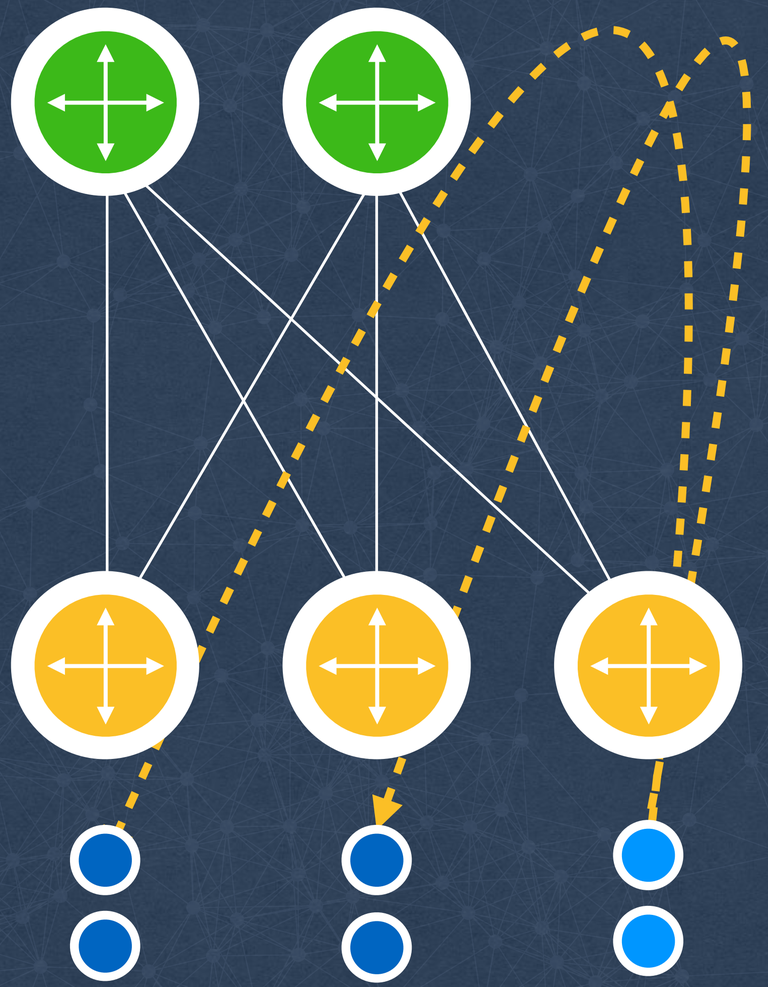
UoL - Pinging inside clusters



Detect issues with rack switches

Dedicated pingers per cluster

Probe ALL machines in cluster

Store time-series per host/rack

Lags real-time by 2 minutes

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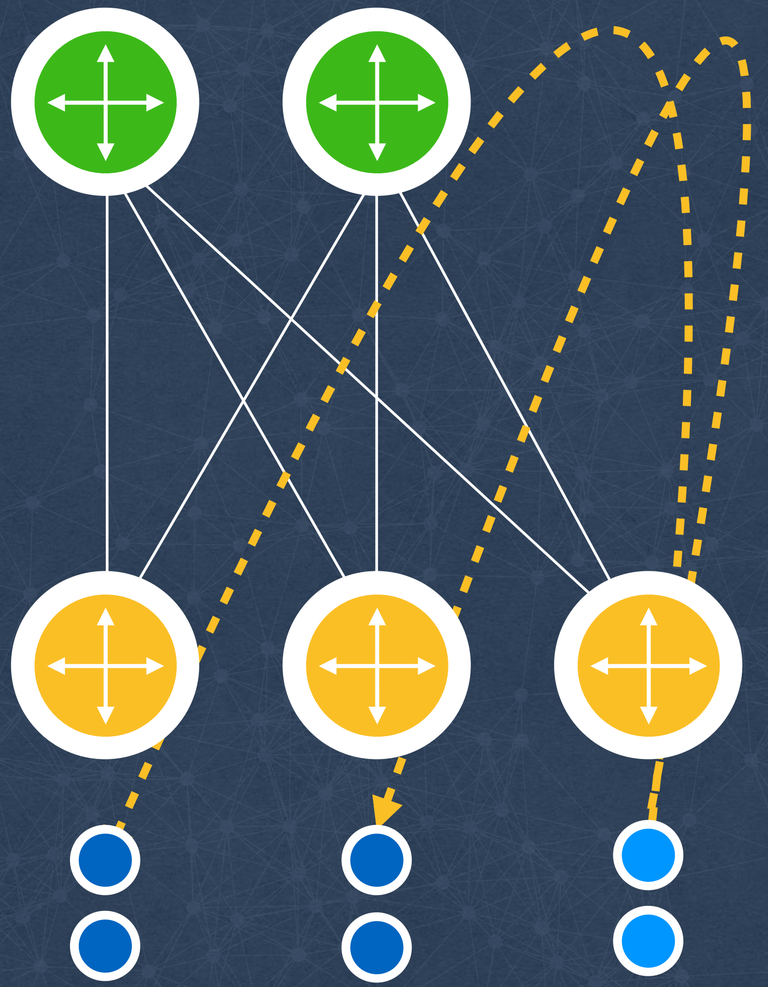
Pinging inside clusters



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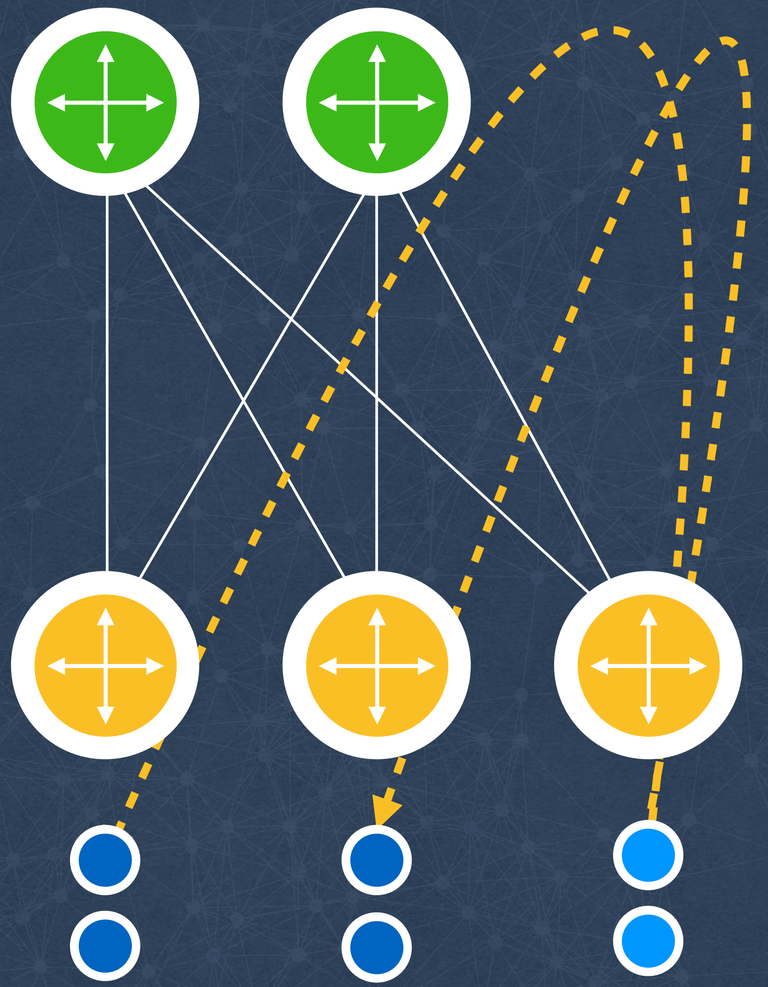

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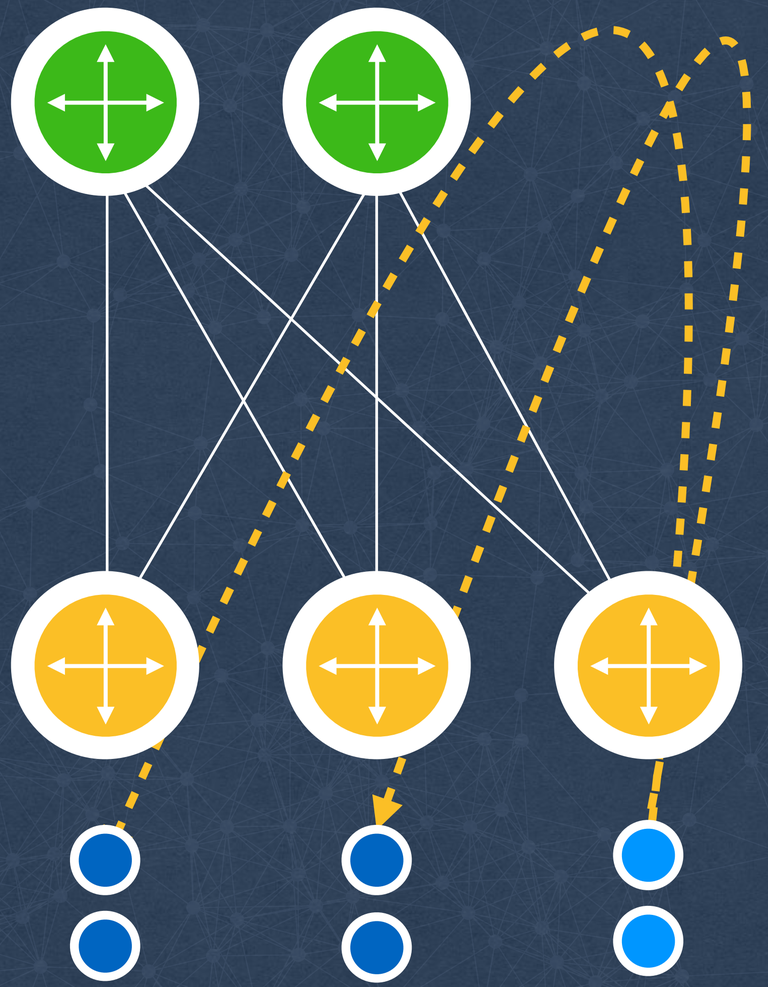

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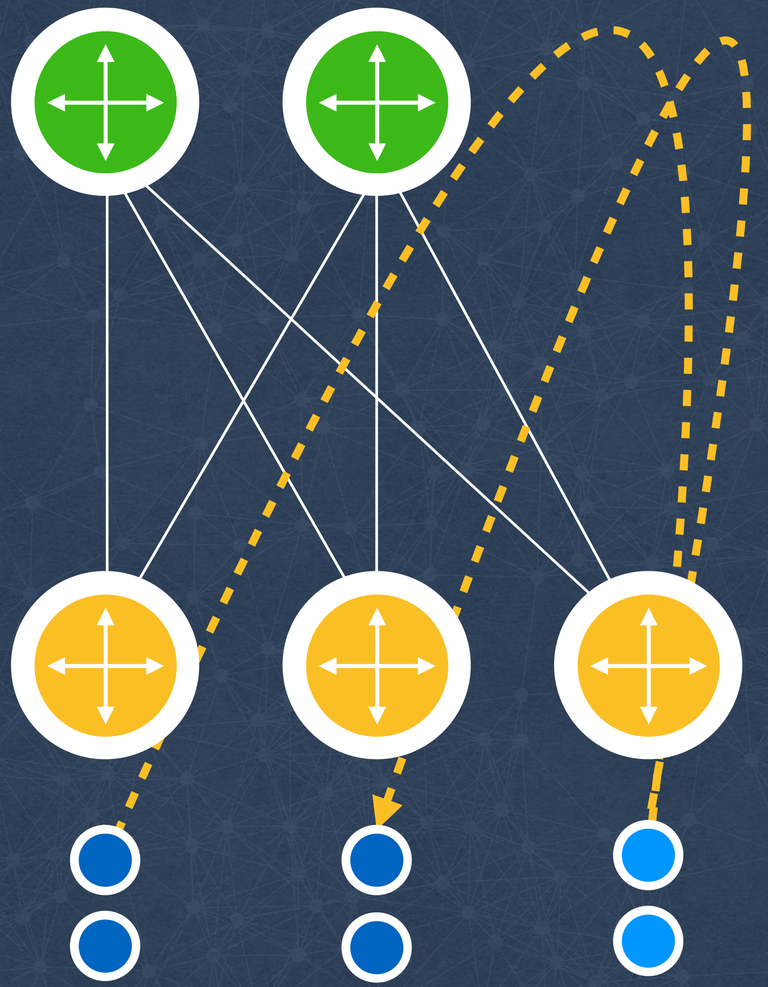

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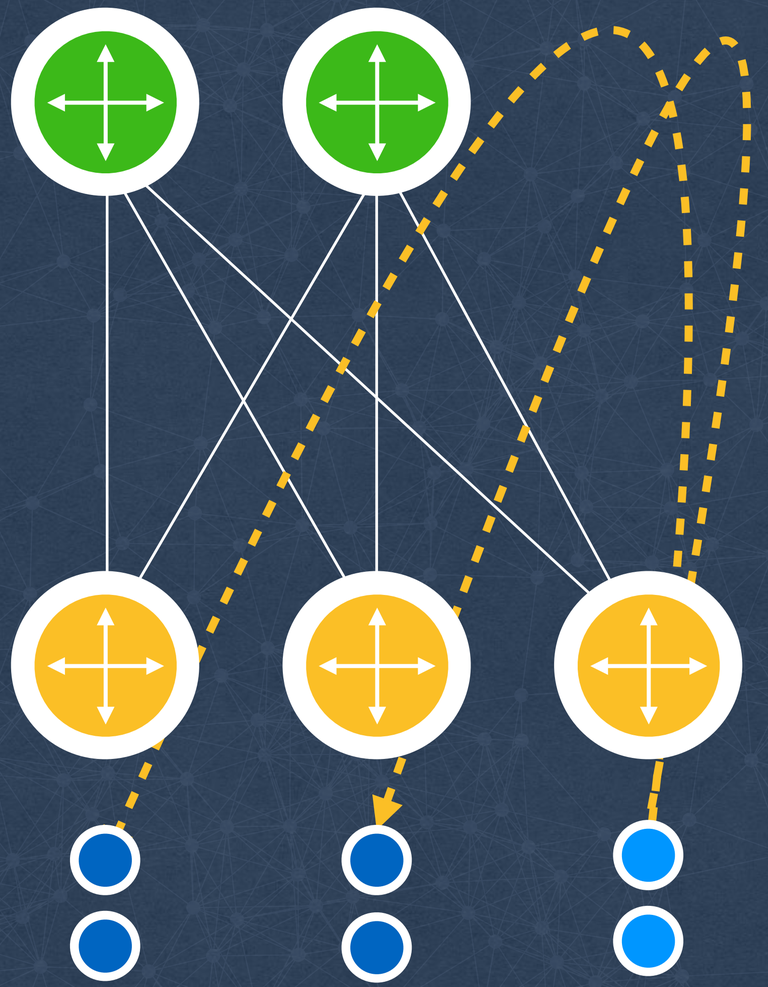

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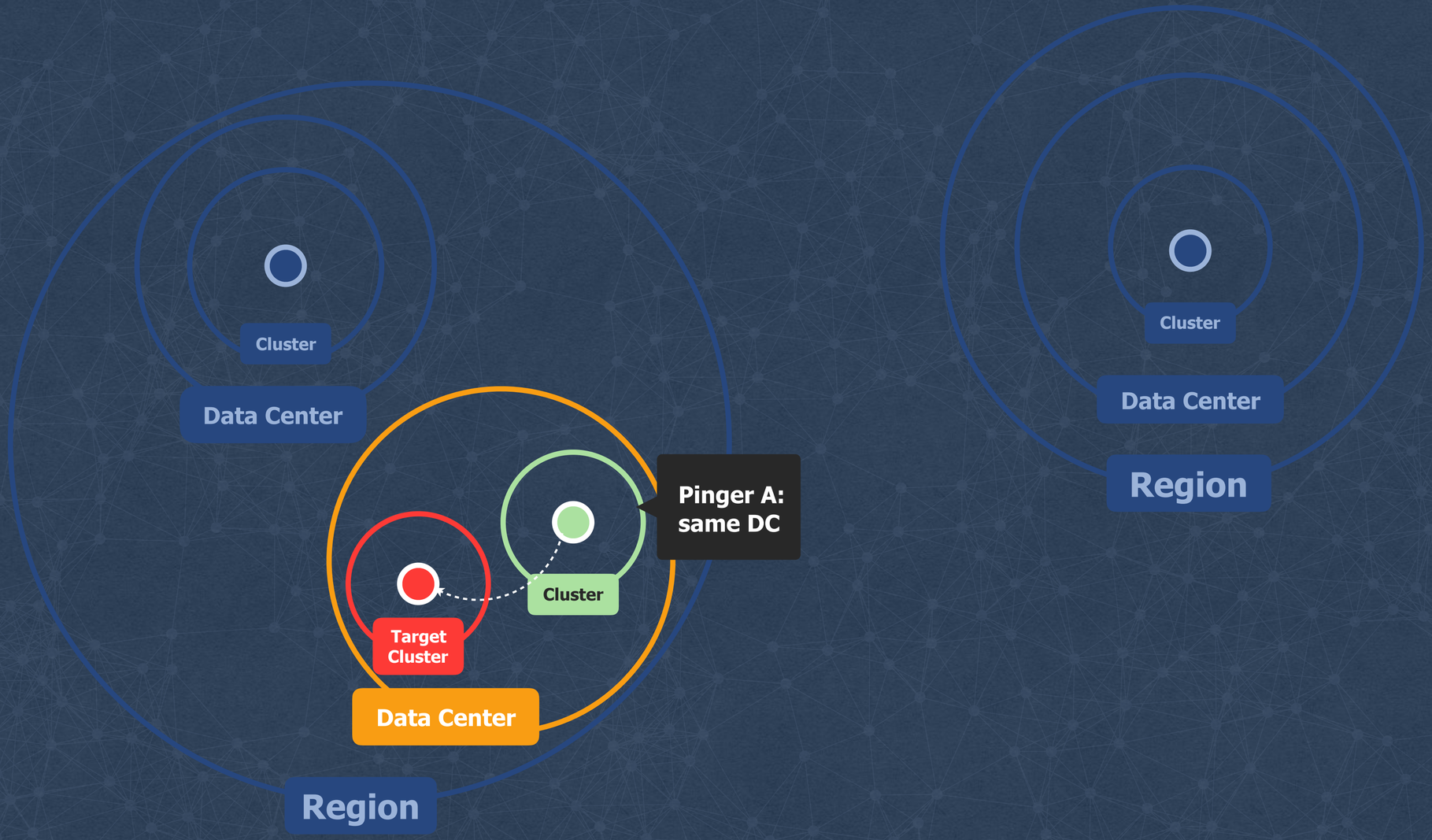
Pinging the clusters



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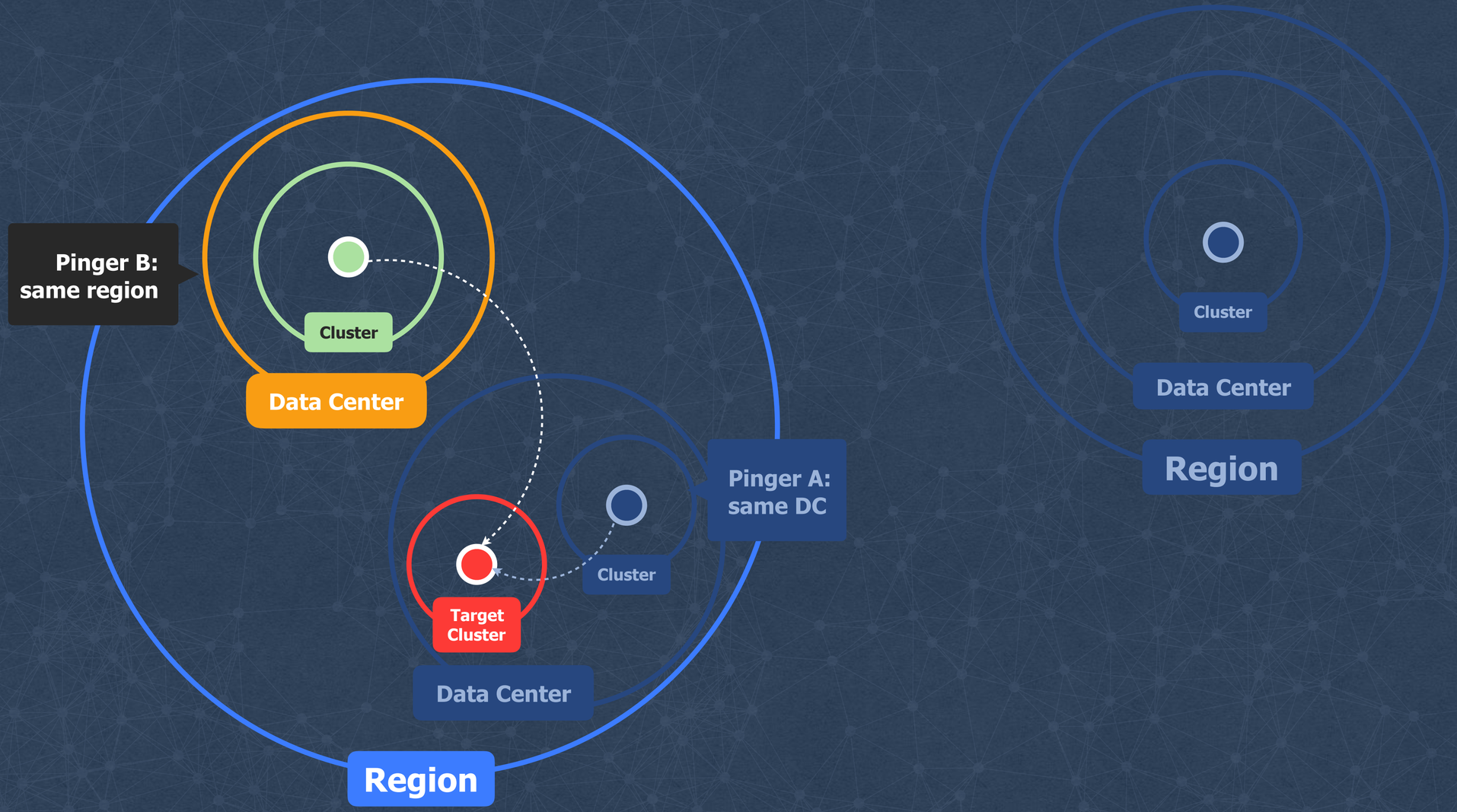

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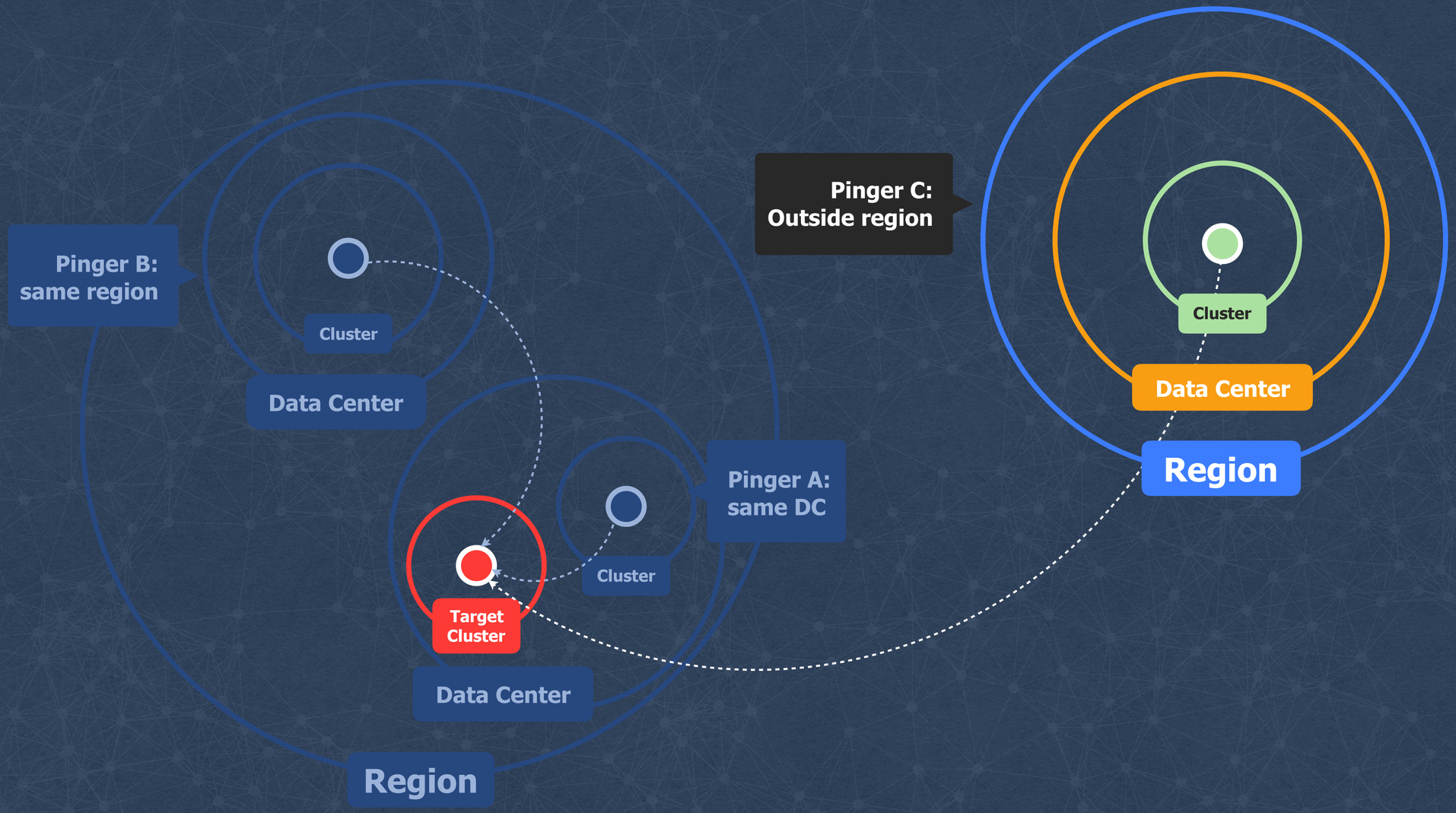

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Building an Open Source version

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github.com/facebook/UdpPinger

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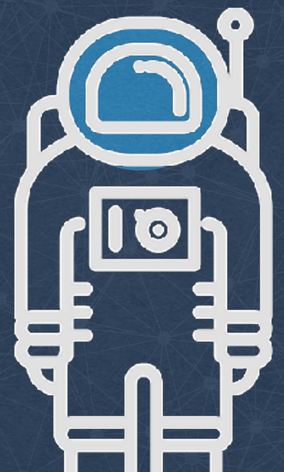
Our solution

Pingers

Host (cron)

Host (cron)

Pongers



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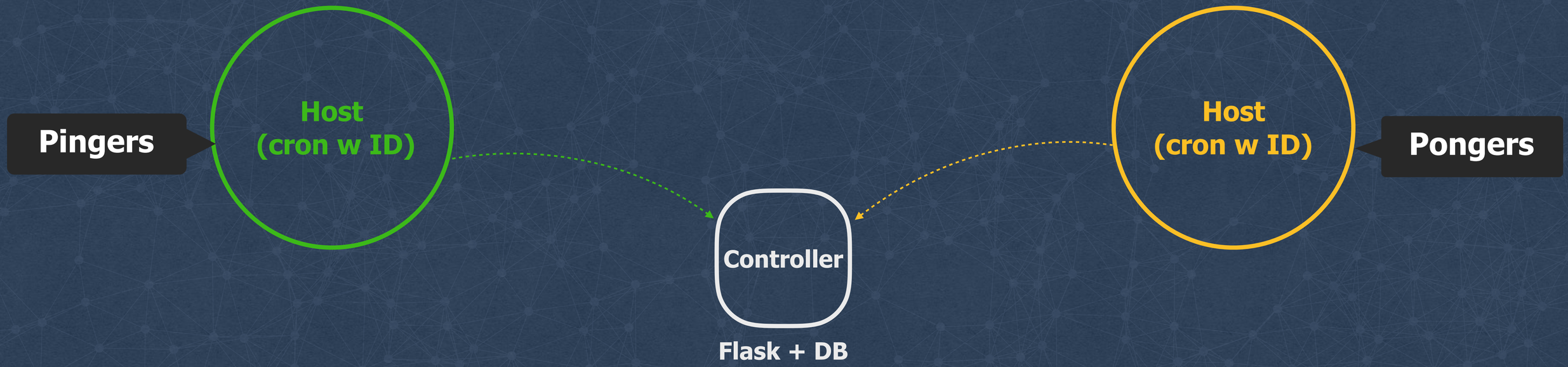

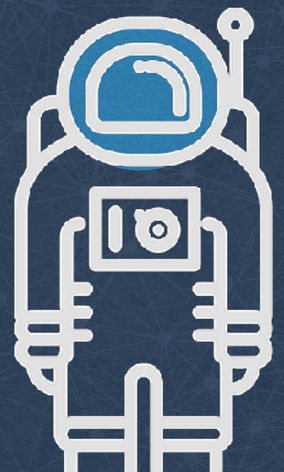

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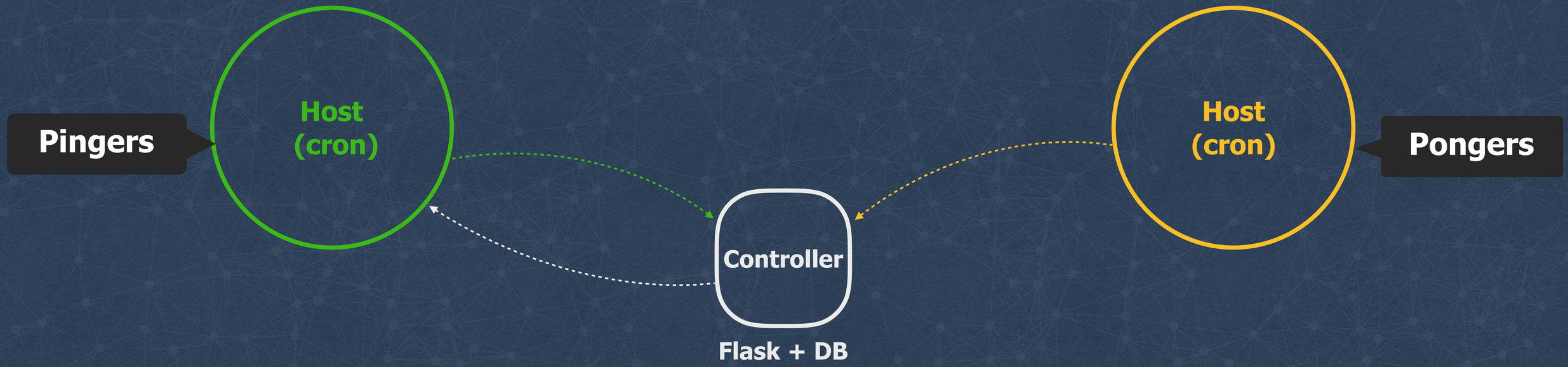

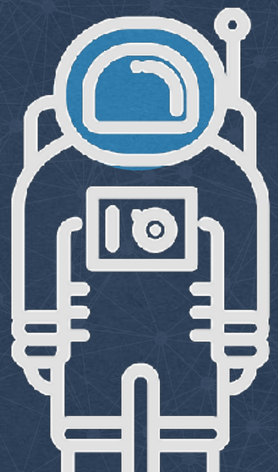

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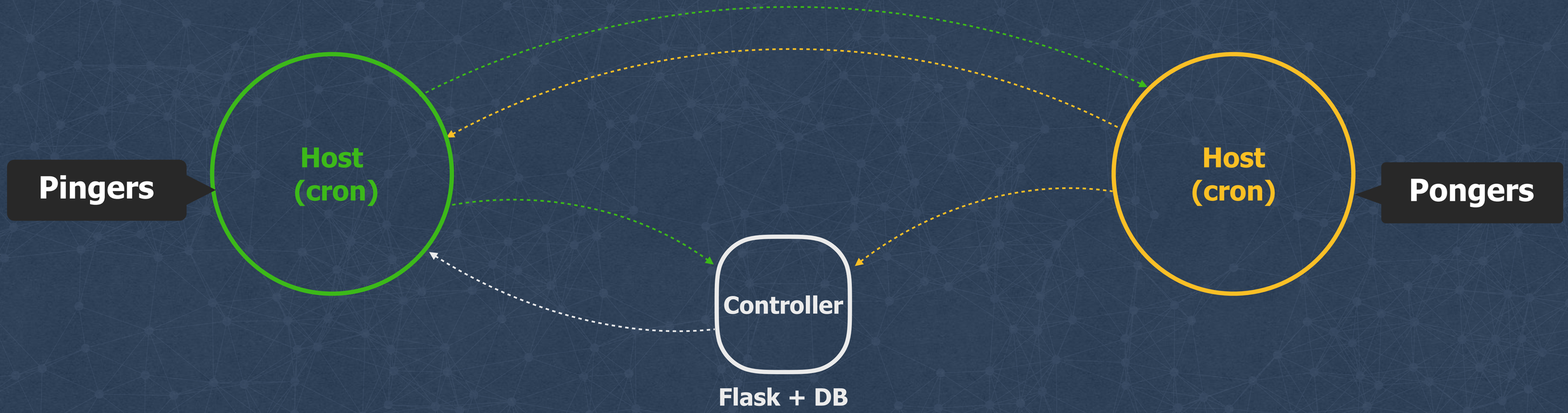

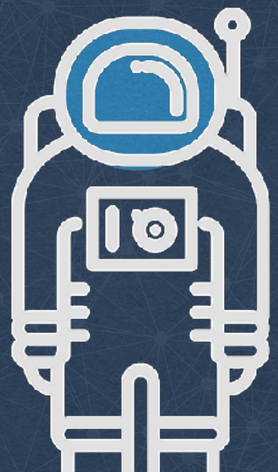

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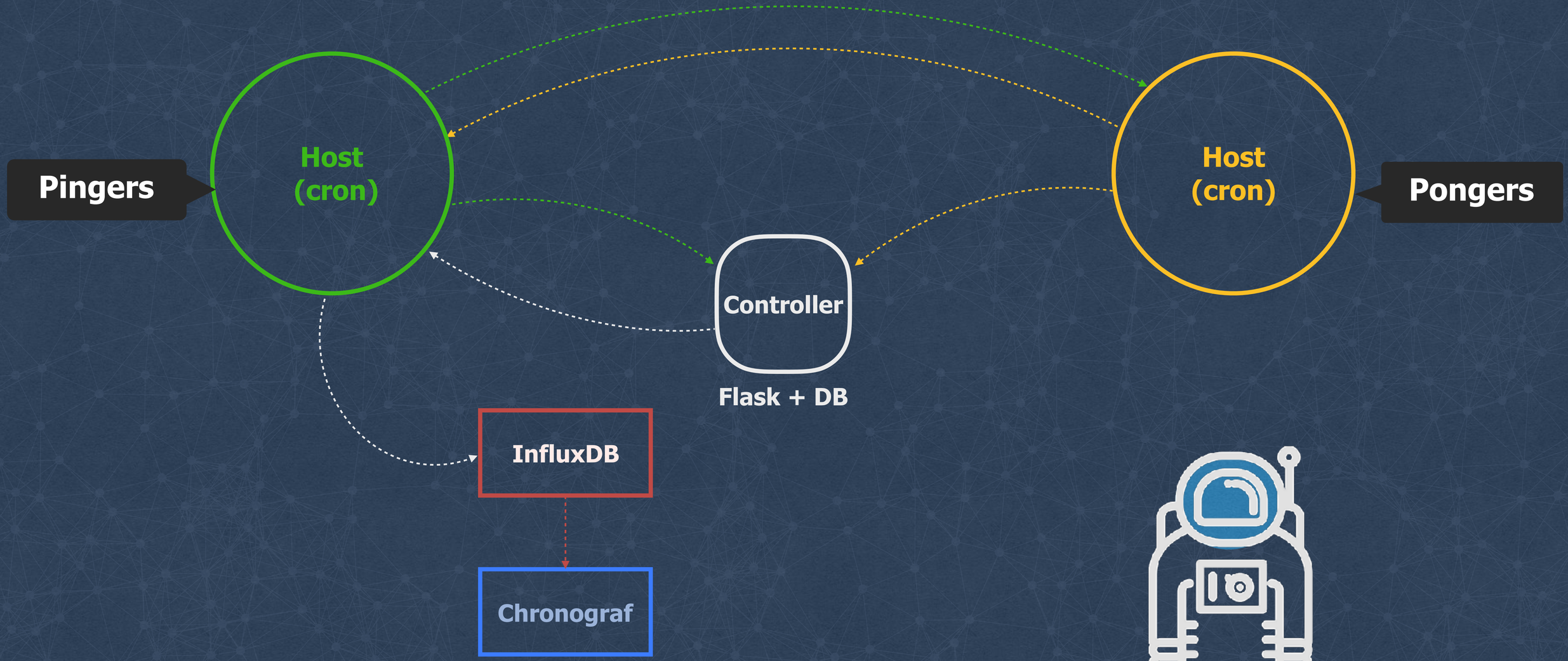

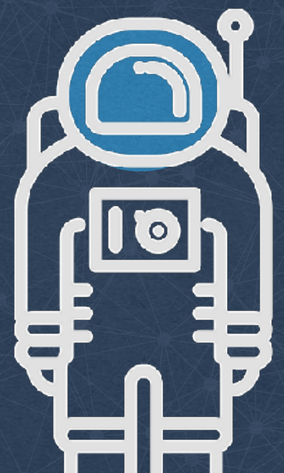

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github.com/fbsamples/OpenNetNorad

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fbsamples / OpenNetNorad

Watch 4 | Star 0 | Fork 0

Code | Issues 0 | Pull requests 0 | Projects 0 | Insights

Sample system to manage Uping and Upong (UdpPinger) instances, used to measure / graph network latency and loss on Linux

2 commits | 1 branch | 0 releases | 1 contributor

Branch: master | New pull request | Find file | Clone or download

j-leitao committed on GitHub Update README.md — Latest commit dd2a32e 15 days ago

chronograf	first commit	15 days ago
debian	first commit	15 days ago
pong_logger	first commit	15 days ago
scripts	first commit	15 days ago
CONTRIBUTING.md	first commit	15 days ago
LICENSE.md	first commit	15 days ago
PATENTS.md	first commit	15 days ago
README.md	Update README.md	15 days ago

fbsamples / OpenNetNorad

Watch 5 | Star 1 | Fork 0

Code | Issues 0 | Pull requests 0 | Projects 0 | Insights

Branch: master | OpenNetNorad / debian / | Create new file | Find file | History

j-leitao first commit — Latest commit 54306fe 17 days ago

..

libfolly-dev_57.0-1_amd64.deb	first commit	17 days ago
libfolly57.0_57.0-1_amd64.deb	first commit	17 days ago
thrift_1-1_amd64.deb	first commit	17 days ago
udppinger_1-1_amd64.deb	first commit	17 days ago

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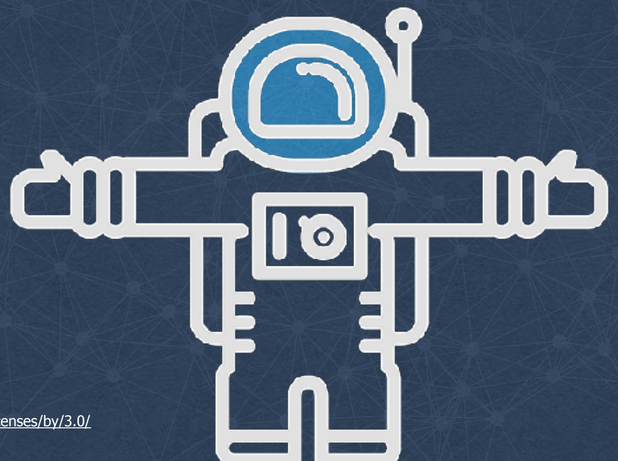
Demo



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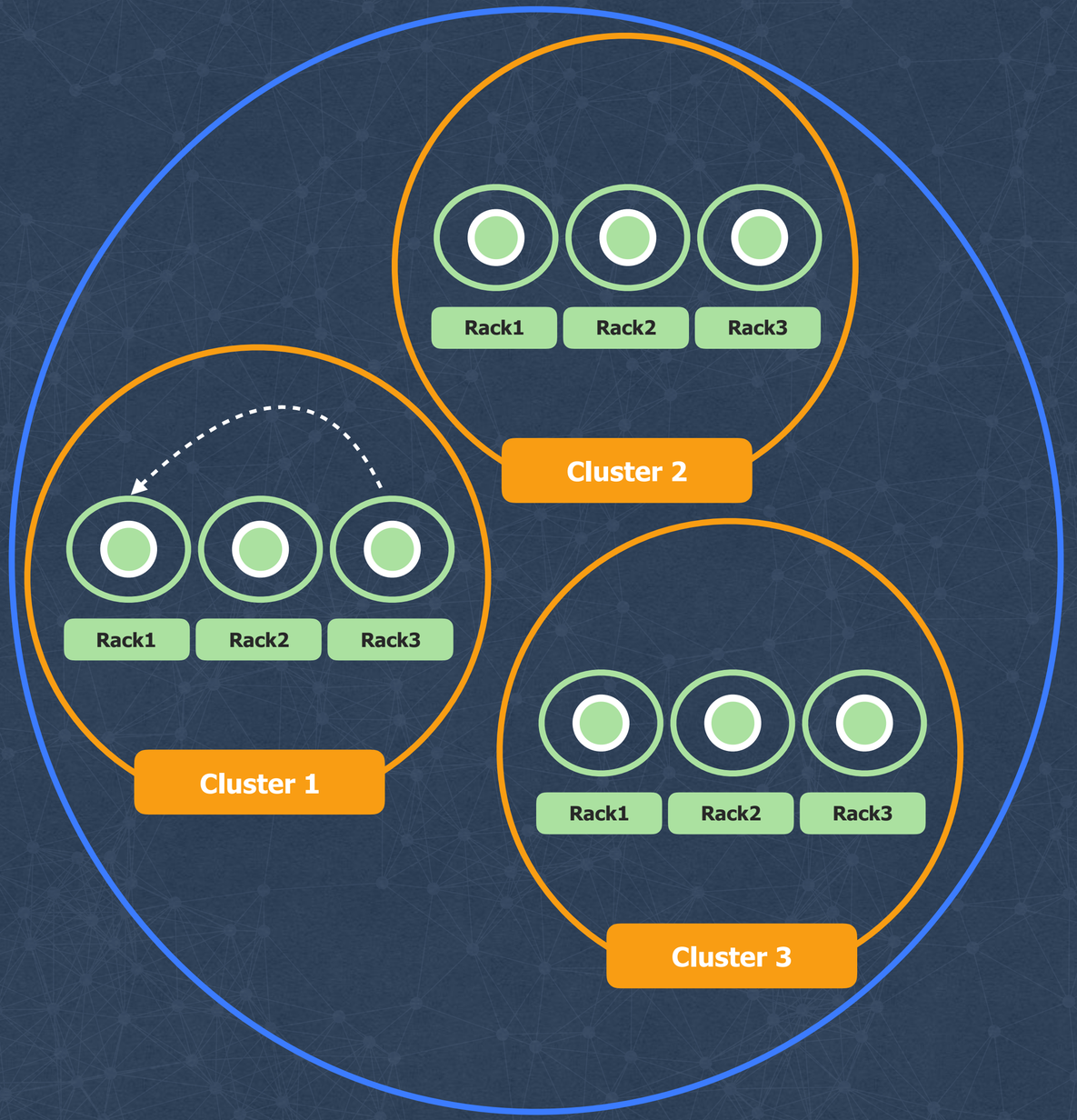
Demo

Loss within the same cluster



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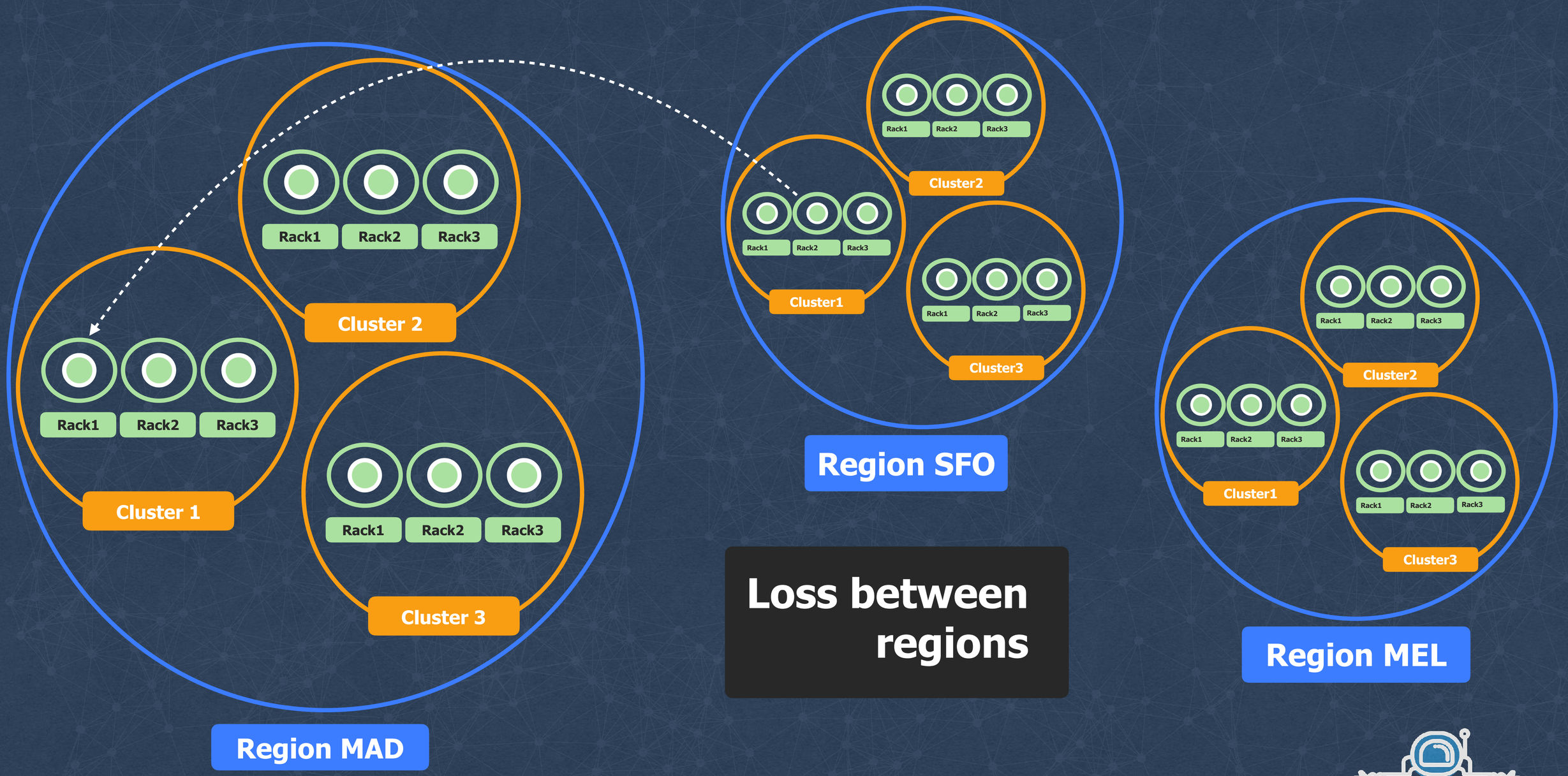
Demo



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Q&A

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