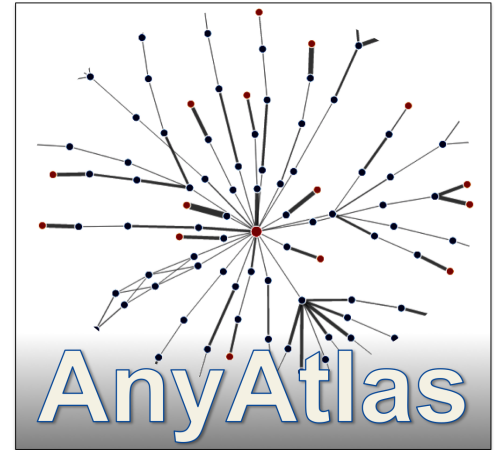# Team "AnyAtlas"

Yes - we have a team logo!

Anycast … all your destination are belong to us

Tom
Cjd
Martin
Shane
Evan

Team AnyAtlas - what are we doing?

Use Atlas to measure latency and the responding node name from an Anycast DNS deployment

Compare to the speed of light[1]

However fiber optic cable is slower[2]

[1] Speed of light is 299792.458 Kilometers/second
[2] https://en.wikipedia.org/wiki/Optical_fiber#Index_of_refraction

What data do we want to show?

We want to compare the direct physical distance between probes and the measured distance (latency converted into Kilometers)

We want to show that Anycast deployments improve user response time. Can deployments be improved by a new node? Where?

An introduction to Anycast

- An IP route that's announced in more than one place on the globe.
- Due to the way IP & BGP operates, an end user is routed towards the nearest location[1].
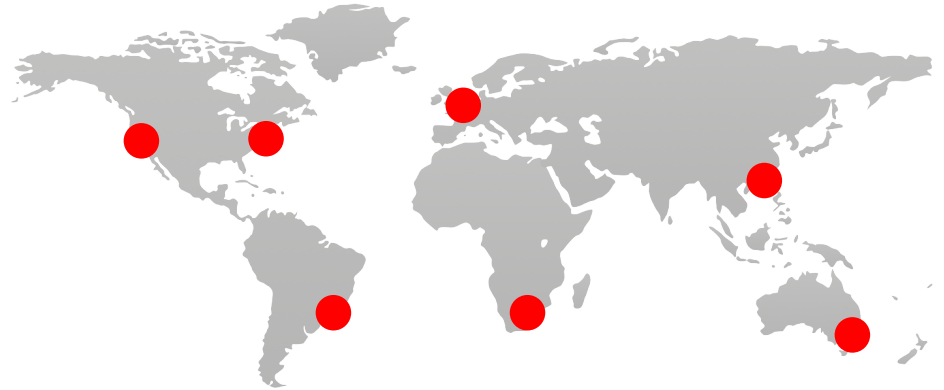
Using CHAOS in DNS queries

- CHAOS is just an address family
  - IP is another address family
- Used as an out-of-band query/response method

The location

```
ZONE="CA."
dig +short IN NS ${ZONE} | \
while read ns
do
        echo -n "${ns}         "
        echo -n `dig +short CHAOS TXT "id.server" @${ns}`"     "
        echo -n `dig +short CHAOS TXT "hostname.bind" @${ns}`
        echo ""
done

any.ca-servers.CA.                                    "ns02.lhr.ca-servers.ca"
c.ca-servers.CA.                                      "ns02.yvr.ca-servers.ca"
d.ca-servers.CA.     "hivecast-7-nlams.as15135.net cira-d"    "hivecast-7-nlams.as15135.net cira-d"
e.ca-servers.CA.                                      "ns02.yul.ca-servers.ca"
j.ca-servers.CA.                                      "2.1.ca.ams.pch.net"
```
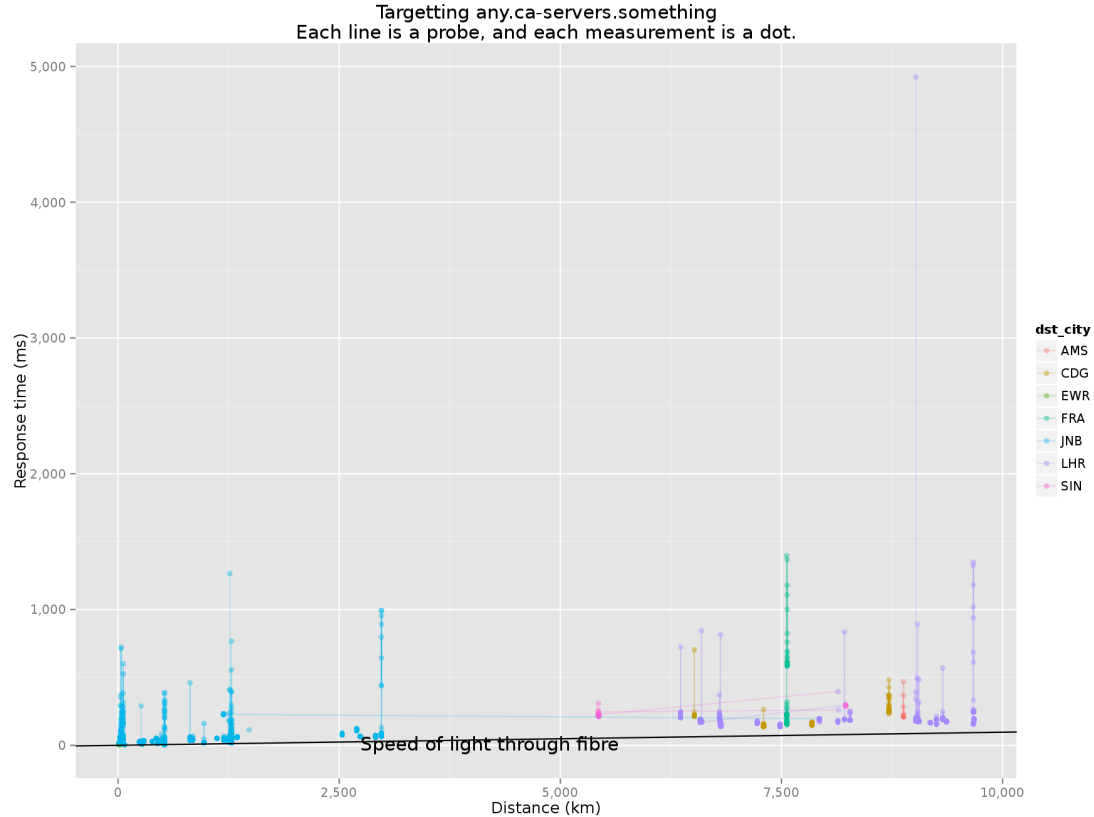
Converting responses to (Lon,Lat)

- No standard for responses
  - Freeform based on companies mindset
- Airport code and IATA data
  - We used http://openflights.org/data.html
- Needed to special case "MTL" for "YUL"

```python
# this is the CloudFlare format - so simple! :)
    if len(node_name) == 3:
        city = node_name.upper()
        lat, lon = iata_city_to_lat_lon[city]

# special case MTL because the Canadians really mean YUL
if city == "MTL":
    city = "YUL"

# this is the Dyn Hivecast mapping of HOSTNAME.BIND
    m = re.search(r'^hivecast-\d\d-([a-z]{2})([a-z]{3}).as15135.net \S+$', node_name)
```
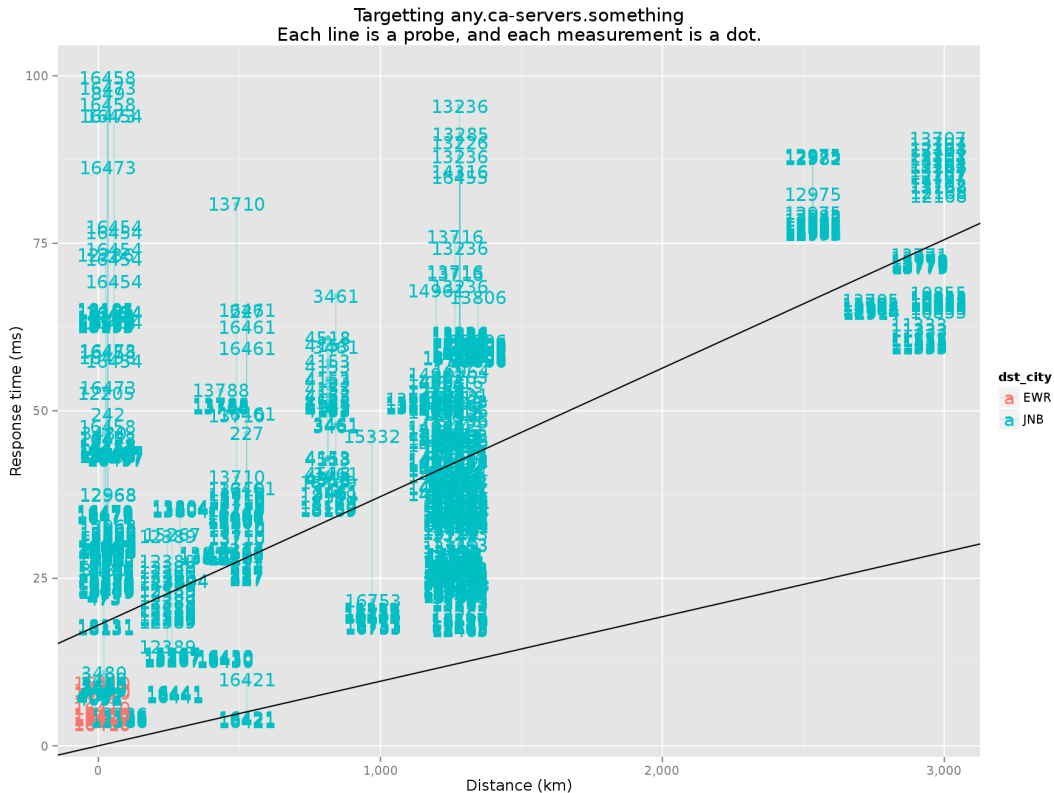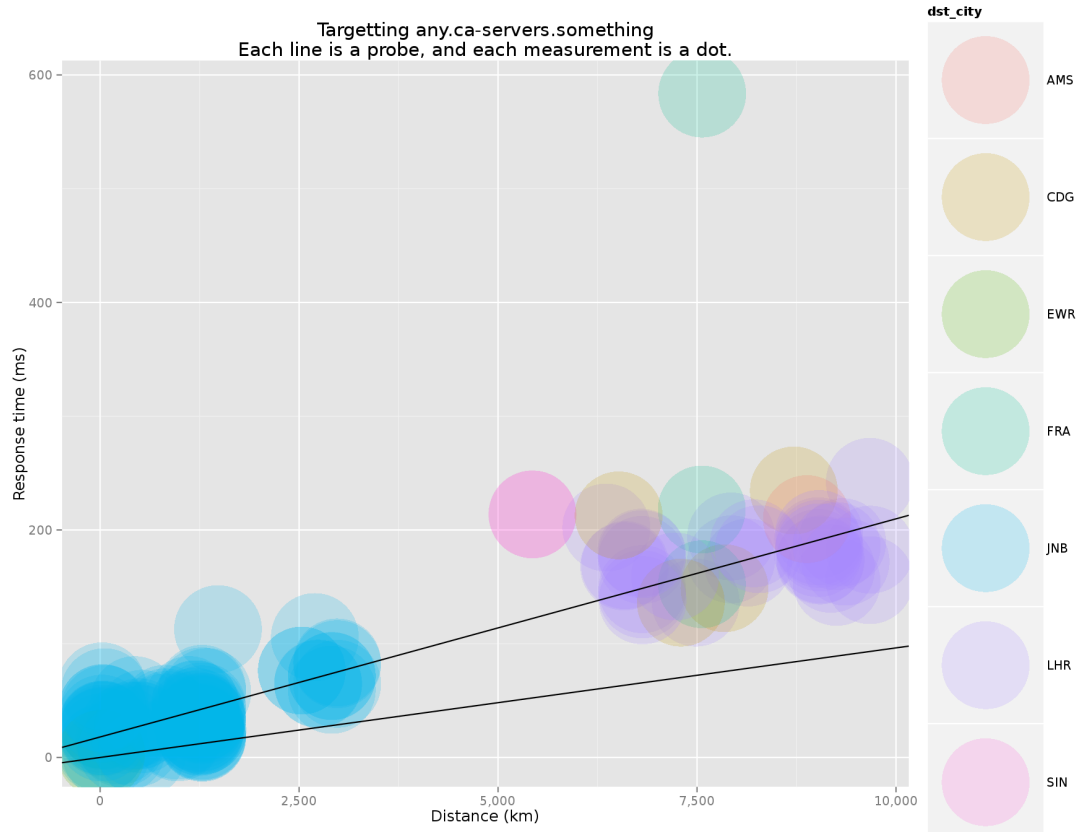
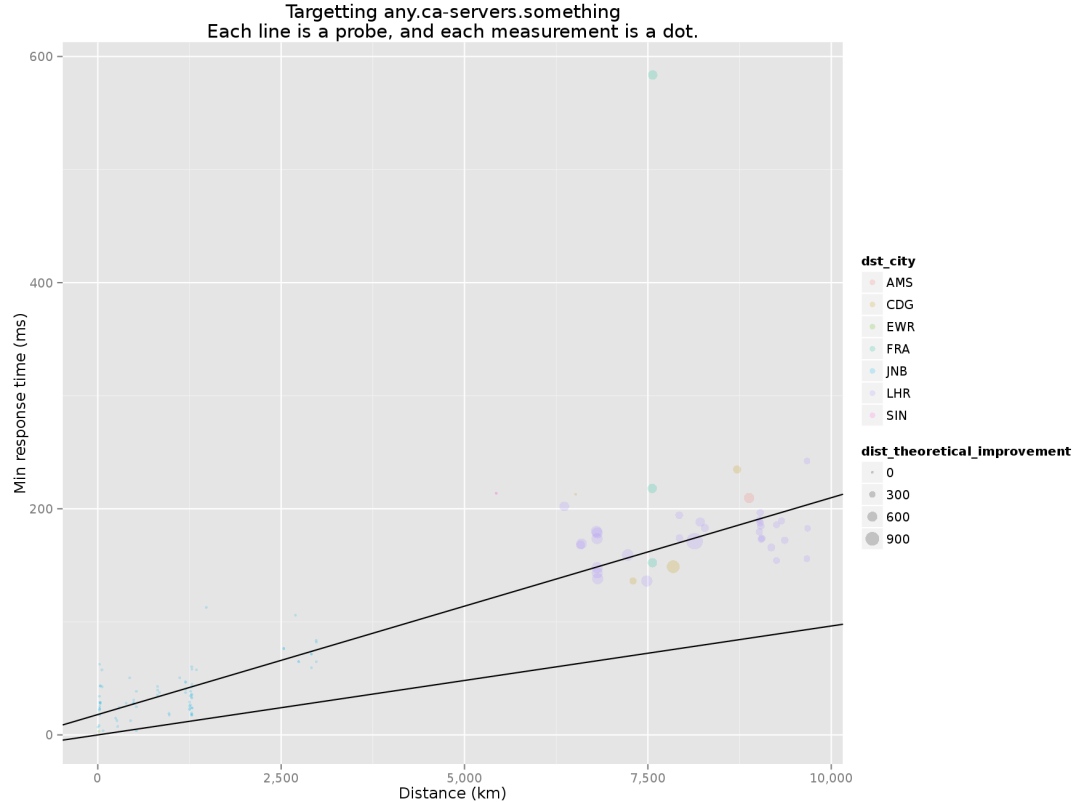# Results … from the work in progress

Targetting any.ca-servers.something
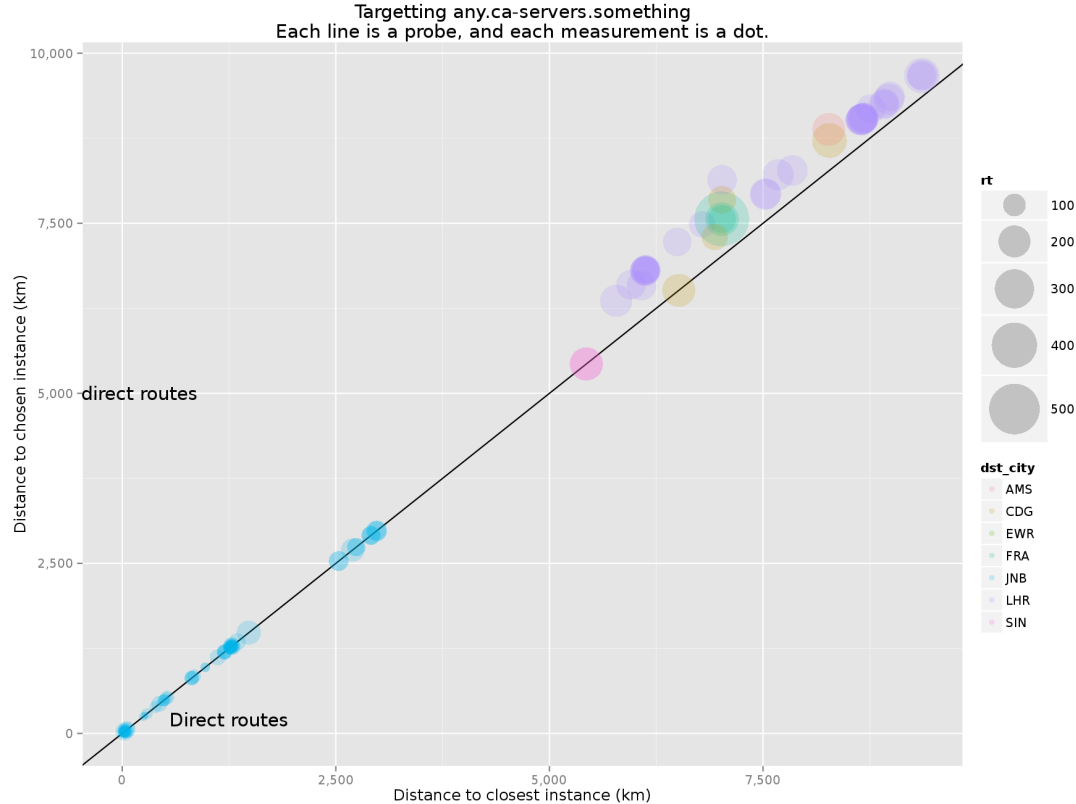Each line is a probe, and each measurement is a dot.

Results … from the work in progress

Targetting any.ca-servers.something
Each line is a probe, and each measurement is a dot.

Results … from the work in progress

Targetting any.ca-servers.something
Each line is a probe, and each measurement is a dot.

Results … from the work in progress

Targetting any.ca-servers.something
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Results … from the work in progress

Targetting any.ca-servers.something
Each line is a probe, and each measurement is a dot.

Adding temporal data

But wait; there's more ...

http://193.0.10.117:8080/

Summary ...

?