Network Topology

Computer Networks

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1 Network Topology Discovery

Websites & Network Diversity

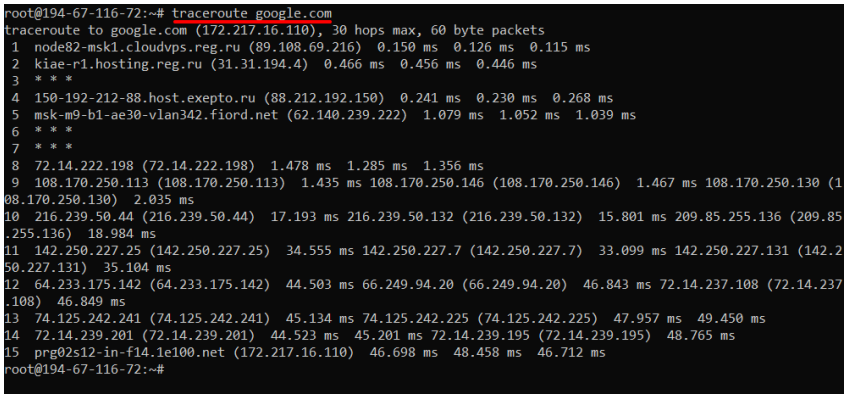
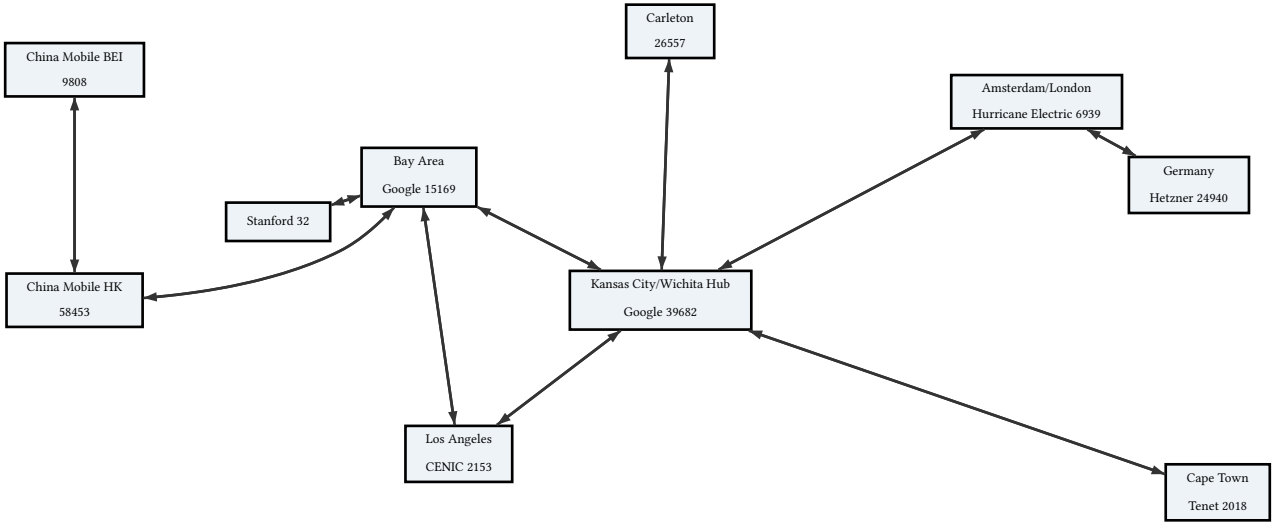


Figure 1: Traceroutes were from

- Small Websites: Corndog.io, regex101.com
- Universities: U Cape Town, Stanford
- Large Corporations: Deutsche Bank, baidu.com

Node Graph


China Mobile BEI
9808
Carleton
26557
Amsterdam/London
Hurricane Electric 6939
Bay Area
Google 15169
Germany
Hetzner 24940
Stanford 32
China Mobile HK
58453
Kansas City/Wichita Hub
Google 39682
Los Angeles
CENIC 2153
Cape Town
Tenet 2018

Network Map


China Mobile
BEI 9808
China
Mobile
HK 58453
Stanford 32
Google 15169
Carleton - 26557
Google Kansas City Hub
396982
CENIC 2153
Hurricane Electric 6939
Hetzner 24940
Tenet 2018

Times & Analysis

Category	Range (One-Way)	Notes
Domestic U.S. traffic	≈40–100 ms	corndog.io (40 ms), db.com (80 ms)
Transatlantic	≈300 ms	regex101.com (Germany) (≈300 ms)
Transpacific	≈620 ms	baidu.com (≈700 ms)
Africa	≈500 ms	transatlantic, Cape Town (≈440 ms)

2 Network Performance

Ping

Website	Mean (ms)	Median (ms)	Min (ms)	Max (ms)	Status
corndog.io	32.02	32.05	31.40	32.50	✅
regex101.com	112.80	113.00	112.00	114.00	✅
db.com	15.28	15.45	13.90	16.60	✅
uct.ac.za	*N/A*	*N/A*	*N/A*	*N/A*	❌
plato.stanford.edu	60.32	60.15	59.50	61.20	✅
baidu.com	237.90	238.00	233.00	245.00	✅

Conclusion

- The U.S. and Western Europe are best connected; China and South Africa show high latency and long routes.
- All traffic from Carleton passes through a Midwestern hub, likely Wichita or Kansas City.
- Stanford's route had many hops, large networks add routing complexity.
- China and South Africa paths show major delays from submarine optical fiber telecommunication distance.
- Smaller sites like corndog.io revealed unreliable or missing routes.
- Latency mostly follows distance.