

A network of networks

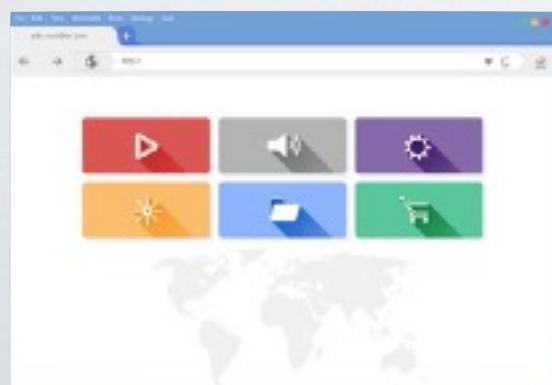
```
traceroute: Warning: any.run has multiple addresses; using 172.67.20.89
traceroute to any.run (172.67.20.89), 64 hops max, 52 byte packets
 1  100.101.0.2 (100.101.0.2)  4.114 ms  4.712 ms  3.296 ms
 2  192.168.0.30 (192.168.0.30)  3.288 ms  2.711 ms  2.629 ms
 3  192.168.0.42 (192.168.0.42)  2.770 ms  2.788 ms
    192.168.0.40 (192.168.0.40)  2.758 ms
 4  bdr-ccbr-01-utsc-bell.gw.utoronto.ca (128.100.96.101)  3.612 ms
    bdr-dcb-01-utsc-cogeco.gw.utoronto.ca (128.100.96.97)  3.409 ms
    bdr-ccbr-01-utsc-bell.gw.utoronto.ca (128.100.96.101)  3.389 ms
 5  10.16.128.10 (10.16.128.10)  4.192 ms  5.445 ms
    10.17.128.10 (10.17.128.10)  4.312 ms
 6  10.96.16.20 (10.96.16.20)  6.174 ms  7.078 ms *
 7  10.96.16.34 (10.96.16.34)  7.118 ms  4.629 ms *
 8  ut-hub-utoronto1-if-internet.gtinet.ca (205.211.94.241)  7.701 ms  11.358 ms  7.556 ms
 9  te0-0-0-1.rcr13.b011027-3.yyz02.atlas.cogentco.com (38.104.251.81)  7.685 ms  7.280 ms  9.325 ms
10  te0-0-0-10.ccr32.yyz02.atlas.cogentco.com (154.54.0.121)  8.574 ms  7.414 ms  7.552 ms
11  be2993.ccr21.cle04.atlas.cogentco.com (154.54.31.225)  13.952 ms
    be2994.ccr22.cle04.atlas.cogentco.com (154.54.31.233)  16.504 ms
    be2993.ccr21.cle04.atlas.cogentco.com (154.54.31.225)  14.499 ms
12  be2717.ccr41.ord01.atlas.cogentco.com (154.54.6.221)  21.736 ms
    be2718.ccr42.ord01.atlas.cogentco.com (154.54.7.129)  21.165 ms
    be2717.ccr41.ord01.atlas.cogentco.com (154.54.6.221)  22.819 ms
13  be2766.ccr41.ord03.atlas.cogentco.com (154.54.46.178)  21.200 ms  22.776 ms
    be2765.ccr41.ord03.atlas.cogentco.com (154.54.45.18)  20.249 ms
14  38.122.181.134 (38.122.181.134)  26.333 ms  34.496 ms *
15  172.70.124.2 (172.70.124.2)  20.229 ms
    172.70.128.2 (172.70.128.2)  18.312 ms
    172.70.124.2 (172.70.124.2)  21.780 ms
16  172.67.20.89 (172.67.20.89)  17.568 ms  16.488 ms  17.244 ms
```

What is a protocol

Communication protocol

is an agreement on how communication should take place

- defines the data encoding and/or format
 - defines the message sequence
- ➔ (most) protocols are standards defined by the IETF - The Internet Engineering Task Force



HTTP GET /document.html

HTTP 200 <!DOCTYPE html = ...

