



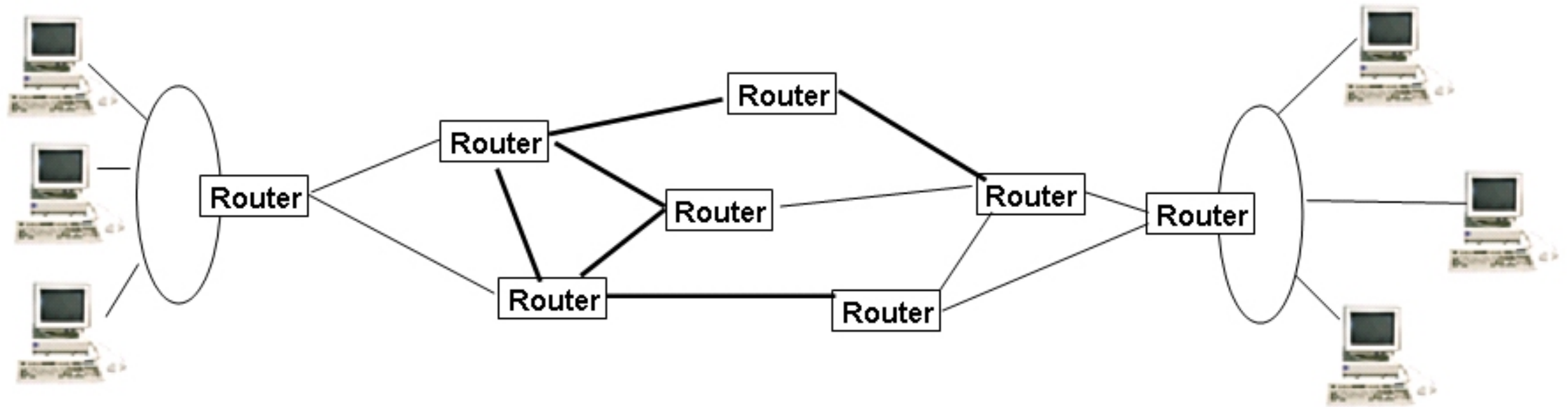
Action at a distance: network tools

Lecture 6 - COMP 364
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Why talk about the internet?

- Lots of resources are available over the internet
 - Data sets
 - Workstations
 - Computing clusters
- Three activities of interest
 - Testing a connection
 - Remotely logging into a computer
 - Transferring files (both uploading and downloading)

Architecture of the internet



IP Address: ###.###.###.###

Domain name: `[[:alnum:]]+(\. [[:alnum:]]+){2,}`

IP Address: 132.206.51.6

Domain name:

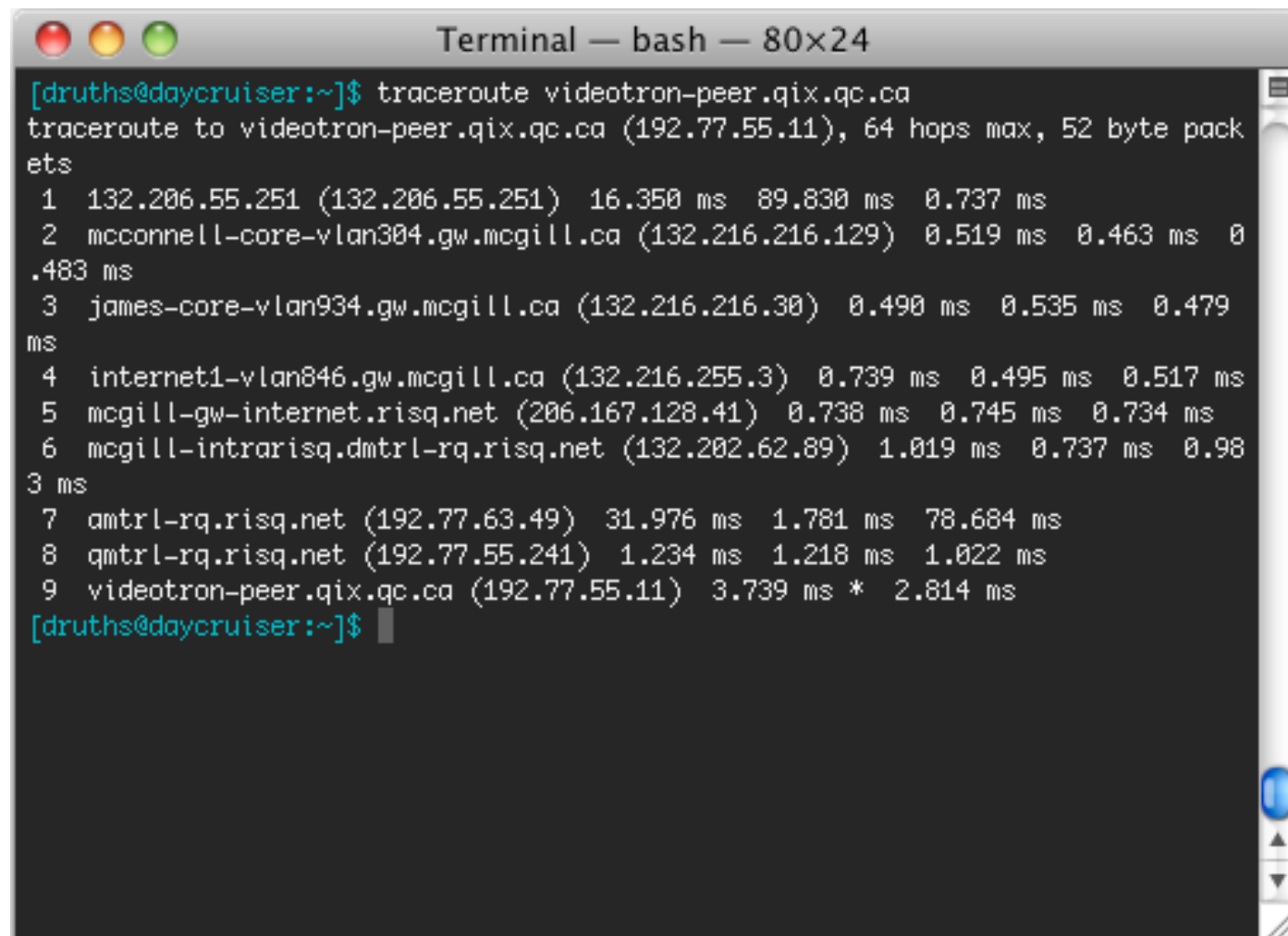
inkido.cs.mcgill.ca

ping: testing a connection

- `ping <internet address>`
- `ping -c # <internet address>`
- Sends individual packets to the address and tells you if it received responses (one response per packet)

traceroute: mapping the route to a computer

- `traceroute <internet address>`
- Print out all the routers and computers a packet passes through on its way to a specific address.



```
Terminal — bash — 80x24
[druths@daycruiser:~]$ traceroute videotron-peer.qix.qc.ca
traceroute to videotron-peer.qix.qc.ca (192.77.55.11), 64 hops max, 52 byte packets
 1  132.206.55.251 (132.206.55.251)  16.350 ms  89.830 ms  0.737 ms
 2  mcconnell-core-vlan304.gw.mcgill.ca (132.216.216.129)  0.519 ms  0.463 ms  0.483 ms
 3  james-core-vlan934.gw.mcgill.ca (132.216.216.30)  0.490 ms  0.535 ms  0.479 ms
 4  internet1-vlan846.gw.mcgill.ca (132.216.255.3)  0.739 ms  0.495 ms  0.517 ms
 5  mcgill-gw-internet.risq.net (206.167.128.41)  0.738 ms  0.745 ms  0.734 ms
 6  mcgill-intrarisq.dmtrl-rq.risq.net (132.202.62.89)  1.019 ms  0.737 ms  0.983 ms
 7  amtrl-rq.risq.net (192.77.63.49)  31.976 ms  1.781 ms  78.684 ms
 8  qmtrl-rq.risq.net (192.77.55.241)  1.234 ms  1.218 ms  1.022 ms
 9  videotron-peer.qix.qc.ca (192.77.55.11)  3.739 ms * 2.814 ms
[druths@daycruiser:~]$
```

ssh: Remotely logging into a computer

- `ssh <login name>@<remote computer internet address>`
 - `ssh terminus.cs.mcgill.ca`
- Connect to a remote (UNIX) computer and start a command prompt
- From this point on, you can interact with it using any of the commands we've learned on the command line
- GUIs (Graphical User Interfaces) are NOT available (this is where *pico* becomes useful)

scp: copying files to/from a remote server

- `scp <source> <destination>`
 - In concept, works just like “cp” (`cp <source> <destination>`)
 - Source and destination have the following format:
 - If local: *<path>*
 - If remote: *<computer address>:<path on remote computer>*
 - Or: *<username>@<computer address>:<path on remote computer>*
- Exercises
 - Copy the local file `foo.txt` to the file `~/foo_remote.txt` on `terminus.cs.mcgill.ca`
 - Copy the directory `angelia_emails` on `terminus.cs.mcgill.ca` to `~/` on your computer.

curl: Getting general stuff off the internet

- curl <thing you want to download>
 - curl <http://www.nd.edu/~networks/resources/www/www.dat.gz> >
www.data.gz
- Question: Do we have what we need to download all the emails from here?
 - <http://www.eastangliaemails.com/index.php>