special

ELECTRICAL

MANCHESTER

8

SOUPS

CAKE MIX

FOOD WRAPS

PLASTICWARE

SOUPS

VITAMINS

ELECTRICAL

SOUPS

CANNED FRUIT

MAGAZINES

MANCHESTER

8

CAKE MIX

new

GOURMET
SOUP

$3

2.99

1.50

special

net

| ELECTRICAL | 8 | SOUPS |
| MANCHESTER | | CAKE MIX |

FOOD WRAPS

SOUPS

PLASTICWARE

VITAMINS

ELECTRICAL | 8 | SOUPS
MANCHESTER | | CAKE MIX

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GOURMET
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$3

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tinc

A quick introduction...
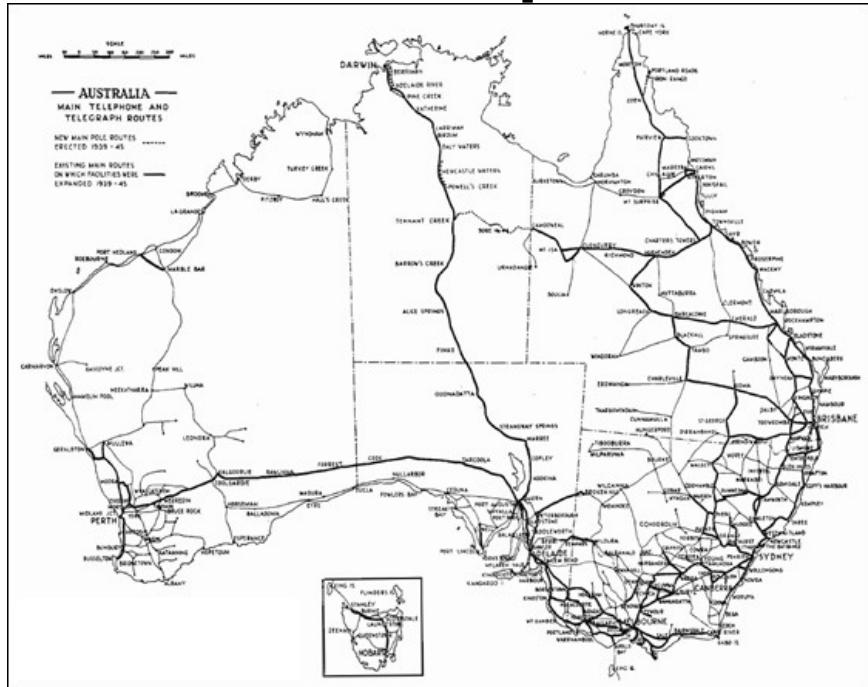
Images: TJA, gobeirne, SKAO, mtearle

About tinc

- Info about authors
  - Ivo Timmermans
  - Guus Sliepen
- Two current versions – 1.0 and 1.1 (in beta)
- Goals are:
  - Security
  - Reliability
  - Efficiency
  - Scalability
  - Ease Of Use

Uses for tinc

- Remote Access
- "VPN"
- Interconnect Networks

What it is...

- Userspace Implementation
- SSL based encryption
- Some support for Windows / Mac OS X / Android
- Mesh and Point-to-Point (plus discovery if you want it)
- Switched or Routed networks

What it is not ...

- Standard. Uses dedicated tinc protocol over the wire

- Control connection over TCP, traffic over TCP or UDP

Quick tour of configuration file structure

- /etc/tinc/<network name>
  - tinc.conf
  - rsa_key.priv
  - tinc-up
  - tinc-down
  - host-up
  - host-down
  - subnet-up
  - subnet-down

- /etc/tinc/<network name>/hosts
  - <hostname>
  - <hostname>-up
  - <hostname>-down

tinc.conf

- Name

- Mode

- ConnectTo

- LocalDiscovery

- Port

- StrictSubnets

```
Name = tymnet

Port = 661

ConnectTo = bremen

ConnectTo = mitre
```

-up and -down scripts

- Substitutions
- Triggered on:
  - Tinc startup
  - Subnet
  - Host

```
#!/bin/bash


ip link set $INTERFACE up

ip addr add 172.16.86.20/32 dev $INTERFACE

ip route add 172.16.86.0/24 dev $INTERFACE
```

Host Configuration

- Address

- Subnet

- PUBLIC KEY

`tincd -n sdinet -K 4096`

```
Address = 192.0.2.16 661
Subnet = 172.16.86.20/32

-----BEGIN RSA PUBLIC KEY-----
MIICCgKCAgEA2SeJQsu/FUo7Kbh1hSIrbvm05BdThU0sncSSnXHeNJmgjV/IUEdq
3OUXrM3ED0uJ5AHjXYoIlotj2heKXJx9qzGnZ14nRqlceQpM0fscATSz6nO2KqqO
yXze/jYh8ys7m9v9uiy4x+tUPa0JAJ6hJATWX7HrGrziIUN4DUdNMveuUC52uv5V
7ldg9xkqffgD9YlvejvZb8ZkNewB9nNhPG7vDQPrEyqEbDDjmxKqWDbz3boJiLYC
9j5JnFyMQKL+15vYitI+BkDS2hEx0FeqEk8PbHY6mBI7Nsx9mnNRX9Iwf4rsf/j2
W3VthAa/GwtoYpFs/QFBsJqG3ZipxFcD/is6R4ihoh18NwrBsyW3iVmkEtZtfptG
PduYdOZTpVcjA7ntQLo5V3EehNEuo3Wi0OORMQrYXqMLoRC30d3XYgxfSYUsKDW4
nTpOaHYoNyrcIs+uAlixQV8f82JT7BjiHHL74GyxQu9oQ2FXuSkWFMMfWvlWWw/x
3UjPgC0aNw5i1zqf/F+Bcj4ccnxZh5u7sxPNbr37+x5soSjiMYQdyeCo3z3LkQoa
Q5JRhs6VmE25Ayiequc8hUdgkGlIFP2Wb8xQIAPCuVHW++i8r0i6DhTe0F/krCsI
CwMNdi/6IIpGSt5p0xPT534WZw2h6mMYp6qcl3D7q5Mfiblg55tISWMCAwEAAQ==
-----END RSA PUBLIC KEY-----
```

Stats

/etc/tinc/sdinet# kill -USR1 4327

Connections:

 bremen at 1.1.158.105 port 58625 options c socket 8 status 00c2
outbuf 1245/0/0

 mitre at 198.51.100.166 port 54192 options c socket 9 status
01c2 outbuf 1039/0/0

 berkeley at 203.0.113.165 port 1026 options c socket 10 status
01c2 outbuf 1039/0/0

End of connections.

/etc/tinc/sdinet# kill -USR2 4327

Statistics for Linux tun/tap device (tun mode) /dev/net/tun:
 total bytes in: 0
 total bytes out: 372
Nodes:
 berkeley at 203.0.113.165 port 661 cipher 91 digest 64 maclength 4 compression 0 options c status 001a
nexthop berkeley via berkeley pmtu 1451 (min 1451 max 1451)
 bremen at 1.1.158.105 port 661 cipher 91 digest 64 maclength 4 compression 0 options c status 001a nexthop
bremen via bremen pmtu 1451 (min 1451 max 1451)
 hannover at 203.0.113.165 port 661 cipher 0 digest 0 maclength 0 compression 0 options c status 0018
nexthop bremen via hannover pmtu 1518 (min 0 max 1518)
 mitre at 198.51.100.166 port 661 cipher 91 digest 64 maclength 4 compression 0 options c status 001a
nexthop mitre via mitre pmtu 1451 (min 1451 max 1451)
 tymnet at MYSELF cipher 0 digest 0 maclength 0 compression 0 options c status 0018 nexthop tymnet via
tymnet pmtu 1518 (min 0 max 1518)
End of nodes.
Edges:
 berkeley to mitre at 198.51.100.166 port 661 options c weight 475
 berkeley to tymnet at 192.0.2.16 port 661 options c weight 230
 bremen to hannover at 203.0.113.165 port 661 options c weight 1049
 bremen to mitre at 198.51.100.166 port 661 options c weight 593
 bremen to tymnet at 192.0.2.16 port 661 options c weight 770
 hannover to bremen at 1.1.158.105 port 661 options c weight 1049
 mitre to berkeley at 203.0.113.165 port 661 options c weight 475
 mitre to bremen at 1.1.158.105 port 661 options c weight 593
 mitre to tymnet at 192.0.2.16 port 661 options c weight 275
 tymnet to berkeley at 203.0.113.165 port 661 options c weight 230
 tymnet to bremen at 1.1.158.105 port 661 options c weight 770
 tymnet to mitre at 198.51.100.166 port 661 options c weight 275
End of edges.
Subnet list:
 172.16.86.10/32#10 owner berkeley
 172.16.86.20/32#10 owner tymnet
 172.16.86.30/32#10 owner mitre
 172.16.86.40/32#10 owner bremen
 172.16.86.50/32#10 owner hannover
 fdf1:20fe:4a33:db:0:0:0:1/128#10 owner berkeley
 fdf1:20fe:4a33:db:0:0:0:5/128#10 owner hannover
End of subnet list.
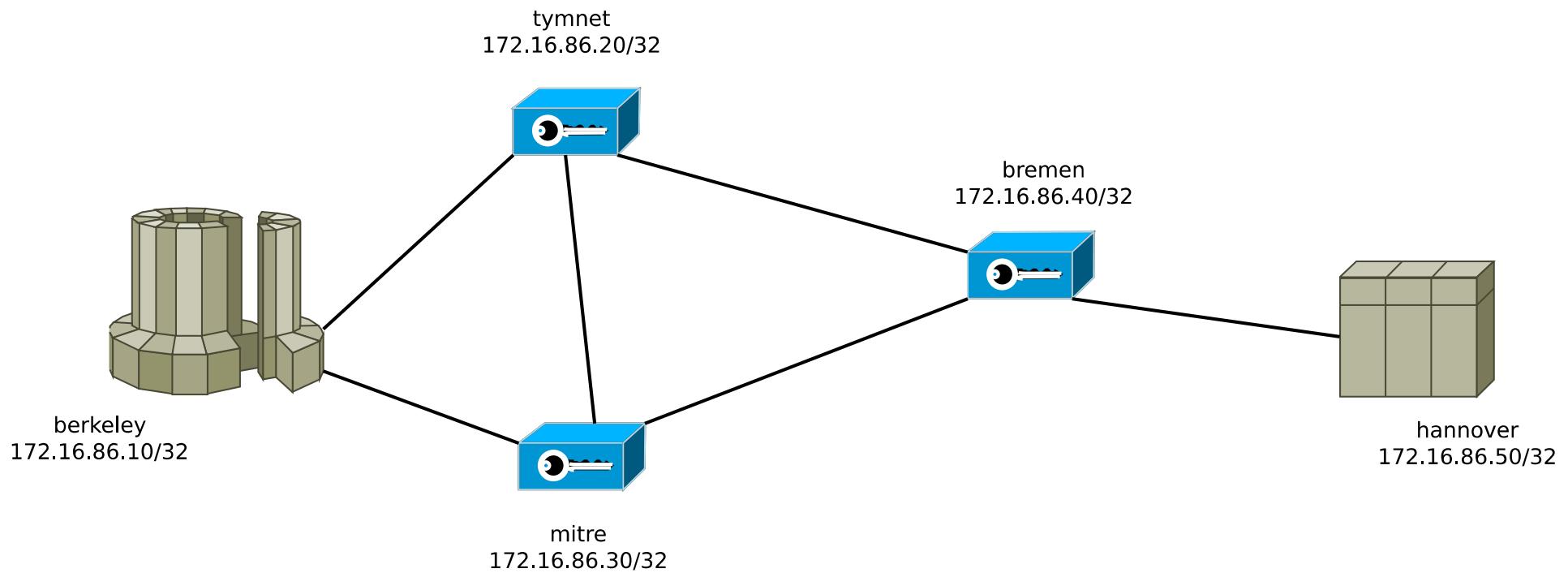
Demo 2 – Yes, it does IPv6

Demo 3 – Switched Network

- Let's do a simple VPN

VM   VPN & NAT   Canadian VM Host   Recipes Website!
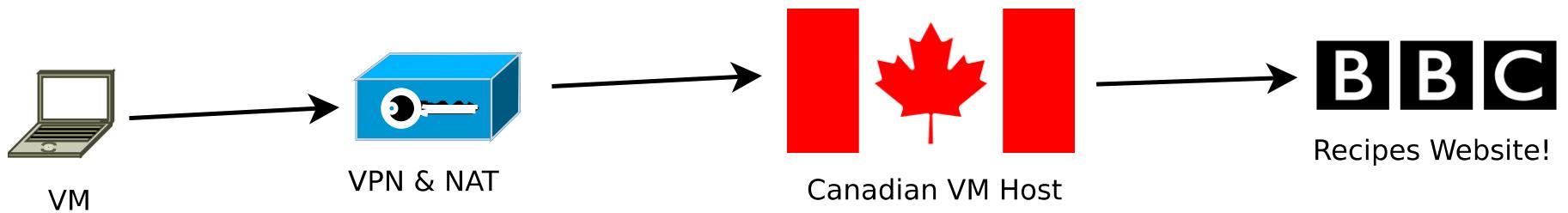
Questions?

- More info at: tinc-vpn.org

- See also:

  - https://github.com/nibalizer/tinc-presentation

  - https://www.tinc-vpn.org/activities/

- Talk will be uploaded at:

  - https://github.com/mtearle/netmcr-talk