Talk will be starting shortly ….
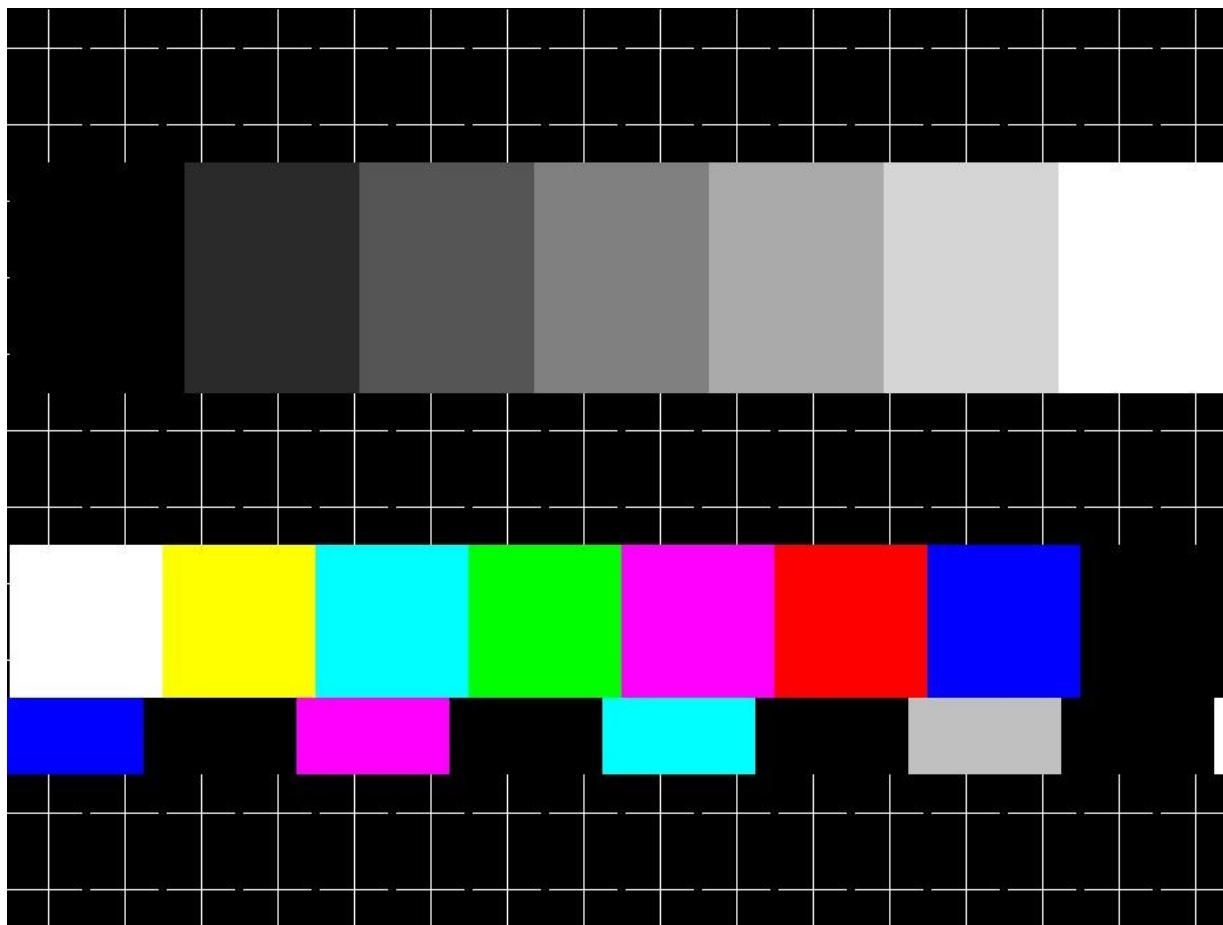
special

ELECTRICAL

MANCHESTER

net

8

SOUPS

CAKE MIX

$3

2.99

FOOD WRAPS

PLASTICWARE

VITAMINS

ELECTRICAL

SOUPS

CANNED FRUIT
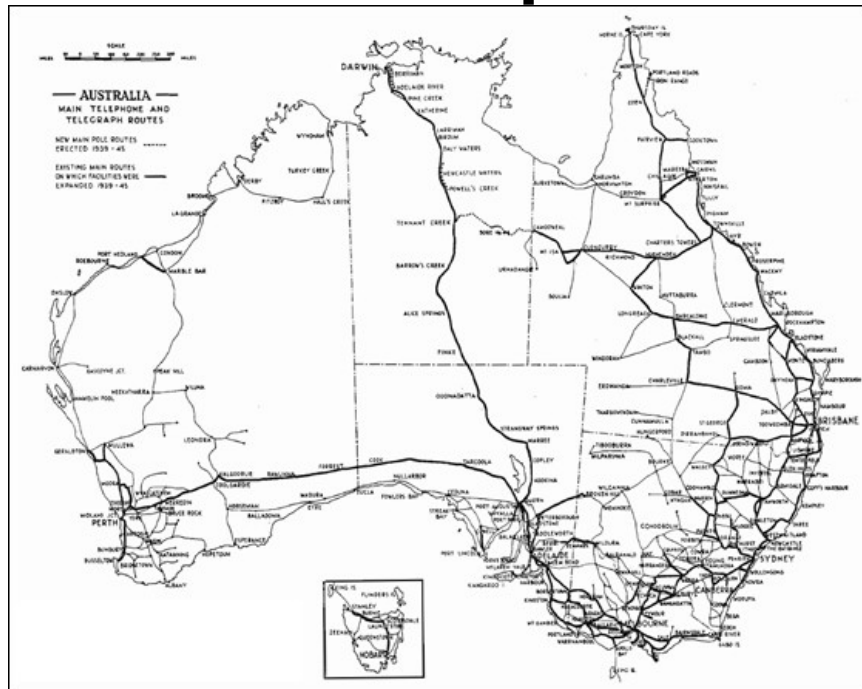
MAGAZINES

MANCHESTER

8

CAKE MIX

SOUPS

new

GOURMET
SOUP

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
7ldg9xkqffgD9YlvejvZb8ZkNewB9nNhPG7vDQPrEyqEbDDjmxKqWDbz3boJiLY
C
9j5JnFyMQKL+15vYitI+BkDS2hEx0FeqEk8PbHY6mBI7Nsx9mnNRX9Iwf4rsf/j2
W3VthAa/GwtoYpFs/QFBsJqG3ZipxFcD/is6R4ihoh18NwrBsyW3iVmkEtZtfptG
PduYdOZTpVcjA7ntQLo5V3EehNEuo3Wi0OORMQrYXqMLoRC30d3XYgxfSYUs
KDW4
nTpOaHYoNyrcIs+uAlixQV8f82JT7BjiHHL74GyxQu9oQ2FXuSkWFMMfWvlWW
w/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 1 – Routed Network

tymnet
172.16.86.20/32

bremen
172.16.86.40/32

berkeley
172.16.86.10/32

hannover
172.16.86.50/32

mitre
172.16.86.30/32
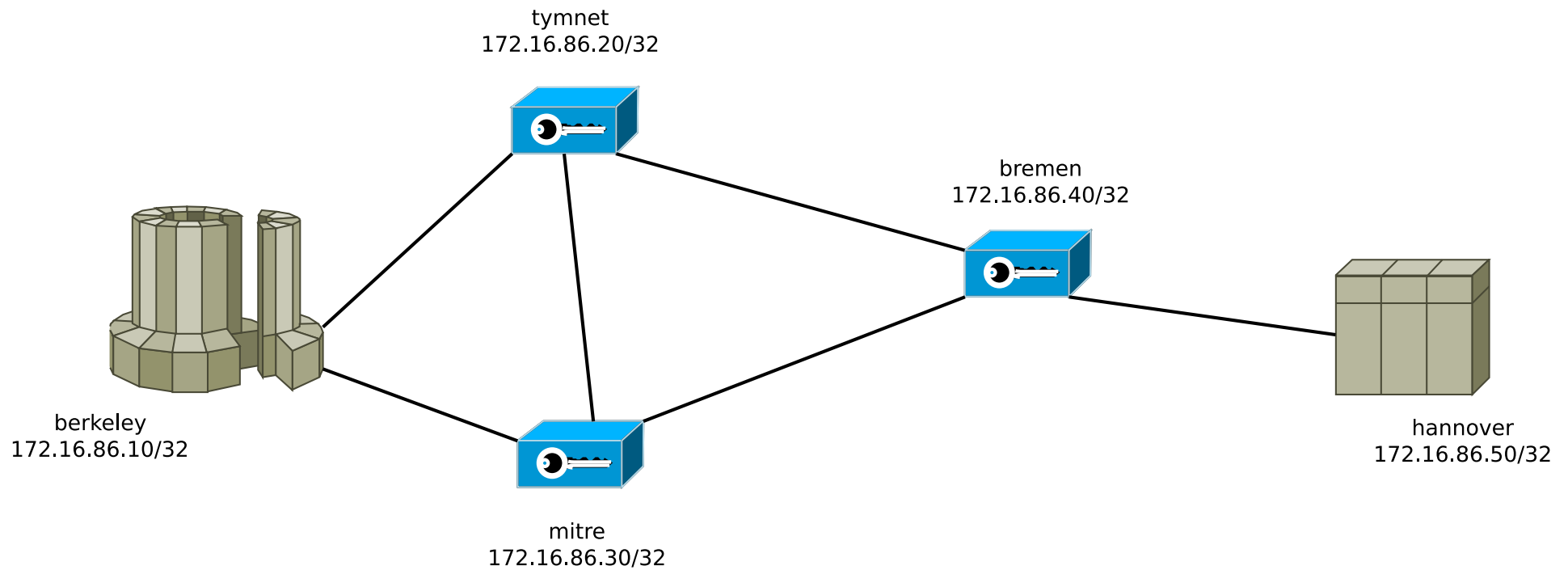
Demo 2 – Yes, it does IPv6

Demo 3 – Switched Network

- Let's do a simple
  Layer 2 VPN

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/talk-ucc-tinc