

IPv4

1974 - 1983

32-bit address

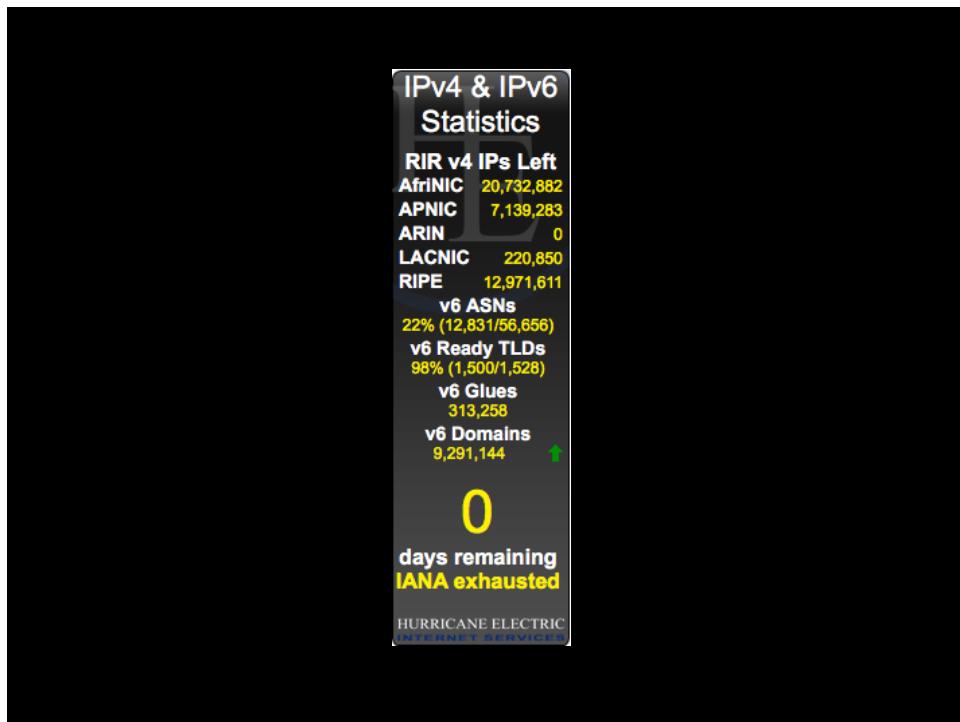
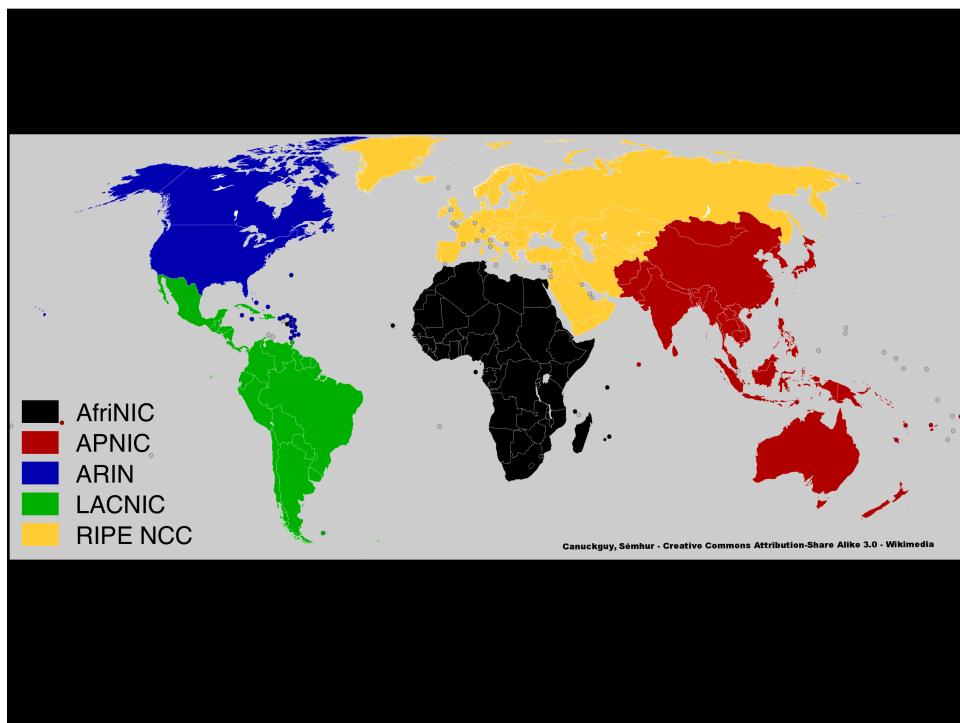
$\sim 4.2 \times 10^9$ possibilities

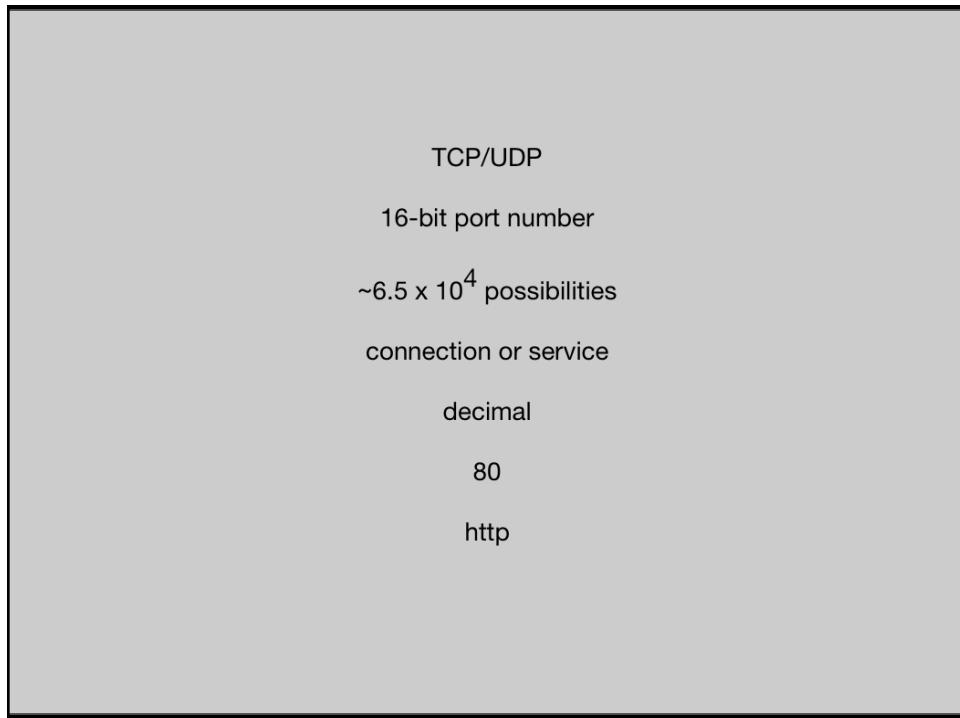
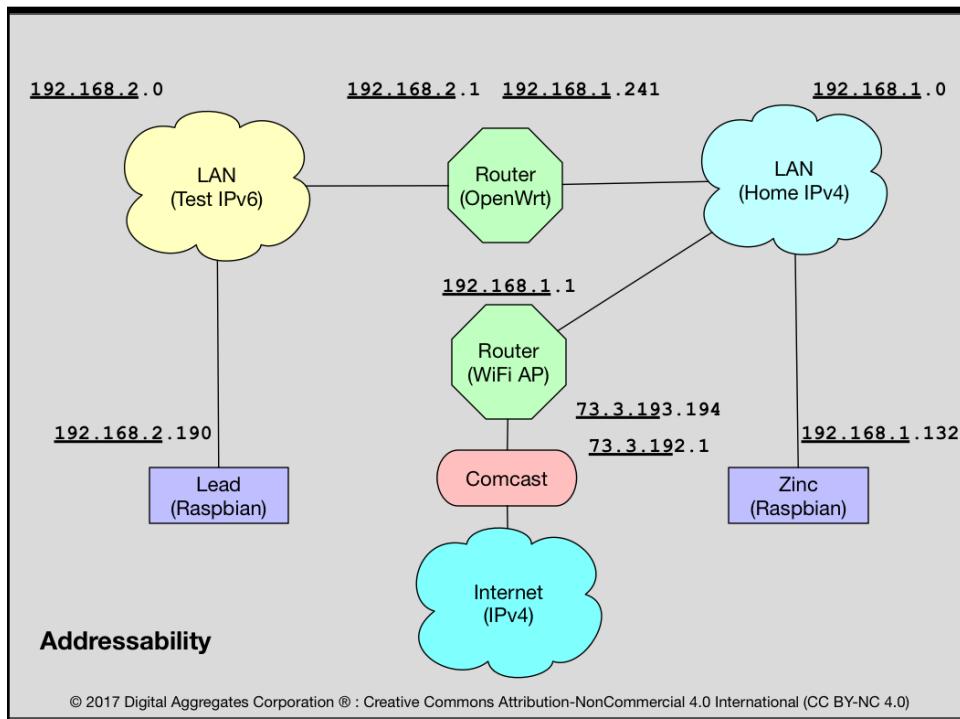
network + subnetwork + host

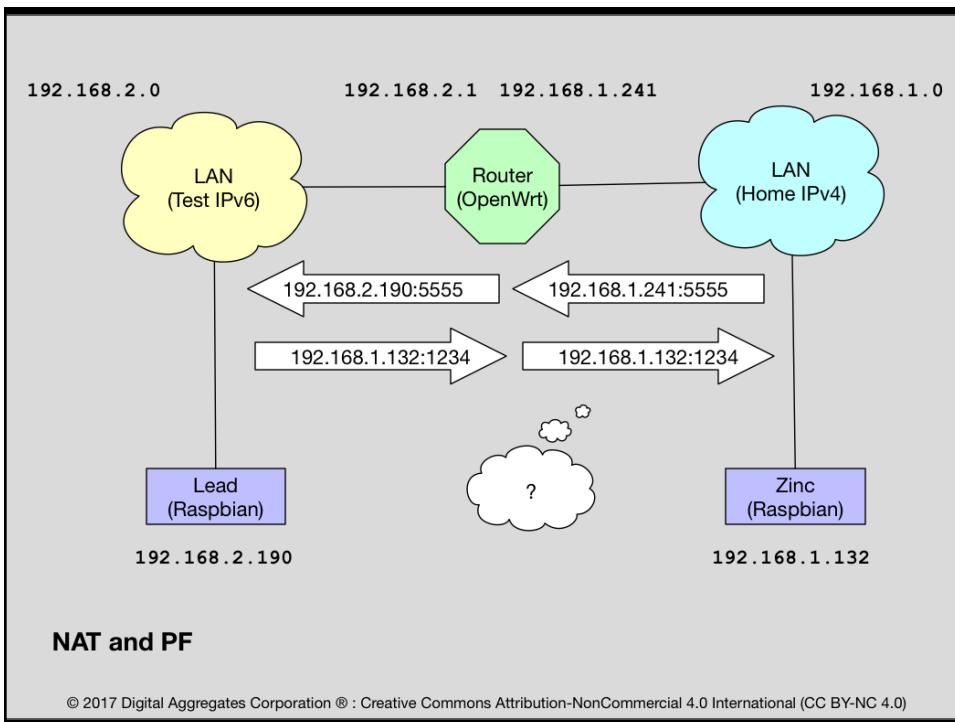
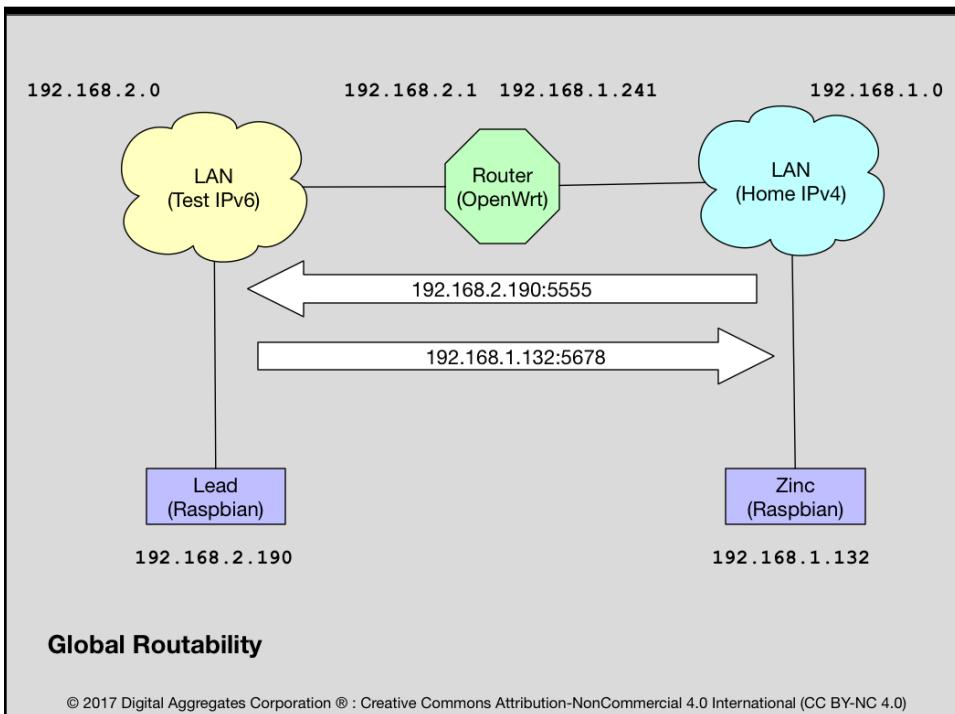
4 octets in decimal separated by periods

100.125.125.255

DNS record type A







IPv6

1995 - 2005

128-bit address

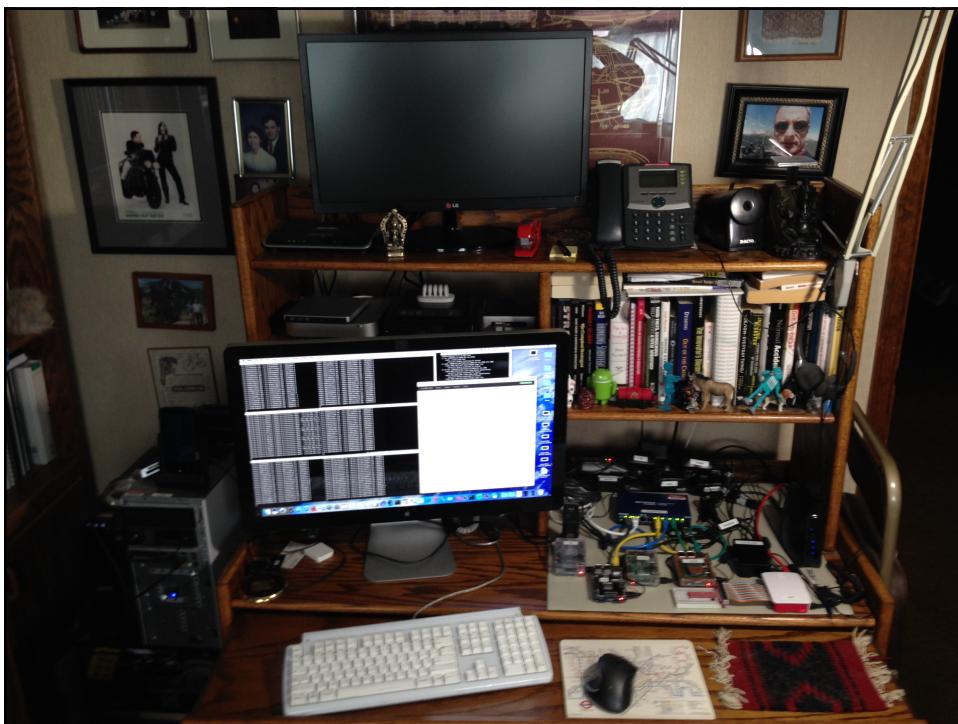
$\sim 3.4 \times 10^{38}$ possibilities

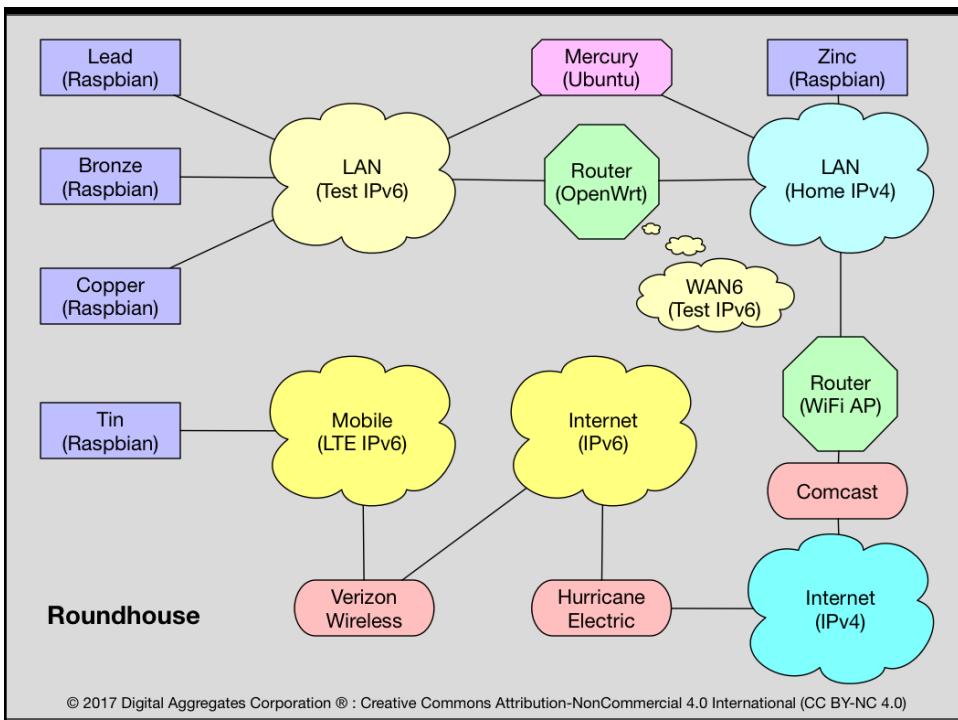
prefix (48 bits) + subnetwork (16 bits) + interface (64 bits)

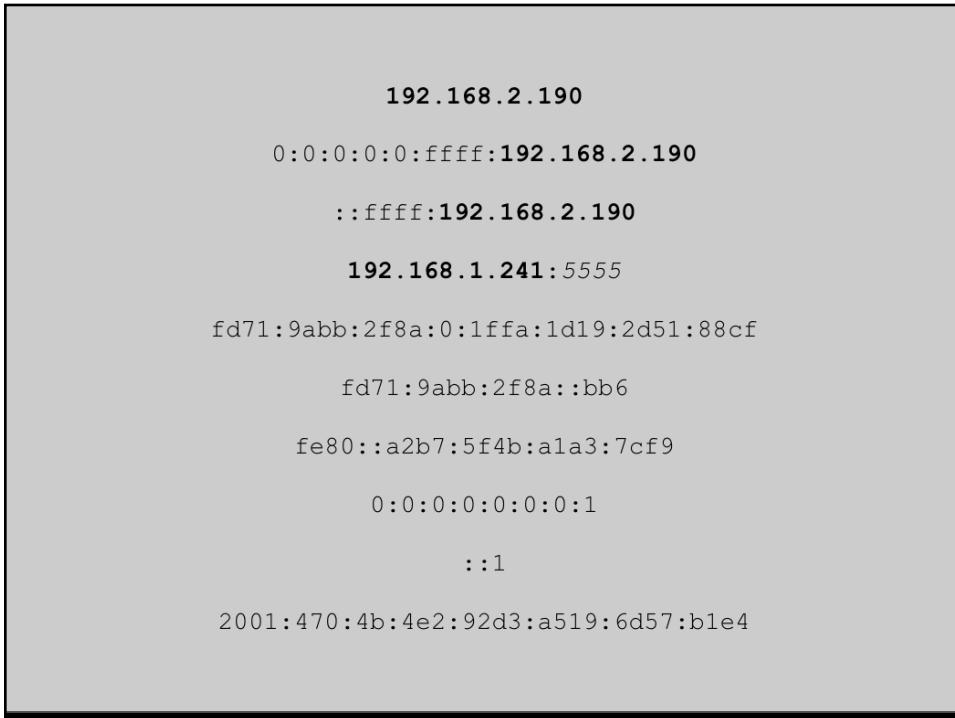
8 hexets in hexadecimal separated by colons

2600:100e:b003:f288:c265:6cae:85c8:4f68

DNS record type AAAA







```

pi@lead: ~/src/com-diag-diminuto/Diminuto (ssh)
2017-01-23T20:43:07.262821Z ::ffff:192.168.2.182 "copper 173954619884813 593\n"
2017-01-23T20:43:07.325428Z ::ffff:192.168.1.132 "zinc 174151388854562 591\n"
2017-01-23T20:43:07.629231Z 2600:100e:b004:42b8:9722:fb08:6e14:6736 "tin 174122116141240 604\n"
2017-01-23T20:43:07.767777Z fd71:9abb:2f8a:0:b89c:c93d:88f8:b280 "mercury 49992221443019994 595\n"
2017-01-23T20:43:07.795667Z ::ffff:192.168.2.150 "bronze 174370676945343 601\n"
2017-01-23T20:43:08.276605Z ::ffff:192.168.2.182 "copper 173955633715545 594\n"
2017-01-23T20:43:08.340051Z ::ffff:192.168.1.132 "zinc 174152403013835 592\n"
2017-01-23T20:43:08.581895Z 2600:100e:b004:42b8:9722:fb08:6e14:6736 "tin 174123129861243 605\n"
2017-01-23T20:43:08.769700Z fd71:9abb:2f8a:0:b89c:c93d:88f8:b280 "mercury 4999222444931345 596\n"
2017-01-23T20:43:08.809532Z ::ffff:192.168.2.150 "bronze 174371690826990 602\n"
2017-01-23T20:43:09.290705Z ::ffff:192.168.2.182 "copper 173956647595299 595\n"
2017-01-23T20:43:09.354097Z ::ffff:192.168.1.132 "zinc 174153416934099 593\n"
2017-01-23T20:43:09.589216Z 2600:100e:b004:42b8:9722:fb08:6e14:6736 "tin 174124143773016 606\n"
2017-01-23T20:43:09.771607Z fd71:9abb:2f8a:0:b89c:c93d:88f8:b280 "mercury 4999223446835164 597\n"
2017-01-23T20:43:09.823793Z ::ffff:192.168.2.150 "bronze 174372705062587 603\n"
2017-01-23T20:43:10.304583Z ::ffff:192.168.2.182 "copper 173957661708311 596\n"
2017-01-23T20:43:10.368316Z ::ffff:192.168.1.132 "zinc 174154430984830 594\n"
2017-01-23T20:43:10.623296Z 2600:100e:b004:42b8:9722:fb08:6e14:6736 "tin 174125157640519 607\n"
2017-01-23T20:43:10.773462Z fd71:9abb:2f8a:0:b89c:c93d:88f8:b280 "mercury 499922448685995 598\n"
2017-01-23T20:43:10.837729Z ::ffff:192.168.2.150 "bronze 174373719117695 604\n"
2017-01-23T20:43:11.317713Z ::ffff:192.168.2.182 "copper 173958675442429 597\n"
A
[1]+ Stopped                  internettool -w -u -p 5555 -v
pi@lead:~/src/com-diag-diminuto/Diminuto 3 ]

```

```

[1]+  Stopped                  timesource | internettool -6 -u -A ::ffff:192.168.2.190 -P 5555 | timesink
pi@copper:~/src/com-diag-diminuto/Diminuto$ 

```

The terminal window displays a list of network connections. The output starts with 'copper' and continues with various connection details, such as source and destination ports, and connection status (e.g., 577 : 371202046 0). The list is quite long, spanning multiple lines.

```

[1]+  Stopped                  timesource | internettool -6 -u -A 2001:470:4b:4e2:92d3:c519:6d57:b1e4 -P 5555 | timesink
pi@tin:~/src/com-diag-diminuto/Diminuto$ 

```

The terminal window displays a list of network connections. The output starts with 'tin' and continues with various connection details, such as source and destination ports, and connection status (e.g., 580 : tin 174104878953432 587 : 166076650 -7). The list is quite long, spanning multiple lines.

```

mercury 4999204373904108 578 : mercury 4999204370936669 578 : 2967439 0
mercury 499920537848957 579 : mercury 4999205375481422 579 : 3003535 0
mercury 4999206383047750 580 : mercury 4999206380112840 580 : 2934910 0
mercury 4999207387554371 581 : mercury 4999207384634426 581 : 291945 0
mercury 499920832203061 582 : mercury 4999208389270679 582 : 2932382 0
mercury 4999209396762969 583 : mercury 4999209393826018 583 : 2936951 0
mercury 4999210400910545 584 : mercury 49992103979059561 584 : 3004584 0
mercury 4999211404782139 585 : mercury 4999211402090843 585 : 2691287 0
mercury 4999212409546884 586 : mercury 4999212406519240 586 : 3027644 0
mercury 4999213414055438 587 : mercury 4999213411126510 587 : 2928238 0
mercury 4999214418603637 588 : mercury 4999214415684130 588 : 2919507 0
mercury 4999215422647869 589 : mercury 4999215419952386 589 : 2695483 0
mercury 499921642726632 590 : mercury 4999216424325531 590 : 2940791 0
mercury 4999217431821553 591 : mercury 4999217428937451 591 : 2884102 0
mercury 4999218436265769 592 : mercury 4999218433407639 592 : 2858136 0
mercury 4999219440507667 593 : mercury 4999219437762669 593 : 2744798 0
mercury 4999220443306624 594 : mercury 4999220441140159 594 : 2166465 0
mercury 4999221445009678 595 : mercury 4999221443019994 595 : 1989684 0
mercury 4999222446489306 596 : mercury 4999222444931345 596 : 1557961 0
mercury 4999223448117629 597 : mercury 4999223446835164 597 : 1282465 0
mercury 4999224449872856 598 : mercury 4999224448685995 598 : 1186861 0
^Z
[1]+  Stopped                  timesource | internettool -6 -u -A fd71:9abb:2f8a:0:1ff:1d19:2d51:88cf -P 5555 | timesink
jsloan@mercury:~/src/com-diag-diminuto/Diminuto$ 

```

```

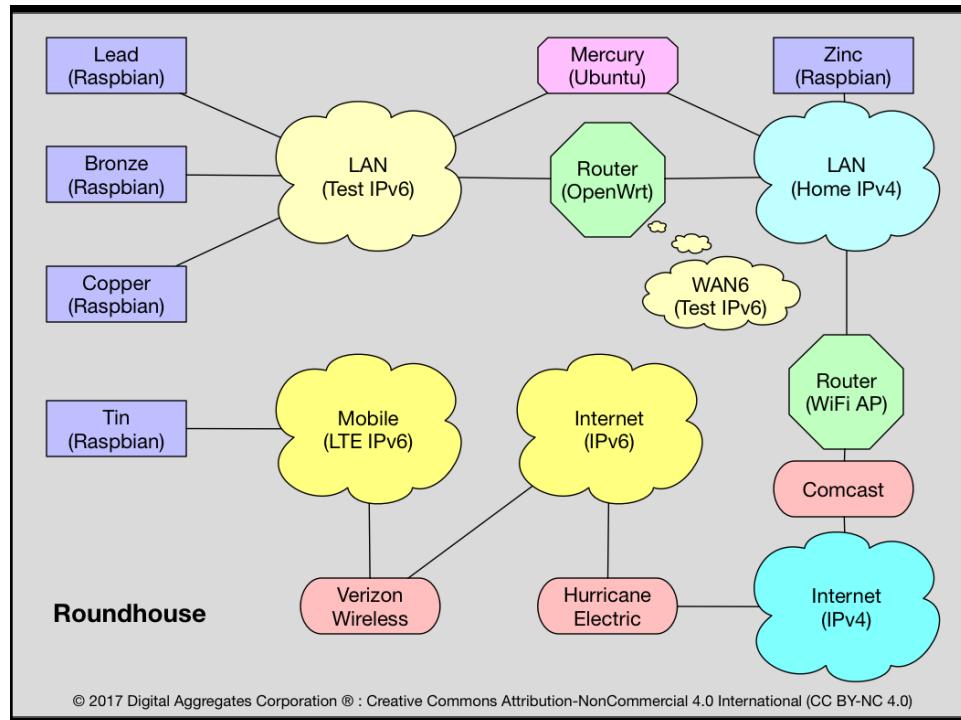
bronze 174353857517389 584 : bronze 174353439245504 584 : 418271885 0
bronze 174354872166975 585 : bronze 174354453467485 585 : 418699490 0
bronze 17435586635051 586 : bronze 17435546786551 586 : 419048500 0
bronze 174356901346200 587 : bronze 174356481406763 587 : 419939437 0
bronze 174357916113181 588 : bronze 174357495443015 588 : 420670166 0
bronze 174358930876518 589 : bronze 174358509515518 589 : 421361000 0
bronze 174359945641938 590 : bronze 174359523603749 590 : 42288187 0
bronze 174360960382304 591 : bronze 174360937671825 591 : 422710479 0
bronze 174361976030223 592 : bronze 174361551430422 592 : 424599801 0
bronze 174362990782987 593 : bronze 174362565389383 593 : 425393604 0
bronze 17436400573404 594 : bronze 174363579143396 594 : 426429645 0
bronze 174365020244139 595 : bronze 174364593128763 595 : 427115375 0
bronze 174366035144973 596 : bronze 174365607156162 596 : 427988811 0
bronze 174367049733579 597 : bronze 174366621212676 597 : 428520894 0
bronze 174368064745343 598 : bronze 174367635174136 598 : 429571207 0
bronze 17436907947208 599 : bronze 174368648953931 599 : 430525269 0
bronze 174370004497380 600 : bronze 174369663064671 600 : 431432509 0
bronze 174371109101862 601 : bronze 174370676945343 601 : 432156519 0
bronze 174372123746916 602 : bronze 174371690826960 602 : 432919596 0
bronze 174373138514159 603 : bronze 17437270562587 603 : 433451572 0
bronze 174374152974109 604 : bronze 174373719117695 604 : 433856414 0
^Z
[1]+  Stopped                  timesource | internettool -4 -u -A 192.168.2.190 -P 5555 | timesink
pi@bronze:~/src/com-diag-diminuto/Diminuto$ 

```

```

6. pi@zinc: ~/src/com-diag-diminuto/Diminuto (ssh)
zinc 174134491396564 574 : zinc 174134150919254 574 : 340477310 0
zinc 17413550977348 575 : zinc 174135165124413 575 : 340852935 0
zinc 174136520598188 576 : zinc 174136179064469 576 : 341533716 0
zinc 1741375354914697 577 : zinc 174137193191971 577 : 342222772 0
zinc 174138549963340 578 : zinc 174138207146766 578 : 342816580 0
zinc 174139565160640 579 : zinc 174139220997810 579 : 344162833 0
zinc 174140579783924 580 : zinc 174140234738698 580 : 345045227 0
zinc 174141594764291 581 : zinc 174141248593483 581 : 346254800 0
zinc 174142609435708 582 : zinc 174142262763860 582 : 346671841 0
zinc 174143624070651 583 : zinc 174143276694288 583 : 347376371 0
zinc 174144638763362 584 : zinc 174144290362147 584 : 348401215 0
zinc 174145653362794 585 : zinc 174145304375118 585 : 348987674 0
zinc 17414667986232 586 : zinc 174146318383715 586 : 349602517 0
zinc 174147682522953 587 : zinc 17414732634499 587 : 349888454 0
zinc 174148696953269 588 : zinc 174148346645858 588 : 350307413 0
zinc 174149711480198 589 : zinc 174149560672000 589 : 350808193 0
zinc 174150726192076 590 : zinc 174150374909038 590 : 351230308 0
zinc 174151740670725 591 : zinc 174151388854562 591 : 351816163 0
zinc 17415275525207 592 : zinc 174152403013835 592 : 352511372 0
zinc 174153770154741 593 : zinc 174153416934099 593 : 353220642 0
zinc 174154784856983 594 : zinc 1741544303984830 594 : 353872153 0
^Z
[1]+ Stopped timesource | internettool -4 -u -A 192.168.1.241 -P 5555 | timesink
pi@zinc:~/src/com-diag-diminuto/Diminuto 5

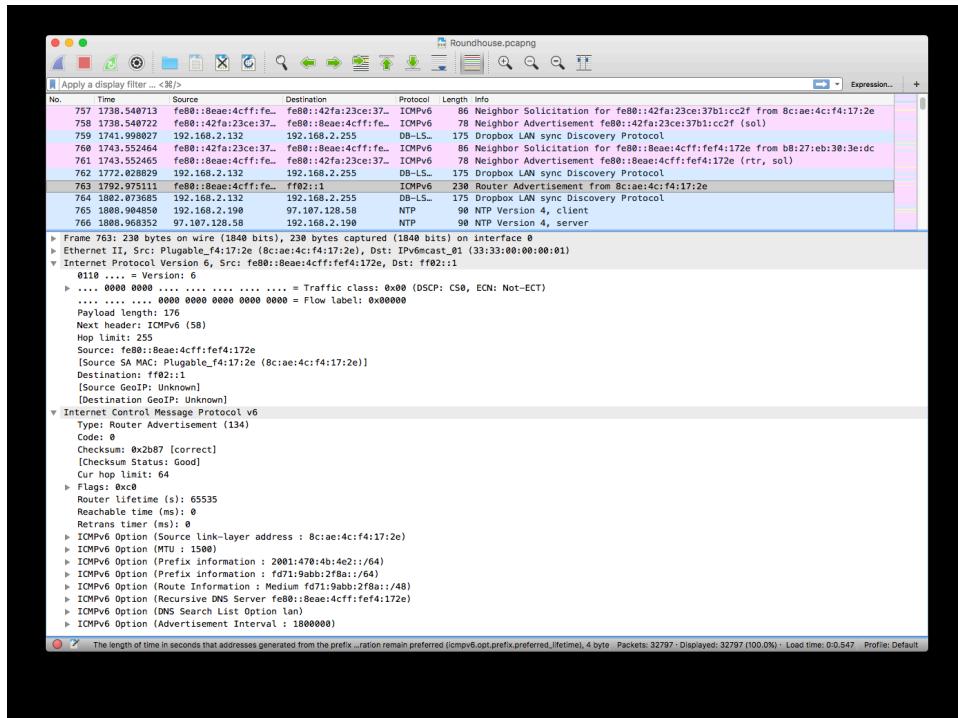
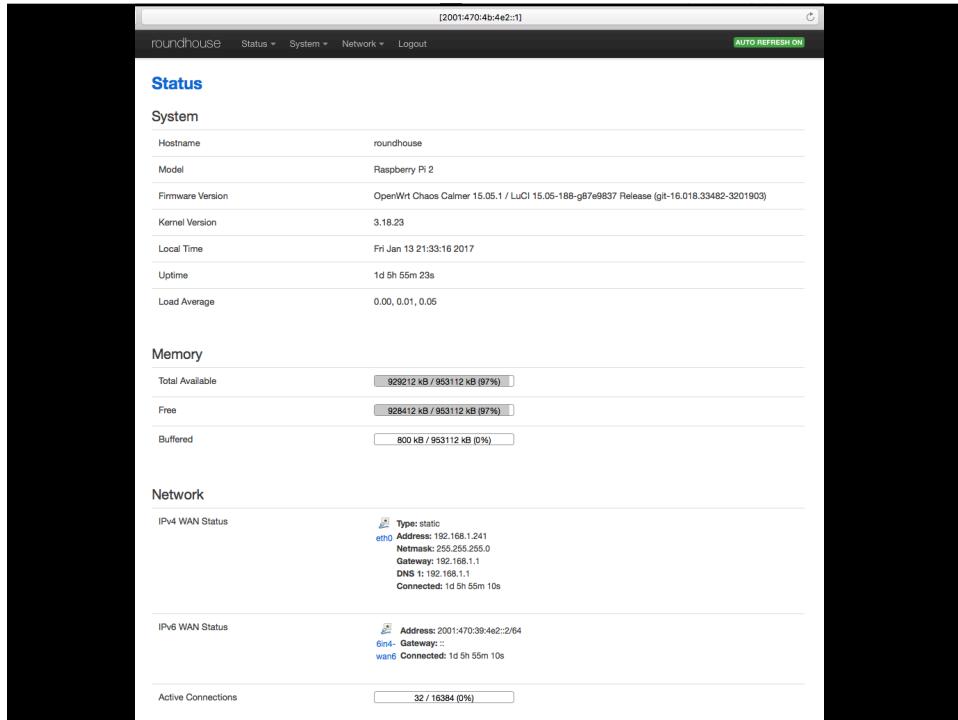
```

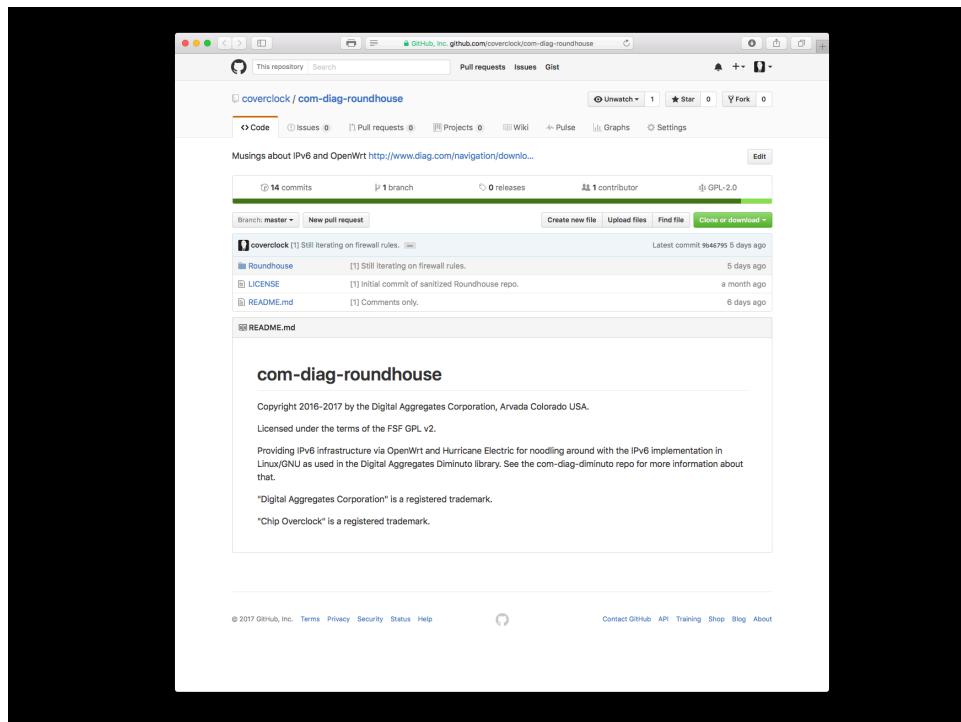


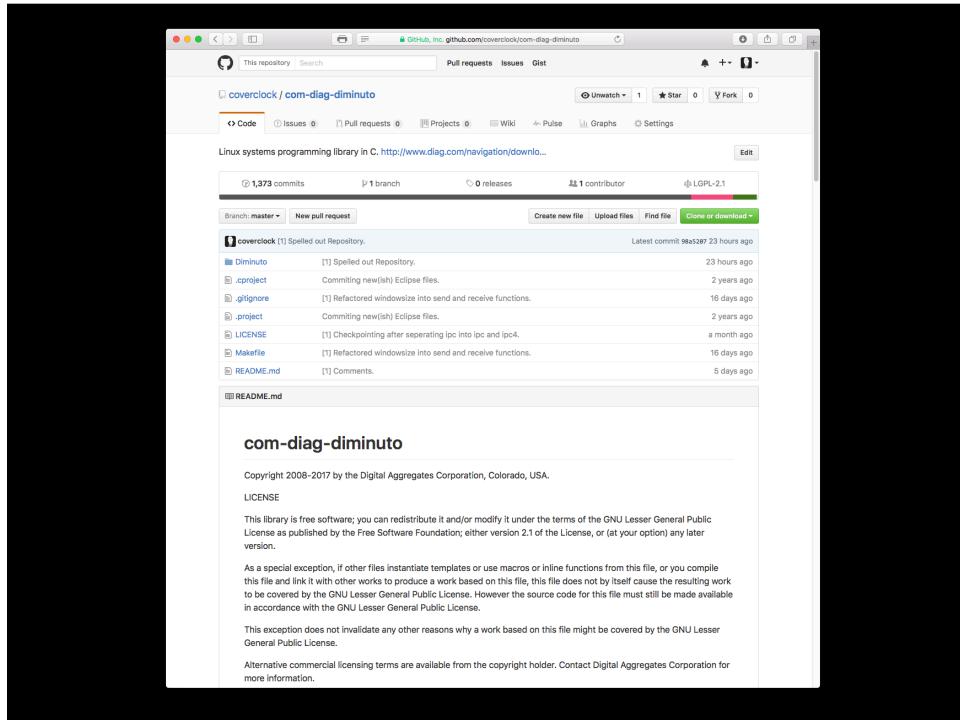
```
ping6  
traceroute6  
ssh -6  
ip -6  
ip -6 neigh show  
wget -6  
route -A inet6  
nslookup -query=AAAA  
host -t AAAA  
http://\[2600:100e:b003:f288:c265:6ca3:85c8:4f68\]
```

4. screen

```
root@roundhouse:~# ip -6 neigh show  
fe80::18e4:e558:c34:4fef dev eth0 lladdr f0:d1:a9:d9:1f:4d STALE  
fe80::c91:e95b:e393:a070 dev eth0 lladdr 60:fe:c5:d2:4c:63 STALE  
2001:470:4b:4e2:c138:3e34:511b:bd41 dev br-lan lladdr 8c:ae:4c:f4:04:0c STALE  
2001:470:4b:4e2:e79:7f1e:21f5:9355 dev br-lan lladdr b8:27:eb:30:3e:dc STALE  
2001:470:4b:4e2:3569:edf2:e6e:da37 dev br-lan lladdr 8c:ae:4c:f4:32:00 STALE  
2001:470:4b:4e2:92d3:a519:6d57:b1e4 dev br-lan lladdr b8:27:eb:80:3e:6c STALE  
fe80::cb1:75d1:b3f9:a1e6 dev eth0 lladdr 98:fe:94:78:86:42 STALE  
fe80::42fa:23ce:37b1:cc2f dev br-lan lladdr b8:27:eb:30:3e:dc STALE  
2001:470:4b:4e2:dc86:c303:3dc5:f33e dev br-lan lladdr b8:27:eb:23:63:5a STALE  
2001:470:4b:4e2:35:1173:adc3:71b8 dev br-lan lladdr 8c:ae:4c:f4:32:00 STALE  
fe80::a2b7:5f4b:a1a3:7cf9 dev br-lan lladdr b8:27:eb:80:3e:6c STALE  
fe80::469:d1a:6551:268d dev eth0 lladdr 2c:f0:a2:a4:42:8c STALE  
fe80::810a:5082:5cc5:1368 dev br-lan lladdr b8:27:eb:23:63:5a STALE  
fe80::1c84:b904:4c53:353e dev br-lan lladdr 8c:ae:4c:f4:32:00 STALE  
root@roundhouse:~#
```









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Roundhouse