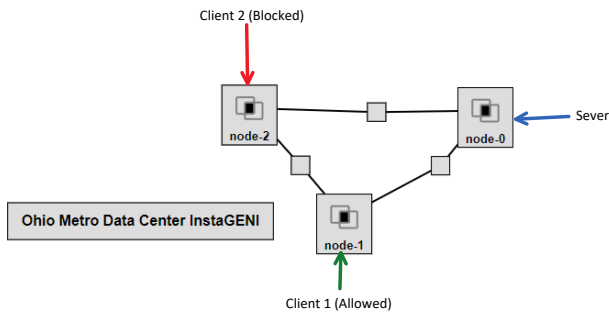


Final Project - CCN

Monday, November 29, 2021 3:43 PM

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Topology Of Network simulated:



Practical application for only allowing certain host connections:

The practical application is it can provide a basic firewall to a server. This process can be applied for security reasons to protect the integrity of data on the server.

GitHub Repo:

https://github.com/dbrooks24/CCN_IP-Blocking_FinalProject

Network Information:

```
dbrook23@node-0:~/CCN_IP-Blocking_FinalProject$ ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 172.17.2.11 netmask 255.240.0.0 broadcast 172.31.255.255
    inet6 fe80::cf2e4fff:fe45:71d2 prefixlen 64 scopeid 0x20<link>
    ether 02:cfe4:45:71:d2 txqueuelen 1000 (Ethernet)
    RX packets 29649 bytes 42681250 (42.6 MB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 17036 bytes 1397258 (1.3 MB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

eth1: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 10.10.3.2 netmask 255.255.255.0 broadcast 10.10.3.255
    inet6 fe80::ab:d0ff:fe3:54d0 prefixlen 64 scopeid 0x20<link>
    ether 02:78:74:ccca:d3 txqueuelen 1000 (Ethernet)
    RX packets 37 bytes 3404 (3.4 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 25 bytes 3618 (3.6 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

eth2: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 10.10.1.1 netmask 255.255.255.0 broadcast 10.10.1.255
    inet6 fe80::78:74ff:fecc:a6d3 prefixlen 64 scopeid 0x20<link>
    ether 02:78:74:ccca:d3 txqueuelen 1000 (Ethernet)
    RX packets 50 bytes 4575 (4.5 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 25 bytes 3618 (3.6 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

dbrook23@node-0:~/CCN_IP-Blocking_FinalProject$
```

```
dbrook23@node-2:~/CCN_IP-Blocking_FinalProject$ ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 172.17.2.18 netmask 255.240.0.0 broadcast 172.31.255.255
    inet6 fe80::b0:5fff:fe09:d1f6 prefixlen 64 scopeid 0x20<link>
    ether 02:b0:5f:09:d1:f6 txqueuelen 1000 (Ethernet)
    RX packets 29402 bytes 42651260 (42.6 MB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 12010 bytes 1060420 (1.0 MB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

eth1: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 10.10.2.2 netmask 255.255.255.0 broadcast 10.10.2.255
    inet6 fe80::127:77ff:fe68:79a prefixlen 64 scopeid 0x20<link>
    ether 02:127:77:68:07:9a txqueuelen 1000 (Ethernet)
    RX packets 49 bytes 4268 (4.2 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 29 bytes 4217 (4.2 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

eth2: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 10.10.3.1 netmask 255.255.255.0 broadcast 10.10.3.255
    inet6 fe80::ab:4ff:fe7f:2c23 prefixlen 64 scopeid 0x20<link>
    ether 02:ab:48:4ff:fe7f:2c23 txqueuelen 1000 (Ethernet)
    RX packets 53 bytes 5028 (5.0 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 29 bytes 4217 (4.2 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

dbrook23@node-2:~/CCN_IP-Blocking_FinalProject$
```

```
dbrook23@node-1:~/CCN_IP-Blocking_FinalProject$ ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 172.17.2.17 netmask 255.240.0.0 broadcast 172.31.255.255
    inet6 fe80::5f:30ff:fea9:9d4f prefixlen 64 scopeid 0x20<link>
    ether 02:5f:30:a9:9d:4f txqueuelen 1000 (Ethernet)
    RX packets 29315 bytes 42651060 (42.6 MB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 16141 bytes 1278678 (1.2 MB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

eth1: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 10.10.1.2 netmask 255.255.255.0 broadcast 10.10.1.255
    inet6 fe80::a4:34ff:fe0b:dc30 prefixlen 64 scopeid 0x20<link>
    ether 02:a4:34:0b:dc:30 txqueuelen 1000 (Ethernet)
    RX packets 30 bytes 2408 (2.4 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 22 bytes 3123 (3.1 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

eth2: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 10.10.2.1 netmask 255.255.255.0 broadcast 10.10.2.255
    inet6 fe80::74:18ff:fe16:9f30 prefixlen 64 scopeid 0x20<link>
    ether 02:74:18:16:9f:30 txqueuelen 1000 (Ethernet)
    RX packets 30 bytes 2442 (2.4 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 21 bytes 2802 (2.8 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

dbrook23@node-1:~/CCN_IP-Blocking_FinalProject$
```

Running the code (Client and Server Interaction):

