ETH zürich

Discussion exercise sheet 7

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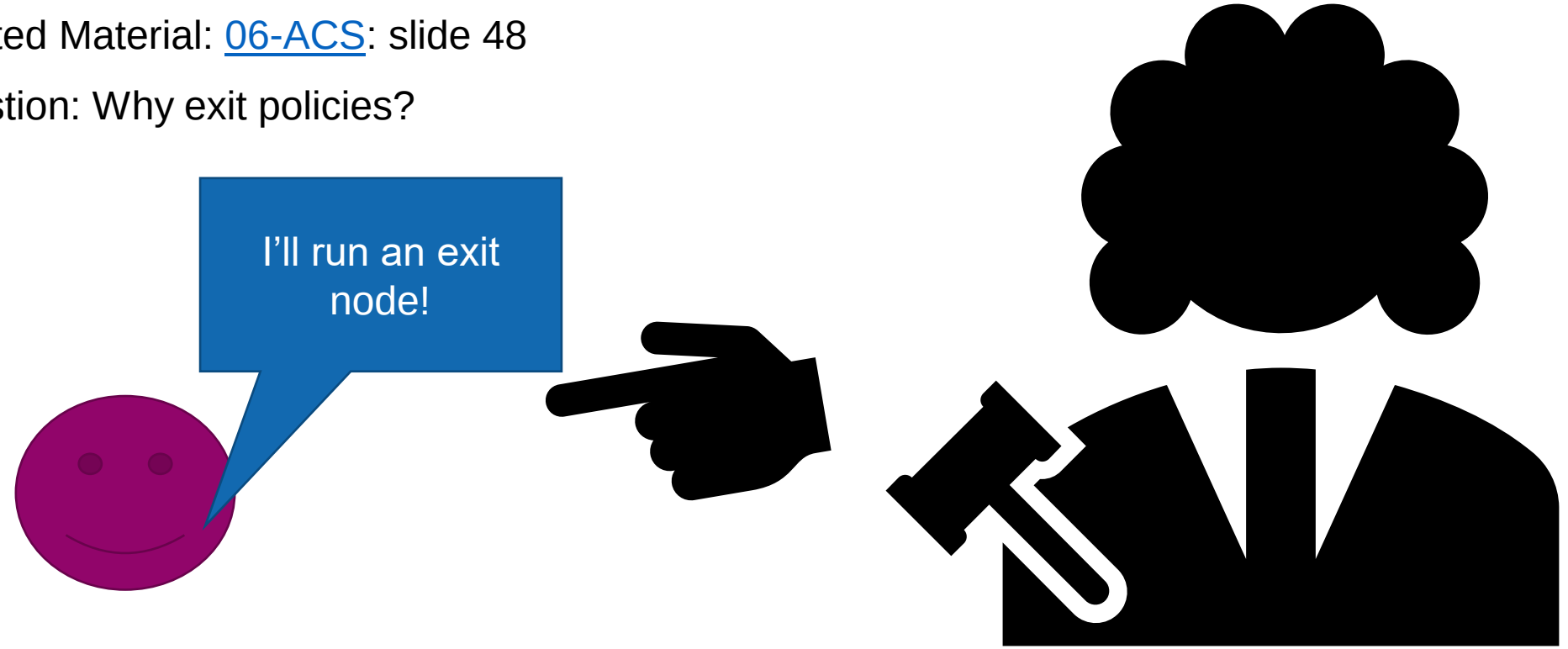
Student Assistant for Network Security 2020
05 November 2020, At home

Question 1 - TOR - Reprisal

- Related Material: 06-ACS: slide 48
- Question: Why exit policies?



Question 1 - TOR - Reprisal

- Related Material: 06-ACS: slide 56
- Question: Why facebookcorewwwi.onion?
  - Based on key -> Brute force
  - netsec2h4c75huw5.onion

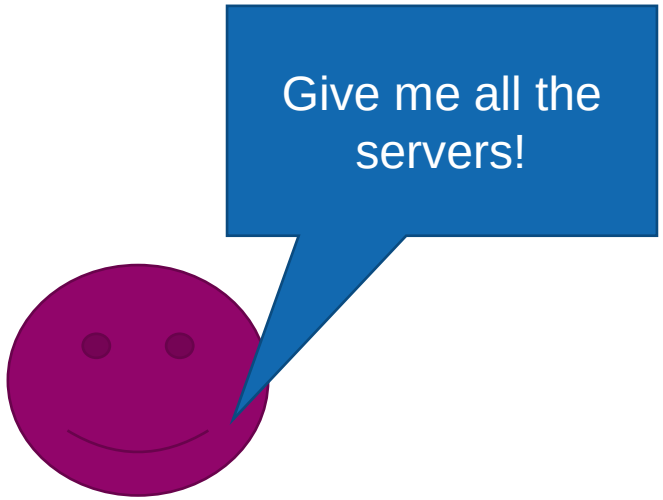
-----BEGIN RSA PRIVATE KEY-----
MIICXgIBAAKBgQCvnMpqG+cFDhx8tCClPbUMudqbmkVW/eT8Uwz9Klk1cEVpMVGf
b//wabhhlCbz1V/Todr0ucV95gEamSiAnpab2nyMIcc+8EReJ2QjBClgyIBmxJEa
BrKdW4DF3UbHqSa1uJ6IsHuyJ0CqysOxaavPI4leFMokGI9hdyY1eP6MEQIENlG0
RwKBgAPtMEF4jKMXHG5thml1jJEM3USuOZTgWcSLNNvXebxYrFCM2dPL6pygmSod
MYZF/meaxGT93SIfRRUfnCqqVS7TwenqeKvmZPBpP9BNZ5DXsEF35IzfiCl3bpQy
iA291a7Dj50a23lg3m3DjbMakwV5/lw7zv+y85uoT3+ZiBehAkEA258TnV0dS3/9
o+CYC3G2RNfyPWWOWQnSm8LmleBe/7uop+N6A0ZlNro+HfSCda3RV5lqUQsgdH0b
y6SmflNoEwJBAMyzijE9XoKPpUNQlWgcWVj/oaYNrIeJz3sY+9Y6YCfgoI3iJukx
60zmZsCe8LISw3m3MbWWpjLlTObdmRxDh8sCQDtUnrrHHiZtLjJko8AI2yffQuii
wPbmFPLAt2sN5m2iJDI89HFfMYxw0zw22rqm9ZmrT1rG2wm9I7oFPfVBgssCQQCm
ZZNLSpOfpWY0quLeq4kKhIG1mgahP1tFyKJuRCEt/B07jLU7FMgkTvRObt3yWA0N
0EOVT9UwzYfYl1YshZnLAkEApNKOvqx5bRDfGQY72mZTIjBf1Qp4qBfM7NvcvD8m
wnxcT8iDU5aRKmrvBjC4Lepu6HprYLy7XaZ6tX0eqO2m/A==
-----END RSA PRIVATE KEY-----


```
time ./eschalot -v -t8 -p netsec >> netsec.txt
Running, collecting performance data...

Total hashes: 369017267, running time: 10 seconds, hashes per second: 36901726
Total hashes: 1114732814, running time: 31 seconds, hashes per second: 35959123
Total hashes: 2533180204, running time: 71 seconds, hashes per second: 35678594
Found a key for netsec (6) - netsec2h4c75huw5.onion

real   1m52.596s
```

https://opensource.com/article/19/8/how-create-vanity-tor-onion-address

Question 1 - TOR - Reprisal

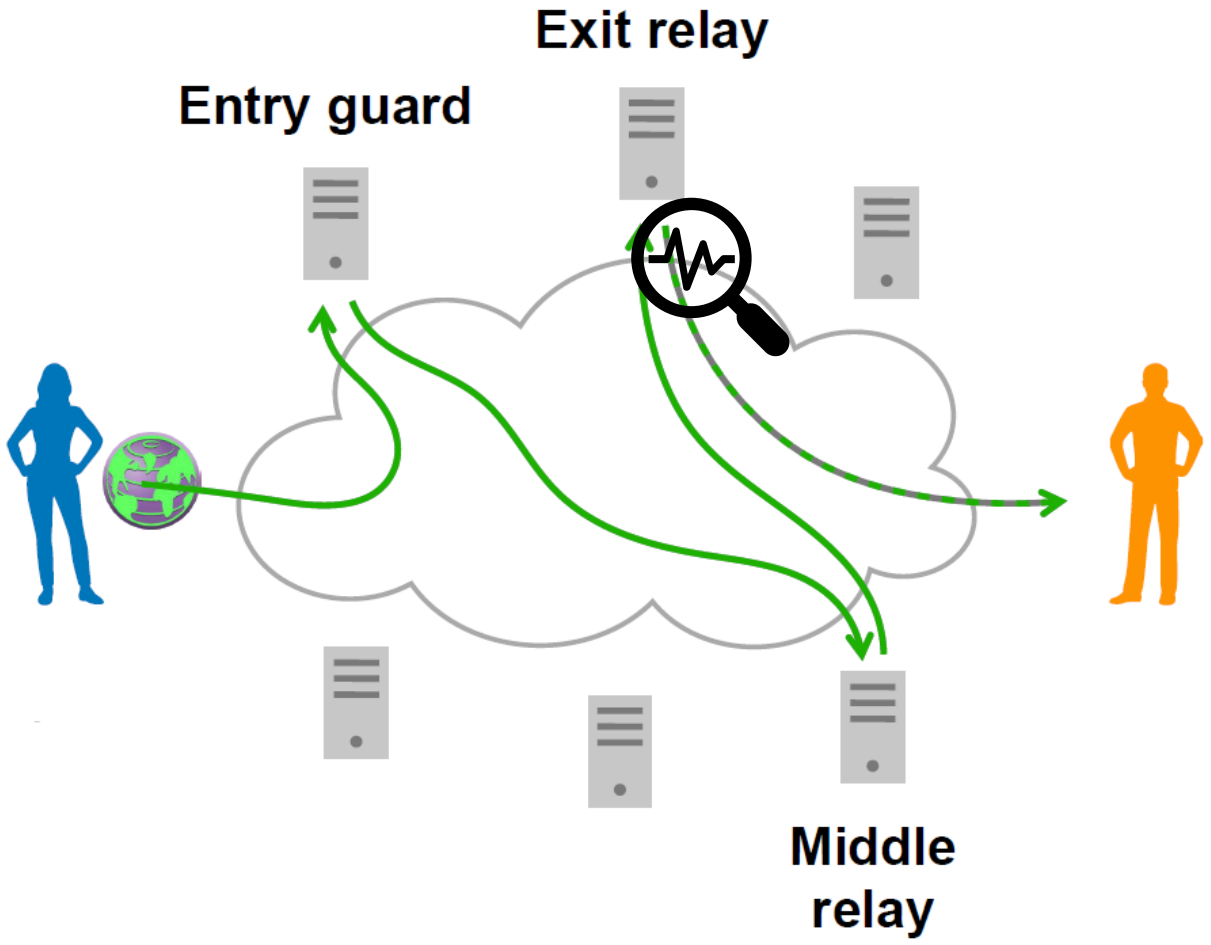
- Related Material: 06-ACS: slide 59
- Question: Why relay limit per subnet?



Might I also interest you in the book after which the attack you are preforming is named?

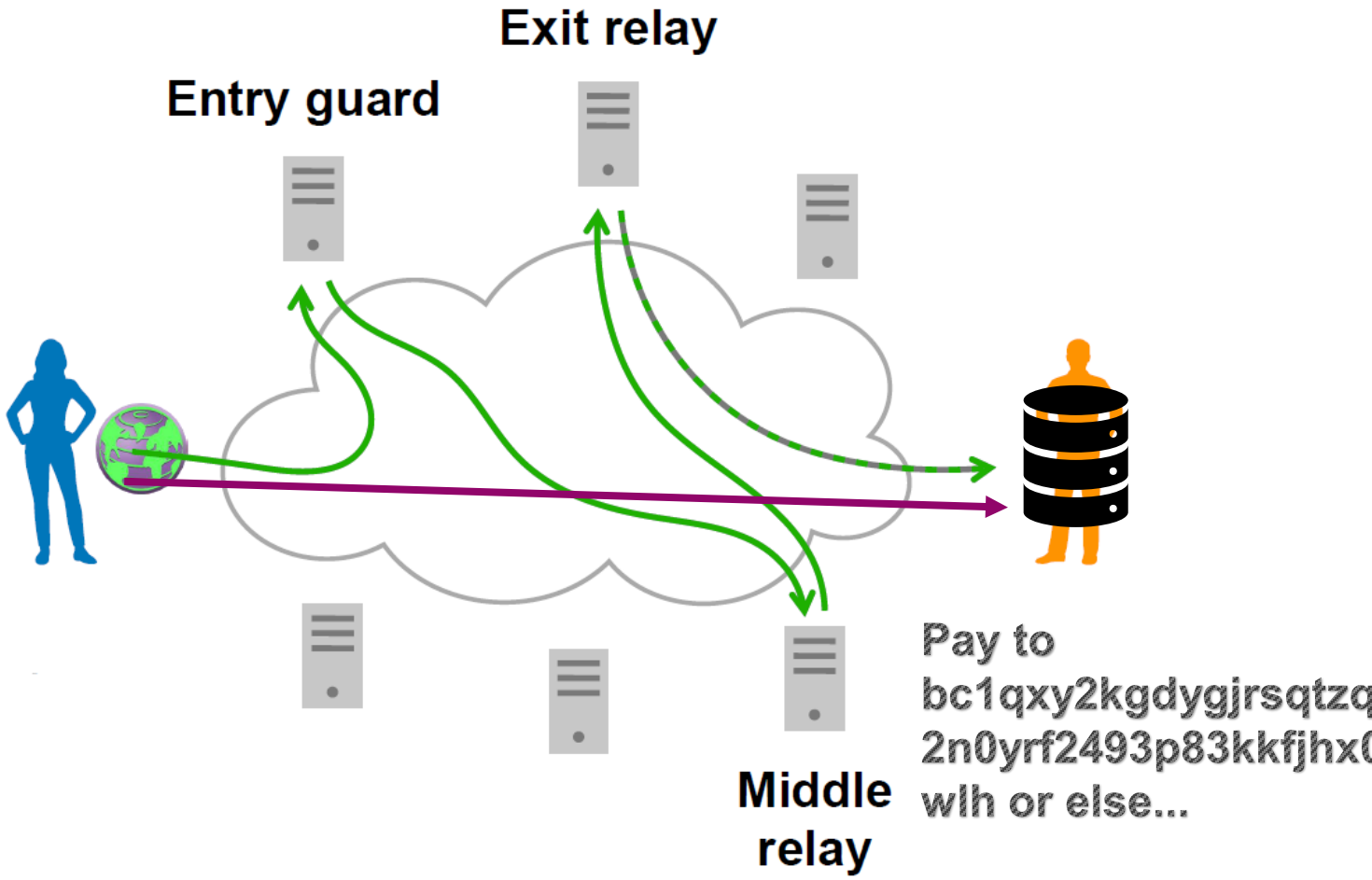
Question 2 - TOR – Malicious Exit relays

- Related Material: 06-ACS: slide 47
- Question: HTTP a problem?
  - Yes, MitM!
  - HTTPS works a usual



Question 2 - TOR – Malicious Exit relays

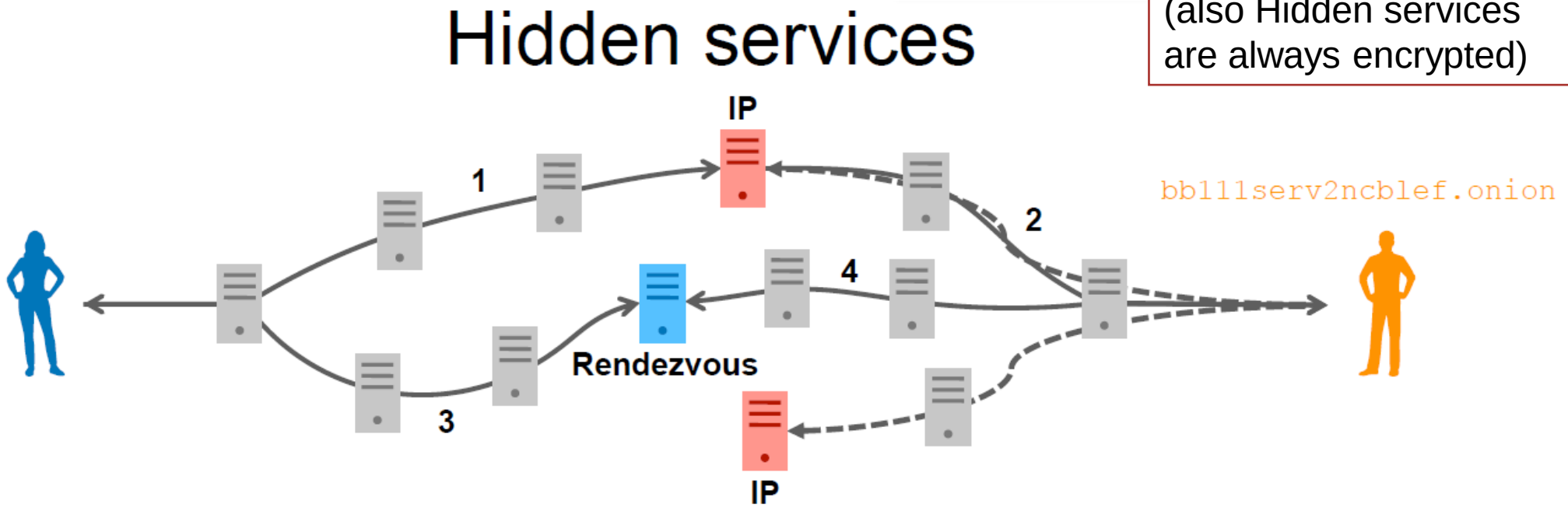
- Related Material: 06-ACS: slide 47
- Question: Detection?
  - Contact with and without TOR
  - Different content proves maliciousness
  - Juicy target: bitcoin addresses



Question 2 - TOR – Malicious Exit relays

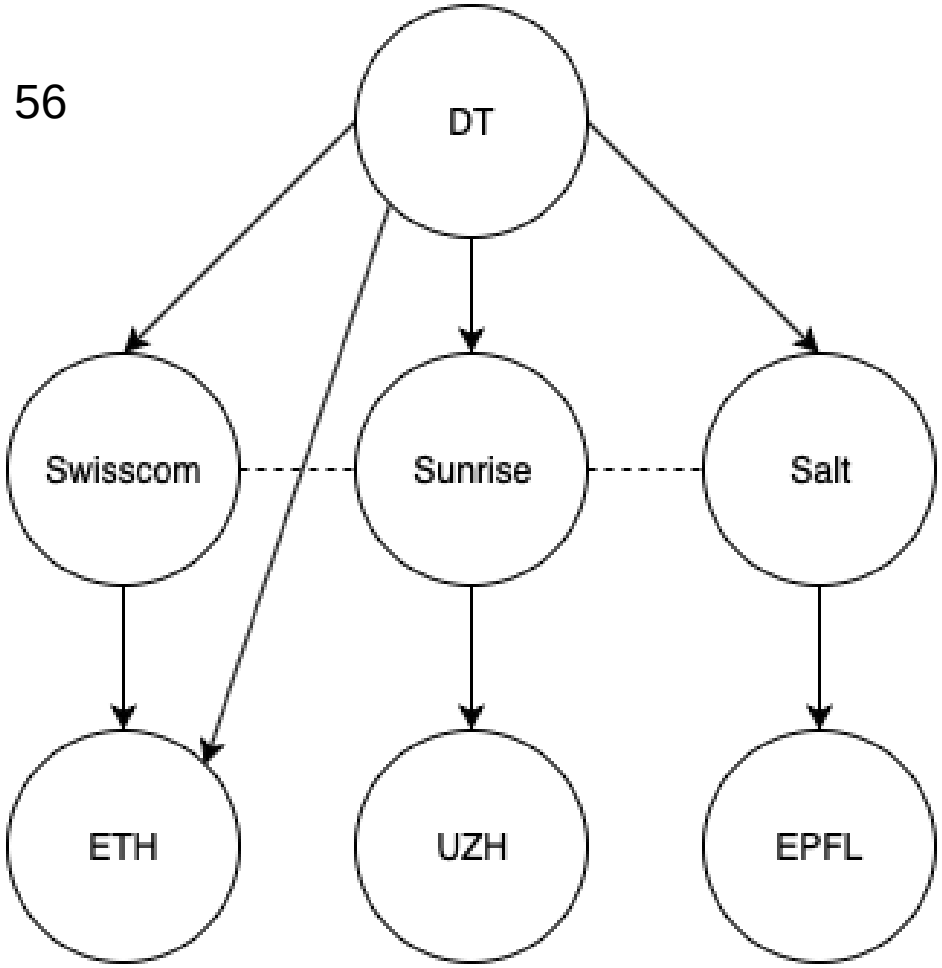
- Related Material: 06-ACS: slide 55
- Question: Same with hidden service?

No, there is no exit relay. (also Hidden services are always encrypted)



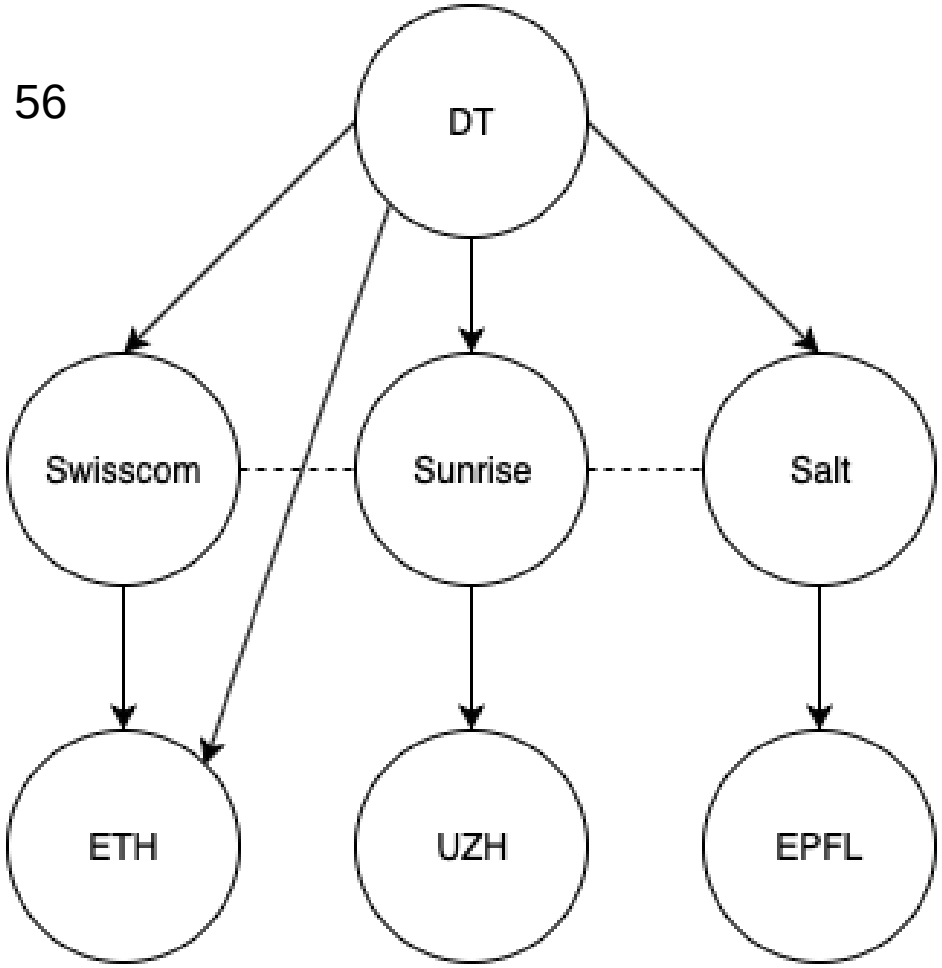
Question 3 – BGP Relationships

- Related Material: 01c-net-refresher: slide 53 - 56
- Question: ETH -> UZH?



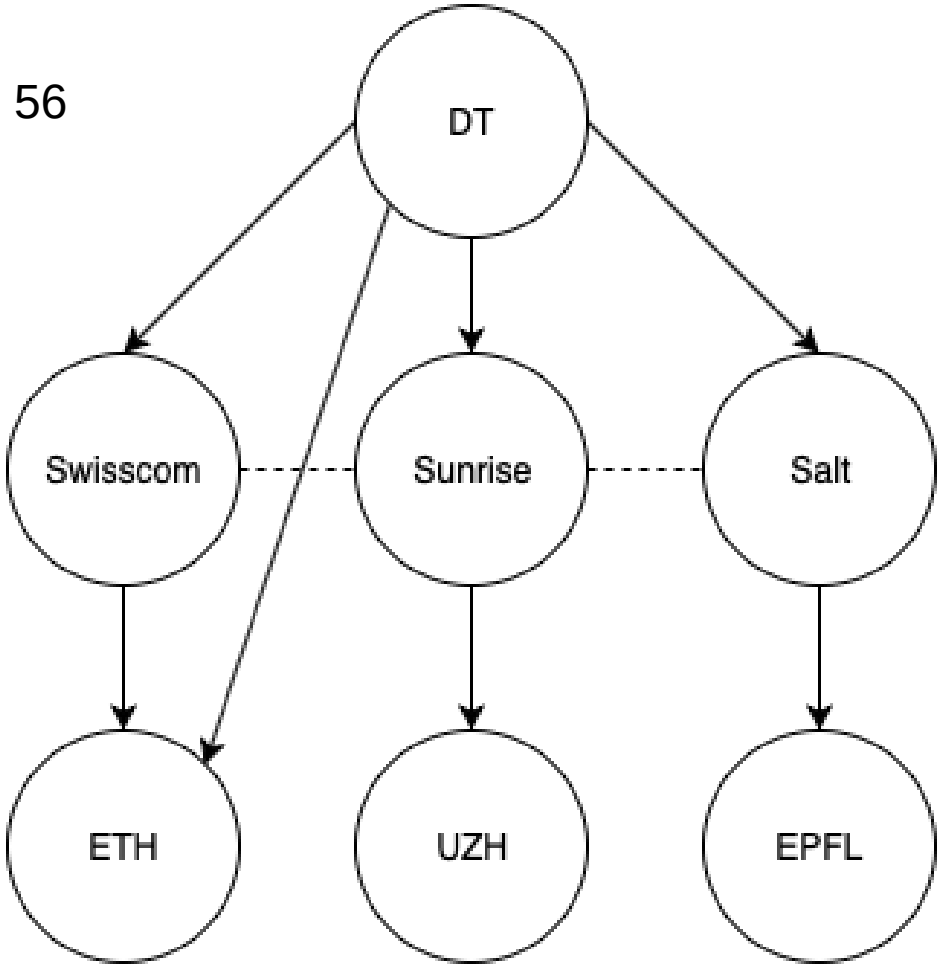
Question 3 – BGP Relationships

- Related Material: 01c-net-refresher: slide 53 - 56
- Question: ETH -> EPFL?



Question 3 – BGP Relationships

- Related Material: 01c-net-refresher: slide 53 - 56
- Question: ETH announces DT?
  - Swisscom to EPFL
  - Swisscom to Sunrise



Question 4 – BGP Attacks

- Related Material: 07-BGP: slide 48, RIPE article
- Question: Pakistan censors Youtube?
  - BGPlay 208.65.152.0/22
  - BGPlay 208.65.153.0/24

Question 4 – BGP Attacks

- Related Material: 07-BGP: slide 48, BGPmon article
- Question: AS12389 in 2017?

Starting at April 26 22:36 UTC till approximately 22:43 UTC AS12389 (PJSC Rostelecom) started to originate 50 prefixes for numerous other Autonomous systems. The 50 hijacked prefixes included 37 unique autonomous systems and the complete list of affected networks can be found below. If your organization is in this list feel free to reach out and we can provide more

3303 Swisscom (Switzerland) Ltd

30060 VeriSign Infrastructure & Operations

2559 Visa International

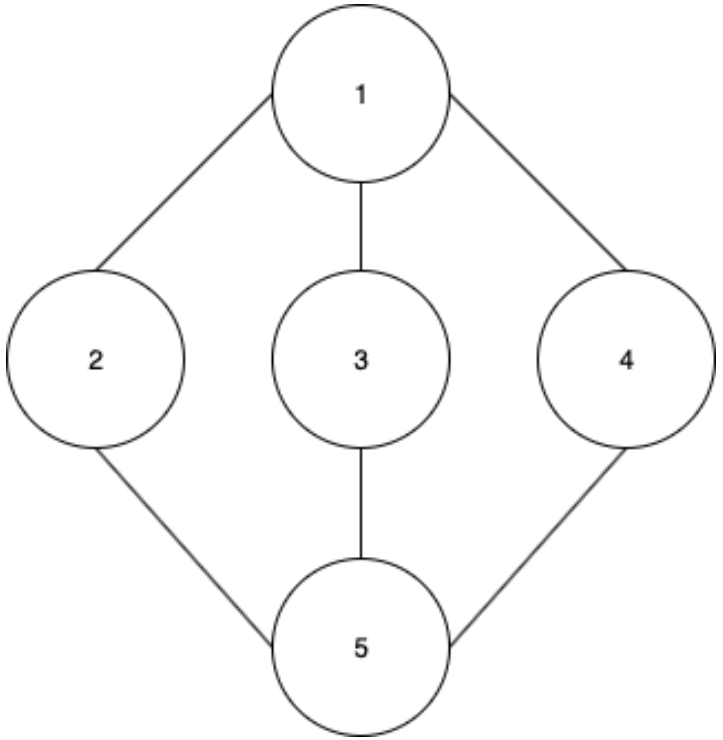
15632 JSC Alfa-Bank

9221 HSBC HongKong

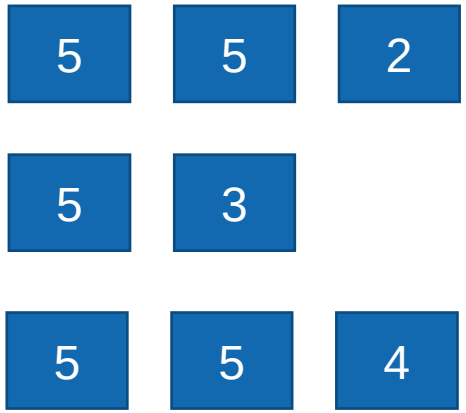
26380 MasterCard Technologies LLC

Question 5 – Traffic Engineering

- Related Material: 07-BGP: slide 22 -23
- Question: Add own AS multiple times?
  - Shorter paths preferred
  - Make one path longer to signal preference

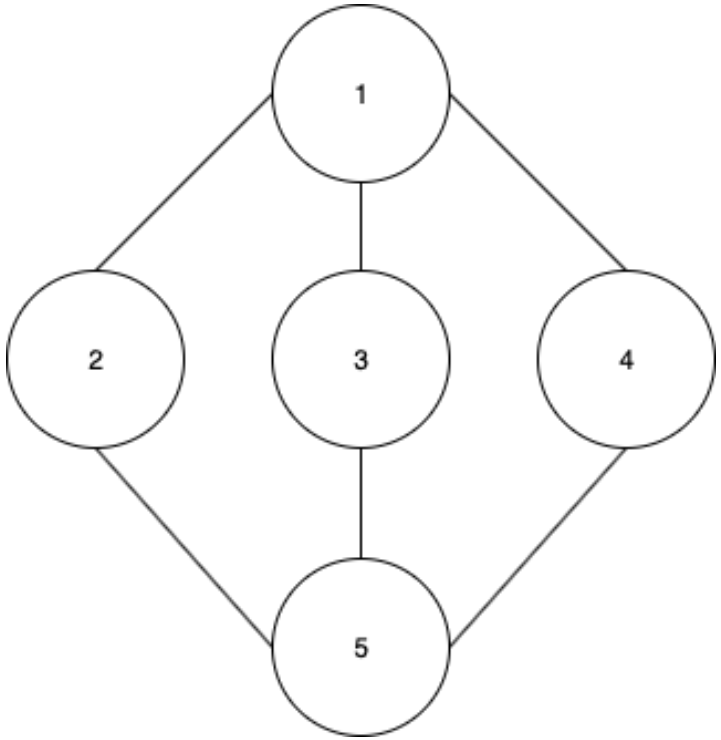


- View from 1:

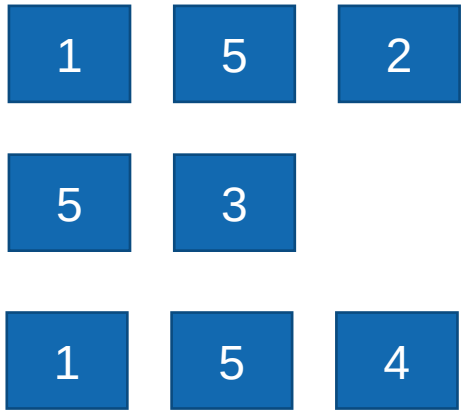


Question 5 – Traffic Engineering

- Related Material: 07-BGP: slide 22 -23
- Question: Add foreign AS to path?
  - Ignored by added AS due to loop detection
  - Make one path longer to signal preference

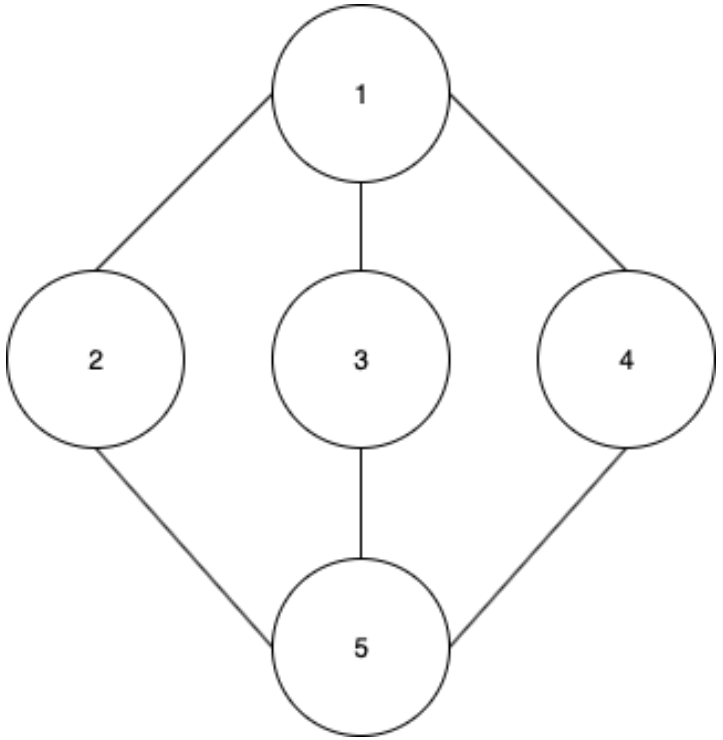


- View from 1:



Question 5 – Traffic Engineering

- Related Material: 07-BGP: slide 22 -23
- Question: 1 wants to eavesdrop 3 -> 5 and 4 -> 5?
  - Announce IP subprefix
  - Add 2 to the announcement to be able to forward to 5



2 1

Your Questions