Unit 4 Collaborative Discussion 2

Additional Reflections

In addition to participating in the collaborative discussion related to network scanning exercise, the following two questions were raised in relation to reading material for unit 5, namely, TCP/IP tutorial & technical overview (Chapters 1 – 5) by Parziale et al. (2006).

Does the information contained in the chapters listed above affect how you would use the tools discussed in Week 4?

Reading through chapters one to five, I do think the content presented will affect the way I utilise the tools used in Unit 4. This is because the content of the chapters provided very good *theoretical* understanding of elements used in networks. I did not find any obvious sections that helped one consider how better to leverage the network scanning tools.

The content is helpful because it addresses (from chapter three onwards)

- reserved IP addresses,
- routing (tables, algorithms, IP address classes, network address translation),
- IP fragmentation (that may affect scan results),
- the role of Internet Control Message Protocol (ICMP) and response codes used by ping and traceroute,
- Address Resolution Protocol (ARP) used on used on IEEE 802 networks with associated tools,
- The packet formats of UDP and TCP segment formats.

How does the information provided affect your understanding of the structure and operation of the Internet?

The information provided has deepened my appreciation of the foundations laid since 1980 that led to the ability for disparate devices to communicate (somewhat efficiently) across a network. There are several focused protocols that exist, for example HTTP, Routing Information Protocol (RIP) or Bootstrap Protocol (BOOTP) that arose because of unique network communication scenarios that were not already solved by existing protocols. It is

easy to admire the many intelligent minds that submitted multiple Request for Comments (RFC) that ultimately made it to Standards level. I think it is the collaborative nature of the Internet community that serves as a driving reason for why the Internet operates in the manner it does. This implies that as network needs evolve in the years ahead, the community will continue to raise new submissions to allow the internet to evolve in response to new network interfaces, medium or data payloads, for example the rise of HTTP version 3 (Marx et al., 2020).

References

Marx, R., Herbots, J., Lamotte, W. & Quax, P. (2020). Same standards, different decisions: A study of quic and http/3 implementation diversity. *Proceedings of the Workshop on the Evolution, Performance, and Interoperability of QUIC:*14-20.