

## **Unit 6 – Formative Activity – Zihaad Khan**

**e-Portfolio update: Data Collection** - Think about which data collection tool will be suitable for your area of investigation (in this module and/or in your Project module). How will you collect it and what analysis would you hope to perform? How will this answer your research question?

### **Response:**

The research topic identified was: “Securing VoIP (Voice over IP) using TLS (Transport Layer Security) and SRTP (Secure Real Time Protocol): A practical study in service provider networks.”

Wireshark is a widely used open-source packet capture and analysis tool that allows capturing, analysing, and interpreting network traffic in real-time as well as offline. It can capture and dissect packets to help identify security vulnerabilities, performance issues, and protocol errors (Wireshark, 2022).

A test environment in a service provider network is required in order to simulate VoIP calls across the network. The network traffic generated during the testing will be captured using Wireshark and analysed to measure the call setup time and quality. Various tests will be performed, the results will be averaged to get a more accurate data set. The statistical analysis techniques such as mean, median, and standard deviation can also be employed to compare the results obtained with and without TLS and SRTP and to determine the statistical significance of any differences observed.

The data will then be analysed and thereafter rated against a MOS (Mean Opinion Score) rating system. MOS is a widely used and accepted rating system for voice call

quality, and it will be used to provide an overall assessment of call quality with and without TLS and SRTP (Alexander et al., 2009). This results will be used to answer the following research question: “How effective is the implementation of TLS and SRTP in securing VoIP communication in service provider networks?”

## References

Alexander, A, Wijesinha, A, & Karne, R. (2009) ‘An evaluation of Secure Real-Time Transport Protocol (SRTP) performance for VoIP’, Third International Conference on Network and System Security, Queensland, Australia, 19-21 October. USA: Towson University. 95-101. Available from: [https://www.researchgate.net/publication/221204875\\_An\\_evaluation\\_of\\_Secure\\_Real-Time\\_Transport\\_Protocol\\_SRTP\\_performance\\_for\\_VoIP](https://www.researchgate.net/publication/221204875_An_evaluation_of_Secure_Real-Time_Transport_Protocol_SRTP_performance_for_VoIP) [Accessed 01 March 2023].

Wireshark (2022) Wireshark Foundation. Available from: <https://www.wireshark.org> [Accessed 01 March 2023].