

## **Future Trends Activity – Michael Geiger Fog Computing**

Fog Computing has an enormous impact on the ability to deploy IoT applications effectively, as they enable the distribution of computing resources.

The concept of Fog Computing is a cloud structure that shifts computing power and intelligence to the edge of the cloud. This decentralization means that all data no longer has to travel all the way to the central data center (Atlam et al., 2018). Latency and processing times decrease and processes become real-time capable. Not all data can be transferred to central data endpoints within the cloud. Certain tasks can be performed locally in decentralized data centers. Since the distance to be covered by the data generated by the end devices is shortened, the latency times and thus the processing times are minimized. So-called fog nodes act as intelligent switching and computing nodes. They form a connecting component between the end devices and the cloud with their own intelligence. The fog nodes decide which data is processed decentrally and which is sent to central cloud data endpoints. The main goals of fog computing are to shorten the communication paths and reduce the data transmission volume within the cloud. Fog Computing offers solutions for the Internet of Things (IoT) and the Internet of Everything (IoE) with the large number of end devices and data to be sent.

Risks associated with Fog Computing are man-in-the-middle attacks (Stojmenovic et al., 2015). A man-in-the-middle attack is a system intrusion by a malicious person in which the attacker physically or logically places a system under their control between the victim's system and an Internet resource used by the victim. The attacker's goal is to stop communication.

## References:

Atlam, H. F., Walters, R. J. & Wills, G. B. (2018) Fog Computing and the Internet of Things: A Review. *Big Data Cognitive Computing*. 2(2): 10. Available from: <https://www.mdpi.com/2504-2289/2/2/10> [Accessed 08 April 2022].

Stojmenovic, I., Wan, S., Huang, X. & Luan, H. (2015) An overview of Fog computing and its security issues. *Concurrency and Computation: Practice and Experience*. 28(10): 2991-3005. Available from: <https://onlinelibrary.wiley.com/doi/full/10.1002/cpe.3485> [Accessed 09 April 2022].