Summary Post

With reference to the initial post and the peers' feedback, innovation and new techniques are needed for the Internet of Things (IoT) against the risks and dangers of the existing network communication.

Besides the type of Wi-Fi protocol that could improve on the security, the new techniques of a low power wireless mesh networking protocol, Thread, would be more suitable for the IoT medical devices (Thread Group, N.D.). On its secure mesh network, it supports the established and proven IPv6-based connectivity standards. Through the Mesh Link Establishment (MLE) handshake, each node in the Thread network exchanges frames counters with its peers. These frame counters aid in the prevention of replay attacks (Thread Group, 2020). Nevertheless, Thread has limitations on coverage range, high data rates and the number of devices, it is still suitable for basic usage like monitoring and resynchronization for IoT medical devices.

As mentioned about access control by Beran (2021), it could be argued that grant access should be based on the principle of least privilege (PoLP) security concept. Account right is granted only the permissions or access necessary to fulfil the job functions. Privilege creep and privilege bracketing are the two major concepts of PoLP. (Cyberark, 2021). In the ideal case, privilege should be secure nonetheless that comply the principle depends on the human factor. With reference to ThycoticCentrify research, more than half of organizations in the United States were dealing with the theft of legitimate, privileged credentials (53%) and insider threat attacks (52%) from 2020 to 2021 (ThycoticCentrify, 2021). Adopting Privileged password management (PPM) could be a solution to control privileged access. PPM allows administrators to securely create, share and automate privileged accounts. On the backend system, provide alert and report functions on the credential discovery, onboarding, access control and storage protection (BeyondTrust, N.D.).

In conclusion, new techniques are needed to protect medical devices against cyber threats. For the low data rates of IoT devices, Thread has a ton of potential and could be an effective way to improve the security of existing medical low power IoT device wireless connection alternatives. For the high data rates, organizations may consider adopting PPM to have better control over privileged access.

References:

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