

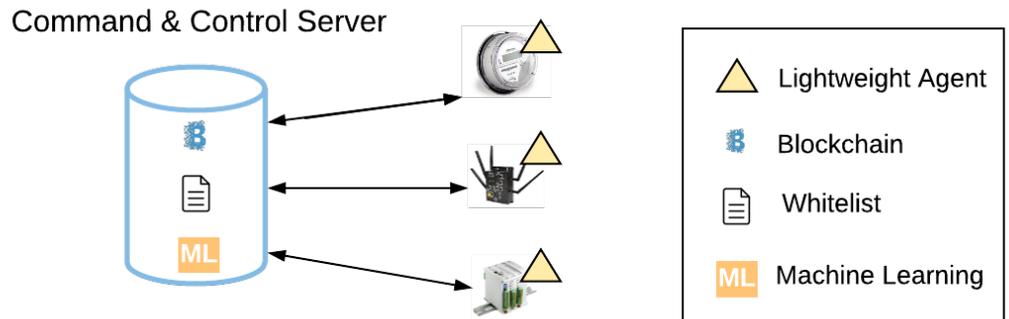
Cybersecurity at MIT Sloan brings thought leaders from industry, academia and government together with MIT faculty, researchers and students to address strategy, management, governance and organization of cybersecurity of critical infrastructure using an interdisciplinary approach.

The rush to build IoT products before securing them will make them vulnerable to cyber-threats.

IoT Endpoint Vulnerability

Many critical endpoint devices, such as smart meters in electric grids, are vulnerable to malicious access and tampering. These devices have an IP address, lack of privacy, hardcoded keys, interact with a larger system of devices, and have an infrequent patching schedule. All of these factors make it easy for malicious actors to implant their own software and commands in the device, potentially disrupting something as important as the power grid.

This project investigates blockchain as a solution to protect these devices. Blockchain is a distributed ledger of transactions that prevents corruption and failure. Transactions are added through consensus among nodes participating in the blockchain. It is ideal for IoT security because of its lightweight security architecture. This project envisions blockchain as a system to distribute application whitelists. A whitelist controls what is run on the IoT device. As the foundation for command and control, blockchain technology can send and receive security updates and validate files and processes. With this security in place, malicious “man-in-the-middle” hackers will be unable to gain access to the IoT devices by impersonating the device’s authorized update source. Through this method, we can secure IoT vulnerabilities in devices such as smart meters, controllers, routers and PLCs.



Blockchain or similar technology can be used to protect endpoint IoT

IMPACT: Blockchain can be used to prevent cyberattacks in IoT endpoint devices because of its proven secure communication infrastructure and its ability to securely disseminate updates to millions of devices with minimal costs.

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