

# Recent Trends toward Privacy-preservation in IoT, its Challenges and Future Directions

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## Abstract

The Internet of Things (IoT) is a self-configuring, intelligent system in which things connect to the Internet and communicate with each other. As “things” are autonomous and rely on a significant amount of autonomy to carry out their individual and collective tasks, it is possible that the autonomous environment of IoT may raise privacy concerns. IoT encounters significant privacy and security challenges, including inaccurate device updates, a lack of efficient privacy solutions, user unawareness, and famed active device monitoring capabilities. In this paper, the authors describe the background of IoT systems and privacy and security measures, (a) approaches to preserving privacy in IoT-based systems, (b) existing privacy solutions, and (c) recommending privacy models for different layers of IoT applications. Based on the results of our study, it is clear that new methods such as Blockchain, Machine Learning, Data Minimization, and Data Encryption can greatly impact privacy issues to ensure security and privacy. Moreover, it makes sense that users can protect their personal information easier if there is less data to collect, store, and share by smart devices. Thus, the use of Data Minimization methods in these networks can be very beneficial for privacy-preserving, which is useful to route researchers to

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