

Towards a Secure and Flexible Personal Data Platform on the Edge

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Increased ubiquity of sensing via smart devices and IoT devices in smart homes and smart healthcare domains, for example, has caused a surge in sensitive and personal data generation and use from browsing habits to purchasing patterns to real-time location to personal health information. Unfortunately, our ability to collect and process data has overwhelmed our ability to protect that information in which concerns over privacy, trust, and security are becoming increasingly important as different stakeholders attempt to take advantage of such rich data resources. In addition, different applications on these devices result in diverse traffic characteristics that require different performance levels of reliability, loss, and latency. Therefore, it becomes essential to have greater visibility and control over the traffic generated from smart and IoT devices in order to guarantee an optimized performance of smart and IoT applications as well as high quality of experience to users. In this research, we aim to design and develop ExtremeDataHub platform an open-source, flexible, and programmable networked edge device that collates and mediates access to our sensitive and personal data, under the data subjects control as well as to cope with various characteristics and requirements of smart and IoT applications that access this data in order to provide better performance and quality of experience to users.

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