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International Conference on Mobile Computing and Sustainable Informatics

ICMCSI 2020



Chapter 23

End-to-End Secured Architecture for Internet of Things Information Kendra (IoT_IK) Integrating IoT-Enabled Smart Services and Applications



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23.1 Introduction

Internet of Things (IoT) is a convergence of devices, things, and objects by using sensor devices and related hardware for intelligent identification and tracing by data exchange using communication techniques [1]. IoT is so popular today because of some potential applications such as smart health, smart agriculture, smart traffic, crowd monitoring, smart city projects, etc. [2]. The existing IoT-based applications and services are bound to a single domain or a sector. The user needs to request different service providers geographically diverse to access these services. It is vital to integrate various IoT-based smart services and applications.

Security issues at large arise when millions of objects, devices, and things communicate using wireless technology in an integrated environment for deploying various smart applications and services. Any leakage of information from any of the IoT devices/sensors could severely damage the privacy and authenticity of the users and data. Even if the wireless technologies are secured on their own, their integration generates new security requirements. The creation of end-to-end secure channels could be one of the steps in the creation of security integration in IoT architecture [3]. Confidentiality and integrity are few other major security concerns that need to be addressed. Security solutions for IoT environment are entirely different from the conventional techniques as IoT is a network of tiny devices. So, energy-efficient encryption and decryption techniques are to be used. It becomes essential to mitigate the security threats of IoT smart applications and services in an integrated environment. Proper remedies in an integrated perspective are devised

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