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Cloud of things – Integrating IoTs with cloud

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With rapidly increasing wireless sensor networks (WSNs) and Internet of Things (IoT) based services; a lot of data is being generated. It is becoming very difficult to manage power constrained small sensors and other data generating devices. With IoTs, anything can become part of the Internet and generate data. Moreover, data generated needs to be managed according to its requirements, in order to create more valuable services. For this purpose, IoTs are proposed to be integrated with cloud computing, through an intermediary extended cloud, known as Fog. Fog is a localized cloud, where resources are made available to the underlying IoTs and wireless sensor networks (WSNs). This paradigm is known as Fog computing. This presentation will provide the technical and theoretical knowledge on why IoT and cloud integration is important and how is it going to be made possible. Moreover, the noteworthy use cases would be discussed, which can be of interest of the individuals from industries as well as academia. Graduate students would also be able to get an idea of this upcoming paradigm and focus their research areas accordingly.

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Fiber-wireless networks: Architectures, fabrics, bandwidth allocation, and resource allocation algorithms

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Today, access networking remains the most arduous bottleneck in modern communication networks. The need for covering more users in larger regions with adequate bandwidth is still a laborious challenge. One of the most promising solutions to address this challenge is to leverage the advantages of wireless and optical technologies. The deployment of hybrid wireless-optical networks, known as Fiber-Wireless (FiWi) networks, where the optical infrastructure could be terminated at the curb (Fiber To The Curb—FTTC) or at the building (Fiber To The Building—FTTB) and wireless access points could expand the broadband access connectivity to the end users, has emerged as a viable, advanced infrastructure. This presentation endeavors to highlight the most important and promising FiWi solutions. In particular, architectures, implementation solutions, connection options and fabrics, bandwidth allocation schemes, and resource allocation algorithms will be presented in order to shed light in this compelling research field. Moreover, some latest research efforts will be introduced giving emphasis to adequate bandwidth distribution in FiWi networks.

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