Internet of Things (IoT) Paradigm in Consumer Applications

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Abstract: Internet of Things (IoT) has been making waves and is permeating into the everyday life of people. All the smart-* applications are built around IoT. This tutorial will provide an overview of IoT first and then discuss various dimensions of IoT. These include architecture framework, open horizontal platform, explaining all components from bottom up (i.e. from the things with focus on sensors and interconnection of the things). The open horizontal platform is being developed to solve the interoperability problem of the Internet of Things. It provides a layer of System abstractions and APIs to enable application software to interact with a diverse set of IoT resources and protocols. This tutorial will describe the Interoperability problem in the context of today’s ubiquitous Machine to Machine communication, describing different communication protocols, and describes web-standards based techniques to connect the multitude of Silos together using common data models and system abstractions. Some examples of data integration across different data sources are shown in the context of user applications. Further focus on the different enabling technologies like real world objects virtualization, cognitive and autonomic technologies, real-world knowledge proofing, objects networking, harvesting technologies, etc.

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**Michael Koster** has been building infrastructure for ubiquitous computing and putting things on the Internet for 15 years. He has worked with large networked process control and M2M communication systems since the early 1980s, and for the past 25 years has designed architectures for scalable and fault-tolerant computer systems, for both large computer companies like Unisys and Sun Microsystems, and for various Silicon Valley startups. He holds over a dozen patents in shared-memory multiprocessor cache protocols and web scale data consistency mechanisms. Michael is investigating architectures for the Internet of Things and is a co-founder of OSIOT. He is working with OSIOT to build the Open Horizontal Platform, an open source platform and API that enables interoperability between disparate data sources and devices.