FACT SHEET

INTERNET OF THINGS (IoT)

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ALL THINGS CONNECTED

The Essence: The inter-connection of everyday - or more sophisticated - objects (things) through internet.

Characteristics: IoT consists of a combination of *hardware* (mechanical and digital machines), *software*, *algorithms* and *computation*. Objects in an IoT system commonly *respond intelligently* to particular situations and carry out *specific tasks* and are provided with unique identifiers (UIDs). Such a system *senses and collects data* as its primary activity, thus it is *highly dynamic* by nature. Common characteristics are *scalability*, *modularity*, *extensibility* and *interoperability*. An IoT system also has the ability to carry out its tasks *without human interaction*. Due to the convergence of several technologies, data analytics, machine learning, commodity sensors and embedded systems, the capabilities of IoT and what its definition has evolved significantly.

Business value: A number of applications where data collection and analysis for research and monitoring is a core functionality benefit greatly from IoT. Such systems integrate communications, control and information processing in a highly decentralized and cost-efficient manner.

Concerns: There have been legitimate concerns related to the exponential growth of IoT, in particular in terms of privacy and data protection. Furthermore, integrity of data transferred in a highly decentralized system is another concern. The industry itself and governmental institutions have begun to address such concerns.

Successful implementations: A number of successful implementations are found in the space industry, armed forces, law and order, offshore, transport, medical industry, industrial appliances, surveillance, consumer electronics, «smart-houses», traffic signaling, building monitoring, operational technology (OT), logistics and fleet management to name a few.

Hot tip: IoT represents a challenge in terms of data integrity, non-repudiation and in some areas privacy and data protection. Any such system ought to be designed, implemented and maintained with security in mind!

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