



RADIO SCIENCE FOR HUMANITY

The Web of Things, beyond networked devices

Le web des objets, au-delà des dispositifs en réseau

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The transformative novelty of the Internet of Things has been diluted by a surfeit of ill-informed interpretations, whether blinkered or catch-all. We try to bring out its distinctive underpinnings and broader scientific relevance.

This viewpoint we present branches out into three main ideas that we will successively chalk out.

The first key idea is that IoT « things » need not be directly network-connected to get integrated into an information system. Relaxing the connectivity requirement opens up a quantitatively and qualitatively different IoT. This is the way we propose to define the web of things, as a directed graph, extending and overlaying the internet of devices (i.e. networked transducers), which gets all too often mistaken for it.

Thus envisioned, a ~trillion-node web of things may draw inspiration from social networks, which have also abstracted away the networks (of the radio/fibre kind) which they distantly rely upon. Dispensing with network-based identifications may be their most significant legacy in this regard. From there upwards, the social web has become the graph par excellence, the crucible of graph-based information systems and a potential blueprint for the architecture of an overarching Web of Things platform.

Yet the Web of Things is, for all intents and purposes, a much bolder proposition than the social web, if only because “things” are so widely different in nature, capabilities and reach. Just categorizing them properly, across all relevant application domains, is a momentous undertaking The original web and its expansion towards a knowledge graph and linked data point in a direction whereby a proper semantics of things may emerge from the structure of the graphs they make up, as its get integrated into the “Giant-Global-Graph” envisioned by Tim Berners-Lee.