Programming in the Large for the Internet of Things

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──── **Abstract** ────

The term *Internet of Things* (IoT) has generated a lot of buzz in the information technology and consumer electronics industries. In the IoT setting, a large number of physically dispersed devices – such as sensors, actuators and processing units – coordinate to bring useful capabilities to the user. A significant portion of these devices may have rather small computation and storage footprints, but at the same time, they can leverage support from potential enormous computation and storage resources via the cloud. Also, a large set of small footprint devices can serve not just a single logical app or service, but also many independent logical apps or services. This requires a careful separation of computational activities and their associated data within a device, for privacy and security purposes. Application development for the Internet of Things gives a whole new meaning to the term "programming in the large," and some of this is likely to be new to the practitioner. This talk will discuss what the IoT environment means to the practical programmer, and what apps and app ecosystems for IoT might look like. The talk will also discuss the issues and open challenges in software engineering brought on by this new environment, pointing towards new opportunities for researchers in our community.