December 7, 2016

"Ad-Hoc Security for Smart Things"

Dr. Gerhard Hancke Jr
Department of Computer Science at City University of Hong Kong

Abstract

We are increasingly surrounded by simple (and not so simple) devices with computational and communication capability, which assist us in everyday tasks and together comprise the idea of an Internet-of-Things. Some devices are used in security sensitive or critical applications, such as industrial sensor networks, and the security capabilities in such systems are rightly attracting growing interest. To perform their duties the devices are often required to set up ad-hoc connections to interact, and this is could often be with another device or a system where no prior trust relationship exists between the parties. Establishing a secure connection between two devices in such an unstructured environment presents some interesting research problems. Unfortunately, not all these problems can be solved with conventional cryptographic mechanisms alone, and we need to look at alternative ways to reinforce existing security mechanisms. Incorporating the physical context of a device, i.e. physical characteristics of the device, the communication channel or the surroundings, into security protocols is seen as a possible solution. This talk gives an overview of IoT security issues, ending with a brief introduction to the use of physical context to build, or improve, security services.

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