

Autonomic Computing Characteristics of Wireless Sensor Networks

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Abstract— Wireless sensor networks (WSN) have become increasingly one of the most promising and interesting areas over the past few years. Wireless networks of sensor nodes are envisioned to be installed in the physical surroundings to monitor a wide assortment of real-world phenomena. Wireless sensor networks (WSN's) are becoming prevalent in military and civilian applications such as surveillance, monitoring, disaster recovery, home automation and many others. Almost any sensor network application requires some form of self-configuration and autonomic functionality. Following IBM's initiatives towards Autonomic computing many architectures and protocols for network self-organization and management have been proposed and being implemented.

The paper presents a review of some researches which follows concept of Autonomic Computing with respect to Wireless Sensor Network. The paper introduces Wireless sensor network basics, design goals and challenges along with current and future applications. It articulates basic needs of incorporating autonomic computing principles into the design of Wireless Sensor Networks. The paper also outlines recent contributions to Autonomic network architectures, research projects, proposed architectures and routing protocols for Autonomic Wireless Sensor Networks.

Keywords — Wireless Sensor Network, Autonomic Computing, Self-Management, Self-configuration, Self-Healing, Self-Protection, Self-Optimization.