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In the last decades, Sensor Networks (SNs) have played a primary role for the research community. However, the progress focused more on communication and networking aspects between such devices than on the interpretation of the produced data.

Just recently, with standards and common frameworks such as Sensor Web Enablement (SWE) and W3C's Sensor ontology [1], there is an effort to understand data, which comes out, and goes into sensor networks.

As stated by Diaz et al. in [2], semantic technologies, such as ontologies and linked data, can be used to solve the problem of scalability – many different devices can be added to the system at a fast pace, by formatting the information –. Interoperability is made easier as well: the data format provided by ontologies makes services equally available; regardless of the device they are being provided.

Those technologies, together with the Cloud Computing are at the base of the Cloud of Things (CoT) that we propose in [3]. The CoT aims to better use distributed resources, putting them together and enabling therefore a horizontal integration of various Internet of Things (IoT) platforms.

Similar concepts to CoT, such as Capillary Networks [4], and Fog Networks [5] include in their topology, the presence of intelligent nodes that, although often characterized by limited computation resources, can easily manage all the applications running on top of them.

Adopting this approach, in this paper we design the architecture of a Gateway for the Cloud of Things. The Gateway is able to manage semantic-like things and to act as an end-point for the dynamic presentation of real world data to consumer applications and users.

In order to semantically annotate the properties of the sensors – e.g. measurement capability, position etc. – we embed a light ontology into sensors' firmware. This will improve the efficiency in the discovery process of sensor properties.

Prediction algorithms on data production are used between the Gateway and sensors in order to reduce the number of communications between them, and therefore to lower the battery consumption and interferences.

Specifically, in our proposal, we design and develop an efficient gateway through the use of virtualized software and, in particular, by exploiting all the benefits introduced by emerging lightweight virtualization technologies.

As exhaustively explained in [6], these technologies introduce an almost negligible overhead and they are modeled in such a way to guarantee a lightweight and dense deployment of services.

Those platforms are indeed, not designed to be exclusively used in large data-center or in specific cloud environments, they are equally efficient, even when operating on gateway and/or embedded systems.

Container-based solutions implement processes isolation by avoiding the emulation of virtual hardware and therefore reducing the overhead that characterize other virtualization technologies such as hypervisors .

Therefore, the advantage of achieving higher density of virtualized processes – which run within each container – is a direct consequence.

With specific relation to our scenario, the versatility of container technologies allows a dynamic and optimized usage of the gateway, so that services can be allocated only when needed and according to the functionality of the SN.

In conclusion, we show that the combination of all these features can represent a valuable way to convey several advantages – both sensors and gateway side – and noticeable improvements in terms of resource allocation, service management, and energy efficiency and discuss different ways of future investigations.

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