Abstract

“Virtual Node Environment for the Waggle Attentive Sensing Platform”

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Waggle is an attentive sensing platform that brings together an ensemble of physically distributed Internet enabled sensing and computing devices, and a cloud enabled storage, control and data dissemination infrastructure. Research and development on the platform using only physical nodes   
can be expensive, time-consuming and tough to scale. Vital objectives such as sensor plugin development, automated software testing, and stress-testing the cloud resources can be enabled   
by creating virtual Waggle sensor nodes. The environment that allows the creation, testing and deployment of these virtual nodes, to an infinite number, is the **Virtual Node Environment**.  
The applications used to allow the creation and deployment of these virtual nodes are *RabbitMQ* and *Docker*. While RabbitMQ laid the data pipeline for setting up node and server side plugin clients, Docker was used to create the virtual node and its environment as containers. The container would later be used for virtually running software plugins, creating a swarm of a multitude of nodes to stress-test the Waggle server for further development, laying a basis for further creation of more virtual nodes, and automate software testing.

**Keywords:** Virtual node, virtual, deployment, RabbitMQ, Docker, development