Résumé du projet de recherche (Langue 1)

Industrial Internet of Things (touted as Industry 4.0) is now limited to a set of vertical silos benefitting little from surrounding connected systems or applications to enrich the measurements, analysis and thus the quality of decisions. In this context, the state of the art is closer to the M2M system promises of the Internet of Things. For example, a system for measuring the air quality on an industrial site will not benefit from weather data or data from a capillary network as PACA AIR to enhance the relevance of its measures. Similarly, a remote control M2M network of industrial facilities not today constable to CRM or ERP standard tools to fit into the management of operational actions of the company. We identified that the locks of interoperability lie in the radio access network, data collection protocols, devices management protocols and APIs to access databases or "data lake". The purpose of this thesis is to rely on the new standards such as LwM2M, MQTT to demonstrate the feasibility and gain interoperability in Industrial IoT applications and smart city. The expected outcome of this work will be incorporated into an industrial perspective. The thesis will explore a number of problems and their solutions. The proposed solutions will be pushed into prototyping stages and advanced experiments that will take into account both the research and industrial constraints and get ground returns. The non-exhaustive thematic exploration will include: • Exploring a convergence layer of LPWAN standards (LoRa, SigFox ...) and cellular (GPRS, LTE-m) on an agnostic device management layer on the radio access and data collection protocols (MQTT, CoAP). o Research problems – How will upcoming technologies like LoRa, SigFox will interoperate with cellular technologies? It is critical to investigate which use cases of IoT requires such convergence layer and also the requirements of the layer. Interoperation of the protocols like MQTT and CoAP also needs to be studied. ? For uniform device management, a common set of vocabularies are necessary which is not available (at the moment) in any Standard Development Organizations (SDOs) [1]. • Exploring "backend" architecture for verticalization of generic use cases. Indicators customization methodology for building dashboards "trades". Setting indicators manufacturers models consist of data vectors creating modules from aggregated data sources and metrics modules to be applied.