Big Data Processing and Analytics for Process Industries

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Abstract: Process industries represent a significant share of the European industry in terms of energy consumption and environmental impact. In this area, data analytics techniques can prove effective when applied to the optimization of production processes and can lead to significant savings, both economic and environmental. However, application of these techniques is not straightforward. In many cases, process industries must invest in the monitoring and data integration as well as in the development and maintenance of the underlying infrastructure for data analytics, often capable of handling big data. In this talk, we present the architecture of a cross-sectorial Big Data platform for the process industries. The main objective was to design a scalable analytical platform that will support the collection, storage and processing of large volumes of data from multiple industry domains. Such platform should be able to connect to the existing environment in the plant and use the data gathered to build predictive functions to optimize the production processes. The analytical platform will contain a development environment enabling the data scientists to build these functions and a simulation environment to evaluate the models. The platform will be shared among multiple sites from different industry sectors. Cross-sectorial sharing will enable the transfer of knowledge across different domains. The deployed architecture was tested in two process industry domains, one from the aluminium production and the other from the plastic moulding area.