CYBELE: Fostering precision agriculture and livestock farming through secure access to large-scale hpc-enabled virtual industrial experimentation environment empowering scalable big data analytics

Description

CYBELE generates innovation and create value in the domain of agri-food, and its verticals in the sub-domains of PA andPLF in specific, as demonstrated by the real-life industrial cases to be supported, empowering capacity building within theindustrial and research community. Since agriculture is a high volume business with low operational efficiency, CYBELE aspires at demonstrating how the convergence of HPC, Big Data, Cloud Computing and the IoT can revolutionize farming, reduce scarcity and increase food supply, bringing social, economic, and environmental benefits. CYBELE intends to safeguard that stakeholders have integrated, unmediated access to a vast amount of large scale datasets of diverse typesfrom a variety of sources, and they are capable of generating value and extracting insights, by providing secure and unmediated access to large-scale HPC infrastructures supporting data discovery, processing, combination and visualization services, solving challenges modelled as mathematical algorithms requiring high computing power.

CYBELE develops largescale HPC-enabled test beds and delivers a distributed big data management architecture and a data management strategy providing:

- integrated, unmediated access to large scale datasets of diverse types from a multitude of distributed datasources,
- a data and service driven virtual HPC-enabled environment supporting the execution of multi-parametric agrifoodrelated impact model experiments, optimizing the features of processing large scale datasets and
- a bouquet ofdomain specific and generic services on top of the virtual research environment facilitating the elicitation of knowledge frombig agri-food related data, addressing the issue of increasing responsiveness and empowering automation-assisted decisionmaking, empowering the stakeholders to use resources in a more environmentally responsible manner, improve sourcingdecisions, and implement circular-economy solutions in the food chain.

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