Abstract

This paper deals with the application of a multi agent system (MAS) for service restoration in distributed power systems. In this paper, the part of the service restoration process which deals with restoring power to consumers in case of an outage, is considered. A restoration strategy based on agent technology has been formulated. This strategy proposes a method for prioritizing certain consumers as part of the restoration process. A multi agent system has been developed in JADE, a software framework specifically suited for the development of agent software systems. A simple distribution network has been used as the basis for simulating the operation of the MAS. In order to verify the capability of the MAS software, it has been tested with two kinds of fault scenarios occurring in the distribution network. It has been considered how to connect a MAS developed in JADE with a model of a physical network. The intention for
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This has been the potential for simulating the interaction between the MAS in JADE and a realistic physical model of a distribution network. Matlab Simulink has been used to build a model of a physical network and a communication between Matlab and JADE has been established. The MAS has been seen to perform successfully to different fault scenarios. The results of this paper have been demonstrated as a demonstration of a multi agent system as an approach to power service restoration. Thus, it has been demonstrated how FIPA protocols and ontologies can be utilized in a multi agent system to add intelligence to the service restoration process.

References

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Index Terms

Computer Science
Power Systems
Keywords

Load Restoration  Multi-Agent System (MAS)  Decentralized solution