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Design and Implementation of a Grid-Service for Power Measurement in Digital Wireless Communication Systems

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Abstract

Complex digital signal processing algorithms are nowadays playing a more and more important role in most measurement processes. Also in the presence of poor digitized data, reliable and repeatable results can, often, be assured by complementing the adopted measurement procedure with a suitable processing stage. The realization of a "collection" of measurement algorithms to be shared among researchers and technicians working on similar topics should thus be advisable. Complex algorithms, however, still suffer from critical drawbacks, in terms of computational burden and hardware resources requested, when applied to very long acquired records.

The authors suggest hereinafter the adoption of GRID service as an innovative solution in order to provide researchers with the "collection" of measurement algorithms and concurrently overcome the cited drawbacks. A GRID Service is a new hardware/software approach capable of merging the higher computational performance of parallel GRID computing with key mechanisms and standards of Web Service. It would be so possible to migrate complex measurement algorithms into services available and accessible on Internet. As an application example, the authors present a GRID Service implementing a method for power measurement in digital wireless communication systems.