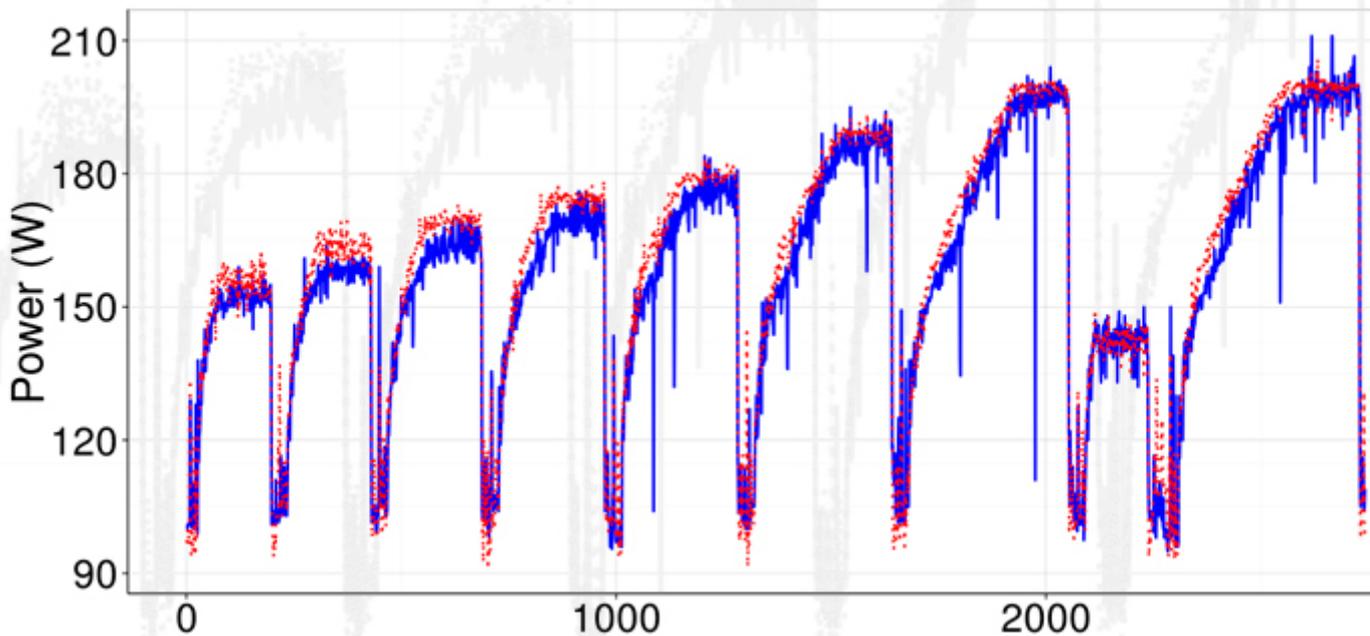# Energy-aware and Virtualisation Technologies

The goal of this area is to develop management algorithms for virtualised Data Centres in a large-scale distributed ecosystem running heterogeneous workloads that optimize their operation with respect to energy and ecological efficiency.

Summary

The work in this area is grouped in the following main lines:

- Performance analysis of Virtual Machines and Containers in a virtualised Data Centre running HPC and Big Data workloads
- Models for the assessment and forecasting of energy and ecological efficiency in a virtualised Data Centre at different levels
- Policies for the optimization of the scheduling and placement of Virtual Machines and Containers in physical nodes considering the energy and ecological efficiency factors
- Policies for the selection of Data Centre for remote placement of Virtual Machines and Containers in a Data Centre ecosystem considering the energy and ecological efficiency factors
- Integration of the cooling and power supply subsystems in the energy management strategy of Data Centres
- Integration of renewable energy sources in the energy management strategy of Data Centres

Objectives

- Performance analysis of Virtual Machines and Containers
- Management of Data Centres running Virtual Machines and Containers
- Energy and Ecological Efficiency of Data Centres
- Scheduling of Virtual Machines and Containers
- Assessment and Forecasting by means of Machine Learning

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