REXOS

Daniel Telgen et al.

HU University of Applied Sciences Utrecht

Architecture

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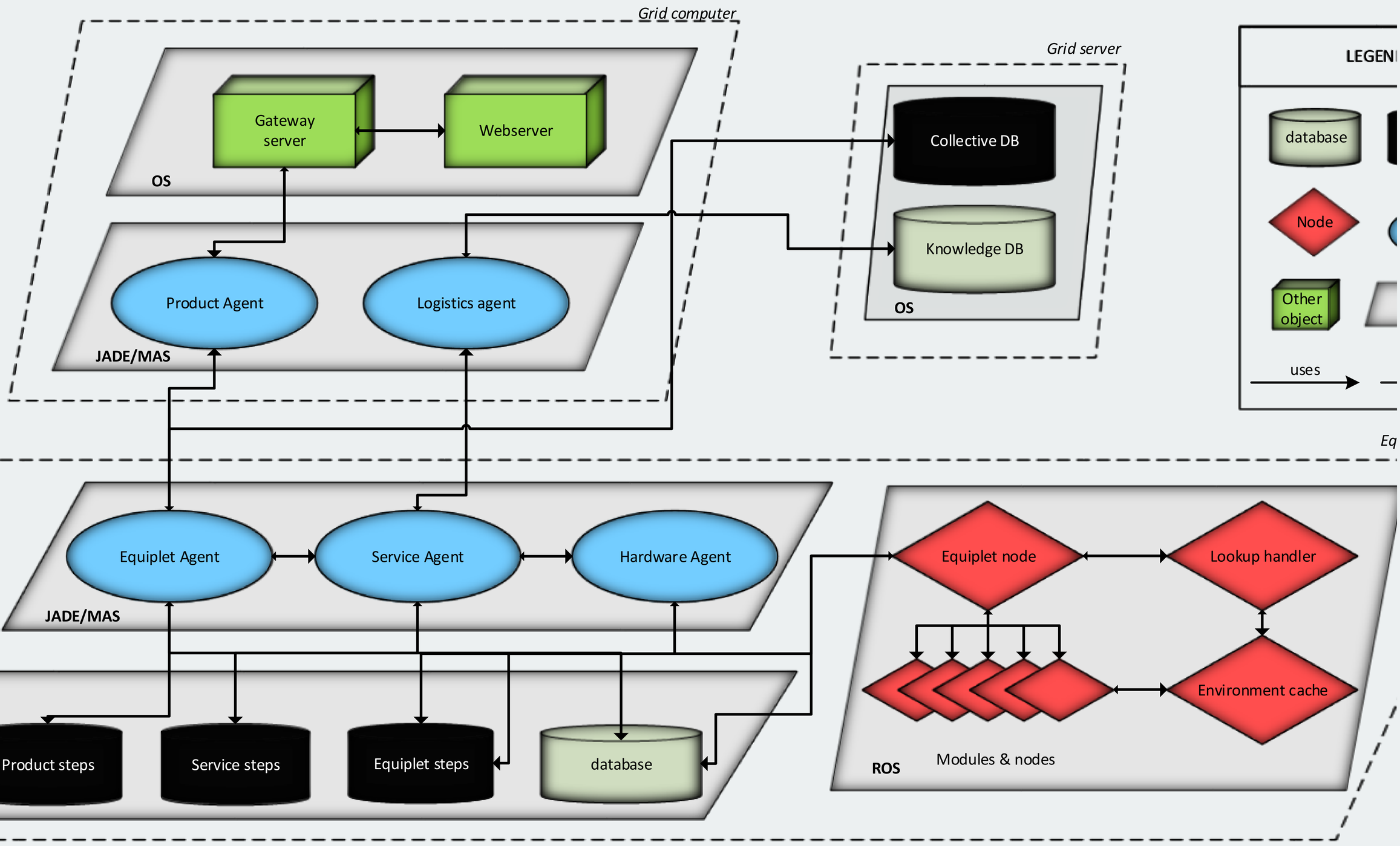

ion

n technology and business strategy have brought manu- ıradigms such as Agile Manufacturing (AM) and Reconfig- ufacturing Systems (RMS). The key of both paradigms is his results in the user being able to produce a high mix of th low amounts produced. There are many technical chal- require research to be overcome. By utilizing agent tech- try to overcome these challenges. This has led to a new ol architecture which combines both the intelligence and autonomous multi-agent systems (MAS) and the flexibility erating Systems (ROS). We have called this REXOS.

st of multiple equiplets manufacturing in parallel. All the the grid are autonomous systems, however, when they ed, a greater variety of products can be produced. Due to econfigurable nature of Equiplets and the grid in general, nent for manufacturing can be achieved on a daily basis.

REXOS

REXOS is a hybrid system consisting of a reactive layer a erating layer. In terms of manufacturing, the reactive laye the control of the hardware on the equiplets while the layer resembles the decision making part of the productio scheduling, choosing equiplets to produce on and transp cisions). This layer needs to make intelligent and cognitive The reactive layer consists of nodes running on a ROS pl deliberating layer consists of agents running on a JAD These layers need to communicate with each other. To this, a third layer, the communication layer, is added. This blackboards to accomplish this. equiplets within the REXO ture can run individually or within a grid of Equiplets.

Equiplet

An equiplet is a generic modular capability. However, machine used for agile and sus- equiplets can offer a tainable manufacturing. Equiplets of services and can co