

Cells as a Service

Automated Infrastructure Lab

In the future, dynamic cloud services will be made possible by large-scale, intelligent and automated computing infrastructures. HP Labs is helping to create that future through its Cells as a Service project, a prototype virtualised management system for cloud infrastructures that can support the most demanding applications and services.

The project features the creation of secure Service Cells – secure ‘containers’ for virtual infrastructure elements. Each cell can contain virtual machines, virtual storage and virtual networks. These cells, which are all connected to a network, are securely isolated from one another, although they can be connected in controlled ways.

Cells as a Service is entirely model-driven. The customer just specifies a model of the virtual infrastructure they want and the management system automatically creates it for them. As a result it is easy to change the configuration of a cell just by changing the model.

The management system is scalable, reliable and secure – it will run on infrastructures containing thousands of physical machines and thousands of cells. It must also cope with the continuous failures that occur in large-scale IT infrastructures.

Cells as a Service includes sophisticated automation and orchestration technologies to create and manage cells, control physical and virtual resources and to allow it to react to failures. These features go beyond traditional approaches.

And, to meet the requirements of the Cloud, the system is designed to run on any hardware and software and to support multiple operating systems and virtualisation technologies.

The HP Labs Cells as a Service demonstrator shows a simple scenario with applications running in two separate cells. Users can inspect the models of the cells while the system shows how changing the models can controls the virtual infrastructure within the cells.

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