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# Resource sharing and deployment using virtualization at CERN openlab

Today virtualization is used in computing centers to supply execution environments to a variety of users and applications. Appropriate flavours and configurations can be booted depending on the requirement, and in the same time the resources of a single server can be shared while preserving isolation between the environments.

In order to optimize distributed resource sharing, configuration and deployment we're building on two projects from HP Labs: SmartFrog and Tycoon.

We have developed SmartDomains based on SmartFrog, a framework for distributed configuration and deployment. Our additional components integrate Xen management capabilities into the framework. The system automatically deploys distributed pools of virtual machines according to descriptions in an Architecture Description Language, where additional components for dynamic re-configuration can be plugged in.

We're also working on Tycoon, which is another virtualization platform that optimizes resource usage.

Tycoon is a market-based system for trade of resources. The basic idea is to build dynamic clusters using virtualization and share their resources using an economic point of view. Tycoon deploys virtual machines on demand using a bid system where users can be both client and auctioneer.

Our mission at CERN openlab is to integrate Tycoon with EGEE, obtaining a dynamic Grid ready to share resources with others. Tycoon will run as a new service, deploying and destroying virtual machines (Worker Nodes and Computing Elements) on demand. Tycoon will give to EGEE a dynamic, flexible, secure and transparent platform/service to trade resources more efficiently.

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