CUSTOM TEMPLATES FOR HYBRID CLOUD RESOURCES ORCHESTRATION
OF USER WORKFLOWS

Ronny Bazan Antequera

Dr. Prasad Calyam, Thesis Supervisor

ABSTRACT

Traditional model of a central supercomputer resource serving a majority of on-campus researchers’ is being challenged more distinguished in interdisciplinary and data-intensive applications were infrastructure requirements are unique. In that sense numerous novelty hybrid cloud applications require to incorporate several computing and networking resources infrastructure “components”, as part of an integral deployment solution that solve specific research problems by the combination of new technology.

Several approaches aim to automate resources allocation processes, like Amazon Machine Images in Amazon Web Services, RSpecs in GENI and Virtual Appliances in VMware in order to describe and deploy computing and networking resources based on common models. However these solutions are isolated and work in different levels and environments, therefore there is lack of orchestration among them since the solution are not integrated.

In this thesis we study multiple real use case applications that have hybrid cloud requirements and find common components among those and abstract them to create maintain and update a Custom Template “CT” that is stored in a knowledge base for later use. So, new infrastructure deployment process time is reduced enormously and previous infrastructure would be scalable and reusable.

As a validation of our methodology implementation we were able to translate a Custom Template from the knowledge base to a new hybrid cloud application, demonstrating its functionality and importance for the new infrastructure deployment based on previous experience.