

Open Computing Infrastructures for Elastic Services: Contrail Approach

Yvon Jegou

INRIA Rennes France

Abstract. In the future of corporate IT, companies will rely on highly dynamic distributed IT infrastructures. Federation models are envisioned where a given organization will be both a Cloud provider during periods when its IT infrastructure is not used at its maximal capacity and a Cloud customer in periods of peak activity.

In the framework of the Contrail project funded by the European Commission (<http://www.contrail-project.eu>), a consortium of eleven academic and industrial partners develops an integrated approach to virtualization, offering Infrastructure as a Service services (IaaS), services for federating IaaS clouds and Platform as a Service services (PaaS) on top of federated clouds. Contrail project aims at developing a comprehensive cloud computing software stack in open source.

In this talk, we present an overview of Contrail project. We emphasize the research challenges we tackle, which are related to security and quality of protection in cloud federations, Service Level Agreement (SLA) management, efficient virtual platform management, and cloud storage. We also present our approach for building high level storage services and runtimes for elastic applications.