



The StratusLab cloud distribution: Use-cases and support for scientific applications

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The StratusLab project is integrating an open cloud software distribution that enables organizations to setup and provide their own private or public IaaS (Infrastructure as a Service) computing clouds. StratusLab distribution capitalizes on popular infrastructure virtualization solutions like KVM, the OpenNebula virtual machine manager, Claudia service manager and SlipStream deployment platform, which are further enhanced and expanded with additional components developed within the project. The StratusLab distribution covers the core aspects of a cloud IaaS architecture, namely Computing (life-cycle management of virtual machines), Storage, Appliance management and Networking. The resulting software stack provides a packaged turn-key solution for deploying cloud computing services.

The cloud computing infrastructures deployed using StratusLab can support a wide range of scientific and business use cases. Grid computing has been the primary use case pursued by the project and for this reason the initial priority has been the support for the deployment and operation of fully virtualized production-level grid sites; a goal that has already been achieved by operating such a site as part of EGI's (European Grid Initiative) pan-european grid infrastructure. In this area the project is currently working to provide non-trivial capabilities like elastic and autonomic management of grid site resources.

Although grid computing has been the motivating paradigm, StratusLab's cloud distribution can support a wider range of use cases. Towards this direction, we have developed and currently provide support for setting up general purpose computing solutions like Hadoop, MPI and Torque clusters. For what concerns scientific applications the project is collaborating closely with the Bioinformatics community in order to prepare VM appliances and deploy optimized services for bioinformatics applications. In a similar manner additional scientific disciplines like Earth Science can take advantage of StratusLab cloud solutions. Interested users are welcomed to join StratusLab's user community by getting access to the reference cloud services deployed by the project and offered to the public.