On-demand Galaxy with Laniakea: results and future perspectives

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Project Website: https://laniakea-elixir-it.github.io/
Source Code: https://github.com/Laniakea-elixir-it
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Laniakea has reached its maturity with the conclusion of the first development cycle [1]. The software framework delivers a state-of-the-art tool for the provisioning of on-demand Galaxy instances over heterogeneous cloud infrastructures: users of a Laniakea-powered service can effortlessly create and manage private, production-grade, fully customizable, virtual Galaxy instances. In our vision, Laniakea magnifies the flexibility of Galaxy, making its full potential really and readily available to any researcher willing to own and maintain a Galaxy instance for any number of different reasons (e.g., data privacy, teaching purposes, software development, services provisioning).

During the first few months of operations, the ELIXIR-IT Laniakea@ReCaS service has been already adopted by several groups from different Italian institutions for their Galaxy-based research activities, for training events, and also as a platform to streamline the development and the provision of novel Galaxy based services as PIPE-T [2] and VINYL [3].

The development of Laniakea is now going ahead within the framework of the EOSC-Pillar [4] H2020 project. The main development roadmap includes the integration of new applications beyond Galaxy, like RStudio, the refinement of the user experience, and the improvement of the flexibility and maintainability of the platform for cloud providers.

Now, we introduce the latest developments to the Laniakea PaaS layer, that includes improved support for clouds providing a Laniakea service, e.g., by removing the need of mandatory adoption of the INDIGO-IAM AAI layer, and a continuous integration framework, based on Jenkins [5,] to improve the long-term sustainability of the platform itself through automatic flavour testing, update, and implementation. Galaxy flavours deployment through VM-image snapshots has also been completely reworked, using a CVMFS [6] volume as a tools repository for the deployment of the Galaxy instances. Finally, to allow a faster alignment of Laniakea flavours to the latest Galaxy releases, the Laniakea core has been modified to exploit the official GalaxyProject ansible roles.

These new features significantly improve the robustness and sustainability of Laniakea, making it an even more solid basis for future developments.

References

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