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INFN Cloud service integration: software distribution by leveraging CernVM File System over a CEPH RGW multisite

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Backed by the 20 years of successful development and operation of the largest Italian research e-infrastructure through the Grid, the Italian National Institute for Nuclear Physics (INFN) has been running for the past four years INFN Cloud, a production-level, integrated and comprehensive cloud-based set of solutions, delivered through distributed and federated infrastructures.

INFN Cloud offers to its users and collaborations an S3-based Object Storage service for data archiving, on top of a multisite CEPH RGW infrastructure, accessible via a web ui or programmatically.

Taking advantage by the S3-based Object Storage service, the CernVM-File System services have been deployed and integrated with other technologies (such as Vault identity-based secrets and encryption management system and RabbitMQ open-source message broker) to define a user-friendly solution aimed at sharing software and related configuration files, among heterogeneous and distributed resources.

The solution we provide implements an abstraction layer that hides the underlying complexity and allows the final user to easily interact with an S3 object storage interface for distributing software, libraries and related dependencies among different sites, under a common path and with a POSIX access, via the CernVM-File System.

We will describe the main features of our setup, focusing on the integration process of the different services on the INFN Cloud distributed infrastructure.

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