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An Infrastructure in Support of Software Development

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The success of a scientific endeavor depends, often significantly, on the ability to collect and later process large amounts of data in an efficient and effective way. Despite the enormous technological progress in areas such as electronics, networking and storage, the cost of the computing factor remains high. Moreover the limits reached by some historical directions of hardware development, such as the saturation of the CPU clock speed with the consequent strong shift towards hardware parallelization, has made the role of software more and more important.

In order to support and facilitate the daily activities of software developers within INFN, an integrated infrastructure has been designed, comprising several tools, each providing a function: project tracking, code repository, continuous integration, quality control, knowledge base, dynamic provisioning of virtual machines, services, or clusters thereof. When applicable, access to the services is based on the INFN-wide Authentication and Authorization Infrastructure. The system is being installed and progressively made available to INFN users belonging to tens of INFN sites and laboratories and will represent a solid foundation to the software development efforts of the many experiments and projects that see the involvement of INFN. The infrastructure will be beneficial especially for small- and medium-size collaborations, which often cannot afford the resources, in particular in terms of know-how, needed to set up such services.

This contribution describes the design of the infrastructure, the components that implement it, how they integrate with each other, in particular from the Authentication point of view, and how it is expected to evolve in the future.

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