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Tutorial: How INDIGO-Datacloud brokers identities and does authentication and authorization

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Contemporary distributed computing infrastructures (DCIs) are not easily and securely accessible by common users. Computing environments are typically hard to integrate due to interoperability problems resulting from the use of different authentication mechanisms, identity negotiation protocols and access control policies. Such limitations have a big impact on the user experience making it hard for user communities to port and run their scientific applications on resources aggregated from multiple providers in different organisational and national domains.

INDIGO-DataCloud will provide the services and tools needed to enable a secure composition of resources from multiple providers in support of scientific applications. In order to do so, an AAI architecture has to be defined that satisfies the following requirements:

- Is not bound to a single authentication mechanism, and can leverage federated authentication mechanisms
- Provides a layer where identities coming from different sources can be managed in a uniform way
- Defines how attributes linked to these identities are represented and understood by services
- Defines how controlled delegation of privileges across a chain of services can be implemented
- Defines how consistent authorization across heterogeneous services can be achieved and provides the tools to define, propagate, compose and enforce authorization policies
- Is mainly targeted at HTTP services, but can accommodate also non-HTTP services, leveraging token translation

In this contribution, Dr Ceccanti will present the work done in the first year of the INDIGO project to address the above challenges. In particular, he will introduce the INDIGO AAI architecture, its main components and their status and demonstrate how authentication, delegation and authorisation flows are implemented across services

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