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GOAT – Flexible Accounting Framework for Hybrid Clouds

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Large-scale HTC infrastructures, such as the grid and cloud infrastructure operated by the European Grid Initiative (EGI), require a comprehensive accounting tool to keep track of resource use at different cooperating resource sites. Traditionally the accounting process has been strictly job-centric. Indeed, only running grid jobs were consuming resources. However, the emerging cloud computing paradigm made it possible for users to consume resources in a more flexible manner, e.g., consuming cloud storage to gather data without actually consuming any compute resources. Furthermore, clouds made it possible to reserve resources without actual consumption, which led resource providers to recognize new types of separately consumable resources – often scarce ones, such as public IPv4 addresses.

Infrastructure operators obviously feel the need to extend their accounting coverage to follow the consumption of such resources, and standardization bodies respond by developing new types of accounting record specifications. Accounting tool developers then try to react by supporting these new types with new accounting record generators on the side of the client, and extended functionality in record aggregators on the side of the server.

This contribution introduces the GOAT (GO Accounting Tool) – a suite of client-side and server-side components to collect accounting information from hybrid cloud sites and aggregate them efficiently. It promotes flexibility in terms of accounting record types supported. To that end, server-side aggregator developers have experimented with both the traditional SQL-based approach and with the currently popular NoSQL approach. The results of their comparison are included herein.

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