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Occopus and its usage to build efficient data processing workflow infrastructures in clouds

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IaaS clouds are very popular since you can easily create simple services (Linux PC, web portal, etc.) in the cloud. However, the situation is much more difficult if you want to build dynamically, on demand a complex infrastructure tailored to your particular needs. A typical infrastructure contains database services, processing resources and presentation services. These services together provide the infrastructure you actually need to run your eventually complex application (e.g. a workflow) on it.

The OCCO (One-Click Cloud Orchestration) framework developed in SZTAKI attempts to solve this problem in a very generic way by avoiding any specialization, i.e. it can work for any IaaS cloud type, on any Operating System type, for services with any complex interaction among them, etc. OCCO represents the second level above the IaaS layer within any cloud compute architecture.

The talk will introduce the main services, the architecture and the internal structure of OCCO and explains how the required flexibility can be achieved with it. Particular attention will be given in the talk on how the TOSCA standard (Topology and Orchestration Specification for Cloud Applications) can be implemented in OCCO. The OCCO framework is currently under development towards supporting TOSCA specifications. In the talk the recent progress towards this support is also going to be introduced. The talk will demonstrate the flexibility of OCCI through an advanced data processing workflow.

Data processing workflows are considered as networks of nodes where each node performs some computation/ data processing on the incoming data item and passes the result to the next one. OCCO is an ideal tool to be used for building such network of nodes performing data processing or streaming. The talk will show how an individual workflow or the network layout can be configured and how it is realised by OCCO.

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