Engineering Serverless Application Life-cycles in Federated Serverless Infrastructures

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ABSTRACT

The top cloud providers offer more than a hundred serverless services, such as Function-as-a-Service and various ML-based Services speech to text, text to speech, or translation. Unfortunately, while the cloud provider SDKs simplify the usage of serverless services, they also lock the users to use services of the respective provider only. Moreover, the dynamic and heterogeneous nature of the underlying serverless infrastructure introduces other deficiencies for agile development, automated deployment, and efficient and effective execution of serverless workflow applications.

This talk will present our advances [1, 2] in many steps of serverless application life-cycles: development, modeling, and running serverless workflow applications that use various serverless managed services in federated serverless infrastructures. The main goal is to follow the approach "Code Once Run Everywhere" where the developers code their "intents" and the runtime systems then selects the specific deployment of end-point managed cloud services.

CCS CONCEPTS

• **Computer systems organization → Cloud computing**.

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AUTHOR KEYWORDS

interoperability, optimization, performance, serverless, simulation, workflow applications.

BIOGRAPHY

Sashko Ristov is Assistant Professor for computer science at the University of Innsbruck, Austria. His main research interests include performance modeling and optimization of distributed systems and applications. In particular, Dr. Ristov focuses on serverless computing, cloud engineering, and cloud federation.

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[2] . 2024. xAFCL Serverless Workflow Management System. Retrieved 2024-03-17 from https://github.com/xAFCL