Bachelor’s Thesis

A JavaScript Development Framework for Serverless Architectures

Context
Serverless architectures are a new paradigm that can be characterized by two different, yet overlapping, definitions:

• “Serverless” is used as a term to describe applications which heavily or fully depend on third-party cloud services. These are typically UI-driven / rich-client / single-page applications.

• “Serverless” refers to applications that consist of services which are executed in short-lived stateless compute containers (most prominently AWS Lambda).

State of the Art & Problem
Existing development frameworks for building serverless applications focus on the business logic layer of an application. The integration of serverless business logic in a serverless three-layer application, including presentation and data layer is still a manual process that requires a more systematic approach, supported by tools for automated code generation, continuous integration testing, and cloud deployment.

Thesis Topic(s)
Thesis topics in the context of JavaScript application development & serverless architectures include the following:

• Design and development of methods and tools for securely integrating presentation-layer technologies, such as Angular or React, with serverless compute environments.

• Concepts and techniques for developing isomorphic JavaScript applications in serverless compute environments.

Skills: Very good JavaScript programming skills, basic knowledge of cloud computing concepts and technologies, such as AWS Lambda, API Gateways, CDNs, etc. (ideally, successful attendance of the lecture Cloud Service Engineering & Management).

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Our Mission:
Our lectures cover fundamental methods and techniques in the areas of service computing, cloud computing, and enterprise computing. We like to engage students in hands-on building of distributed information systems and to take an interdisciplinary approach to evaluating such systems. Through a close mentoring of students, especially in our seminars, we aim to introduce students to our ongoing research and to excite them to do future studies and research with us.