Workshop Proposal (draft)

WoSC4: 11th IEEE/ACM UCC / 5th IEEE/ACM BDCAT 2018, Zurich, Switzerland

We are happy to propose the 4th event of in the established series of workshops under the name of *International Workshop on Serverless Computing*. The context for this event will be the *11th IEEE/ACM UCC, 5th IEEE/ACM BDCAT 2018*. Co-located with the UCC in Zurich, Switzerland, it will be the first of the series happening in Europe.

Please note overview of the previous events:

- WoSC3: IEEE CLOUD 2018, San Francisco, CA, USA
- WoSC2: Middleware 2017, Las Vegas, NV, USA
- WoSC1: ICDCS 2017, Atlanta, GA, USA

These are linked on the series' permanent web presence at: http://www.serverlesscomputing.org/

Brief Technical Description

Serverless Computing (Serverless) is emerging as a new and compelling paradigm for the deployment of cloud applications, and is enabled by the recent shift of enterprise application architectures to containers and micro services. Many of the major cloud vendors, have released serverless platforms within the last two years, including Amazon Lambda, Google Cloud Functions, Microsoft Azure Functions, IBM Cloud Functions. There is, however, little attention from the research community. This workshop brings together researchers and practitioners to discuss their experiences and thoughts on future directions.

Interest to the Research Community

Serverless architectures offer different tradeoffs in terms of control, cost, and flexibility. For example, this requires developers to more carefully consider the resources used by their code (time to execute, memory used, etc.) when modularizing their applications. This is in contrast to concerns around latency, scalability, and elasticity, which is where significant development effort has traditionally been spent when building cloud services. In addition, tools and techniques to monitor and debug applications aren't applicable in serverless architectures, and new approaches are needed. As well, test and development pipelines may need to be adapted. Another decision that developers face are the appropriateness of the serverless ecosystem to their application requirements. A rich ecosystem of services built into the platform is typically easier to compose and would offer better performance. However, composing external services may be unavoidable, and in such cases, many of the benefits of serverless disappear, including performance and availability guarantees. This presents an important research challenge, and it is not clear how existing results and best practices, such as workflow composition research, can be applied to composition in a serverless environment.

By offering a workshop for this problem space in the context of the UCC, we want to draw some of the cloud researcher's attention to this young research field and further drive the adoption and development of available technology.

Similar Workshops

Since WoSC has been the first and to our knowledge and thus far only academic workshop dedicated to Serverless Computing, there is nothing to list here.

Technical Programme Committee (tentative)

- Gul Agha, University of Illinois at Urbana-Champaign
- Azer Bestavros, Boston University
- Flavio Esposito, Saint Louis University
- Rodrigo Fonseca, Brown University
- Ian Foster, University of Chicago and Argonne National Laboratory
- Geoffrey Fox, Indiana University
- Dennis Gannon, Indiana University & Formerly Microsoft Research
- Arno Jacobsen, MSRG (Middleware Systems Research Group)
- Tyler Harter, GSL, Microsoft
- Pietro Michiardi, Eurecom
- Peter Pietzuch, Imperial College
- Rodric Rabbah, IBM Research
- Rich Wolski, University of California, Santa Barbara

Workshop co-chairs

The co-chairing will be done jointly by Bentley University and Zurich University of Applied Sciences.

Vatche Ishakian, Bentley University

Vatche Ishakian is an Assistant Professor in the Computer Information System Department at Bentley University, which he joined in 2017. He earned his PhD in Computer Science from Boston University under the supervision of Professor Azer Bestavros. Before joining Bentley, he worked as a research scientists in the Distributed Systems Group at BBN Technologies and a Research Staff Member at IBM T.J. Watson Research Center.

Stefan Junker, Zurich University of Applied Sciences

Stefan Junker is part of a research team in the Service Prototyping Lab at Zurich University of Applied Sciences, which among other topics conducts research on Serverless Computing. His current project focuses on API unification in Multi-Cloud environments, and he is ambitioned to research the utilization of Serverless Computing technology in such environments in the future.

Tentative: * Paul Castro, IBM Research * Vinod Muthusamy, IBM Research * Aleksander Slominski, IBM Research

Steering Committee (tentative)

Geoffrey Fox, Indiana University Dennis Gannon, Indiana University & Formerly Microsoft Research Arno Jacobsen, MSRG (Middleware Systems Research Group)