Title

7th Workshop on Advances in Open Runtimes and Cloud Performance Technologies (AORCPT)

Co-Chairs

Daryl Maier, IBM Canada
Vijay Sundaresan, IBM Canada

Abstract

A brief abstract of the goals and format of the workshop (250 words max). If your workshop is accepted, this information will appear on the CASCON website.

Cloud services such as IBM Cloud, Microsoft Azure, or Amazon Web Services (AWS) are increasingly becoming the environments where applications are developed and deployed, data is stored, and businesses are run. Many of the features that define a cloud (such as resiliency, elasticity, consistency, security) are realized through runtime technologies. Clouds are polyglot environments, and therefore advances in cloud development are directly driven by innovation in runtime technologies. However, cloud environments pose unique, often conflicting demands on runtime systems that are often less of a concern in isolated systems. Throughput performance, footprint and density, startup performance, and language interoperability are all important considerations that require innovation to solve effectively.

Modern language runtimes are complex, dynamic environments that involve a myriad of runtime components that must work cooperatively to achieve the functional and performance requirements of a given language. Cloud workloads are typically containerized and employ microservice and serverless architectures. Achieving peak performance in such environments requires careful tuning of the cloud services and applications in concert with the runtime system.

This speaker workshop will bring together research, industry, and developers from open source language runtime, compiler, and cloud communities to share and discuss innovations, challenges, and research across a broad set of open technologies (such as Eclipse OMR, LLVM, Eclipse OpenJ9, Node.js, Open Liberty, Knative) to improve performance in cloud environments.

Theme, goals, and relevance

Workshop theme, goals, and relevance. Provide a clear statement of why members of the CASCON community will be interested in this workshop and what impact your workshop will have on them. Also, state your success criteria for the workshop (500 words max)

This workshop will be the seventh installment of the popular open language runtimes speaker workshop at CASCON.

The goal of this workshop is to bring together research, industry, and developers from language runtime, compiler, and cloud communities to share and discuss innovations, challenges, and research across a broad set of open source technologies (such as Eclipse OMR, LLVM, Eclipse OpenJ9, Node.js, Open Liberty, CRIU, Knative) to improve performance in cloud environments. The focus on open technology solutions rather than proprietary is key as it allows for greater collaboration amongst individuals, communities, researchers, and industry through shared learning and contributions on common technology.

This will be a full-day speaker session workshop where researchers, students, and practitioners are invited to present their recent innovative work and research directions. Topics to be discussed in this workshop include, but are not limited to:

- Open runtime technology frameworks
- Compiler technology and innovative optimizations for dynamic cloud environments
- Garbage collection and memory subsystem performance
- Hardware techniques to assist runtime technologies
- Dynamic languages for the cloud
- Testing and correctness of runtime technology
- Debugging tools and techniques
- Throughput and startup performance, and memory footprint reduction
- Performance tuning techniques of containerized or cloud applications
- Use of tools and infrastructure built on open technologies
- Innovative ways of exploiting open runtime technologies

Historically, CASCON has attracted many academic and industry attendees interested in emerging runtime and cloud performance technologies. This workshop provides a central forum where topics of this nature can be presented and discussed.

A successful workshop will have a diverse set of speakers presenting their work on open source language runtime and cloud performance technologies to an equally diverse audience from academia and industry. As in previous workshops, the talks often stimulate conversations among presenters and participants afterwards to understand the ideas better, share new insights on what was presented, provide alternative perspectives on the subject, and discuss collaboration opportunities.

Structure

A description of how the workshop will be structured (e.g., paper presentations, invited talks, working sessions, panels, etc.). Explain how this format will help achieve the workshop goals. Mention already secured invited and keynote talks (500 words max)

This will be a full-day speaker workshop.

If the workshop is accepted, a Call For Participation will be circulated through established academic, industry, and social channels with proposal submission and acceptance deadlines several weeks before the conference. Proposals will be reviewed and selected by the workshop co-chairs. However, if there are a large number of quality submissions, the workshop co-chairs may convene a selection committee drawing on subject experts from academia and industry to help make the final determination of accepted talks.

Each talk is expected to be 25-30 minutes in length. The available time will vary depending on the number of quality submissions received and timing constraints imposed on the workshop from conference organizers. Presenters will be encouraged to allot 5 minutes for questions from the audience. Our previous workshops have typically featured 8-10 talks, which is a reasonable goal for this workshop.

Duration

Full day

Additional Requirements

It would be beneficial to have at least wireless networking available with adequate bandwidth because some talks may include live demos. If such networking will not be possible then informing us of this fact well in advance of the conference is requested so it can be passed on to the presenters.