Architecturing Dynamic Data Race Detection as a Cloud-based Service

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**ABSTRACT**

A web-based service consists of layers of programs (components) in the technology stack. Analyzing program executions of these components separately allows service vendors to acquire insights into specific program behaviors or problems in these components, thereby pinpointing areas of improvement in their offering services. Many existing approaches for testing as a service take an orchestration approach that splits components under test and the analysis services into a set of distributed modules communicating through message-based approaches. Such a detection needs to track a huge number of events performed by each thread of a program execution of a service component, making such an analysis unsuitable to use message passing to transit huge numbers of events individually. In this talk, we present the first work in providing dynamic analysis as a service using a virtual machine (VM)-based approach on dynamic data race detection. In our model, we instruct VMs to perform holistic dynamic race detections on service components and only transfer the detection results to our service selection component. With such result data as the guidance, the service selection component accordingly selects targeted VM instances to fulfill subsequent analysis requests. The experimental results show that our model can be feasible.

The paper will be presented at the IEEE International Conference on Web Services (ICWS 2015) held at New York, USA, June 27 – July 02, 2015. ICWS is the flagship conference in the area of web services.

Research Interests: Program Analysis and Analysis as a Service.  
Supervisor: W K Chan

**All are welcome!**

*In case of questions, please contact Dr W K Chan at Tel: 3442 9684, E-mail: wkchan@cityu.edu.hk, or visit the CS Departmental Seminar Web at [http://www.cs.cityu.edu.hk/](http://www.cs.cityu.edu.hk/).*