ORACLE®

Company Presentation

Abstract

Oracle Labs is Oracle research center where most of Oracle innovation take place. The research areas span most fields of computer science. This presentation's journey will walk through some areas of Oracle research and developement: Generative AI and data science. Data processing as graphs. Compiler graphs. Compilations for cloud native. Join us to discuss those topics with the core engineers!

In the ever-evolving landscape of machine learning, Generative Artificial Intelligence has emerged as a game-changer technology for our everyday and professional lives. In the talk we'll explore how large language models (LLMs) are transforming software development and data science at Oracle, by assisting developers via code generation, process acceleration and quality assurance.

Graphs constitute a powerful tool to efficiently leverage latent information stored inside data connections. As the number of connections grows exponentially with today's increasingly big data, being able to process graphs at scale is more and more relevant. To ensure fast processing of such data, in-memory distributed graph systems are used. This talk will present challenges and solutions regarding this topic, describing techniques for distributed graphs algorithms and queries, focusing on the distributed graph engine being developed at Oracle Labs, called PGX.D.

GraalVM, a polyglot multi-platform and multi-architecture VM, combines more than a decade of research in compiler optimizations, language compositions and ahead-of-time (AOT) compilation into a single high-performance JDK distribution. In this presentation we will talk about how far we can push Java out of it's comfort zone! Embedding another language in a Java application? Command line tools in Java? Java without the JVM? No problem... We'll cover the new functionalities provided by the novel approaches available in the GraalVM ecostystem.

In the last 20 years we have seen the unit of compute infrastructure getting smaller and smaller: from bare-metal machines to virtualized machines to containers to individual functions (serverless). This reduction in size has brought many benefits, such as cost reduction, reduced operational effort, and improved scalability. **In this talk we will give an introduction to "serverless" computing and present Graal Cloud Service, Oracle Labs' take on the next iteration of serverless computing.**

Oracle Labs: https://labs.oracle.com/