Compilers Are Sprinters – IDEs Are Marathoners
(Keynote)

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Abstract—Compilers and IDEs both analyze source code, yet compared to IDEs, compilers are easy. Compilers process source files a module at a time; IDEs have to load entire projects. Compilers exit after each run; IDEs run constantly, requiring responsible memory management and low CPU utilization. Compilers operate in batch; IDEs must constantly, incrementally re-analyze code after each change in the editor. Compilers stop when there is an error; IDEs are expected to be even more helpful when there are errors. Compilers create intermediate representations, soon throwing away source code; IDEs must always map back to source, respecting whitespaces and resolving references to the line and column number. The talk discusses these and other challenges, and how IDEs based on IntelliJ platform attack them.

Index Terms—IDE; parsing; code analysis; refactoring

I. BIO
Peter Gromov studied Software Engineering in St. Petersburg State University (Russia) and Linguistics in University of Essex (UK). Living in Germany. Working at JetBrains since 2003, in IntelliJ IDEA team since 2005. Contributed to Java EE, Spring, Groovy, Perforce VCS support in the IDE, Java data flow analysis and code completion. Currently mainly working on IDE platform infrastructure.