

41: Introduction to JIT Compilers and Their Techniques

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This presentation deals with concept of just-in-time (JIT) compilers, that are used for languages compiled to byte code like Python or Java. We will give introduction to fundamental principles of techniques used by JIT compilers, like how they deal with compiling of source code to the target platform machine code during interpretation of program. There will be explained which advantages and disadvantages JIT compilers bring to programs based on byte code.

Second part will introduce PyPy that is Python interpreter implemented in Python. The main purpose of its development is to get more flexible implementing of interpreters and virtual machines, and it is aware of newest parts of language Python. We will use PyPy and its tracing JIT compiler as an example, and we will present advanced and practical aspects of JIT compiler, like loop-aware optimization of code. Also there will be shown comparison of performance between official Python interpreter CPython and PyPy.