Advanced Techniques to Reduce the Build Time in Xcode

Kumar Reddy, Lead iOS Engineer, Swiggy

Agenda

What is Compiler and what exactly they do ?

What is LLVM ?

Swift Frontend for LLVM

What is build time ?

Tips and techniques to Speedup the build time

Demos and Analyze the sample application

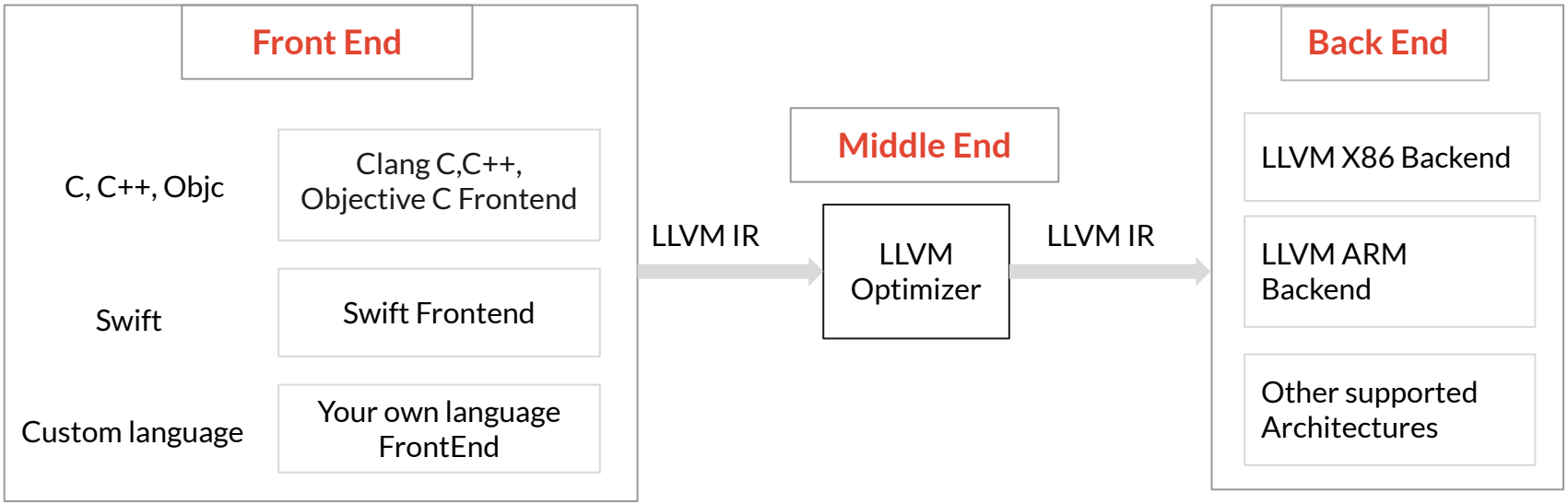
What is Compiler ?

Converts your source code to Machine code. (that's what machines understand right ?)

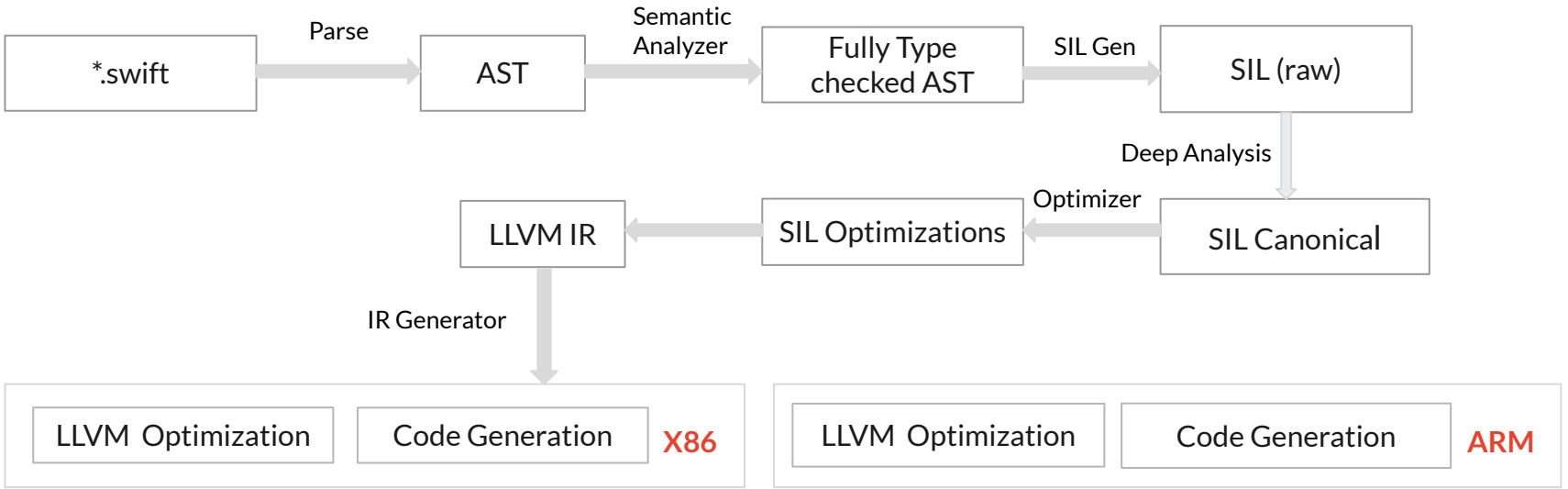
Swift compiler converts all the swift source code to machine code.

What is LLVM

A collection of compiler and toolchain technologies.

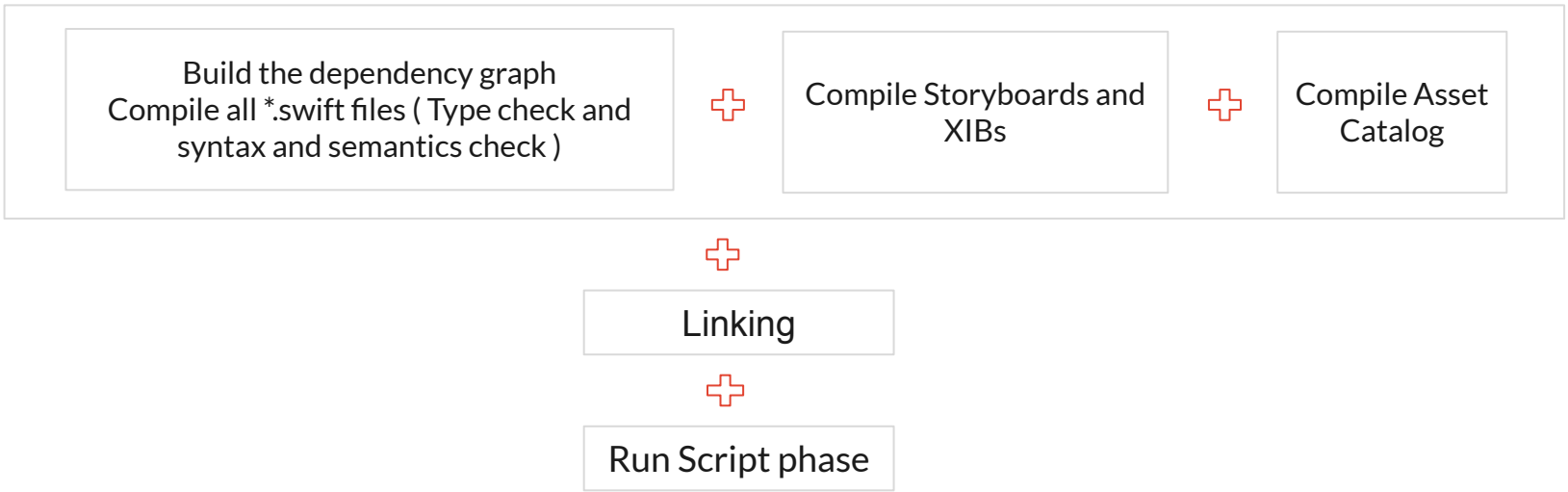


Swift FrontEnd



What is Build Time

The amount of time used by the compiler to transform source code to binary form.



Tips and Techniques to speedup the build time

Parallelize build

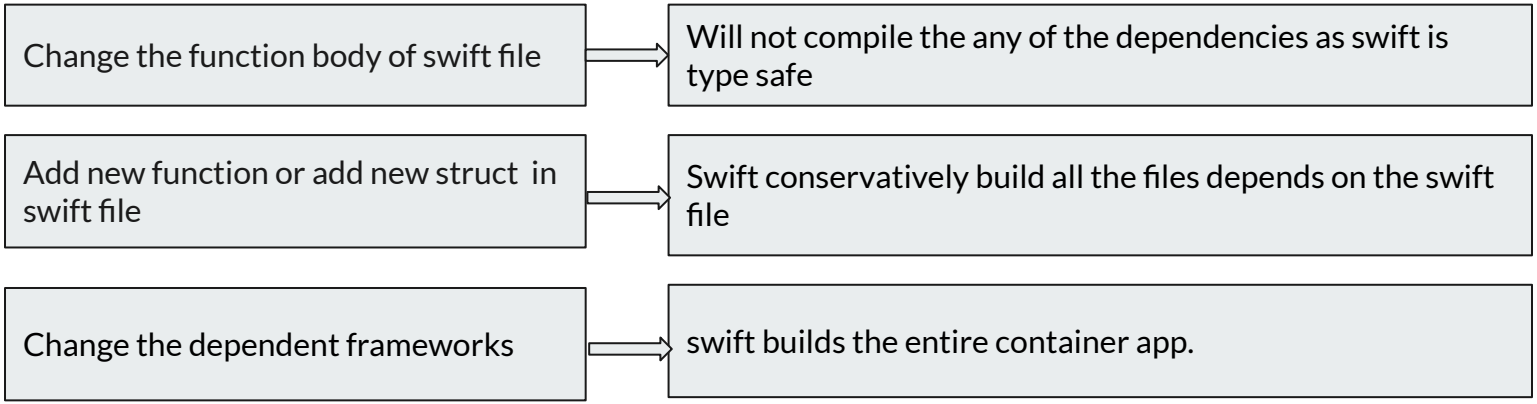
Understand Dependency Graph

Understand and Optimize Build Settings and Build Phases

Type Inference impact on build times

What is Dependency graph

Understand dependency graph will give better estimation of build times.



Understand Build Settings & Build Phases

What is Target ?

Compilation Mode (Whole Module and Incremental)

Explicit and Implicit dependencies

Type Inference & Impact on build time

We should provide warning if any of the expression takes more than certain threshold time.

Type inference is good but we need to be careful for a good reasons.

Easy to understand for us and for compiler too. :)

-Xfrontend -warn-long-expression-type-checking=100

Optimize Run Script phase

Run script phase will be execute every time when you build the project. We should optimize here to get lesser build times.

Use Input/Output files to cache the script phases to not to execute for incremental builds.

Demos