KOTLIN

One language to rule them all

2020.01.09 ~ CLS @ Dimension S.r.l.

OUTLINE

- Kotlin
  - History
  - Multiplatform
- Demo
- Conclusion

HISTORY

2011/07 unveiled by JetBrains

2012/02 open sourced (Apache License 2.0)

2016/02 Kotlin v1.0 🎉

2017/05 first-class support for Kotlin on Android *@GoogleI/O*

2017/11 Kotlin v1.2 with Kotlin/JS

2018/10 Kotlin v1.3 with Kotlin/Native

2019/05 Preferred language for Android development *@GoogleI/O*

KOTLIN

- Statically typed
- Type inference
- OOP + Functional
- Coroutines (async programming)
- Cross-platform

MULTIPLATFORM

```
fun main(args: Array<String>) {
    println("Hello, World")
}
```

```
public final class TestKt {


  // access flags 0x19
  public final static main([Ljava/lang/String;)V
    @Lorg/jetbrains/annotations/NotNull;() // in
   L0
    ALOAD 0
    LDC "args"
    INVOKESTATIC kotlin/jvm/internal/Intrinsics.
   L1
    LINENUMBER 5 L1
    LDC "Hello, World"
    ASTORE 1
   L2
    GETSTATIC java/lang/System.out : Ljava/io/Pr
    ALOAD 1
    INVOKEVIRTUAL java/io/PrintStream.println (L
   L3
   L4
    LINENUMBER 6 L4
    RETURN
   L5
    LOCALVARIABLE args [Ljava/lang/String; L0 L5
    MAXSTACK = 2
    MAXLOCALS = 2
```

Kotlin/JVM

```
kotlin.kotlin.io.output.flush();
if (typeof kotlin === 'undefined
  throw new Error("Error loading
}
var moduleId = function (_, Kotl
  'use strict';
  var println = Kotlin.kotlin.io
  function main(args) {
    println('Hello, World');
  }
  _.main_kand9s$ = main;
  main([]);
  Kotlin.defineModule('moduleId'
  return _;
}(typeof moduleId === 'undefined

kotlin.kotlin.io.output.buffer;
```

Kotlin/JS

```
<kfun:main(kotlin.Array<kotlin.String>)>:
push   %rbp
mov    %rsp,%rbp
mov    $0x4491b0,%edi
callq  429210 <Kotlin_io_Console_println>
pop    %rbp
retq

<EntryPointSelector>:
push   %rax
callq  409ea0 <kfun:main(kotlin.Array<kotlin
pop    %rax
retq
nopl   0x0(%rax,%rax,1)


<kfun:kotlin.Unit.toString()Reference>:
push   %rbp
mov    %rsp,%rbp
mov    %rsi,%rax
mov    $0x4491f0,%esi
mov    %rax,%rdi
callq  4252f0 <UpdateReturnRef>
mov    $0x4491f0,%eax
pop    %rbp
retq
nopl   0x0(%rax,%rax,1)
```

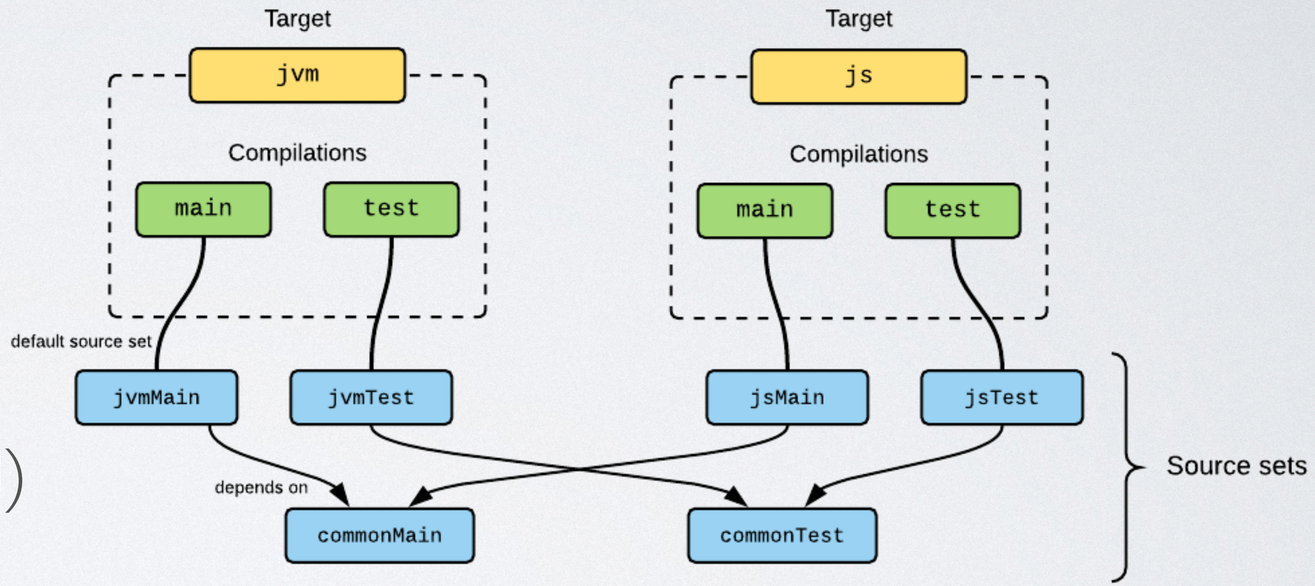
Kotlin/Native

MULTIPLATFORM

Common code (es. Kotlin stdlib)

+

Platform specific code (es. Kotlin/JVM)



DEMO TIME

CONCLUSION

- Pro
  - Different approach vs full native
  - Faster development & more robust/maintainable code
  - Consistency between platforms
- Contro
  - Different approach vs full native
  - IDE
  - Immature (but fast improving)

REFERENCES

Kotlin / Kotlin MP

- kotlinlang
- Kotlin Koans
- Building Multiplatform Projects with Gradle

Kotlin MP libraries

- khttp
- ktor
- kotlinx.serialization
- klock