Как мы KMP внедряли

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Архитектор

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О чем будем говорить?

- Зачем нам понадобился KMP?
- Как подключить KMP на все платформы:

  backend, android, web, smart tv, ios?
- Результаты внедрения
- Перспективы развития

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> 11 лет на рынке
> Самая большая медиатека в России
> Доступен сервис спортивных трансляций Okko Спорт

> Android & Android TV
> iOS & Apple TV
> Web & Smart TV

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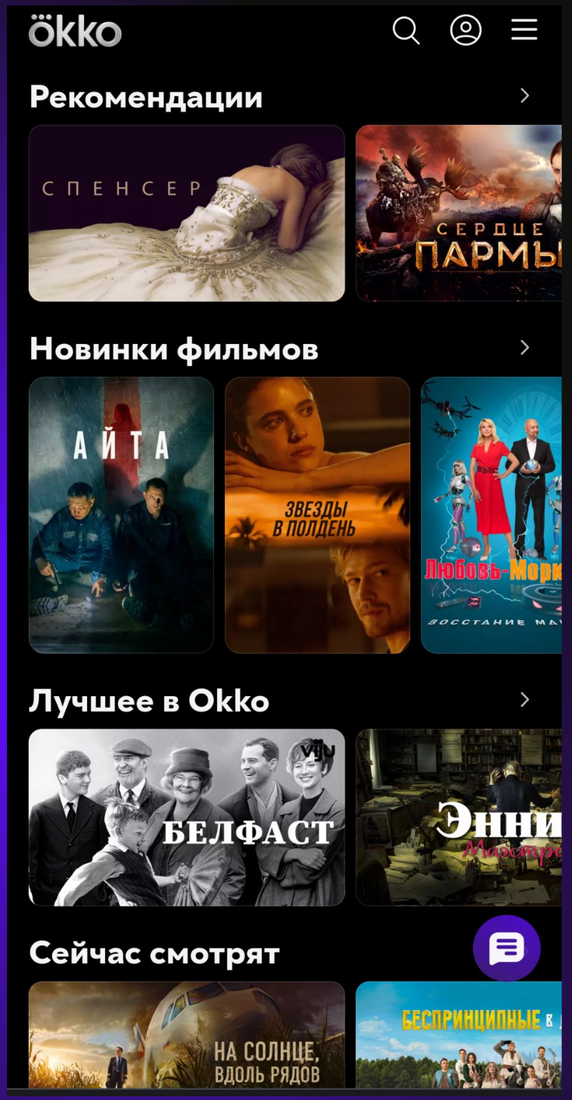
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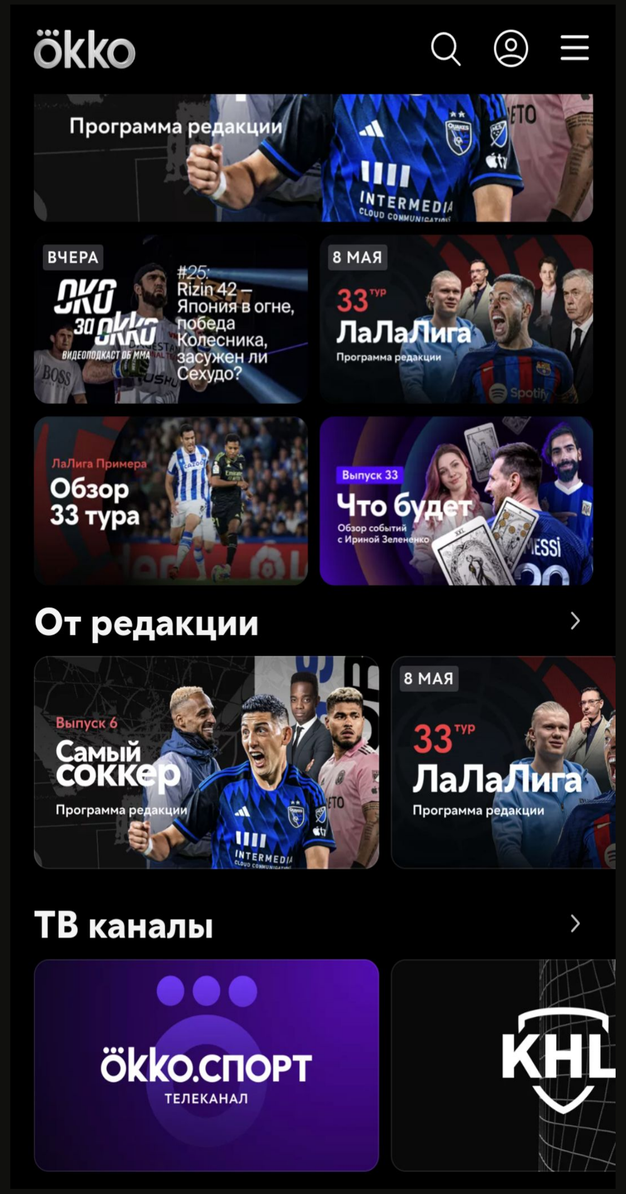
Рекомендации
СПЕНСЕР
СЕРДЦЕ ПАРМЫ
Новинки фильмов
АЙТА
ЗВЕЗДЫ В ПОЛДЕНЬ
Лучшее в Okko
БЕЛФАСТ
Сейчас смотрят
НА СОЛНЦЕ, ВДОЛЬ РЯДОВ
БЕСПРИНЦИПНЫЕ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Программа редакции
ВЧЕРА
#25: Rizin 42 — Япония в огне, победа Колесника, засужен ли Сехудо?
8 МАЯ
33 тур
ЛаЛаЛига
Программа редакции
ЛаЛига Примера
Обзор 33 тура
Выпуск 33
Что будет
От редакции
Выпуск 6
Самый соккер
Программа редакции
8 МАЯ
33 тур
ЛаЛаЛига
Программа редакции
ТВ каналы
ökko.СПОРТ
ТЕЛЕКАНАЛ
KHL


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ЧЁРНАЯ КОМЕДИЯ ГОРОДА БЕЛЫХ НОЧЕЙ
1703
7.6 2022 Комедии 1 сезон Rus 18+
Месяц за 1 ₽, затем месяц за 199 ₽
дальше — 399 ₽/месяц в подписке Оптимум
Оформить подписку
Трейлер
Запомнить
Оценить
Сезоны 1

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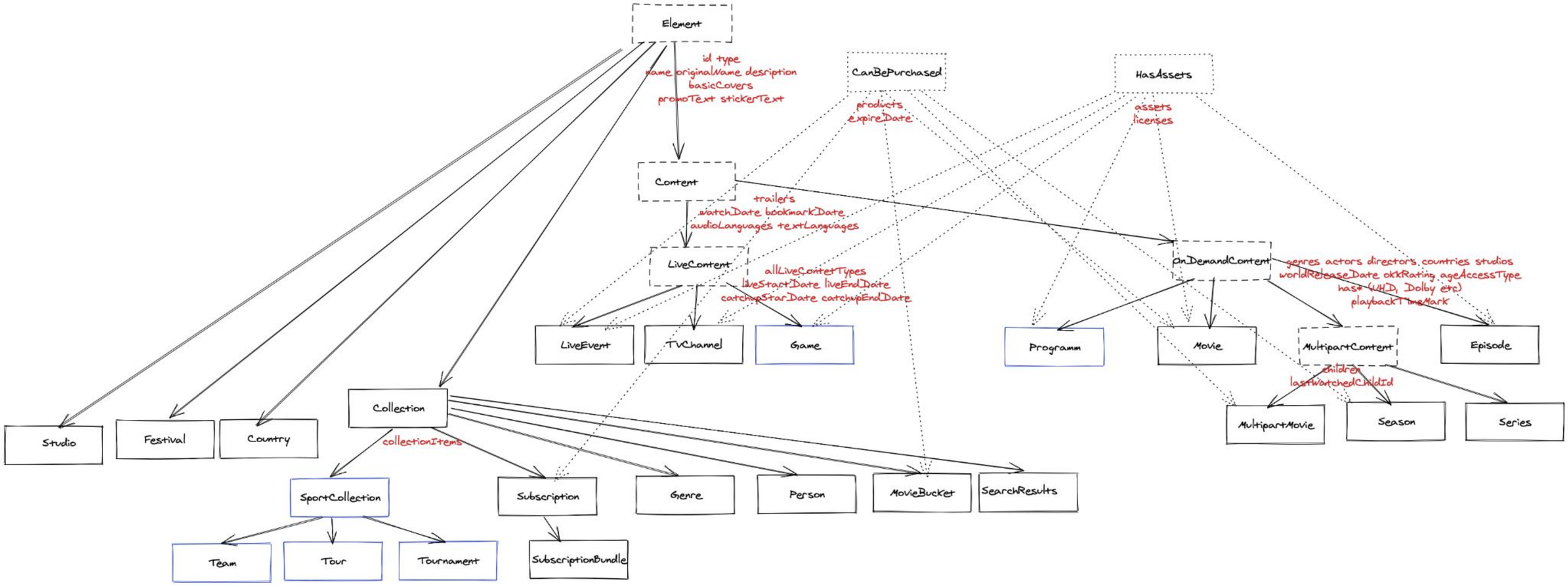
GOD Element



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Element.java

```java
    private Integer tourNumber;
    @Deprecated(since = "in favour of homeOpponent")
    private Relation<Element> homeTeam;
    @Deprecated(since = "in favour of awayOpponent")
    private Relation<Element> awayTeam;
    // sport person or team
    private Relation<Element> homeOpponent;
    private Relation<Element> awayOpponent;
    private Relation<Element> winnerOpponent;
    private ItemsList<Relation<Element>> cameras;
    private boolean hasChildrenWithCamera;

    /**
     * Used in GAME an LIVE_EVENT to represent live status.
     * 'gameStatus' - called because backward compatibility
     *
     * @see GameStatus
     */
    private String gameStatus;
    private Integer gameMinute;
```

Backend Java

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response/ElementResponse.kt

```kotlin
@file:OptIn(ExperimentalTime::class)

package ru.okko.sdk.domain.oldEntity.response

import ...

mfunikov +25
@Serializable
data class ElementResponse(
        var id: String = "",
        @Serializable(ElementType.Serializer::class)
        var type: ElementType = ElementType.UNKNOWN,
        var name: String? = null,
        var title: String? = null,
        var description: String? = null,
        var promoText: String? = null,
        var alias: String? = null,
        var assets: AssetListResponse? = null,
        var trailers: TrailerListResponse? = null,
        var covers: CoverElementHolderResponse? = null,
        var collectionItems: ElementRelationListResponse? = null,
        var collections: ElementRelationListResponse? = null,
        var needActivate: Boolean? = null,
```


Android Kotlin

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element.ts

```
14  import { filterNotNil } from '../lib/array
15  import { enableFreePreview } from '../backend/ui-screen-info'
16
17  export default abstract class Element {
18    readonly id: string
19    abstract readonly type: ElementType
20    name?: string
21    originalName?: string
22    description?: string
23    alias?: string
24    basicCovers: Cover[] = []
25    promoText?: string
26    stickerText?: string
27    products: Product[] = []
28    expireDate?: number
29    recommendationExplanation?: string
30    purchaseDate?: number
31    freeContent?: boolean
32    sticker?: Sticker
33    sportSection?: boolean
34    specialCollection?: boolean
```

Smart TV & Web

TypeScript

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h SAElement

YotaPlay 〉 Common 〉 screenApi 〉 data 〉 element 〉 h SAElement 〉 No Selection

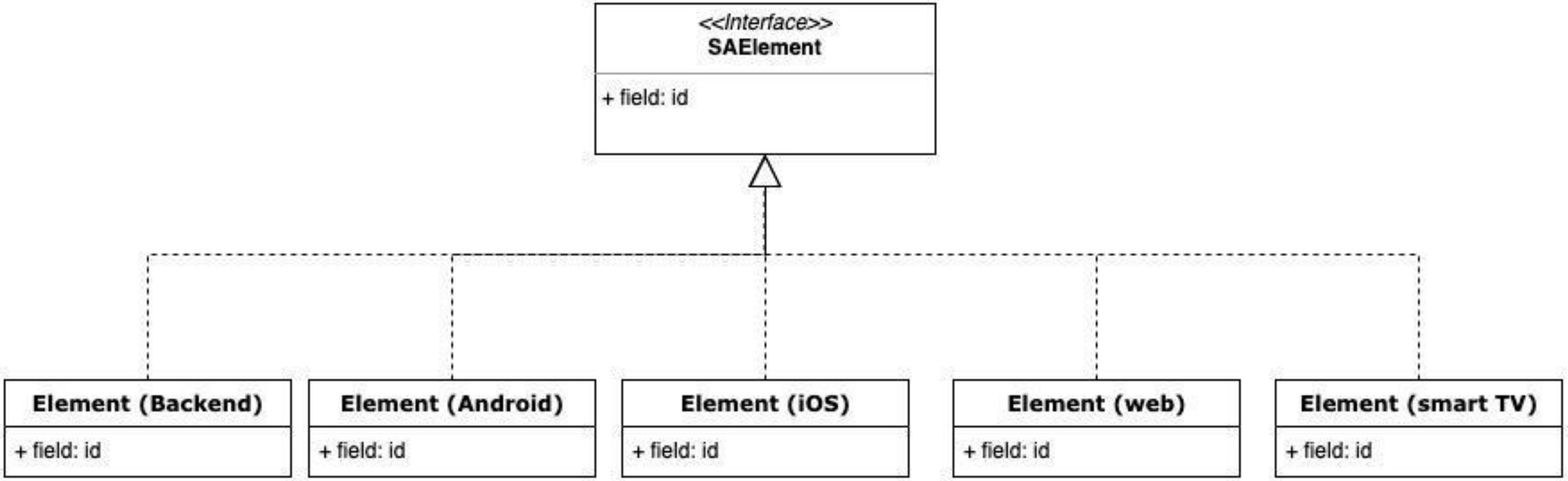
```
31  @interface SAElement : SABaseObject <Updatable, NSSecureCoding, NSCopying>
358                                 highFpsEnabled:(BOOL)highFpsEnabled;
359 - (nullable SAAsset *)assetWithDrmType:(SADrmType)drmType
360                              mimeType:(SAMimeType)mimeType
361                        maxMediaQuality:(SAMediaQuality)maxMediaQuality;
362
363 - (BOOL)isEqualToElement:(nullable SAElement *)object;
364
365 - (nullable NSArray<SATrailer *> *)trailersForMimeType:(SAMimeType)mimeType;
366 - (nullable NSArray<SATrailer *> *)trailersExcludeMimeType:(SAMimeType)mimeType;
367
368 - (nullable NSURL *)imageURLWithType:(SAImageType)type size:(CGSize)size;
369 - (nullable NSString *)imageURLStringWithType:(SAImageType)type size:(CGSize)size;
370
371 - (nullable SAElement *)programWithLiveContentType:(SALiveContentType)type;
372
373 @end
374
375 NS_ASSUME_NONNULL_END
376
```

iOS Objective-C

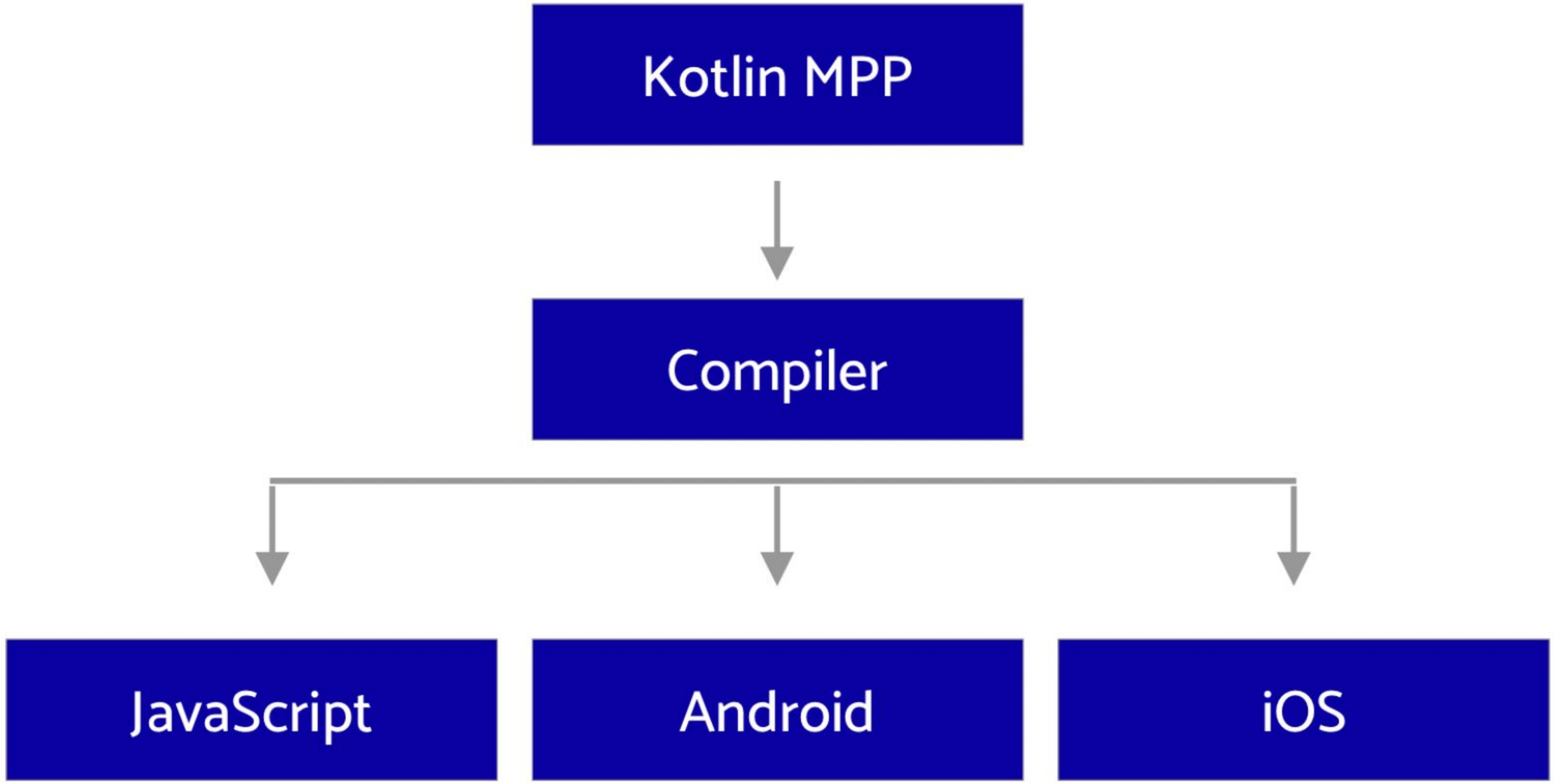
Element: поля по типам

	Поле	Откуда формируется поле	Использование в типе
79	similar		TEAM, SERIAL, SEASON, EPISODE, MP_MOVIE, MOVIE, GAME, PROGRAM, TV_CHANNEL, LIVE_EVENT
80	subscriptions	CATALOGUE	MOVIE, MP_MOVIE, SEASON, EPISODE, TV_CHANNEL, MOVIE_BUCKET, LIVE_EVENT, TOURNAMENT, TOUR, GAME, PROGRAM, SPORT_COLLECTION
81	nextEpisode	CATALOGUE	EPISODE
82	prevEpisode	CATALOGUE	EPISODE
83	sort		GENRE, PERSON, COLLECTION, SPORT_COLLECTION, SUBSCRIPTION, MOVIE_BUCKET, TOUR, TOURNAMENT check if TOUR and TOURNAMENT needed in CATALOGUE
84	allGenresToYears	CATALOGUE	SUBSCRIPTION
85	allGenres	CATALOGUE	SUBSCRIPTION, COLLECTION, MOVIE_BUCKET, SPORT_COLLECTION
86	availableYearsRange	CATALOGUE	SUBSCRIPTION, COLLECTION, MOVIE_BUCKET, SPORT_COLLECTION, GENRE
87	ratingFilters	CATALOGUE	SUBSCRIPTION, COLLECTION, MOVIE_BUCKET, SPORT_COLLECTION, GENRE
88	collectionFilter	CATALOGUE	SUBSCRIPTION, COLLECTION, MOVIE_BUCKET, SPORT_COLLECTION, GENRE
89	calendarFilter		SPORT_COLLECTION
90	svodFiltered	CATALOGUE	SUBSCRIPTION, COLLECTION, MOVIE_BUCKET, SPORT_COLLECTION, GENRE

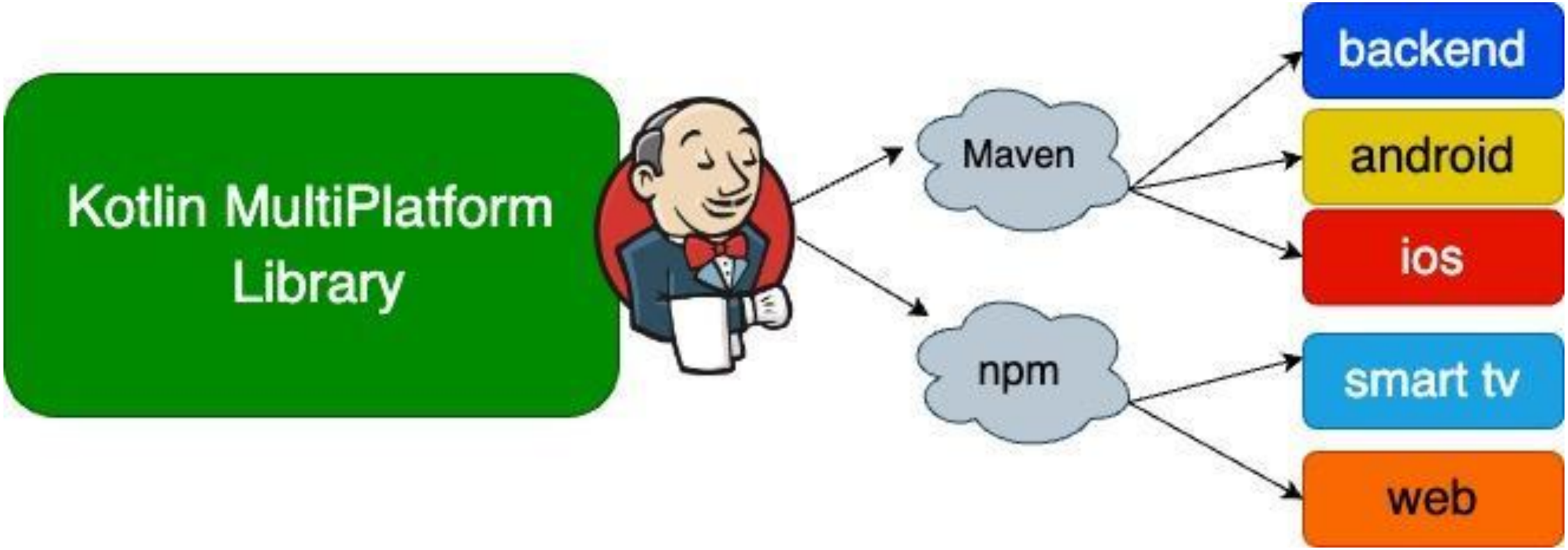
Common interface



Kotlin Multiplatform



KMP library Architecture



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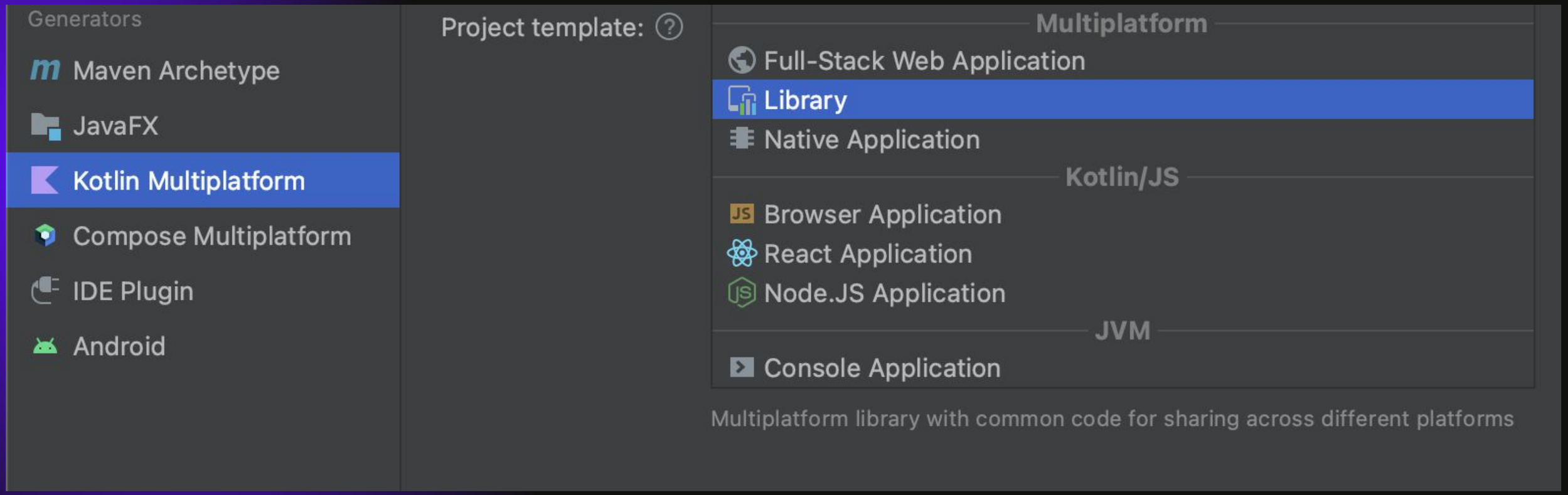
Start Kotlin MultiPlatform Library



Start Kotlin MultiPlatform Library

build.gradle.kts

```kotlin
kotlin {
    js(IR) {
        browser {
            commonWebpackConfig {
                cssSupport {
                    enabled.set(true)
                }
            }
        }
        binaries.executable()
    }
    listOf(
        iosX64(),
        iosArm64(),
        iosSimulatorArm64()
    ).forEach {
        it.binaries.framework {
            baseName = "screenapi-data"
        }
    }
```

build.gradle.kts

```kotlin
    sourceSets { this: NamedDomainObjectContainer<KotlinSourc
        val commonMain by getting
        val iosX64Main by getting
        val iosArm64Main by getting
        val iosSimulatorArm64Main by getting
    }
}
```

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Start Kotlin MultiPlatform Library

Project

- data
  - build
  - publish_web
  - src
    - commonMain
      - kotlin
        - tv
          - okko
            - screenapi
              - kmp
                - data
                - SAElement

SAElement.kt

```kotlin
package tv.okko.screenapi.kmp.data

import kotlin.js.JsExport

@JsExport
interface SAElement {

    val id: String
}
```

maven publish

build.gradle.kts

```kotlin
plugins {
    kotlin("multiplatform") version "1.8.10"
    id("maven-publish")
}
```

build.gradle.kts

```kotlin
publishing { this: PublishingExtension
    repositories { this: RepositoryHandler
        maven { this: MavenArtifactRepository
            credentials { this: PasswordCredentials
                username = userName
                password = userPwd
            }
            val url = if (versionName.endsWith( suffix: "SNAPSHOT")) snapshotsRepoUrl else releasesRepoUrl
            setUrl(url)
        }
    }
}
```

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maven publish

Jenkinsfile

```
stage('Publish maven') {
    sh "echo Publish maven."
    withCredentials( [[$class: 'UsernamePasswordMultiBinding'
        withEnv( ["MVN_USER=${jenkinsArtiUser}",
                  "MVN_PWD=${jenkinsArtiPwd}"]) {
            sh "./gradlew publish"
        }
    }
}
```

maven artifactory

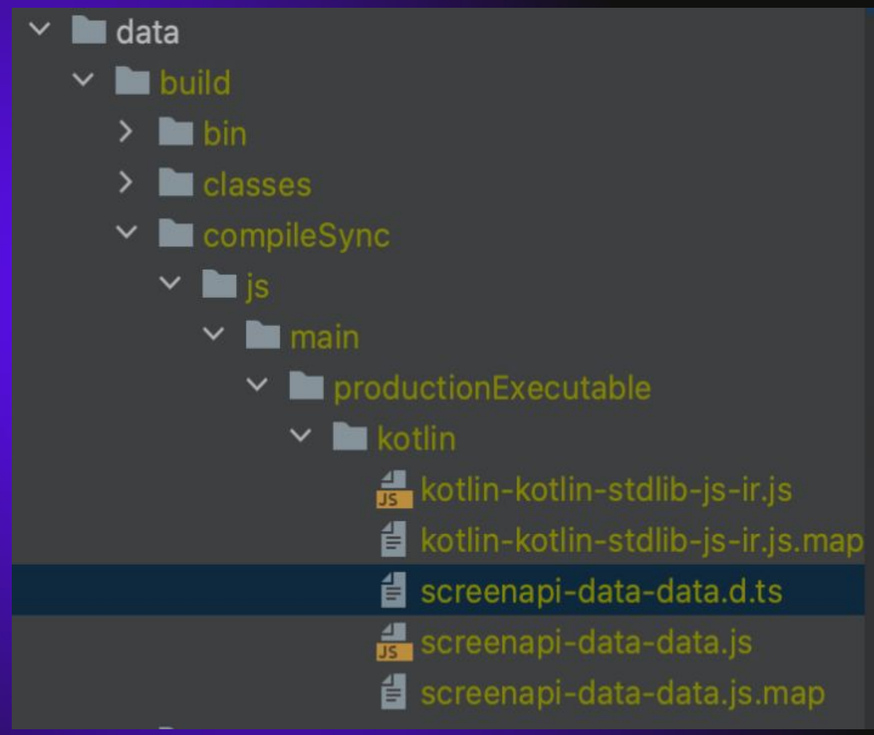
artifactory.playteam.ru

Index of libs-snapshot/tv/okko/screenapi/kmp/data

Name	Last modified	Size
../		
0.0.1-SNAPSHOT/	03-May-2023 06:52	-
0.0.1-SNAPSHOT.1/	05-May-2023 13:25	-
0.0.1-SNAPSHOT.10/	10-May-2023 09:45	-
0.0.1-SNAPSHOT.2/	05-May-2023 13:28	-
0.0.1-SNAPSHOT.3/	05-May-2023 13:40	-
0.0.1-SNAPSHOT.4/	05-May-2023 13:44	-
0.0.1-SNAPSHOT.5/	05-May-2023 13:48	-
0.0.1-SNAPSHOT.6/	05-May-2023 13:57	-
0.0.1-SNAPSHOT.7/	10-May-2023 07:01	-
0.0.1-SNAPSHOT.8/	10-May-2023 07:12	-
0.0.1-SNAPSHOT.9/	10-May-2023 07:21	-
maven-metadata.xml	05-May-2023 13:18	321 bytes
maven-metadata.xml.sha512	03-May-2023 06:52	128 bytes

Artifactory/6.19.0 Server at artifactory.playteam.ru Port 80

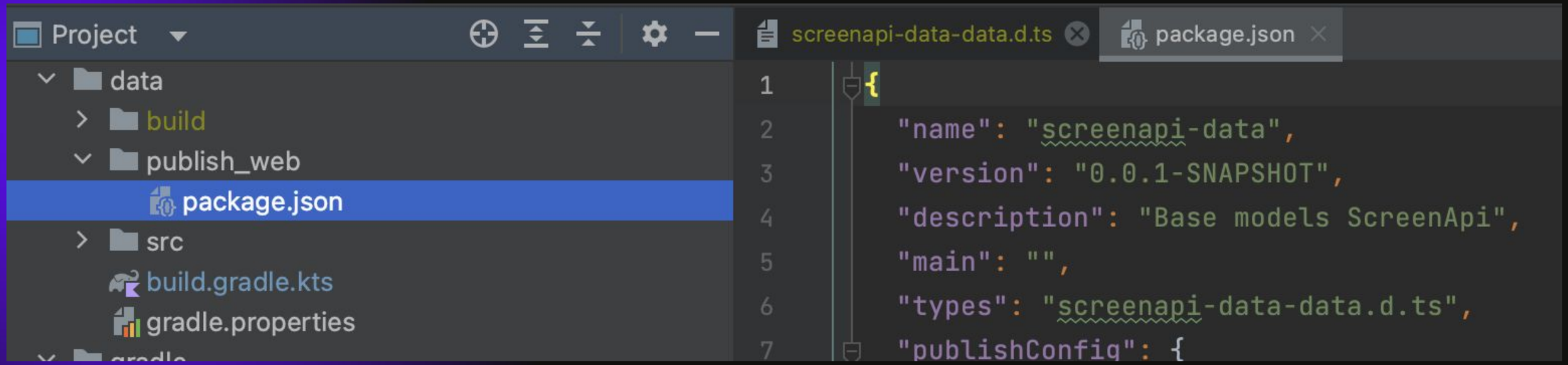
npm publish




```
type Nullable<T> = T | null | undefined
export namespace tv.okko.screenapi.kmp.data {
    interface SAElement {
        readonly id: string;
        readonly __doNotUseOrImplementIt: {
            readonly "tv.okko.screenapi.kmp.data.SAElement": unique symbol;
        };
    }
}
export as namespace screenapi_data_data;
```

okko

npm publish



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npm publish

Jenkinsfile

```
83    stage('Publish npm') {
84        sh "echo Publish npm."
85        sh "mv data/build/compileSync/js/main/productionExecutable/kotlin/*.d.ts dat
86         withCredentials([[$class: 'UsernamePasswordMultiBinding', credentialsId: 'j
87           def output = sh(script: "cd data/publish_web \
88             && echo _auth=`echo -n '${jenkinsArtiUser}:${jenkinsArtiPwd}' | openssl
89             && npm install \
90             && npm version ${env.MVN_VERSION_NAME} \
91             && npm publish", returnStdout: true).trim()
```

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npm artifactory

artifactory.playteam.ru


```
{
  "_id" : "screenapi-data",
  "_rev" : "1-0",
  "name" : "screenapi-data",
  "description" : "Base models ScreenApi",
  "dist-tags" : {
    "latest" : "0.0.1-SNAPSHOT.10"
  },
  "versions" : {
    "0.0.1-SNAPSHOT.5" : {
      "name" : "screenapi-data",
      "description" : "Base models ScreenApi",
      "version" : "0.0.1-SNAPSHOT.5",
      "main" : "",
      "dist" : {
        "tarball" : "https://artifactory.playteam.ru:443/api/npm/npm-local/screenapi-data/-/screenapi-data-0.0.1-SNAPSHOT.5.tgz",
        "shasum" : "660b4da2641584c13e3df20c8899c78cc78ac811"
      },
      "scripts" : {
      },
      "publishConfig" : {
        "registry" : "https://artifactory.playteam.ru/api/npm/npm-local/"
      },
      "_id" : "screenapi-data@0.0.1-SNAPSHOT.5",
      "types" : "screenapi-data.d.ts"
    },
    "0.0.1-SNAPSHOT.10" : {
      "name" : "screenapi-data",
      "description" : "Base models ScreenApi",
```

Jenkins

screenapi-data > PR-1 >

Pull Request PR-1

Full project name: Backend/BackendProject/screenapi-data/PR-1

Stage View

	Setup	Assemble	Get Publish Name	Publish maven	Publish npm	CleanUp
Average stage times: (Average full run time: ~1min 50s)	3s	59s	10s	10s	13s	813ms
#52 May 12 13:44 1 commit	975ms	1min 0s	8s	10s	13s	801ms

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backend prj & KMP library


```
dependencies {
    implementation("tv.okko.screenapi.kmp:data:0.0.1-SNAPSHOT.12")
```

```
  @JsonFilter(value = ScreenElementFilter.NAME)
- public class Element extends AbstractElementIdentifier implements ScreenElement, Cloneable, Comparable<Element>,
  WithPageInfo {
+ public class Element extends AbstractElementIdentifier implements SAElement, ScreenElement, Cloneable,
  Comparable<Element>, WithPageInfo {
```

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android prj & KMP library


```
import tv.okko.screenapi.kmp.data.SAElement
import kotlin.time.Duration
import kotlin.time.ExperimentalTime

@Serializable
data class ElementResponse(
        var id: String = "",
        override var id: String = "",
        @Serializable(ElementType.Serializer::class)
```

```
        val upgradePurchase: Boolean? = null,
        val nextEpisode: ElementRelationResponse? = null,
        val prevEpisode: ElementRelationResponse? = null,
) {
) : SAElement {
```

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web, smart tv prj & KMP library

package.json

```
35    "license": "ISC",
36    "dependencies": {
37      "@okko/rum": "^1.0.6",
38      "assign-deep": "1.0.1",
39      "blueimp-md5": "^2.18.0",
40      "core-js": "^3.21.1",
41      "fnv1a": "1.0.1",
42      "hyphenate-style-name": "1.0.3",
43      "js-cookie": "2.2.1",
44      "js-sha256": "^0.9.0",
45      "js-sha512": "^0.8.0",
46      "memoize-one": "^5.1.1",
47      "preact": "10.6.5",
48      "sami-parser": "0.5.3",
49      "screenapi-data": "^0.0.1-SNAPSHOT.6",
50      "subtitle": "^4.1.2",
```

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web, smart tv prj & KMP library

package.json element.ts

```
13  import Collection from './collection'
14  import { filterNotNil } from '../lib/array'
15  import { enableFreePreview } from '../backend/ui-screen-info'
16  import { tv } from 'screenapi-data'
17
18  export default abstract class Element implements Omit<tv.okko.screenapi.kmp.data.SAElement,
19    readonly id: string
20    abstract readonly type: ElementType
```

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iOS prj & KMP library

1. Local CocoaPods artifactory
   > идеальный вариант, но пока не настроен

2. CocoaPods Gradle plugin and git submodule

3. Generate universal (fat) frameworks

4. Transitive KMM module with Gradle
   > поддержка единой версионности

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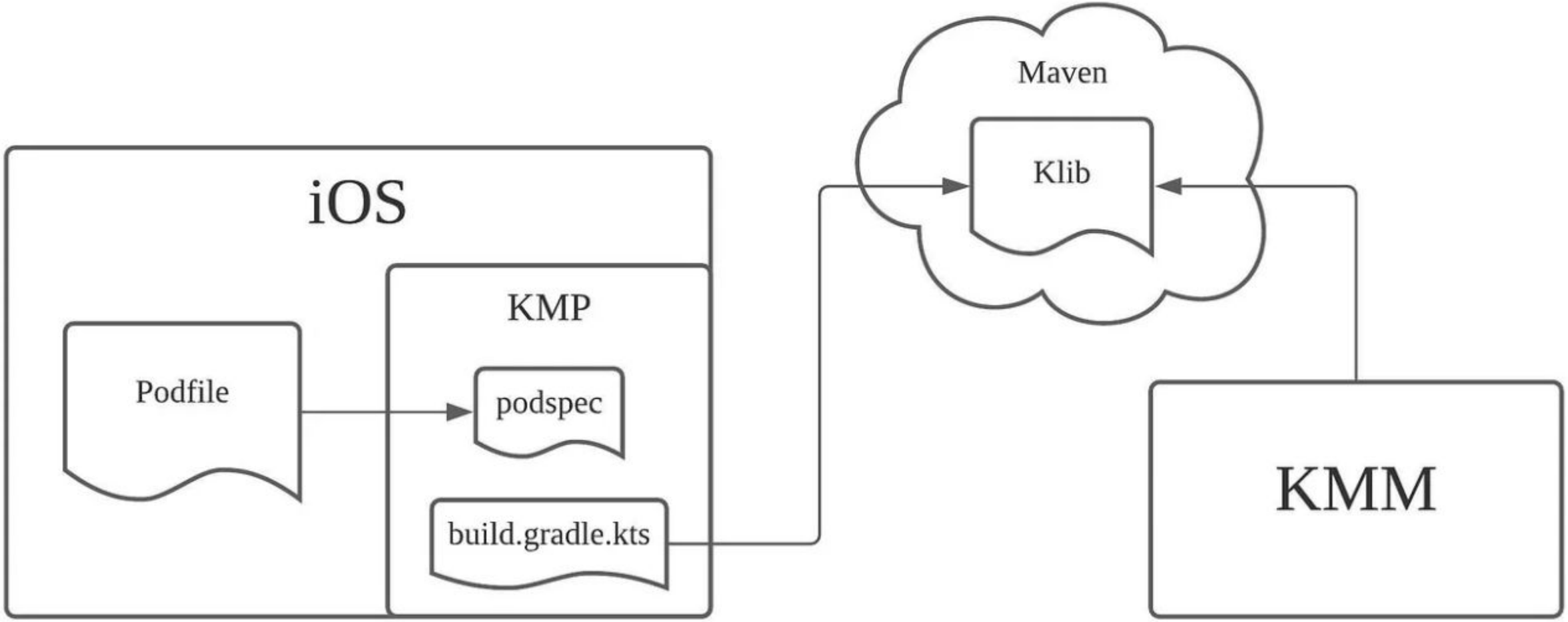
Transitive KMM module



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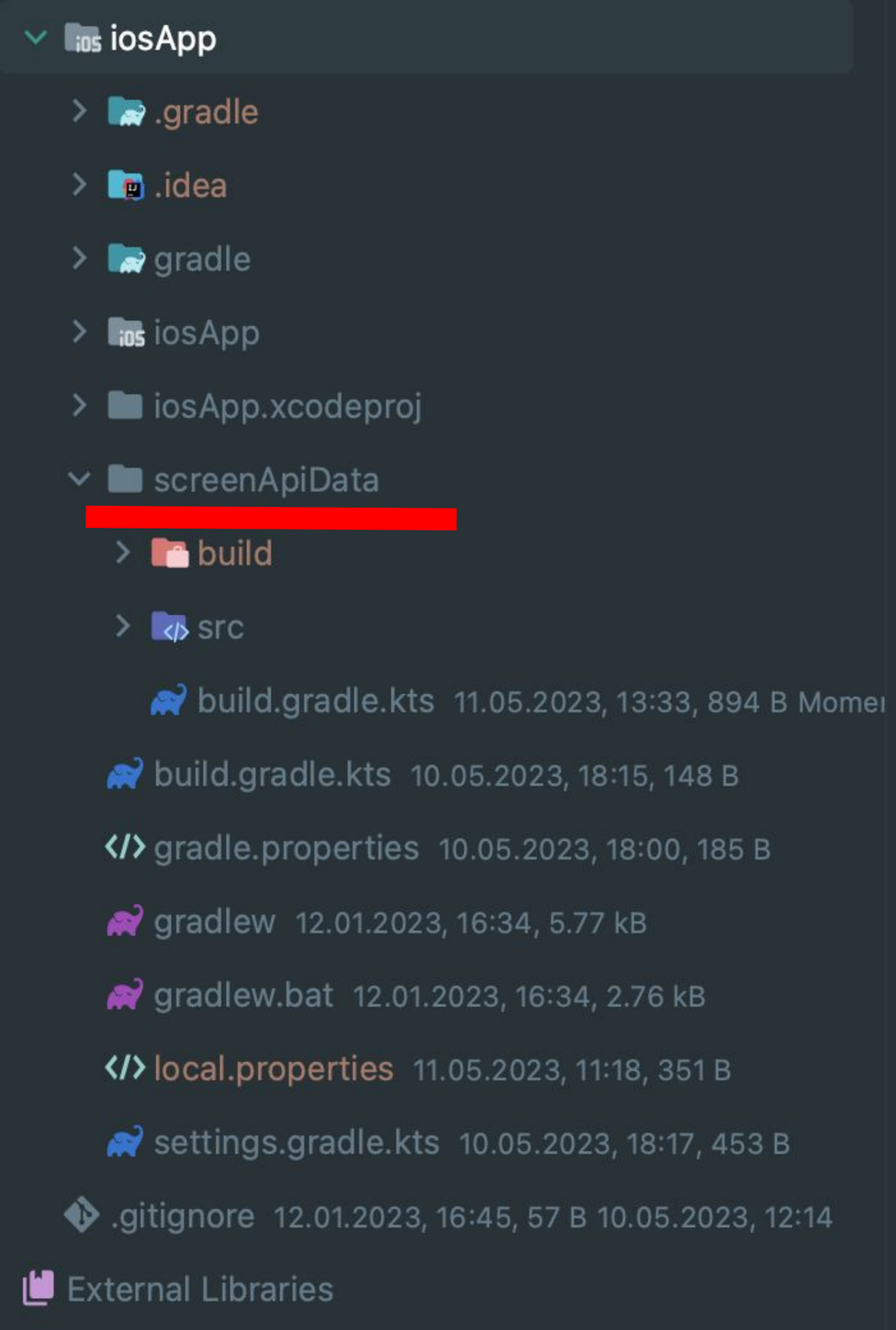


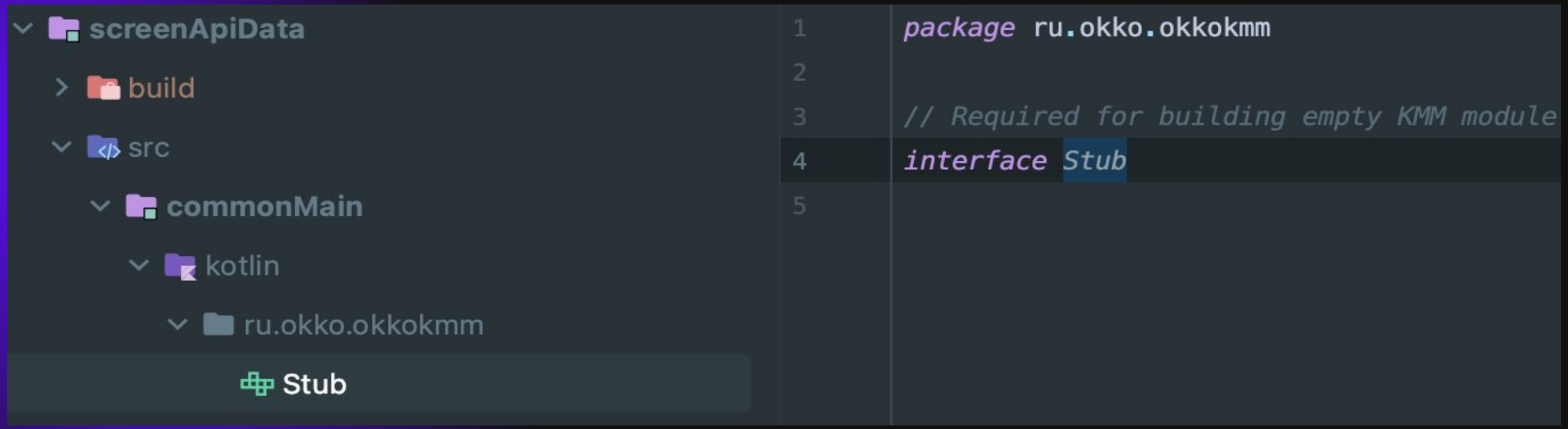

```kotlin
plugins {
    kotlin("multiplatform")
}

val screenApiDataVersion = "0.0.1-SNAPSHOT.13"

kotlin {
    listOf(
        iosX64(),
        iosArm64(),
        iosSimulatorArm64()
    ).forEach {
        it.binaries.framework {
            baseName = "screenApiData"
            transitiveExport = true
            export("tv.okko.screenapi.kmp:data:$screenApiDataVersion")
        }
    }

    sourceSets {
        val commonMain by getting {
            dependencies {
                api("tv.okko.screenapi.kmp:data:$screenApiDataVersion")
            }
```

iOS prj & KMP library



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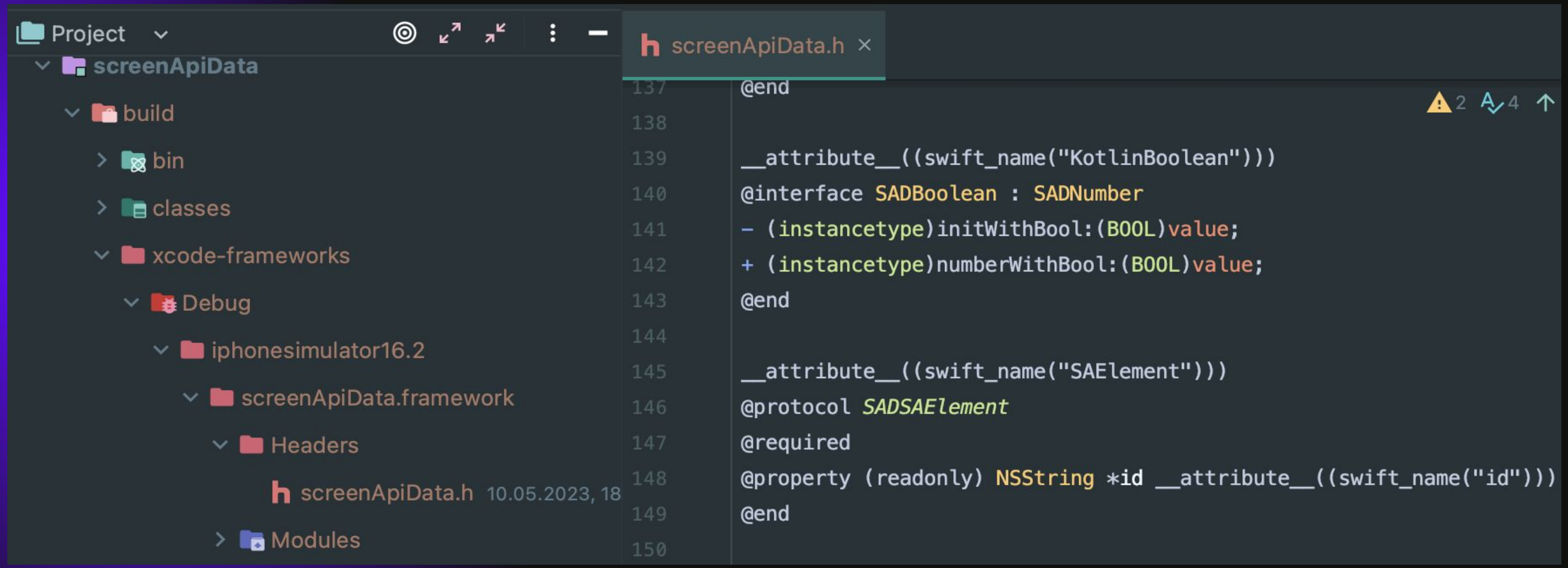
iOS prj & KMP library



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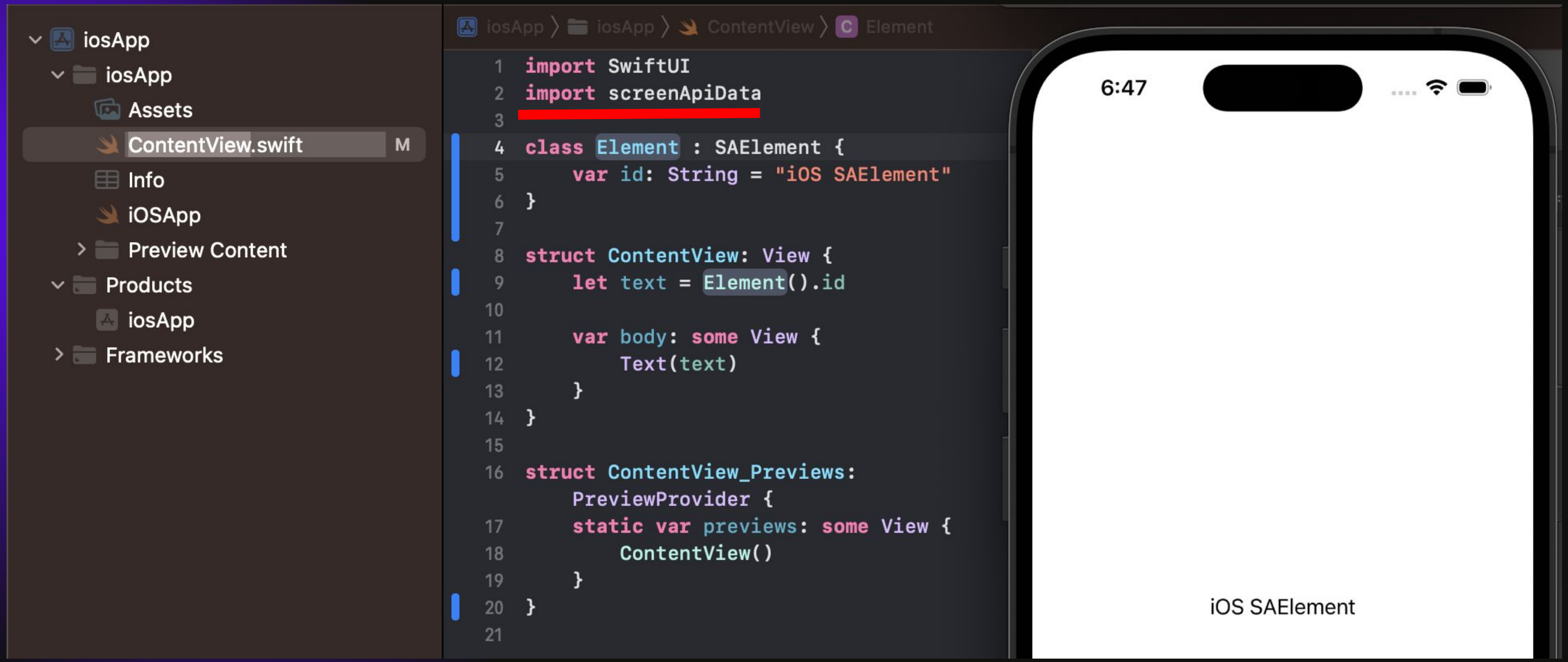
iOS prj & KMP library



Результаты KMP library

> Единый протокол на всех платформах
backend, android, ios, web, smart tv

> Единая версионность библиотеки

> Минимум кода для интеграции

> Синхронизация рефакторинга

> Не нужна дополнительная документация

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Перспективы KMP library

> Рефакторинг базовых типов контента

> Вынести в библиотеку логику.
  Например, формирование цены

> Тестирование

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Спасибо за внимание!