# The Matrix SDK No One Talks About

# About the speaker

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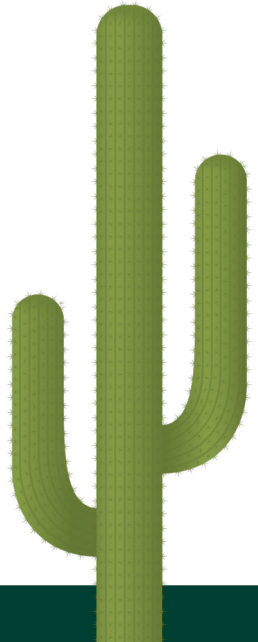
Who knows Trixnity?

# Expectations

- Bug reports
- Feature requests
- Merge requests
- Traffic in help rooms
- Commercial support requests
- Open Source projects using it

# The reality



# Who uses Trixnity?

# Expectations ⚡ Reality

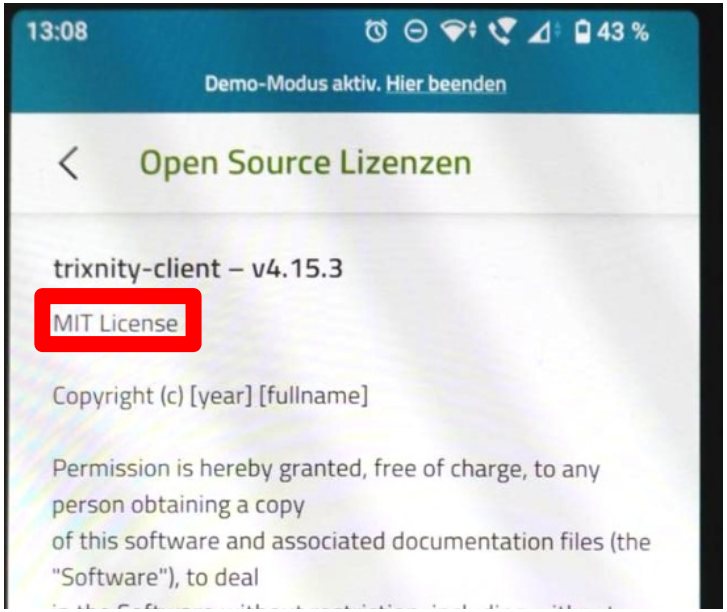
- 🚫 Bug reports
- 🚫 Feature requests
- 🚫 Merge requests
- 🚫 Traffic in help rooms
- 🚫 Commercial support requests
- ✅ Open Source projects using it

# TI-Messenger - Facts

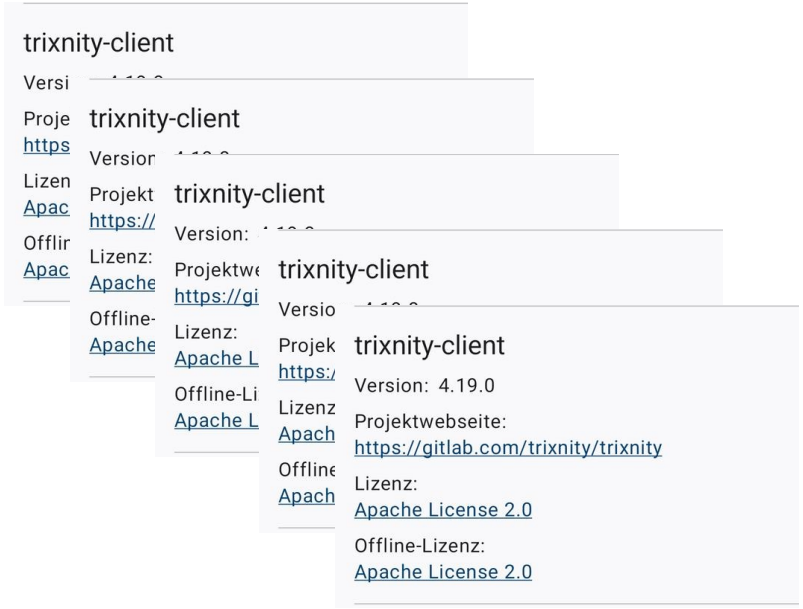
- Some of the public tenders explicitly asked for Kotlin Multiplatform
- Trixnity is the only Kotlin Multiplatform Matrix SDK
- All public tenders did have an extremely short deadline
- Apache 2 licence requires credit

# TI-Messenger - Research

## Telekom (BARMER)

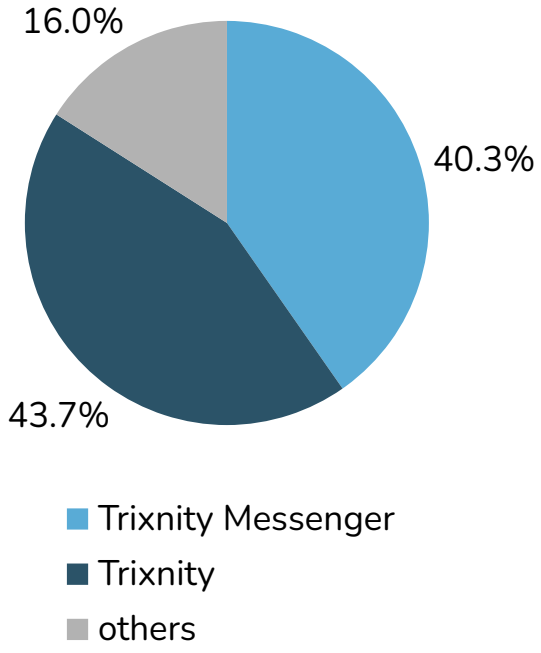



## RISE (IKK, BKK, ...)



# TI-Messenger - Result

## Usage in TI-Messenger ePA Clients




Figures as a percentage of those with public health insurance

**84%**

→ ca. 63 million potential users

# Expectations ⚡ Reality

- 🚫 Bug reports → **High test coverage, less bugs**
- 🚫 Feature requests → **Mostly feature complete**
- 🚫 Merge requests → **Complex project**
- 🚫 Many traffic in help rooms → **Few manufactures**
- 🚫 Commercial support requests → **“Open Source = Cost Free”**

Why not Trixnity?

# Reasons against using Trixnity

- Steep leaning curve
  - Flexibility introduces complexity
  - You can shoot yourself in the foot
- “Kotlin is an Android language” or “I don’t like Kotlin”
- Low level API

# Why you should give it a try

- Fast
- Reactive
- Type-Safe
- Extensible
- Use it as part of high level API like Trixnity Messenger
- Kotlin is an awesome language

# Kotlin is an awesome language

- Statically typed programming language
- Multiplatform: JVM, JS, Native and WebAssembly
- Common code base between platforms
- Platform-specific implementations possible
  - Access to platform-specific APIs (Android, iOS, Browser, etc.)
  - Use of platform-specific libraries (Maven, npm, C)
- Allows you to create your own DSLs
- Coroutines and Flows

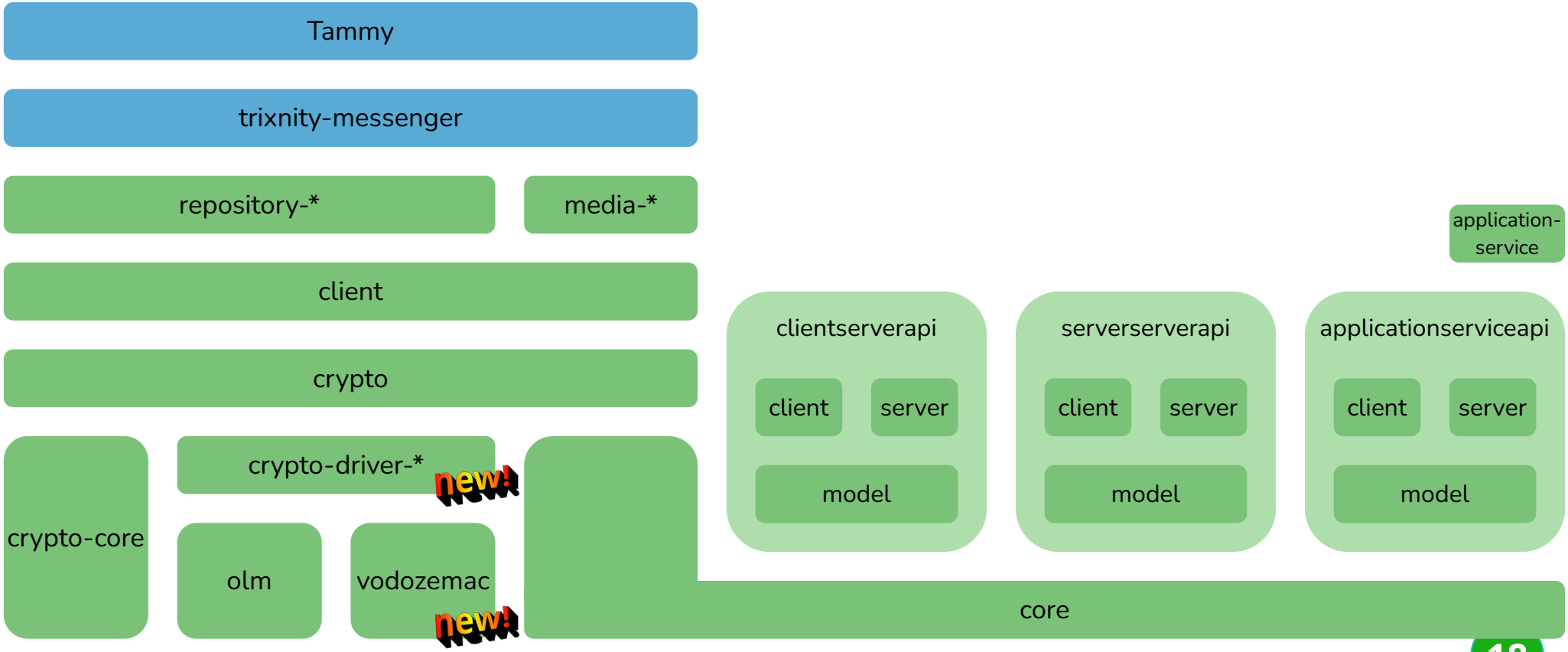
# Agony of Choice

| | **matrix-rust-sdk** | **matrix-dart-sdk** | **Trixnity** |
|---|---|---|---|
| **Licence** | Apache-2 | AGPL-3 | Apache-2 |
| **Language** | Rust | Dart | Kotlin |
| **Targets** | Native | Native, JS, WASM | JVM, JS, Native, WASM (planned) |
| **Bindings** | Kotlin, Swift, Python, Ruby | - | Possible, but not implemented yet |
| **Extensibility** | Type safe custom events | custom events via JSON | Type safe custom events, DI |
| **Reactivity** | Many as Observables | Some as Streams (usually onSync) | Everything as Flow |
| **Local database/ offline support** | Exchangeable (e. g. SQLite, IndexedDB), except Timeline | Exchangeable (e. g. SQLite, IndexedDB) | Exchangeable (e. g. SQL, IndexedDB, Realm), with reactive in-memory-cache |
| **Media** | Exchangeable media store, streamable | Not streamable | Exchangeable media store (e. g. filesystem, OPFS), streamable |
| **UI helpers** | Room list, Timeline, Sync | - | High level view models in trixnity-messenger (AGPL-3) |

# What's next?

- OAuth2 based authentication
- Reworked notifications
  - Get updates from replacements or redactions
  - Get correct notification count
  - Sync notifications to system
- WebAssembly
- Matrix 1.14+
- Vodozemac support

# Architecture



**Try it out and contribute!**

**#trixnity:imbitbu.de**

https://trixnity.gitlab.io