Prerequisites

Nix

The easiest way to get all dependencies is to use the provided development shell in `flake.nix`. You can use a tool like `direnv` to automatically load the environment for this repository.

The shell will setup:

- The rust nightly toolchain (nightly is required currently for ebpf because of the unstable `build-std` feature)
- The `bpf-linker`
- The Android SDK and NDK
- The `openjdk`
- The `cargo-ndk` package for compiling for rust for android
- The `protobuf` programs for generating grpc server and client code

Build & Deploy

Client Application

The simplest way to build and test everything is the following command inside of `frontend/`:

```
./gradlew build
```

The apks for each build configuration are located in `frontend/app/build/outputs/apk/`.

To install the application configured to use the real backend on your device or emulator, run either `./gradlew app:installRealDebug` or `adb install path/to/real/app.apk`

There are other flavors available, for example `installMockDebug`, for a frontend using fake data instead of the real backend. This is mainly interesting development purposes.

In order to view the full list of tasks configured in gradle, run

```
./gradlew tasks
```

Daemon

AIO deploy

If you'd like to build and run the daemon all in one command, you can use

```
cargo xtask daemon
```

After building this will ask you for root privileges to run the built executable.

By running

```
cargo xtask daemon --android
```

the executable won't start on your device but instead on an adb reachable android device or emulator by pushing it to `/data/local/tmp/backend-daemon` on the device and running it with root.

DIY deploy

To just build the daemon, run the following command inside of `rust/` for your desired architecture:

```
AYA_BUILD_EBPF=true cargo ndk -t x86_64 build --package backend-daemon
AYA_BUILD_EBPF=true cargo ndk -t arm64-v8a build --package backend-daemon
```

You can then proceed to copy the executable (`rust/target/debug/backend-daemon`) to wherever you like and run it. You need root privileges in order to run it.