LEFT HAND

I run **Synapse** in production.

RIGHT HAND

I run **anything else.**

TALK 3 · TODAY · SOFYA

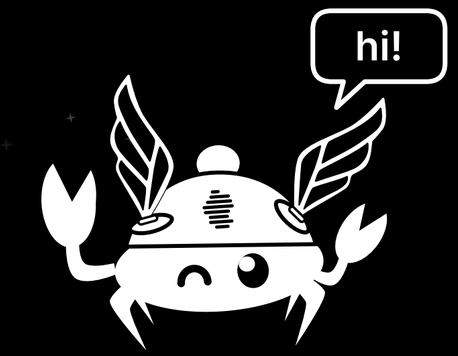
14:15–14:40

When to change **the locks** in your Matrix.

David Lassig, Timm Behner, Björn Reiners

4,917

MEMBERS · OUR BIGGEST ENCRYPTED ROOM



Hi.

Why we're standing here **and who we are.**

01



David Lassig
Platform Product Owner Backend · BWI

02



Nico Werner
Product Owner Homeserver Development · Famedly

03



Björn Reiners
Product Manager & Storyteller · BWI

BUNDESMESSENGER · IN NUMBERS

150k+
ACTIVE USERS

60+
PUBLIC ORGANIZATIONS

5+ yrs
IN PRODUCTION

01

CHAPTER ONE · 2022

We came for **the security.**

Matrix Rust SDK, co-created with Element. Memory safety, resilient runtimes and a solid base for serious crypto, one step closer to formal verification.

02

CHAPTER TWO · A QUESTION THAT WOULDN'T LEAVE US

What would a homeserver look like if **security** requirements came first, not as afterthoughts?

03

CHAPTER THREE · THE ANSWER

Arminius.

Our commitment to the Matrix standard: open source for good under Apache 2.0, maintained for the long run, security first.

Public Money, Public Code.

Three pillars, **and why** each one is a decision.

P1

Security

- Memory safety by default
- Resilient runtime profiles
- Compile-level type and SQL enforcement

P2

Operations

- Cloud-native lifecycle and dynamic configuration
- Tracing and observability from the beginning
- "Distroless" application images by default

P3

Architecture

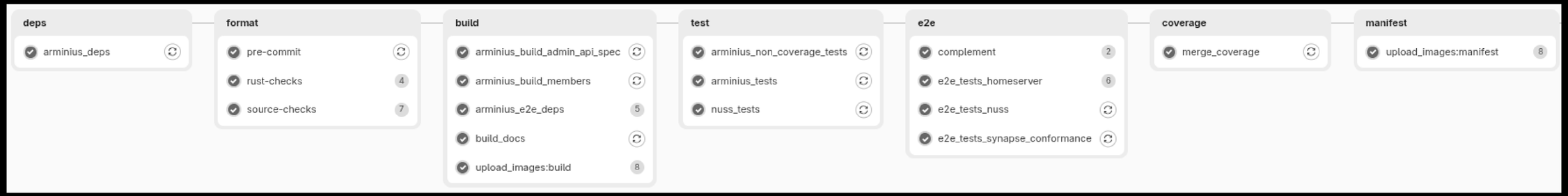
- Modularity and scalability
- Separation of concerns towards microservice architecture
- Interaction and load controllable via pub/sub pattern

P2

PILLAR TWO · OPERATIONS

Rust, Nix and Kubernetes. A match made in **heaven.**

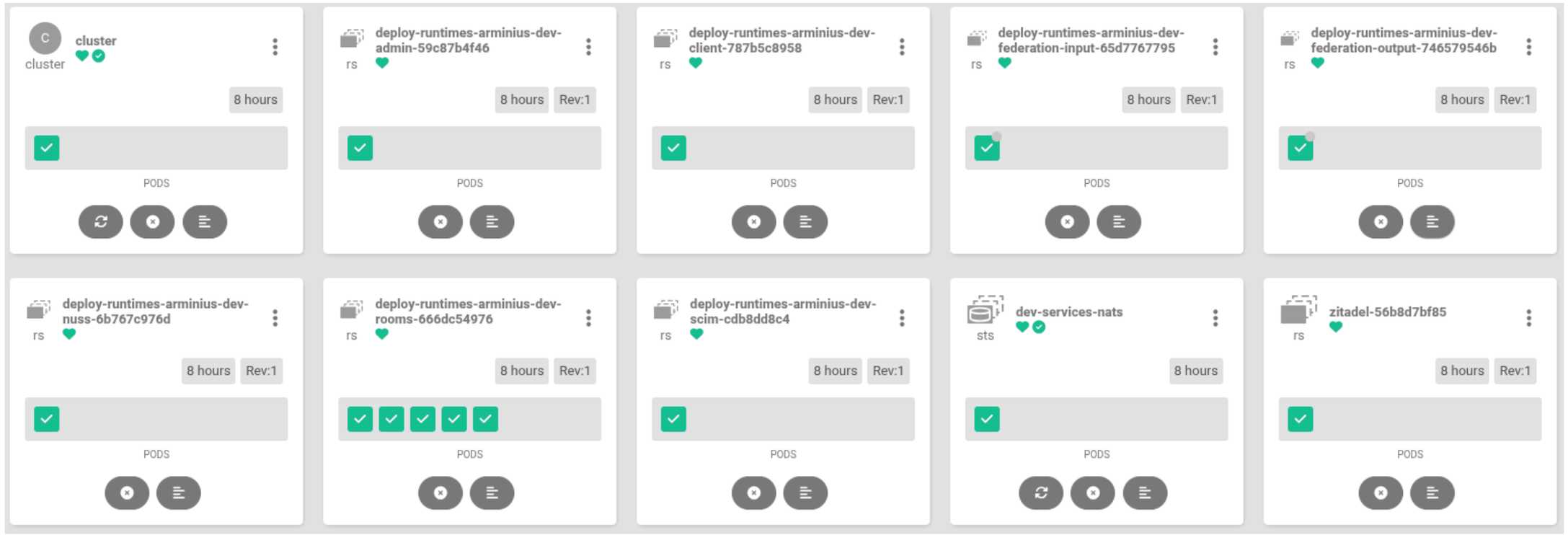
Designed and built for cloud-native architecture. Rust provides statically compiled binaries. Nix turns them into distroless application images with ease.



GITLAB CI · ARMINIUS · ONE PIPELINE RUN

7 STAGES · EVERY JOB GREEN

One database truth. **Every service scales.**



ARGOCD · DEPLOY-RUNTIMES-ARMINIUS-DEV

Both engines. **Same tests.**

Complement is the same test suite Synapse runs. We run it. That’s the bar.

Additionally we run E2E federation tests between our homeserver and Synapse.

01 Every pairing of Arminius and Synapse, both directions

02 The honest number: ~80 CS API and ~80 federation tests still failing

03 Complement: the suite Synapse itself runs

```
e2e_tests_homeserver:
  stage: e2e
  parallel:
    matrix:
      - E2E_TESTS_HS1_CONFIGURATION: [arminius, synapse]
        E2E_TESTS_HS2_CONFIGURATION: [arminius, synapse]

# ~80 CS API + ~80 federation tests still failing,
# listed in complement_failing_tests.nix
complement:
  stage: e2e
  needs:
    - job: arminius_e2e_deps
      parallel:
        matrix:
          - IMAGE: container-arminius-complement-test-login
  script:
    - nix run .#complement-runner
```

THE POINT

A protocol with one dominant implementation is a product with a specification.
A protocol with **multiple** ones is a standard.

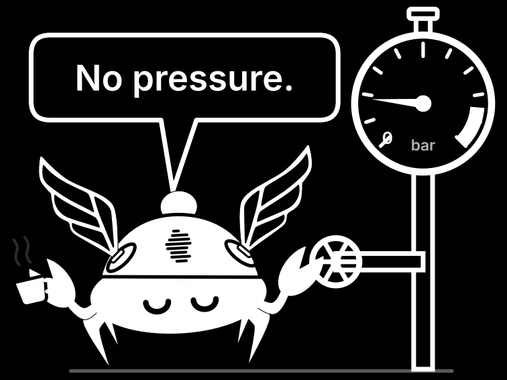
04

CHAPTER FOUR · THE HONEST COUNTERPOINTS

We are **not done.**

Federation to other Matrix servers (e.g. matrix.org)	READY · TESTING
Application services (bridges)	STARTED
Admin API	STARTED
IAM-driven permissions	STARTED
Synapse migration tooling	STARTED
Push notifications	NEXT
Media at scale	NEXT

+ a few **we forgot.**



Thank you.

BUILT BY

Amanda Graven

Flori Ava Star Weber

Nico Werner

thomas_traineau

Amirhossein Alesheikh

Lukas Lihotzki

Pierre

timorl

TOGETHER WITH Famedly

Charlie Graven

Michael Schleicher

Rasmus Rendal

King Crab 



LIVE · TODAY

Arminius is **now live.**

WHERE	SINCE	FOR WHOM
GitLab	Now	Free for all

arminius.bundesmessenger.dev

Apache 2.0

STICKERS · FREE

Ask us anything.
Leave with a crab.



One question, one sticker. Find us after the talk.

THANKS.

Questions? **Please.**

FIND US ON SOCIALS

BWI
IT für Deutschland

BundesMessenger is a product of BWI GmbH

LINKEDIN

TALK 3 · TODAY · SOFYA

14:15–14:40

When to change **the locks** in your Matrix.

David Lassig, Timm Behner, Björn Reiners

THE CODE

`arminius.bundesmessenger.dev`

Apache 2.0

PRODUCT
Björn Reiners
Product Manager & Storyteller · BWI
bjoern.reiners@bwi.de

ARCHITECTURE
David Lassig
Platform Product Owner Backend · BWI
david.lassig@bwi.de

ENGINEERING
Nico Werner
Product Owner Homeserver Development · Famedly
n.werner@famedly.com