

[the
matrix
conference]
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A faster, rustier Element Web.

David Baker
He/They
@dave:matrix.org

Florian Duros
He/Him
@florianduros:element.io

Speakers.

David Baker
Staff Software Engineer,
Element
Matrix Spec Core Team

@dave:matrix.org

Florian Duros
Senior Software Engineer,
Element

@florianduros:element.io

Agenda.

- Context
- The past: matrix-react-sdk and components
- Element X and the Rust SDK
- The future: To rewrite or not to rewrite?
- Shared Components
- Latest features
- The journey to Element "X" Web
- Demos!

The journey to today's Element Web.

INVITES ▶

FAVOURITES ▼

T test incirtpted room

fdxfvsdfv

fdxfvsdfv

ROOMS ▼

Dave

VoIP | Watercooler

Element Web/Desktop

Element Web Development

Dave

Dave Test 23

+ Start chat

Directory

Settings

 **Dave**

 Dave Test 2 placed a voice call.

 Dave answered the call.

 Dave ended the call.

 Dave Test 2 placed a voice call.

 Dave Test 2 ended the call.

Wed Jun 12 2024

 @davetest2:matrix.org changed their display name from Dave Test 2 to Dave Test 2 foo

 @davetest2:matrix.org changed their display name from Dave Test 2 foo to Dave Test 2

 Let's party like it's 2016 🎉

Invite/search by name, email, id

 Dave

 Dave Test 2

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The journey.

- Started in 2015
- Evolved along with the Matrix spec
- Originally implemented a much simpler spec
- Grown organically

Static location sharing

Multi-language 1181

Picture

P2P

Power levels and roles

Typing notifications

Editing

Mentions

Polls

Module API

Live location sharing

Room upgrades

Password reset

1:1 voice and video calls

Voice messages

Bridge info

Accounts & auth

Widgets

Kick, ban and head receipts

Push rules

Decryption failure track

Retention

Reporting content

User

Toasts

Secure backup

View source

Custom image reactions

Stickers

Redaction

Link prev

Email and phone 3PIDs

Timezone disp

and users

Authentic

Message se

and media

and encryption

React SDK Vision.

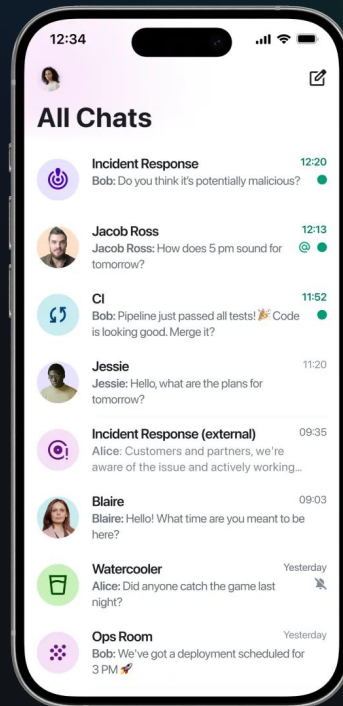
- Always *intended* to be made from reusable parts
- A library of components
- Take components from the library, reskin them build a different app
- Element Web was a thin wrapper on top

React SDK Reality.

- Components were tightly coupled to the app layer stores
- ...and also to each other
- In practice, very hard to actually take a component and re-use it
- The name ended up being misleading: not really an SDK.



Element X.



Element X.

- Built on the Rust SDK
- Supports end-to-end encryption from day one
- Built around sliding sync (much faster!)
- Both Android and iOS apps use the same SDK
- More code reuse

To rewrite... or not to rewrite.

- Element X rewrite took multiple years
- Element Web has even more features
- Users needed to migrate between apps.
- Need to support both apps until migration is complete
- LLMs..?

To rewrite... or not to rewrite.

- Element Web uses the rust library for encryption today
- ...but this alone took over 2 years

To rewrite... or not to rewrite.

How do we write features during the rewrite?

- No new features until new client is complete?
 - Not really realistic
- Develop each feature for both clients
 - Still need to maintain both clients

The first step.

- Element Web is closely tied to the js-sdk
- We need to be able to reuse the UI with a different SDK

Shared components.

Florian Duros
@florianduros:element.io

Shared Components.

- Separate package
- Use in Element Web, re-use in modules (and other apps!)
- Force no coupling to Element Web
- Strict MVVM: views only, no app logic

Shared components.

React SDK	Shared Components
Library of React components	Library of views
Logic tied to app	Strict MVVM
Sporadically tested	Every view has its own tests: unit and screenshot
Need full client to work on a component	Views can be worked on outside of app

Latest features.

Latest features.

- Completely rewritten timeline
- User status
- Room list sections
- New link previews

...all developed in shared components

Existing components.

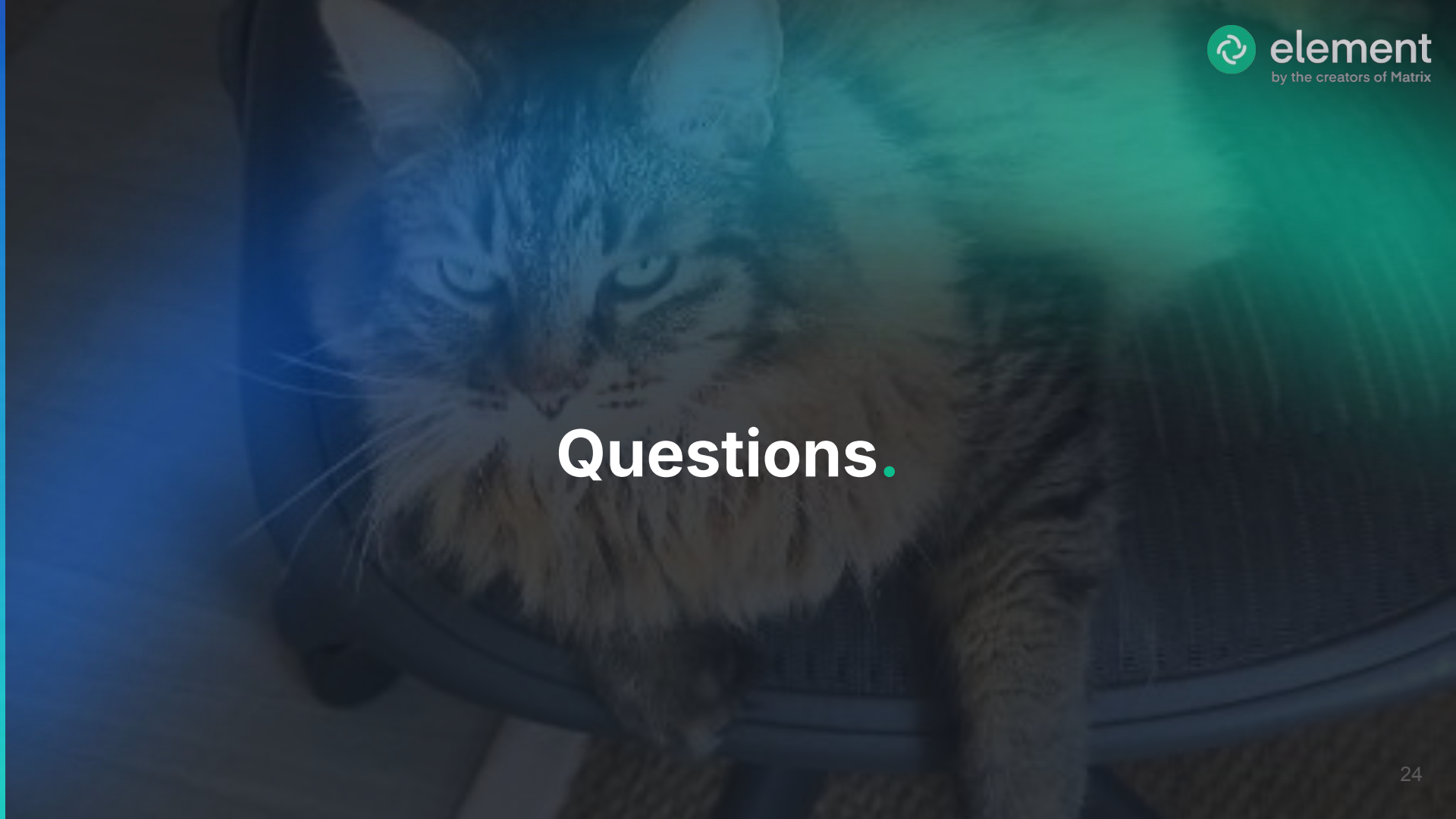
- Lots of event tile components
- User Menu
- Room List
- Emoji Picker

...moved over from Element Web

Element "X" Web.

- Shared components will allow us to replace the SDK and models beneath the views: a lot of the hard work is done.
- JS SDK and Rust SDK sync as two separate options (log out/in to change? Separate app builds?)
- No need to migrate to a different app
- Users shouldn't notice!

Demos.



Questions.

The journey.

- Bullet
- Bullet

Title.

Summary

- Bullet
- Bullet

Extra