Collaborative Apps over Matrix using the Collabs Library

Matthew Weidner

(Alpha Prototype)

Carnegie Mellon University
School of Computer Science
Users
✅ E2EE
✅ Federated & self-hostable
✅ Open-source tech stack

Developers
✅ Deploy w/ static site
✅ Matrix handles user accounts, scaling, ...
✅ Forkable
Collabs is a TypeScript library of client-side collaborative data structures (specifically, CRDTs).

```typescript
// Whiteboard state: a collaborative Map.
boardState: LwwCMap<[x: number, y: number], string>;

// When user draws:
boardState.set(pt, color);

// Respond to changes (possibly external):
boardState.on("Set", (event) => {
    ctx.fillStyle = boardState.get(event.key)!
    ctx.fillRect(event.key[0], event.key[1], GRAN, GRAN);
});
```
Collabs is a **collections library**, not just a set of CRDT implementations.

- Keep your data model & types
- Flexible & extensible
- Composition (objects, collections, ...)

Thank you!

Collabs

https://www.npmjs.com/package/@collabs/collabs

https://compoventuals-tests.herokuapp.com/

Heather Miller
CMU, Faculty Advisor

Huairui Qi
CMU (M.S. 2020)

Ignacio Maronna
CMU (M.S. 2020)

Maxime Kjaer
EPFL/CMU (M.S. 2021)

Ria Pradeep
CMU (B.S. 2021)

Benito Geordie
Rice