NoteSpace

Multi-platform Web Application for Real-Time Document Collaboration & Sharing

Progress Presentation

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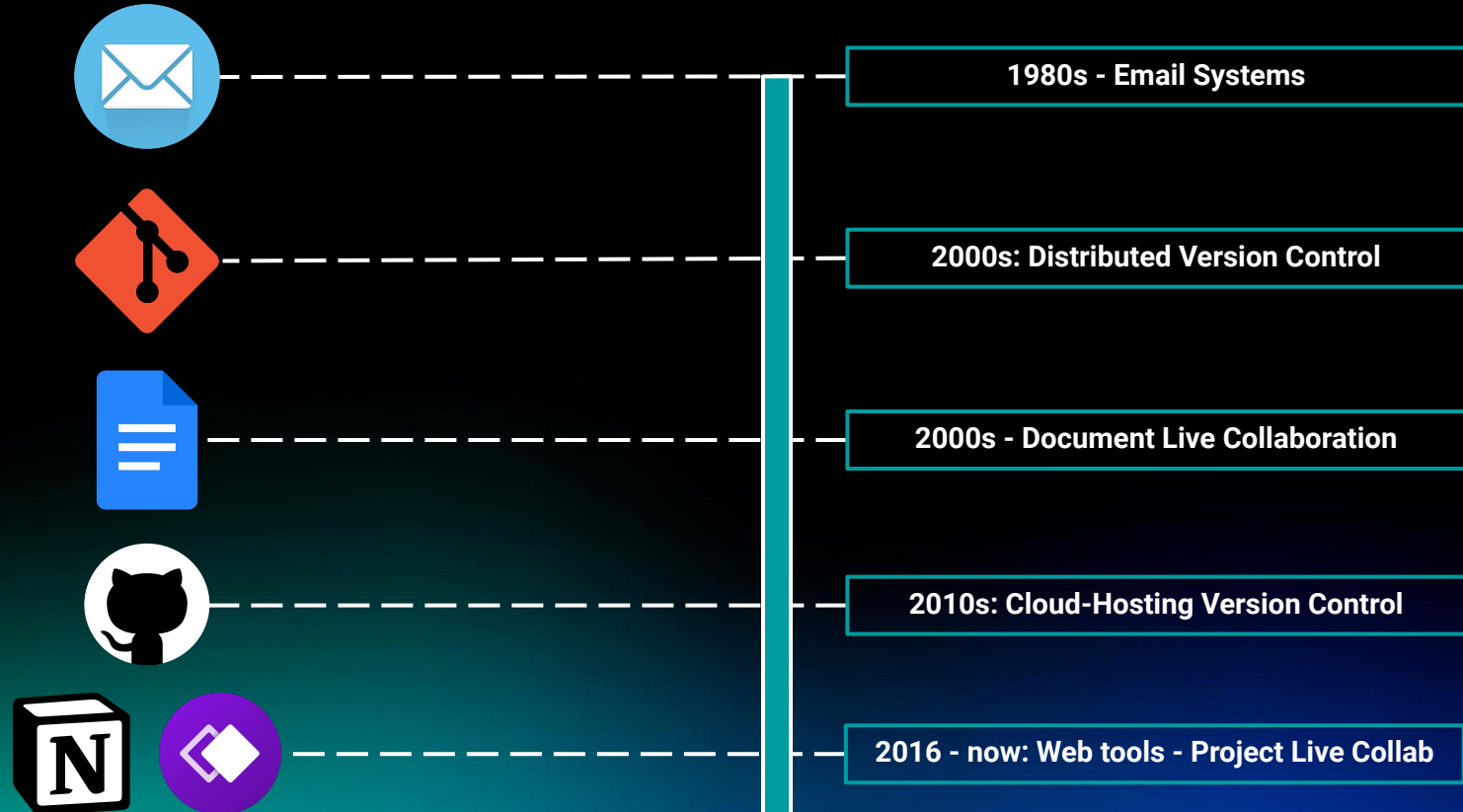
Supervisors: Paulo Pereira

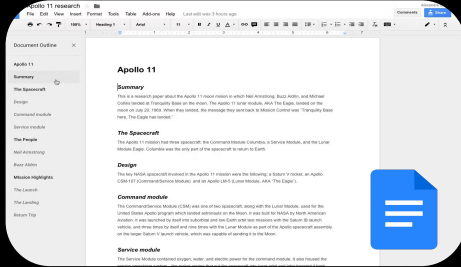April 2024

01

Introduction

Evolution of Collaboration

1980s - Email Systems

2000s: Distributed Version Control

2000s - Document Live Collaboration

2010s: Cloud-Hosting Version Control

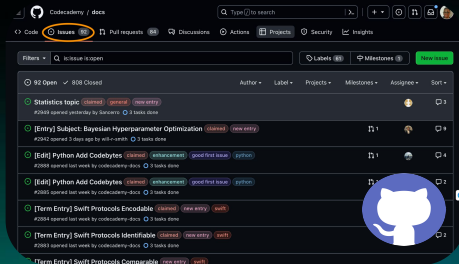**2016 - now: Web tools - Project Live Collab**

02

Motivation

Problems

Google Docs

❌ Explicit Version Control
❌ Offline Support
❌ Platform for Sharing Documents
❌ Project Management

GitHub

❌ Synchronous Editing
❌ Live Collaboration Features

Solution: NoteSpace

Markdown-Supported Editor

Live Collaboration Features

Workspace Management

Sharing Platform

Multi-platform (PWA)

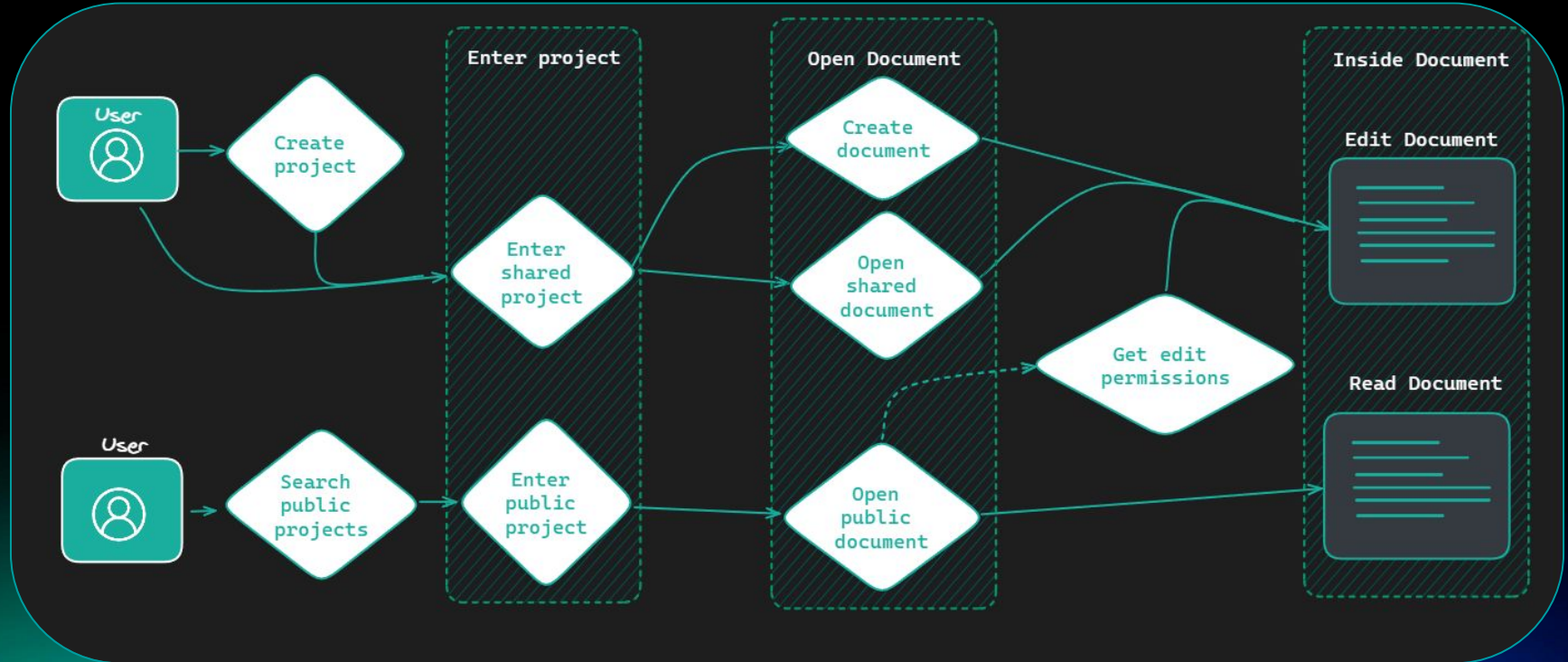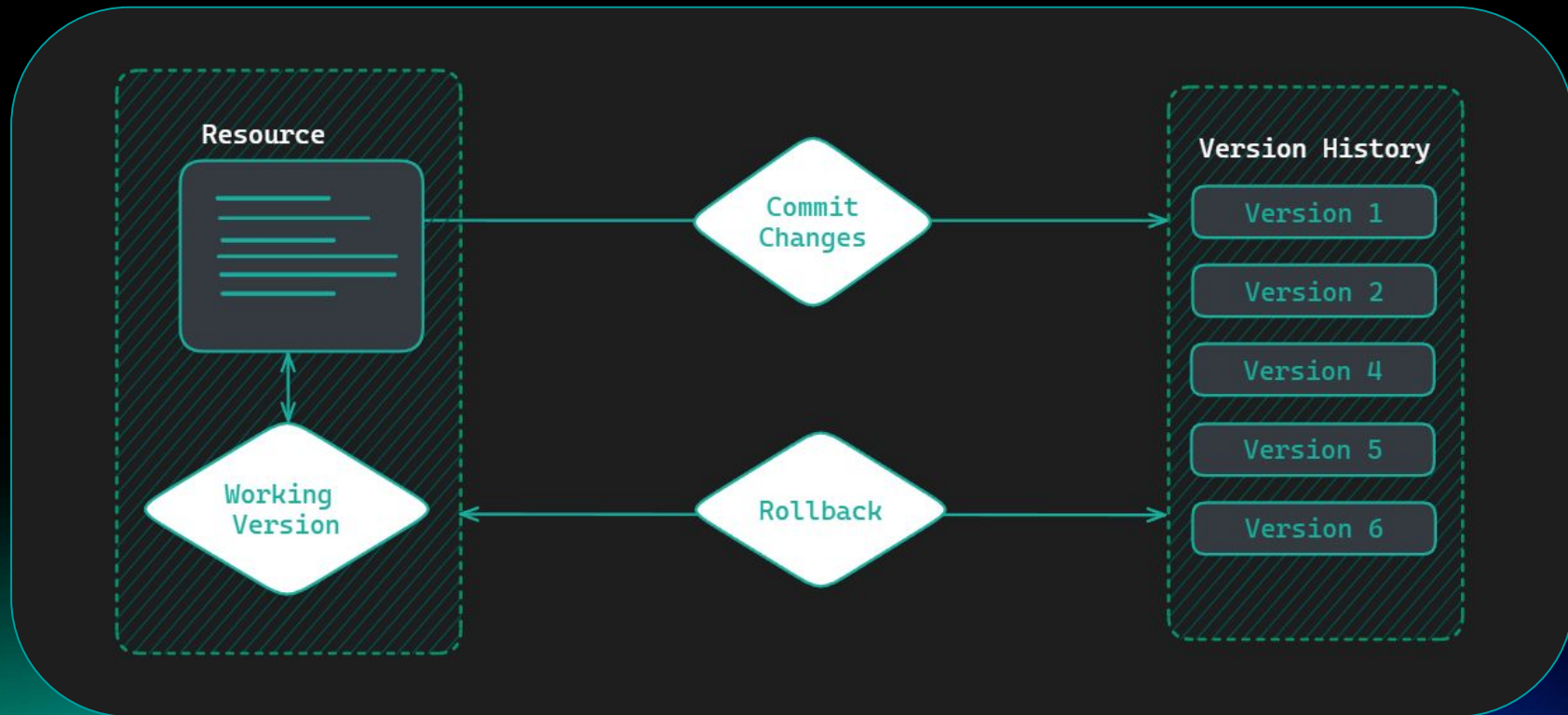Offline Support

Version Control

03
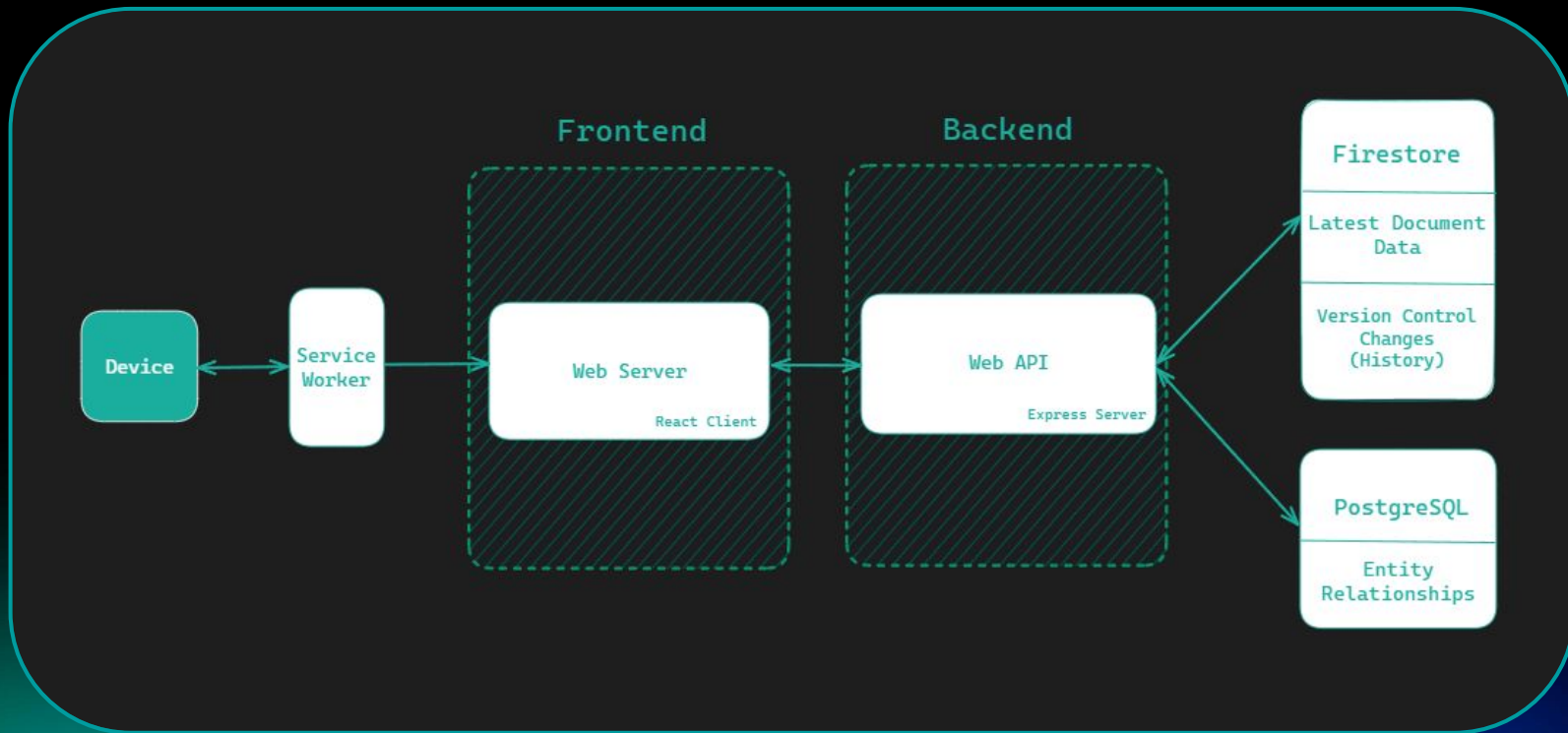
User Stories

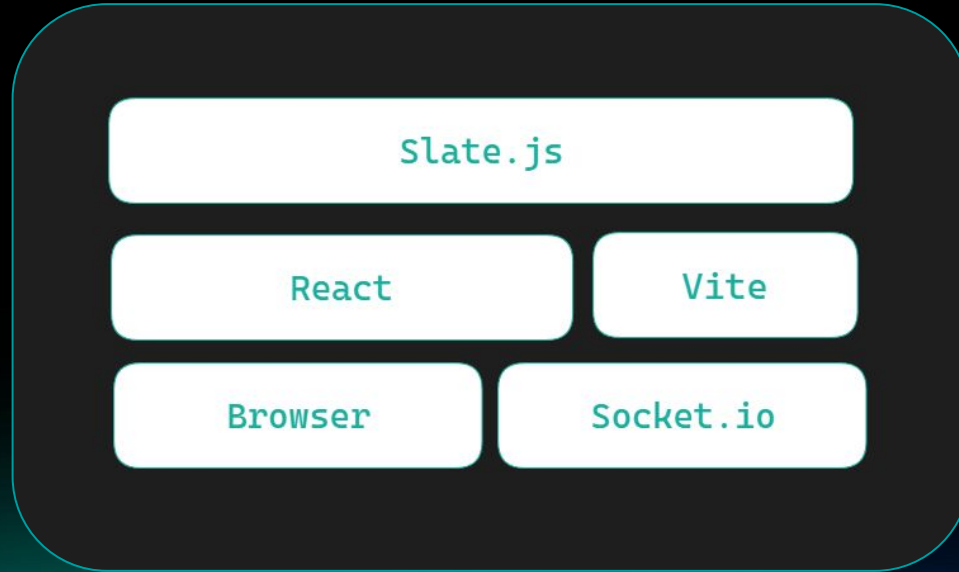# Accessing Project

Resource Editing

04

Architecture

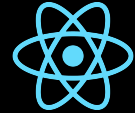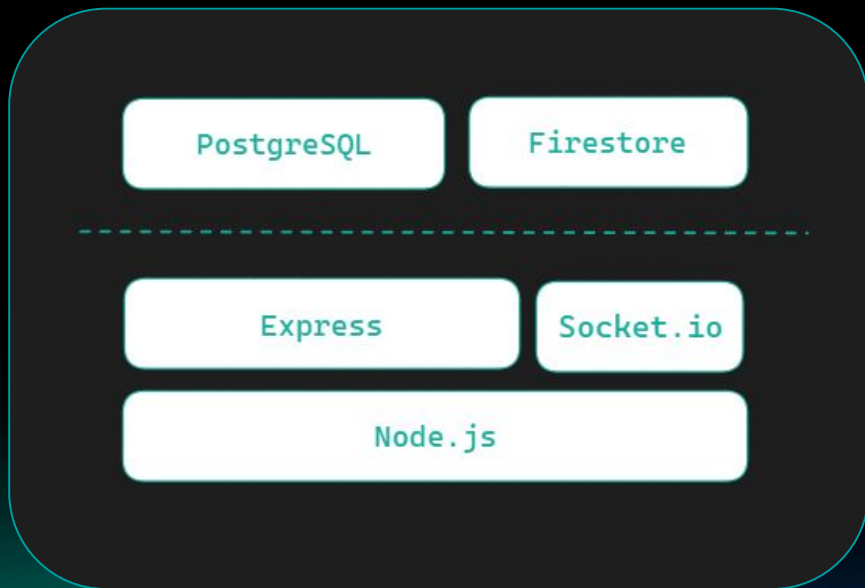# Architecture

Frontend

Technologies

Slate.js

React

Vite

Browser

Socket.io

Backend

Technologies

PostgreSQL   Firestore

Express   Socket.io

Node.js

05

Roadmap

Roadmap

Text Operations ✓

Style Operations ✓

Markdown ✓

Live Cursors ✓

Offline Mode

Manage Documents & Folders

Manage Workspaces

Version Control

User Authentication

Sharing Platform

Optionals

Final Touches

Weeks 1-3: Conflict Resolution Algorithm

- Research about OT vs CRDT
- Fugue CRDT as the best option
- Implemented Text Operations
  - Insert characters
  - Delete characters
  - Copy, cut and paste
  - Undo and redo
- Unit Tests

Weeks 4-9: Markdown Support

- Implemented with Slate.js:
  - **Inline Styles:** bold, italic, underline, etc.
  - **Block Styles:** headings, list, blockquote

- Integration with Fugue algorithm:
  - **Inline Styles:** stored in list in each node
  - **Block Styles:** stored in list in root node

06

Demo

Questions?