Redefining the way Stretto Builds Software

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CONTEXT

In Q3 of 2022, Stretto began efforts to modernize its software. Part of this initiative was lead by the UX engineering team and aimed at creating a full scale design system to promote design standards, consistency, and improve UX.

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PROBLEM

Obsolete code, tools, and cumbersome workflows led to constant delays, hindered Stretto’s ability to innovate, and release software that met user expectations.

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OBJECTIVE

Develop a fully integrated and centralized codebase that consolidates all design deliverables, components, and documentation into a single location to streamline UI development.

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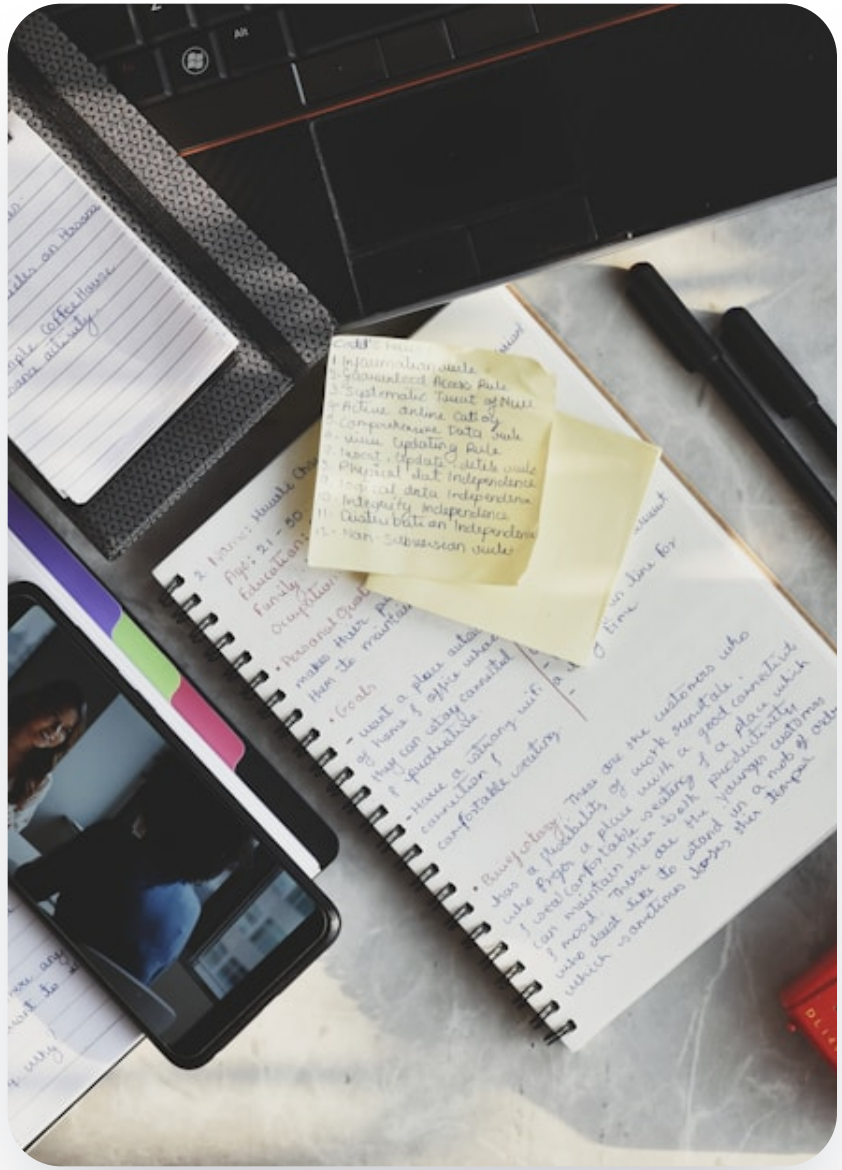
STEP 1: INVESTIGATE
1. INVESTIGATE
2. PLAN & PRIORITIZE
3. EXECUTE
Earnings
Total Expense
$6078.76
Profit is 48% More than last Month
80%
This Month
$5,506
Last Month
$4,087
Events
View All
Vani Call
2:30 PM, Today
Activity
Ellie joined team deve
04 April, 2021 | 04:00 PM
Jenny joined team HR
04 April, 2021 | 04:00 PM
Adam got employee of the month
03 April, 2021 | 02:00 PM
Project deliveries
2018
14 Project
2017
2018
2019
2020

1. INVESTIGATE 2 3

Qualitative research

- Conduct user interviews (developers, designers, QA)
- Facilitate group discussions
- Analyze and synthisize results
- Understand key painpoints, wants and needs



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Key insights

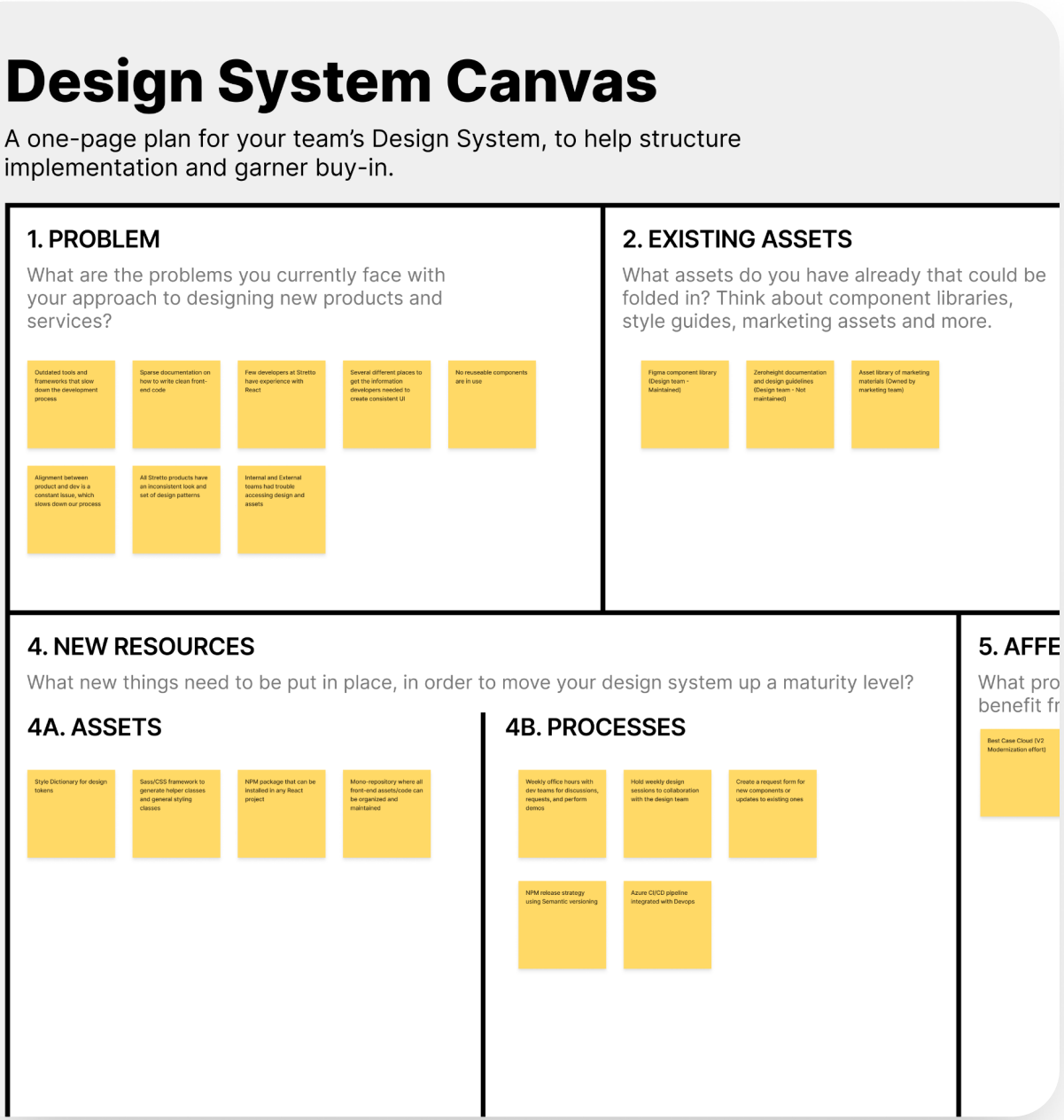
- Dev teams were full-stack .NET developers who had limited experience with React.
- Developer productivity was impacted by outdated tools and frameworks
- Business logic was intertwined with the UI, making it difficult to debug and refactor
- Design guidelines and documentation were scattered across multiple sites
- Teams spent time manually reconciling requirements with visual assets, leading to inefficiencies and increased project timelines.
- There was a general lack of trust between design and dev teams, resulting in communication gaps and misalignment.


STEP 2: PLAN & PRIORITIZE
1. INVESTIGATE
2. PLAN & PRIORITIZE
3. EXECUTE

1 2. PLAN & PRIORITIZE 3

Areas of focus

- Map out a Design System Canvas
- Outline each task and goal
- Prioritize elements
- Create a DS workflow diagram
- Validate ideas with stakeholders



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(CDS) Cadence Design System Architecture & Workflow

Design/UX Engineer Ownership

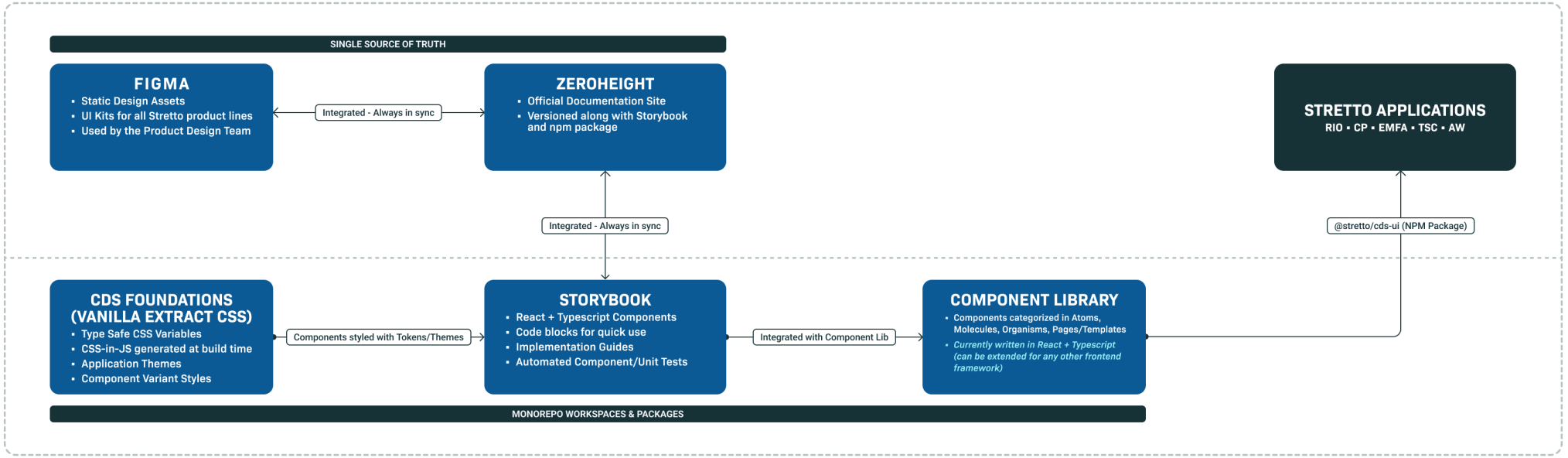
Repository Maintenance
Each library/package in the repo will have its own respective package.json file and sym-linked using the pnpm workspaces feature. All package scripts can be executed in the root workspace or in each individual workspace.

ZeroHeight (Official Documentation Site)
Each product line (i.e. BCC, TSC, CP, etc.) will have its own space for documentation. These separate spaces will have visual references, usage guidelines and storybook iframe for each reusable component. Users of this system include designers, front-end devs, UX engineers, QA, and PMs.

UX Engineer & Frontend Dev Ownership

Create Design System Components
UX Engineers and Frontend Dev leads will create reusable components in an isolated Storybook environment in the respective monorepo workspace. The Design System assets will be packaged and deployed to our internal npm registry and installed as dependencies in the respective project.

Development Collaboration
Our package can be consumed and introduced in phases. When issues arise, frontend dev teams, UX engineers, QA, and product can collaborate to fix problems quickly and identify opportunities for enhancements, build new components, and continuously refine our design system.



Figma & Zeroheight:
- Figma libraries/UI kits are created and managed by PD team.
- Both integrate with Style Dictionary and Storybook.
- Improves collaboration between designers & developers.
- Zeroheight will act as the single source of truth for our docs.
- Zeroheight docs can be versioned along with components.

Storybook & Chromatic Features:
- Isolated views for each component with its respective props (required and optional) that can be interacted with by the user.
- States and variants for each component.
- Documentation for each component.
- Jest and React Testing Library is used for testing.
- Integrates seamlessly with ZeroHeight and Figma.
- Chromatic allows CDS to be shared across teams easily.

Versioning and Deployment (CI/CD Pipeline):
- DS code will live in the CDS monorepo in DevOps.
- Documentation and installation guides will be provided.
- Changesets-cli used to version packages.
- Package will be deployed to a private npm registry
- Each package will have the @stretto scope.
- Will be installed as a dependency in dev projects through CLI.
- ES modules will be imported in respective files.

@stretto/cds-ui Tech Stack:
- Style Dictionary
- SASS
- Vanilla Extract CSS
- Radix (Headless UI Components)
- Storybook Js
- Rollup + Vite - Js Module Bundlers

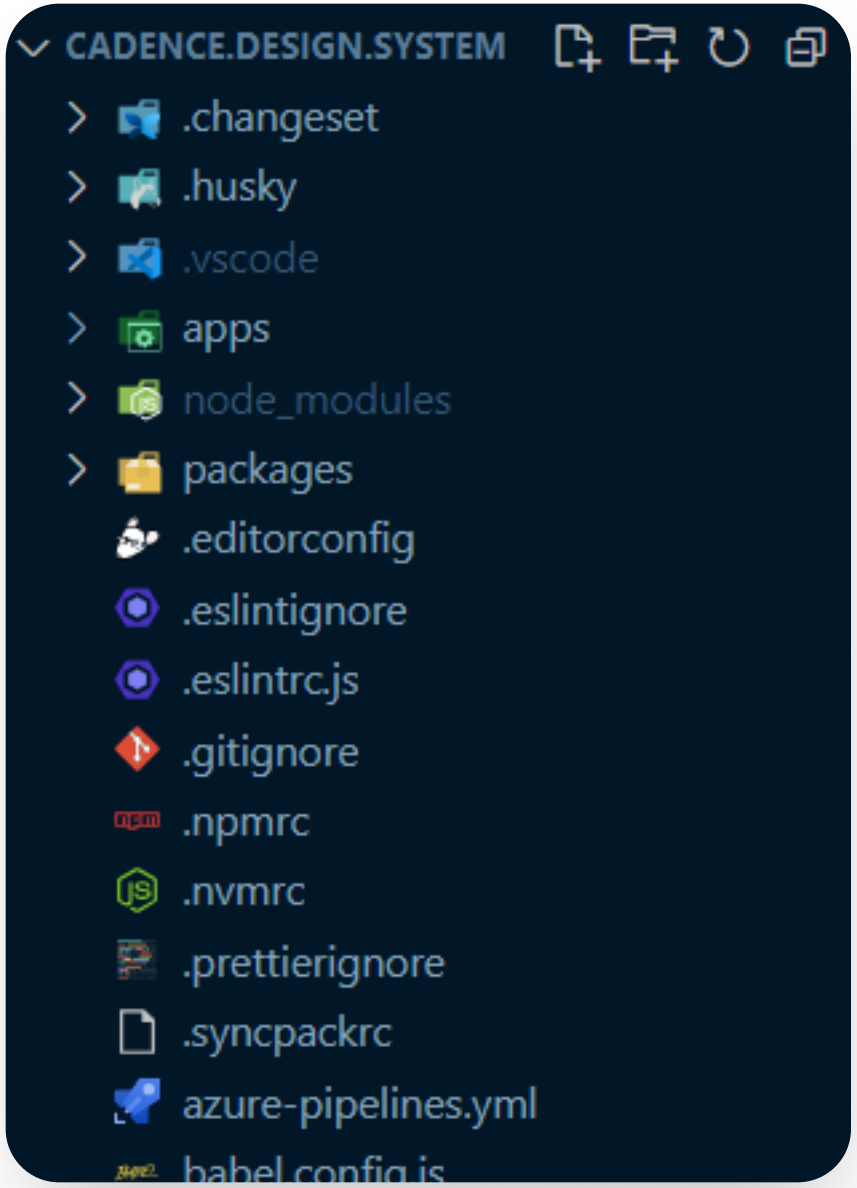
STEP 3: EXECUTE

1. INVESTIGATE
2. PRIORITIZE
3. EXECUTE

1 2 3. EXECUTE

Creating a unified codebase

- Implement a mono-repository structure
- Use pnpm for dependency management
- Version and release separate NPM packages for incremental adoption
- Create a separate workspace for each package
- Build components in isolation with Storybook
- Use storybook for docs and implementation guides



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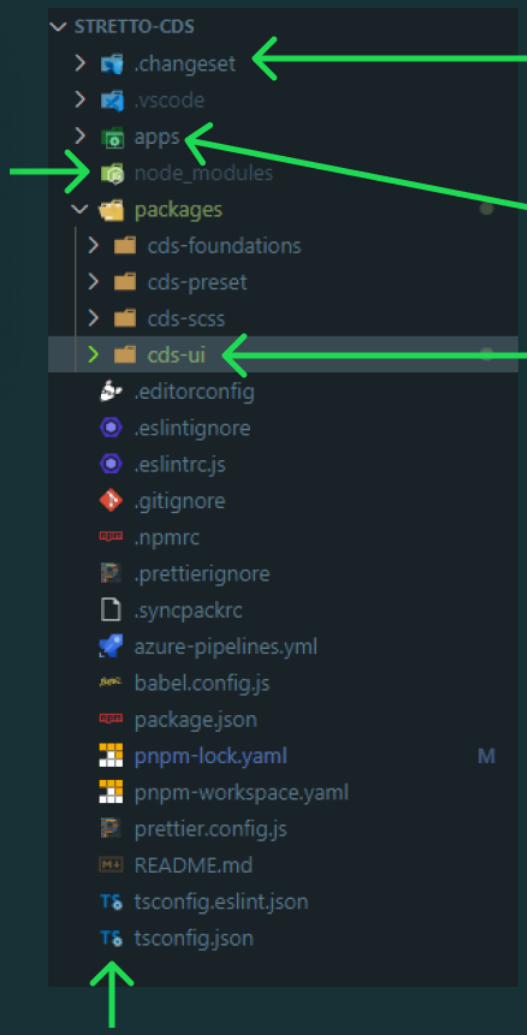
CDS Monorepository Structure

- Monorepos allow you to install all of the main dependencies once in the root of the project and share them with each workspace—eliminating duplicates.
- Each workspace can also be independent. For example, each can use a different version of React and Typescript.
- Each package is versioned separately using changesets and published on an internal Nexus registry.



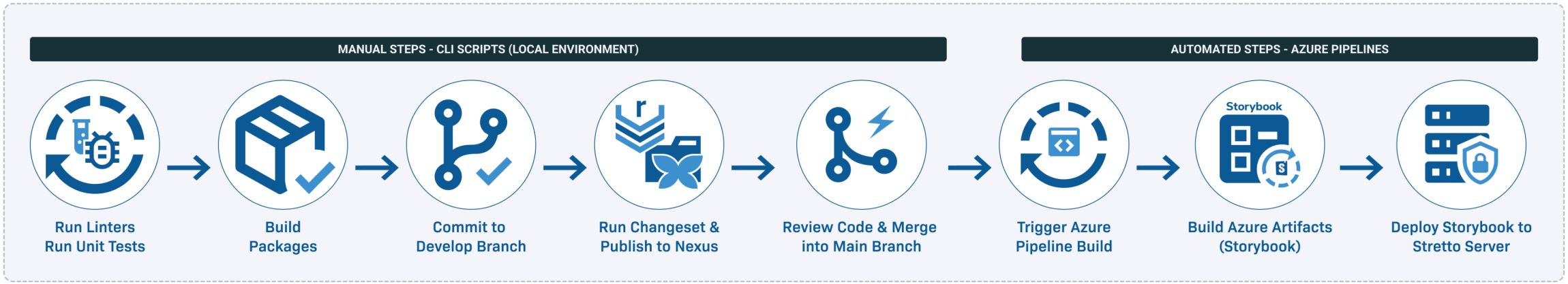
- changesets package/CLI tool to handle versioning all of CDS packages—taking the guess work out of the process by running a few simple commands in the CLI.

- An unpublished react sandbox environment used for testing our components and check for bundling issues

- The cds-ui package contains react components and CSS based on Best Case Cloud styling guidelines.

- Root level tsconfig file with base settings that each workspace can extend for further customization.

(CDS) Cadence Design System Tooling & CI/CD Pipeline



Code Quality + Testing
- ESLint + TSLint + SonarLint
- Jest + React Testing Library
- Chromatic (Regression)

TS/JS Transpliers
- Babel (Transpiler)
- Rollup (Bundler)

Versioning/Publishing
- Changeset (Versioning)
- PNPM (Publishing)

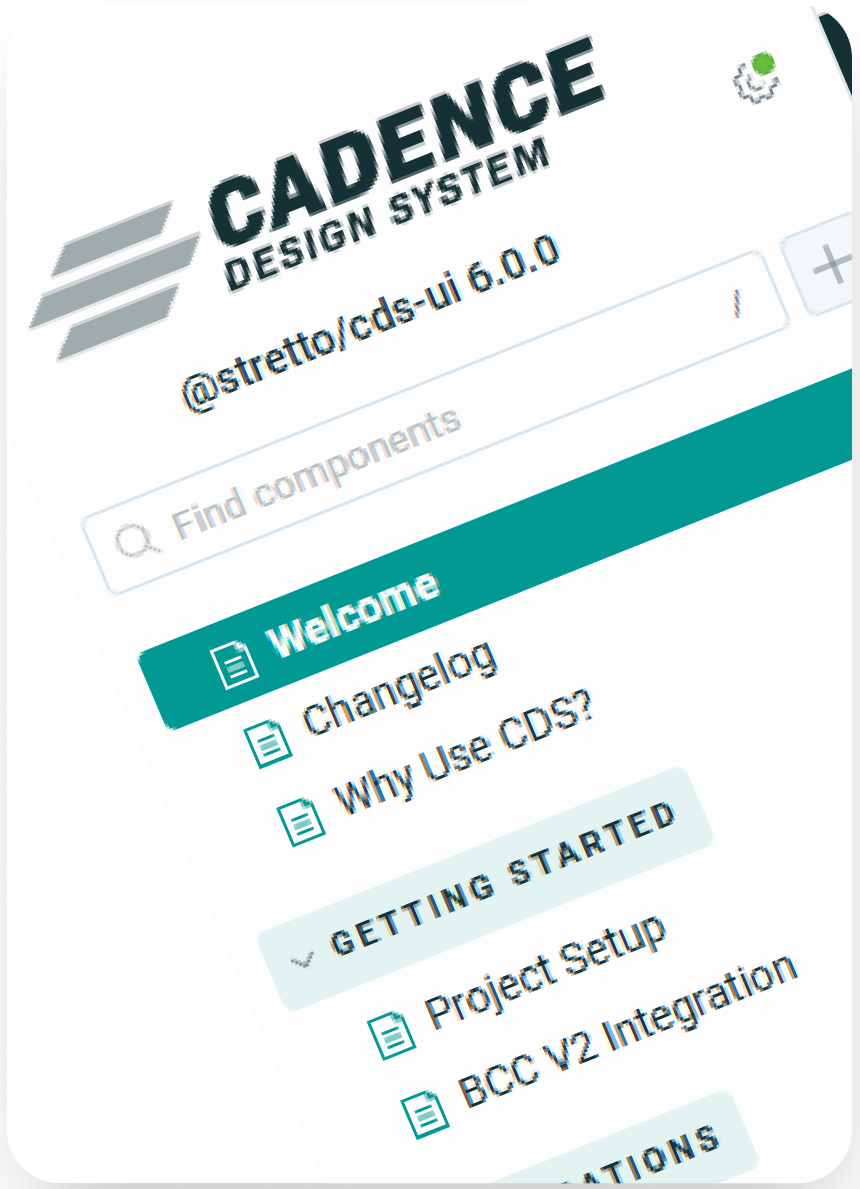
CI/CD Pipeline
- Azure Pipelines

UI Components
- Storybook

1 2 3. EXECUTE

Leveraging Storybook

- Allowed us to build and test components in an isolated environment
- Single source of truth for stakeholders to reference design, functionality, and documentation
- Fully customized with features including custom branding, accessibility checkers, Figma design, visual testing, and code blocks



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1 2 3. EXECUTE

Use of atomic design methodology

- Scalability: As CDS grew, this modular approach simplified the process of expansion and modification
- Clear Hierarchy: Facilitated better communication about design elements and their purpose
- Flexibility: allowed our teams to break down interfaces into smaller components with more granular control

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SUCCESSFUL RELEASE

Ahead of schedule

- CDS v1.0.0 was released as 3 separate npm packages in Q1 of 2023, months ahead of schedule
- The main CDS UI component library contained over 20 custom styled React components with documentation (imported as JS Modules)
- 8 flexible layout components were also available for quick prototyping
- Included a lightweight CSS stylesheet, installed as a standalone npm package
- Full set of design tokens (CSS variables), installed as a standalone npm package

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ADOPTION & SUPPORT

Onboarding, support, & collaborative sessions

- Scheduled weekly office hours sessions
- Created communication channels in Teams
- Lead collaborative workshops and demos using the design system
- Worked closely with development teams to provide front-end support and facilitate the implementation of CDS

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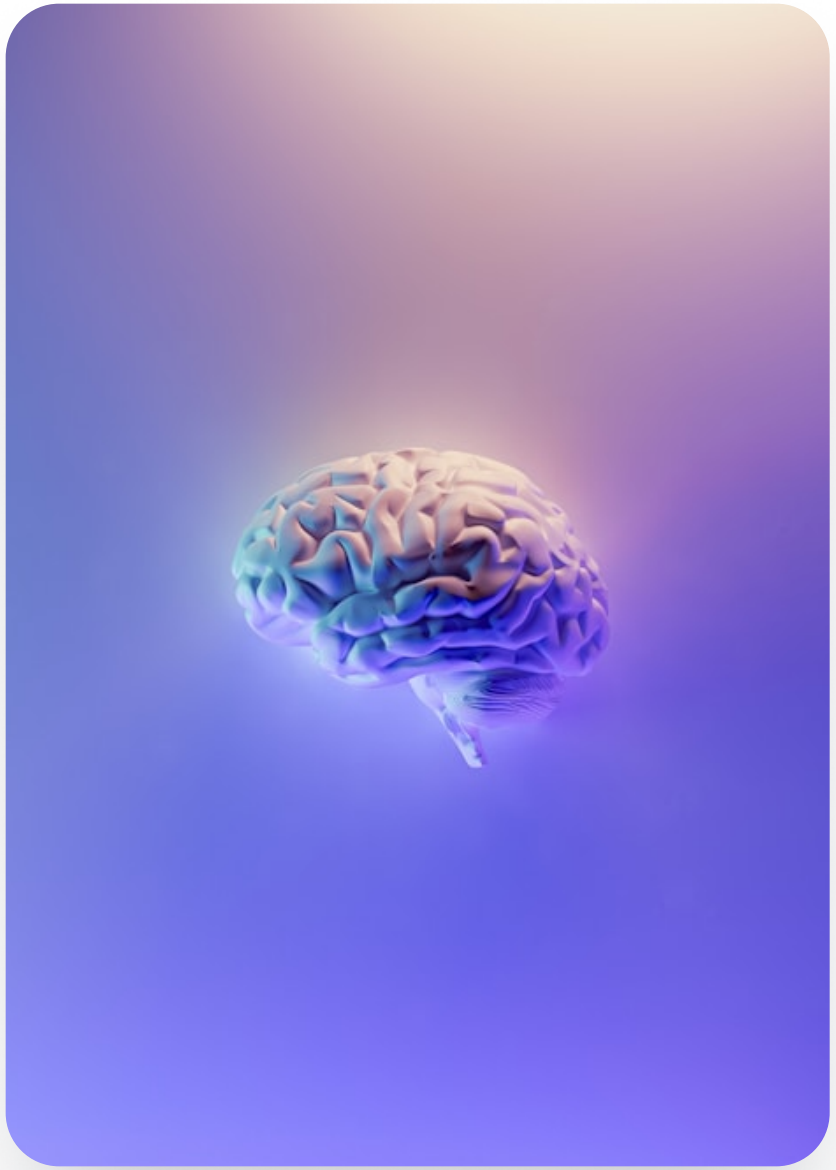
KEY TAKEAWAYS

Insights for my next DS Project

- Use CSS or SASS modules for styling components
- Gather thorough technical requirements before building and releasing components
- Never release a component for use until tested and documented
- Use modern end-to-end testing frameworks for better code coverage



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THANK YOU

Questions?

- Please feel free to ask me any questions about this project, I’d be happy to share more details.

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