

Problem Statement

Buildertrend wants to provide clients with a way to build and maintain their company websites.

Solution Approach

The Static Site Content Management system will allow clients to easily set up and maintain a company website via an administrative panel, as well as provide a custom website building experience so they can stand out in their respective markets.

Design Requirements

Functional Requirements:

- Admin panel drives the site.
- Generated sites must be static.
- Users will be able to use generic templates for their site.
- Users will choose from multiple themes.
- Client sites will be integrated with Buildertrend login form.
- User can add their company address in google maps integration.

Non-Functional Requirements:

- Multi-user support, mobile & desktop.
- Simple interfaces.
- Replaceable file server that saves site data.

Technical Requirements:

- Frontend React with TypeScript.
- TinaCMS (Content Management System).
- Backend Node.js to build a file server.

Operating Environment:

- Team member's personal machines.

Design Approach

Frontend Components:

- CMS site - uses Tina CMS and Bootstrap for UI components & styling.
 - Admin Page - lists domains.
 - New Site - choose theme, accent, color.
 - Settings - choose site pages, colors.
- Site pages - list of sites the user can view.
 - Templates - contain embedded iframes, Google maps, and videos.
 - Template Editor - edits provided templates and add sample content

Backend Components:

- File Server - saves site data with a Node Express rest API.
 - Get and Post endpoints.
 - Retrieves sites, domains, site data, images, date & time.

Development Standards:

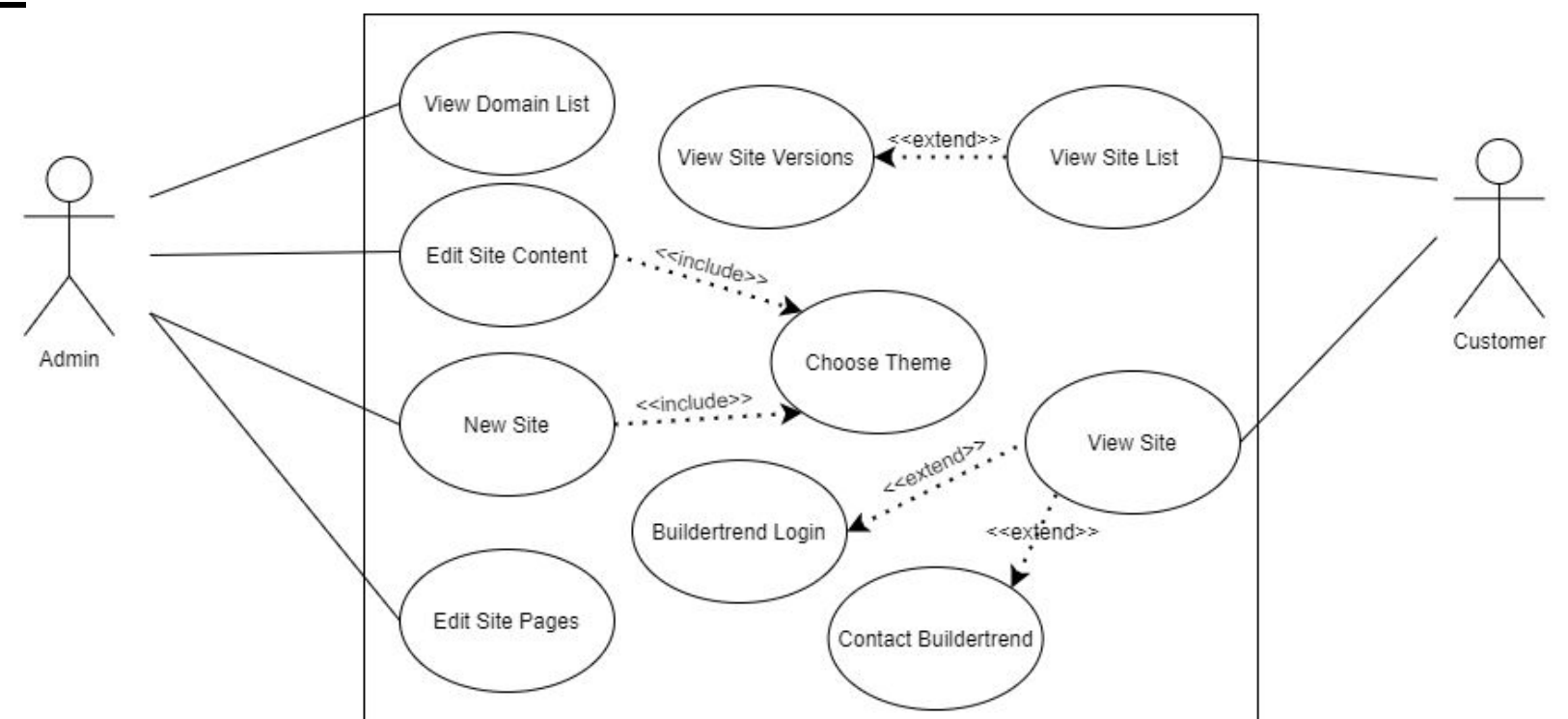
ISO/IEC 12207 - Software Life Cycle Processes
 ISO/IEC 29148 - Requirements Engineering

Security:

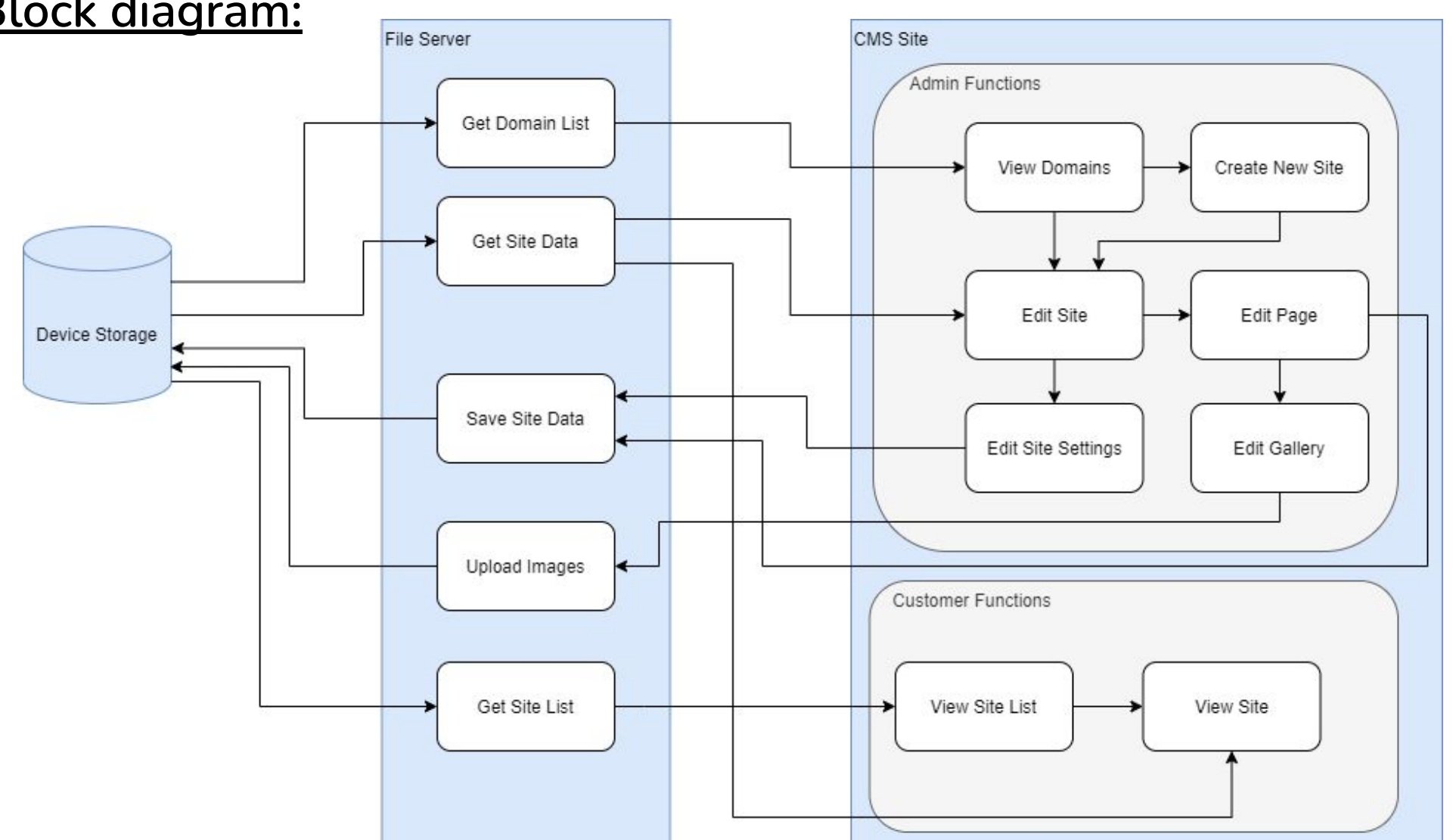
Physical: Security of personal computers for development
 Cyber: Input sanitation and vulnerability scanning

System Diagrams

Use-Case:



Block diagram:



Technical Details

Frontend:

React / Typescript

- React is a Js library for building user interfaces.
- Ts is a superset of Js, adds static type definitions.

Tina CMS

- Incorporates real-time editing into the react site.

Backend:

Node.js / Express

- Used to create a simple rest api that saves JSON to files.

Testing

Strategy:

- Unit and UI testing

Frontend:

- React-testing-library & Jest
- Selenium UI Testing

Backend:

- Jest and Supertest

Results:

- Limited testing completed due to time constraints.
- Could have helped avoid regression issues.

Final Product

