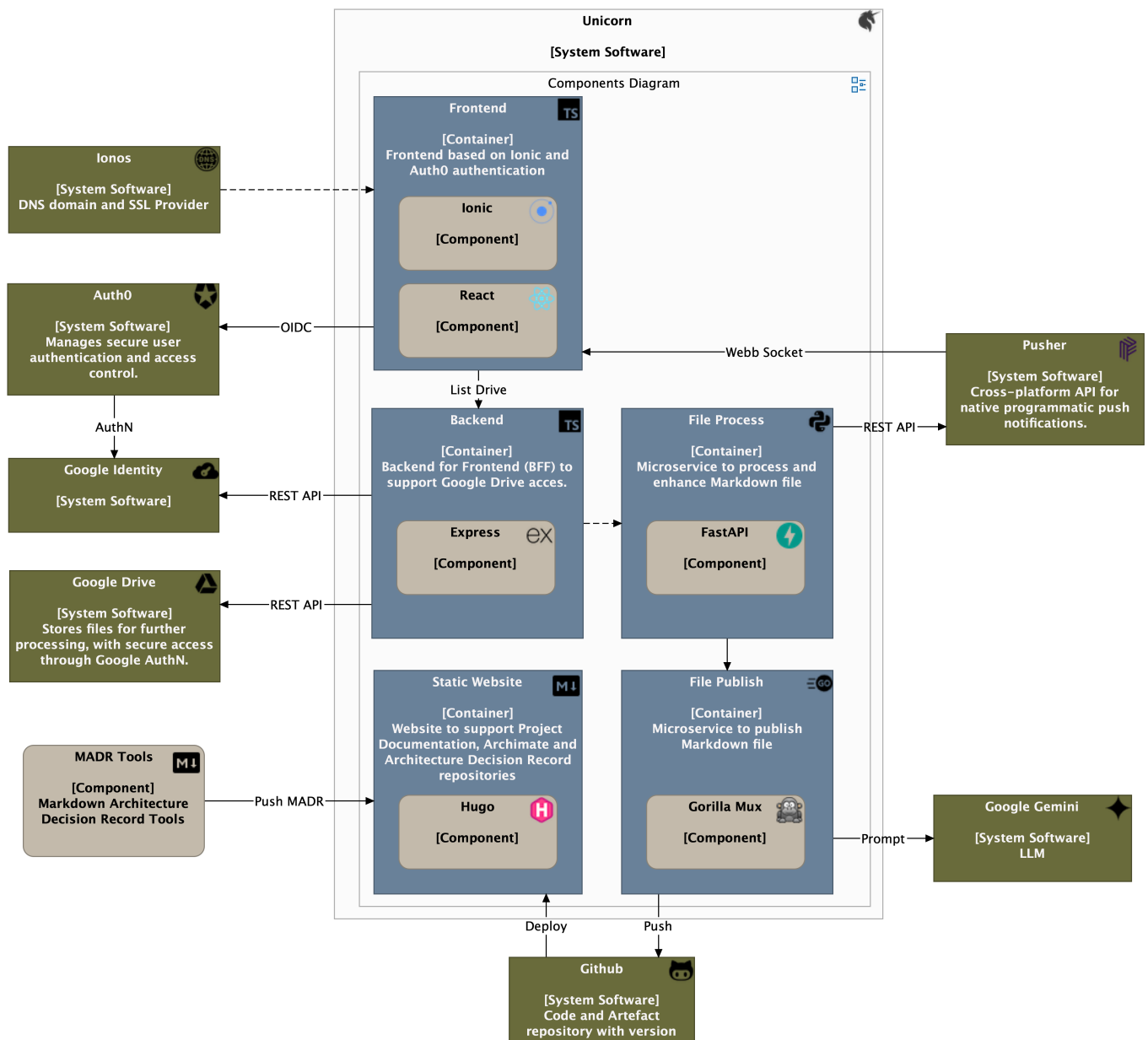


Container Diagram



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Introduction

![[Container Diagram]][embedView]

System architecture for the Unicorn project, which follows a Frontend/Backend pattern. The Frontend uses an Ionic framework with React (cf. ADR 0013-frontend-framework) and integrates Auth0 for secure user authentication via Authorization Code Flow with PKCE. It connects to Google Identity to obtain access tokens, enabling access to Google Drive for file storage and management.

The Backend consists of: A Backend for Frontend (BFF) implemented using Express (cf. ADR 0015-backend-framework) to interact with Google Drive via APIs. A File Process microservice, implemented with FastAPI, to process Markdown files. The system also supports a Static Website, built with Hugo, to display project documentation, Archimate diagrams, and Architecture Decision Records (ADRs). Processed Markdown files are pushed to a GitHub repository via API, ensuring version control. MADR Tools facilitate the creation and management of ADRs.

Unicorn (Application Component)

Properties

Stereotype
System Software

Relationships

From	Relationship	To	Name/Label	Description
Unicorn	Composition Relationship	Frontend (Application Component)		
Unicorn	Composition Relationship	Backend (Application Component)		
Unicorn	Composition Relationship	Static Website (Application Component)		
Unicorn	Composition Relationship	File Process (Application Component)		
Unicorn	Composition Relationship	File Publish (Application Component)		

Handles the import, conversion, and publication of architecture artifacts.

Components Diagram (Archimate Diagram Model)

Backend for Frontend (BFF) architecture that facilitates secure access to Google Drive and integrates with GitHub for file management. The BFF handles user authentication via Google Identity to interact with Google Drive APIs for listing, updating, and downloading files. A File Process Microservice asynchronously processes Markdown files using a Pub/Sub mechanism and pushes the processed files to GitHub for version control. The architecture ensures separation of concerns, secure access, and scalability for file processing and artifact storage.

Frontend (Application Component)

Properties

Stereotype	Github
Container	https://github.com/mickael-royer/unicorn-ionic

Relationships

From	Relationship	To	Name/Label	Description
Frontend	Assignment Relationship	React (Application Function)		
Frontend	Assignment Relationship	Ionic (Application Function)		
Frontend	Triggering Relationship	Auth0 (Application Component)	OIDC	Authorization Code Flow with PKCE https://auth0.com/docs/get-started/authentication-and-authorization-flow/authorization-code-flow-with-pkce
Frontend	Triggering Relationship	Backend (Application Component)	List Drive	

Frontend based on Ionic and Auth0 authentication

React (Application Function)

Properties

Stereotype
Component

Ionic (Application Function)

Properties

Stereotype
Component

Backend (Application Component)

Properties

Stereotype	Github
Container	https://github.com/mickael-royer/unicorn-express-server

Relationships

From	Relationship	To	Name/Label	Description
Backend	Assignment Relationship	Express (Application Function)		
Backend	Triggering Relationship	Google Drive (Application Component)	REST API	Access Google Drive via API
Backend	Triggering Relationship	Google Identity (Application Component)	REST API	Get Access Token via API
Backend	Flow Relationship	File Process (Application Component)		

Backend for Frontend (BFF) to support Google Drive acces.

Express (Application Function)

Properties

Stereotype	URL
Component	https://expressjs.com

Express is a fast, unopinionated, minimalist web framework for Node.js, providing a robust set of features for web and mobile applications.

Static Website (Application Component)

Properties

Stereotype	Github
Container	https://github.com/mickael-royer/unicorn-hugo-website

Relationships

From	Relationship	To	Name/Label	Description
Static Website	Assignment Relationship	Hugo (Application Function)		

Website to support Project Documentation, Archimate and Architecture Decision Record repositories

Hugo (Application Function)

Properties

Stereotype	URL
Component	https://gohugo.io/

File Process (Application Component)

Properties

Stereotype
Container

Relationships

From	Relationship	To	Name/Label	Description
File Process	Assignment Relationship	FastAPI (Application Function)		
File Process	Triggering Relationship	File Publish (Application Component)		
File Process	Triggering Relationship	Pusher (Application Component)	REST API	

Microservice to process and enhance Markdown file

FastAPI (Application Function)

Properties

Stereotype	URL
Component	https://fastapi.tiangolo.com/

FastAPI is a modern, fast (high-performance), web framework for building APIs with Python based on standard Python type hints.

File Publish (Application Component)

Properties

Stereotype

Container

Relationships

From	Relationship	To	Name/Label	Description
File	Assignment	Gorilla Mux (Application Function)		
Publish	Relationship			
File	Triggering	Github (Application Component)	Push	Push change to repository via API
Publish	Relationship			
File	Triggering	Google Gemini (Application Component)	Prompt	Generate ADR Synthesis
Publish	Relationship			

Microservice to publish Markdown file

Gorilla Mux (Application Function)

Properties

Stereotype	URL
Component	https://github.com/gorilla/mux

Package gorilla/mux implements a request router and dispatcher for matching incoming requests to their respective handler.

Google Drive (Application Component)

Properties

Stereotype	Provider	URL
System Software	Google	https://drive.google.com

Stores files for further processing, with secure access through Google AuthN.

Google Identity (Application Component)

Properties

Stereotype	Provider	URL
System Software	Google	https://developers.google.com/identity

Auth0 (Application Component)

Properties

Stereotype	Provider	URL
System Software	Okta	https://auth0.com/

Relationships

From	Relationship	To	Name/Label	Description
Auth0	Triggering Relationship	Google Identity (Application Component)	AuthN	

Manages secure user authentication and access control.

MADR Tools (Application Function)

Properties

Stereotype	Github
Component	https://github.com/butonic/adr-tools

Relationships

From	Relationship	To	Name/Label	Description
MADR Tools	Triggering Relationship	Static Website (Application Component)	Push MADR	

Markdown Architecture Decision Record Tools

Ionos (Application Component)

Properties

Stereotype	Provider	URL
System Software	Ionos	https://www.ionos.fr/

Relationships

From	Relationship	To	Name/Label	Description
Ionos	Flow Relationship	Frontend (Application Component)		

DNS domain and SSL Provider

Github (Application Component)

Properties

Stereotype	URL	Registry
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Stereotype	URL	Registry
System Software	https://github.com/mickael-royer	https://github.com/mickael-royer?tab=packages

Relationships

From	Relationship	To	Name/Label	Description
Github	Triggering Relationship	Static Website (Application Component)	Deploy	Deploy Hugo Website to Static Web App

Code and Artefact repository with version control.

Google Gemini (Application Component)

Properties

Stereotype	URL
System Software	https://aistudio.google.com/

LLM

Pusher (Application Component)

Properties

Stereotype	URL
System Software	https://dashboard.pusher.com/apps/1920401

Relationships

From	Relationship	To	Name/Label	Description
Pusher	Triggering Relationship	Frontend (Application Component)	Webb Socket	

Cross-platform API for native programmatic push notifications.