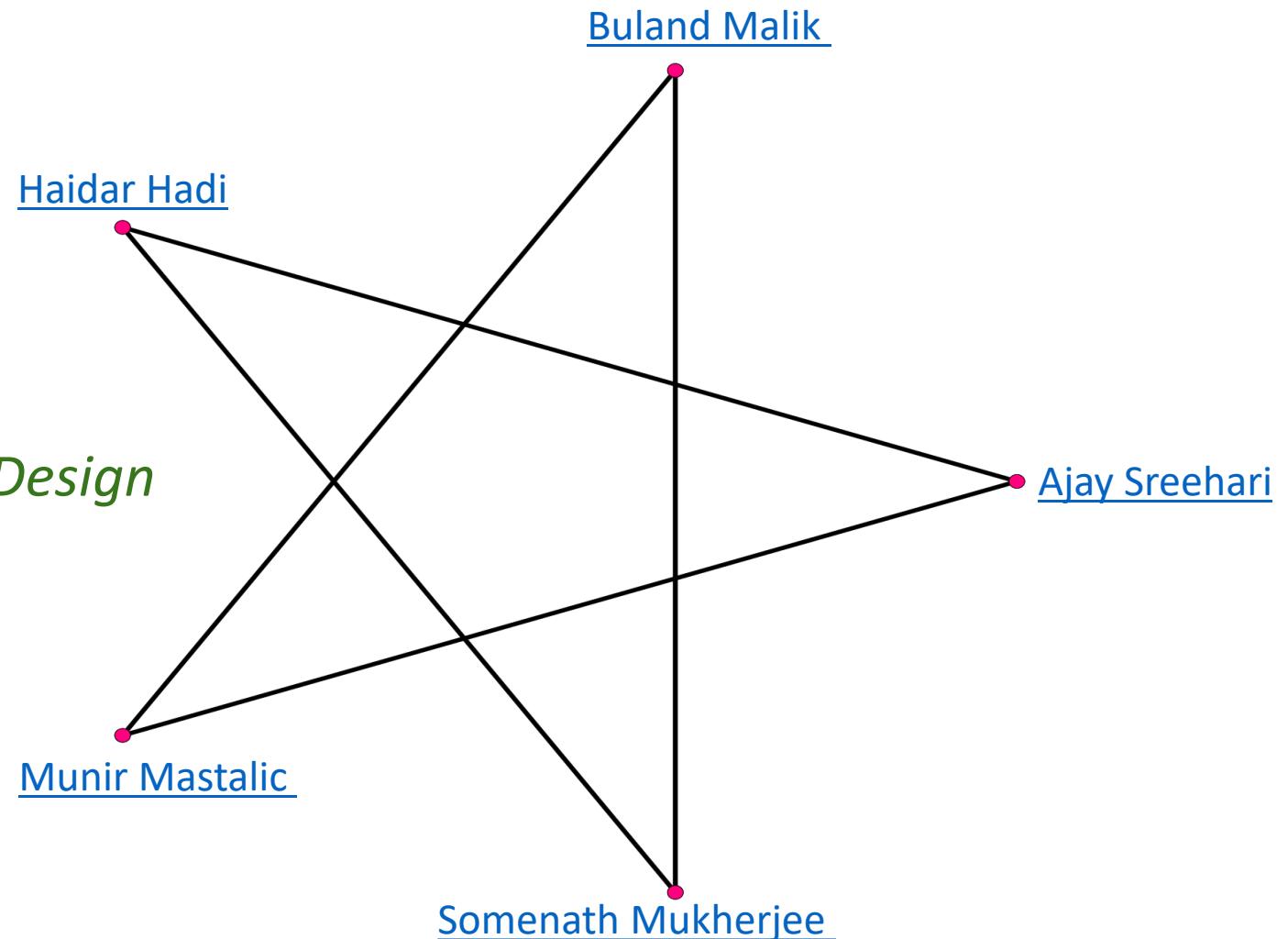


O'Rielly Architecture Katas Autumn 2021

Farmacy Family System Architecture & Design





Problem Statement

Wow, Food as medicine. Bob has been using awesome & delicious food to overcome his health issues with obesity and high blood pressure. He feels lucky that he found this great platform known as Farmacy Food whose slogan is Food As Medicine. He has been sharing this idea widely within his circles and looking more **better ways and means to become an engaged customer** where he can be the **voice of the the great initiative, connect with other similar minded people** as well as areas where he can improve to **address his struggles with his medical conditions.**



Solution

We have been thinking about the extension of Farmacy Food as well as heard our customers and we are happy to share that we have started our efforts towards that. The overall idea is to make sure we provide a platform to our huge customer base where they can better **engage themselves**, be the voice of the program, **educate themselves via different wellness programs** offered through this new platform, easily able to **engage with medical providers** to get better insights about how their overall health is doing and rely on the platform for better suggestions to improve their health using food as medicine and platform making sure that right food is available in right areas considering all the analytics results which is all based on difference set of customer data.



Farmacy Family

Architecture Characteristics & Style

Quality Attributes/ Architectureilities / Characteristics

- R1: Add a new system to manage customer profiles, allowing community engagement, personalization around preferences and dietary needs
- R2: Support geographical trend analysis to hone Farmacy Family's ability to optimize the foods delivered to fridges (an additional integration point TO Farmacy Foods)
- R3: Support both push and pull models for community engagement. In other words, Farmacy Family will manage forums, emails, and create connections between similar demographics. Farmacy Family needs transactional member information for outreach purposes. The engagement model includes subscriptions, forums, reference material, class information, and other media that supports Food-as-medicine
- R4: eDietian has access customer profile to improve advice and monitoring of customers. Additionally, the customer and dietitian can interact via messages.
- R5: Farmacy Family wants to improve the distribution and potential food waste from having the wrong mix of foods in a particular fridge.
- R6: Farmacy Family will include medical profile information and the ability to share information with medical service providers.
- R7: Farmacy Family customers can customize how much profile information they want to allow the community to see, at a fine- grained level.
- R8: Farmacy Family has relationships with third party providers(clinics, doctors, etc) that have access to more analytical data to improve engagement (for example, regional dietary observations).
- R9: Add Farmacy Family user interface to existing Foods interface, which is currently a Reactive monolith. Create a holistic UX for both food and Farmacy Family to support engagement model.
- R10: The new system must seamlessly incorporate into Farmacy Foods.
- R11: Improved use of analytics driven through the new integration of Farmacy Family will help gather new investors and prove better dietary outcomes in member communities.

Security

Availability

Elasticity

Scalability

Extensibility

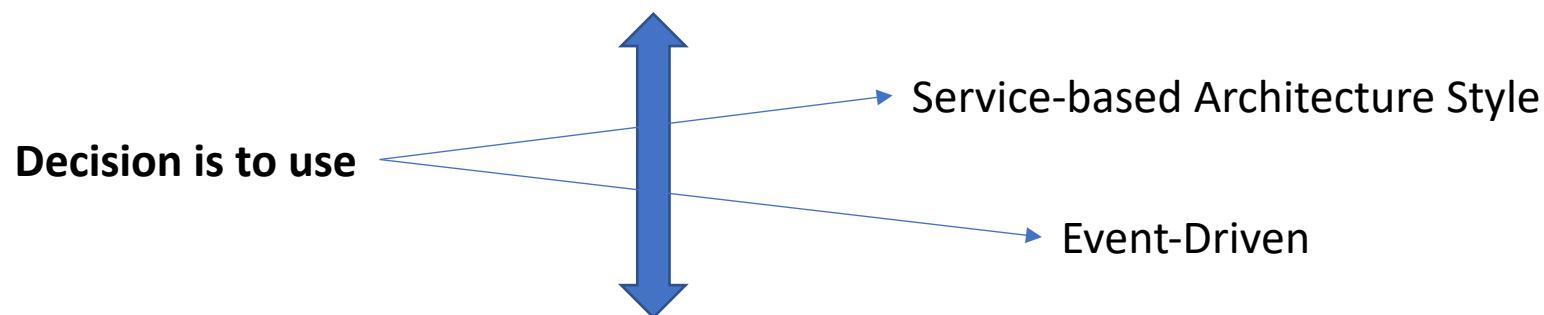
Configurability

Reliability

Performability

Architecture Styles

	layered	modular monolith	microkernel	microservices	service-based	service-oriented	event-driven	space-based
agility	★	★★	★★★	★★★★★	★★★★	★	★★★	★★
abstraction	★	★	★★★	★	★	★★★★★	★★★★	★
configurability	★	★	★★★★★	★★★	★★	★	★★	★★
cost	★★★★★	★★★★★	★★★★★	★	★★★★	★	★★★	★★
deployability	★	★★	★★★	★★★★★	★★★★	★	★★★	★★★
domain part.	★	★★★★★	★★★★★	★★★★★	★★★★★	★	★	★★★★★
elasticity	★	★	★	★★★★★	★★	★★★	★★★★★	★★★★★
evolvability	★	★	★★★	★★★★★	★★★	★	★★★★★	★★★
fault-tolerance	★	★	★	★★★★★	★★★★	★★★	★★★★★	★★★
integration	★	★	★★★	★★★	★	★★★★★	★★★	★★
interoperability	★	★	★★★	★★★	★	★★★★★	★★★	★★
performance	★★★	★★★	★★★	★★	★★★	★★	★★★★★	★★★★★
scalability	★	★	★	★★★★★	★★★	★★★	★★★★★	★★★★★
simplicity	★★★★★	★★★★★	★★★★★	★	★★★	★	★	★
testability	★★	★★	★★★	★★★★★	★★★★	★	★★★	★
workflow	★	★	★★	★	★	★★★★★	★★★★★	★



System Design

Step 1: Component Identification

Using Workflow Approach (Event Storming DDD Concept) - Actor/Action Approach

Customer

- Signup to become Engage Customers (Provide Profile Info)
- Configure Preferences
 - Customer Info Community can see
 - Can be shared with medical service providers
- Create Forums
- Engage in Social events (classes, forums, wellness education programs)
- Engage with doctors & Dieticians

Dieticians

- Access Customer Profile
- Update Customer Profile
- Engage with Customers

System

- Integrate with Clinics
- Integrate with eDieticians
- Integrate with Farmacy Food
- Integrate with Generic Components (Notifications, Reports etc.)
- Gather Customer results and store it in Data Lake via Ingestion process
- Payments/Procurements???

Analytics

- Gather results from data lake and run ML Models
- Store Customer/Geographical suggestions/trends suggested by ML

Step 2 & 3: Assign Requirements to Components

Customer

Customer Profile Capture
Preferences Capture
Wellness Engagement Models
Medical Engagement models

Medical Providers

Gather Results
Analyze Results
Give Suggestions/Advise

Dieticians

Access Customer Profile
Update Customer Profile
Engage with Customers

System

Advertisement (Generating Leads for Email Notification)
Integration with Clinics
Integration with eDieticians
Integration with Farmacy Food
Integration with Generic Components (Notifications etc.)
Payments/Procurements???

Store customer data in the Data Lake via Ingestion process
Payments/Procurements???

Analytics

Gather results from data lake and run run ML Models
Store Customer/Geographical suggestions/trends suggested by ML

R1

R2

R3

R4

R5

R6

R7

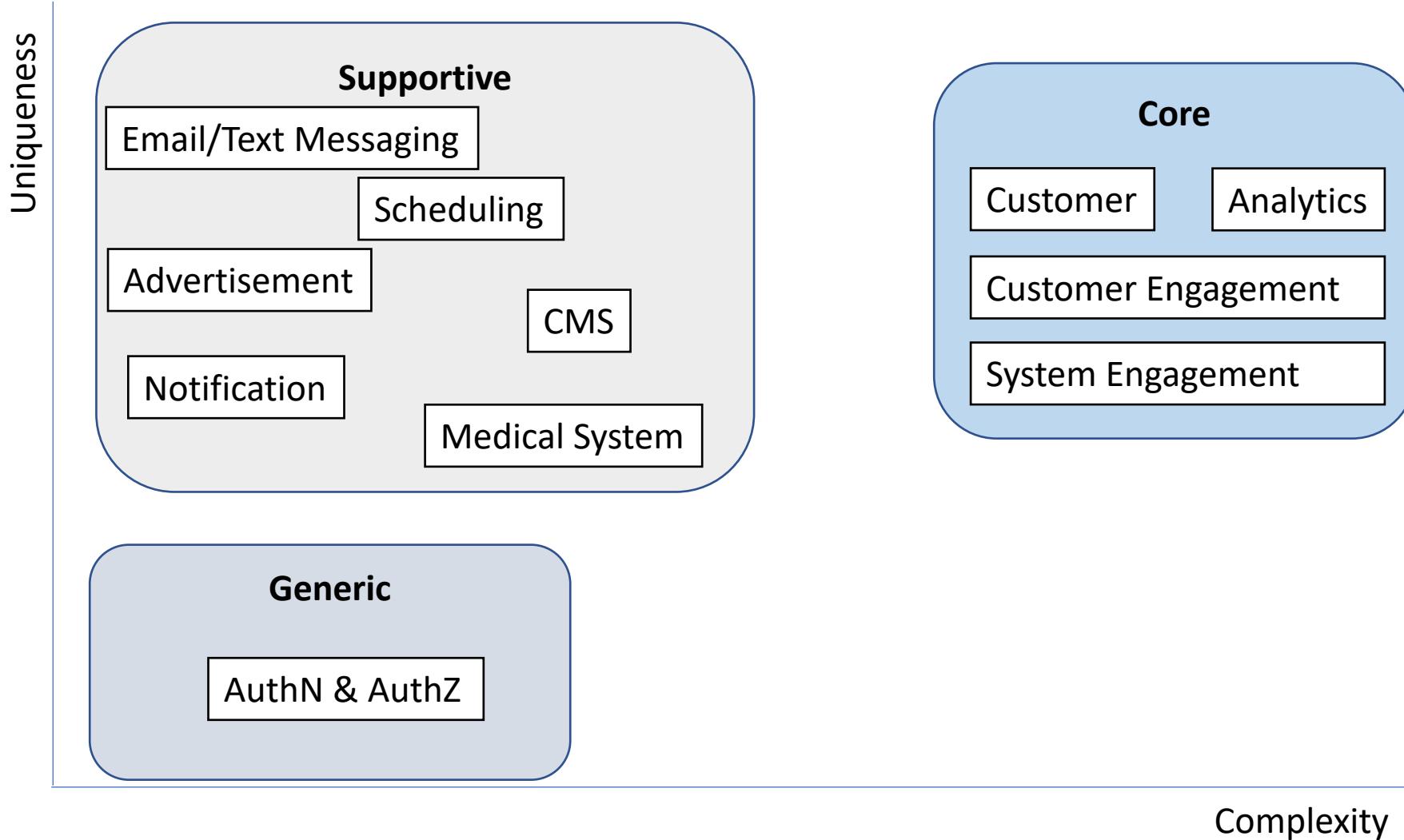
R8

R9

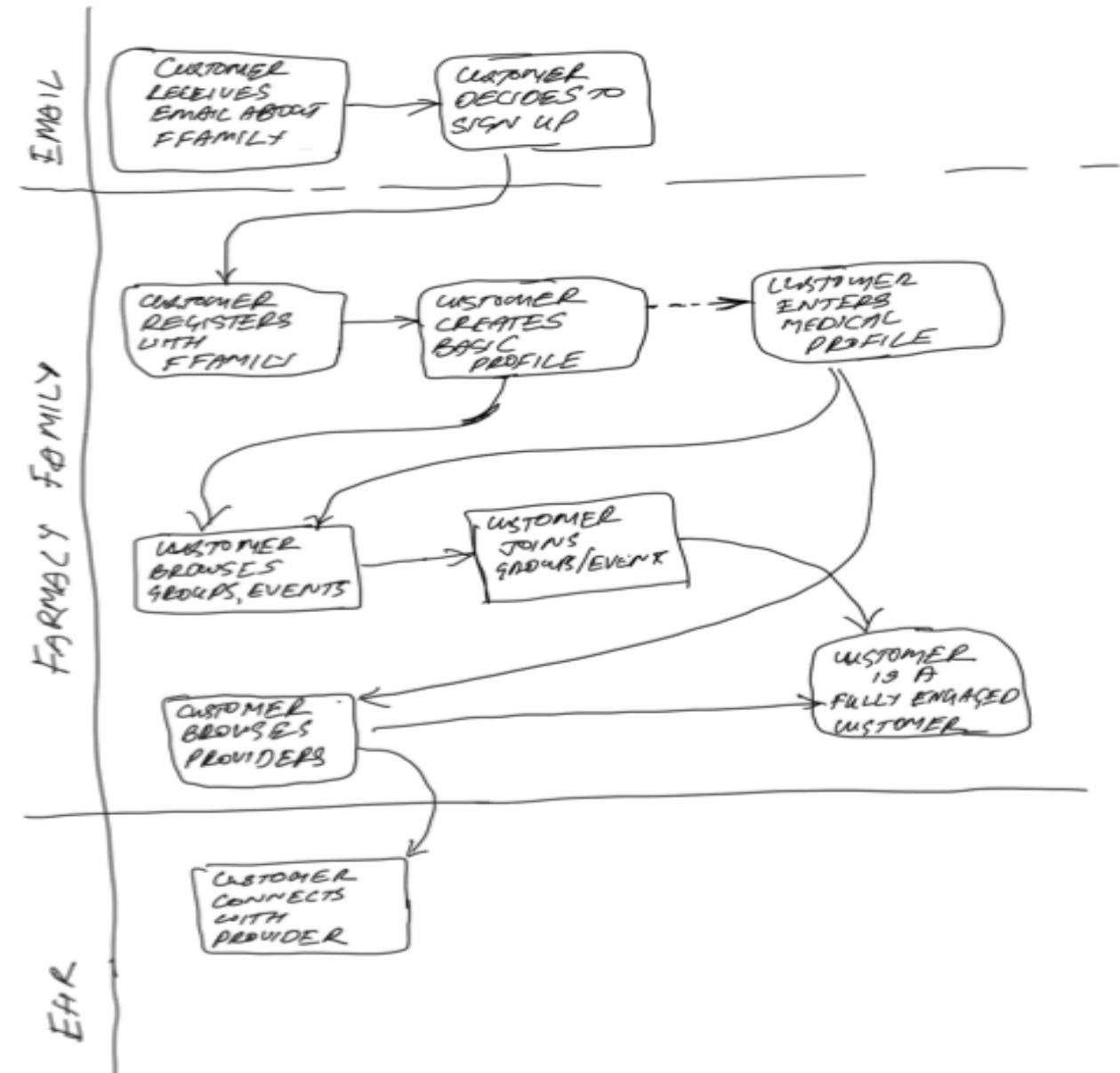
R10

R11

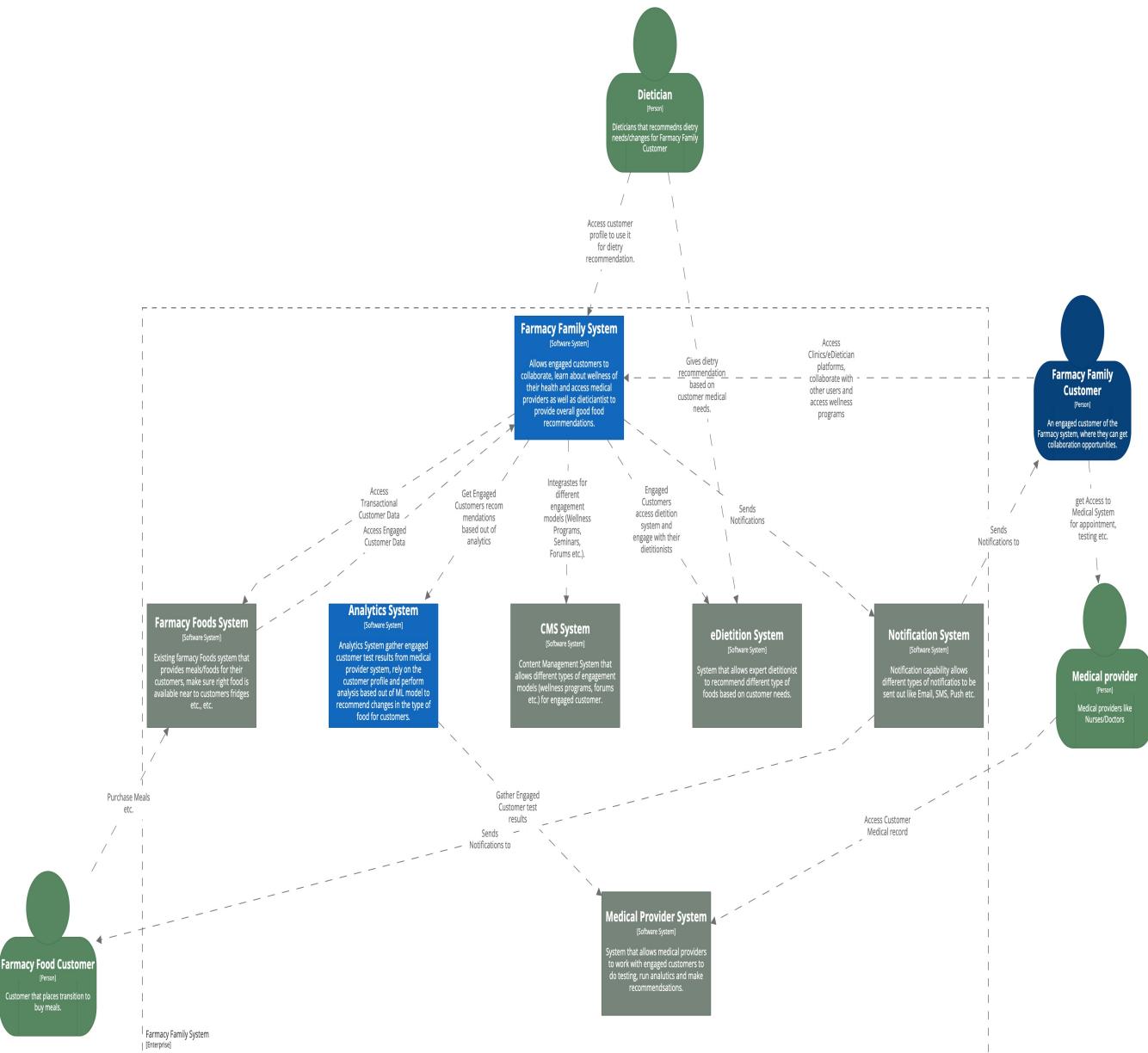
Strategic Design



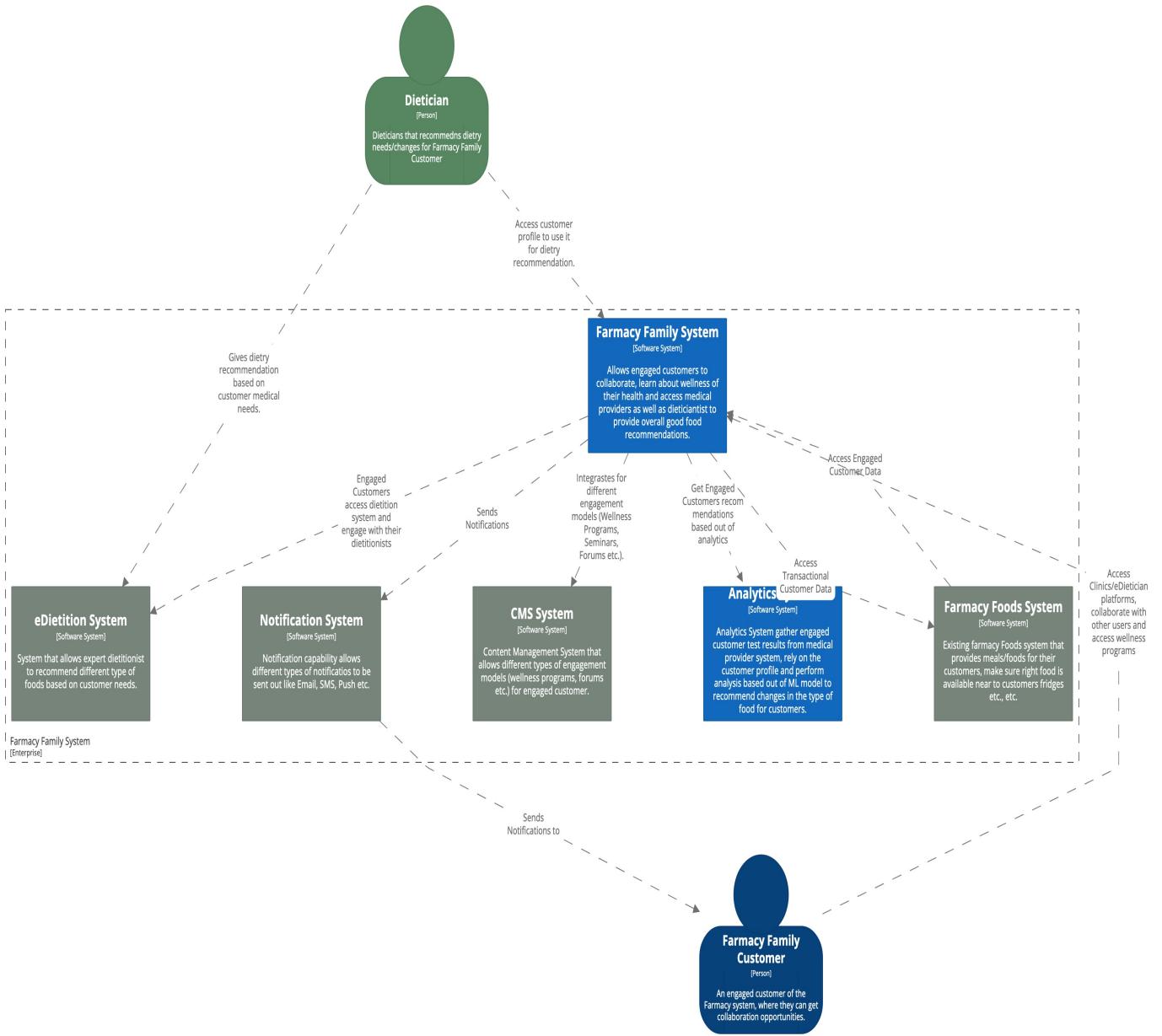
User Journey



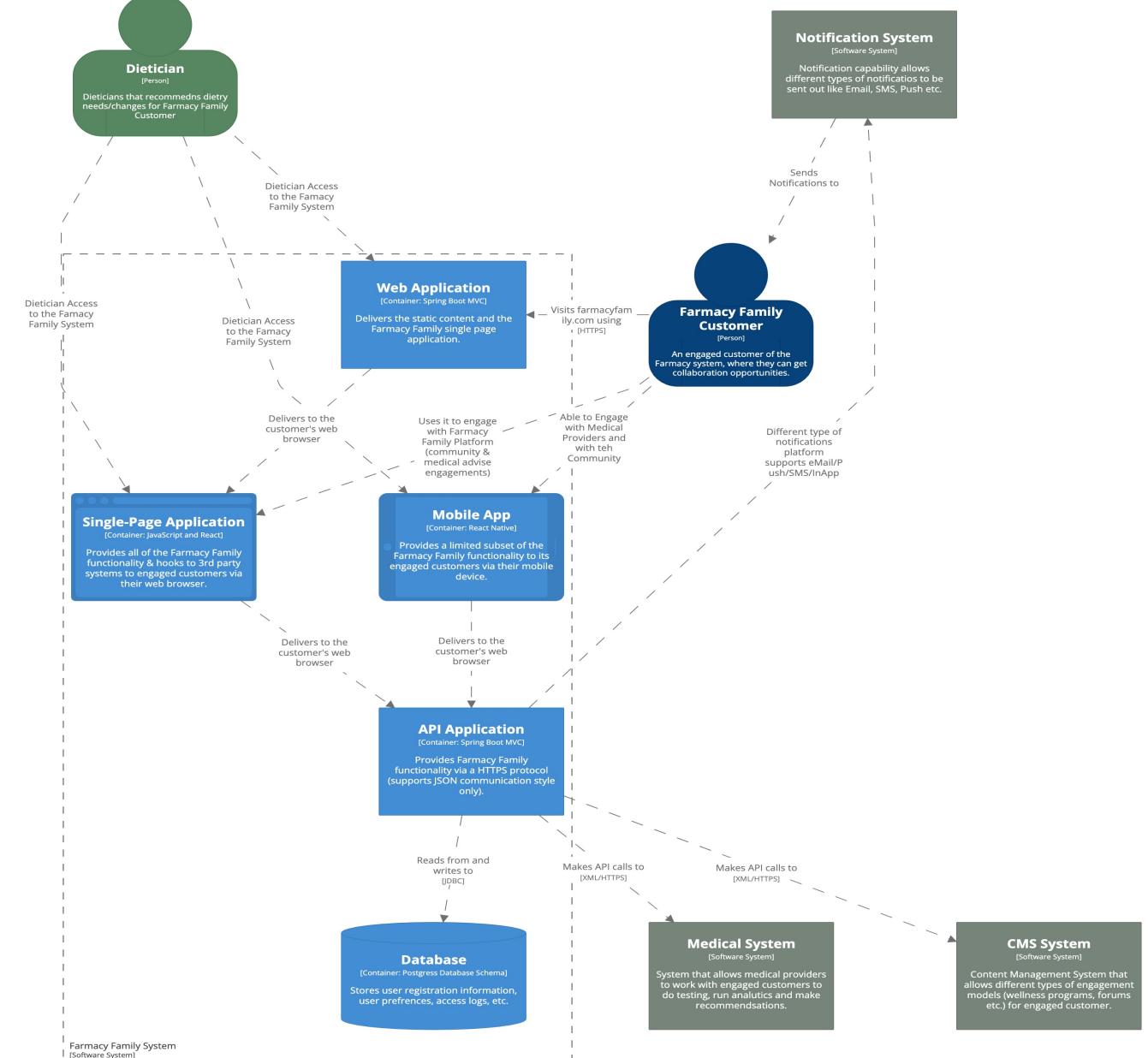
System Landscape Diagram



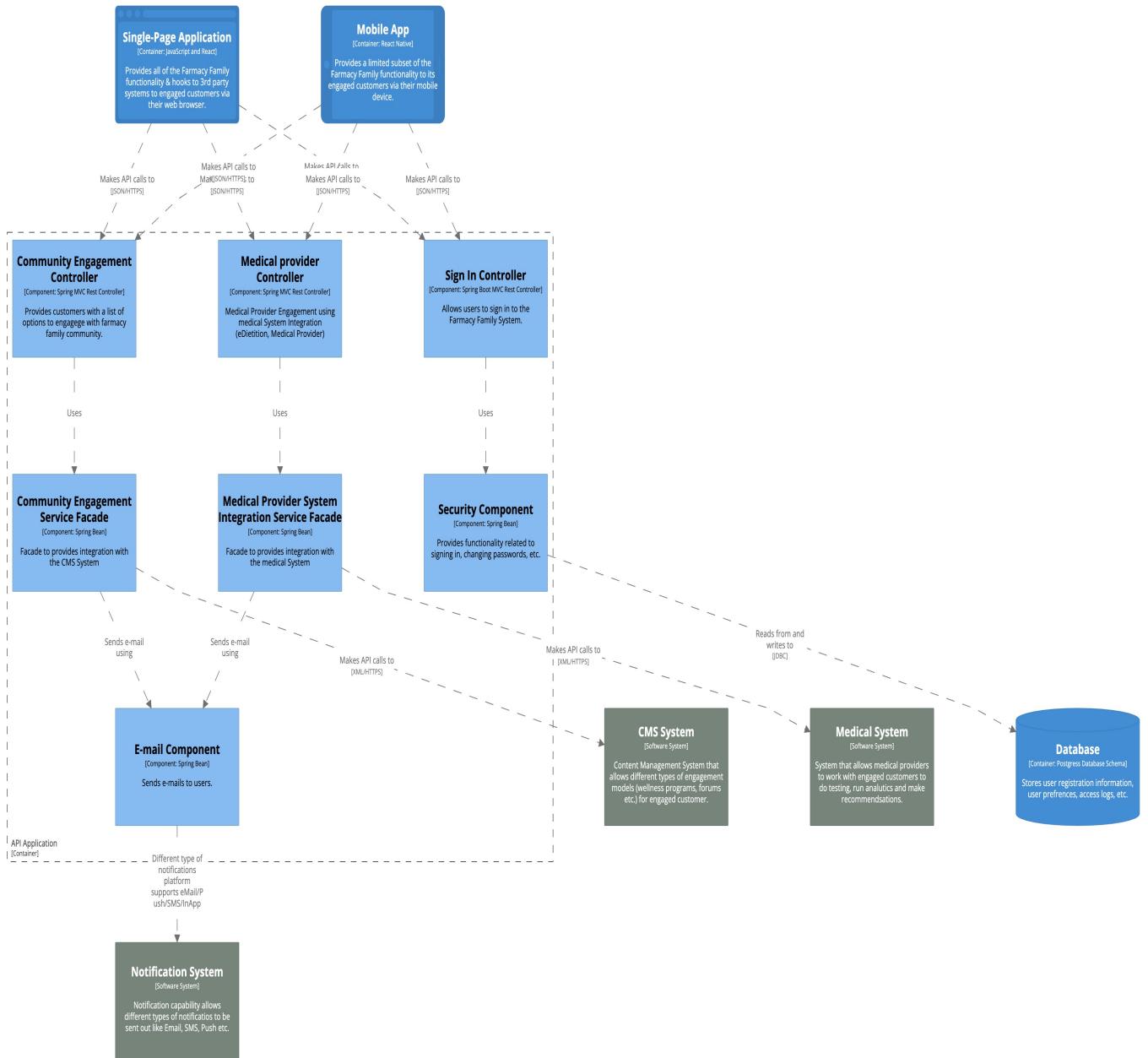
Context Diagram



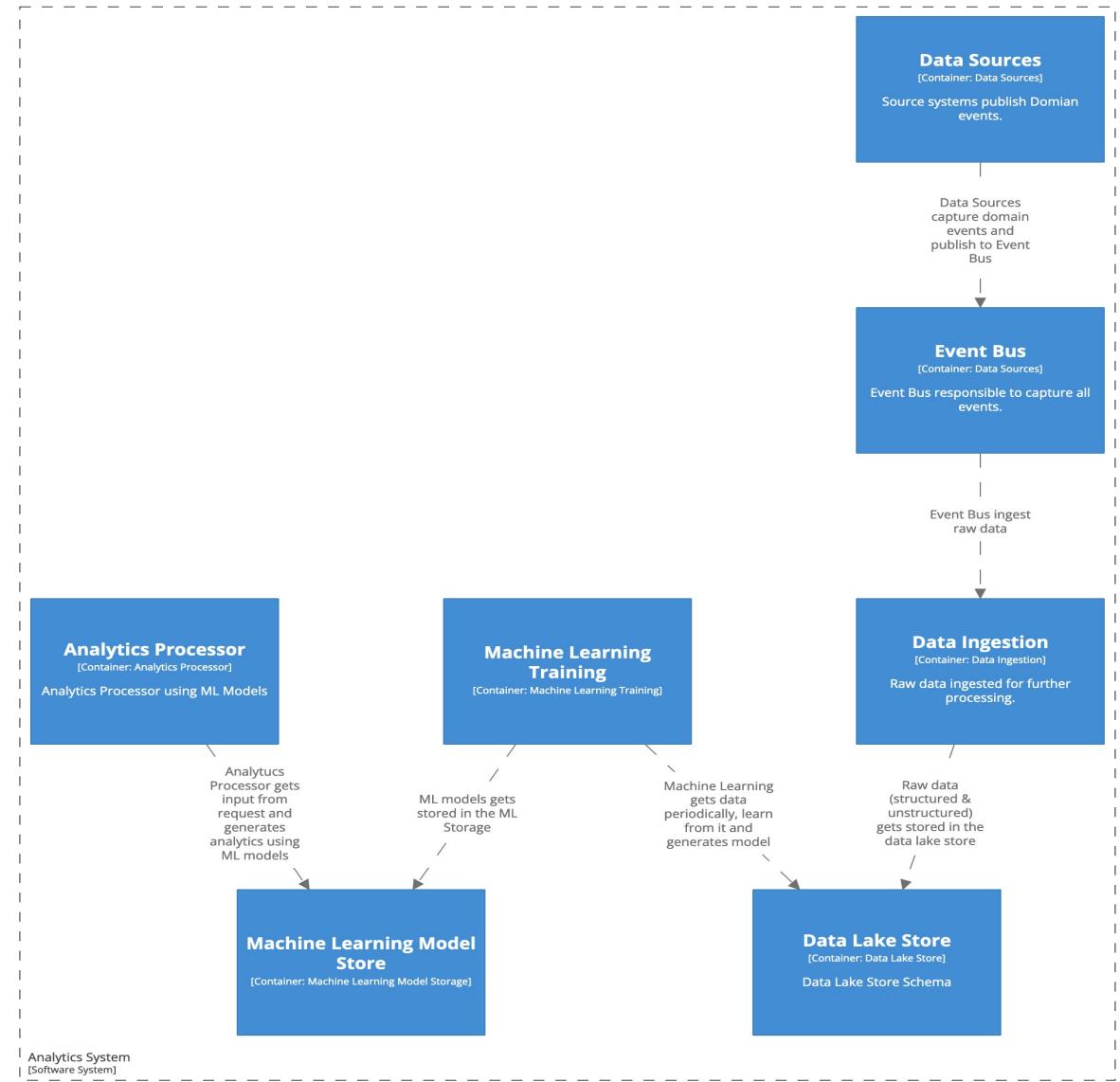
Farmacy Family Container Diagram



Farmacy Family Component Diagram



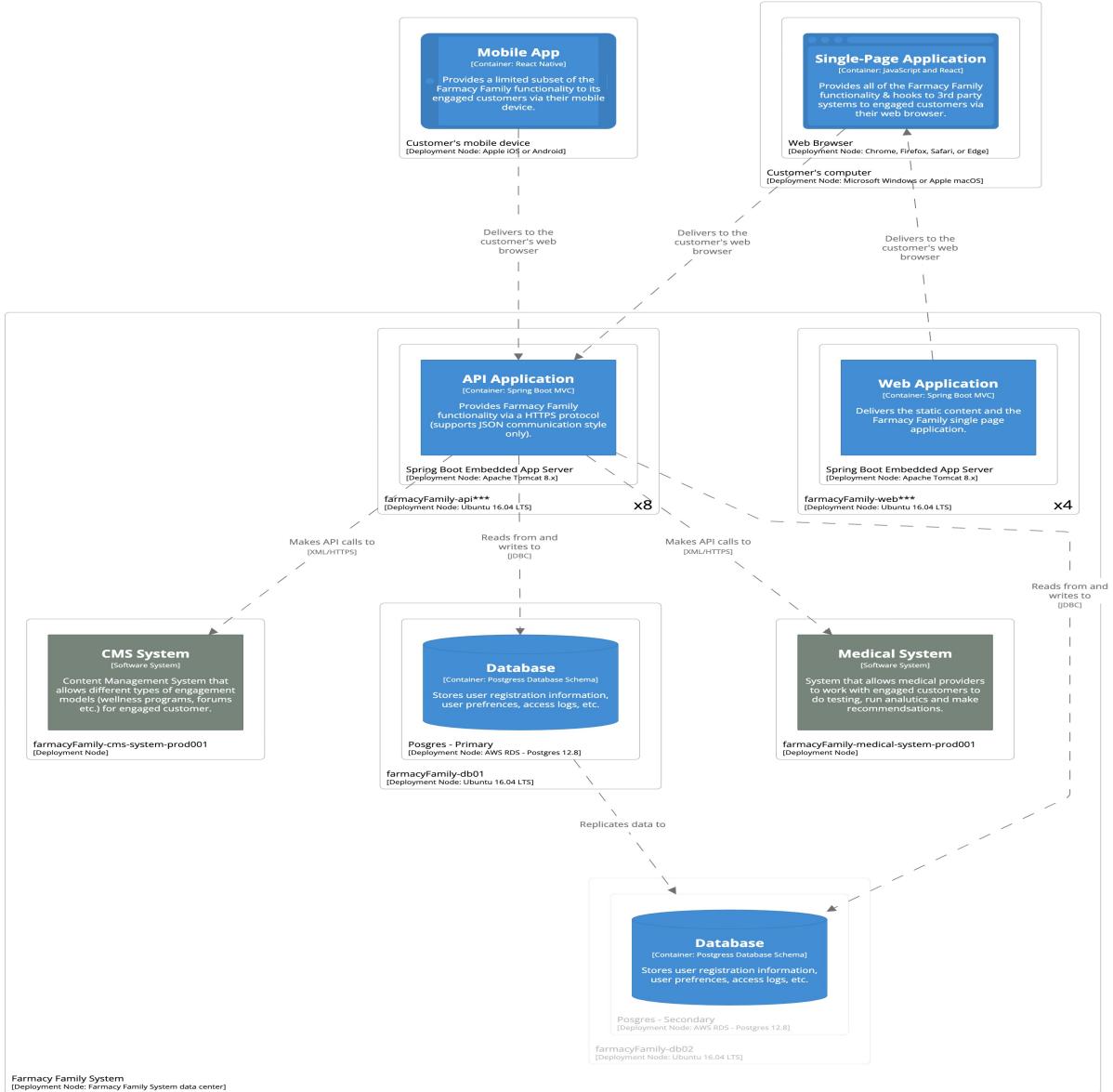
Analytics Container Diagram



Container diagram for Analytics System

Sunday, October 31, 2021, 10:09 AM Pacific Daylight Time

Farmacy Family Deployment Diagram



Key Links

- Farmacy Family artefacts [root folder](#)
- What went into consideration?
 - [Requirements](#)
 - [Quality Attributes Identification](#)
 - [ADRs](#)
 - [Overall Solution](#)

Thank You!

