MICHIGAN STATE
UNIVERSITY

Project Plan
LIMElight: Life Insurance Made Easy

The Capstone Experience

Team USAA

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From Students…
…to Professionals

Functional Specifications

- Generate accurate life insurance quote using machine learning

- Improve experience of receiving a insurance quote by creating a responsive mobile-friendly web application

- Demonstrate practicality of storing and accessing health record data on a blockchain for general underwriting purposes

Design Specifications

- Provide a web application for users to answer questions and receive a life insurance quote instantly

- Provide a separate web application to allow underwriters to query health record data via a Blockchain web API

Screen Mockup: Quoting Process

Screen Mockup: Quoting Process

Screen Mockup: Underwriter Login

Screen Mockup:
Underwriter Patient Selection
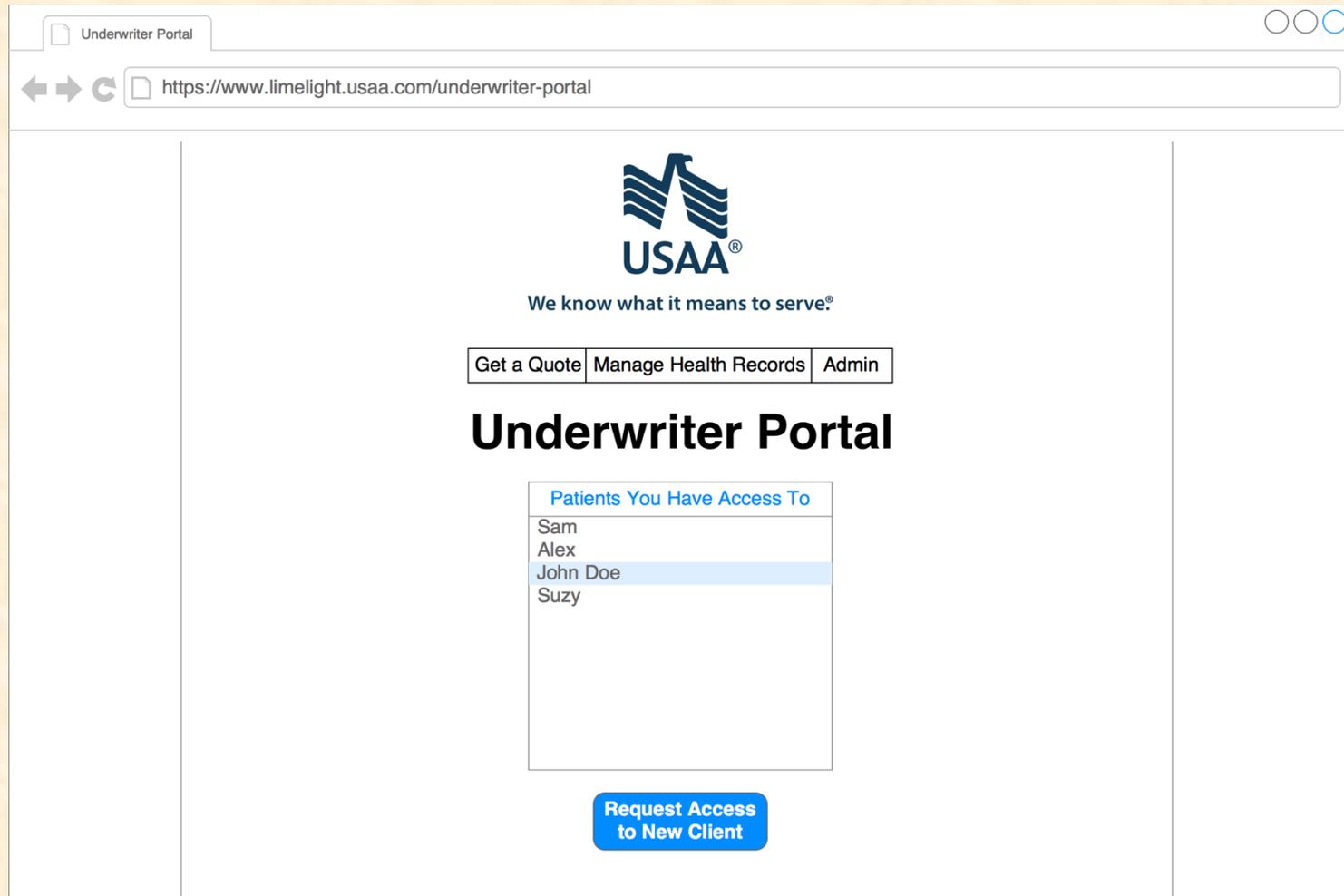
Screen Mockup:
Underwriter's Medical Record View

Screen Mockup: Patient Login

Screen Mockup: Patient Login

Technical Specifications

- Build the web application using React web framework.

- Use *Scikit-learn* to train and test insurance-quoting model.

- Construct *REST APIs* to expose the different services provided by the system.

- Build a simple blockchain that can be used to store and retrieve health record data while allowing users to set access permissions to their data.

System Architecture
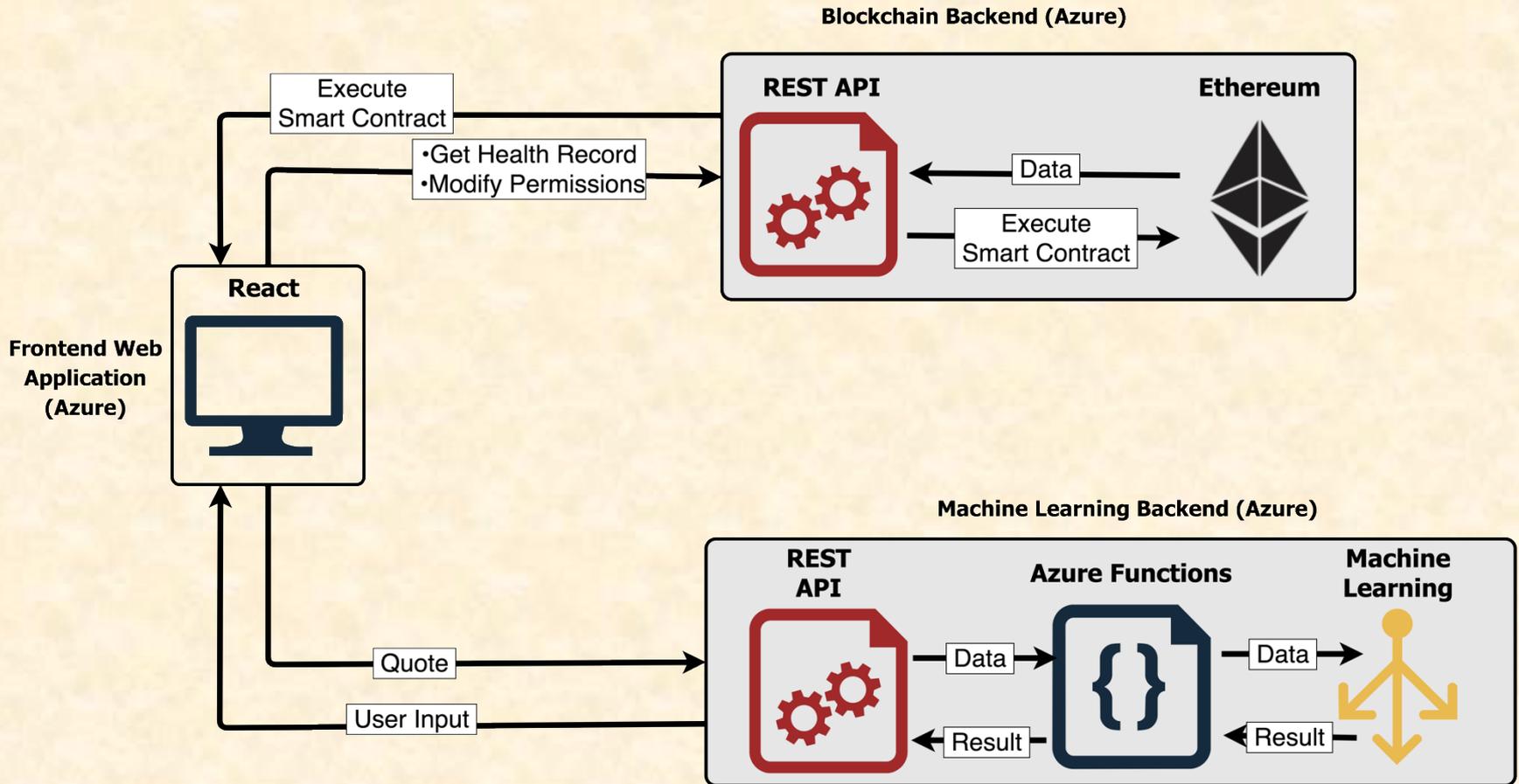
System Architecture: Machine Learning
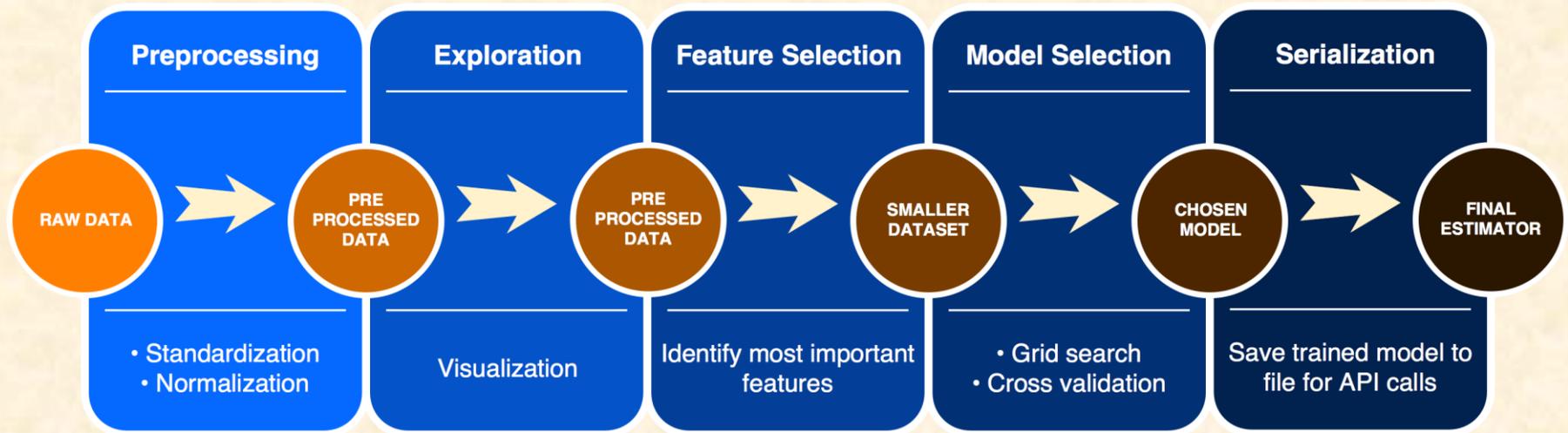
Blockchain Crash-Course

Traditional Web App Architecture
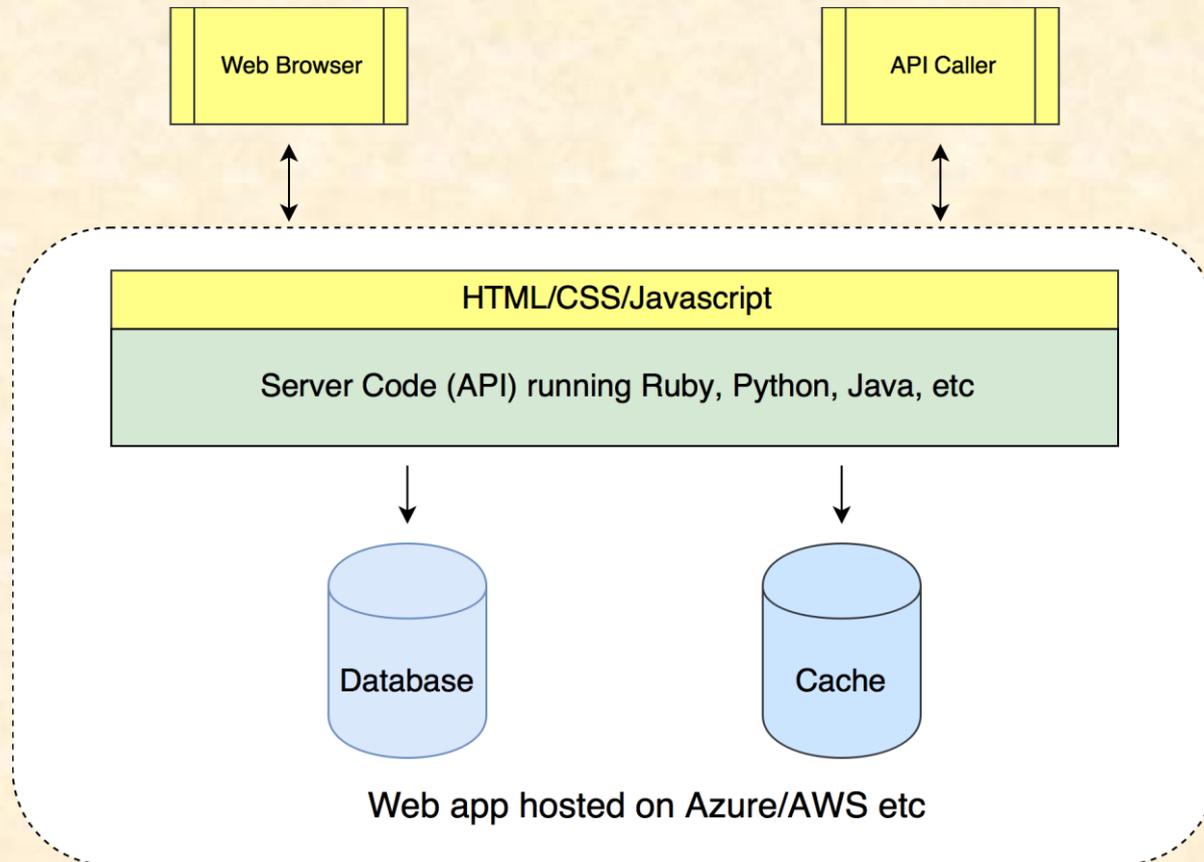
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Storing Health Records: **Cons**

1. Centralized
2. Inaccessible
3. Single point of failure
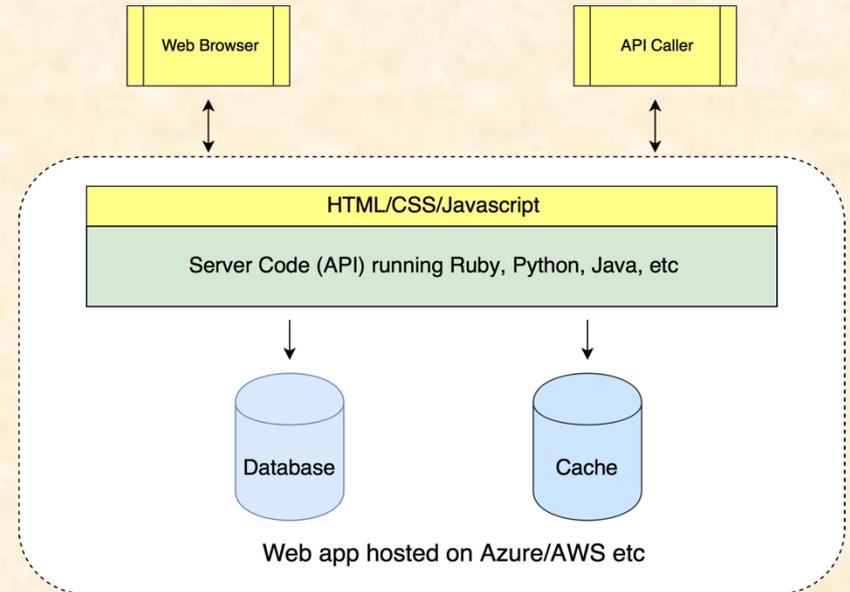
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Ethereum Blockchain Web App Architecture
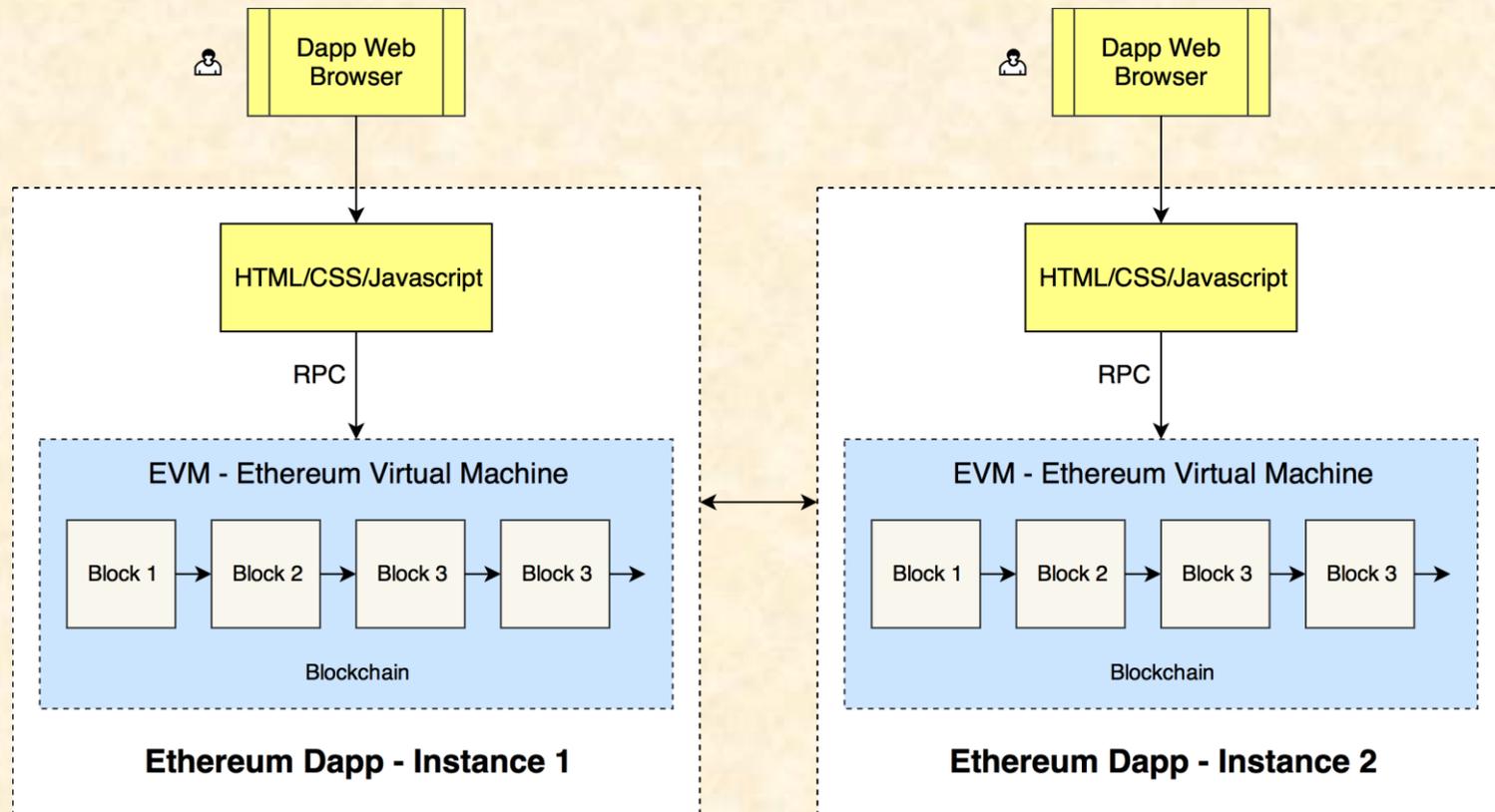
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Storing Health Records: Solutions

1. Decentralized
2. Fully Accessible
3. Distributed
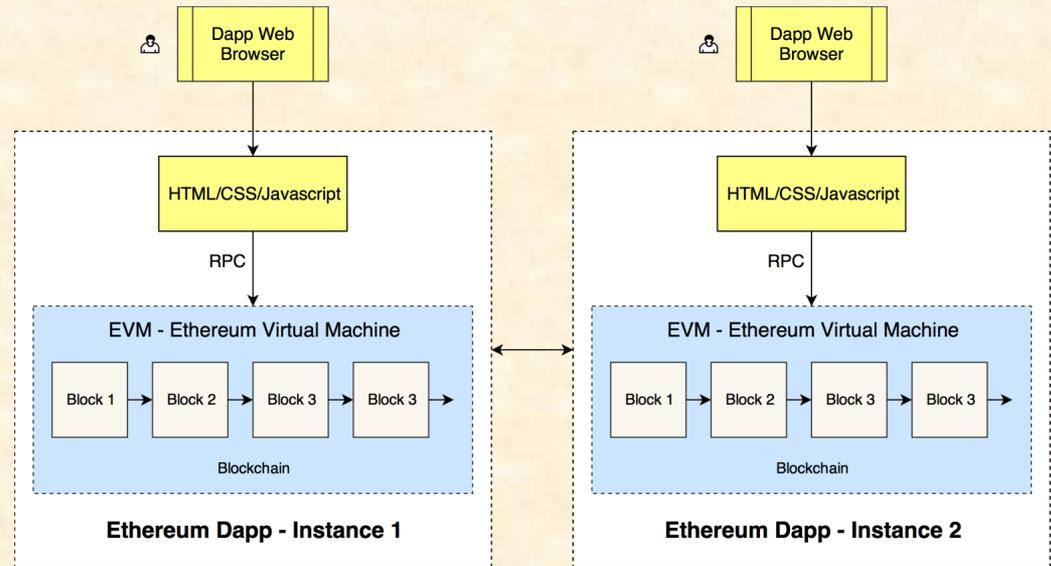
Blockchain Crash-Course
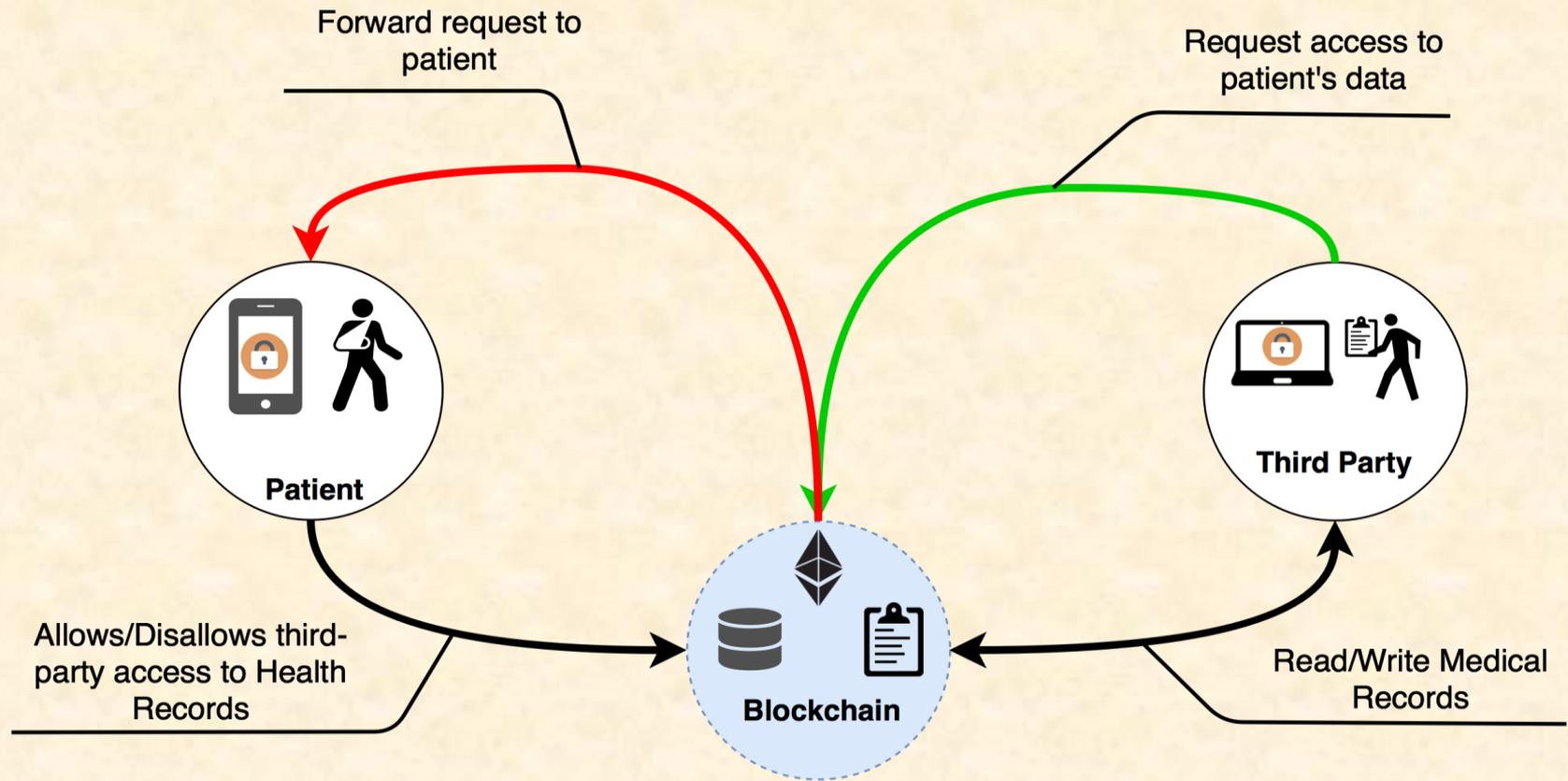
System Components

- Hardware Platforms
  - All hardware will be hosted on Microsoft Azure
- Software Platforms / Technologies
  - Python for Machine Learning
    - Scitkit-learn, Pandas, Matplotlib
  - React for the web apps
  - JAX-RS for the REST APIs
  - Ethereum Consortium Blockchain
  - Microsoft Azure SQL Database

Risks

- Blockchain Implementation
  - Complexity of implementation using smart contract
  - Enrolled in Ethereum Udemy course, utilizing online Ethereum tutorials
- Accurate Life Insurance Quotes
  - Model may struggle to produce an accurate life insurance quote with minimal applicant input
  - Review academic research about most significant factors affecting an applicant's riskiness
- Lack of Knowledge in Life Insurance
  - Group does not have any experience with life insurance industry
  - Connect with underwriters and actuaries at USAA

Questions?

Team USAA Project Plan Presentation