MICHIGAN STATE UNIVERSITY

Project Plan

Segmented Data Anomaly Detection

The Capstone Experience

Team AppDynamics

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From Students…
…to Professionals

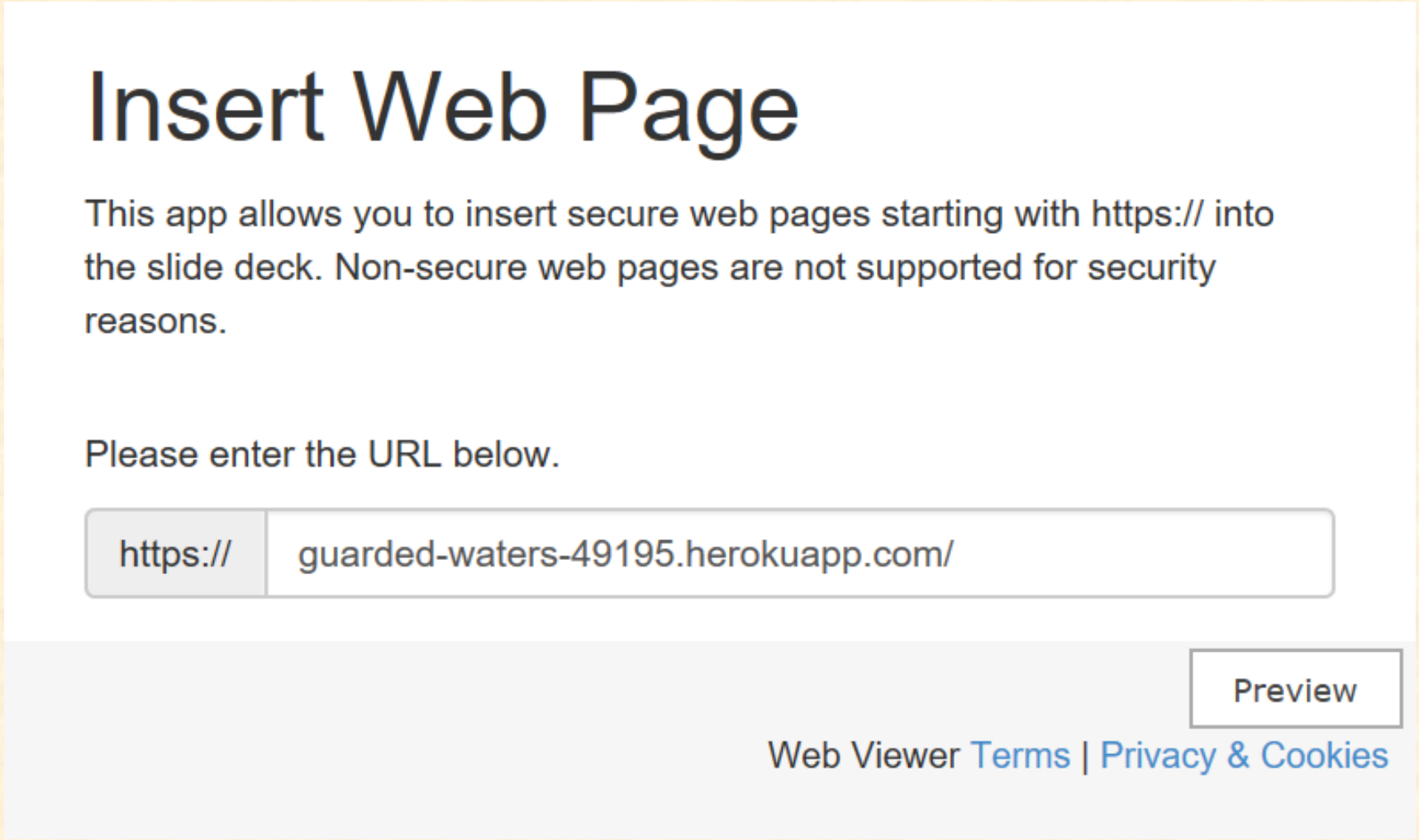
Functional Specifications

- AppDynamics' application performance management solution is the leading enterprise tool for monitoring interactions between applications and services within a company's data network
- An integral function of this tool is the ability to detect and identify code and or transactions that result in slow or faulty performance – anomalies.
- Currently, for a customer to see these anomalies they need to run a query on the affected area.
- Our job is to identify groups of anomalies with common causes and automatically alert the client of their existence and provide analytics regarding the scope and likely cause of the problem.

Design Specifications

- Our tool will identify patterns in three different types of anomalies, slow, very slow, and error.
- Once the pattern has been identified it will also provide the probable cause(s) and confidence score(s)
- It will represent the groups of anomalies that share common patterns (causes) using a dashboard format that displays general analytical information about each one.
- Clicking on a specific grouping will move to a display with more detailed information about that specific pattern of anomalies.

App Mockup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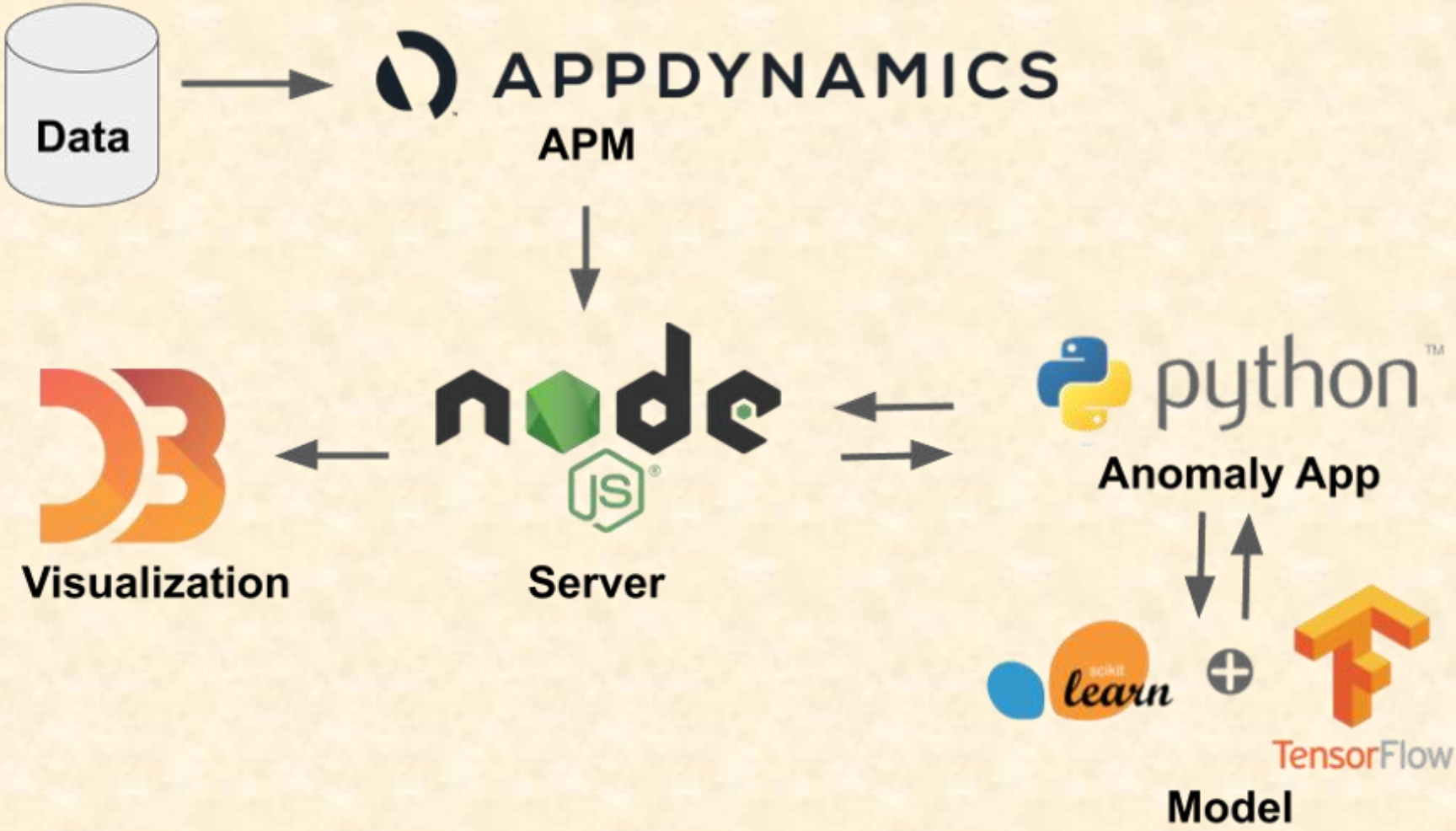
Technical Specifications

- AppDynamics APM + BizIQ
- Machine Learning Platforms (TensorFlow, Scikit-learn)
- Python
- JavaScript (D3)
- Node.js

System Architecture



System Components

- Software Platforms / Technologies
  - Pycharm\Webstorm – standardized IDE
  - AppDynamics APM – Analyze and compile data
  - Postman – Interface with the APM
  - Scikit-Learn/TensorFlow – Model for machine learning

Risks

- Risk 1
  - Integration with AppDynamics controller
  - Andres, John, and Rui, will be coordinating with Michael Sickles to set up the necessary connections to migrate properly formatted data into python.
- Risk 2
  - Our team does not have experience with unsupervised clustering ML algorithms.
  - Andres and Titus will consult with CSE faculty. Additionally, Titus is currently taking two graduate-level ML courses.
- Risk 3
  - Privacy concerns with using client data
  - The simulated data we will be using is statistically similar to the actual data and the generation parameters can be customized to provide an even closer match.
- Risk 4
  - Writing Production Level ML algorithms
  - Every member of the team will do weekly research, and we will aggregate the ideas at our weekly meetings.

Questions?