LEAF
Light Enterprise Application Framework

Building enterprise grade technology applications is hard. Before the first line of code is written, there are a myriad of decisions that need to be made concerning the infrastructure of the application. What operating systems do we use? What application web server do we use? What languagues to we use? How do we connect to our existing databases? **Where do we even start?**

APPLICATION PLATFORM

Many of these issues are why we have seen the rise of the Application Platform as a Service (aPaaS) in the IT industry. These aPaaS solutions refer to a comprehensive envrionment for designing, building, testing, deploying and managing custom web-based business applications and can be a valuable tool for companies that need to create and manage sophisticated, web-based, enterprise applications.

There are usually three components of an aPaaS: an application layer of software or "the stack"; a deployment mechanism which creates the virtual servers and instances; and the user interface and overall user experience (UX).

These application platform as a service (aPaaS) solutions can enable rapid application development and delivery within the enterprise.

KRM'S LEAF

Leveraging the U.S. Department of Veterans Affairs' (VA) Enterprise Health Management Platform (eHMP), KRM Associates has created an aPaaS solution built upon the best of the eHMP framework. Retaining and augmenting the very robust Software Development Kit (SDK) and lightning fast Node.js infrastructure, the Light Enterprise Application Framework (LEAF) adds an extensible database layer which allows the use and connection to a wide-variety of relational database management systems such as: MySQL, Postgres, MS SQL/Server, and Oracle. The database layer of LEAF also contains plugins for NoSQL databases such as MongoDB. KRM has also removed all healthcare and VA specific code, which allows LEAF to solve all manner of business problems, not just healthcare.
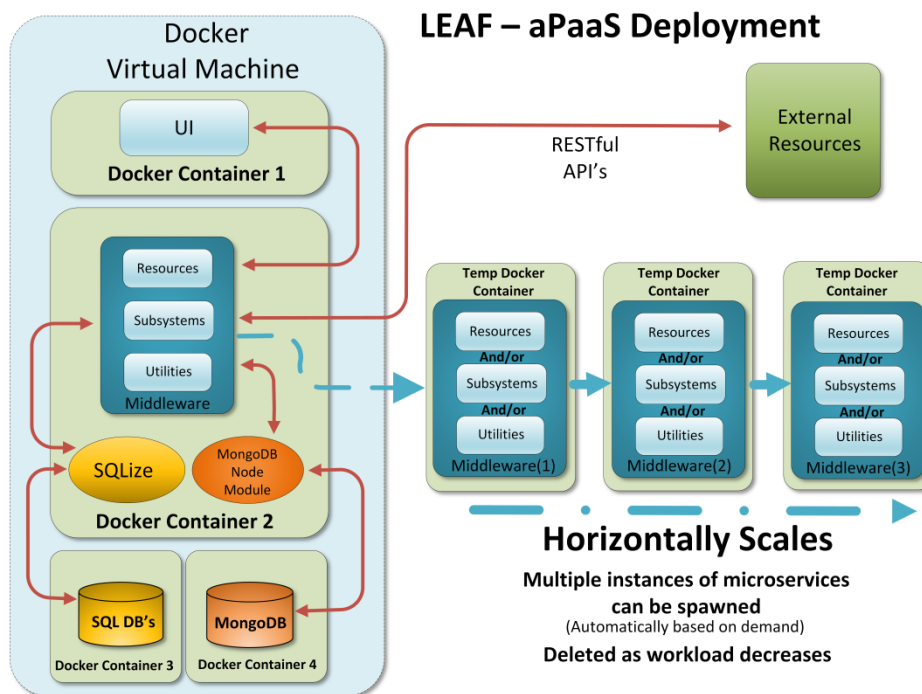

LEAF – Application Platform as a Service Architecture
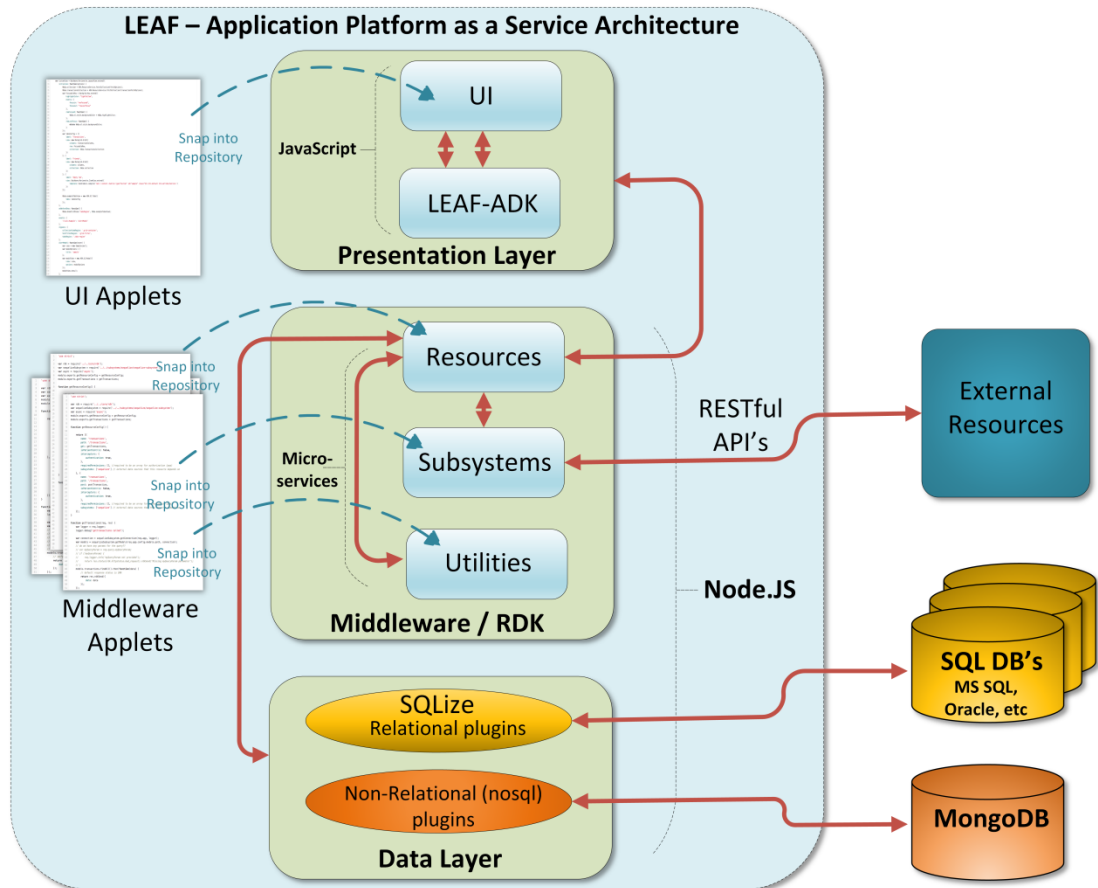
LEAF is an extensible platform built using HTML/JavaScript/CSS "applets" and "micro-services" in accordance with the SDK, which allows the platform to be extended quickly and easily to meet any

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business requirement or workflow. The micro-services layer allows for multiple resources to be combined into a single process – and separated when necessary – into completely stateless services. The middle layer also contains RESTful API support for interoperability with disparate systems. Applets – small pieces of JavaScript code and functionality – are built using LEAF's application development kit (ADK). Applets have a wealth of common resources and functionalities as well as 508 compliant controls which are snapped in to a single page application that is compatible with any web browser.

BUILT TO SCALE

The entire platform is designed for flexibility in both the application development and deployment – whether it is on-premise servers or cloud based systems.

LEAF – aPaaS Deployment

Horizontally Scales

Multiple instances of microservices can be spawned
(Automatically based on demand)
Deleted as workload decreases

Built around the concept of DevOps and Continuous Integration, LEAF can be deployed with Chef on bare metal, containers such as Docker, or Virtual Machines. The platform is ideal for cloud-based environments like Amazon Web Services as it can be designed to horizontally scale to meet cyclical or peak performance demands. As micro-services are utilized, additional temporary containers can be automatically spawned to meet the increased demand on those

services. When the demand decreases the system will scale back and dispose of the temporary containers. This functionality allows LEAF to scale to meet the most demanding enterprise functionalities.

BENEFITS OF LEAF

The use of a platform as a service provides many benefits to the enterprise. Instead of starting from scratch for enterprise applications, all of the framework and infrastructure such as authentication are built into the platform. A common and scalable application framework allows developers to be instantly productive working on business requirements versus spending many hours simply on building a scalable IT infrastructure.

Some other key points and benefits of LEAF to the enterprise:

- Expedites rapid modernization efforts;
- Flexible, modular, extensible, and customizable;
- Powerful database layer with connection plugins for both relational and NoSQL databases;
- Organized and architected to deal with complex business workflows, data, and security requirements;
- Designed for Government requirements such as Section 508 and FISMA security;
- Supports integration with external systems, including ones secured with two-way SSL;
- Excels in cloud deployments;
- Extensive SDK support allows for the platform to be extended quickly and easily to meet any business requirements.

By using LEAF, enterprises can enable rapid application development, enforce application consistency and delivery, as well as the streamlining of application provisioning and deployment.