



API Directory Overview

ITANA API/Governance Working Group

November 2015



Agenda

- Background of our project
- Our Environment
 - Usage
 - Monitoring
 - Publishing Process
 - Subscription Process
- Lessons Learned
- API Directory Future



Project Background

- Initiated from the Mobile Project
 - The majority of the developer's time was spent on getting data and transforming it to a useable format
- API Directory Project scope
 - Create an infrastructure to create and share re-usable APIs.
 - APIs that allows transition from UMIAC
 - Class Rosters, Instructor, and Curriculum Data



API Directory

<https://developer.it.umich.edu>

- More than just a list of APIs
- Middleware Platform (WSO2)
 - **API Store** (Discovery)
 - **API Gateway** (Monitoring)
 - **API Key Manager** (OAuth Security)
 - **Enterprise Service Bus** (Transform & Security)
 - **Data Services Server** (Services for DB's)

The screenshot shows the API Directory website interface. At the top, there is a dark blue header with the University of Michigan logo and the text "API DIRECTORY UNIVERSITY OF MICHIGAN". To the right of the header are four navigation tabs: "APIs", "Prototyped APIs", "Applications", and "Subscriptions". Below the header is a search bar with the placeholder text "Search API" and a magnifying glass icon. The main content area is titled "APIs" and includes a link to the "Terms of Service". Below this, there is a grid of six API cards. Each card features an icon, a title, and version information. The cards are: 1. CAEN Labs (v2, Thomas Knox) with a monitor icon; 2. Buildings (v1, Space Management) with a location pin icon; 3. BuildingsSOAP (v1, Space Management) with a location pin icon; 4. MCommunityGidNumber (v1, ITS MCommunity) with a group of people icon; 5. MCommunityPeople (v1, MCommunity) with a group of people icon; 6. MCommunityUidNumber (v1, ITS MCommunity) with a group of people icon.



API Directory & WSO2 Components

developer.it.
umich.edu

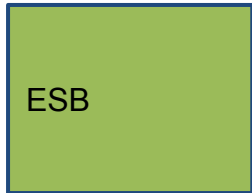
- API Directory Landing Page
- API Directory Help Page
- Built on Drupal

API Manager

- API Publisher/Store
 - Discover APIs
 - Register Apps
 - OAuth Key distribution
- OAuth Token generation service
- API Gateway - All API traffic goes thru here
 - Token validation
 - Throttling limit enforcement
 - Reporting
- Built on WSO2 API Manager 1.9



API Directory Components and Capabilities



- Message Transformation
 - SOAP to REST
 - XML/JSON
 - Filter/Aggregation
- API Definition
- Proxy Services
- Security Mediation
 - Static Password
 - Pass user identity from JWT (Oauth Token)
 - Pass user identity from client app
- Built on WSO2 ESB 4.8.1



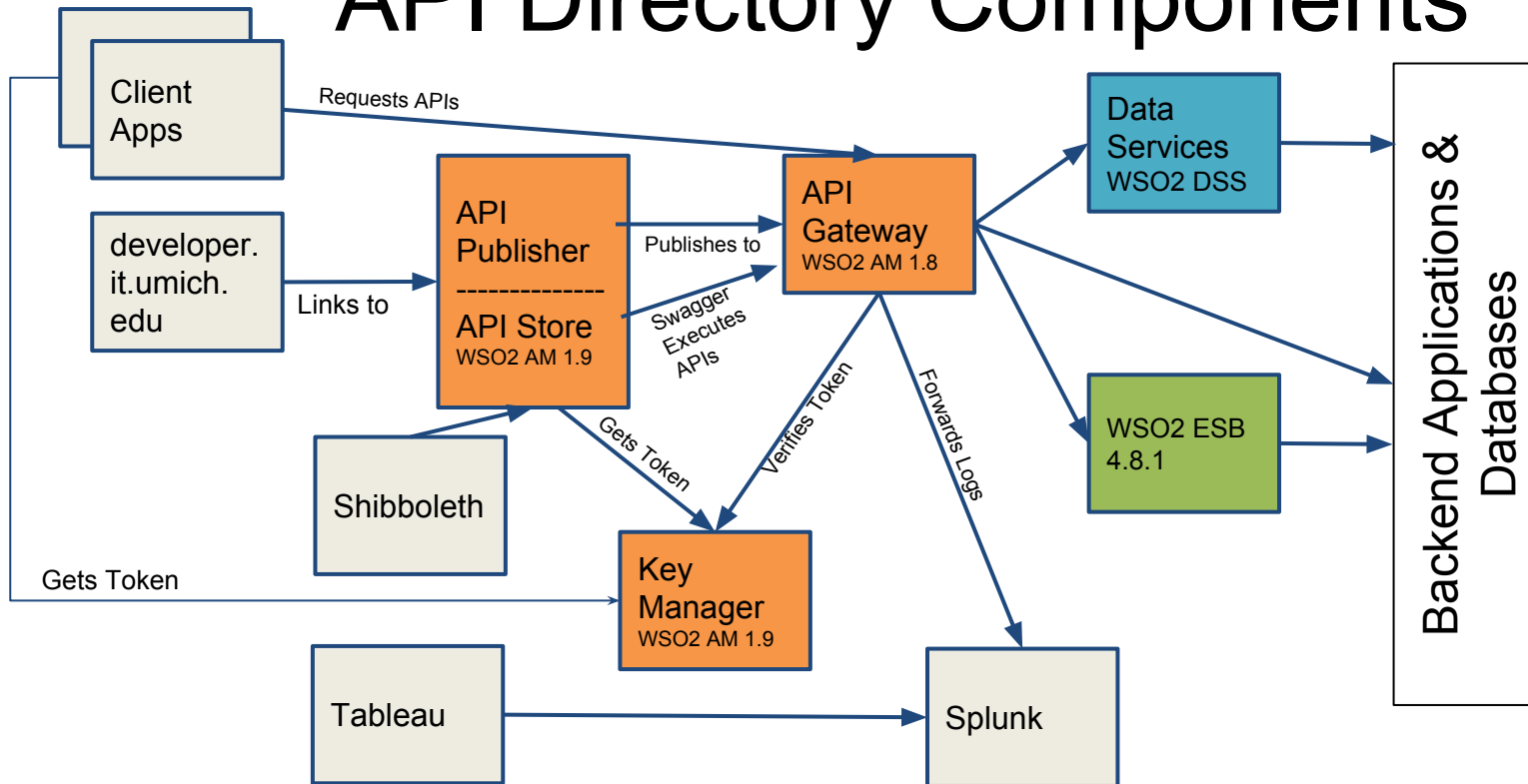
API Directory Components and Capabilities

Data Services

- Build APIs and SOAP services against database back-ends
- Built on WSO2 DSS 3.1

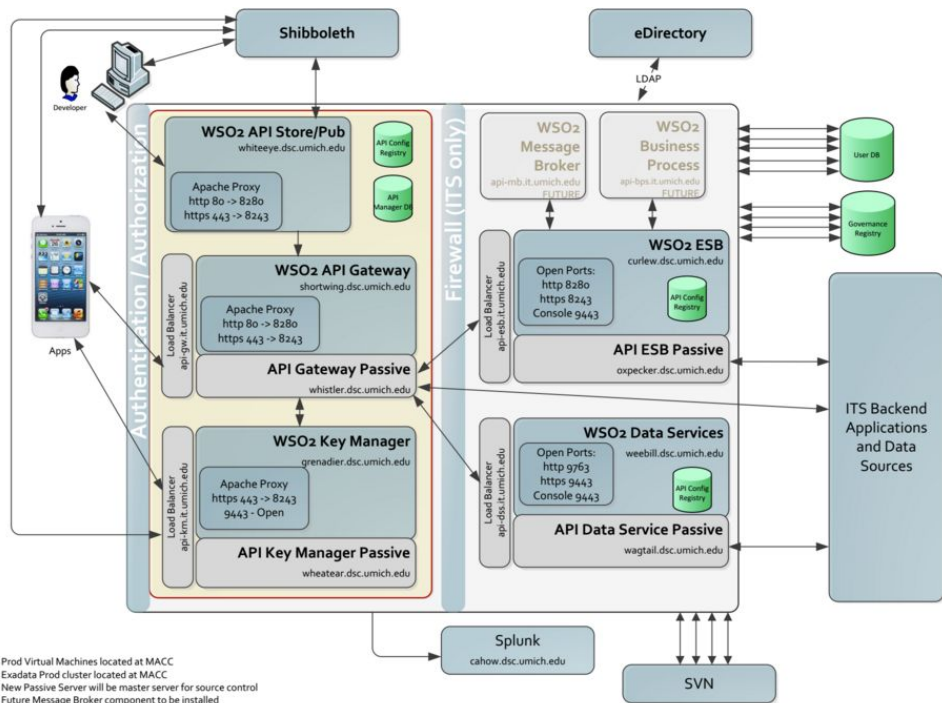


API Directory Components





WSO2 Technical Architecture

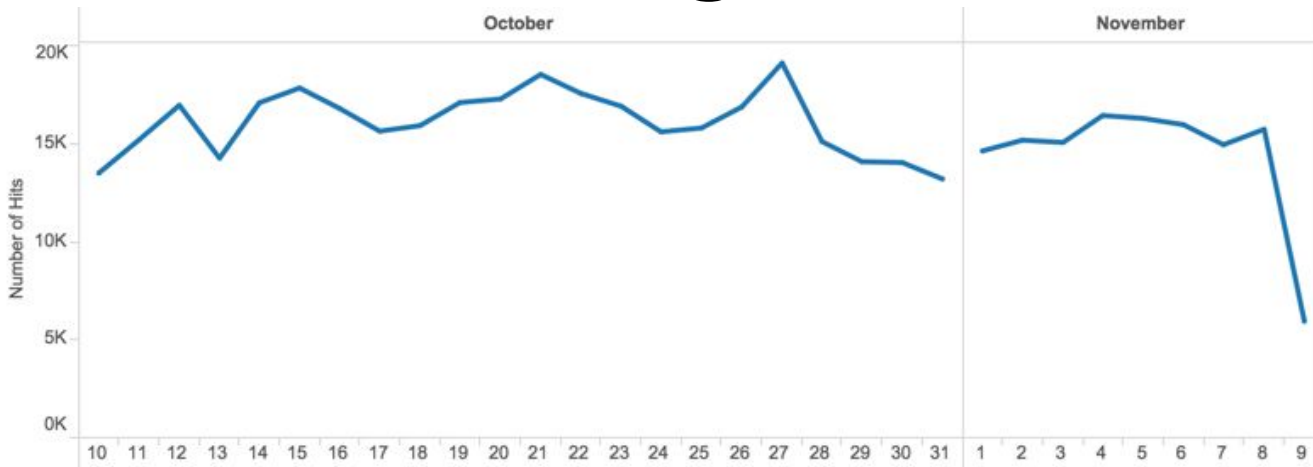


- On premise VMs
- Active/Passive Servers
- Physical Load Balancers
- Oracle Exadata 12c

- Prod Virtual Machines located at MACC
- Exadata Prod cluster located at MACC
- New Passive Server will be master server for source control
- Future Message Broker component to be installed
- Future Business Process Server to be installed



Usage



Of Subscriptions (Top 5)

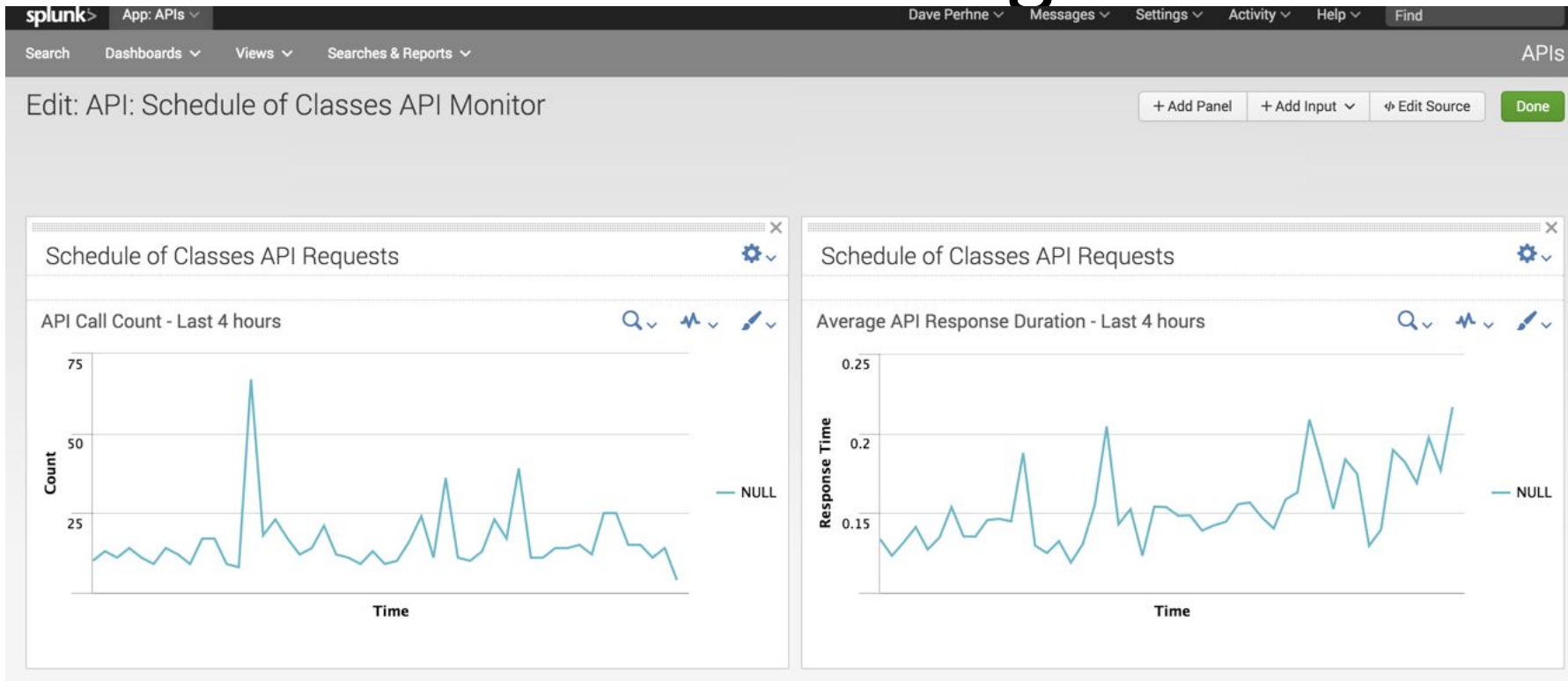
UMScheduleOfClasses	398
McommunityPeople	168
Buildings	147
ShortCodes	45
CAENLabs	37

Of Hits (Top 5)

StudentDashboard	195,906
UMScheduleOfClasses	125,929
CurriculumAdmin	82,839
Pinnacle	72,120
ShortCodes	3,929



Monitoring





Publishing Process

- API Publishing Checklist
 - Definition and meta data for API
 - Support Owner
 - Documentation
 - Functional Test plan
 - Security Testing
 - Data Steward/Manager sign off ([Data Steward List](#))



Subscription Process

- Straight forward for Public APIs
- Private/Confidential Data is more complicated
 - API Subscribability vs. Visibility
 - Not a good subscription workflow
 - Personal IDs vs. System IDs
 - Provisioning access is to the ID and not the App
- ServiceNow Integration



Lessons Learned

- Branding is Important
- Target personas and evangelize
 - Data Stewards
 - API Developers
 - API Subscribers
 - Product Managers
- Service Level Expectations for APIs
- Developers are passionate about API Design decisions
- Vendor Support (Quick Start, Prod Support)
- It's more than a project



API Directory - Future

- More APIs
 - ImageNow, SumTotal, More PeopleSoft
- More Integrations
 - ESB with connectors to Salesforce
- Integration Competency Center (ICC)
- Subscription Workflows
- Collaboration with our Health System
 - IBM Message Queue and API Manager