

MICHIGAN STATE

U N I V E R S I T Y

Alpha Presentation

SmartSat™ Satellite App Store

The Capstone Experience

Team Lockheed Martin Space

Client: Josh Davidson, Senior Software Engineer

Brian Fuessel

Daniel Webb

Peng Sun

Sailesh Gundepudi

Tony Miller

Department of Computer Science and Engineering

Michigan State University

Spring 2020



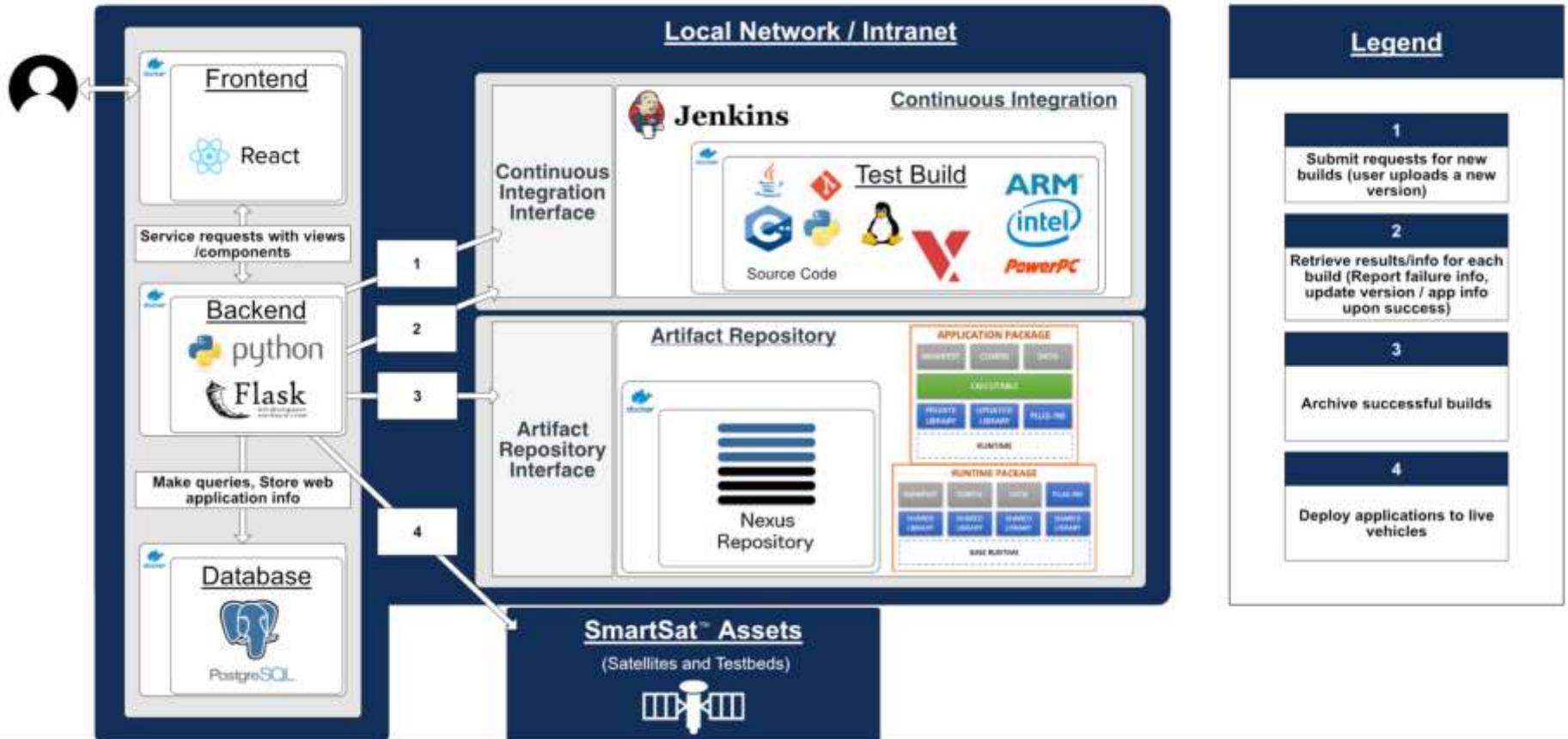
*From Students...
...to Professionals*

Project Overview

- Lockheed Martin SmartSat™ applications expand the capabilities of satellites
- Clients and developers require a way to manage and browse existing applications
- SmartSat™ App Store acts as the central access point for satellite applications
- Users can upload and download applications with ease



System Architecture



What's left to do?

- Cross Platform Support
 - Git Repository (Project Uploads)
 - VxWorks, Embedded Linux (Compatibility Testing)
- Hardware Deployment
- Expanded Features for Managing Assets
- Social and Collaborative Features
- State Management
- User Authentication



Questions?

?

?

?

?

?

?

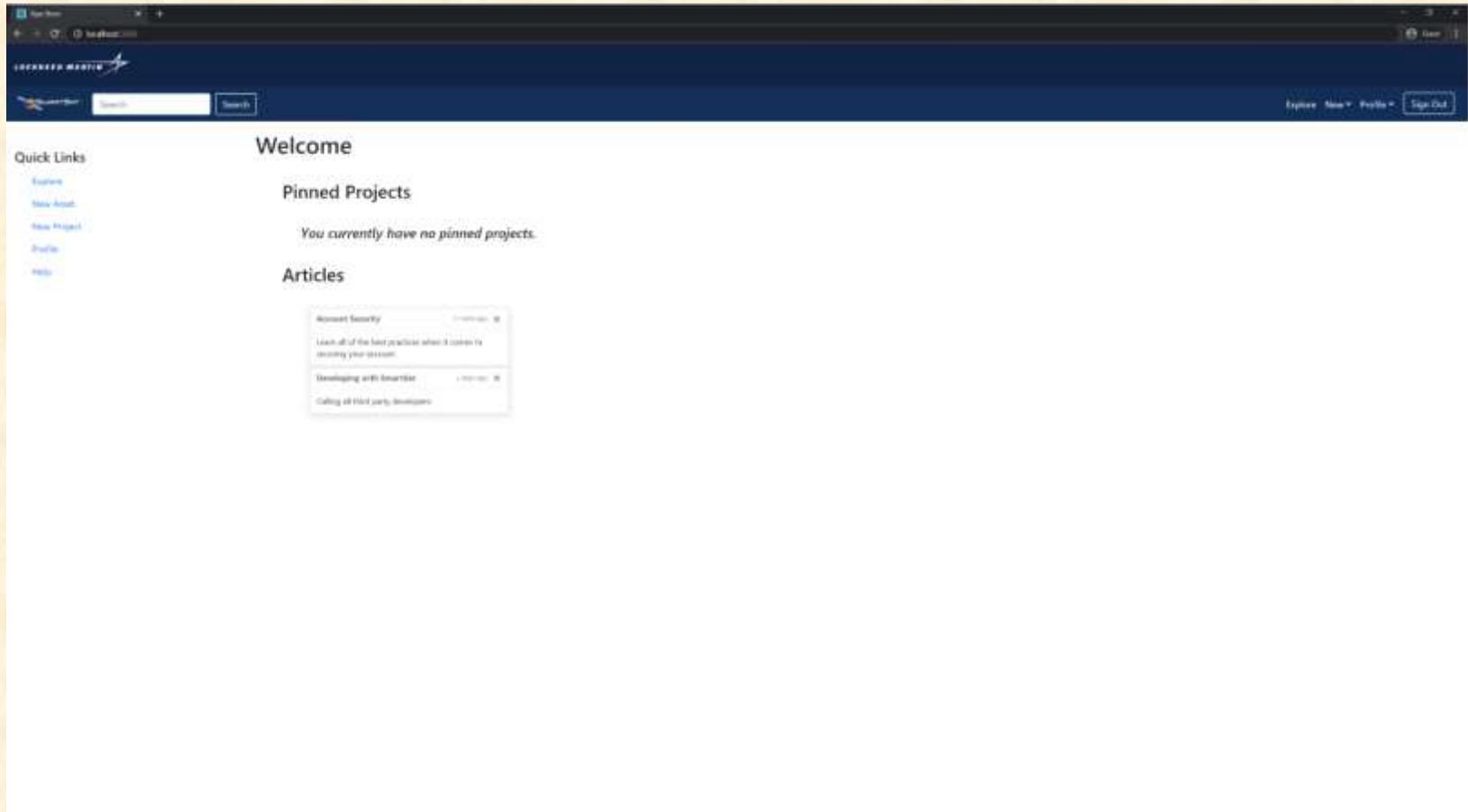
?

?

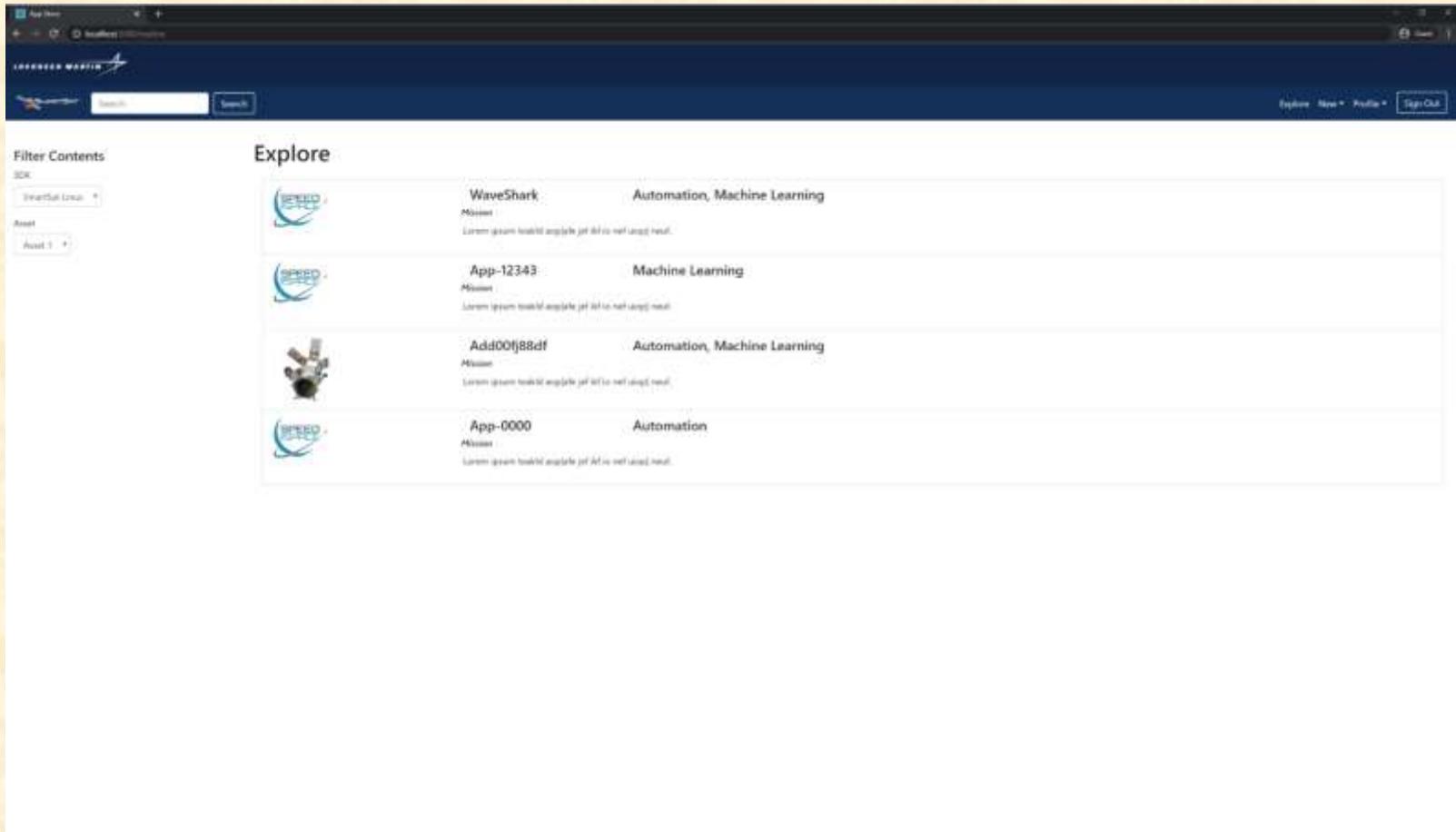
?



SmartSat™ Home Page



SmartSat™ Explore Page



SmartSat™ App-Profile Page

The screenshot shows a web browser window displaying the SmartSat application profile page for 'WaveShark'. The page header includes the Lockheed Martin logo and a search bar. The main content area features the application name 'WaveShark' and a 'SPEED SPACE' logo. A list of metadata is displayed, including Author, Organization, Type, Category, Language, Version, and Last Successful Build. The metadata values are: Author: User1, Organization: NASA, Type: Application, Category: Bus, Language: Python, Version: 1.4.7, and Last Successful Build: January 16, 2020 01:00:14. At the bottom of the metadata section, there are two buttons: 'Download' and 'Deploy'.

<i>Author</i>	User1
<i>Organization</i>	NASA
<i>Type</i>	Application
<i>Category</i>	Bus
<i>Language</i>	Python
<i>Version</i>	1.4.7
<i>Last Successful Build</i>	January 16, 2020 01:00:14



SmartSat™ Asset Profile Page

The screenshot shows a web browser window displaying the SmartSat™ Asset Profile Page for Asset-0207. The page features a dark blue header with the Lockheed Martin logo and a search bar. The main content area is white and contains the following elements:

- Asset-0207**: The title of the asset profile.
- Navigation Links**: Profile, Message, and Settings.
- Asset Image**: A small image of a satellite.
- Visibility**: SDK
- Asset Type**: Domains
- Public**: VX Works
- Bus**: 2
- Delete Asset**: A blue button to delete the asset.



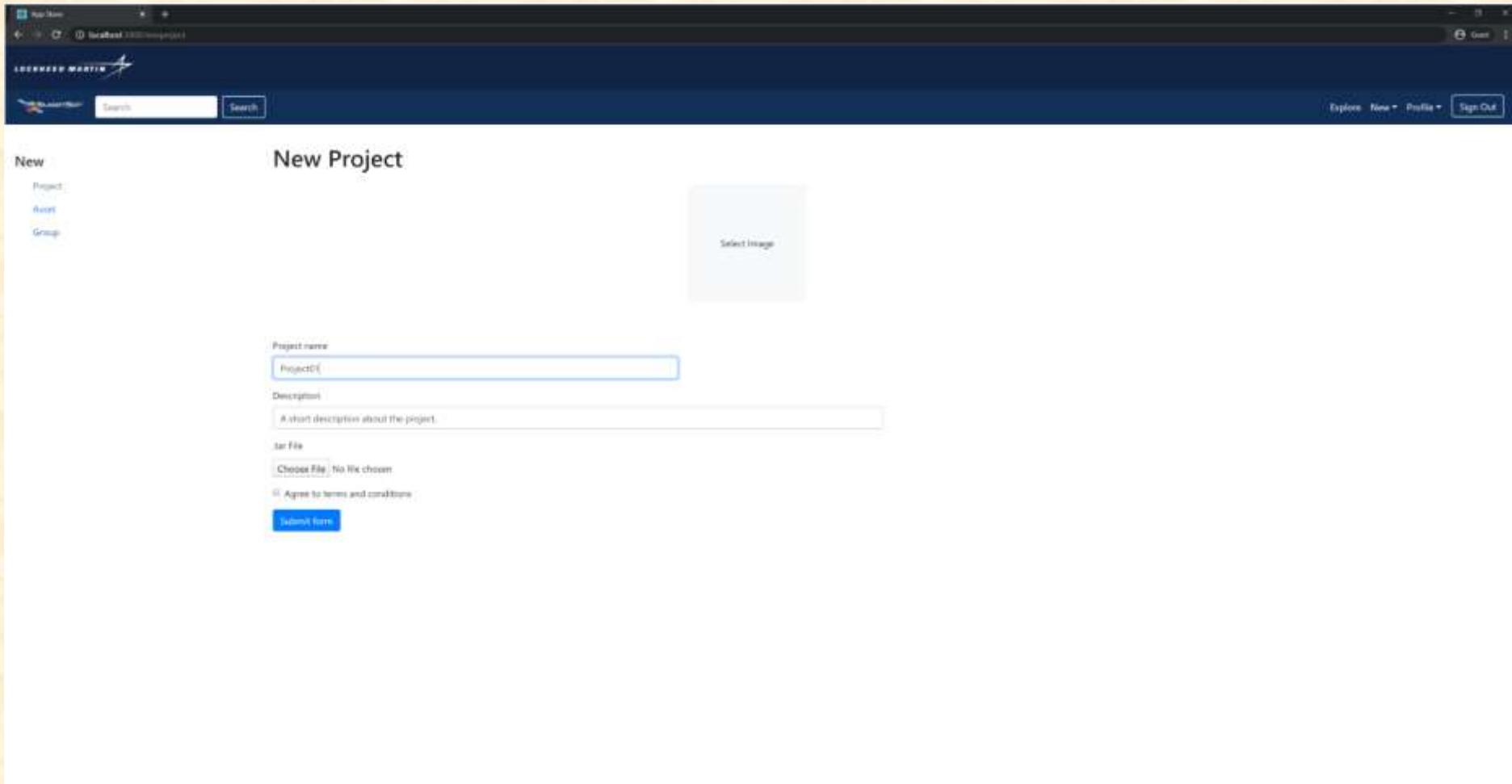
SmartSat™ Asset Manage Page

The screenshot displays the SmartSat Asset Management web interface. At the top, there is a navigation bar with the Lockheed Martin logo, a search bar, and a 'Sign Out' button. The main content area is titled 'Asset-0207' and features a satellite icon. Below the icon, there are two domain summary cards. The first card, 'Domain 0', shows 'SDK:CFC-400 SmartSat Linux 2019.1' and 'Free Space:74%'. The second card, 'Domain 1', shows 'SDK:CFC-400 SmartSat Linux 2019.1' and 'Free Space:0%'. A table below these cards lists installed applications:

#	Application	Version	Status	Remove
1	 WaveShark	1.54	Running	



SmartSat™ New Project Page



The screenshot shows a web browser window displaying the SmartSat™ New Project page. The browser's address bar shows the URL "localhost:3000/newproject". The page header includes the Lockheed Martin logo, a search bar, and navigation links for "Explore", "New", "Profile", and "Sign Out". The main content area is titled "New Project" and features a sidebar with "Project", "Asset", and "Group" options. A large "Select Image" button is positioned in the center. Below it, the form includes a "Project name" field with the text "Project01", a "Description" field with the placeholder "A short description about the project.", a "Jar File" section with a "Choose File" button and the text "No file chosen", and a checkbox for "Agree to terms and conditions". A blue "Submit Form" button is located at the bottom of the form.



SmartSat™ New Asset Page

App Store

localhost:3000/asset/new

LOCKHEED MARTIN

Search Search

Explore View Profile Sign Out

New Asset

New

- Project
- Asset
- Group

Select Image

Asset name

Asset001

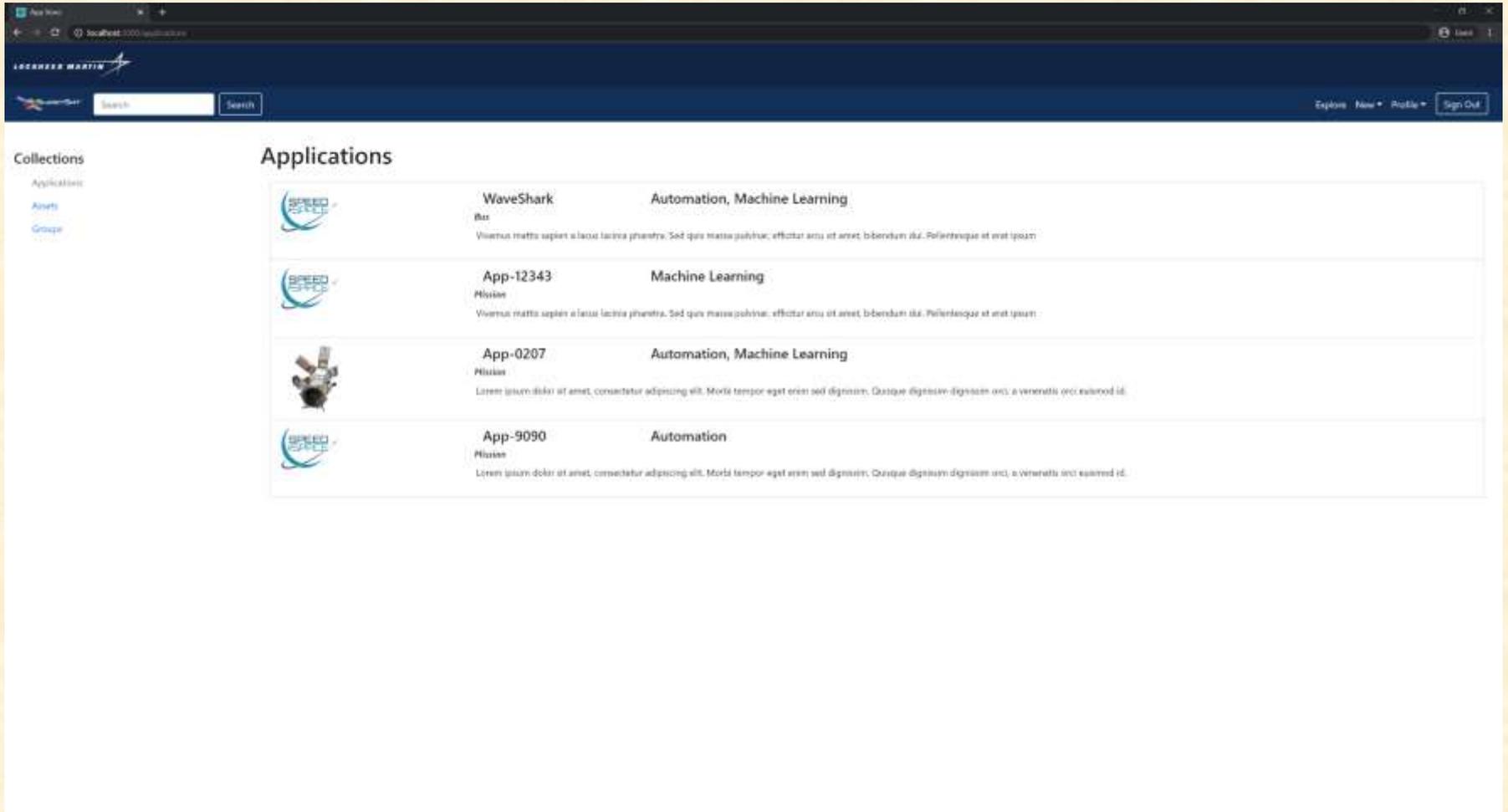
Description

Agree to terms and conditions

Submit form



SmartSat™ Collections - Apps Page



The screenshot displays the SmartSat™ Collections - Apps Page. The page features a dark blue header with the Lockheed Martin logo and a search bar. Below the header, there is a sidebar with 'Collections' and 'Applications' tabs. The main content area shows a list of applications under the 'Applications' tab. Each application entry includes a logo, a title, a category, and a brief description.

Application Name	Category	Description
WaveShark	Automation, Machine Learning	Vivamus matta sapien a laos lacina pharetra. Sed quis massa pulvinar, efficitur arcu et amet, lobortis id. Pellentesque et erat ipsum.
App-12343	Machine Learning	Vivamus matta sapien a laos lacina pharetra. Sed quis massa pulvinar, efficitur arcu et amet, lobortis id. Pellentesque et erat ipsum.
App-0207	Automation, Machine Learning	Lorem ipsum dolor sit amet, consectetur adipiscing elit. Morbi tempor eget enim sed dignissim. Quisque dignism dignism arcu, a venenatis occaecat id.
App-9090	Automation	Lorem ipsum dolor sit amet, consectetur adipiscing elit. Morbi tempor eget enim sed dignissim. Quisque dignism dignism arcu, a venenatis nisi euismod id.



SmartSat™ Collections - Assets Page



The screenshot displays the SmartSat Collections - Assets page. The page has a dark blue header with the Lockheed Martin logo and a search bar. Below the header, there is a sidebar with 'Collections' and a main content area titled 'Assets'. The 'Assets' section contains a table of asset information.

Asset ID	Asset Name	Version
Asset-0207	CFC-400 SmartSat Linux 2019.1	CFC-400 SmartSat Linux 2019.1
Asset-1212	CFC-400 SmartSat Linux 2019.1	CFC-400 SmartSat Linux 2019.1
Asset-0001	CFC-400 SmartSat Linux 2019.1	CFC-400 SmartSat Linux 2019.1
Asset-0333	CFC-400 SmartSat Linux 2019.1	CFC-400 SmartSat Linux 2019.1
Asset-0207	CFC-400 SmartSat Linux 2019.1	CFC-400 SmartSat Linux 2019.1
Asset-1212	CFC-400 SmartSat Linux 2019.1	CFC-400 SmartSat Linux 2019.1
Asset-0001	CFC-400 SmartSat Linux 2019.1	CFC-400 SmartSat Linux 2019.1

