IAS Team Requirement Document

Request Manager,
Authentication & Authorization Manager,
Platform Initializer

Team Members:

Ashutosh Gupta	[2021201085]
Aman Izardar	[2021201028]
Diksha Daryani	[2021201045]

Request Manager

Description

- This module is responsible for handling all the requests generated from outside of the platform and delegating it to the adequate microservice.
- This module acts as a single point of contact for all the outsiders.
- This module is also responsible for providing the UI to the users.

Functional Requirements

- Providing GUI to users to interact with platform services, enabling:

  App developer Uploading Application
  - Providing contract
  - Proving forms for Uploading application
  - Taking Scheduling details.

  Data Scientist Host AI models
  - Providing contract
  - Proving forms for Uploading model
  - Taking Scheduling details.

  Platform Configurator Manage Sensors
  - UI to add new sensor types
  - UI to Manage logs/view status.

  End User to consume different services provided by hosted applications.
  - UI to let end - user select application and sensor instances
  - Letting end - user access application end-points

- Managing users:
  - Letting users Login/ logout.
  - Authenticating User Before Each Request

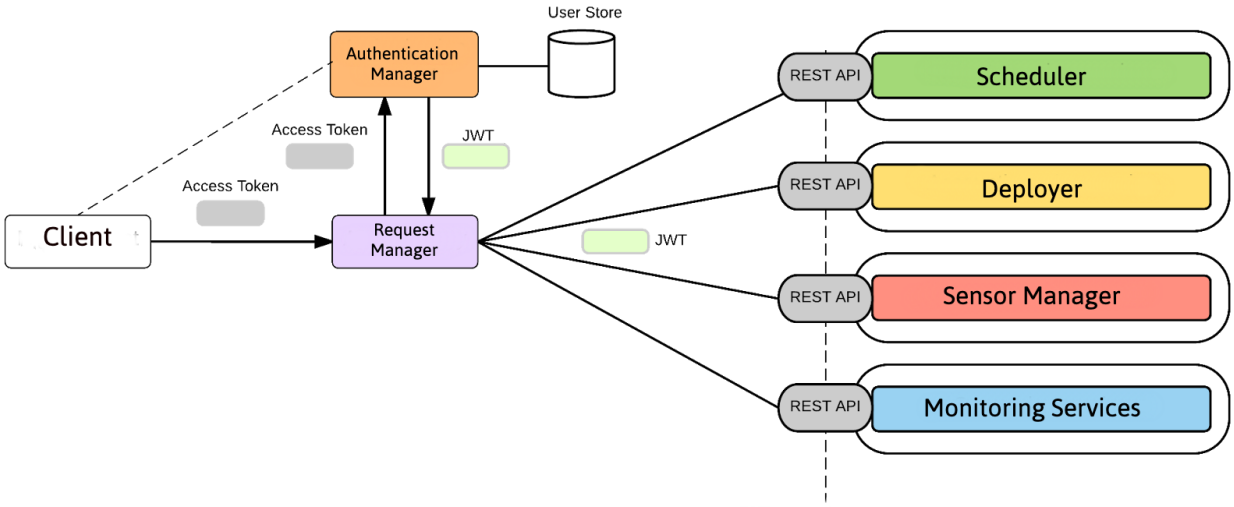
- Making appropriate calls to end points to:
  - Perform authentication / authorization through Authentication & authorization Manager.
  - Forward scheduling details to Scheduler Module.
  - Add app / model and their contracts to Repository
  - Perform contract validation through Validation Module
  - Access log records from Log Manager.
  - Access system status from Health Monitor.

- Forward requests for adding new sensor types to Sensor Manager.
- Forward sensor initialization request to Sensor Manager.
- Get list of all currently deployed apps.
- Forward end-user application and sensor initialization request to load manager for further delegation to the deployed node.
- Let end - user access end-points of instances of all deployed applications,

Non-Functional Requirements

- Preventing unauthenticated requests to get into the system.
- Preventing unauthorized access to services.
- Displaying proper feedback to erroneous user inputs
- Providing User friendly and easy to understand UI.

Design Overview:



Authentication & Authorization Manager

Description

- This module is responsible for authenticating and authorizing the requests. For that it,
  - Maintains the user databases
  - Generate Tokens for logged in users

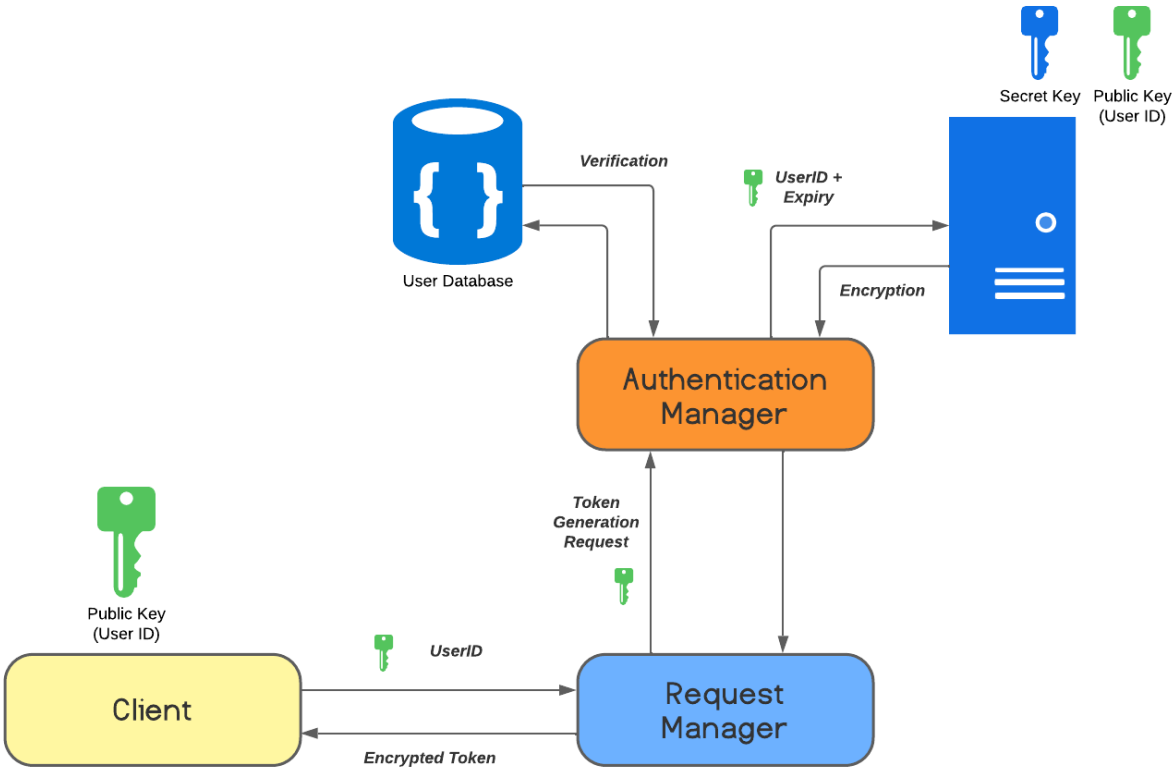
- Verifies Token on requests.

Functional Requirements

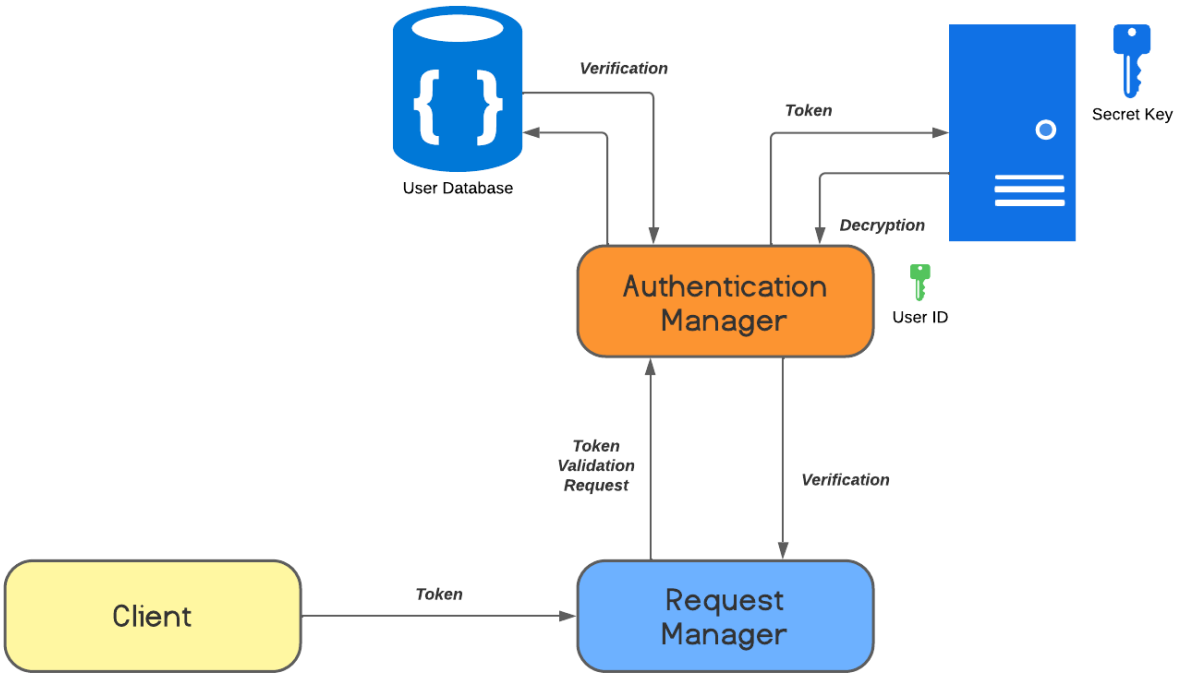
- Creating Database of each of the 4 user types:
  - End-User
  - App Developer
  - Data Scientist
  - Platform Configurator
- Providing end points for:
  - Adding new users
  - Validating Users
  - Token Verification

Design Overview:

- **Token Generation:**



- **Token Validation:**



Platform Initializer

Description

- This module is responsible for initializing all the proposed microservices up and running on a set of Host machines. It installs the prerequisites on the Host machines and sets the environment for modules deployment, and configures all the different modules.

Module Specific requirements:

- Requires to be configured according to the type of Host, number and type of services .

Functional Requirements

- Initialize a number of Virtual machines / containers on the Host as configured by the configurator.
- Sets up the environment on VMs for module deployment.
- Deploys and starts all the services.

Design Overview: