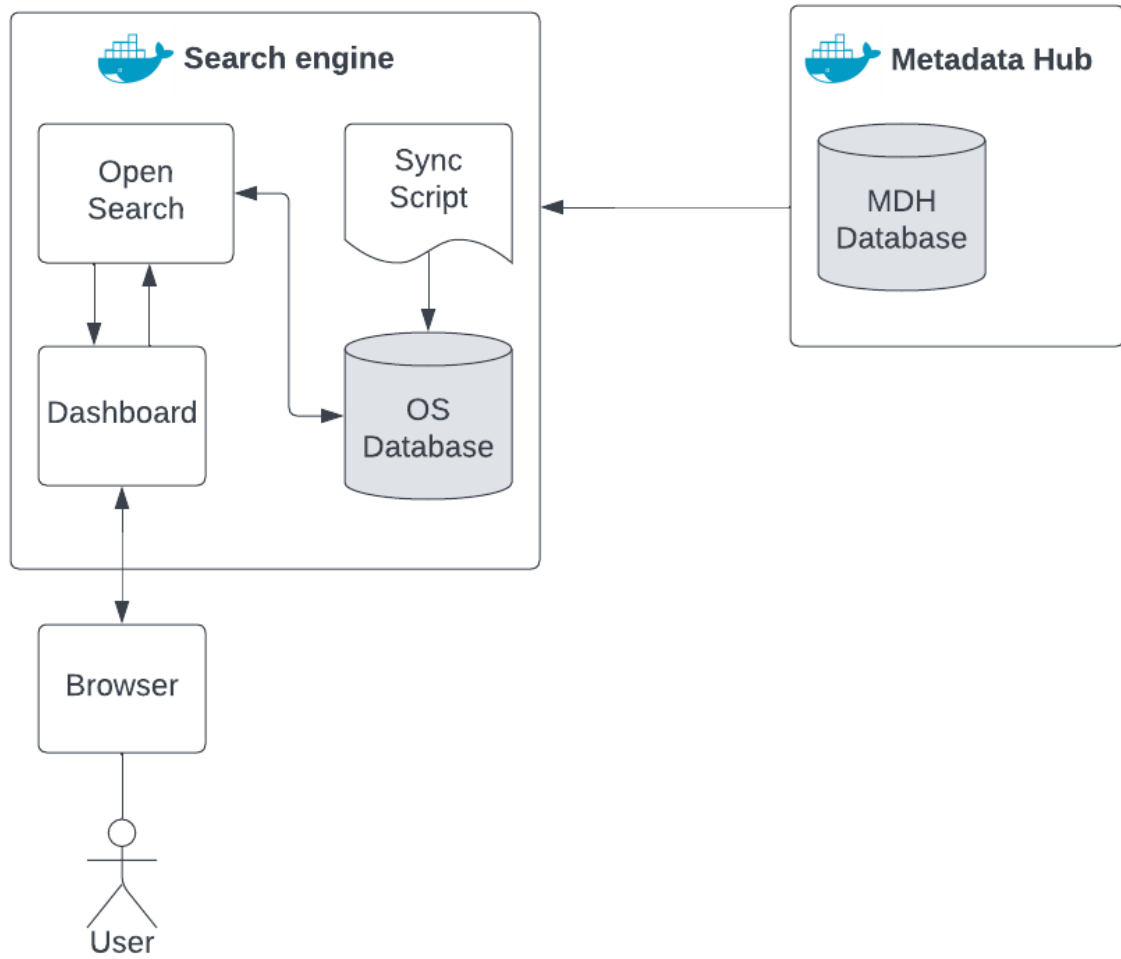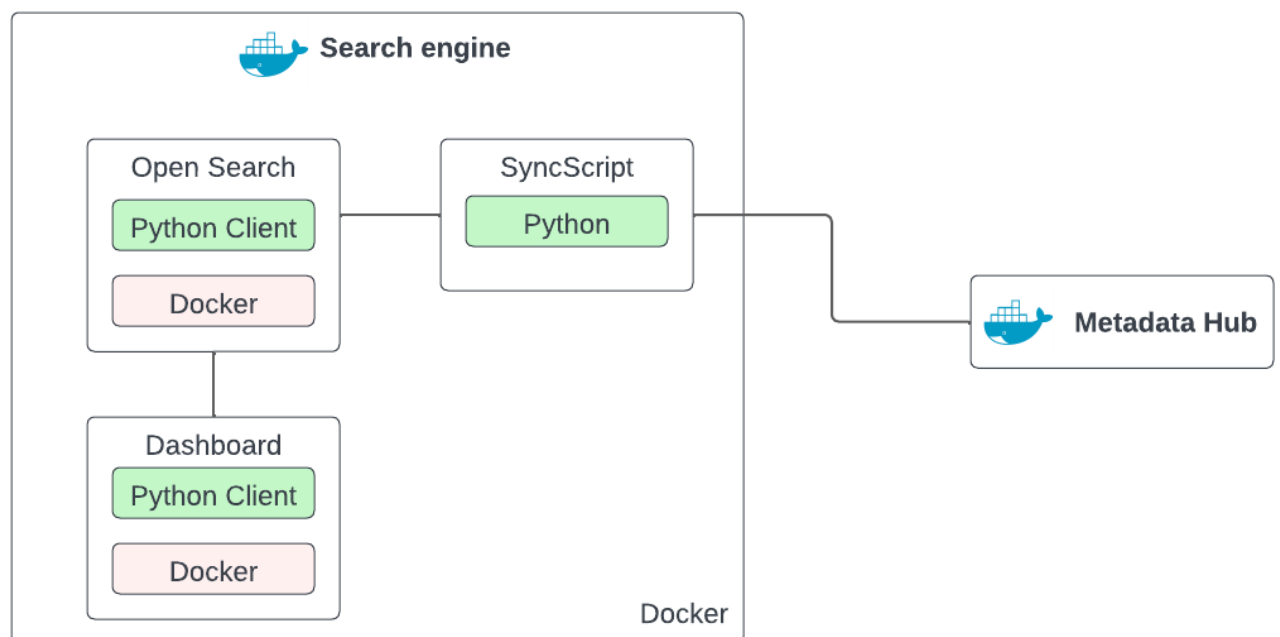# OPEN SEARCH

META DATA HUB

SOFTWARE ARICHTECTURE

AMOS 2023

Runtime Components

Code Components

Stack of Technology

<u>OpenSearch</u>

OpenSearch is an open standard that allows the integration of search functionality into websites and applications. It includes a range of search and analytics tools, including full-text search, data visualization, and machine learning capabilities. OpenSearch also includes security features, such as role-based access control and encryption of data at rest and in transit.

<u>Metadata Hub</u>

Contains With Metadata-Hub, it is possible to discover previously unknown information from files and make use of it. Explore, search, find, sort, filter and group files into individual file-sets.

<u>OpenSearch Dashboard</u>

OpenSearch Dashboard provides a visual interface for managing and monitoring OpenSearch clusters, configuring and mapping indexes, and creating and executing queries. It allows users to create, edit, and delete indexes, as well as manage security settings, data sources, and data pipelines.

<u>Python</u>

As the programming language for the server fleet management software since it's most accessible among all the programming languages available and has simplified syntax

<u>Docker</u>

A software platform that allows you to build, test, and deploy applications quickly.

An explanation of the diagrams and choices

Runtime Components

1. **Search Engine**
   - **Open Search**
     - Search Engine **and** Database. It is responsible for loading data from generated output flies and index it according to our indices naming scheme. Each index corresponds to one file meaning one specific.
   - **Open Search Dashboard**
     - OpenSearch Dashboards represent the front-end for OpenSearch. One you have created a few visualizations you can put them on a dashboard for better overview.
   - **Open Search Database**
     - OpenSearch includes a own Database in which we will store the necessary Data from the Metadata Hub
   - **Sync Script**
     - Loads data from MDH Database and inserts them to the local OS Database - also keeps them up-to-date regularly.
2. **Metadata Hub**
   - **MDH Database**
     - The MDH Database is a Database provided by GRAU DATA and is part of the Metadata Hub

Code Components

   - **Search Engine**
     - This is our overall application. We will create a docker container for this app.
   - **OpenSearch**
     - We are installing and deploying a Docker container provided by OpenSearch. This package includes the search engine itself and a database. We will adjust where necessary.
   - **OpenSearch Dashboard**
     - We are installing and deploying a Docker container provided by OpenSearch for the OpenSearch Dashboard. We are going create boards consisting of visualizations that it will be adjusted to our use case
   - **SyncScript**
     - We will create a synchronization script with Python that allows us to automatically extract data from the MDH.