Share-VDE’s engines: the API Layers

**Search API**
A powerful and highly standardized API exposing Share-VDE’s search capabilities over the HTTP protocol.

It comes in two flavours:
- **GraphQL**, with a rich data dictionary and the flexibility to query and extract only the fields of interest.
- **RESTful**, returning data represented according to the HATEOAS standard.

**Knowledge Base**

**Curation API**
An advanced API offering **Prism curation** capabilities.

It takes advantage of the most modern features of **GraphQL** to establish a continuous informational dialogue between the server and the connected clients, so to offer them the most reactive experience possible.
The Technology Stack (back-end)

Search API

GraphQL { REST }

Java spring

Curation API

GraphQL { REST }

Java spring

Amazon Neptune

PostgreSQL

Apache Spark

elasticsearch

Solr

Apache CASSANDRA

Amazon SQS
The Technology Stack (front-end)
The Technology Stack (front-end architecture)
Share-VDE: Infrastructure

- Amazon EC2
- Amazon Relational Database Service (Amazon RDS)
- AWS Lambda
- Amazon Simple Queue Service (Amazon SQS)
- Amazon EMR
- Amazon Keyspaces (for Apache Cassandra)
Back end: High level component diagram
Summary of the technologies used

Front-end side:

- React for setting up the layout
- Redux for state management
- NextJS for routing and SSR
- Typescript for better debugging
- GraphQL for flexible back-end queries
- Flagsmith for toggling features
- Brotli for optimizing load speed
Summary of the technologies used

Back-end side (1/x):

Programming Languages & relevant framework

- Java (90%)
- Scala (10%)
- Hadoop MapReduce
- Apache Spark

Web API

- REST (read-only)
- GraphQL (read/write)
Summary of the technologies used

Back-end side (2/x):

Storage/Middleware

- PostgreSQL (Data Management)
- StarDog (RDF Management)
- Apache Solr (Search Services)

Test & Production Infrastructure

- AWS (EC2, EMR, Aurora, S3, EKS)
- Jenkins
- Docker
- TestContainers
- 10,000 automatic integration tests