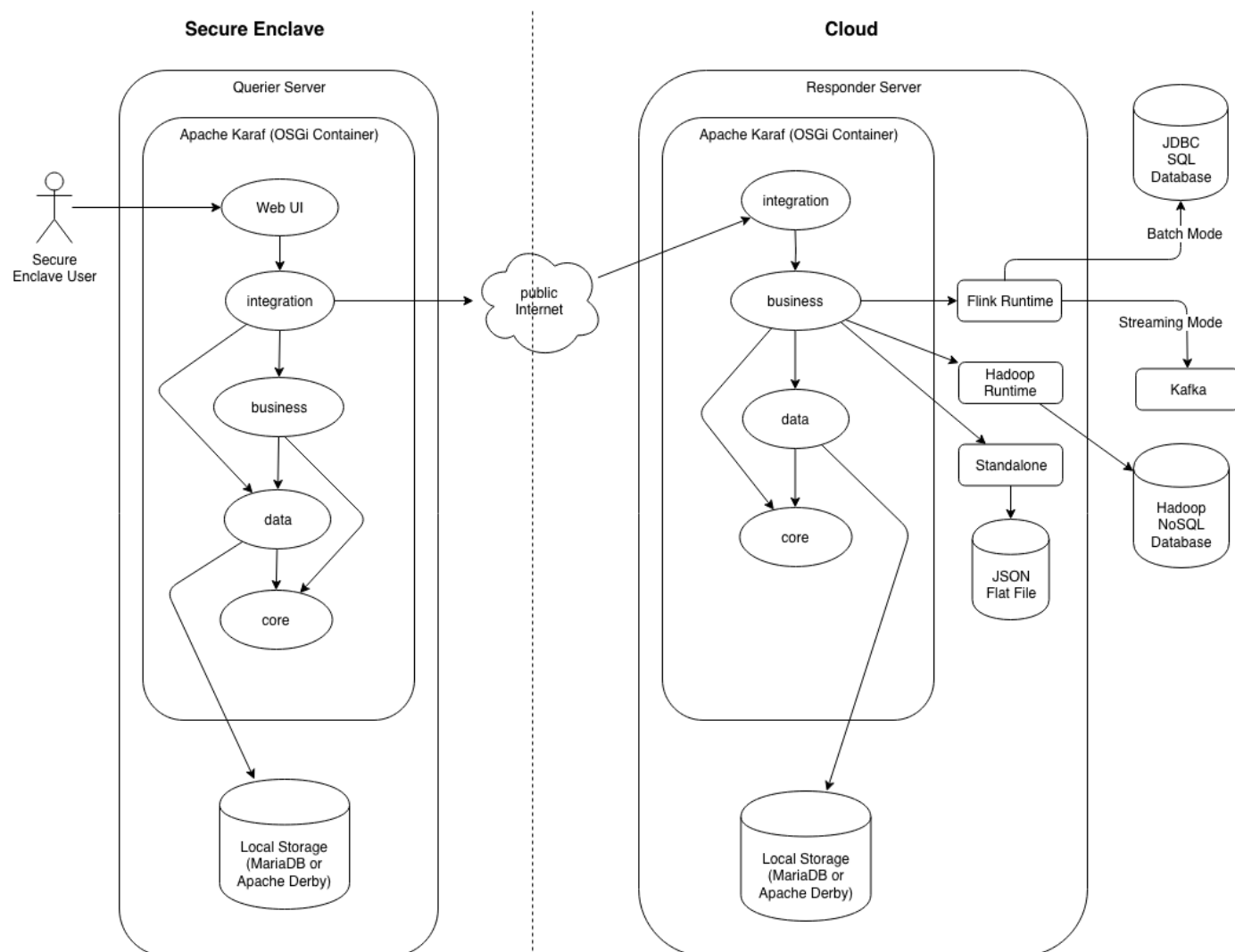# Architecture View

The following diagram depicts the high level architecture.

In both cases (Querier and Responder), if MariaDB is selected as the Local Storage, it can be hosted by an external server. In case Apache Derby is used, the database engine would run embedded in the Karaf process.

Technology Stack

Technology	Description	Used By	Version
Apache Karaf	OSGi Container, hosts rest services and Web User Interface components.	• Querier • Responder	4.2.0
Oracle Java Platform, Standard Edition	Java Runtime and SDK.	• Querier • Responder • Flink • Hadoop • Apache Derby	8
Apache Camel	Integration and Orchestration Framework	• Querier integration module • Responder integration module	2.21.1

OSGi	General-purpose, secure, and managed Java framework that supports the deployment of extensible applications. In particular, we use the following OSGi specifications: • Declarative Services Specification • Http Service Specification • Configuration Admin Service Specification • JPA Service Specification • Blueprint Container Specification	• Querier • Responder	Release 6
Apache Derby	(Optional) Embedded Java Relational Database Engine.	• Querier • Responder	10.13.1.1
MariaDB	(Optional) Relational Database Engine.	• Querier • Responder	10.2.15-MariaDB
Flink	Apache Flink is a framework and distributed processing engine for stateful computations over unbounded and bounded data streams. Flink has been designed to run in all common cluster environments, perform computations at in-memory speed and at any scale.	• Responder	1.7.1
LiquiBase	Database maintenance, re-factoring, and migration library.	• Querier • Responder	3.6.1
Hadoop	Collection of open-source software utilities that facilitate using a network of many computers to solve problems involving massive amounts of data and computation.	• Responder	3.0.0
Hibernate ORM	Object/Relational Mapping (ORM) framework, Hibernate is concerned with data persistence as it applies to relational databases (via JDBC).	• Querier • Responder	5.2.9.Final
jna-gmp	A Java JNA wrapper around the GNU Multiple Precision Arithmetic Library.	• Querier • Responder	2.1.0