ARCHITECTURE DOCUMENT

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INTRODUCTION

Any software needs the architectural design to represents the design of software. IEEE defines architectural design as “the process of defining a collection of hardware and software components and their interfaces to establish the framework for the development of a computer system.” The software that is built for computer-based systems can exhibit one of these many architectures.

Each style will describe a system category that consists of :

• A set of components (eg: a database, computational modules) that will perform a function required by the system.

• The set of connectors will help in coordination, communication, and cooperation between the components.

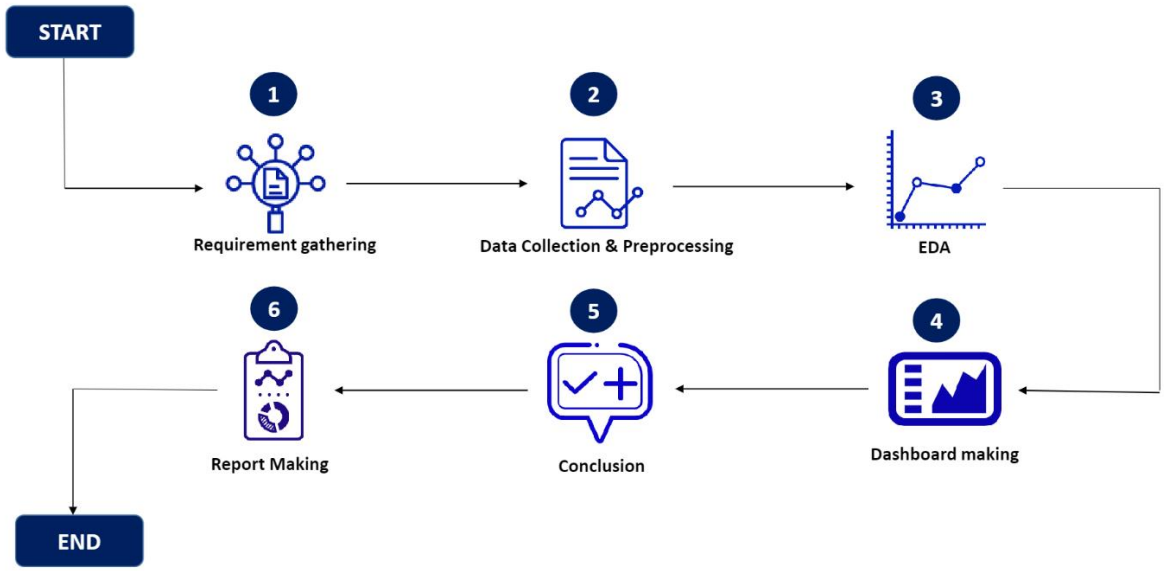
• Conditions that how components can be integrated to form the system.

• Semantic models that help the designer to understand the overall properties of the system.

SCOPE

Architecture Design Document (ADD) is an architecture design process that follows a step-by-step refinement process. The process can be used for designing data structures, required software architecture, source code and ultimately, performance algorithms. Overall, the design principles may be defined during requirement analysis and then refined during architectural design work.

PROJECT FLOW



Requirement Gathering : In this we understand the problem statement where and gather various Resources which are required for the development of the project. Requirement Gathering is the initial stage where data understanding also take place.

Data Collection & Preprocessing: Data is collected and whenever we see the data it is in raw format, hence it is necessary to be processed and to be cleaned. In this process Data Cleaning and pre-processing takes place.

Exploratory Data Analysis (EDA): Here we gather insights from the data. Exploratory Data Analysis is quite self sufficient where we explore the data to gain insights from it.

Dashboard making: We use different tools like Power BI and Tableau to make dashboards that can be used for business decisions.

Report Making: Documenting the project is necessary. In this step we document the finding of the project**.**

TABLEAU

A tableau, a tool use for complex visualization and simplification of complex data. It was designed to help the user to create visuals and graphics without the help of any programmer or any prior knowledge of programming.

Tableau was designed with the aim to get a business software that was amazingly responsive and easy. It is an intelligent platform by which business is made to move faster and easy to comprehend by clients and consumers. It is a highly scalable easily deployable and efficient business framework.

TABLEAU ARCHITECTURE

Tableau has a highly scalable, n-tier client-server architecture that serves mobile clients, web clients and desktop-installed software. Tableau Server architecture supports fast and flexible deployments.

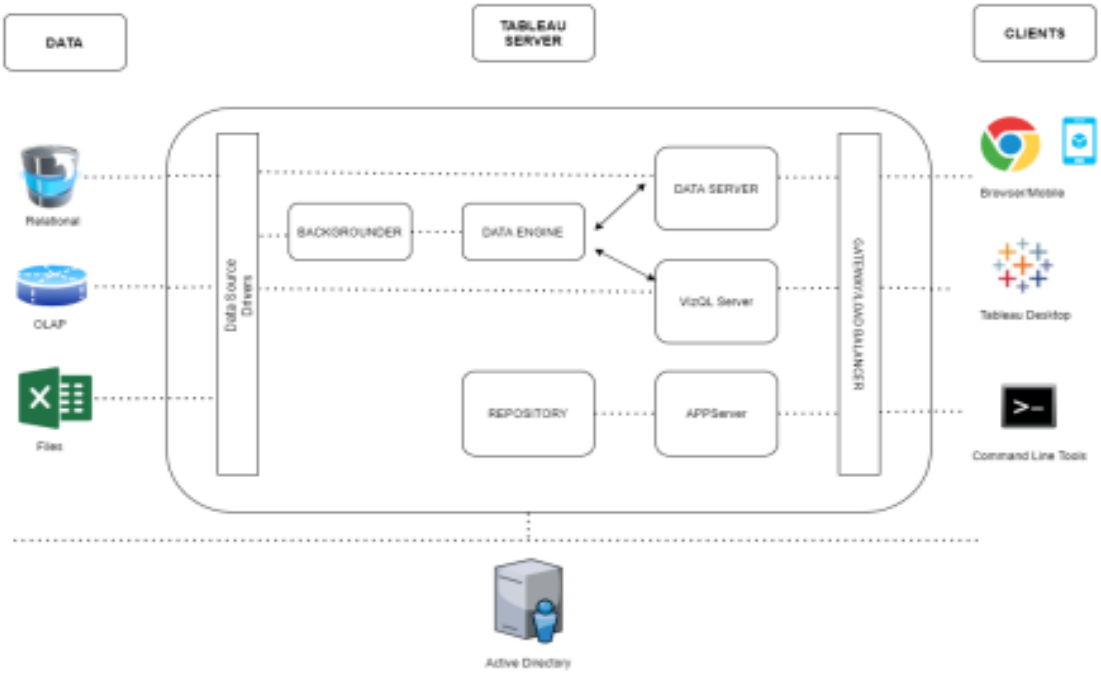


Tableau Server is internally managed by the multiple server processes.

1. Gateway/Load Balancer

It acts as an Entry gate to the Tableau Server and also balances the load to the Server if multiple Processes are configured.

2) Application Server:-

Application Server processes (wgserver.exe) handle browsing and permissions for the Tableau Server web and mobile interfaces. When a user opens a view in a client device, that user starts a session on Tableau Server. This means that an Application Server thread starts and checks the permissions for that user and that view.

3) Repository:-

Tableau Server Repository is a PostgreSQL database that stores server data. This data includes information about Tableau Server users, groups and group assignments, permissions, projects, data sources, and extract metadata and refresh information.

4) VIZQL Server:-

Once a view is opened, the client sends a request to the VizQL process (vizqlserver.exe). The VizQL process then sends queries directly to the data source, returning a result set that is rendered as images and presented to the user. Each VizQL Server has its own cache that can be shared across multiple users

5) Data Engine:-

It Stores data extracts and answers queries.

6) Backgrounder:-

The backgrounder Executes server tasks which includes refreshes scheduled extracts, tasks initiated from tabcmd and manages other background tasks.

7) Data Server:-

Data Server Manages connections to Tableau Server data sources

It also maintains metadata from Tableau Desktop, such as calculations, definitions, and groups.

8) Tableau Communication Flow

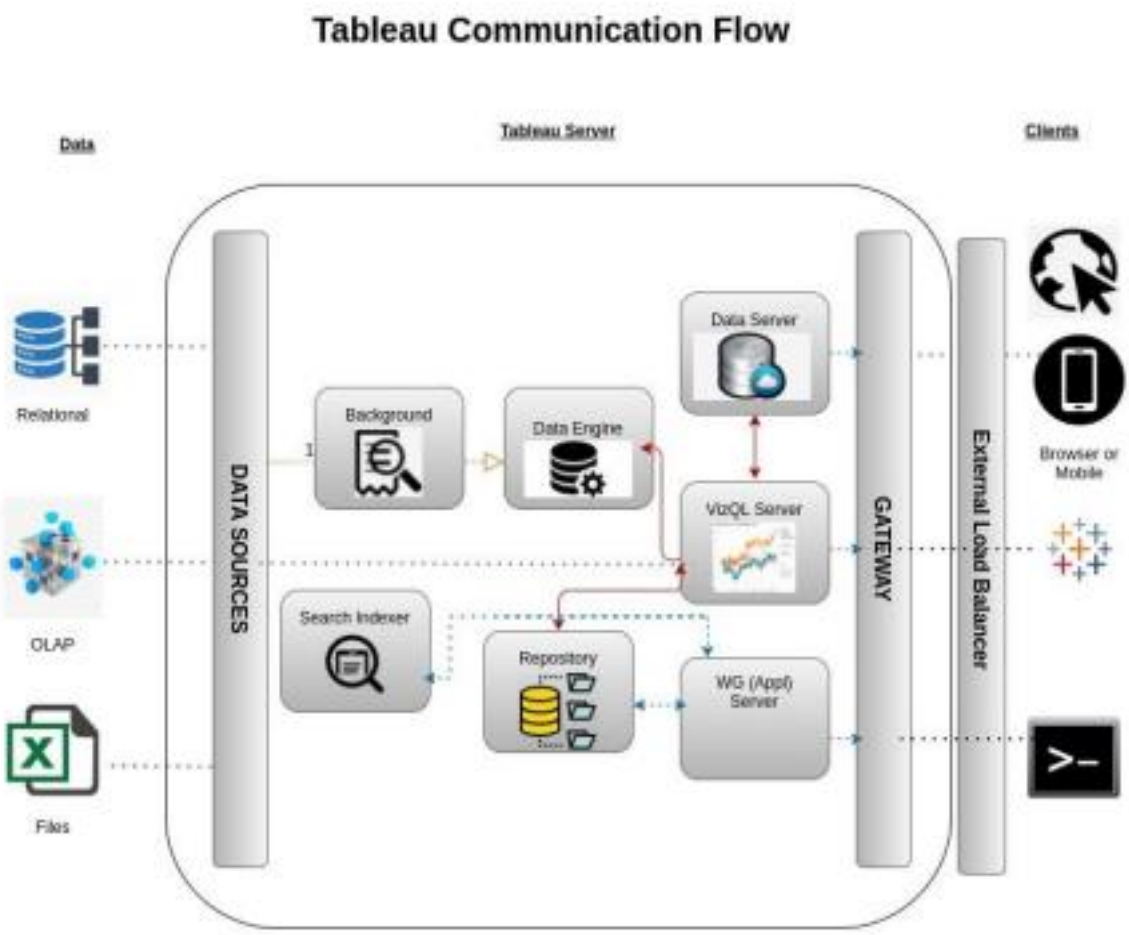


TABLEAU ONLINE

Tableau's analytics platform offers three different deployment options depending on your environment and needs. The below graphic shows each option at a glance:

Tableau Online Get up and running quickly with no hardware required. Tableau Online is fully hosted by Tableau so all upgrades and maintenance are automatically managed for you. 2. Tableau Server deployed on public cloud: Leverage the flexibility and scalability of cloud infrastructure without giving up control. Deploy to Amazon Web Services, Google Cloud Platform, or Microsoft Azure infrastructure to quickly get started with Tableau Server (on your choice of Windows or Linux). Bring your own license or purchase on your preferred marketplace. 3. Tableau Server deployed on-premises: Manage and scale your own hardware and software (whether Windows or Linux) as needed. Customize your deployment as you see fit.