Architecture Design

Heart Disease Diagnostic Analysis

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Contents

▪ INTRODUCTION

1. What is an Architecture Design Document?

Any software needs the architectural design to represent the design of the 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 (ex: 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 help the designer to understand the overall properties of the system.

2. What is Scope?

Architecture Design Document (ADD) is an architectural 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.

▪ Architecture
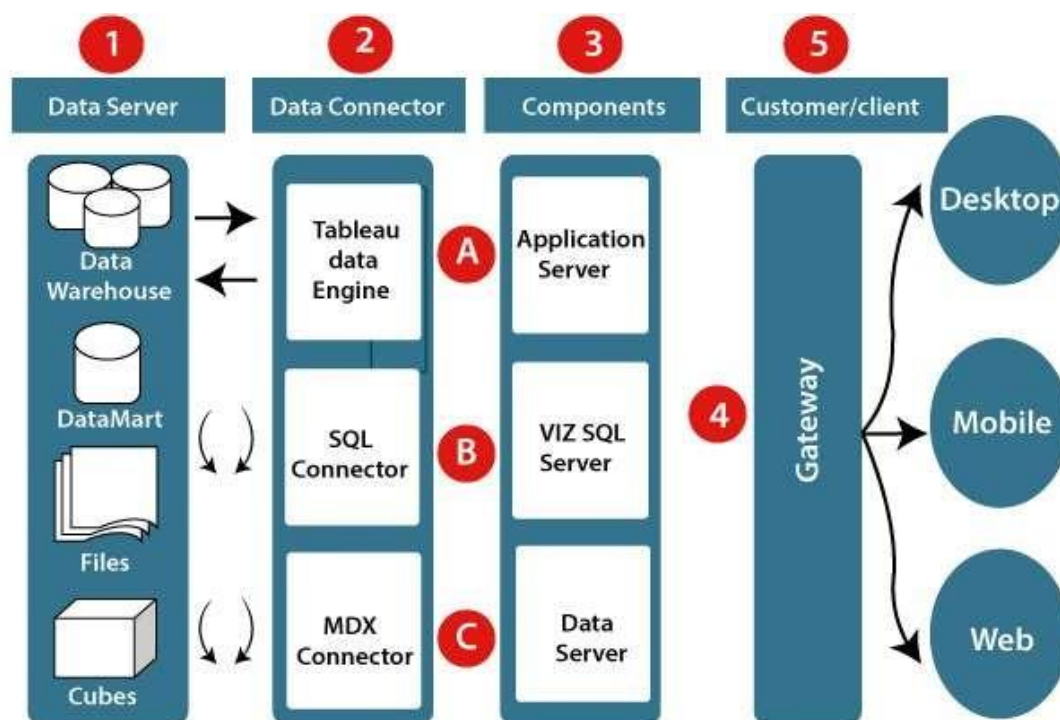
.1 Tableau Server Architecture

Tableau Server is designed to connect many data tiers. It can connect clients from Mobile, Web, and Desktop. Tableau Desktop is a powerful data visualization tool. It is very secure and highly available.

It can run on both the physical machines and virtual machines. It is a **multi-process**, **multi-user**, and **multi-threaded** system.

Providing such powerful features requires unique architecture.

Once the data is transformed and formatted, it is ready to use in making visualizations in a report. A report is a collection of visualizations like graphs, charts, tables, filters, and slicers.

The different layers used in Tableau server are given in the following architecture diagram: -

.2   Components of Tableau Server Architecture

Let's study about the different component of the Tableau architecture:

1.Data server: - The primary component of Tableau Architecture is the Data sources which can connect to it.

Tableau can connect with multiple data sources. It can blend the data from various data sources. It can connect to an **excel file, database**, and a **web application** at the same time. It can also make the relationship between different types of data sources.

2.Data connector: - The Data Connectors provide an interface to connect external data sources with the Tableau Data Server.

Tableau has in-built SQL/ODBC connector. This ODBC Connector can be connected with any databases without using their native connector. Tableau desktop has an option to select both extract and live data. On the uses basis, one can be easily switched between live and extracted data.

- **Real-time data or live connection**

- **Extracted or in-memory data**

3. **Components of Tableau server:** Different types of component of the Tableau server are:

o   Application server
o   VizQL server
o   Data server

4. **Gateway:** The gateway directed the requests from users to Tableau components. When the client sends a request, it is forwarded to the external load balancer for processing. The gateway works as a distributor of processes to different components. In case of absence of external load balancer, the gateway also works as a load balancer. For single server configuration, one gateway or primary server manages all the processes. For multiple server configurations, one physical system works as a primary server, and others are

used as worker servers. Only one machine is used as a primary server in Tableau Server environment.

5.Clients: The visualizations and dashboards in Tableau server can be edited and viewed using different clients. Clients are **a web browser, mobile applications**, and **Tableau Desktop**.

5. **Web Browser:** Web browsers like **Google Chrome, Safari**, and **Firefox** support the Tableau server. The visualization and contents in the dashboard can be edited by using these web browsers.

6. **Mobile Application:** The dashboard from the server can be interactively visualized using mobile application and browser. It is used to edit and view the contents in the workbook.

7. **Tableau Desktop:** Tableau desktop is a business analytics tool. It is used to **view, create**, and **publish** the dashboard in Tableau server. Users can access the various data source and build visualization in Tableau desktop.

8. Deployment

1. Tableau Deployment

The deployment process lets you clone content from one stage in the pipeline to another, typically from development to test, and from test to production.

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

1. Tableau Online Get up and running quickly with no hardware required. Tableau Online is fully hostedby 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 infrastructurewithout 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 (whetherWindows or Linux) as needed. Customize your deployment as you see fit.

2 Publish datasets and reports from Tableau

Tableau Public is a free platform to explore, create and publicly share data visualizations online. With the largest repository of data visualizations in the world to learn from, Tableau Public makes developing data skills easy. Advance your career in analytics by learning from limitless data inspiration and creating an online portfolio of work.