Architecture Design

Analyzing Google App Store

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Contents

1. Introduction

1.1 What is Architecture design document?

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.

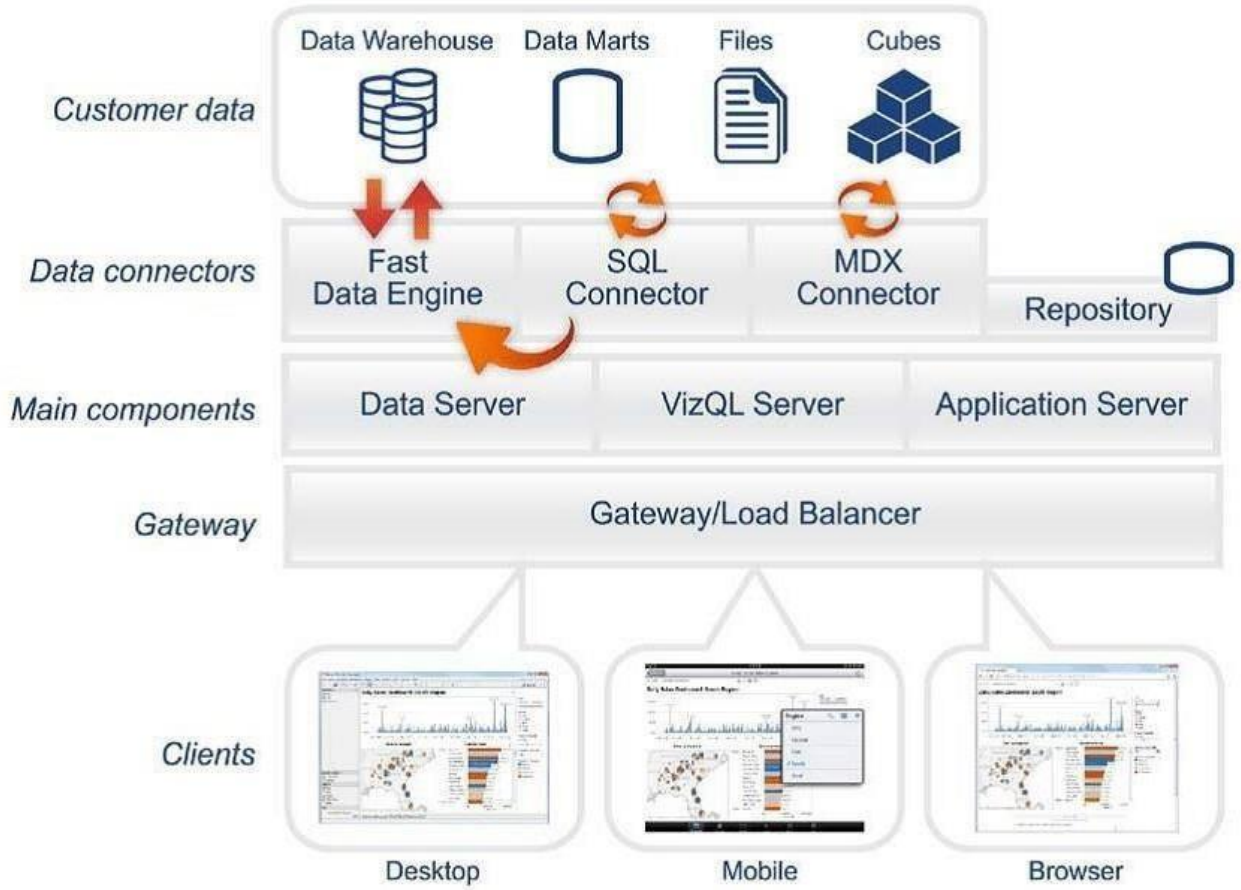
Each style will describe a system category that consists of:

- 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.

1.2 Scope

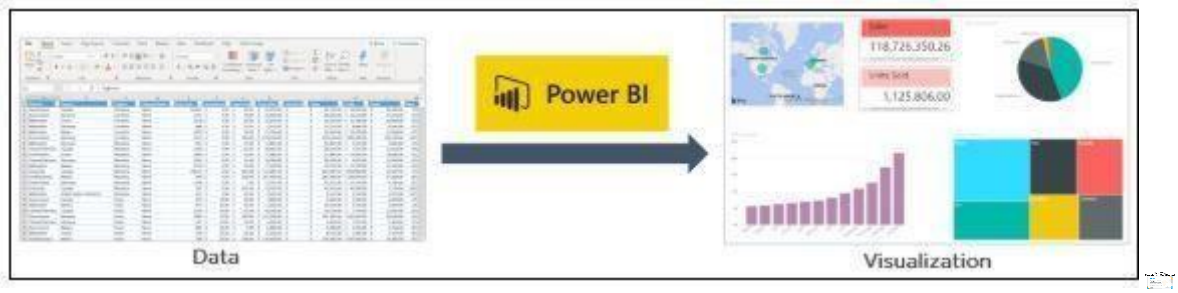
Architecture Design Document (ADD) is an architecture design process that follows a step-by-step refinement process. The process can be used for designing data structures, required software architecture, source code and ultimately, performance algorithms. Overall, the design principles may be defined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

2. Architecture

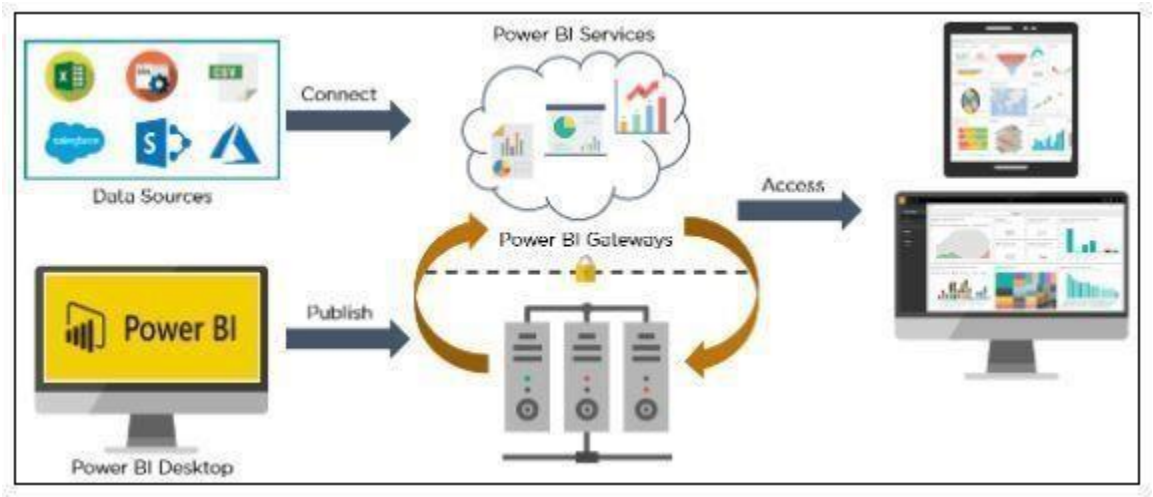


2.1 Power Bi Server Architecture:

Power BI is a business analytics service provided by Microsoft that lets you visualize your data and share insights. It converts data from different sources to build interactive dashboards and Business Intelligence reports.



Power BI Architecture



Power BI architecture is a service built on top of Azure. There are multiple data sources that Power BI can connect to. Power BI Desktop allows you to create reports and data visualizations on the dataset. Power BI gateway is connected to on-premise data sources to get continuous data for reporting and analytics. Power BI services refer to the cloud services that are used to publish Power BI reports and data visualizations. Using Power BI mobile apps, you can stay connected to their data from anywhere. Power BI apps are available for Windows, iOS, and Android platforms.

Power Bi Data Source:

An important component of Power BI is its vast range of data sources. You can import data from files in your system, cloud-based online data sources or connect directly to

live connections. If you import from data on-premise or online services there is a limit of 1 GB. Some commonly used data sources in Power BI are:

- Excel
- Text/CSV
- XML
- JSON

Power Bi Desktop:

Power BI Desktop is a client-side tool known as a companion development and authoring tool.

This desktop-based software is loaded with tools and functionalities to *connect to data sources, transform data, data modelling and creating reports.*
You can download and install Power BI Desktop in your system for free. Using Power BI Desktop features, one can do *data cleansing, create business metrics and data models, define the relationship between data, define hierarchies, create visuals and publish reports.*

Power BI Service

Power BI Service is a web-based platform from where you can *share reports made on Power BI Desktop, collaborate with other users, and create dashboards*. It is available in three versions:

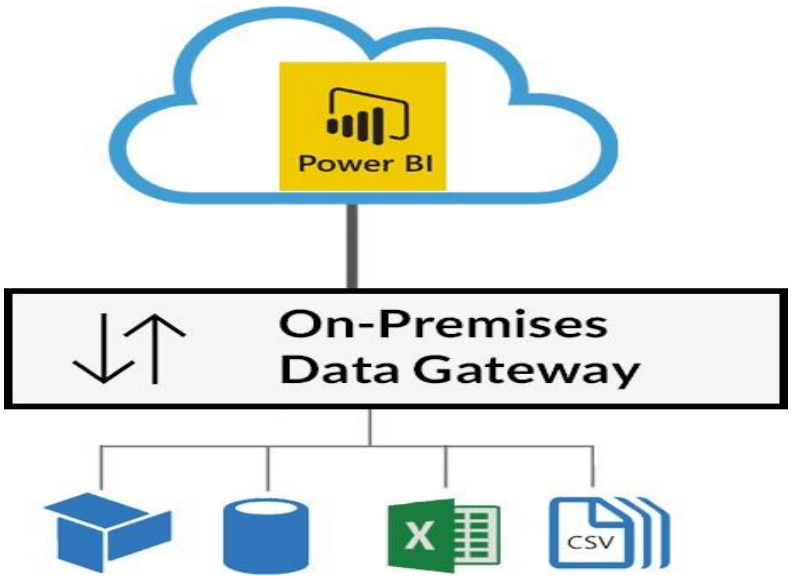
- Free version
- Pro version
- Premium version

Power BI Report Server

The Power BI Report Server is similar to the Power BI Service. The only difference between these two is that Power BI Report Server is an on-premise platform. It is used by organizations who do not want to publish their reports on the cloud and are concerned about the security of their data.

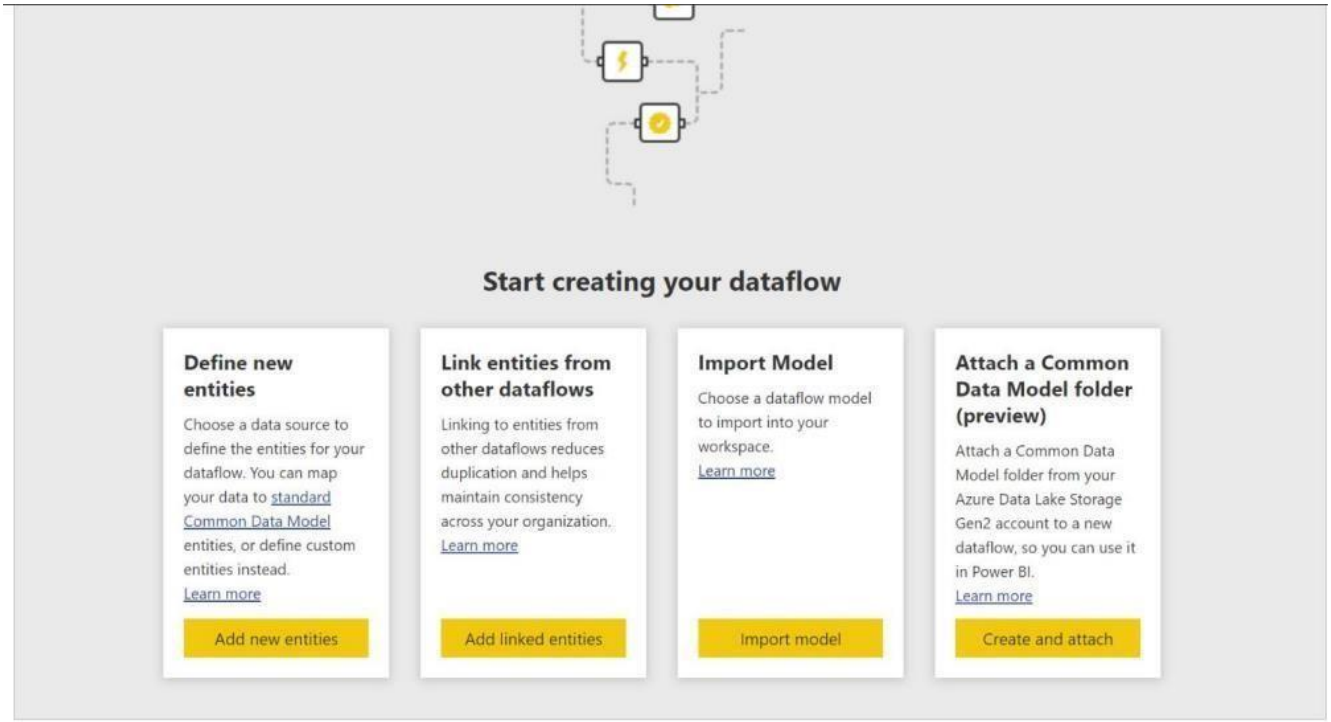
Power BI Gateway

This component is used to connect and access on-premise data in secured networks. Power BI Gateways are generally used in organizations where data is kept in security and watch. Gateways help to extract out such data through secure channels to Power BI platforms for analysis and reporting.

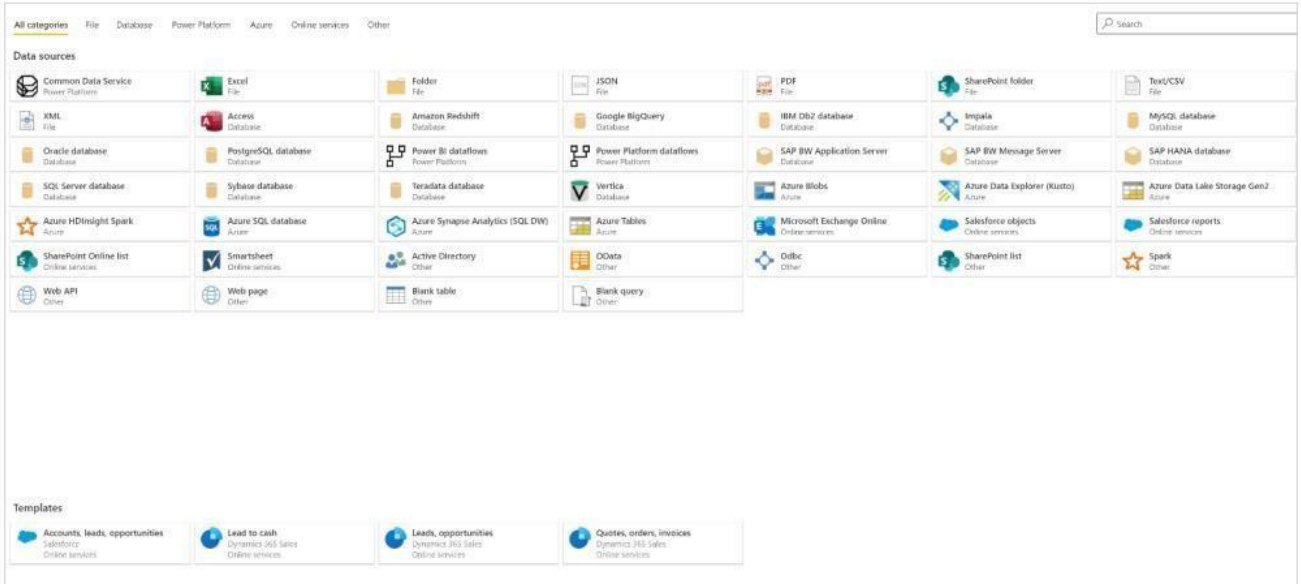


2.2 Power Bi Communication flow:

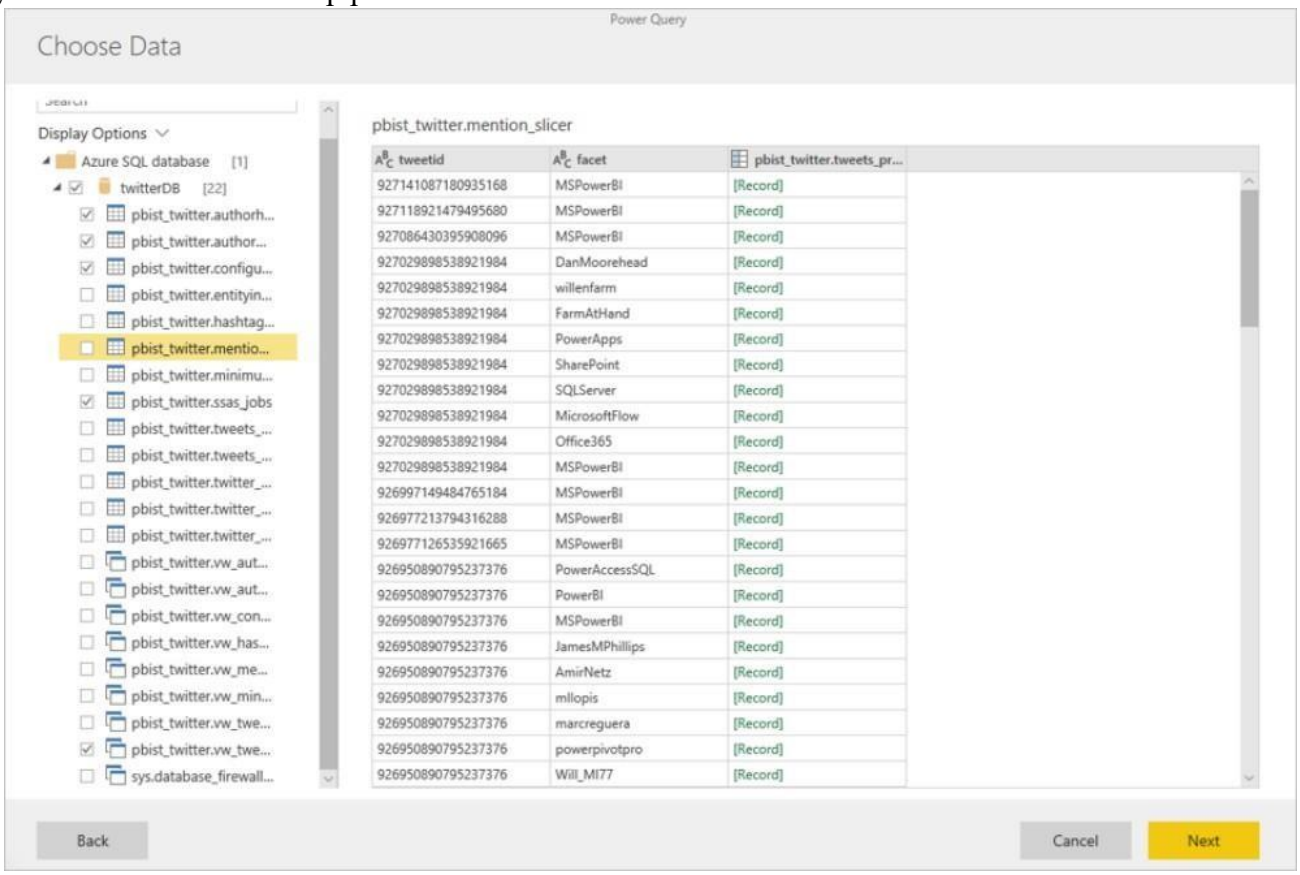
A dataflow is a collection of tables that are created and managed in workspaces in the Power BI service. A table is a set of columns that are used to store data, much like a table within a database. You can add and edit tables in your dataflow, as well as manage data refresh schedules, directly from the workspace in which your dataflow was created. To create a dataflow, launch the Power BI service in a browser then select a workspace (dataflows are not available in my-workspace in the Power BI service) from the nav pane on the left, as shown in the following screen. You can also create a new workspace in which to create your new dataflow



Using the Define new tables option lets you define a new table and connect to a new data source



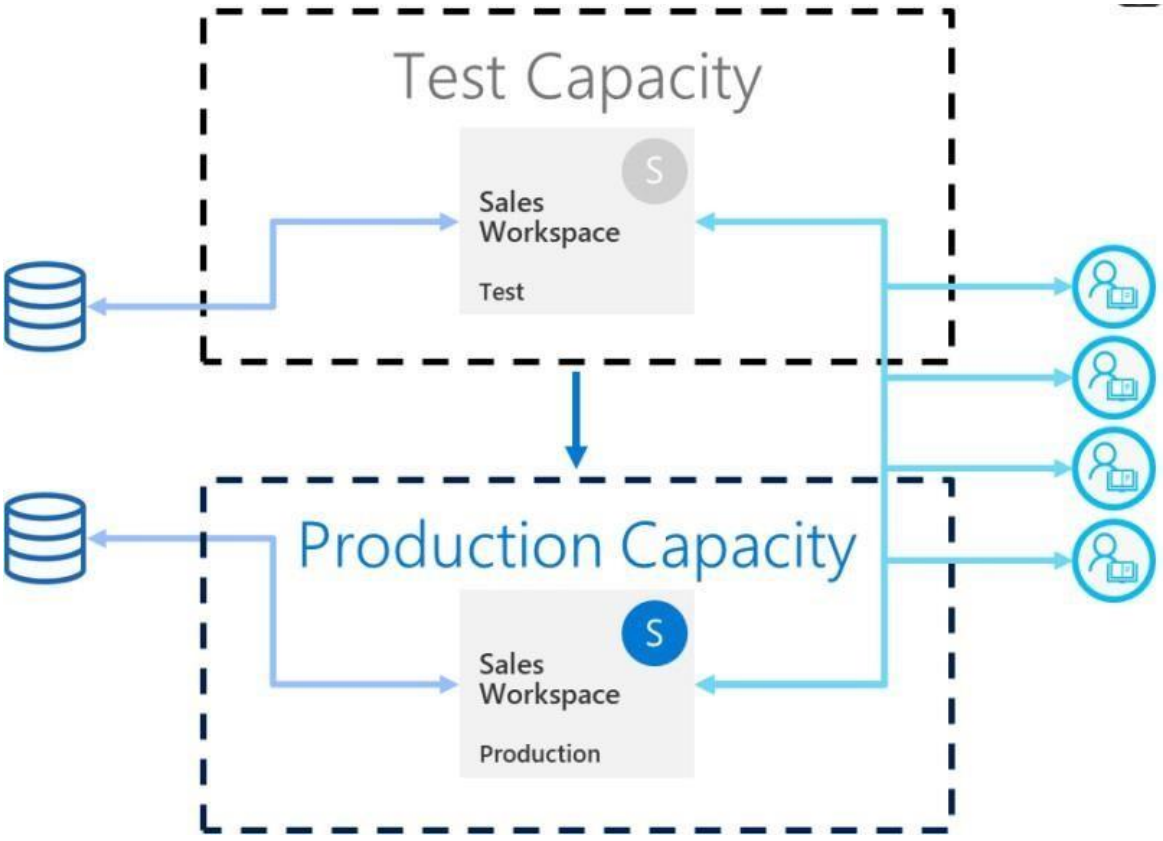
Once connected, you can select which data to use for your table. When you choose data and a source, Power BI reconnects to the data source to keep the data in your dataflow refreshed, at the frequency you select later in the setup process.



3. Deployment

3.1 Power BI Deployment options

Ideally, a workspace should contain a complete view of one aspect (such as department, business unit, project, or vertical) in your organization. This makes it easier to manage permissions for different users and allows content releases for the entire workspace to be controlled according to a planned schedule. A deployment pipeline is a Power BI object, with its own permissions. In addition, the pipeline contains workspaces, that have their own permissions. A production database should always be stable and available. It's better not to overload it with queries generated by BI creators for their development or test datasets. Build separate databases for development and testing. This helps protect production data and doesn't overload the development database with the entire volume of production data, which can slow down things.



Power BI can be deployed in hybrid mode in three different options.