

Architecture Design

Google App Store Dataset Analytics

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Contents

1.	Introduction.....	04
	What is Architecture Design Document?	04
	Scope	04
2.	Architecture.....	05
	Power BI Server Architecture	05
	Power BI Communication Flow	08
3.	Deployment	10
	Power BI Deployment Options	10

1. Introduction

What is Architecture design document?

Any software needs the architectural design to represent 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.

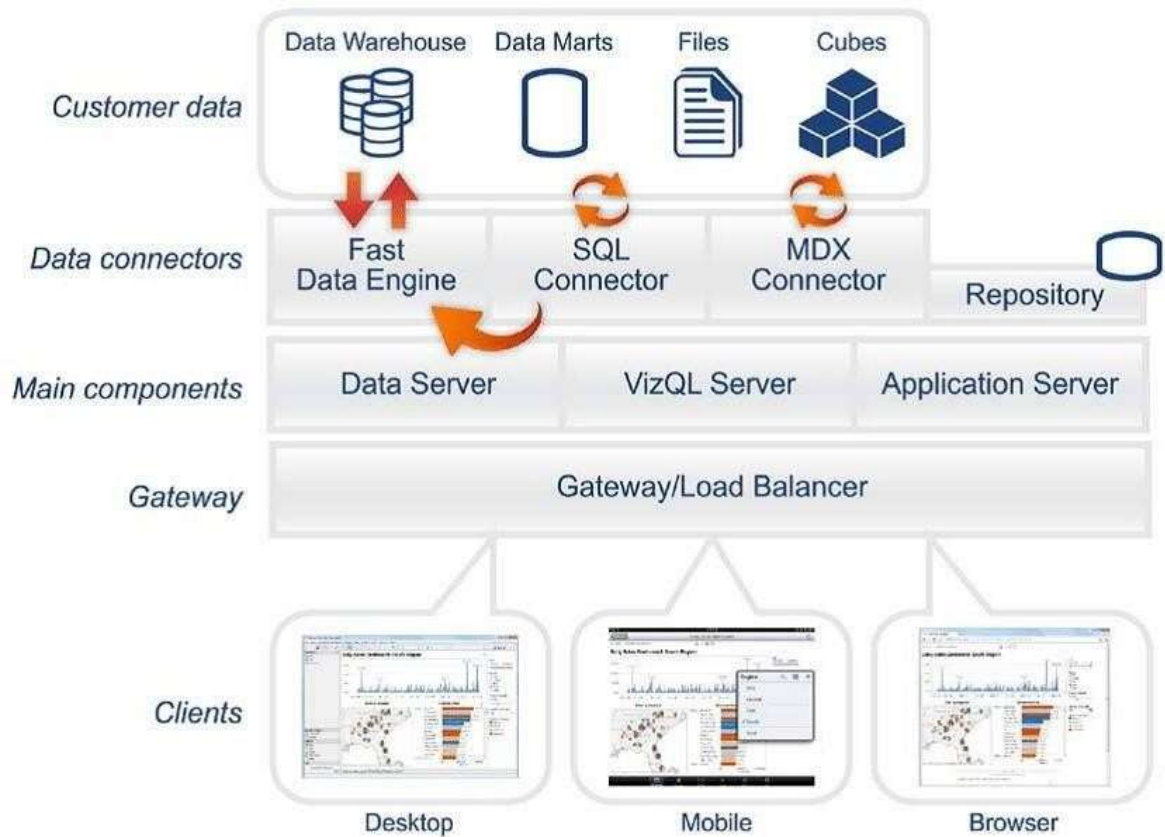
Each style will describe a system category that consists of :

- 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

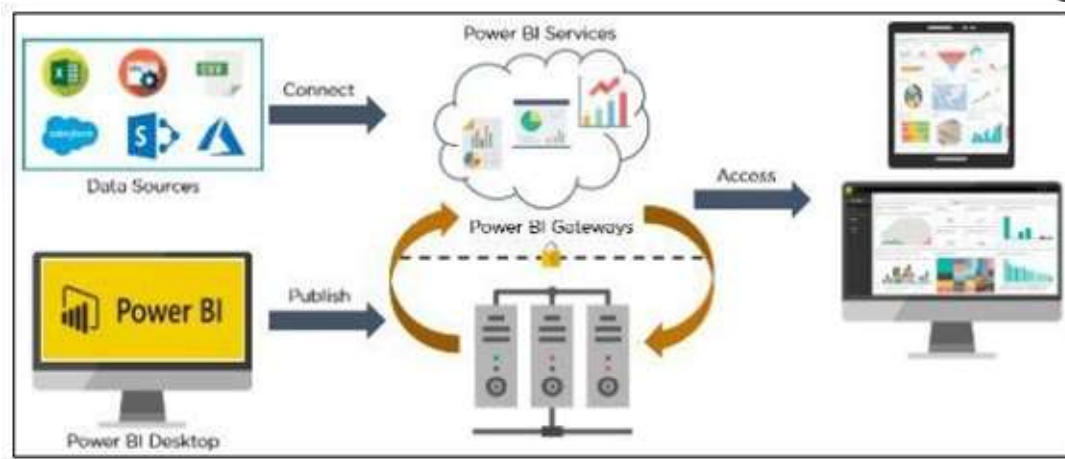
Architecture Design Document (ADD) is an architecture design process that follows a step-by-step refinement process. The process can be used for designing data structures, required software architecture, source code and ultimately, performance algorithms. Overall, the design principles may be defined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

2. Architecture



2.1 Power BI server Architecture

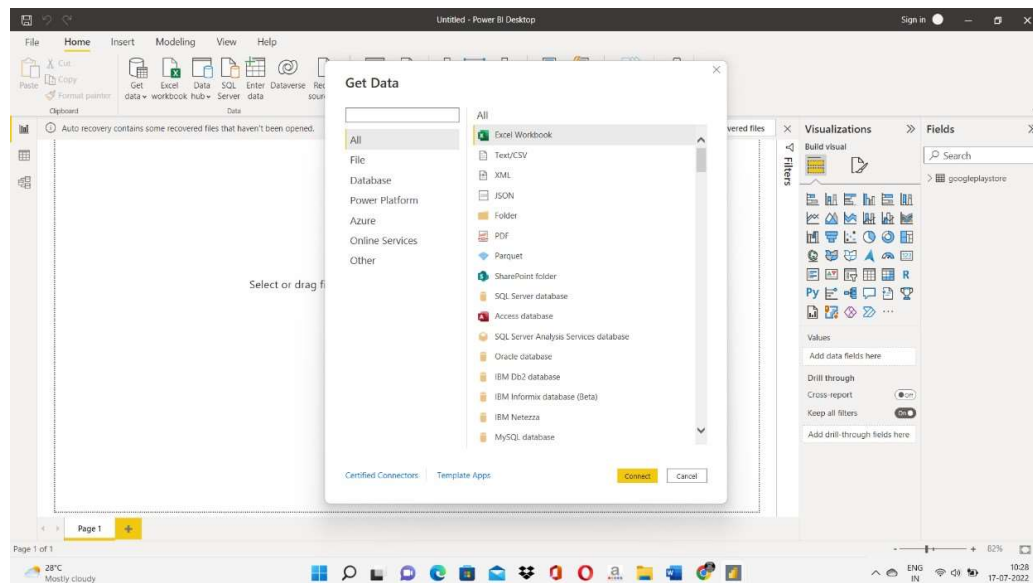
Power BI architecture is a service built on top of Azure. There are multiple data sources that Power BI can connect to. Power BI Desktop allows you to create reports and data visualizations on the dataset. Power BI gateway is connected to on-premises data sources to get continuous data for reporting 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.

1. Power BI data source.

Power BI supports large range of data sources. You can click Get data and it shows you all the available data connections. It allows you to connect to different flat files, SQL database, and Azure cloud or even web platforms such as Facebook, Google Analytics, and Salesforce objects. It also includes ODBC connection to connect to other ODBC data sources.



2. Power BI desktop.

Power BI Desktop is a free application you install on your local computer that lets you connect to, transform, and visualize your data. With Power BI Desktop, you can connect to multiple different sources of data, and combine them (often called *modeling*) into a data model. This data model lets you build visuals, and collections of visuals you can share as reports, with other people inside your organization. Most users who work on business intelligence projects use Power BI Desktop to create reports, and then use the *Power BI service* to share their reports with others.

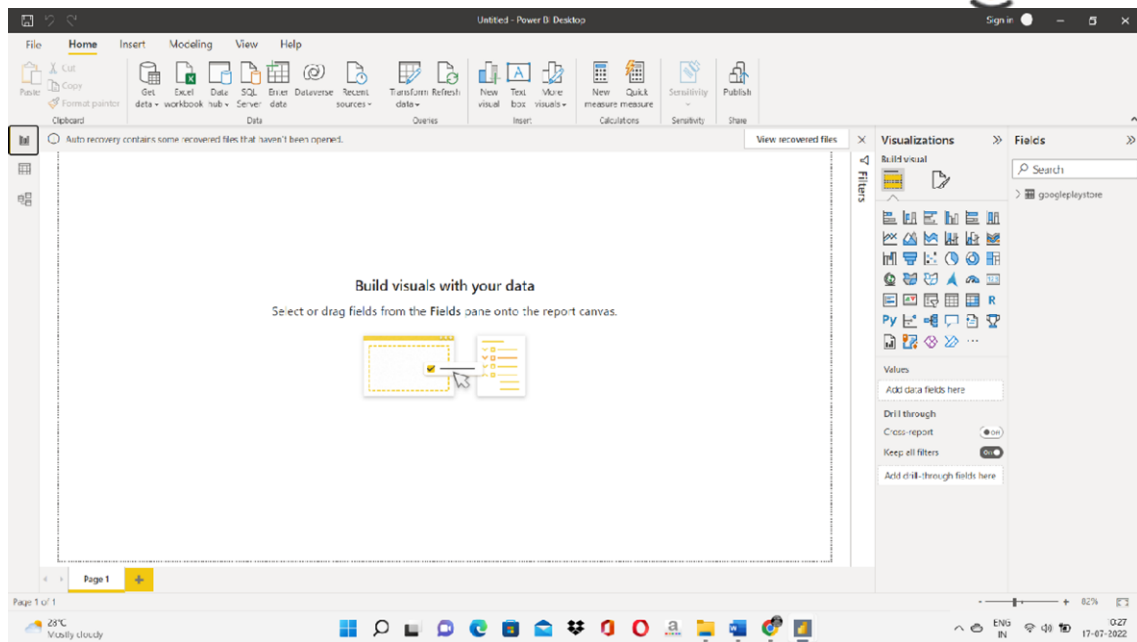
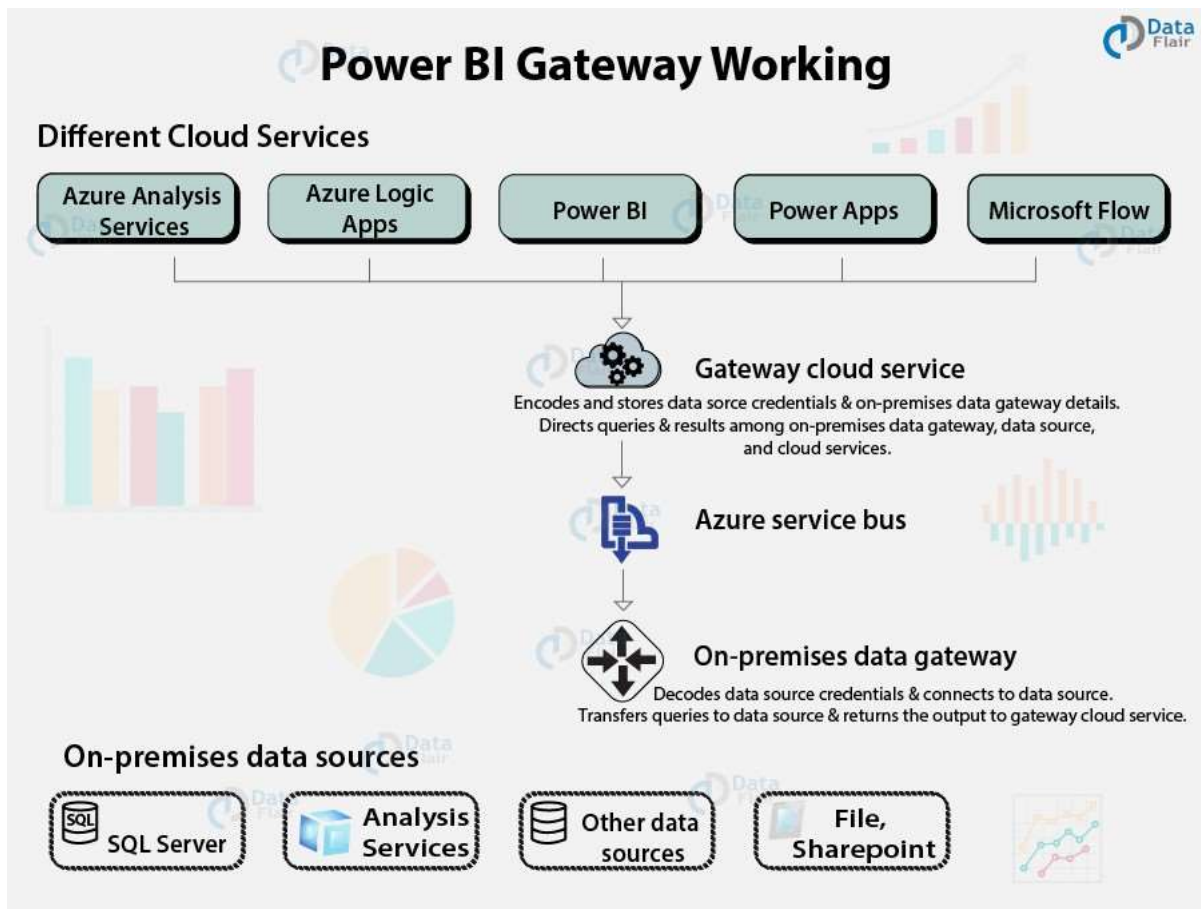


Table: googleplaystore (10,841 rows)

App	Category	Rating	Reviews	Size	Installs	Type	Price	Content Rating	Genres	Last Updated	Current Ver	Andro
Telegram - write on photos	ART_AND_DESIGN	4.4	295221	Varies with device	10000000	Free	0	Everyone	Art & Design	30 July 2018	Varies with device	Var
Beauty Camera - Selfie Camera	BEAUTY	4	113715	Varies with device	10000000	Free	0	Everyone	Beauty	03 August 2017	Varies with device	Var
Wikipedia	BOOKS_AND_REFERENCE	4.4	577550	Varies with device	10000000	Free	0	Everyone	Books & Reference	02 August 2018	Varies with device	Var
Dictionary - Merriam-Webster	BOOKS_AND_REFERENCE	4.5	454060	Varies with device	10000000	Free	0	Everyone	Books & Reference	18 May 2018	Varies with device	Var
FBReader: Favorite Book Reader	BOOKS_AND_REFERENCE	4.5	201130	Varies with device	10000000	Free	0	Everyone	Books & Reference	28 June 2018	Varies with device	Var
Moon+ Reader	BOOKS_AND_REFERENCE	4.4	233757	Varies with device	10000000	Free	0	Everyone	Books & Reference	01 May 2018	Varies with device	Var
Visual Voicemail by MetroPCS	BUSINESS	4.1	16129	Varies with device	10000000	Free	0	Everyone	Business	30 July 2018	Varies with device	Var
Uber Driver	BUSINESS	4.4	1254730	Varies with device	10000000	Free	0	Everyone	Business	03 August 2018	Varies with device	Var
OfficeSuite Pro + PDF (Trial)	BUSINESS	4.2	88073	Varies with device	10000000	Free	0	Everyone	Business	09 July 2018	Varies with device	Var
Box	BUSINESS	4.2	239872	Varies with device	10000000	Free	0	Everyone	Business	32 July 2018	Varies with device	Var
Box	BUSINESS	4.2	239872	Varies with device	10000000	Free	0	Everyone	Business	32 July 2018	Varies with device	Var
Skype for Business for Android	BUSINESS	3.9	78172	Varies with device	10000000	Free	0	Everyone	Business	02 August 2018	Varies with device	Var
Box	BUSINESS	4.2	239872	Varies with device	10000000	Free	0	Everyone	Business	32 July 2018	Varies with device	Var
MegaGon Dashboard	COMMUNICATION	3.7	99559	Varies with device	10000000	Free	0	Everyone	Communication	30 July 2018	Varies with device	Var
ZenUI Dialer & Contacts	COMMUNICATION	4.5	437674	Varies with device	10000000	Free	0	Everyone	Communication	01 August 2018	Varies with device	Var
Google Voice	COMMUNICATION	4.2	171031	Varies with device	10000000	Free	0	Everyone	Communication	03 August 2018	Varies with device	Var
Xperia Link™	COMMUNICATION	4.1	45487	Varies with device	10000000	Free	0	Everyone	Communication	27 October 2016	Varies with device	Var
AT&T Visual Voicemail	COMMUNICATION	3.7	13761	Varies with device	10000000	Free	0	Everyone	Communication	27 June 2018	Varies with device	Var
GMX Mail	COMMUNICATION	4.3	258536	Varies with device	10000000	Free	0	Everyone	Communication	25 July 2018	Varies with device	Var
Google Voice	COMMUNICATION	4.2	171031	Varies with device	10000000	Free	0	Everyone	Communication	03 August 2018	Varies with device	Var
Glide - Video Chat Messenger	COMMUNICATION	4.3	350154	Varies with device	10000000	Free	0	Everyone	Communication	29 July 2018	Varies with device	Var
Talkr - Free Calls & Texts	COMMUNICATION	4.2	244863	Varies with device	10000000	Free	0	Everyone	Communication	29 May 2018	Varies with device	Var
GroupMe	COMMUNICATION	4.5	330761	Varies with device	10000000	Free	0	Everyone	Communication	03 July 2018	Varies with device	Var
Calls Blacklist - Call Blocker	COMMUNICATION	4.5	457283	Varies with device	10000000	Free	0	Everyone	Communication	24 May 2018	Varies with device	Var
myMail - Email for Hotmail, Gmail and Outlook Mail	COMMUNICATION	4.5	305218	Varies with device	10000000	Free	0	Everyone	Communication	03 August 2018	Varies with device	Var

3. Power BI gateway.


Power BI Gateway is a software that is required to access data situated in an on-premises network. Gateway act as a gatekeeper for the on-premises data source. If anyone needs to access on-premises data from a cloud or web-based app, the request goes through the gateway. All the connection requests are attended by the gateway and access is granted based on their authentication and requirements.



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.



Start creating your dataflow

Define new entities

Choose a data source to define the entities for your dataflow. You can map your data to [standard Common Data Model](#) entities, or define custom entities instead. [Learn more](#)

Add new entities

Link entities from other dataflows

Linking to entities from other dataflows reduces duplication and helps maintain consistency across your organization. [Learn more](#)

Add linked entities

Import Model

Choose a dataflow model to import into your workspace. [Learn more](#)

Import model

Attach a Common Data Model folder (preview)

Attach a Common Data Model folder from your Azure Data Lake Storage Gen2 account to a new dataflow, so you can use it in Power BI. [Learn more](#)

Create and attach

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

All categories | File | Database | Power Platform | Azure | Online services | Other

Search

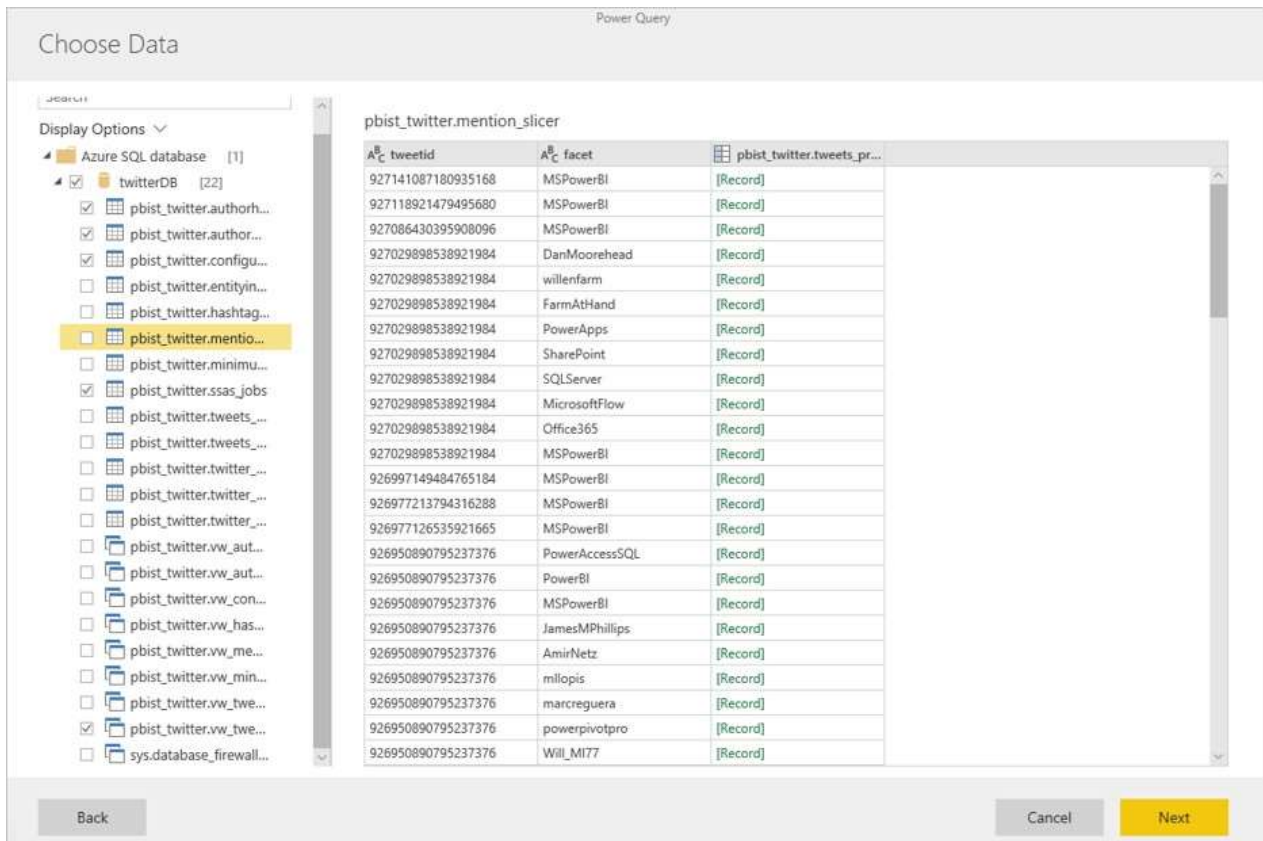
Data sources

Common Data Service Power Platform	Excel File	Folder File	JSON File	PDF File	SharePoint folder File	Text/CSV File
XML File	Access Database	Amazon Redshift Database	Google BigQuery Database	IBM Db2 database Database	Impala Database	MySQL database Database
Oracle database Database	PostgreSQL database Database	Power BI dataflows Power Platform	Power Platform dataflows Power Platform	SAP BW Application Server Database	SAP BW Message Server Database	SAP HANA database Database
SQL Server database Database	Sybase database Database	Teradata database Database	Vertica Database	Azure Blob storage Azure	Azure Data Explorer (Kusto) Azure	Azure Data Lake Storage Gen2 Azure
Azure HDInsight Spark Azure	Azure SQL database Azure	Azure Synapse Analytics (SQL DW) Azure	Azure Tables Azure	Microsoft Exchange Online Online services	Salesforce objects Online services	Salesforce reports Online services
SharePoint Online list Online services	Smartsheet Online services	Active Directory Other	ODATA Other	Odoo Other	SharePoint list Other	Spark Other
Web API Other	Web page Other	Blank table Other	Blank query Other			

Templates

Accounts, leads, opportunities Salesforce Online services	Lead to cash Dynamics 365 Sales Online services	Leads, opportunities Dynamics 365 Sales Online services	Quotes, orders, invoices Dynamics 365 Sales Online services
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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.



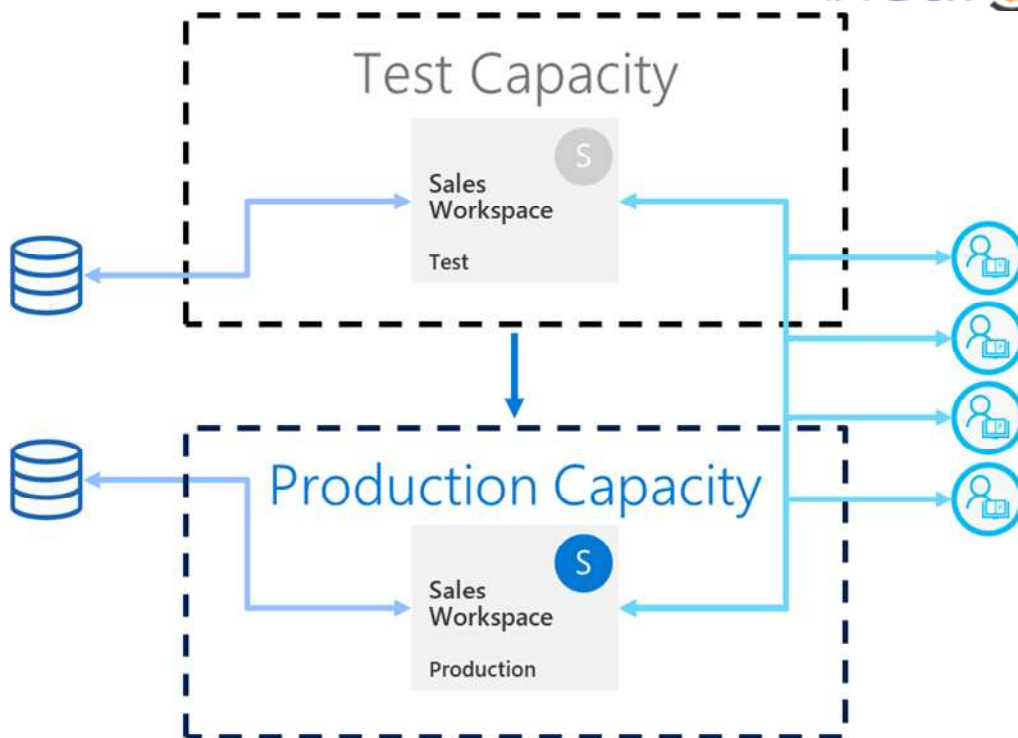
3 Deployment.

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.

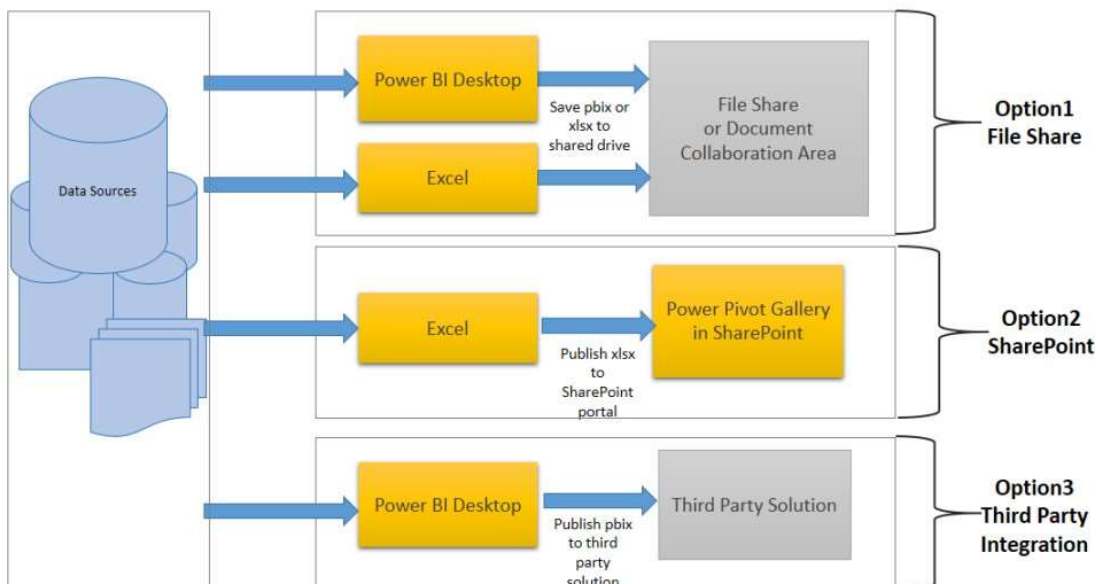
A deployment pipeline is a Power BI object, with its own permissions. In addition, the pipeline contains workspaces, that have their own permissions.

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 on premise three different options.

Power BI : On-Premises Deployment Options



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

