Architecture Design

House Price Prediction

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Contents

1. Introduction

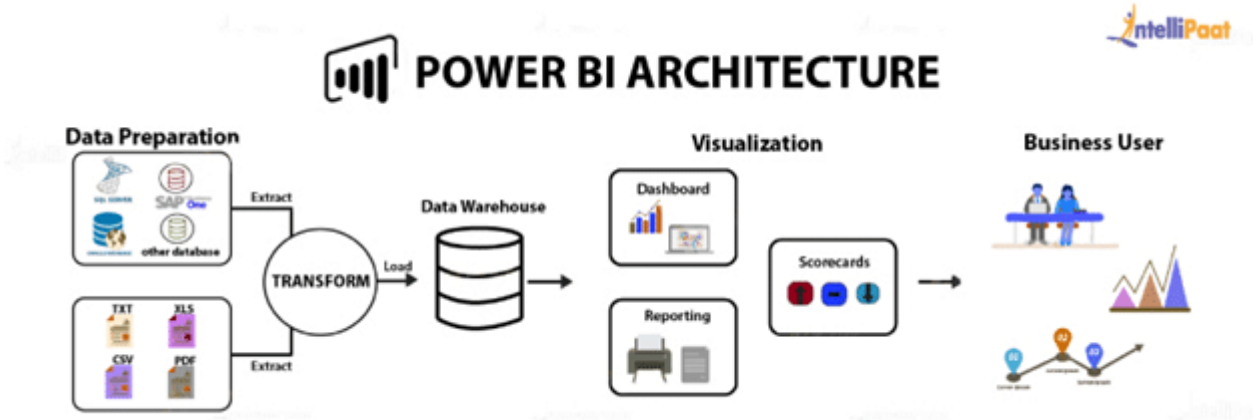
1.1 What is Architecture design document?

This document outlines the architectural design for implementing Amazon customer data analysis using Power BI, detailing system components and interactions.

1.2 Scope

Scope includes analyzing Amazon customer behavior, sentiment, and trends to derive insights for business decisions using Power BI.

2. Architecture



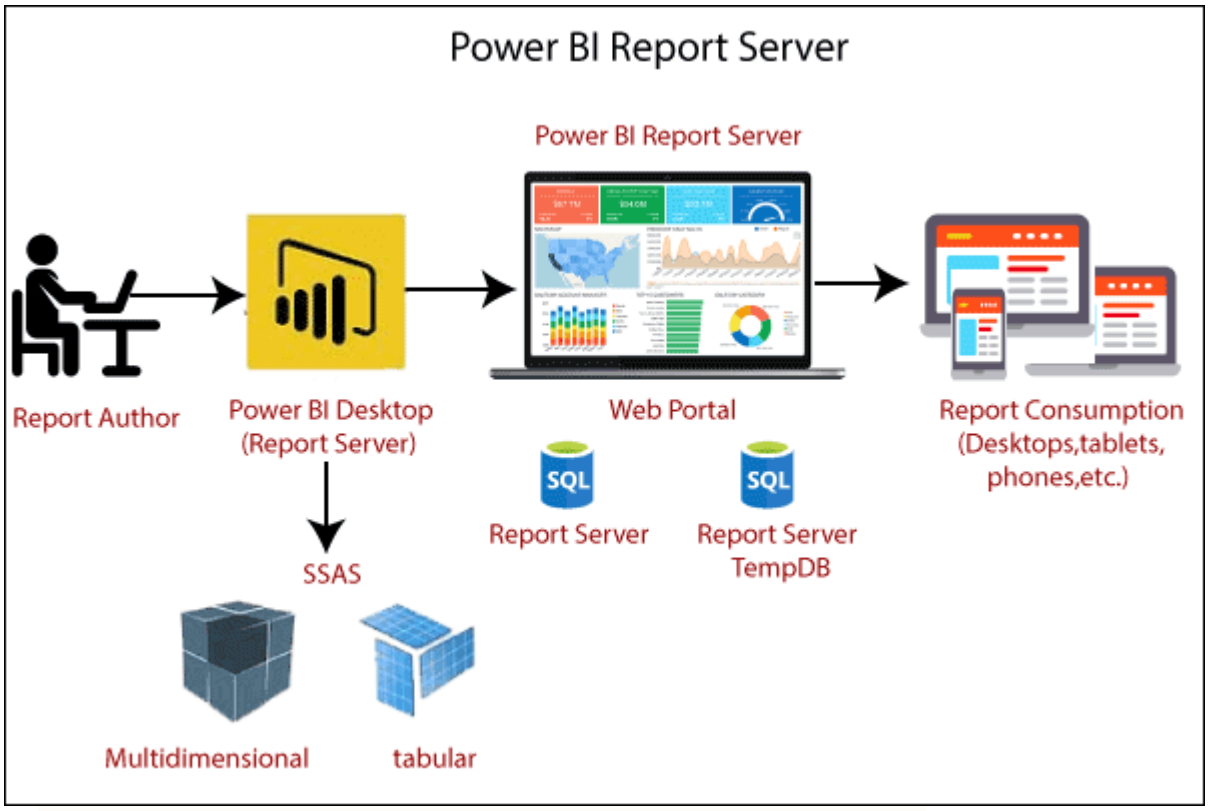
Power Bi Architecture

Overview of Power BI's overall architecture, including components like Power BI Desktop, Power BI Service (Cloud), and Power BI Report Server (On-premises).

Power Bi Server Architecture

Details on the server-side architecture of Power BI, encompassing elements such as data connectors, data refresh, and security protocols.

The following diagram shows Power bi Server's Architecture:



Power bi Server is internally managed by the multiple server processes.

1. Gateway/Load Balancer

Explanation of how gateways and load balancers facilitate secure data connectivity and distribution within Power BI's ecosystem.

2) Application Server:-

Description of the application server's role in handling user requests, authentication, and report rendering in Power BI.

3) Repository:-

A repository for the Power BI server architecture document would include detailed diagrams, component descriptions, deployment options, and communication flows for reference and documentation purposes.

4) VIZQL Server:-

Overview of VIZQL server's function in processing visualizations and interactivity in Power BI reports.

5) Data Engine:-

Explanation of Power BI's data engine for data modeling, transformation, and storage.

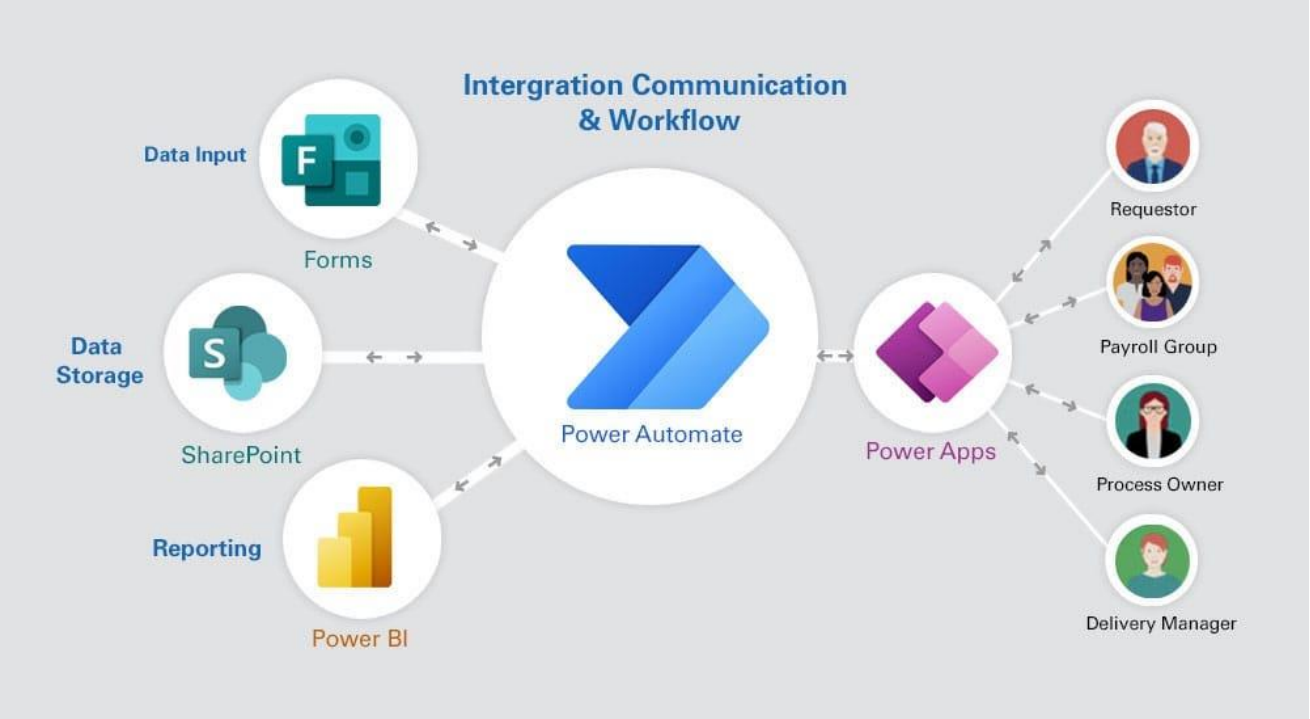
6) Backgrounder:-

Role of the backgrounder process in Power BI for managing background tasks like data refresh and scheduling.

7) Data Server:-

Details on the data server component responsible for data retrieval and optimization in Power BI.

8) Powerbi Communication Flow

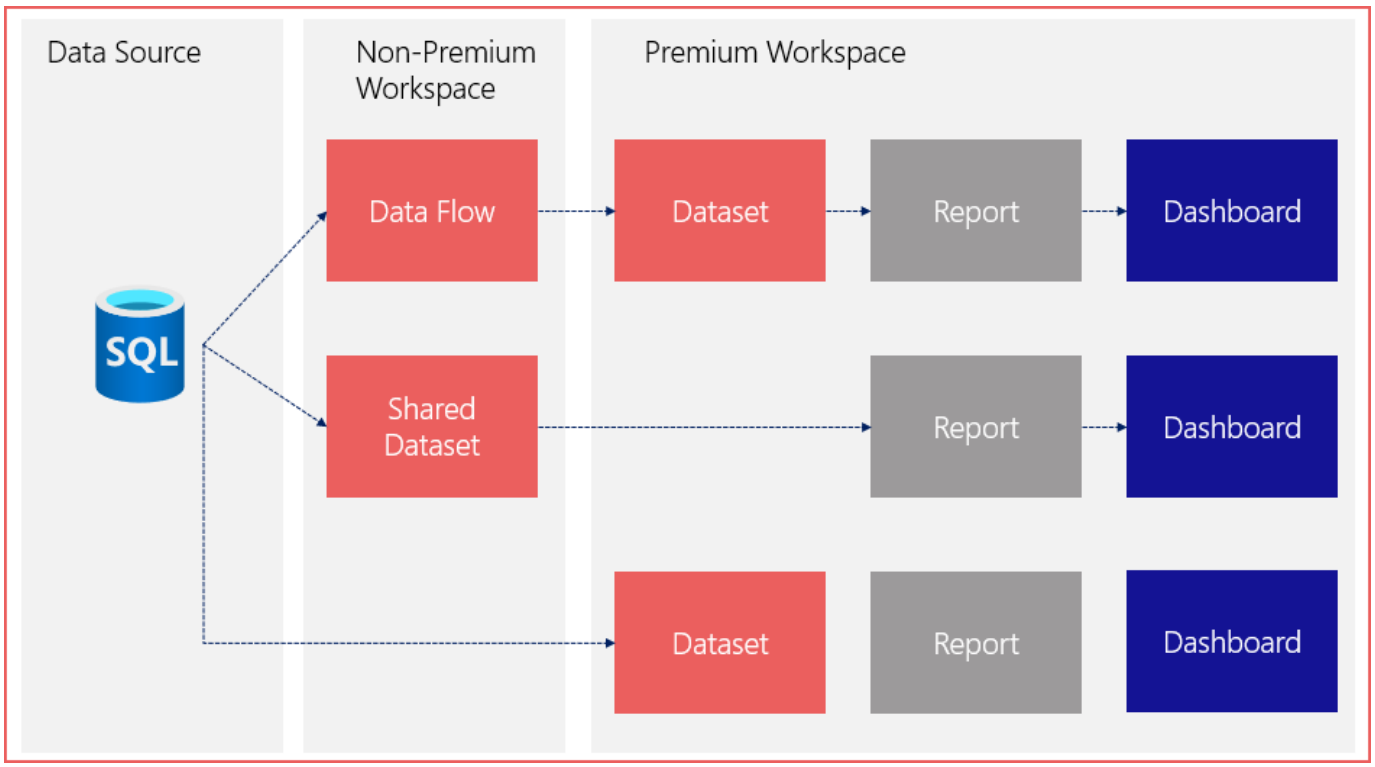


The Power BI communication flow involves interactions among various components for data retrieval and visualization. It begins with data sources, where data is extracted and transformed. Power BI Desktop or web interfaces connect to the Power BI Service, which manages report rendering, data storage, and user authentication. Visualization requests are processed by the VIZQL server, which communicates with the data engine for querying and aggregating data. Data refreshes are handled by the backgrounder process. Gateways

3. Deployment Description

3.1 Deployment options in Powerbi

Overview of deployment choices, including Power BI Service, Power BI Report Server, and hybrid configurations.



1. Power BI Service (Cloud):
    a. Get started quickly with Power BI Service, a fully hosted solution by Microsoft.
    b. No hardware setup required; all upgrades and maintenance are managed automatically.
    c. Ideal for organizations looking for a hassle-free, cloud-based BI platform.
2. Power BI Report Server on Public Cloud:
    a. Benefit from the scalability and flexibility of cloud infrastructure while retaining control over

your BI environment.

b. Deploy Power BI Report Server on Amazon Web Services (AWS), Google Cloud Platform (GCP), or Microsoft Azure.

c. Choose between Windows or Linux environments based on your preferences.

d. Bring your own license or purchase directly from your preferred cloud marketplace.

3. Power BI Report Server On-Premises:

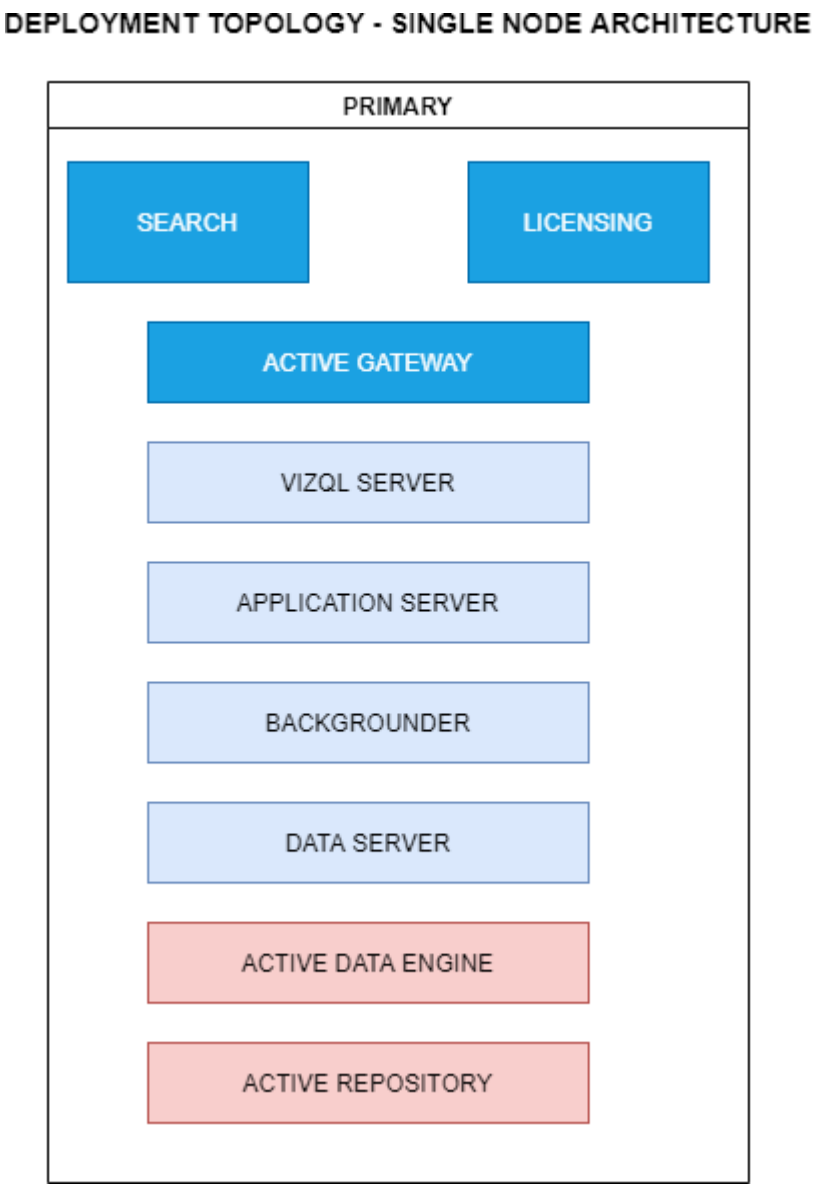
a. Manage and scale your Power BI infrastructure on your own hardware and software.

b. Install Power BI Report Server on-premises, allowing customization and full control over the deployment.

c. Support both Windows and Linux environments based on your organization's requirements.

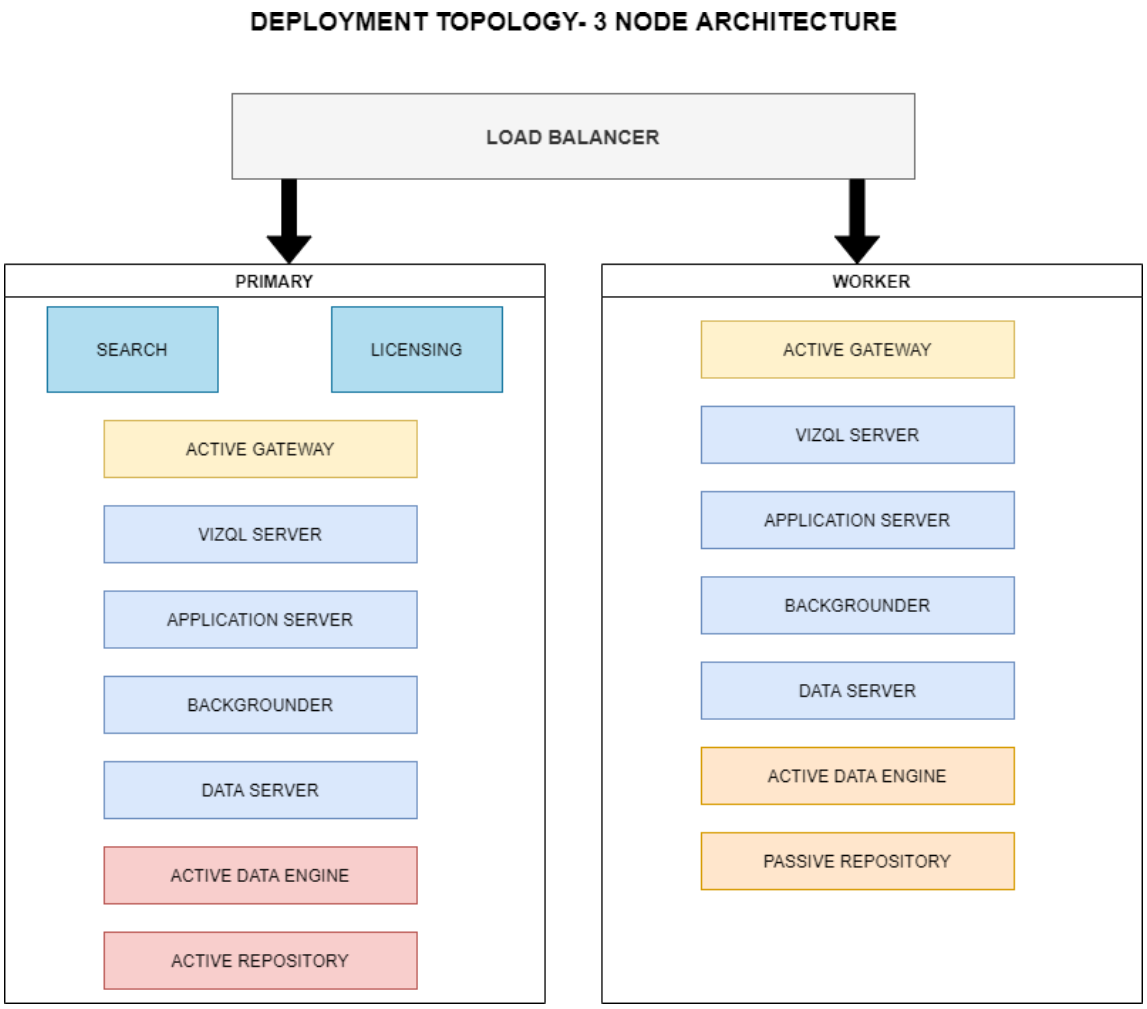
i. Each deployment option offers varying levels of control, scalability, and customization to suit different organizational needs and preferences for deploying Power BI.

3.2 Single Node Architecture



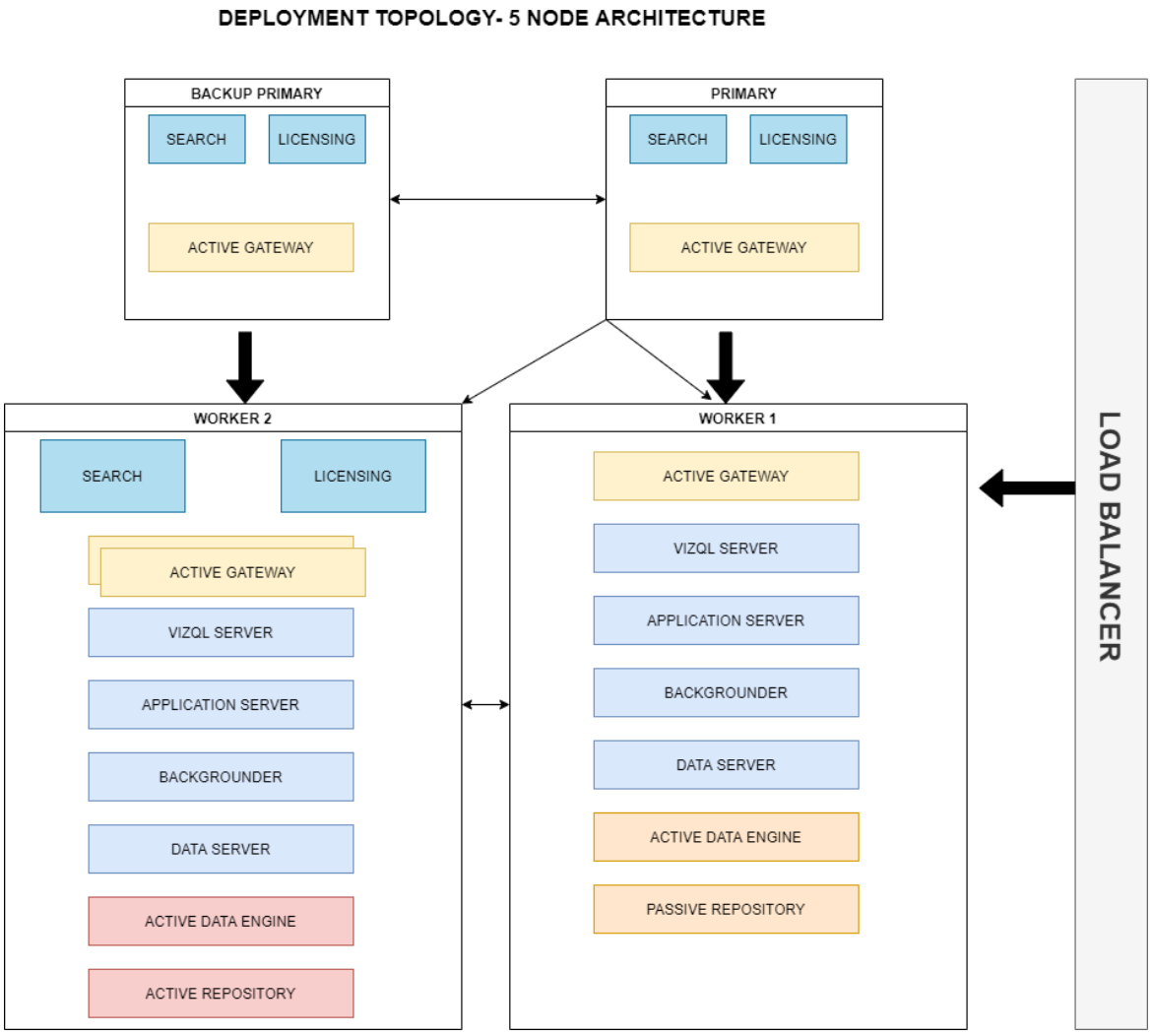
Description of a single-node Power BI deployment setup for smaller-scale Amazon customer data analysis.

3.3) 3 Node Architecture



Explanation of a three-node Power BI deployment configuration for medium-scale data analysis and sharing.

3.4) 5 Node Architecture



Overview of a five-node Power BI deployment model suitable for large-scale, enterprise-level Amazon customer data analysis projects.