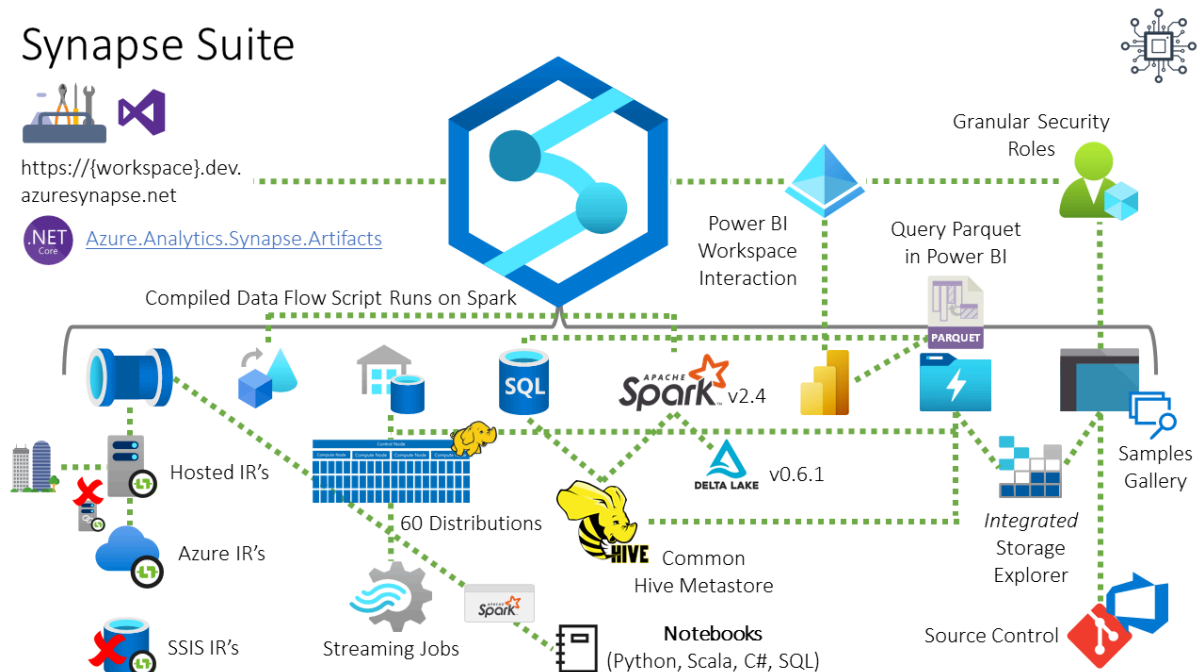Name : Parth Nandedkar
Date : 26 Feb 2024
Topics : Azure Synapse
Batch : Data Engineering Batch-1

Azure Synapse Analytics, formerly known as Azure SQL Data Warehouse, is a cloud-based analytics service provided by Microsoft Azure. It's a unified analytics platform that integrates enterprise data warehousing and big data analytics. Azure Synapse aims to streamline the process of ingesting, preparing, managing, and serving data for immediate business intelligence and machine learning needs.

1. Unified Analytics: Azure Synapse provides a unified experience for data engineers, data scientists, and business analysts. It integrates big data and data warehousing capabilities into a single service, enabling users to analyze both structured and unstructured data.

2. Data Integration: It offers built-in integration with various data sources, including Azure Blob Storage, Azure Data Lake Storage, Azure SQL Database, Azure Cosmos DB, and more. This allows users to ingest data from different sources easily.

3. Data Warehousing: Azure Synapse provides a fully managed, scalable data warehousing solution capable of handling petabytes of data. It uses massively parallel processing (MPP) architecture to execute complex queries quickly and efficiently.

4. Big Data Analytics: With support for Apache Spark and built-in connectors for popular big data frameworks like Apache Hadoop and Apache Kafka, Azure Synapse allows users to analyze and process large volumes of data using familiar tools and languages.

5. Data Exploration and Visualization: It includes integrated data exploration and visualization tools, such as Power BI and Azure Synapse Studio, to help users gain insights from their data and create interactive reports and dashboards.

6. Security and Compliance: Azure Synapse offers robust security features, including encryption at rest and in transit, role-based access control (RBAC), and dynamic data masking. It also helps organizations comply with regulatory requirements such as GDPR, HIPAA, and SOC.

7. Serverless SQL Pool: Azure Synapse offers a serverless SQL pool option, allowing users to run on-demand analytics queries without the need to provision or manage dedicated resources.

8. Integration with Azure Services: It integrates seamlessly with other Azure services like Azure Machine Learning, Azure Data Factory, Azure Databricks, and Azure Active Directory, enabling users to build end-to-end analytics solutions.
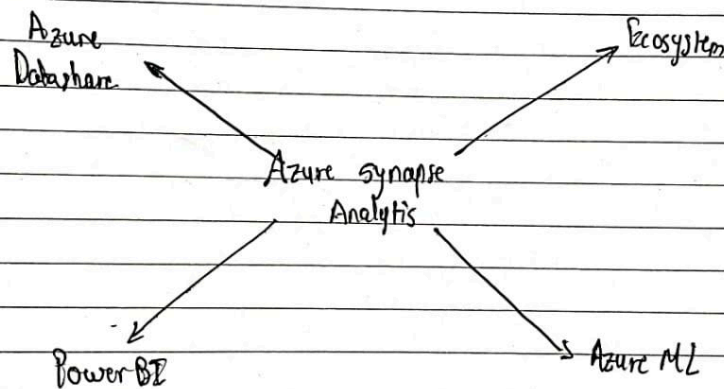
Overall, Azure Synapse Analytics provides a comprehensive platform for organizations to analyze and derive insights from their data, whether it's structured or unstructured, in real-time or batch processing scenarios. It offers scalability, performance, and flexibility to meet the evolving needs of modern data-driven businesses.
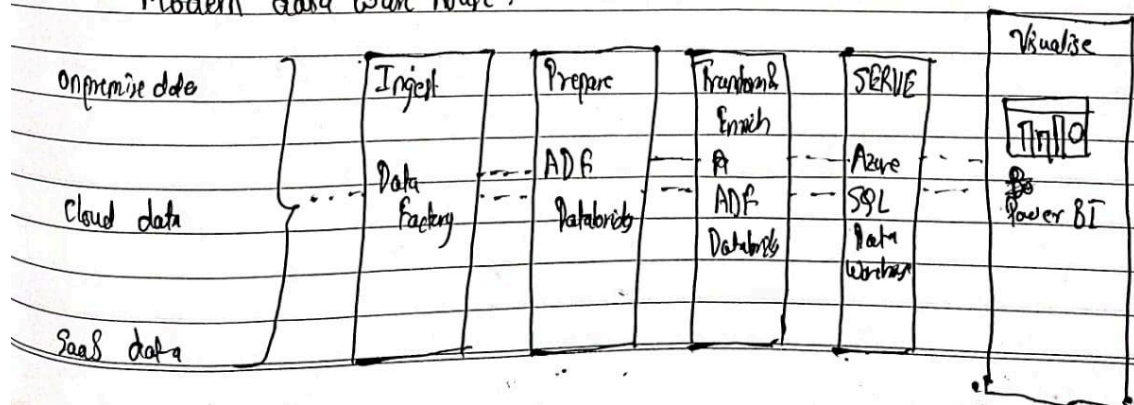
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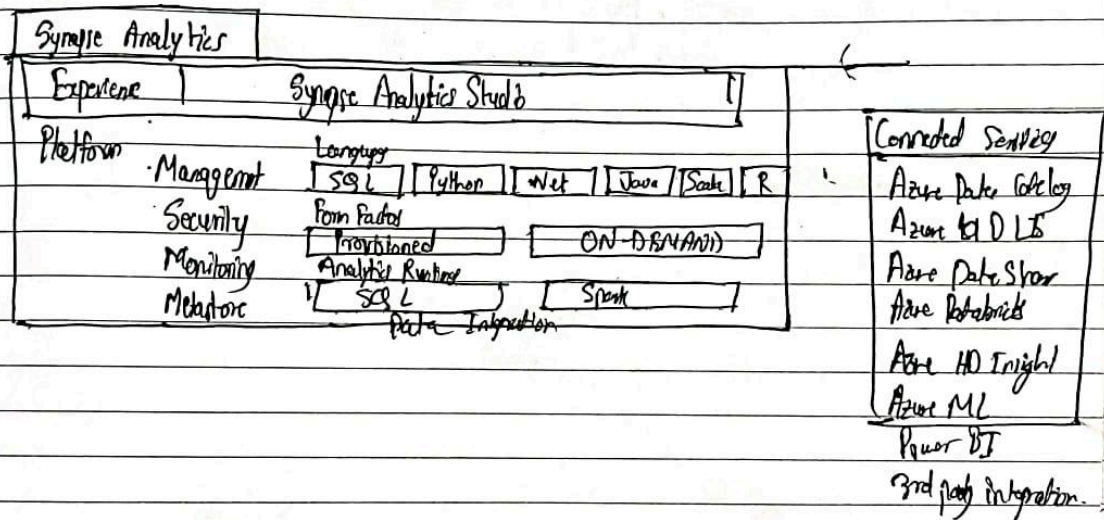
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Azure Synapse :

Azure Synapse Analytics is a limitless analytics service, that brings together enterprise data warehousing & Big data analytics. It gives you the freedom to query data on your terms, using either serverless on-demand provisioned resources, at scale. Azure synapse brings these two worlds together with a unified experience to ingest, prepare, manage & serve data for immediate business intelligence & ml needs.

Azure
Datashare   Ecosystem

            Azure Synapse
                Analytis

    Power BI   Azure ML

Modern data ware house :

On premise data	Ingest	Prepare	Transform & Enrich	SERVE	Visualise
Cloud data	Data Factory	ADF Databricks	& ADF Databricks	Azure SQL Data warehouse	Power BI
SaaS data					

Azure Synapse Analytics :

Synapse Analytics					
Experience	Synapse Analytics Studio				
Platform	Language				
· Management	SQL	Python	.Net	Java	Scala	R
Security	Form Factor				
Monitoring	Provisioned		ON-DEMAND)		
Metastore	Analytic Runtime				
	SQL		Spark		
	Data Integration				

Connected Services
Azure Data Catalog
Azure ADLS
Azure Data Share
Azure Databricks
Azure HD Insight
Azure ML
Power BI
3rd party Integration.

Azure Synapse — SQL Analytics :

- Best in class price per performance
- Industry leading security
- Workload aware query execution
- Data Flexibility
- Developer productivity.