Microsoft

Microsoft Fabric: The Essential Guide for Decision Makers

Microsoft Fabric e-book series volume 1

Microsoft Fabric: The Essential Guide for Decision Makers

Accelerate business value with Microsoft Fabric

Decision makers are the catalysts for digital transformation and cultivating a data culture. They play a crucial role in promoting business expansion, operational efficiency, productivity enhancements, and product innovation.

Empowering organizational success is Microsoft Fabric, a platform that significantly accelerates business value. Fabric ensures data estates are united, data governance is enhanced, and a collaborative ecosystem is nurtured. Fabric enables organizational teams to harness the capabilities of generative AI when working with their data. By dismantling data silos, Fabric makes data readily accessible, streamlining extraction of comprehensive insights. Fabric is a strategic partner in the journey toward a data-driven culture.

Unify data from different sources and platforms

Microsoft Fabric is an end-to-end analytics platform that stands as an ideal solution for unifying data estates. Fabric offers a comprehensive suite of services that allow data professionals to seamlessly ingest, store, process, and analyze data within a unified platform.

The integrated architecture of Fabric is centered around OneLake, enabling collaboration between data teams, maximizing efficiency and reducing costs. The OneLake architecture ensures that data remains in a single location, eliminating the need for data duplication or movement across systems, significantly improving data governance. With centralized administration and robust security measures to enhance data security, Fabric ensures data is accessible only to authorized personnel. Its scalability, cost-effectiveness, and accessibility make Fabric the comprehensive platform for the data estate and driving informed decision making.

The Microsoft Fabric experience

Microsoft Fabric provides an array of services encompassing data movement, data lakes, data engineering, data integration, data science, real-time analytics, and business intelligence. Data movement capabilities in Fabric allow organizations to seamlessly transfer data between various systems, including on-premises, cloud, and hybrid environments. Fabric offers scalable and secure data lakes for storing vast amounts of data in any format.

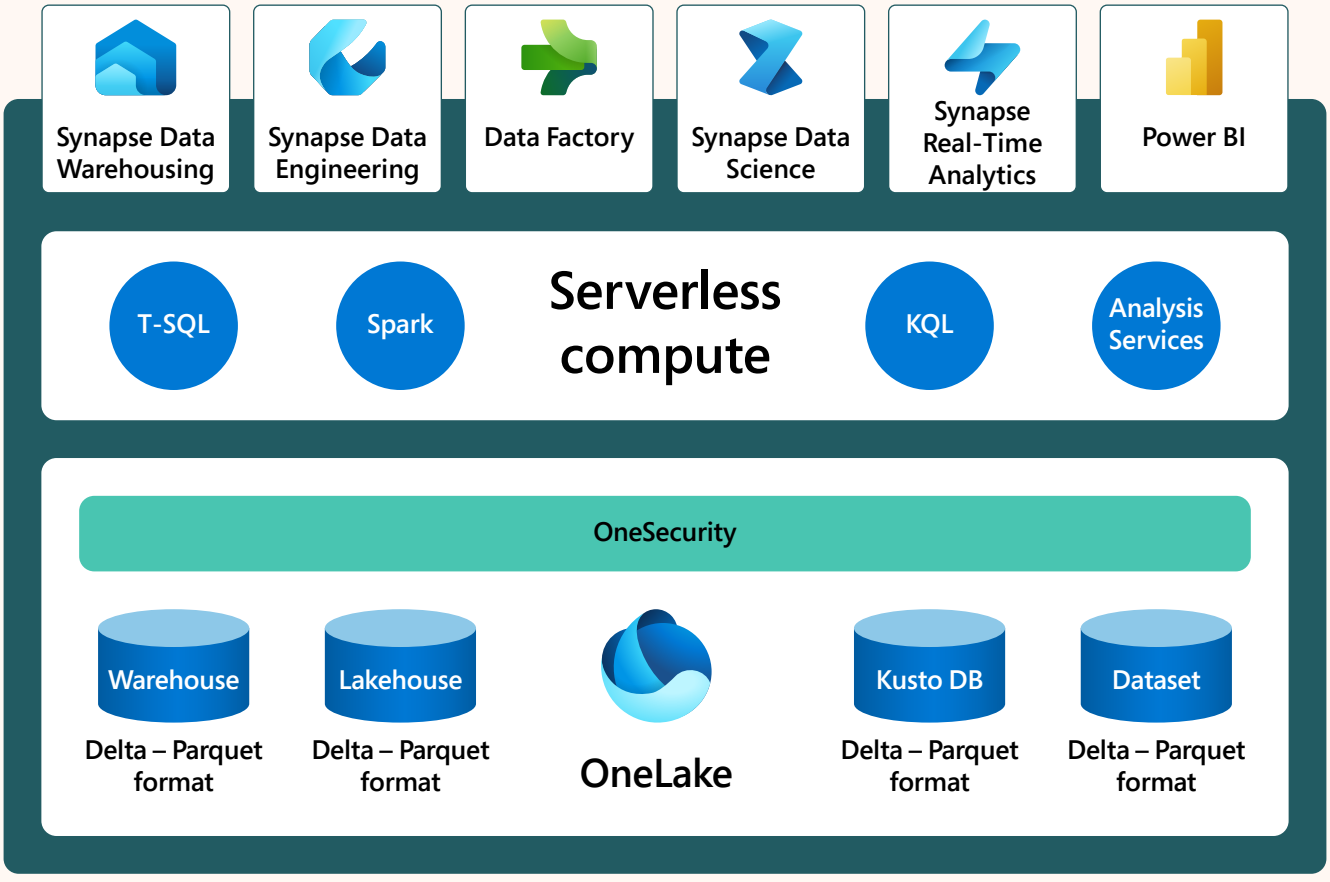


Figure 1: Microsoft Fabric overview

Data engineering tools in Fabric aid in constructing and managing data pipelines and warehouses, while the data integration tools unify diverse data sources into a single view. Additionally, the data science tools in Fabric facilitate building and deploying data science models. The real-time analytics tools in Fabric enable immediate data analysis, and the business intelligence tools assist in creating and sharing reports and dashboards. Thus, Fabric delivers a holistic data experience, aiding organizations in turning vast data repositories into actionable insights.

Break down data silos in the organization

Breaking down data silos is a crucial step for any organization aiming to maximize the value of its data. Microsoft Fabric, anchored to OneLake, offers a transformative solution to this problem by enabling the creation of lakehouses. These lakehouses combine the performance of a data warehouse with the cost efficiency and scalability of a data lake. With its low-code approach, Fabric allows organizations to connect, analyze, and govern all types of data seamlessly.

Through OneLake, a unified logical lake, organizations can store, share, and build upon different types of data. This not only fosters team collaboration but also makes data more accessible. Key features of OneLake, such as eliminating data movement, an integrated data security model, and a single hub for data discovery, enhance data management by reducing duplication, ensuring compliance, and centralizing data discovery.

Increase agility and improve employee engagement

Microsoft Fabric can significantly improve employee engagement by helping teams collaborate. It seamlessly integrates with core Microsoft 365 services—Microsoft Teams, Outlook, SharePoint, and Microsoft Viva Insights—supporting modern work styles and enabling continuous digital transformation.

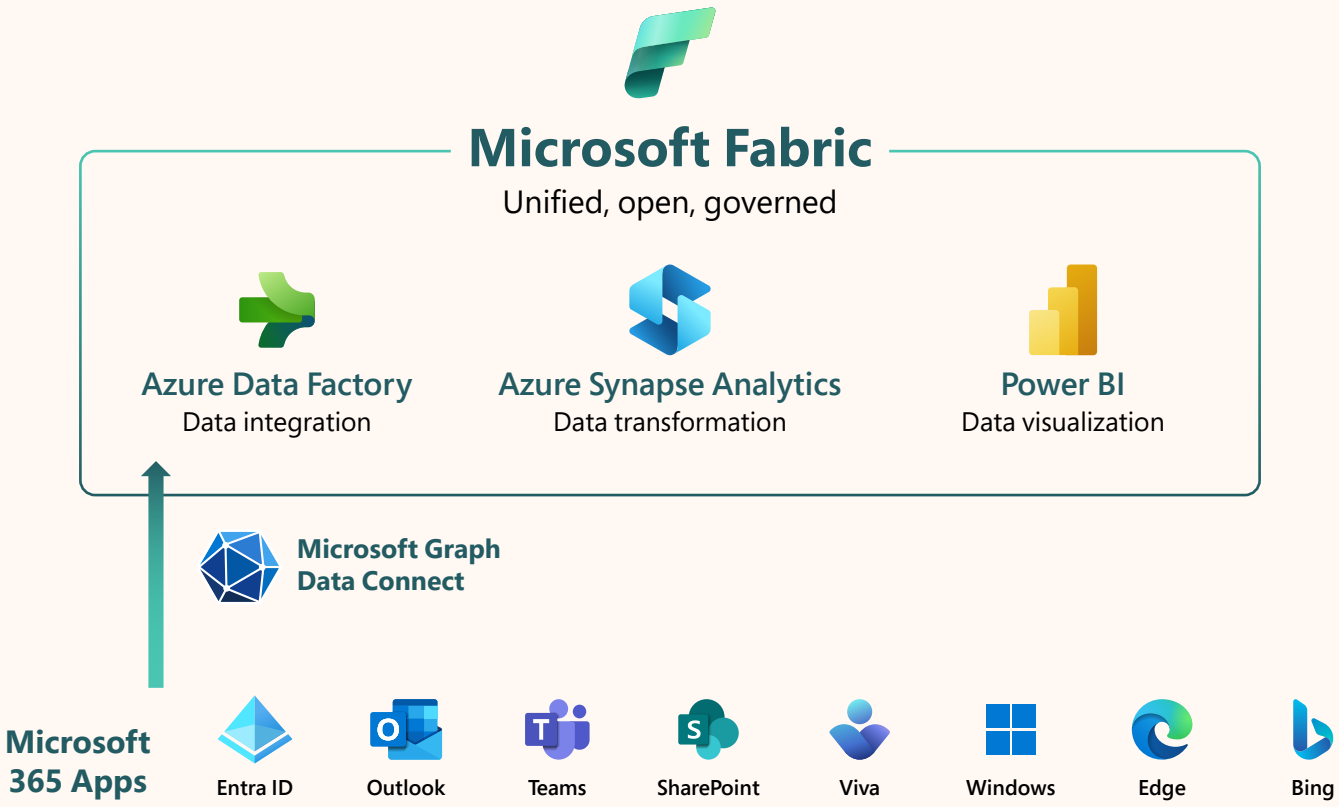


Figure 2: Microsoft Fabric and Microsoft 365 integration

By enabling team collaboration, Fabric adds substantial value to an organization's operations and overall productivity. It allows employees to access updates, files, and data for their projects in one place, empowering employees to become more productive. The Fabric platform is designed to adapt to the dynamic nature of today's work environments, catering to the needs of remote, hybrid, and diverse workforces. It facilitates seamless collaboration across different organizational boundaries, promoting a more inclusive and connected work culture.

Enhance productivity with AI-powered capabilities

Equipped with next-generation AI, Microsoft Fabric propels team collaboration by streamlining data integration, code writing, insight discovery, and report creation. With natural language processing capabilities, organizations can use Copilot in Microsoft Fabric to effectively transform data into dataflows and pipelines, simplifying the process of integrating data from various sources.

Copilot in Fabric also enhances productivity by suggesting code and functions in real time and guiding users in creating machine learning models to uncover data insights. This AI-powered tool enables users to convert insights into actionable triggers and even create customized natural language experiences, combining Azure OpenAI Service models with organization-specific data. Users can publish their creations as plugins, and with the data hosted in Fabric, Copilot provides insights and answers across the workspace. Apart from enhancing productivity and efficiency, Fabric ensures data security, adhering to the Microsoft cloud trust principles, ensuring that an organization's data always remains private.

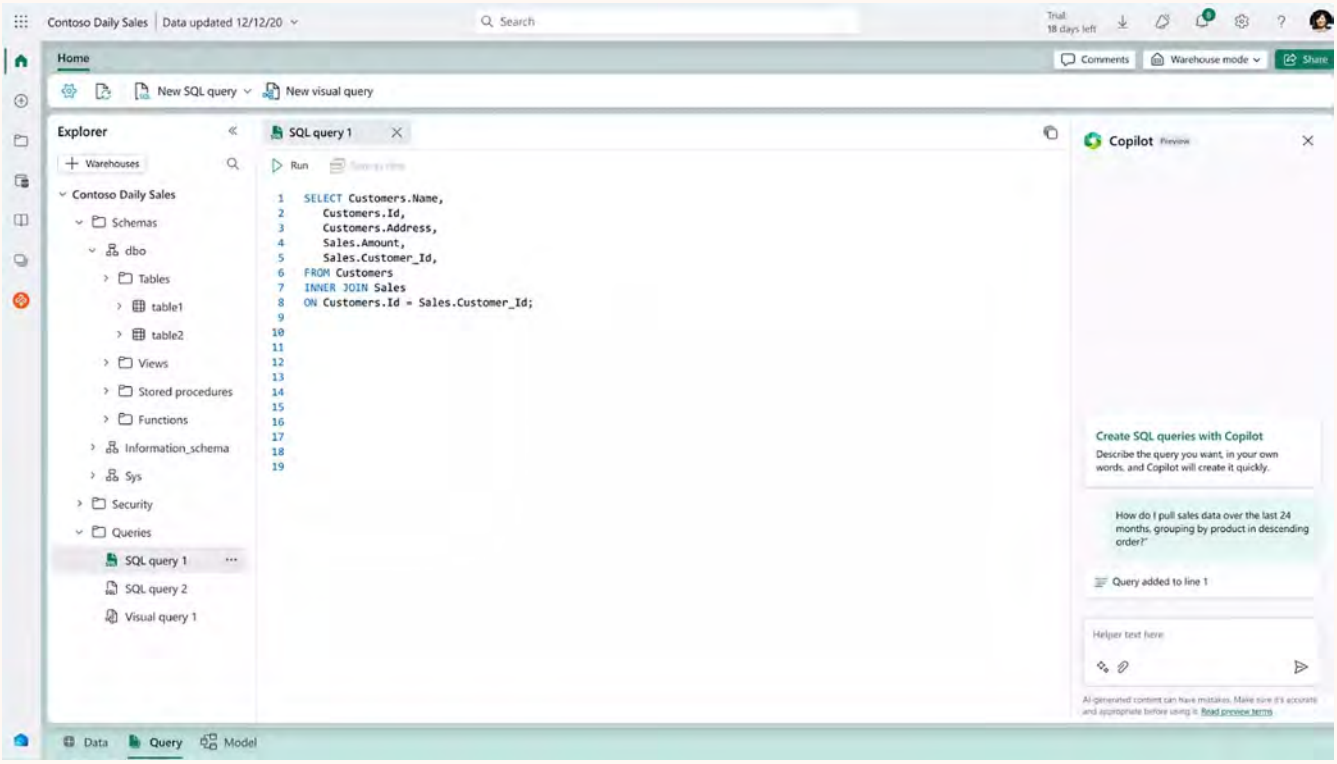


Figure 3: Copilot in Microsoft Fabric

Maximize efficiency and minimize costs

Organizations today constantly strive to maximize efficiency while minimizing costs. However, this has often proven difficult due to the fragmented nature of traditional analytics systems and the high costs associated with managing and storing massive volumes of data.

The traditional approach to data analytics often involves a patchwork of products from various vendors, leading to idle capacities that add to the cost without providing value. Microsoft Fabric is a ground-breaking solution in this regard, providing an integrated platform for cost-effective data analytics. Its simplified and efficient pricing model allows users to pay only for what they use, eliminating the need to track separate costs for different tools and storage types. This cost-effective approach ensures value for money, as it aligns expenses with actual usage.

"What's most exciting to me about Fabric is simplifying our existing analytics stack. Currently, there are so many different PaaS services across the board that when it comes to modernization efforts for many developers, Fabric helps simplify that."[1]

—Boby Azarbod, Data Services Lead, Aon

Moreover, Fabric offers a variety of customizable experiences, allowing users to tailor their data analytics journey for maximum efficiency. Whether it's data engineering, data warehousing, or business intelligence, Fabric provides deeply integrated, role-specific experiences that streamline collaboration and simplify resource management.

1 https://azure.microsoft.com/blog/introducing-microsoft-fabric-data-analytics-for-the-era-of-ai/

"By consolidating the necessary data provisioning, transformation, modeling, and analysis services into one UI, the time from raw data to business intelligence is significantly reduced. Fabric meaningfully impacts Ferguson's data storage, engineering, and analytics groups since all these workloads can now be done in the same UI for faster delivery of insights."[2]

—George Rasco, Principal Database Architect, Ferguson

Fabric represents a paradigm shift in data analytics. Its simplified pricing model, unified capacities, and customizable services offer unprecedented value. It paves the way for organizations to navigate the complex data landscape, ensuring efficiency and cost-effectiveness.

Scale with flexible pricing models

Microsoft Fabric is a unified platform that simplifies the cost structure and eliminates the need for purchasing separate services. With Fabric, an organization's bill is based on two key variables: the amount of compute provisioned and the storage used.

The compute provisioned is determined by the size of the Fabric capacity chosen. Organizations can choose from different Microsoft Fabric pricing options for capacities to meet their specific needs. The models are based on Stock Keeping Units (SKUs), each with a distinct Capacity Unit (CU) value, determining the level of computing power. The two types of SKUs are Fabric SKUs and Microsoft 365 SKUs.

Fabric SKUs, also known as F SKUs, are billed per second, with pricing varying by region, and no time commitment, making them the recommended capacities for Fabric. This model allows flexibility in scaling capacity up or down as needed, as well as pausing and resuming capacities to save costs, providing cost-effective solutions for businesses of all sizes.

2 https://azure.microsoft.com/blog/introducing-microsoft-fabric-data-analytics-for-the-era-of-ai/

On the other hand, Microsoft 365 SKUs, or P SKUs, are billed monthly or yearly with a monthly commitment. These SKUs are actually Power BI SKUs that support Fabric when enabled on top of a Power BI subscription. Additionally, as a data storage solution, OneLake offers simplified purchasing with automatically provisioned storage service and persistent security, billed per GB monthly. Cross-region data transfer network charges may apply based on the source or destination of each storage account being accessed.

The pricing models for Fabric are designed to adapt to varying organizational needs, providing a scalable, efficient data management solution.

Track and monitor Microsoft Fabric costs

Monitoring and tracking costs is a crucial aspect of efficient resource management, especially in the context of capacity management. Microsoft Fabric offers advanced features enabling users to accurately track and monitor costs associated with different capacities within the same tenant. This capability allows for seamless cost management and control as it provides business units with the autonomy to manage their own projects and creators separately.

The Fabric admin portal offers a centralized dashboard to monitor usage and costs, enhancing visibility and facilitating informed decision making. Moreover, Microsoft Cost Management helps users understand their spending across workloads and optimize capacity usage. The Microsoft Fabric Capacity Metrics app further complements these features by providing in-depth insights into capacity performance, aiding in critical decisions such as scaling up capacities or enabling autoscaling. These tools combined ensure the robust tracking and monitoring of costs, offering significant advantages in terms of cost efficiency and resource optimization.

Enhance governance, compliance, and data security

Microsoft Fabric is designed with robust security measures to ensure the data protection and governance that organizations require. Fabric incorporates enterprise security features such as data encryption at rest and in transit, role-based access control (RBAC), auditing and logging, data loss prevention (DLP), and centralized security management. Built-in compliance mechanisms in Fabric, coupled with its advanced security features, provide organizations with a secure environment for their data.

The Fabric admin portal allows administrators to manage, review, and apply configurations for their tenants and capacities centrally, ensuring tenant-wide governance. The admin portal offers visibility into all active Fabric capacities and allows management of all capacities within a tenant. This centralized administration relieves data engineers and data scientists from worrying about security configurations, enabling them to focus on their core tasks.

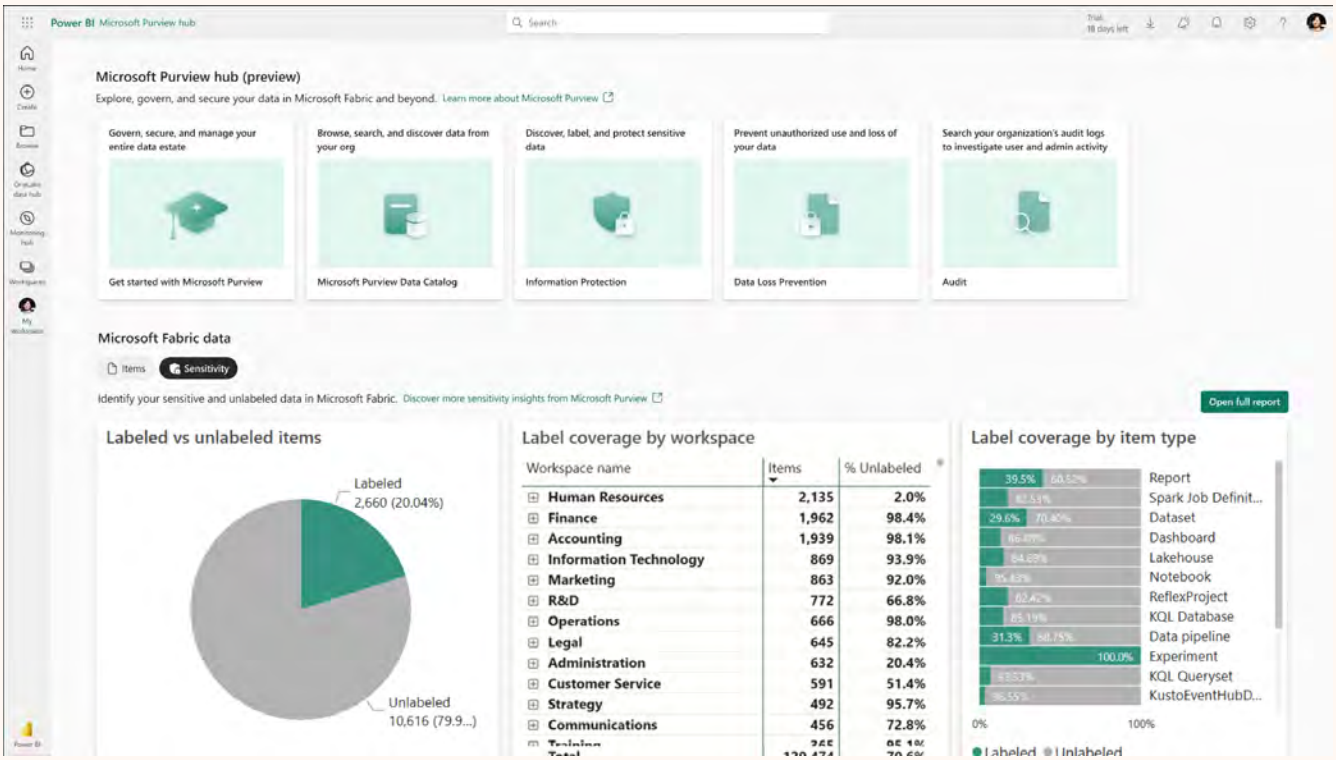


Figure 4: Microsoft Purview hub (preview) homepage

Additionally, Fabric enhances its data security capabilities through integration with Microsoft Purview, which offers further governance and compliance capabilities. This integration includes features such as sensitivity labels that persist throughout the dataflow, automatic detection of sensitive data through DLP policies, and end-to-end auditing.

Keep apps secure with conditional access in Microsoft Entra ID

Microsoft Entra ID plays a crucial role in securing apps through conditional access for Microsoft Fabric. The conditional access feature offers multiple security measures, such as multi-factor authentication, restrictions on user locations and IP ranges, and access only for Microsoft Intune-enabled devices. The conditional access feature allows administrators to manage user interaction with Fabric, including the sharing and distribution of content, and control access to data warehouses, datasets, reports, and dashboards. Furthermore, Microsoft Entra ID assists with user authentication to the Power BI service, which is integral to security within Fabric. To ensure optimal security, it is recommended to configure a single, common conditional access policy for various services, including Power BI Service, Azure Storage, Azure SQL Database, Azure Data Explorer, and Microsoft Azure Management. This approach minimizes unexpected prompts from different policies and provides a consistent security posture, enhancing user experience in Fabric.

Build regional resilience and reliability with Azure availability zones

Azure availability zones are instrumental in establishing regional resilience and reliability in Microsoft Fabric. These zones are physically separate groups of datacenters within each Azure region, each equipped with independent power, cooling, and networking infrastructure. This setup ensures that in the event of a local zone failure, regional services, capacity, and high availability are supported by the remaining zones. Failures can range from software and hardware issues to natural disasters such as earthquakes, floods, and fires. Azure availability zones are designed to provide the right level of reliability and flexibility, with services being either zone redundant, with automatic replication across zones, or zonal, with instances pinned to a specific zone. This allows Fabric customers to run critical applications with higher availability and fault tolerance in the event of datacenter failures.

Safeguard business secrets with Customer Lockbox for Microsoft

Customer Lockbox for Microsoft Fabric is a security support feature designed to safeguard business secrets within Microsoft Fabric. This tool provides a mechanism for controlling how Microsoft engineers access data. Typically, Customer Lockbox is employed when Microsoft engineers need to troubleshoot a service support request or investigate a problem identified by Microsoft. To enable Customer Lockbox, one must have the Microsoft Entra Global Administrator role. The tool allows for the submission of access requests, evaluated by the just-in-time (JIT) access service based on factors such as resource scope, requester identity, and permission levels. Direct access to customer data triggers a Customer Lockbox request, which requires customer approval. The tool also includes features for auditing, with activity and audit logs available for review. Despite its robust security features, Customer Lockbox does not apply in the case of emergency scenarios, accidental data exposure, or external legal demands.

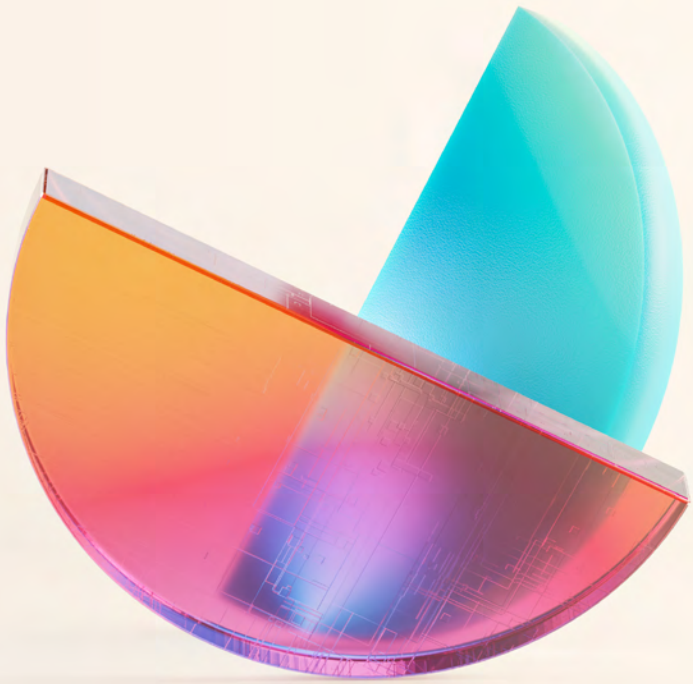
Take advantage of an open and governed foundation

Microsoft Fabric governance and compliance are a comprehensive suite of capabilities to manage, protect, and monitor sensitive organizational data, ensuring secure data integration and enhanced accessibility. Governance and compliance features in Fabric include information protection which enables the discovery, classification, and protection of Fabric data using sensitivity labels, DLP policy support for Power BI datasets to aid in the detection and protection of sensitive data, and the endorsement feature to promote trust within the organization by allowing the promotion and certification of quality items. Fabric also offers metadata scanning and lineage features to further enhance data governance by enabling metadata cataloging and providing a visual representation of dataflow within a workspace.

At its core, Fabric governance and compliance offer a robust platform for developing effective data governance policies, ensuring data protection, and facilitating efficient data management.

Monitor data lineage in a single solution

Monitoring data lineage in Microsoft Fabric involves understanding the flow of data from its source to its destination, a complex task in modern business intelligence projects. With the Fabric lineage view, organizations can quickly visualize relationships between all items in a workspace, aiding in answering challenging questions such as, "What happens if I change this data?" or "Why isn't this report up to date?" This view also includes an impact analysis for each item, highlighting potential downstream effects of changes. Accessible from multiple locations, the lineage view displays all items in the workspace and their connections, upstream connections outside the workspace, and some information about each item.



Build a data foundation with data ingestion and cleaning capabilities

Building a high-quality data foundation is paramount for data science and AI development. Microsoft Fabric provides robust capabilities for data ingestion and cleaning, helping organizations accelerate data preparation. With the Data Wrangler tool within Fabric, users can conduct exploratory data analysis, utilizing built-in visualizations, dynamic summary statistics, and a library of common data-cleaning operations. Furthermore, Warehouse in Microsoft Fabric offers built-in data ingestion tools for ingesting data at scale. This can be done through code-free or code-rich experiences, using copy statements, data pipelines, dataflows, or cross-warehouse ingestion. These capabilities allow users to build a strong data foundation, crucial for advanced data science and AI development tasks.

Utilize Microsoft Fabric to create well-architected data storage and access solutions

Microsoft Fabric offers unified solutions for data storage and access. It integrates database, analytics, messaging, data integration, and business intelligence workloads through a user-friendly, shared SaaS experience. Fabric introduces a lake-centric data warehouse built on an enterprise-grade distributed processing engine, offering industry-leading performance at scale. It offers two distinct data warehousing experiences: the SQL Endpoint of the lakehouse and the warehouse. The SQL Endpoint is a read-only warehouse automatically generated from a lakehouse, enabling data engineers to build a relational layer on top of physical data. On the other hand, the warehouse is a traditional data warehouse supporting full transactional T-SQL capabilities. Users have full control over creating tables and loading, transforming, and querying data. Both the SQL Endpoint and the warehouse can be used through familiar SQL tools, providing a comprehensive solution for data storage and access.

Future-proof the data foundation with Microsoft Fabric

By integrating technologies such as Azure Data Factory, Azure Synapse Analytics, and Power BI, Microsoft Fabric empowers data and business professionals to unlock their data's potential and establish the groundwork for the AI era. It offers an end-to-end analytics platform that caters to all aspects of an organization's analytics needs, including data integration, data engineering, data warehousing, and business intelligence. Moreover, Fabric incorporates Azure OpenAI Service, enabling the use of generative AI against data and assisting users in finding insights. Fabric also simplifies resource management and reduces costs through unified capacities, offering a comprehensive, cost-effective solution for data management and analytics.

Achieve excellence with Microsoft Fabric

Microsoft Fabric is a next-generation analytics platform to enable data estate modernization. It offers a comprehensive suite of services that allows organizations to ingest, store, process, and analyze data within a unified environment. The platform's integrated architecture, centered around OneLake, ensures that data remains in a single location, improving governance and data security, while also promoting collaboration among data teams.

Additionally, built-in governance ensures that the data is accessible only to authorized personnel. Fabric also promotes data democratization and analytics-based decision making. Its compatibility with various business tools empowers both citizens and professional data practitioners to use data to drive informed decision making. By breaking down data silos and making data more accessible, Fabric enables organizations to generate holistic insights and drive digital transformation effectively. Fabric helps decision makers unlock more value from data by being a platform that brings together business units and data professionals while meeting the requirements of data security stakeholders.

Next steps

- Learn more about Microsoft Fabric
- Sign up for a free Microsoft Fabric account to explore its various features and capabilities
- Get help with your project. Talk to a sales specialist
- Learn how to analyze data for actionable insights. Read Vol 2: Modern Analytics: A Foundation to Sustained AI Success
- Read Vol 3, Manage and Govern Your Data with Microsoft Fabric and Microsoft Purview, to learn more about the governance aspects of Microsoft Fabric