us signal



accelerating data modernization with Microsoft Azure

why Microsoft’s integrated data estate and third-party expert support can help you get your data modernization strategy right.

the roadmap for cashing in on digital gold

For the modern enterprise, the power of data is indisputable. Data can help organizations do everything from expand revenue streams and fuel competitive differentiation to improving the customer experience, protecting against threats, and optimizing business spending.

But achieving those results isn't a matter of simply having data. Instead, it's a function of building modern data management infrastructure that not only stores an organization's ever-growing amount of data but makes it accessible and actionable to humans and machines alike.

A strong data modernization strategy, backed by a proven team of experts, enables organizations to further digital transformation, expand analytics capabilities, reduce technical debt, and set the stage for leading-edge machine learning and AI initiatives. What does it take to get there?

This guide will help you develop a better understanding of the strategies, philosophies, and technologies your organization should consider for mapping the fastest, most effective route to extracting maximum value from your enterprise data.

why next-gen operations demand next-gen technologies and strategies

Data modernization is more than just adopting new technologies to help locate and secure your data. It's about properly and strategically categorizing data so that teams understand where it lives, how and when to use it, and how long to keep it. More importantly, it requires extensive and thorough planning, deep data operations expertise, and the right tools to make the strategy come to life.

Traditionally, businesses have often relied on on-premises databases and point solutions to manage their data, which creates difficult to manipulate data silos, inefficient data processing, and makes integrating information into something useful virtually impossible. The poor visibility and restricted flow of data from one database to another limits the value and possibility of robust, revenue-driving analytics, while slowing the organization's inevitable digital transformation efforts.

Conventional approaches and systems also suffer from the built-in constraints of available storage. Organizations can only store so much data. As the amount of data increases, they either need to buy more storage at considerable expense, push the data to backup, or sacrifice valuable data resources.
While the rapid adoption of public cloud confers on companies virtually unlimited storage capabilities, data still needs to be normalized, operationalized, and secured to create maximum value and utility.

the 3 'V's of data

The three 'V's of data highlight the importance of data modernization.

- **Volume** is the amount of data
- **Velocity** is how fast the data is being generated
- **Variety** is how data is always changing

data modernization: today's business imperative

Modernizing your data infrastructure doesn't just solve the problem of not enough storage. It supports must-have services, solutions, and capabilities expected of enterprises competing in a global digital economy and conveys a number of business benefits that directly impact the organization's most pivotal KPIs.

- Improving efficiency and productivity – Instead of onesize- fits-all data storage, a strategic data pipeline ensures that different types of data are stored and processed using the most appropriate tools. This approach eliminates redundant IT infrastructure for more efficient operations and maximizes data usage while minimizing expensive data movement and storage.

- Reducing costs – Greater efficiencies also drive lower costs. In addition to the cost savings inherent

- in the shift from on-premises to public cloud storage, modernizing your data infrastructure reduces total cost of ownership by leveraging existing services and only paying for what you use.

- Gaining more visibility and control – Breaking down old-school data silos and uniting data in one platform offers game-changing visibility and control. Instead of isolated snapshots into certain data sets, teams can now drill down and zoom out for both granular detail and the big-picture view.

- Boosting overall business performance – With a modern data infrastructure, organizations can unlock insights previously buried in inaccessible silos and use it to power technologies like AI. This improves financial planning for stronger business performance, as well as accelerating time to market for new products and services through unified tools, processes, and governance.

- Enabling predictive and prescriptive analytics – AI and machine learning capabilities also power predictive and prescriptive analytics. Platforms like Azure offer a number of analytics options to cover all use cases and types of data, so you can always get the insights you need, when you need them.

- Enhancing the customer experience – Customer experience (CX) and engagement are paramount to virtually every business. A modern data infrastructure empowers teams to use enterprise data to reinforce strong operations and improve upon weaker ones for a continuously optimized CX.

84% of organizations have data modernization initiatives fully implemented or in progress.

Source: Deloitte

- Bolstering security, privacy and compliance – By relying on platforms like Azure, organizations gain industry leading security, privacy, and compliance without the burden of securing their own infrastructure. In fact, a recent Deloitte survey found that security and governance was the number one driver for data modernization initiatives.

No matter what business goals inspire data modernization, it's critical to have the right tools. With a platform in place, organizations can systematically and strategically orchestrate operations to accomplish their objectives.

building the foundation of data modernization with a scalable, adaptable platform

Data modernization means different things to different organizations. Some teams may begin the process by simply moving data storage from on-premises databases to public cloud, while other organizations may take a more comprehensive approach, working toward the ability to build and run a complex data pipeline that is designed to meet specific data and business needs.

why Microsoft Azure is a sure bet for data modernization

Microsoft Azure offers an ideal platform for companies to execute their data modernization initiatives. Azure provides a comprehensive suite of data management and analytics solutions that, when combined with the expertise and insights from a reputable and experienced cloud solutions provider, can accelerate modernization and transformation initiatives that help enterprises become more efficient, agile, and competitive.

Azure's expansive data estate makes it easy for organizations to mix-and-match components and create a high-performance, agile, and scalable data pipeline that makes sense for their business.

With Azure, enterprises can significantly increase their business agility and return on their IT investments by eliminating redundancies, consolidating their IT footprints, and using (and paying for) only what they need. At the same time, the platform's robust security and governance capabilities and tight native

integration among data tools helps to ensure that data remains safe, while still enabling the free flow of information in an ecosystem built for AI and intelligent apps that gives companies a natural gateway to the cognitive enterprise.

what does data modernization with Azure look like in practice?

With Azure, organizations no longer face the limits of physical disk and server processing power in their data centers. Instead, they can get out of the relational database management system (RDBMS) box and store structured data in NoSQL storage via Cosmos DB.

They can store unstructured files in the petabyte-scaled Azure Data Lake and ingest data with a variety of services including IoT Hub, Event Hub, and Data Factory. Using Azure services, the data is encrypted and at rest, and once the data is available in Azure, organizations can gain deep insights into it using AI and analytics services like Stream Analytics, Cognitive Services, Machine Learning, and Power BI.

creating the ideal data pipeline for your business with the Azure data estate

The Microsoft Azure platform is particularly dynamic for data modernization because it can be customized to any organization's business requirements. Structured or unstructured data; storage, compute, or visualization; AI, ML, ETL, ELT — with Azure, the configuration options are virtually limitless.

Services like those detailed below include built-in connectors to other Azure services as well as third-party applications, making it easier than ever to construct a customized data pipeline specific to your company's needs.

Azure Data Lake

Azure Data Lake is a no-limits data lake that enables organizations to store and analyze data of any size, shape, and speed, including petabyte-size files and trillions of objects. Built for the modern big data world, Data Lake can process data across platforms and languages and makes it simple to develop massively parallel programs and debug and optimize big data programs.

Data Lake integrates with existing IT investments, including identity, management, security, operational stores, and data warehouses. It offers enterprise-grade security, auditing, and support alongside the speed and scalability required to keep pace with modern business. Data Lake is affordable as well, with multiple pricing options and no hardware, licenses, or service-specific support agreements required. You can even scale storage and compute independently for maximum economic flexibility.

Azure synapse analytics

Azure Synapse is an on-demand query service that can be used for unpredictable workloads or ad-hoc analysis of data stored in your data lake. Synapse combines data integration, enterprise data warehousing, and big data analytics into one robust solution built to power cutting-edge BI and machine learning processes.

Like other Azure components, Synapse offers industry-leading speed and scale. It uses the freshest possible data from operational systems, so you are always up to date, and allows you to query both relational and non-relational data, using either serverless or dedicated resources, at petabyte scale in your preferred language. Synapse also integrates seamlessly with Azure Machine Learning, Cognitive Services, and Power BI for an end-to-end analytics stack.

Azure Databricks

Azure Databricks is another analytics option designed for developing data-intensive applications. It offers two environments: Azure Databricks SQL Analytics, for running, exploring, and visualizing SQL queries on a data lake, and Azure Databricks Workspace, which reads data from multiple data sources and translates it into insights through Apache Spark.

Databricks integrates with open-source libraries and data science frameworks to give data scientists and engineers the insights they need to build powerful AI applications. It simplifies collaboration and boosts productivity with shared workspaces and common languages, while large-scale data processing for batch and streaming workloads enables reliable data engineering.

Azure Data Factory

Azure Data Factory empowers organizations to integrate all their data through a fully managed, serverless data integration service. Data Factory includes more than 90 built-in connectors to orchestrate and ingest data from on-premises and SaaS sources. With Data Factory, teams can build ETL and ELT pipelines code-free or write their own code, then gain insights from their data via integration with Azure Synapse Analytics.

Data Factory is easy to use and cost-effective, with an intuitive interface, autonomous ETL, on-demand scalability and pay-as-you-go pricing. It simplifies data integration and transformation across your infrastructure to modernize SSIS and inform digital transformation initiatives.

Power BI on Azure

Power BI on Azure turns the analytics unlocked from other Azure services into actionable business insights that anyone can understand. A unified self-service and enterprise analytics solution for data visualization, Power BI on Azure delivers insights at scale to promote a data-driven culture across the enterprise.

With Power BI, organizations can leverage native AI and machine learning to connect to and model any data. Reports are easy to create, view, and share, using conversational language to provide insights in users' own words. Power BI seamlessly integrates with hundreds of data sources, including other Azure analytics services, to reduce complexity and get more value from the entire data estate.

example Azure use case: IoT Edge device in a temperature-controlled truck

A large food distributor uses a system to monitor temperature inside their climate controlled trucks to understand the condition of food products when they reach their terminal destination. The solution uses an Azure IoT Edge device and one or more sensors inside the truck's trailer.

The Edge device collects data on a set schedule (e.g. 1/hour, 2/hour, 4/hour, 60/hour). This data is stored on the Edge device until it gains internet connectivity (either WiFi or 4/5G cellular). The data is then sent though Azure IoT Hub to Azure Stream Analytics and finally stored in Azure Cosmos DB. The data is visualized by the customer using a Power BI dashboard.



OneNeck & Microsoft Azure: The turn-key solution for fast, effective data modernization

While the breadth and depth of Azure make it a tremendous platform for data modernization and more, it can also be overwhelming. Navigating the array of services in the context of business requirements and resource availability is no small task, especially for organizations near the beginning of their data modernization journey.

That complexity is precisely why many businesses look to a trusted partner to support their data modernization initiative. In fact, a recent Deloitte Insights report found that 44% of organizations plan to or already employ outside services as part of their data modernization planning and implementation OneNeck offers decades of experience and deep expertise in tailored tech stacks for virtually any goal or objective. We bring extensive knowledge of SQL servers and private/ public cloud storage as well as an intimate understanding of the Microsoft ecosystem. With OneNeck, organizations gain a proven guide to using Microsoft Azure for data modernization.

OneNeck's data modernization services are comprehensive and ongoing, including helping our customers understand, migrate, ingest, store, and leverage their data with tools and AI built into Azure. As part of this process, we will:

- Work with you to understand your data and applications
- Deploy infrastructure and middleware to serve those applications
- Integrate data flows and processes
- Offer custom services for processes associated with data flows and the workings of your applications
- Utilize an IT operations/service system that is based on ITIL as a foundational ecosystem

5 reasons to choose US Signal & Azure for your data modernization initiative

1. **Faster time to value.** No need to learn Azure, put together a plan, and build out a POC -- on top of your day job. We've helped dozens of companies to quickly and efficiently determine the right data modernization strategy for their requirements.

2. **Easy to use and maintain.** Unlike homegrown systems, Azure is comprehensive, intuitive, and always up to date. You get industry leading performance without any of the headaches of ownership and with the benefit of Azure experts at your side.

3. **Lower cost, less friction.** Instead of spending money on data storage and processing that you may not need, you can right-size your investment and leverage pay-as-you-go pricing. That means more budget for other digital transformation initiatives.

4. **The right tools for your objectives.** We don't believe in one-size-fits-all projects. Whether you want to capture your data more efficiently, access better BI and insights, or just save money by shifting to the cloud, we can help get you there.

5. **The team you need.** As budgets shrink, tech speeds up, and great talent becomes harder than ever to find, it can be challenging to prioritize initiatives. US Signal serves as an extension of your team so you can accomplish more, faster and more effectively.

a data modernization partner you can trust

Data modernization is a modern business imperative for unlocking the true value of increasingly huge volumes of enterprise data. But modernization doesn't happen with the flip of a switch. It requires extensive planning, deep data operations expertise, and the right tools to make any plan or strategy come to life.

Microsoft Azure provides a comprehensive suite of data management and analytics solutions that, when combined with the expertise and insights from a reputable and experienced cloud solutions provider, can accelerate modernization and transformation initiatives that help enterprises become more efficient, more agile, and more competitive.

If your organization aims to modernize your data management infrastructure to enable digital transformation, greater analytics capabilities, and machine learning/AI services, you've come to the right place. With US Signal, you benefit from a trusted partner with extensive experience in data architecture, Gold level partnership with Microsoft, and deep expertise in all things IT to help you navigate complexities, reduce technical debt, and achieve maximum value from your data.

Unlock the power of your data. Schedule your consultation to see how US Signal can guide you to data modernization success.

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