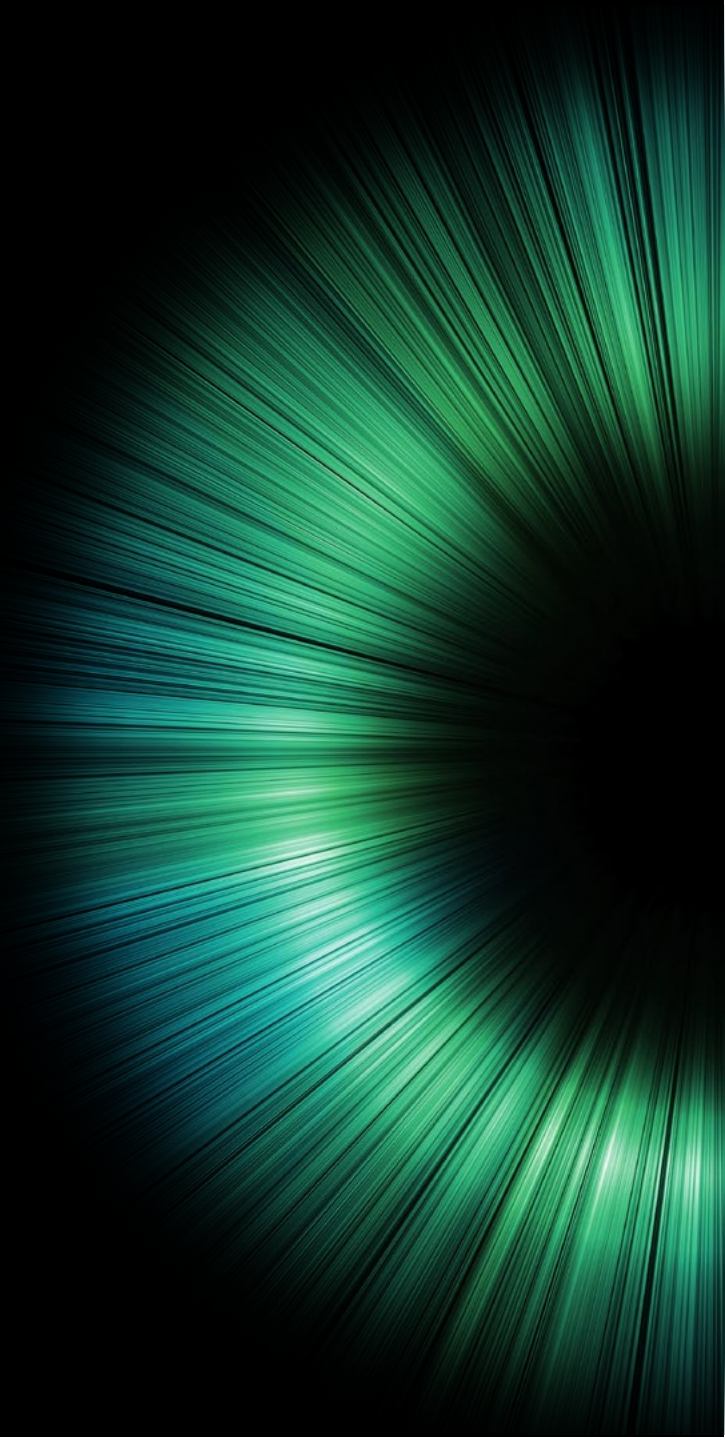
Deloitte.

When data center interruptions create supply chain interruptions, the cloud steps in

A large national retail and consumer products sector organization had systems in place to forecast, monitor, and control the progress through its fast-moving supply chain of popular items that made up a large portion of daily sales. These systems reside in physical data centers—and if those data centers were to suffer outages, disruption to the distribution network and store inventories would cause significant loss of revenue every hour services are unavailable. The cost of creating redundant legacy systems to mitigate this risk was significant, but the data that helped forecast and control product movement—such as SKUs, purchase orders, invoice data, and pricing—wouldn't change. The intelligence the company needed to extract from that data during every minute of operation remained the same. But the system that translated one into the other had to be backed up by the most reliable architecture available.



Deloitte Cloud

What happened next

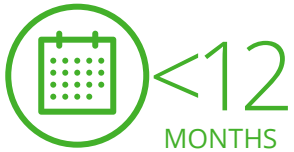
Rather than add redundancy to its data centers that would only extend legacy systems at significant cost, Deloitte counseled the organization to create a backup solution born in the cloud. Deloitte then designed and implemented the system on an aggressive timetable. A 150-member team assembled from more than 13 Deloitte practice groups dove in to create a cloud-native solution hosted on the organization's Microsoft Azure cloud platform, using services like Azure Databricks and Spark to provide advanced artificial intelligence and machine learning capabilities. Integrating cloud services so they would comply with the company's security requirements took customization, which was a collaborative achievement among development, compliance, and operations members of the team from both the organization and Deloitte. The system was designed to be able to forecast movement of the most in-demand retail items and take over replenishment decisioning in minutes when needed. Now, the threat of interruption that any data center outage posed to the distribution network was greatly reduced.

Because the supply chain backup system's ultimate output was not automated control but rather intelligence for action by human decision-makers, the team built in a user-centric web interface. Cloud microservices and APIs kept the solution scalable and flexible. In side-by-side tests, the new system's predictive metrics were notably more accurate than the existing primary production system. Though the cloud system "takes over" only during a data center outage, its AI-powered forecasting runs all the time, offering distribution center and store managers an overlay they can use to extrapolate greater control from the older business-as-usual inventory system.

The wins

- ☑ The team's use of Agile best practices and DevOps techniques from start to finish helped deliver the solution incrementally.
- ☑ In end-to-end testing, the system met all plan requirements with zero critical issues.
- ☑ The system as designed has been extended from the retailer's core inventory to specialty areas such as pharmacy and member sales.
- ☑ The reference architecture of the new inventory system is adaptable to pivot to other parts of the business, and the company's Finance department is already working to adopt it.

By the numbers



<12
MONTHS

The project moved from discovery to implementation in less than 12 months, finishing three weeks ahead of schedule.

10x
MORE AFFORDABLE

The total cost of ownership (TCO) for the cloud-based system was 10 times more affordable than a backup using data center redundancy would have been.

<72
HOURS

The recovery time objective to emerge from the effects of a data center outage shrunk from 72 hours to a matter of minutes.

300+
USER STORIES

300+ user stories and 230 data pipelines were involved in designing the new system and ingesting and processing the operational data.

In side-by-side tests, the new system's predictive metrics were notably more accurate than the existing primary production system.

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