Myntra

Fashion e-tailer Myntra uses Azure to help customers look good

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Customer
Myntra

Products and Services
Azure
Azure Data Lake Storage
Azure HDInsight
Azure Synapse Analytics
Power BI

Industry
Retailers

Organization Size
Large (1,000 - 9,999 employees)

Country
India

Founded in 2007, Myntra (now a Flipkart group company) has become the leading fashion platform in India. As its growth continued, it needed a cloud-based supply chain management and inventory solution with massive scale and high performance. Myntra worked with Microsoft to migrate its entire portfolio to Microsoft Azure in just nine months, using Azure Synapse Analytics and Azure HDInsight to achieve near limitless scale, stabilize services, and increase year-over-year traffic.

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> " With Azure Synapse Analytics, we've reached better CPU utilization and fewer performance and stability issues by working closely with the Microsoft product teams. We get greater ROI on essentially the same cost."

—Raghu Krishnananda: CTO
Myntra

From startup to industry leader

"Our mission is to help people look good, and we do that with technology," says Raghu Krishnananda, CTO at Myntra. This forward-looking approach to transforming the user experience with technology has turned Myntra from a disruptive startup in 2007 to an industry leader today. Myntra partners with more than 5,000 domestic and international fashion and lifestyle brands—to offer 900,000 styles through its online storefront.

Need for scalable infrastructure

Myntra enjoys high market penetration. But in a nation of 1.4 billion people, ensuring that no customer gets left behind requires massively scalable infrastructure to handle seasonal events and major traffic peaks. As Myntra grew, its datacenter landscape was nearing its limits. Faced with an urgent need for scalable infrastructure, Myntra set out to decide what the future of its platform should look like.

Technology partner wanted

There were a lot of must-haves for the new ecosystem: near limitless scale and performance, open-source support, and mature machine learning capabilities. "It was going to be really expensive and time-consuming to build in-house," says Sudheer Tumuluru, Senior Director Engineering, Myntra. "And that's one of the reasons we

chose Azure. We wanted to invest in a long-term technology relationship."

"It's about which platform will give us the widest range of capabilities," adds Tumuluru. "We think of Azure like a shelf of products. Whatever we need—machine learning, data warehousing, big data analytics—we can use it at the right time to develop our platform."

Scalable, flexible infrastructure

Myntra dug into the Azure toolbox and realized the solution lay in an ambitious deployment using a combination of Azure Synapse Analytics (https://azure.microsoft.com/en-us/services/synapse-analytics/) and Azure HDInsight (https://azure.microsoft.com/en-us/services/hdinsight/) (Figure 1).

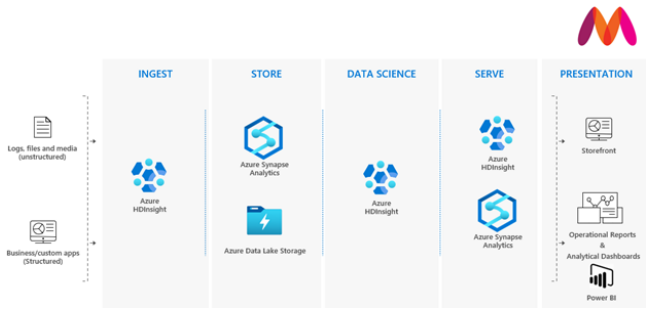

Figure 1. The Unified Data Processing Framework; for a larger version, go to the Downloads section in the left-hand sidebar.

The heart of Myntra's Unified Data Processing Framework runs on Azure Synapse Analytics, which combines enterprise data warehousing with big data analytics at any scale. Myntra planned to spread the data warehouse across two Azure Synapse clusters, each containing 15,000 data warehouse units (DWU).

Another critical piece of the architecture is HDInsight, which is built to handle the intense workloads of seasonal peaks. Critical capabilities of HDInsight include scalability on demand and flexible open-source software engines to support Myntra's entire portfolio and any amount of user traffic. Myntra's planned deployment on HDInsight would seamlessly scale to 12,000 cores during peak sale events and service more than 1,000 ETL (extract, transform, load) jobs and 70,000 queries daily.

> " Azure brings us the flexibility to use both open source and Azure components. We especially like the MPP [massively parallel processing] capabilities of Azure Synapse Analytics for its low latency SQL capabilities."
>
> —Sudheer Tumuluru: Senior Director Engineering
> Myntra

A phased migration plan

With its architecture set, Myntra prepared to migrate to the new data estate. "Migrations are often seen as simply copying data, but it's much more complicated," says Tumuluru. He elaborates: "It's like open-heart surgery. We're talking about hundreds of thousands of lines of code, and it's not copy and paste. It's a transformation of code."

Myntra and Microsoft developed a phased migration plan to reduce risk and ensure stabilized production services. The migration would go in three phases.

- Phase 1: Migrate non-critical supply chain management (SCM) inbound and customer experience applications to establish a production baseline on Azure.
- Phase 2: Migrate SCM outbound and critical SCM inbound.
- Phase 3: Migrate mission-critical storefront services that demand high scale and low latencies.

Migration challenges

Any large migration can result in unexpected roadblocks, and Myntra hit one too. A deployment issue occurred during Phase 1, and Myntra temporarily halted the migration. “One of the things we realized was that, even in the production environments, our setup was not behaving as it should,” explains Tumuluru. “But Microsoft stepped up. They deployed somebody to help. We had daily cadence meetings. And together, we overcame the challenges.”

Microsoft and Myntra handled the performance issues and restarted the migration. As Tumuluru describes it, “There was this sense of making it happen together as one team—Microsoft and Myntra working side by side to track down and resolve issues.” After resolving those initial teething issues, by June 2020, they had scaled up to 60,000 cores and multipetabytes of Azure Disk Storage, making it one of the largest deployments worldwide.

Auto-scaling handles explosive growth

A test of the new system came in December 2019 during Myntra’s bi-annual End of Reason Sale (EORS). Azure Synapse and HDInsight successfully scaled to handle a 30 percent growth in traffic from the previous year, and then resumed to business as usual once the event ended. “That’s one big win in terms of our cost optimizations. We’re able to handle these big events very effectively,” says Tumuluru.

But the next EORS in June 2020 was even more critical. “Owing to the nationwide lockdown, we couldn’t operate initially, however, after a couple of weeks, as per the government’s orders, we were ready to sell only essentials. This edition of EORS was extremely important, as there was a pent-up demand and we were the first major e-commerce player to hold an event of this scale, when we entered the unlock 1.0, ” says Tumuluru.

Meeting Myntra's expectations, it turned to be an even greater event. Azure Synapse scaled to 30,000 DWU across Myntra's two clusters. Dedicated Azure compute clusters ensured high availability so that there were no spikes in CPU, memory, or I/O. HDInsight auto-scaled to 12,000 cores, handling more than 4 million orders from 3.5 million customers. "We've seen the highest number of events that we were able to ingest and coordinate. And we handled as many as 120 million sessions while providing personalized shopping recommendations to each customer," says Tumuluru.

A deployment—and collaborative relationship—for the future

Myntra is continuing to develop and optimize its platform to take advantage of the capabilities of Azure Synapse. As Tumuluru describes it, "We want to centralize our data lake and have multiple ways of computing and querying data. Microsoft is charting that course with Azure Synapse, so we see it as an essential part of our evolution." He adds, "And we're keen to experiment with the AI and machine learning services. Our key focus will be to continue to work with Microsoft, be an early adopter of new features, and keep growing together."

> " The efficiency we got from auto-scaling the clusters allowed us to scale our infrastructure 50 percent and yet accommodate three times more traffic."
>
> —Sudheer Tumuluru: Senior Director Engineering
> Myntra

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