MODERNIZING DATAWAREHOUSE;

Why and When?

Rich data availed at the right time at the right cost is the most profitable asset of the company. So, procuring and merging viable data for the organization from heterogenous sources and analyzing and using them for the company's gains, also known as data warehousing is of massive importance. Constructing and using a data warehouse involves drawing out the data architecture, refining out viable data, integrating the data, cleaning and weeding out redundant and irrelevant data and consolidating various data sources. How soon you can enrich your data, consolidate it, analyze and mine out the hidden treasures required for business growth is what gives your business the extra edge.

"Data is a precious thing and will last longer than the systems themselves"

- Tim Berners Lee

A data warehouse is a dynamic entity. It means the warehouse changes with changing data volume, data velocity, nature, quality and sources of business data etc. The traditional methods of data warehousing are often not able to meet the changing business requirement.

Modernize Data Warehouse; Why?

Data warehouse technology has served its purpose well in the last 30 years. Most of the enterprises could harness enterprise data analytics and could shape their business growth through storage, merging and processing of large sets of homogenous data. But the recognition of data as the core success driver of enterprises is being realized lately like never before. Hence, faster processing of data, handling numerous user requests within the smallest possible time and scaling data has become the need of the moment. With the fast adoption of log mining and Internet of Things (IoT) devices, tons of data are being generated every moment. Such volume has never been witnessed before. Legacy architecture is not able to meet the rising demands of the present situations. Multiple other reasons are justifying the modernization of data warehousing.

THE ISSUE OF AGILITY

The legacy warehouse is unable to achieve agility for business as they can't keep up with numerous data requests from users. Most of the time they hit their capacity limits and can't be scaled. Users get slowed down and the company need to tie up their IT administrators in solving these problems.

Separation of storage and compute layers in the data infrastructure:

Legacy Warehouses have databases where computing and storage layers are glued. An important move in Modernizing the data warehouse involved separating the storage and computing layers in the architecture. This made attaining scalability a piece of cake

SCALABILITY WITH SEPARATION OF COMPUTING AND STORAGE

Let us explain how. When data is stored on a cluster of database nodes, each required to meet its requirements of performance, databases distribute and partition the data, so that each node carries a fraction of the entire data. Adding extra database nodes with increasing variants, volume and velocity of data require a rebalancing of the data in the cluster of database nodes so that the ratio of data to computing is uniform or equal across all the nodes of the database clusters.

Often, rebalancing may involve physically migrating data across the cluster nodes. Separating compute and storage involved framing the database systems in a manner that the persistent data was stored on the storage attached to the network. So, if the cluster needed to increase its compute capacity, new nodes could be added and the ownership of the cluster nodes could be modified without physically migrating data (as the data is available or seen across all the nodes)

RECOVERY AND AVAILABILITY OF DATA MADE EASIER.

With data being stored in network storage remotely, no data is lost on the failure of the computing nodes since the remaining or still, active computing nodes can access all the data. Hence recovery of data and availability of the same can be done instantly.

Separation of storage and compute helped in solving the problems of time-sensitive queries of users. So, users could focus more on analysing data rather than re-engineering or upgrading database systems.

ADVANCED PREDICTIVE ANALYTICS

The best of analytics provides the best inferences from any data. Predictive analytics is driving major business strategies and management functions. Legacy data warehouses do not have built-in predictive analytics. Hence, drawing valuable futuristic insights for prudent business strategy formation and decision making is not possible. Modernizing data warehouse and coupling it with AI, ML and advanced analytics for driving agility and better decision making is the need of the moment.

USE BASED PRICING MODEL

Traditionally legacy warehouse requires IT personnel to access the data needs every one, two or three years. This was a time-consuming burden for the IT department. Even after doing so, the IT department couldn't come up with the exact forecast of data needs that could arise in future so that the organization could prepare to scale up. Most of the time massive upfront costs were involved in purchasing hardware and software that could be underused or not used at all for years. Modernizing and moving to a cloud data warehouse enabled these organizations to go for a use-based pricing model for their data centres, thereby saving huge costs. There was a gradual shift from CAPEX to OPEX.

HIGHLY IMPROVED DATA STORAGE

Modernizing the legacy warehouse data storage by shifting to a cloud-based data warehouse worked wonders for data storage. Rather than monitoring the utilization of disk and configuring newer ones on high-cost involved network-attached storage devices, now businesses had multiple options to store a large volume of data in multiple formats. Cloud data warehouses with massively parallel processing capability allowed handling of tons of workload with ease, and also enabled ondemand utilization of the warehouse for data analytics.

QUICKER DEPLOYMENT FOR FASTER COMPLETION OF PROJECTS

Enhancing the data warehouse and upgrading the infrastructure to increase data capacity, processing ability or to support new test environments often required time and delayed projects. With the cloud, this problem got nullified and organizations could gain elasticity and accelerate the deployment of projects without delays.

SUPPORTS DATA FOR ALL

Traditionally, legacy warehouses worked on batch ETL (extract, transform load) processing which had high latency. In today's scenario, real-time data retrieval and analysis is mandatory for all businesses. Modern data warehouse supporting batch ETL processing and using CDC (change data capture) techniques to make data available for operations in real-time and then parsing/ filtering them to get specific data for different processes and events helps in sufficing the growing business requirements, along with providing scope for time-sensitive reporting, monitoring and analytics.

When do you need to modernize your data warehouse?

You need to modernize your data warehouse when:

- There is a massive increase in data volume in your organization and you need to scale.
- There is a need to integrate multiple data types and data sources like increasing accounting data, salesforce data, data from new business segments, data from siloed systems, data from apps and IoT devices, data from systems in different geolocations and so on.
- There is a need to simplify provisioning and database configurations.
- There is a need to reduce latency and have real-time processing of user requests without loss of data.
- There are frequent outages and downtime with increasing queries or requests, and you need to tie your IT personnel for resolution, most of the time.
- There is a need to integrate all your operational data with unstructured or semi-structured Big data. Legacy warehouses are generally not capable of ingesting these formats of data.
- There is a need for faster adoption of NoSQL databases and harness the processing ability of Hadoop or open-source technologies like Spark, Apache and Kafka.
- There is a need to accelerate the deployment time of projects without investing time in infrastructure enhancements and upgrades.
- There is a need to have fast, self-service business intelligence and insights for your organization.

What to look for when you decide to modernize your data warehouse?

When you are considering Modernizing your data warehouse, there are certain essentials that you need to cater to like:

DECIDING TO HIRE IT SPECIALISTS FOR THE JOB

Often if the modernization is done in-house with less expertise, the solution may be rejected by the company decision-makers. So, you need to hire a data warehousing expert like ISmile and check -

- Whether they have more than 10 + years of Modernizing data warehouses
- The number of projects they have done in the past
- The reputation in the market
- The metrics for assessment of the existing legacy data warehouse and the modern data warehouse afforded by the hired service

THE COST AND TIME INVOLVED IN THE MODERNIZATION

You need to undertake a clear analysis of the cost involved in modernization. This must be measured against the potential ROI that can be generated.

What all are done in the modernization process?

Data warehouse modernization may involve....

- Aggregation of multisource and multi formats databases
- Upgrading or modifying the data models
- Upgrading the database architecture
- Adding new platforms to data warehouse infrastructure
- Coupling advanced analytics features
- Utilizing in-memory functions
- Separating storage and compute layers
- Moving the data centres to the cloud
- Integrating data lake and the traditional data warehouse • Reducing the cost of ownership
- Automation of the migration of data in the file systems and storage and out of it
- Creating support infrastructure for the cloud-to-cloud interoperability

Ready to automate Dev & Ops to shorten the SDLC?

Talk to our experts today & see how they can help to fulfill your business objectives.

Request a Free Consultation

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ISmile Technologies is a proud automation-enabled intelligent cloud solution and managed IT services provider, and it is your multi-cloud technology advisor & key implementation partner.

We operate globally and leverage disruptive technologies alongside deep expertise to deliver business-specific cloud solutions. We maximize impact at an unparalleled value and securely accelerate business agility while infusing competitive excellence.

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