### Tech Mahindra

Whitepaper

# The Masterplan to Optimize your Data Migration Journey to the Cloud



**Connected World.** Connected Experiences.



### Abstract

Enterprises are witnessing two major growth trends:

- Increasing demand for business insights from data to gain and maintain their competitive edge
- An ever-increasing amount of data and data sources, both internal and external where these insights need to be derived from

This in turn has put an extremely high load on their existing systems of storage and analytics, typically residing on their in-house and on-prem data platforms. These data platforms were built to scale decades ago but are unable to stretch their limits in terms of storage capacity, processing power or analytical ability in line with the two trends mentioned above.

Cloud has emerged as the solution to this problem with its practically infinite storage capacity, very high processing power and modern, scalable and high-speed data and analytics platforms.

### Key Takeaways

# 02

Business challenges prompting the need for a right data migration strategy

# 05

Solution tenets

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TechM's Best Practices for Data Migration Journey

## 03

Use cases for data migration to cloud

06

Solution architecture



### Introduction

As organizations want to migrate from their legacy systems to cloud, there is no 'one size fits all' approach. Every case is unique, and the right answer depends upon a multitude of factors, with key ones as follows:

- Current source systems and data growth rate
- Future source systems and data growth rate
- Business needs and use cases
- Variety, frequency, and recency of analytics required

### Business Challenges Prompting the Need for the Right Data Migration Strategy

Cost and time have emerged as the primary challenge when it comes to enterprise data migration. Poor data quality and lack of visibility into associated issues have been cited as the most common factors behind delays and increasing cost. Another key challenge is choosing the right platform.

We help organizations develop a well-planned migration strategy by consulting with their business and technology stakeholders to outline the scope of data migration, the timeline, and the availability of resources in the new system. This enables organizations to develop a plan that is in alignment with overall business goals and ensures seamless and timely migration.

Platform Selection	Choosing the right tool is always a challenge when considering hybrid or multi cloud migration solution and it requires additional impact analysis on cost and compatibility
ຍາກະລາດ Data Quality ເຊີເຫຼືອງ ອາເວລາ and Cleansing	Identifying right data cleansing rules is challenging as it requires context of the data and good business knowledge
Monitoring and Predictive Maintenance	For big migration programme across hybrid environments the monitoring and maintenance is complex in nature and thus requires specialized tools

#### Few pointers that need attention while an organization are on their data migration journey:



	Security and Compliance	Data encryption /decryption at rest and motion with proper authentication and authorisation could become very cumbersome. Additionally, security management for test data requires use case based planning and specialized tools for execution.
o C L	Program Management	Considering the varied nature of stakeholders involved in a data migration, it becomes a very complex and proper strategy should be employed for project, communication, and risk management
	System Performance and Data Throughput	Specialized job planning and architecture consideration including accelerators are needed for performance scalability which required additional cost and effort
<u>وارمی میں میں میں میں میں میں میں میں میں م</u>	Data Transformation and Conversion	Extracting common meta data from unstructured and semi structure data is complicated due to varied sources and some time requires specialized tool for conversion.
	Verification and Validation of Data	For larger volume of data verification and validation become a major challenge and automation may require for better productivity.

### **Data Migration Use Cases**

Several use cases and situations can prompt the need to migrate data. While one of the foremost requirements stems from businesses undertaking a large digital transformation initiative where movement to cloud is all but necessary, an organization could be moving data to cloud just to get long term cost advantage or leverage more modern technologies; it could also be a sudden need to moving and merging bulk data because of mergers and acquisitions. We have seen organizations that have required us to create a migration factory and implement migration-as-a-service for parallel migrations running across several geographies. Besides business needs for data migration, we have seen the need of data migration from varied data sources like migration of unstructured data or file systems. There are several trends on the approach of data migration as well – such as API and web-service-based migration or batch load.

To boost our customers' strategy, we complement it with different IPs and accelerators. Our home-grown frameworks, solutions, and IPs benefit our customers to choose a cost effective yet modern migration approach that suits them best to achieve their business goals.



#### **Digital Transformation**

Moving database/data warehouse to cloud

Setting up future proof data and analytics platforms on cloud

Identification of the right migration tool

Building an automation framework

#### Merger and Acquisitions

Bulk migration for M&A

Data merge

Data audit

Address and revenue validation

#### Migration -as- a- Service

Leveraged for migration factory model

Creating a common data model and exposing services from the common data model to consuming system

Flexibility in migration depending on consumer need with embedded data quality and data governance

#### **Transformation and Migration**

Heterogeneous database migration

OLTP/OLAP to NoSQL

Create a transformation layer and map to target DB with automation.

**Application Migration** 

Data migration for application such as ERP, CRM, and SAP

This is not only data migration but need to consider business process and logic as well





### **Our Pillars**

Accelerators

Frameworks

Automation

TDM

### **Solution Tenets**

We follow a few key principles for data migration and make sure these principles are benefiting the organization while migrating their data to the target platform.

The most critical one is productizing the data. It is just not migrating the data, but we look at how that data will be consumed how can we deliver the data to the point of consumption with ease. The solution take cares of these aspects and we provide a framework that enables our customers discover the data that they are looking to consume.

We also provide an error resolution framework that takes care of every failure scenario with proper mitigation and reconciliation plan including provisioning of a self-healing mechanism.

Another important component of our framework deals with existing data issues and identification of process glitches. This helps restricting those issues migrating to the new system. The solution also establishes required cleansing and reporting processes to enable automated, governed and report based manual cleansing by users.

Our solution tenets not only bring the clarity of the process but also makes the organization future ready with ensuring business agility and modern trends of technology.



#### **Use Case Based Data Product**

Data arranged as per business and consumption system-based use cases to ensure consistent governance and quality framework while delivering the data.

#### **Data Availability**

Each business product data made discoverable and shared by critical filtering elements such as Country and Language, using tagging and lineage with data access and security framework



#### Error Handling & Reconciliation

Establish error framework at each point of failure to ensure proper mitigation and reconciliation including self-healing mechanism

#### Data Cleansing And Data Quality As A Service

Establish required cleansing and reporting process to enable automated, governed and report based manual cleansing by users. Combination of business requirements and industry best practices to provide high quality data





Multi-platform, Multi Format Usable Framework

Establish once, use many times, enable delta loads in both API and ETL format through global framework

Optimized & Robust Cut Over Execution Plan & Mock Load Decouple Data availability from data sharing





#### Accelerators

Utilize TechM IP tools SPRINTER, CDIF, UDMF and INFOWISE for metadata management, profiling, mapping, transformation and filtering

#### Verification and Validation

Automated test script execution for data validation and verification based upon sample test data management, security and use cases

### **Solution Architecture**



### The Way Forward

Data migration is a necessary part of maturing a company as a data-driven organization. It is always challenging and if we don't carefully strategize and set up the right migration model that aligns with the business requirements, it's all too easy for a promising mission to fail, stopping businesses from achieving digital transformation.

Selecting a deployment model that aligns with business requirements is essential to make sure that any data migration is both smooth and successful and delivers business value.

### **TechM's Best Practices for Data Migration**

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- The first step in data migration is not field-level mapping, but entity-level analysis to determine the master data entities needed for the target application. Identify the source of product, customer, vendor data, and validate it against other sources
- Identify data quality problems through data profiling to reduce testing and reconciliation effort
- Identify data security requirement to ensure regulatory compliance and sensitive data tagging for test and production data



Efficient program management to establish a program governance organization to identify and manage dependency across stakeholders from business to end consumers



### Data Movement and Reusability

- Use a flexible, metadata-driven architecture that standardizes and reuses definitions across platforms and projects, for e.g., global ingestion framework
- Establish error framework at each point of failure to ensure proper mitigation and reconciliation including self-healing



 Optimized and robust cut over execution plan including mock loads, verification process, offline vs online load, and planning for parallel jobs



#### Infrastructure Planning

- Scalable infrastructure planning based on the data growth rate
- Tool selection for hybrid and multi cloud for cost effectiveness

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