Abstract

It is important that we start looking at ways to optimize data management solutions for our organizations to drive the cost optimization objective. Most data management solutions today are high capex based investments with significant recurring costs in annual license fees, maintenance services, and change management issues. However, NIIT Technologies’ MAP.BMS framework overcomes these obstacles by transforming business as usual (BAU) data operations into managed services operations. We took over the data operations for a leading airline in Asia-Pacific and helped it achieve overall cost avoidance of more than USD 100k annually due to automation of jobs and technology improvements. With more bandwidth available for new initiatives, the airline already has a proof of concept for migration from on-premises to cloud and another one for use of Hadoop-based storage technologies.
Window of Opportunity to Drive Value

The airline industry has transformed rapidly over the past decade with the expansion of fleets, addition of new routes, increase in competition, and reduced input costs. The International Air Transport Association (IATA) forecasts that the number of air travelers across the globe shall touch 7.2 billion by 2035. This is nearly twice the 3.8 billion air travelers in 2016. Therefore, the time is ripe for airlines to transform their IT infrastructure to capitalize on this opportunity and grab maximum market share.

One of the leading industry analyst firms in a recent study stated that to cope with a tightening economic environment, businesses should prepare now for cutting IT costs and data management is one area that provides numerous opportunities to that end. In one of their press briefings, it was cited “When aiming to optimize costs in data management and integration initiatives, it is critical to know what steps to take and where significant savings can be realized while maintaining success in these projects. In most cases, the cost of implementing the steps will be far outweighed by the savings that can be realized.” Through 2020, 35% enterprises will implement some form of data virtualization as an enterprise production option for data integration.

One of the key areas where airlines can transform their operations is to optimize data management solutions with an objective to reduce costs which can fund new business initiatives. This can be achieved using NIIT Technologies' MAP.BMS framework which helps clients transform their data business as usual (BAU) operations into managed services operations.

Key Business Imperatives Driving Cost Optimization

You can drive cost optimization in data management through the use of a managed services team structure. The automation of routine and non-value added (NVA) tasks help generate bandwidth towards data transformation projects like optimization of data models, and ETL and BI layers. Also, the implementation of data governance best practices and adapting DevOps practices to change and release management process helps reduce costs.

The three key levers that need to be considered within an organization to achieve the desired business imperatives are: technology, people, and process. In technology, there is higher cost of infrastructure and application maintenance due to manual monitoring of jobs and manual processes. Usually, there are no clear data backup, retention, and archival policies and practices. Also, data governance policies and practices are ambiguous and not aligned to business needs. Such state of affairs can be transformed through automation of routine manual jobs and real-time monitoring and notification system for ETL and BI jobs. Moreover, data governance policies must be defined for audit and control, data masking, and user access control.

As far as people within an organization are concerned, generally named resources are required for specialized skills for each software and hardware component leading to inefficient utilization of resources. Organizations are unable to utilize large pool of organizational experts in different technology, process, or industry areas due to dedicated nature of their existing team structure.
This can be transformed through optimized resource management and improved ability to multi-skill and share expertise across different applications and technologies. There has to be renewed focus on knowledge management and quality and the organizational structure should be aligned to business units and their vision rather than technology competencies or functions. A competent team structure promotes identification and implementation of new ideas.

As far as processes are concerned, most organizations find it difficult to monitor ongoing operations in an integrated manner. There is a high degree of failure during releases and/or patches, and challenge in initiating new development projects due to scope fuzziness. So, there is a long wait before value can be realized. NIIT Technologies leverages an integrated operational monitoring console utilizing best practices in data operations. Using best practices in DevOps, changes and releases are orchestrated seamlessly in various scenarios. Also, adoption of agile BI and analytics methodologies makes it easier to derive quick RoI for new initiatives.

Build Agility through Managed Services

Applying the three levers—technology, people, and process—can drive significant value across key business parameters. The transformed organization gets an agile modus operandi with subscription or usage based costing. This helps it to move from a capex to an opex model. It also helps free up working capital which can be utilized for value added pilot projects in BI which can drive actionable business outcomes. For instance, an organization can pump in more investments in developing a Single Customer View (SCV) solution, build interactive dashboards and a balanced scorecard for business performance monitoring and action, use case-based advanced analytics solutions, and implement new initiatives for data quality and master data management.

How NIIT Technologies Transformed Data Operations for a Leading Airline

NIIT Technologies used the MAP.BMS framework to transform data operations from BAU model to managed services model for a leading airline in Asia-Pacific. The client’s enterprise data warehouse consisted of domains such as reservations and ticketing, inventory (yield), flights–on-time performance, frequent fliers and passengers, check-in, special service requests, and marketing campaigns.

We used our expertise in managing data operations of leading airlines globally to completely overhaul their data management practices. This involved using a shared services team structure to derive operational efficiencies. Automation of routine, non-value added tasks with focus on transformational opportunities was also considered. There was platform optimization through re-designing data model, and ETL and BI layers and enrichment of existing data visualization functionality to make it more user-friendly and to provide better business insights. The initiative also involved a change of team mindset from achieving SLAs to delivering business value. In addition, there was implementation of data governance best practices and integration of DevOps practices to the change and release management process.
Other key transformation initiatives included:

**DWH Platform Advisory:** Implemented archival strategy and table cleanup in the data warehouse helped in reducing data backup time. Also, data size trimming helped in optimizing storage performance and in reducing media costs.

**Process Establishment:** There was implementation of SVN based version control, an improved release management process, maintenance plan and monitoring, support, and development guidelines, and best practices and estimation models.

**Monitoring & Control:** NIIT Technologies also helped the airline establish an ETL and BI jobs real-time monitoring and notification system, a real-time DW/BI environment health monitoring solution, data visualization layer refresh monitoring and business notification automation, alert mechanism for source file arrival, and unified audit and control platform using open source technologies.

**Performance Improvement:** The airline witnessed reduction of execution time of 3 ETL jobs by 50% and the three BI reports were optimized by up to 50%-80%.

**Technology Advisory:** We helped create an approach document for Big Data technology landscape (e.g. data lake) as an alternative for existing DWH technologies, a detailed analysis document for cloud-based alternatives for data ingestion and data storage technologies, and Hadoop Proof of Concept (PoC) document for searchable archives.

**Data Governance:** As part of data governance initiatives NIIT Technologies helped establish a data reconciliation policy for audit and control, data masking, access control, user access policy, and implementation.

**Security:** Access control and data obfuscation were implemented to avoid any security and compliance breaches. Also, we helped identify orphan identities and dependencies to reduce platform overhead.

**Monitor & Control:** Alert mechanism was setup for source file arrival, single sign-on (SSO) implementation was done for the Cognos environment, and a unified audit and control platform was set up using open source technologies.

**How the Airline Benefited through the MAP.BMS Framework**

NIIT Technologies’ MAP.BMS framework helped the airline in reducing costs substantially and in creating bandwidth for new initiatives. This has helped further improve business confidence. There was overall cost avoidance of more than USD 100k annually due to automation of jobs, technology improvements, and in fixing root cause of repeat issues. In addition, the airline saved more than 100 person days of efforts due to job automation, and faster and improved availability of information.

Better data governance was achieved through implementation of user access policy, data obfuscation, automated data reconciliation, and improved visibility of data lineage. Overall improved business confidence into data warehouse and BI systems was achieved due to better stability, real time job status dashboards, and automated data reconciliation. Also, there is more than 50% faster availability of critical reports due to redesigning of ETL and BI layers.
With more bandwidth available for new initiatives, the airline already has a proof of concept for migration from on-premises to Cloud and another one for use of Hadoop-based storage technologies.
The NIIT Technologies Thought Board:
Optimize Investments in Airline Data Operations to Drive Value

How MAP.BMS ensures reduction in costs?

- Automation of mundane jobs
- Improvements in technology
- Fixing root cause of repeat issues
- Faster and improved availability of information

What factors influence MAP.BMS implementation and success?

- Clearly identified objectives
- Analysis of business benefits
- Data retention and archival policies
- Data governance policies

What are the key data systems that can be transformed?

- ETL and BI jobs monitoring
- Data archival and data warehousing techniques
- Security and compliance monitoring

What are the primary benefits airlines can expect from MAP.BMS?

- Substantial cost savings due to automation of mundane jobs
- Better data governance
- Faster availability of critical information
- Enhanced focus on new initiatives
Transforming Data Management for New Initiatives

In this age of enhanced global competition, it is imperative for organizations to start looking at ways to save costs on inefficient processes and put more money on new initiatives that drive value for customers. Most data management solutions today are high capex based investments with significant recurring costs in annual license fees, maintenance services, and change management issues. MAP.BMS framework overcomes these obstacles by transforming BAU data operations into managed services operations. The transformed organization gets an agile modus operandi with subscription or usage based costing, freeing up more resources to spend on new initiatives.