Cloud Pak Assessment Report for
ABC Enterprise

Submitted By

TATA

TATA CONSULTANCY SERVICES

DOCUMENT RELEASE NOTICE

Document Details:

Name	Version No.	Description
ABC Enterprise Cloud Pak Assessment Report	1.0	First version of Assessment Report

Revision Details

Action taken (Add / Del / Chg)	Preceding page no.	New page no.	Revision description

Review:

Reviewer	Date

Approval:

Approver	Date

Contents

List of Figures

1 Introduction

1.1 Objective

The documents captures the business and technical goals of ABC enterprise. The objective of this document is to layout the approach towards Integration modernization and also covers the tools, accelerators, RoI and best practices that can be leveraged towards integration modernization journey. This document is for Managers, Integration Architects, Solution architects and Developers who are responsible for design and analysis.

The reader must be familiar with the concepts of Integration, Cloud, SOAP/REST protocols and related integration technologies.

This document will form the basis for the subsequent phases of the project like construction, enhancement and testing. This document can form a base towards ABC enterprsie Architecture Blueprint document.

1.2 Conventions Used

This document used standard design documentation conventions.

Terms	Explanation
TCSL	Tata Consultancy Services Limited
CP4I	Cloud Pak for Integration
ACE	App Connect Enterprise
IIB	IBM Integration Bus

2 Assessment Summary

Area	Value
Customer Name	ABC Enterprise
Business Unit	B2C, B2B
Application Hosting on Cloud	No
Cloud Pak for Integration (CP4I) Suitable	Yes
Recommended Deployment Model	Hybrid
Recommended Migration path	Phased approach (VMs and Containers)

3 Application Details

3.1 Technical understanding

Area	Value
Integration product(s) used	IIB, MQ, DataPower
IBM Integration Bus version	IIB 10
Nodes used within IBM Integration Bus	Http Input, Soap Input
Total number of interfaces in IIB	20
No of Interfacing Applications	10
MQ version	7.5
AppConnect	NA
DataPower	NA
Monitoring Tool Used	Dynatrace
Auditing Tool Used	NA
Logging Tool Used	NA

3.2 Business understanding

Area	Value
Current Business Challenge	ESB being the centralized ESB, it is difficult to rollout new releases in a shorter span of time for certain business units. We want to move from centralized to decentralized ESB to bring in more agility, proper governance and faster time to market.
Number of IIB instances used	16 (4 instances per server)
Customer Vision	Move from monolithic to Agile integration with decentralized ownership
Number of MQ instances used	4
What is the target cloud platform you would like to take your integration workloads on	RedHat OpenShift
Number of PVUs used by IBM Integration Products	20000
Current annual spend on licenses and support	Not known
Infrastructure usage statistics (Servers, Memory assigned, memory utilisation)	Not known

3.3 Infrastructure Specific Details

Area	Value
Operating System Used	Red Hat Linux
Does customer has/use OpenShift in their enterprise	Yes

3.4 Operation Specific Details

Area	Value
Current team size supporting application development	30
Current team size supporting middleware operations	5
How many integration flows are customer facing & business critical	100
What is the expected response time of the application	100ms
What is the number of software releases for this application per quarter?	2

3.5 Return on Investments

This section captured the as-is spent on the product, licenses and support and derives the RoI after moving to Cloud Pak for Integration Platform

Area	Value
Please share the infrastructure usage statistics (Servers, Memory assigned, memory utilisation)	Not known
What is the current annual spend on licenses and support	Not known
Please share the number of PVUs used by IBM Integration Products	20000

4 Recommendations

4.1 Deployment Architecture(Hybrid & Cloud Native)

4.1.1 To-be state architecture

After analyzing the information received by ABC enterprises, we recommend to start integration modernization journey in a phased approach. Below diagram shows the final to-be state modernized integration architecture for ABS enterprise.

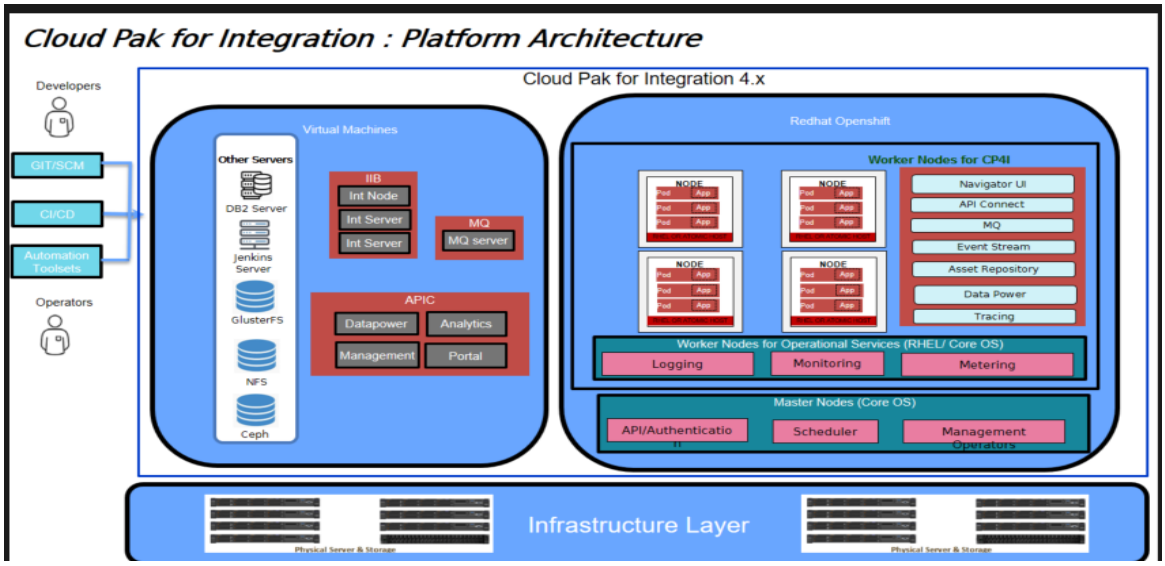

Figure 1 - Cloud Pak to-be state architecture

4.2 Tools and Accelerators

TCS recommends following tools and accelerators for modernizing ABC Enterprise integration architecture

1) Transformation Advisor

Transformation advisor is a free tool by IBM to enable ease of migration from IIB 9/ 10 to ACE on containers inside RedHat OpenShift platform.
Transformation advisor spans through integration binaries, assess existing integration flows, identify gaps, provides recommendation to move into ACE and provides a high-level migration efforts required to move into ACE on containers.
Below picture represents a high-level view of IBM Transformation Advisor

2) One Click Deployment

One click deployment is a utility supporting the following features

- Migrate existing IIB or ACE workload to IBM Cloudpak for Integration

- Provides end-to-end automation that includes Checking out the Code from SCM system, Build deployable artifacts and Deploy to OpenShift container platform
- Combines widely used DevOps and Container mgmt tools – e.g. Jenkins, Nexus Repository, Maven, Docker

Below picture represents an architecture view of one click deployment utility

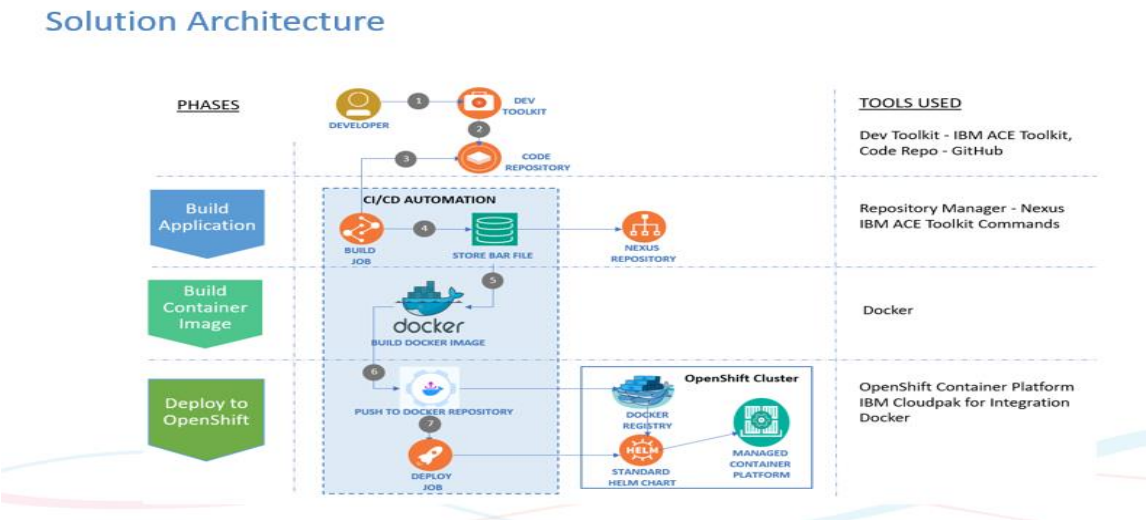

Figure 2 – One-click deployment solution architecture

4.3 Migration/Upgrade/Execution Plan

4.3.1 IIB v9 to ACE 11 migration approach

There are two approaches for moving IIB 10 workload into ACE as shown in the figure below

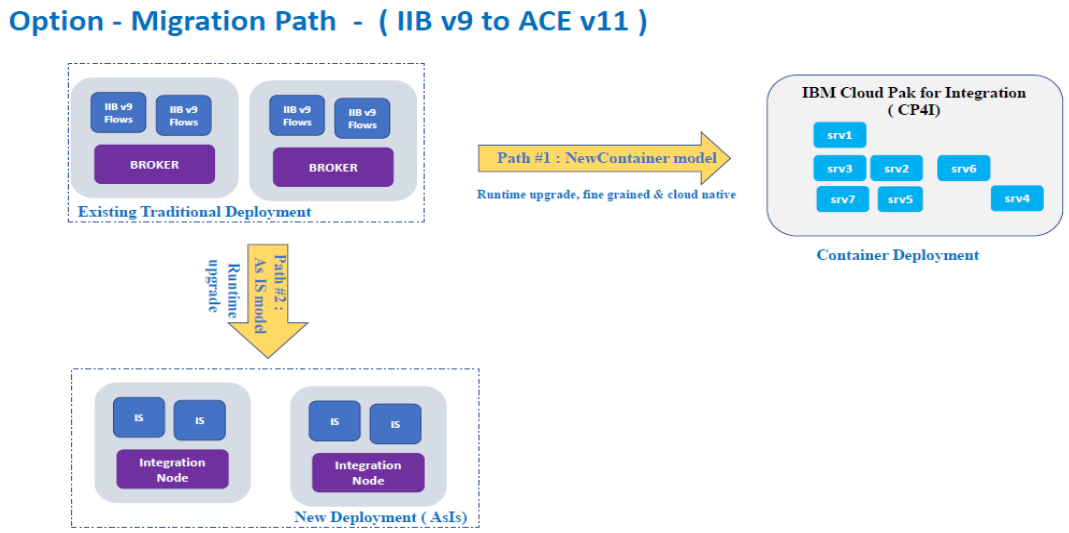

Figure 3 - IIB 10 to ACE migration approach

Based on the analysis of ABC enterprise integration landscape, TCS recommends using a phased approach for carrying out the migration as shown below

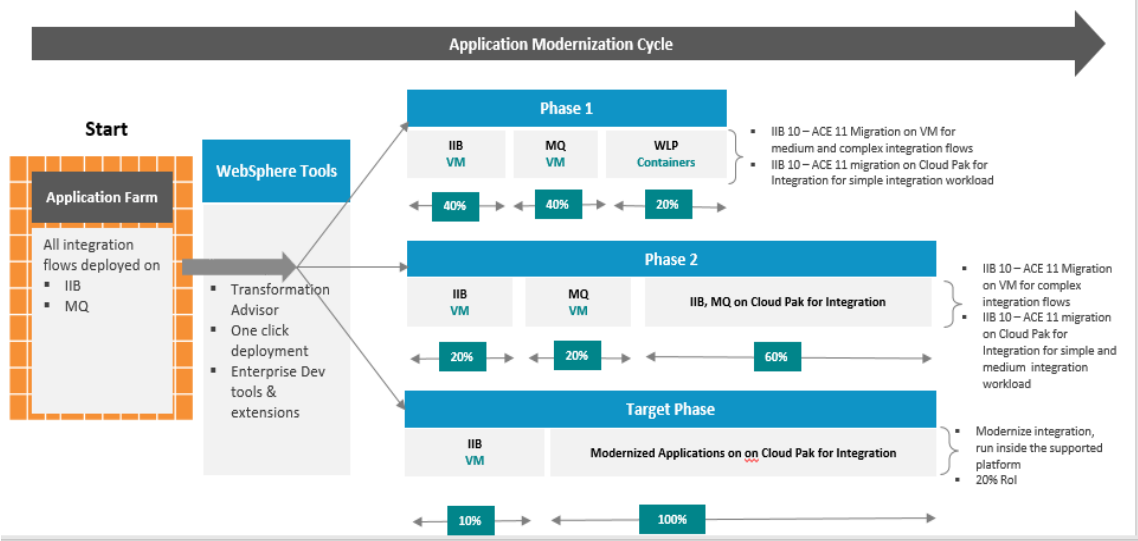

Figure 4 - IIB to ACE migration approach

Option 1: Upgrading the runtime from IIB 10 to ACE 11 inside VM

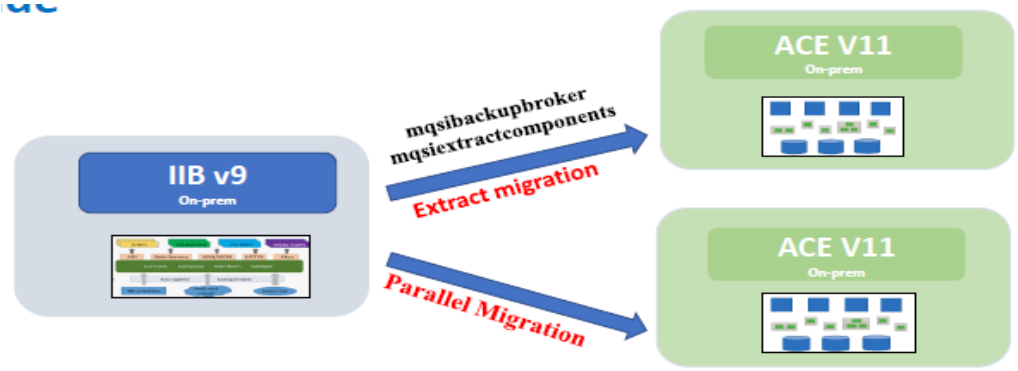

Figure 5 - IIB 10 to ACE 11 runtime upgrade

Extract migration

- Use mqsibackupbroker & mqsiextractcomponents

Parallel Migration

You may choose to deploy existing artifacts as-is or may require to Refactor for various reasons

- Refactor : Import existing PIs to V11 Toolkit, Redesign flows as necessary, create policies , create new BARs and deploy
- Replatform : Deploy the BARs on V11 supported
- Deploy to SIS or Node IS architecture
- as is : Deploy existing BARs to ACE V11

Advantages of Parallel migration

- You don't need to stop your existing brokers during migration
- You can migrate to any hardware or computer
- Code changes can be made in parallel with migration to take advantage of new features in the product
- You can choose which components to migrate in a controlled way
- You don't need to stop your existing brokers during migration
- You can make changes to your client configurations

4.3.2 Best practices

Following are the best practices for moving into ACE 11

- Existing BAR files should run unchanged subjected to few exception.
- WSRR, SCA , Decision Service , PHP nodes are not available in ACE 11. Check if you are not using them.
- MQ affinity Do you require local MQ or can you connect via MQ client connection ?
- Regrouping flows in BAR file, you can spin up 'ACE only ' images for non MQ based flows , which means
- smaller footprint of container and less moving parts and thus easier to maintain
- Group related services together.
- Deploy critical services or high volume services in its own Integration Server for independent scaling.
- Interface with SaaS or backend legacy systems
- Transformation Advisor Tools will be available to help migrate configurations from earlier releases
- From IIB v9 , admin interfaces, admin security and interaction with MQ have changed significantly

4.4 High Level Estimates

Below are the high-level estimates to move into ACE 11

Components/Methodology	Extract Migration	Parallel Migration
Infrastructure support cost	$100,000	$300,000
Efforts for code migration	14227 hours	18576 hours
Cost Code	$1,141,824	$1,486,080
Total	**$1,241,824**	**$1,786,080**

Estimates do not include the following:

- Testing strategy (UAT), test cases and documentation
- Backup strategy and procedures
- Backout strategy, plan and cookbook
- Regression testing

- Performance and HA testing
- Testing with external vendors
- Network changes and
- Hypercare
- Additional hardware / software licensing

Key Assumptions

- Refactoring effort is 50%
- Interface complexity splits: 20:60:20
- Changes required in source/target applications and peripheral components is out of scope
- Environments: Development, Staging and Production

5 Points to Ponder

5.1 Standalone IIB10 to ACE upgrade Vs IIB to ACE on CP4I

There is a significant debate whether to consider ACE deployment inside Cloud Pak for Integration Vs standalone ACE product. While TCS recommends CP4I for Integration modernization, a follow-up discussions and brain storming sessions with all the stakeholders are required for all to be on a common understanding.

5.2 Why do I need to refactor

- Behavioral changes between source and target versions Refer this KC link
- Deprecated/discontinued nodes Refer this KC link
- Reduced OS Platform coverage needs Re platforming
- Integration Node vs Standalone Integration Server(SIS) deployment topology
- Independent projects needs to be converted to Application Project in ACE.
- Fine grained deployment Restructure BAR files
- Hybrid Integration Scenario Interfacing with SaaS apps

5.3 Benefits of Refactoring

While your existing Apps might work as is on ACE V11, you may want to consider refactoring your Apps where possible for :

- Enhancing productivity
- Agility to deploy new changes
- Modernisation of Apps.

For example :

- Enhance existing applications to take advantage of newest features like RESTAPI projects to expose webservices based flows

6 References

Topic	Reference Book/Site	Author	Section Referred
IBM Cloud Pak for Integration	https://www.ibm.com/in-en/cloud/cloud-pak-for-integration	IBM	
Accelerating Modernization with Agile Integration	http://www.redbooks.ibm.com/abstracts/sg248452.html?Open	IBM	
IIB to ACE on CP4I	https://developer.ibm.com/integration/blog/2020/02/20/modernizing-integration-migration-from-iib-to-app-connect-running-on-ibm-cloud-pak-for-integrationcp4i/	IBM	
ACE adoption paths	https://developer.ibm.com/integration/blog/2019/04/26/ace adoption paths	IBM	
ACE 11 migration approach	https://developer.ibm.com/integration/blog/2018/12/13/app connect enterprise v11 migration approach	IBM	
App Connect FAQ	https://developer.ibm.com/integration/docs/app connect enterprise/faq	IBM	