BPTrends ARTICLE

Application Portfolio Analysis: Tool for Cloud Migration

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December 5, 2017

Today, a majority of customers are getting out of the data center business and moving towards the use of Cloud Services. In addition, enterprises are looking towards gaining a competitive advantage through collaboration, process agility and innovative business models, at low costs. Cloud solutions provides much needed flexibility to enterprises to develop capabilities necessary to innovate and seize new business opportunities. Irrespective of the domain, the business community looks for the following factors for the migration of an application to the cloud,

- Better Customer Experience
- Mobile Access
- Business agility and flexibility
- Reduce Hardware and IT Staffing Expenditure
- Improved Security
- Improved responsiveness
- Better analytics on application usage
- Reduced and/or re-allocated costs

In first place, to develop a Cloud migration strategy the following basic questions need to be addressed that helps to meet the enterprise business goals.

- What to migrate to Cloud : Applications, Processes and Infrastructure
- What is the Goal: To reduce cost or to increase flexibility
- Who owns the Initiative: IT or business
- What is Funding Model : Capex, Opex & Charge back mechanism
- Which Cloud to Migrate : Private, Public or Hybrid Clouds
- How to migrate to cloud : Migration roadmap strategy for enterprise

While the demand to move all the enterprise applications to the cloud are increasing by the business, not all applications are equally suited for migration to the cloud. The solution to meet this demand is the Application Portfolio Analysis, which helps to determine the appropriate target model like, cloud, On Premise or outsourcing.

A few Industry " Maturity in the Application Portfolio Analysis" area are as follows:

"Business leaders demands that IT leaders "do more with less" to free resources for innovation and growth. Applications professionals are turning to application portfolio Rationalization (APR) to meet those challenges" – Forester

Application portfolio management is critical to understanding and managing the 40% to 80% of IT budgets devoted to maintaining and enhancing software - Gartner

Most of the clients want to migrate as many as 80% of their applications within a period of four to five years. These applications typically span to thousands for large enterprises spread across the globe.

Industry Experience shows there are a 30% to 40% reduction in infra spend by migrating applications to cloud.

Gartner estimates IT maintenance accounts for ~80% of total IT expenditure.

Cloud computing helps enterprises spend 80% of their time on business application design rather than on maintenance.

Therefore, the assessment of the existing enterprise applications helps to determine which application capabilities can benefit most from early migration to the cloud. Key considerations are costs of migration, application redesign, application performance and availability, security and privacy requirements, and regulatory requirements. The Key drivers for the Cloud adaption of the enterprise are,

- Greater IT efficiency
- Reduce time to Solution
- Scale Dynamically
- Utility Pricing
- Self Service/On demand
- Balance performance with cost

Application Portfolio Analysis framework is a standardized repeatable process used for cloud migration assessment. The framework uses a combination of methods and artifacts to gather information on applications, carry out assessment and produce outputs determining recommended hosting requirements for applications. Application Categorization and assessment are Business Requirements, Security Requirements, Geographic Spread, Technologies and Integration dependency etc.

The framework has four major stages as described in the diagram below. It has Definition, Design, Migration and Roadmap stages. The diagram lists all the activities performed at each stage.

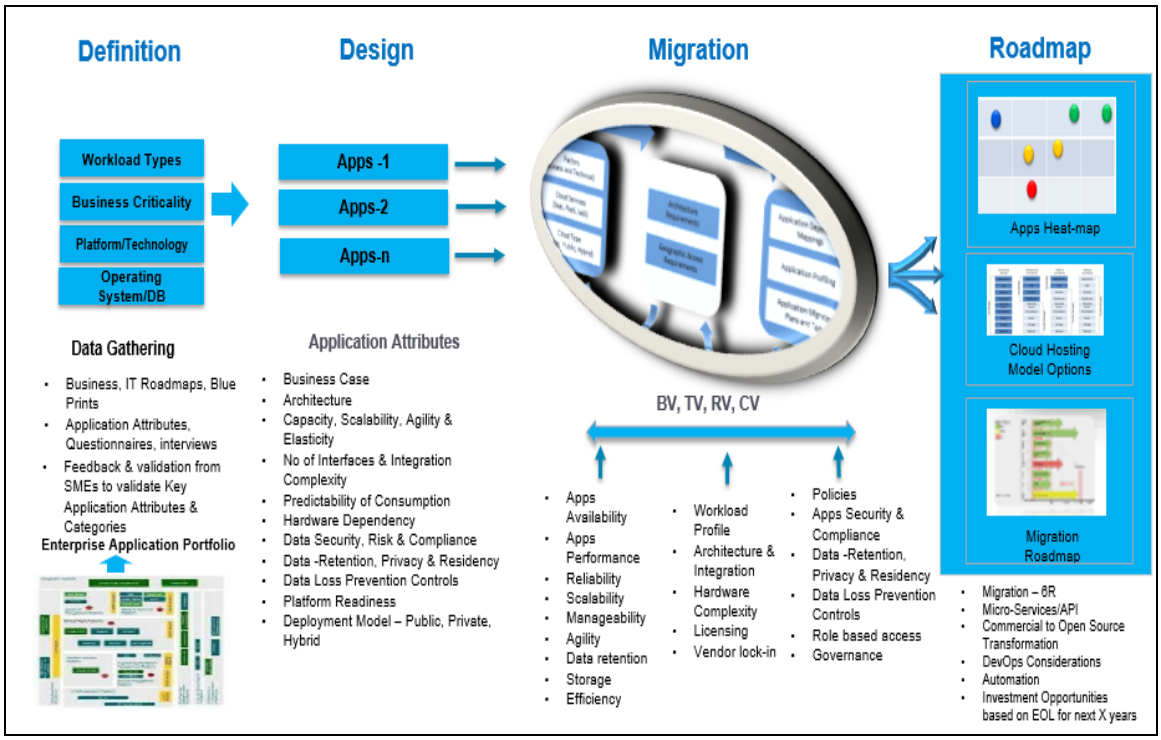

Fig: Application Portfolio Analysis Framework

Assessing applications and workloads for cloud migration allows enterprises to determine what applications, processes and data can/cannot be moved to a cloud environment and what delivery models (public, private, or hybrid) are supported.

Best to start with the lowest-risk applications, those with information services, minimal customer data and other sensitive information or applications that take advantage of the cloud's elasticity characteristic. The decision criteria may be refined as the assessment progresses.

Enterprise Cloud Migration decisions depend on certain parameters, and the approach is multi-dimensional and evaluated in the dimensions listed below:

- Change in philosophy: in the cloud model best practices recommend to "design for failure" instead of "design not to fail", which is a totally different (but robust) approach

- Application migration approaches: need to adapt various migration approaches depending on short term and long term business/technical goals. These approaches classified as 6R

    - Re-hosting: It can be done using automated tools or manually. It's called "Lift-and-Shift" of the applications
    - Re-platforming: Determine the new platform and modify the underlying infrastructure. No change to the existing architecture
    - Replace moving to a different product. It's preferable to move to SaaS platform

  - Re-architecting: Redesign the application and Infrastructure architecture using cloud-native features
  - Retire: Decommissioning of the application
  - Retain: Continue to use the application as is state

- Virtualization: This is quick and easy migration to the cloud as no changes to the application will be required. Suitable for legacy applications

- Data management: plan for proper archival and backup strategy for data. As a best practice, keep the dynamic data close to compute and static data close to the user. This can be done by leveraging traditional caching technique

- Integration: cloud migrated applications need to communicate over the internet to the applications on premise. This could lead to performance and bandwidth related issues. Need to develop high performance applications.

- Licensing: check for current set of tools/software using to support cloud based licensing model. For example: planning to leverage the elasticity of cloud computing and make sure that licenses are compatible

- Security: verify security implementation in the application. Consider using security keys issued by a different source than the one using for deployment

- Automation: look for automating as much as possible. Automation not only helps in improving productivity but also eliminates possible human error

- Vendor lock-in: do not utilize the cloud vendor services that leads to lock-in with the vendor. Need to weigh the pros and cons of which services to use and to what extent

The three main cloud migration strategies are,

Infrastructure as a Service (IaaS): Migration of applications to infrastructure-as-a-service (IaaS) commonly called “lift and shift” migration. It reflects the move from some legacy environments directly to IaaS without significant operation. IaaS migration manages everything from applications and data to operating systems in the cloud.

Platform as a Service (PaaS): helps to customize applications to enterprise business needs and provides benefits like scalability, high availability etc. Typically offers web-hosting, middleware, and database as services. The application should be designed for one or more runtime environments available in the target PaaS service

Software as a Service (SaaS): This is the most popular means of cloud migration. It eliminates many tasks related to application maintenance and resources. It presents a substantial redistribution of accountability for applications processing.

In summary, the following are the recommendations from the author based on various customer engagements performed in Cloud Migration space,

- Choose the right Cloud provider, each provider has specific strengths and weaknesses. Evaluate them properly for the fitment of the customer needs
- Usage of right migration tools. No Vendor Lock-In of the application
- Mostly, Private and Hybrid Clouds to replace data centers of the customers
- Huge demand from customers on reducing Capex and Opex
- Maximize productivity with scalability and high availability
- Majority of the customers are looking for Migrating Development and Testing environments on to cloud
- Always, move Core functions to private cloud and non-core to public cloud
- Wherever possible, adopt hybrid model, it's a safe bet
- Enterprises today are moving beyond traditional roles by offering new digitized products like cloud based storage for customer files
- Have a prepared skilled staff on hand.. Staff needs to know all the new technologies and processes. For example: Microservices, DevOps, API Management, AI etc.

Acknowledgements

The author would like to thank Hari Kishan Burle, Raju Alluri of Global Enterprise Architecture Group of Wipro Technologies for giving the required time and support in many ways in bringing this article as part of Global Enterprise Architecture Practice efforts.

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