A Guide for Total cost of Ownership modeling for Organizations migrating to Cloud Platform.

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Total cost of ownership or TCO an Introduction:

The Total cost of Ownership or TCO is a term used to define the costs that are involved in moving an existing enterprise infrastructure to Cloud.

When an enterprise plan to move its infrastructure to cloud there are various moving attributes which need to be considered while estimating the costs. Moreover, the TCO varies for different enterprises and its business models.

This essay covers the attributes to compute TCO, details on TCO variation based on organization, challenges and complexity while making a TCO model.

Modeling TCO for Enterprises:

A basic mindset of people when talking about moving to cloud is that there will be big savings on Capital Expenses and Operational expenses. Well, it is true for businesses that builds their applications from the scratch in Cloud. For the existing large-scale and small-scale enterprises, it is a game of lifting an existing infrastructure in their in-house datacenter and moving it to cloud and there are various pointers involved which the firm should carefully analyze while arriving the TCO costs.

Here are a few factors which needs to be considered while modeling the TCO.

Investments on the existing On-Premise Datacenter:

The business would have invested millions of dollars in the existing datacenters to meet the customer needs and to provide seamless quality of service during peak hours. When moving to the cloud the firm must think if they can get the investments back in some way and if not, the expenses should be considered as a factor.

Costs involved in migrating the existing application to cloud:

The application architecture which is existing inhouse may be tailored as per the available resources and infrastructure. However, while moving to the cloud, the architecture may need to be changed and applications may be re-written to adapt to cloud platform.

Hiring and Cross training costs for the employees:

The costs involved in hiring architects and developers who has skills working in Cloud, Cross training the current employees need retain their business and application knowledge and severance package for the employees who wants to quit.

Cloud provider fees:

The fees for the provider of the Cloud platform to host the applications and the costs to be paid to the provider to support the Cloud shift.

Software subscription fees:

The enterprise may incur the software subscription and licensing fees to cater to the cloud architecture. This may be a payment to the Cloud provider if he supplies the software or to a third party.

Value of Agility:

The returns on the cloud shift cannot be measured only by Money, but the value it provides. For instance, by moving to Cloud the application downtime can be drastically minimized so that the customers may experience the quality of the product, the time taken to launch a product in market can be reduced exponentially since continuous integration and deployment is highly possible in cloud platform, introducing services to various geographies so that more customers can be added and more business in return, opportunity for automation to avoid manual errors, analyze the data that the user generates to effectively decide and customize the products that may interest them and so on.

Value of not incurring CAPEX and reducing OPEX in the future:

The value of not adding additional resources in the datacenter when the business scales up so that the capital expenses for the future can be saved since in Cloud platform the applications can be auto scaled and the payment will be only for the usage of the resource for that time and hence savings in operational expenses.

Costs associated to Risks:

- *Cloud providers insolvency.*

  The costs involved in moving the applications out of the cloud provider in case of the provider goes out of business or the organization's management decides to move to a different provider.

- *Compliance and Government regulations.*

  All the businesses must comply to the SLA/Timelines and for Governmental rules (Especially for Healthcare/Banking/Aviation etc.) and on failure the costs associated to pay for lawsuits and penalty must be considered.

- *Disaster recovery and Downtime service disruptions*

  In case of a disaster on a Cloud data center and service disruptions, to route back the traffic to a different datacenter and to bring back the application on the previous datacenter incurs cost.

- *Security and Data Breach*

  Payment for data compromise and security breaches.

As described earlier, the TCO is not a one size fits for all organizations and it varies based on the business models.

TCO variations on Business model:

In addition to saving CAPEX and OPEX, Line of businesses such as Entertainment, Online retail, Travel and Hospitality, Online Real estate databases and Social networking may want to expand their business rapidly and to increase their customer base. So, the Cloud needs for them will be more since they can enjoy features like rapid elastic scaling (up-scale and down-scale resources when needed rather adding more resources In-House which may be used only during peak loads), high availability, digitization and data analysis for attracting more customers and hence the TCO varies for them, similarly the industries such as Banking, Insurance, Healthcare and Aviation may have regulatory compliance rules which they must abide and hence they may use a Hybrid cloud model for which the TCO varies.

In addition, the TCO for the business models can be influenced by the following attributes.

The organization's

- *Degree of change over time.*

  This determines the organizations changes itself for the market demands over time. For example, a publications company may change at a rate of 10% over a period of 10 years, meanwhile an investment banking firm will change for the demands at a phase of 60% over 10 Years.

- *Ability to adapt to the change.*

  This is a parameter which determines a company to adapt to the required change in IT. For instance, a firm which relies less on IT does not need to change rapidly, on the other hand a business which heavily dependent of IT have to adapt for the change to exist in market.

- *Relative value of change.*

  This is a measure of gain for an Organization in costs and value due to the change. For example, A bank may launch an application to reward its customer base who makes more transactions on their credit card and spends more, in turn the firm makes more money in transaction costs also may add more customers.

- *Perspective on agility.*

  This indicator denotes the management's perspective of value addition on moving to cloud. The investment decisions can be greatly influenced by this factor since a CTO's views may differ with the CEO's views with respect to the agility or value for moving the existing infrastructure to Cloud.

Challenges in determining the TCO for Cloud adoption and factors which complicate the calculations:

Identifying the Return on Investment (ROI):

An organization when planning to move to cloud most of the times fails to determine the ROI at an earlier stage since the team may account the promotional costs that the cloud and software providers agree for a short term and forget the life time costs. It is better to involve financial teams over the course of the TCO analysis to determine the ROI and streamline the cloud initiative.

Lack of expertise:

Larger organization which is not familiar with Cloud TCO may determine the costs very less due to lack of expertise. As a proactive measure the organization has to hire an expert who had worked in TCO analysis in the past.

Risks during migration:

During migration to cloud, the organization may not get any value addition and they end up paying both for the On-Premise infrastructure and in Cloud so the expenses may dent the budget. Similarly, there is a risk of work overload on the resources who may work on migration and existing development.

Migrating Legacy applications:

The organization may underestimate the costs of migrating Legacy applications to cloud. For instance, the organization may have Mainframe applications which may house codes written couple of decades ago and finding resources to understand the

code and extract the business logic and reverse engineering will be a big challenge. To calculate the costs to migrate the Legacy systems to Cloud is complex.

Conclusion:

To summarize, there are various factors which need to be considered while modeling a TCO. The organization may take the TCO calculators available in the open market as base to start with and apply the knowledge of an expert team to enhance the TCO. Also, Involving the finance team earlier in the game who could determine the ROI accurately.

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