Cloud Migration Architecture

The following document outlines a conceptual cloud migration architecture for a fictitious client which articulates a cloud solution based on a given scenario where a client has VM's and wants to migrate to the cloud

NOTE: This is conceptual only – not actually implemented but demonstrates how it can be put together in a concise and to the point manner targeting EXO / CIO's etc.

Sample Prepared by:

A. Duncan

Email: aduncan@enterprisearchitectservices.com

INDEX

Tables

Diagrams

1.0 Overview

A brief has been received from Company <example.com> to provide an assessment and proposal to migrate their current state on-premise operations to the cloud as part of their ongoing digital transformation utilizing cloud technologies. They have some exposure to cloud but have also invested heavily in VMWare. The migration timeline is critical as a result of hardware / license and contract renewals pressure.

This cloud migrations architectural assessment outlines the key areas for consideration to meet the brief objectives taking into account the requirements and provision a pathway to maximize the use of cloud technologies and subsequent benefits moving forward meeting their business and technical needs.

2.0 Objective

The company wants to run multiple pilot migrations of non-production legacy applications taking into account operational readiness and cost. They are open to new alternatives provided that there is no significant code changes to the application stack and / or heavy demand on technical / admin resources.

3.0 Project Requirements

The current state Corporate Data Center technology stack is shown below which utilizes hardware appliances as load balancers in conjunction with a 3 Tier Architecture for Web, Application and Database (MS SQL) Services. The Database is maintained by dedicated database team where Application Infrastructure team treat it as an End Point. Application File Server stores are also shown for customer records (15TB).

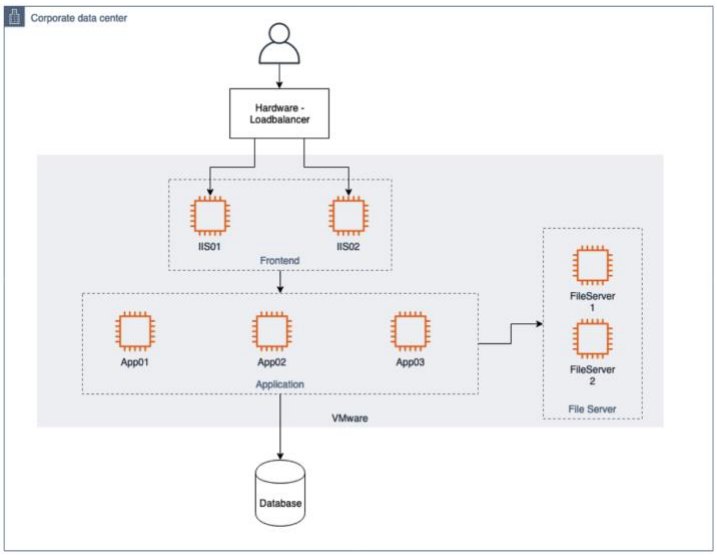

Diagram 1 – Current State Architecture

The company has invested heavily in VMware where they currently run VMs which are sized and storage provisioned across a number of windows operating systems as shown below:

Server	CPU	Memory	Storage Provisioned (GB)	Storage Consumed (GB)	Operating System
IIS01	2	8	40	25	Windows 2008
IIS02	2	8	40	25	Windows 2008
App01	4	16	100	87	Windows 2016
App02	4	16	100	87	Windows 2016
App03	4	16	100	87	Windows 2016
FileServer1	4	32	16000	10150	Windows 2016
FileServer2	4	32	16000	5150	Windows 2016

Table 1 – Storage & Capacity Sizing

4.0 Migration Assessment

Review of the Current State architecture and the applications listed above has identified the following areas for consideration prior to migration to cloud.

4.1 Architecture – The current architecture is limited regards ability to scale where load balancing is provisioned using hardware appliances. Web (front end) and Applications are effectively hard wired limiting ability to easily scale and adapt as required. A potential single point of failure exists as a result of using single MS SQL Database without fail over or means of backup.

4.2 Operations - Web, Applications and File Store Services are running as VMs utilizing different windows versions which impact overhead to maintain and operate. The capacity to scale vertically (or horizontally) is limited. Review of the provisioned & consumed storage indicates over capacity and under capacity and near limit storage for the servers listed (Table 1).

4.3 Overhead Dev / Ops – The current arrangement has two teams responsible for each specific area which increases overhead and impacts timeline to administer and support operations / migration & Dev Ops moving forward.

4.4 Migration - Taking into account the overall Objective stated (Paragraph 2.0) migration to AWS cloud will provide the agility and capacity to migrate company <example.com> in a manner that suits their migration program. It will also provide options to overcome and improve the areas listed above for Architecture, Operations, Dev / Ops and Migration timeline.

5.0 Target Architecture

The following Target Architecture shown below enables effective migration capability from Corporate Data Center to AWS cloud. The approach recommended provides a platform where VMs can be easily (incrementally) migrated to the cloud and associated with services available on AWS without need to refactor or re-code applications. The use of VMware Cloud on AWS SDDC facilitates VM migration from Corporate Data Center using VMWare HCX and provides the necessary connections to migrate data and consume AWS services as shown.

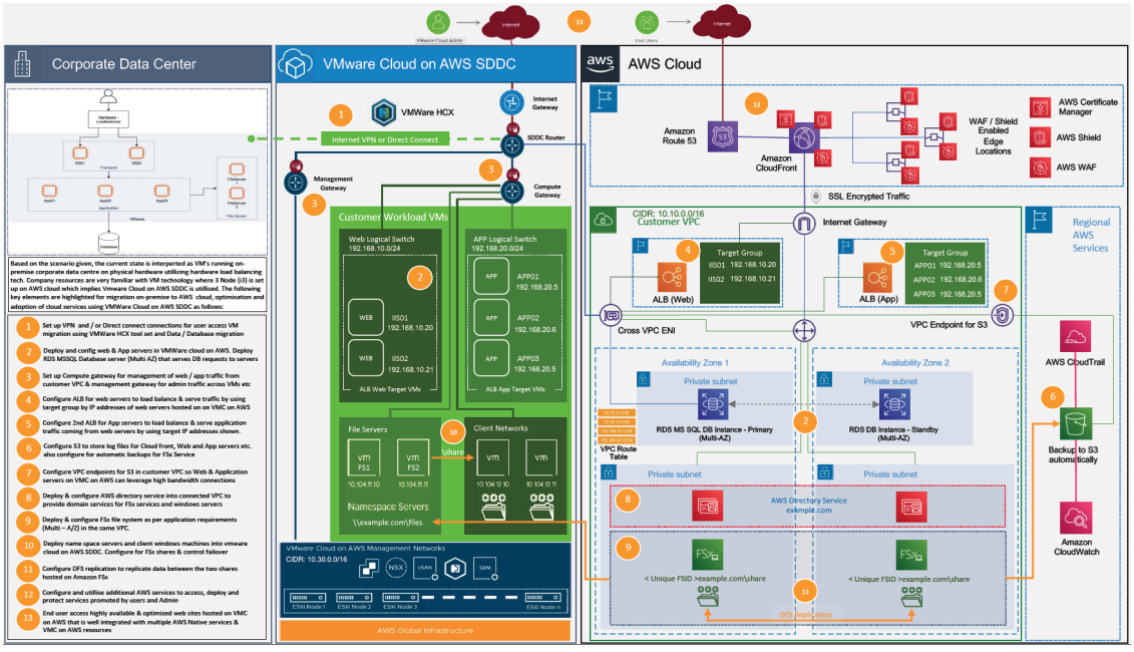

Diagram 2 – Target State Architecture

Adopting the proposed Target Architecture enables the migration capability as stated above and also addresses the Architecture, Operations and Dev / Ops limitations identified under Migration Assessment (Paragraph 4). The following key areas are listed where operational benefits are achieved as a result of utilizing the available AWS cloud services and VMware Cloud on AWS CDDC :

5.1 Database – MS SQL Database has been upgraded to RDS DB SQL Instance (Multi-AZ) operating as a consumable service and provision of redundancy with reduce overhead to maintain. Migration can be completed using AWS Database Migration Service.

5.2 File Servers – Current State File Servers (Windows 2016) have been replaced with Amazon FSx for Windows File Server (Multi-AZ) failover and backup to S3. Migration can be completed using AWS Data Sync.

5.3 Load Balancing – The hardware appliance load balancer is replaced with elastic load balancers in front of web and application servers which provides scalability, health monitoring and reduced overhead to maintain and operate.

5.4 AWS Cloud Services Access – Adoption of additional cloud services is available to manage and track performance SLA's through Cloud Watch and Cloud Trail. Security and protection is fully integrated to manage and access production environments utilizing AWS Shield / WAF and AWS Certificate Manager.

5.5 Platform Sizing – Over / under capacity performance issues and data storage allocation is greatly improved as a result of using consumable pay as you go AWS Services and data storage. Set up and provisioning of VMware Cloud on AWS SDDC can be easily sized and resized using VMware Cloud Sizer (See Ref Material Paragraph 7.0) by example recommendation for storage based on current architecture shown below.

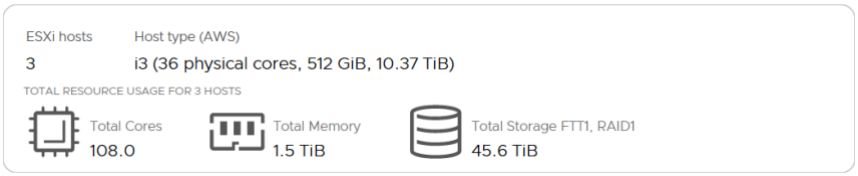

Diagram 3 – VMware Sizing

5.6 Win Licenses - Options are available for BYO license or renew based on timeline preferences.

6.0 Proposal

In conclusion adopting the proposed architecture utilizing VMware Cloud on AWS will provide a platform for Company <Example.com> to effectively migrate the current state Data Center to the cloud achieving the benefits and capability outlined above. Initial cost of ownership estimate comparing your On-Premise Environment and our VMC solution using SDDC shows significant cost savings over an number of areas as shown below:

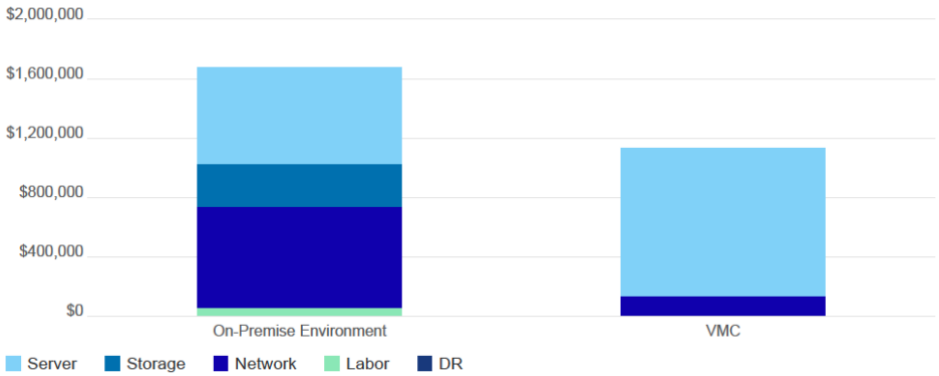

Diagram 4 – Cost Comparison

In summary the above savings equate to an overall saving of **$542,134** over 3 years using our VMware TCO calculator and data input based on your architecture and operational requirements. Current windows licenses are BYO but renew can be an option if preferred.

Should this proposal meet your requirement we would be pleased to meet further to define next steps and firm up a migration plan.

7.0 Reference Material

In order to provide additional information to assist on the cloud migration journey and future needs, the following reference material is listed.

VMWare Cloud on AWS

https://www.vmware.com/products/vmc-on-aws/pricing-calculator.html

VMware Cloud on AWS - Preparation

https://www.vmware.com/content/dam/digitalmarketing/vmware/en/pdf/products/vmc-aws/preparing-for-vmware-cloud-on-aws.pdf

VMware HCX Documentation

https://docs.vmware.com/en/VMware-HCX/index.html

AWS FSX for Windows File Server

https://aws.amazon.com/fsx/windows/?nc2=type_a

AWS Data Migration Service

https://aws.amazon.com/dms/?nc=sn&loc=0

AWS Data Sync

https://aws.amazon.com/datasync/?nc2=type_a&whats-new-cards.sort-by=item.additionalFields.postDateTime&whats-new-cards.sort-order=desc