DXC Technologies- Google Cloud Platform

Assignment-4

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Question1: What are the different resources that can be migrated? Explain in detail

Answer 1:

Cloud migration is the process of moving data, applications or other business elements from an

organization's onsite computers to the cloud, or moving them from one cloud environment to

another.

Moving data or business elements from one cloud environment to another is called "cloud-to-cloud

migration". The process of transitioning to a different cloud provider

is called "cloud service migration". A successful migration to a cloud requires the use of

middleware, such as a cloud integration tool.

Question 2: What are the necessary things you have to consider with "How to migrate"?

Answer 2:

There are 7 major steps that has to be followed to ensure a smooth migration to cloud

- o Step 1: Assess:
  Cloud migration assessments are conducted to understand the complexities in the migration process at the code, design, and architectural levels. The investment and the recurring costs are also evaluated along with gauging the tools, test cases, functionalities, and other features related to the configuration.
- o Step 2: Isolate:
  The applications to be migrated to the cloud from the internal data center are freed of dependencies pertaining to the environment and the existing system. This step cuts a clearer picture about the complexity of the migration process.
- o Step 3: Map:
  Most organizations hold a detailed mapping of their environment with all the systems and applications. Make use of this information to distinguish between the components that have to be moved to the cloud from the ones that should continue to reside in the data center.
- o Step 4: Re-Architect:
  Migration to the cloud demands re-architecting of applications in most cases. This may result in the loss of certain functionalities and this can be approximated by using relevantAPIs.

o Step 5: Augment:
  The applications are augmented to make them cloud-ready. Augmenting the applications is crucial to derive the best benefits of the cloud.
o Step 6: Test:
  Right after the applications are augmented, they need to be tested for the new environment. The augmentation and migration strategies are validated at this step.
o Step 7: Optimize:
  On the basis of the test results, the migration strategy is optimized for delivering the best ROI. A roadmap for leveraging the new cloud features is laid.

Question 3: What is the necessity to perform migration? Explain in points.

Answer 3:

The eight biggest reasons why we see organizations migrate to a cloud platform are:

o Reducing IT costs
o Increasing business agility
o Improving Security
o Eliminating end-of-life concerns
o Consolidating data centers
o Enabling digital transformation
o Accelerating growth
o Leveraging new technologies

Question 4: What are the various server migration questions and answers that we discussed today?

Answer 4:

The various server migration questions and answers that we discussed today are:

1. Can we migrate VMware Virtual machines?
   Yes, we can migrate VMware Virtual machines. You can move virtual machines from one compute resource or storage location to another by using cold or hot migration. For example, with vSphere vMotion you can move powered on virtual machines away from a host to perform maintenance, to balance loads, to collocate virtual machines that communicate with each other, to move virtual machines apart to minimize fault domain, to migrate to new server hardware, and so on.
2. Is an agent required?
   Agent-based migration is used to migrate on-premises VMware VMs and physical servers to Azure. It can also be used to migrate other on-premises virtualized servers, as well as private and public cloud VMs, including AWS instances, and GCP VMs. Agent-based migration in Azure Migrate uses some backend functionality from the Azure Site Recovery service.
3. What size VMs do I need in Azure?
   General-purpose VM sizes provide a balanced CPU-to-memory ratio. They're used for testing and development, small to medium databases, and low to medium traffic web servers. Each data disk is 2300 IOPS for the premium VM sizes, except for the Basic A series. For Basic A, the data disk size is 500 IOPS.

4. What do my estimated costs look like?
   The estimated costs for migration is next to nothing. It is almost 0
5. Can we migrate physical servers?
   Yes, Migration of physical servers is completely possible
6. Is a VPN required?
   Yes, A VPN is required.

Question 5: Explain the Microsoft cloud adoption framework for Azure.

Answer 5:

The Cloud Adoption Framework is a collection of documentation, implementation guidance, best practices, and tools that are proven guidance from Microsoft designed to accelerate your cloud adoption journey.

The Cloud Adoption Framework is proven guidance that is designed to help you create and implement the business and technology strategies necessary for your organisation to succeed in the cloud. It provides best practices, documentation and tools that cloud architects, IT professionals and business decision makers need to successfully achieve their short- and long-term objectives.

Question 6: Briefly explain the various stages of cloud adoption for the enterprise transformation.

Answer 6:

The four main phases that you will commonly see are the following:

1. The Strategic Phase – Making the Business Case:
   At the initial or strategic phase, companies start evaluating the possible implications of adopting Cloud computing. From a practical perspective, companies need to understand what the Cloud is and how it differs from traditional IT. They also need to comprehend the potential benefits, risks, security, compliance and data control, and impact on the organization and IT. At this stage, most enterprises start getting some training, IT and Cloud assessments, first internal analyses, and depiction of roadmaps, often with the help of consulting companies.
2. Testing Phase: Start of Cloud Adoption:
   At this stage, the easiest way for companies to start adoption and testing is to use Software as a Service (SaaS) solutions, which are usually not business-time critical like CRM, human resources, accounting, collaboration tools, or office productivity, such as Office365 or G-Suite.
3. Optimization Phase: Cloud Migration:
   Once the organization is convinced of the benefits that the Cloud model can provide, this phase is the natural step or actual door to a more mature Cloud strategy to obtain the impact and benefits being pursued. The most common topics that are decided and started during this phase are the following:
4. Innovation Phase: Business Models:
   The innovation phase is when companies start realizing the potential and most benefits of the Cloud: the agility to innovate. It's not just costs that can be saved. It's mostly the time that is needed to develop and put in place new services and products to reach a greater market and to more efficiently serve customers and citizens alike.

Question 7: Explain the top 10 data migration best practices.

Answer 7:

1. Evaluate the complexity of applications and data.

A critical consideration when determining an application's complexity is its connections. You'll need to map your application dependencies to understand all the other applications and servers it communicates with, how often they communicate, and whether it's bidirectional or unidirectional. Look for multi-tier dependencies and dependencies between different parts of the organization.

2. Take a dual approach.

As a general rule of thumb, you should migrate the least complex applications first. Beginning with complex applications can create major headaches for an organization. Mobile workloads provide the most flexibility (single server, no external storage) – and are quickest and easiest to move; complex applications require greater planning and coordination.

3. Outline how operations will take shape in the cloud.

Outline and share a clear cloud governance model; establish a clear set of roles and responsibilities. This will enable you to say, "Well, here's a governance process that we have in place which enables bringing in the new application and allows business owners to actually be able to get their job done."

4. Start small and simple. But think big.

Once a decision is made to adopt a cloud strategy, there is often a level of excitement to get started to quickly realize some of the benefits business seeks to gain. This can lead to trying to do too much all at once – planning a business case, scoping a change, and formulating a cloud strategy all at once will likely lead to chaos or analysis paralysis.

5. Develop a migration strategy that incorporates both business goals and technical requirements

Just because you can move something quickly to the cloud doesn't mean you should, at least not until you have an understanding of both the business and technical requirements and dependencies for the application. This includes including availability, performance, manageability, security and recoverability.

6. Build a robust migration plan made up of teams, tools and processes all centered around the migration activities.

It's important to make informed decisions about which assets must be migrated together. Once you've discovered all of your assets and their dependencies, you will be able to create the road map for making these "move bundles" and sequence the move events.

7. Verify your migration through testing.

Testing should be performed throughout the migration process to identify and remediate issues. Our clients have the ability to test alternative scenarios and see the impact on application dependencies and the overall migration.

8. Maintain everything to be sure it remains resilient.

A data center migration is much like moving into a new home. Everything is clean, organized, and landscaped just the way you want it on day one. However, it can fall into disarray and disrepair if you fail to do regular maintenance.

9. Automate and implement automation frameworks and prepare for migration at scale.

Consider how you will adapt to new information and even new requirements along the way. Imagine it's two weeks before the migration event and new business or technical information suddenly arises and will likely impact your plan; how do you respond?

10. Be prepared to manage change – both planned and unplanned.

Managing change in an organizational setting requires careful consideration of the users, customers, vendors and partners that will be participating in the new cloud IT landscape.

Question 8: Write short notes on: cloud endure, AWS snowball and AWS datasync.

Answer 8:

- o Cloud Endure:
  CloudEndure Migration simplifies, expedites, and automates migrations from physical, virtual, and cloud-based infrastructure to AWS.
  CloudEndure Disaster Recovery minimizes downtime and data loss by providing fast, reliable recovery of physical, virtual, and cloud-based servers into AWS in the event of IT disruptions.
- o AWS snowball:
  Snowball is a petabyte-scale data transport solution that uses secure appliances to transfer large amounts of data into and out of the AWS cloud. Using Snowball addresses common challenges with large-scale data transfers including high network costs, long transfer times, and security concerns.
- o AWS datasync:
  AWS DataSync is an online data transfer service that simplifies, automates, and accelerates moving data between on-premises storage systems and AWS Storage services, as well as between AWS Storage services.