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QUESTION NO: 1

A fitness tracking company serves users around the world, with its primary markets in North America and Asia. The company needs to design an infrastructure for its read-heavy user authorization application with the following requirements:

- Be resilient to problem with the application in any Region.
- Write to a database in a single Region.
- Read from multiple Regions.
- Support resiliency across application tiers in each Region.
- Support the relational database semantics reflected in the application.

Which combination of steps should a solutions architect take? (Choose two.)

A. Use an Amazon Route 53 geoproximity routing policy combined with a multivalue answer routing policy.

B. Deploy web, application, and MySQL database servers to Amazon EC2 instance in each Region. Set up the application so that reads and writes are local to the Region. Create snapshots of the web, application, and database servers and store the snapshots in an Amazon S3 bucket in both Regions. Set up cross-Region replication for the database layer.

C. Use an Amazon Route 53 geolocation routing policy combined with a failover routing policy.

D. Set up web, application, and Amazon RDS for MySQL instances in each Region. Set up the application so that reads are local and writes are partitioned based on the user. Set up a Multi-AZ failover for the web, application, and database servers. Set up cross-Region replication for the database layer.

E. Set up active-active web and application servers in each Region. Deploy an Amazon Aurora global database with clusters in each Region. Set up the application to use the in-Region Aurora database endpoints. Create snapshots of the web application servers and store them in an Amazon S3 bucket in both Regions.

ANSWER: B D

QUESTION NO: 2

A large company runs workloads in VPCs that are deployed across hundreds of AWS accounts. Each VPC consists of public subnets and private subnets that span across multiple Availability Zones. NAT gateways are deployed in the public subnets and allow outbound connectivity to the internet from the private subnets.

A solutions architect is working on a hub-and-spoke design. All private subnets in the spoke VPCs must route traffic to the internet through an egress VPC. The solutions architect already has deployed a NAT gateway in an egress VPC in a central AWS account.

Which set of additional steps should the solutions architect take to meet these requirements?

A. Create peering connections between the egress VPC and the spoke VPCs. Configure the required routing to allow access to the internet.

B. Create a transit gateway, and share it with the existing AWS accounts. Attach existing VPCs to the transit gateway. Configure the required routing to allow access to the internet.

C. Create a transit gateway in every account. Attach the NAT gateway to the transit gateways. Configure the required routing to allow access to the internet.

D. Create an AWS PrivateLink connection between the egress VPC and the spoke VPCs. Configure the required routing to allow access to the internet.

ANSWER: B

Explanation:

Reference: https://docs.aws.amazon.com/vpc/latest/userguide/vpc-nat-gateway.html

QUESTION NO: 3

A company is migrating an on-premises application and a MySQL database to AWS. The application processes highly sensitive data, and new data is constantly updated in the database. The data must not be transferred over the internet. The company also must encrypt the data in transit and at rest.

The database is 5 TB in size. The company already has created the database schema in an Amazon RDS for MySQL DB instance The company has set up a 1 Gbps AWS Direct Connect connection to AWS. The company also has set up a public VIF and a private VIF. A solutions architect needs to design a solution that will migrate the data to AWS with the least possible downtime

Which solution will meet these requirements?

A. Perform a database backup. Copy the backup files to an AWS Snowball Edge Storage Optimized device. Import the backup to Amazon S3. Use server-side encryption with Amazon S3 managed encryption keys (SSE-S3) for encryption at rest Use TLS for encryption in transit Import the data from Amazon S3 to the DB instance.

B. Use AWS Database Migration Service (AWS DMS) to migrate the data to AWS. Create a DMS replication instance in a private subnet. Create VPC endpoints for AWS DMS. Configure a DMS task to copy data from the on-premises database to the DB instance by using full load plus change data capture (CDC). Use the AWS Key Management Service (AWS KMS) default key for encryption at rest. Use TLS for encryption in transit.

C. Perform a database backup. Use AWS DataSync to transfer the backup files to Amazon S3 Use server-side encryption with Amazon S3 managed encryption keys (SSE-S3) for encryption at rest. Use TLS for encryption in transit Import the data from Amazon S3 to the DB instance.

D. Use Amazon S3 File Gateway Set up a private connection to Amazon S3 by using AWS PrivateLink. Perform a database backup. Copy the backup files to Amazon S3. Use server-side encryption with Amazon S3 managed encryption keys (SSE-S3) for encryption at rest. Use TLS for encryption in transit. Import the data from Amazon S3 to the DB instance.

ANSWER: D

QUESTION NO: 4

A company is running a critical application that uses an Amazon RDS for MySQL database to store data. The RDS DB instance is deployed in Multi-AZ mode.

A recent RDS database failover test caused a 40-second outage to the application A solutions architect needs to design a solution to reduce the outage time to less than 20 seconds.

Which combination of steps should the solutions architect take to meet these requirements? (Select THREE.)

A. Use Amazon ElastiCache for Memcached in front of the database

B. Use Amazon ElastiCache for Redis in front of the database.

C. Use RDS Proxy in front of the database

D. Migrate the database to Amazon Aurora MySQL

E. Create an Amazon Aurora Replica

F. Create an RDS for MySQL read replica

ANSWER: A B F

QUESTION NO: 5

Which of the following is true of an instance profile when an IAM role is created using the console?

A. The instance profile uses a different name.

B. The console gives the instance profile the same name as the role it corresponds to.

C. The instance profile should be created manually by a user.

D. The console creates the role and instance profile as separate actions.

ANSWER: B

Explanation:

Amazon EC2 uses an instance profile as a container for an IAM role. When you create an IAM role using the console, the console creates an instance profile automatically and gives it the same name as the role it corresponds to. If you use the AWS CLI, API, or an AWS SDK to create a role, you create the role and instance profile as separate actions, and you might give them different names.

Reference:

http://docs.aws.amazon.com/IAM/latest/UserGuide/id_roles_use_switch-role-ec2_instance-profiles.html

QUESTION NO: 6

A company wants to move a web application to AWS. The application stores session information locally on each web server, which will make auto scaling difficult. As part of the migration, the application will be rewritten to decouple the session data from the web servers. The company requires low latency, scalability, and availability.

Which service will meet the requirements for storing the session information in the MOST cost-effective way?

A. Amazon ElastiCache with the Memcached engine

B. Amazon S3

C. Amazon RDS MySQL

D. Amazon ElastiCache with the Redis engine

ANSWER: D

Explanation:

Reference: https://aws.amazon.com/caching/session-management/ https://aws.amazon.com/elasticache/redis-vs-memcached/

QUESTION NO: 7

A company plans to refactor a monolithic application into a modern application designed deployed or AWS. The CLCD pipeline needs to be upgraded to support the modem design for the application with the following requirements

• It should allow changes to be released several times every hour.

* It should be able to roll back the changes as quickly as possible

Which design will meet these requirements?

A. Deploy a CI-CD pipeline that incorporates AMIs to contain the application and their configurations Deploy the application by replacing Amazon EC2 instances

B. Specify AWS Elastic Beanstak to sage in a secondary environment as the deployment target for the CI/CD pipeline of the application. To deploy swap the staging and production environment URLs.

C. Use AWS Systems Manager to re-provision the infrastructure for each deployment Update the Amazon EC2 user data to pull the latest code art-fact from Amazon S3 and use Amazon Route 53 weighted routing to point to the new environment

D. Roll out At application updates as pan of an Auto Scaling event using prebuilt AMIs. Use new versions of the AMIs to add instances, and phase out all instances that use the previous AMI version with the configured termination policy during a deployment event.

ANSWER: B

QUESTION NO: 8

An organization has hosted an application on the EC2 instances. There will be multiple users connecting to the instance for setup and configuration of application. The organization is planning to implement certain security best practices.

Which of the below mentioned pointers will not help the organization achieve better security arrangement?

A. Allow only IAM users to connect with the EC2 instances with their own secret access key.

B. Create a procedure to revoke the access rights of the individual user when they are not required to connect to EC2 instance anymore for the purpose of application configuration.

C. Apply the latest patch of OS and always keep it updated.

D. Disable the password based login for all the users. All the users should use their own keys to connect with the instance securely.

ANSWER: A

Explanation:

Since AWS is a public cloud any application hosted on EC2 is prone to hacker attacks. It becomes extremely important for a user to setup a proper security mechanism on the EC2 instances. A few of the security measures are listed below:

Always keep the OS updated with the latest patch

Always create separate users with in OS if they need to connect with the EC2 instances, create their keys and disable their password

Create a procedure using which the admin can revoke the access of the user when the business work on the EC2 instance is completed. Lock down unnecessary ports.

Audit any proprietary applications that the user may be running on the EC2 instance Provide temporary escalated privileges, such as sudo for users who need to perform occasional privileged tasks The IAM is useful when users are required to work with AWS resources and actions, such as launching an instance. It is not useful to connect (RDP / SSH) with an instance.

Reference:

http://aws.amazon.com/articles/1233/

QUESTION NO: 9

A company has an organization in AWS Organizations. The company is using AWS Control Tower to deploy a landing zone for the organization. The company wants to implement governance and policy enforcement. The company must implement a policy that will detect Amazon RDS DB instances that are not encrypted at rest in the company's production OU.

Which solution will meet this requirement?

A. Turn on mandatory guardrails in AWS Control Tower. Apply the mandatory guardrails to the production OU.

B. Enable the appropriate guardrail from the list of strongly recommended guardrails in AWS Control Tower. Apply the guardrail to the production OU.

C. Use AWS Config to create a new mandatory guardrail. Apply the rule to all accounts in the production OU.

D. Create a custom SCP in AWS Control Tower. Apply the SCP to the production OU.

ANSWER: B

QUESTION NO: 10

A company would like to implement a serverless application by using Amazon API Gateway, AWS Lambda, and Amazon DynamoDB. They deployed a proof of concept and stated that the average response time is greater than what their upstream services can accept. Amazon CloudWatch metrics did not indicate any issues with DynamoDB but showed that some Lambda functions were hitting their timeout.

Which of the following actions should the Solutions Architect consider to improve performance? (Choose two.)

A. Configure the AWS Lambda function to reuse containers to avoid unnecessary startup time.

B. Increase the amount of memory and adjust the timeout on the Lambda function. Complete performance testing to identify the ideal memory and timeout configuration for the Lambda function.

C. Create an Amazon ElastiCache cluster running Memcached, and configure the Lambda function for VPC integration with access to the Amazon ElastiCache cluster.

D. Enable API cache on the appropriate stage in Amazon API Gateway, and override the TTL for individual methods that require a lower TTL than the entire stage.

E. Increase the amount of CPU, and adjust the timeout on the Lambda function. Complete performance testing to identify the ideal CPU and timeout configuration for the Lambda function.

ANSWER: B D

Explanation:

Reference:

https://lumigo.io/blog/aws-lambda-timeout-best-practices/

QUESTION NO: 11

A company wants to migrate its on-premises data center to the AWS Cloud. This includes thousands of virtualized Linux and Microsoft Windows servers, SAN storage, Java and PHP applications with MYSQL, and Oracle databases. There are many department services hosted either in the same data center or externally. The technical documentation is incomplete and outdated. A solutions architect needs to understand the current environment and estimate the cloud resource costs after the migration. Which tools or services should solutions architect use to plan the cloud migration (Choose three.)

A. AWS Application Discovery Service

B. AWS SMS

C. AWS x-Ray

D. AWS Cloud Adoption Readness Tool (CART)

E. Amazon Inspector

F. AWS Migration Hub

ANSWER: B C F

QUESTION NO: 12

A Solutions Architect must build a highly available infrastructure for a popular global video game that runs on a mobile phone platform. The application runs on Amazon EC2 instances behind an Application Load Balancer. The instances run in an Auto Scaling group across multiple Availability Zones. The database tier is an Amazon RDS MySQL Multi-AZ instance. The entire application stack is deployed in both us-east-1 and eu-central-1. Amazon Route 53 is used to route traffic to the two installations using a latency-based routing policy. A weighted routing policy is configured in Route 53 as a fail over to another region in case the installation in a region becomes unresponsive.

During the testing of disaster recovery scenarios, after blocking access to the Amazon RDS MySQL instance in eu-central-1 from all the application instances running in that region. Route 53 does not automatically failover all traffic to us-east-1.

Based on this situation, which changes would allow the infrastructure to failover to us-east-1? (Choose two.)

A. Specify a weight of 100 for the record pointing to the primary Application Load Balancer in us-east-1 and a weight of 60 for the pointing to the primary Application Load Balancer in eu-central-1.

B. Specify a weight of 100 for the record pointing to the primary Application Load Balancer in us-east-1 and a weight of 0 for the record pointing to the primary Application Load Balancer in eu-central-1.

C. Set the value of Evaluate Target Health to Yes on the latency alias resources for both eu-central-1 and us-east-1.

D. Write a URL in the application that performs a health check on the database layer. Add it as a health check within the weighted routing policy in both regions.

E. Disable any existing health checks for the resources in the policies and set a weight of 0 for the records pointing to primary in both eu-central-1 and us-east-1, and set a weight of 100 for the primary Application Load Balancer only in the region that has healthy resources.

ANSWER: B C

QUESTION NO: 13

A company's processing team has an AWS account with a production application. The application runs on Amazon EC2 instances behind a Network Load Balancer (NLB). The EC2 instances are hosted in private subnets in a VPC in the eu-west-1 Region. The VPC was assigned the CIDR block of 10.0.0.0/16. The billing team recently created a new AWS account and deployed an application on EC2 instances that are hosted in private subnets in a VPC in the eu-central-1 Region. The new VPC is assigned the CIDR block of 10.0.0.0/16.

The processing application needs to securely communicate with the billing application over a proprietary TCP port.

What should a solutions architect do to meet this requirement with the LEAST amount of operational effort?

A. In the billing team's account, create a new VPC and subnets in eu-central-1 that use the CIDR block of 192.168.0.0/16. Redeploy the application to the new subnets. Configure a VPC peering connection between the two VPCs.

B. In the processing team's account, add an additional CIDR block of 192.168.0.0/16 to the VPC in eu-west-1. Restart each of the EC2 instances so that they obtain a new IP address. Configure an interRegion VPC peering connection between the two VPCs.

C. In the billing team's account, create a new VPC and subnets in eu-west-1 that use the CIDR block of 192.168.0.0/16. Create a VPC endpoint service (AWS PrivateLink) in the processing team's account and an interface VPC endpoint in the new VPConfigure an inter-Region VPC peering connection in the billing team's account between the two VPCs.

D. In each account, create a new VPC with the CIDR blocks of 192.168.0.0/16 and 172.16.0.0/16. Create inter-Region VPC peering connections between the billing team's VPCs and the processing team's VPCs. Create gateway VPC endpoints to allow traffic to route between the VPCs.

ANSWER: A

QUESTION NO: 14

A Solutions Architect is designing the storage layer for a recently purchased application. The application will be running on Amazon EC2 instances and has the following layers and requirements: ▪ Data layer: A POSIX file system shared across many systems.

▪ Service layer: Static file content that requires block storage with more than 100k IOPS.

Which combination of AWS services will meet these needs? (Choose two.)

A. Data layer – Amazon S3

B. Data layer – Amazon EC2 Ephemeral Storage

C. Data layer – Amazon EFS

D. Service layer – Amazon EBS volumes with Provisioned IOPS

E. Service layer – Amazon EC2 Ephemeral Storage

ANSWER: C E

QUESTION NO: 15

A healthcare company runs a production workload on AWS that stores highly sensitive personal information. The security team mandates that, for auditing purposes, any AWS API action using AWS account root user credentials must automatically create a high-priority ticket in the company's ticketing system. The ticketing system has a monthly 3-hour maintenance window when no tickets can be created.

To meet security requirements, the company enabled AWS CloudTrail logs and wrote a scheduled AWS Lambda function that uses Amazon Athena to query API actions performed by the root user. The Lambda function submits any actions found to the ticketing system API. During a recent security audit, the security team discovered that several tickets were not created because the ticketing system was unavailable due to planned maintenance.

Which combination of steps should a solutions architect take to ensure that the incidents are reported to the ticketing system even during planned maintenance? (Choose two.)

A. Create an Amazon SNS topic to which Amazon CloudWatch alarms will be published. Configure a CloudWatch alarm to invoke the Lambda function.

B. Create an Amazon SQS queue to which Amazon CloudWatch alarms will be published. Configure a CloudWatch alarm to publish to the SQS queue.

C. Modify the Lambda function to be triggered by messages published to an Amazon SNS topic. Update the existing application code to retry every 5 minutes if the ticketing system's API endpoint is unavailable.

D. Modify the Lambda function to be triggered when there are messages in the Amazon SQS queue and to return successfully when the ticketing system API has processed the request.

E. Create an Amazon EventBridge rule that triggers on all API events where the invoking user identity is root. Configure the EventBridge rule to write the event to an Amazon SQS queue.

ANSWER: B D

QUESTION NO: 16

A company wants to migrate a 30 TB Oracle data warehouse from on premises to Amazon Redshift. The company used the AWS Schema Conversion Tool (AWS SCT) to convert the schema of the existing data warehouse to an Amazon Redshift schema. The company also used a migration assessment report to identify manual tasks to complete.

The company needs to migrate the data to the new Amazon Redshift cluster during an upcoming data freeze period of 2 weeks. The only network connection between the on-premises data warehouse and AWS is a 50 Mbps internet connection.

Which migration strategy meets these requirements?

A. Create an AWS Database Migration Service (AWS DMS) replication instance. Authorize the public IP address of the replication instance to reach the data warehouse through the corporate firewall. Create a migration task to run at the beginning of the fata freeze period.

B. Install the AWS SCT extraction agents on the on-premises servers. Define the extract, upload, and copy tasks to send the data to an Amazon S3 bucket. Copy the data into the Amazon Redshift cluster. Run the tasks at the beginning of the data freeze period.

C. Install the AWS SCT extraction agents on the on-premises servers. Create a Site-to-Site VPN connection. Create an AWS Database Migration Service (AWS DMS) replication instance that is the appropriate size. Authorize the IP address of the replication instance to be able to access the on-premises data warehouse through the VPN connection.

D. Create a job in AWS Snowball Edge to import data into Amazon S3. Install AWS SCT extraction agents on the on-premises servers. Define the local and AWS Database Migration Service (AWS DMS) tasks to send the data to the Snowball Edge device. When the Snowball Edge device is returned to AWS and the data is available in Amazon S3, run the AWS DMS subtask to copy the data to Amazon Redshift.

ANSWER: D

QUESTION NO: 17

The following are AWS Storage services? (Choose two.)

A. AWS Relational Database Service (AWS RDS)

B. AWS ElastiCache

C. AWS Glacier

D. AWS Import/Export

ANSWER: C D

QUESTION NO: 18

An AWS customer runs a public blogging website. The site users upload two million blog entries a month. The average blog entry size is 200 KB. The access rate to blog entries drops to negligible 6 months after publication and users rarely access a blog entry 1 year after publication. Additionally, blog entries have a high update rate during the first 3 months following publication, this drops to no updates after 6 months. The customer wants to use CloudFront to improve his user's load times.

Which of the following recommendations would you make to the customer?

A. Duplicate entries into two different buckets and create two separate CloudFront distributions where S3 access is restricted only to Cloud Front identity

B. Create a CloudFront distribution with “US Europe” price class for US/Europe users and a different CloudFront distribution with “All Edge Locations” for the remaining users.

C. Create a CloudFront distribution with S3 access restricted only to the CloudFront identity and partition the blog entry's location in S3 according to the month it was uploaded to be used with CloudFront behaviors.

D. Create a CloudFront distribution with Restrict Viewer Access Forward Query string set to true and minimum TTL of 0.

ANSWER: C

QUESTION NO: 19

A company wants to replace its call center system with a solution built using AWS managed services. The company call center would like the solution to receive calls, create contact flows, and scale to handle growth projections. The call center would also like the solution to use deep learning capabilities to recognize the intent of the callers and handle basic tasks, reducing the need to speak to an agent. The solution should also be able to query business applications and provide relevant information back to callers as requested. Which services should the Solutions Architect use to build this solution? (Choose three.)

A. Amazon Rekognition to identify who is calling.

B. Amazon Connect to create a cloud-based contact center.

C. Amazon Alexa for Business to build conversational interfaces.

D. AWS Lambda to integrate with internal systems.

E. Amazon Lex to recognize the intent of the caller.

F. Amazon SQS to add incoming callers to a queue.

ANSWER: B D E

QUESTION NO: 20

A company has a VPC with two domain controllers running Active Directory in the default configuration. The VPC DHCP options set is configured to use the IP addresses of the two domain controllers. There is a VPC interface endpoint defined; but instances within the VPC are not able to resolve the private endpoint addresses.

Which strategies would resolve this issue? (Choose two.)

A. Define an outbound Amazon Route 53 Resolver. Set a conditional forward rule for the Active Directory domain to the Active Directory servers. Update the VPC DHCP options set to AmazonProvidedDNS.

B. Update the DNS service on the Active Directory servers to forward all non-authoritative queries to the VPC Resolver.

C. Define an inbound Amazon Route 53 Resolver. Set a conditional forward rule for the Active Directory domain to the Active Directory servers. Update the VPC DHCP options set to AmazonProvidedDNS.

D. Update the DNS service on the client instances to split DNS queries between the Active Directory servers and the VPC Resolver.

E. Update the DNS service on the Active Directory servers to forward all queries to the VPC Resolver.

ANSWER: B E