1. An Internet-facing multi-tier web application must be highly available. An ELB Classic Load Balancer is deployed in front of the web tier. Amazon EC2 instances at the web application tier are deployed evenly across two Availability Zones. The database is deployed using RDS Multi-AZ. A NAT instance is launched for Amazon  
EC2 instances and database resources to access the Internet. These instances are not assigned with public IP addresses.  
Which component poses a potential single point of failure in this architecture?

A. Amazon EC2

B. NAT instance

C. ELB Classic Load Balancer

D. Amazon RDS

Answer : B

Explanation

일반적으로 보면 ELB가 장애가 나면 그 밑에 티어들에 대해 접근이 불가하다. 그러나 문제에서는 Multi-AZ에 구성이 되어있다. Multi-AZ에서 작동하는 ELB가 보기에는 하나로 보이지만, 각 ZONE마다 하나의 ELB들이 논리적으로 구성되어있는 형태를 띈다. 그래서 ELB를 single point of failure라고 언급하지 않는다.(추가 : 알아서 장애 해결일 경우는 위에 해당하지 않는다.)

Reference

[stackoverflow.com/questions/46698011/are-amazon-elastic-load-balancer-elb-failure-proof](https://stackoverflow.com/questions/46698011/are-amazon-elastic-load-balancer-elb-failure-proof)

2. A call center application consists of a three-tier application using Auto Scaling groups to automatically scale resources as needed. Users report that every morning at 9:00 AM the system becomes very slow for about 15 minutes. A Solution Architect determines that a large percentage of the call center staff starts work at 9:00  
AM, so Auto Scaling does not have enough time to scale out to meet demand.  
How can the Architect fix the problem?

A. Change the Auto Scaling group’s scale out event to scale based on network utilization.

B. Create an Auto Scaling scheduled action to scale out the necessary resources at 8:30AM every morning.

C. Use Reserved Instance to ensure the system has reserved the right amount of capacity for the scale-up events.

D. Permanently keep a steady state of instances that is needed at 9:00AM to guarantee available resources, but leverage Spot Instance

Answer : B

Explanation

대부분의 콜센터 직원이 9:00시에 일을 시작하면서 시스템이 매우 느려진다고 한다. 이 경우 Auto Scaling을 통해 문제를 해결 할 수 있다. 이 점에서 답이 A와 B가 될 수 있지만, 현재 이 문제에서는 Network Traffic으로 인해 발생되는 문제인지 알 수 없다. 그러므로 보다 정확한 B가 적절하다.

3. An e-commerce application is hosted in AWS. The last time a new product was launched, the application experienced a performance issue due to an enormous spike in traffic. Management decided that capacity must be doubled the week after the product is launched.  
Which is the MOST efficient way for management to ensure that capacity requirements are met?

A. Add a Step Scaling policy.

B. Add a Dynamic Scaling policy.

C. Add a Scheduled policy.

D. Add Amazon EC2 Spot Instance.

Answer : C

Explanation

Traffic이 급증하여 제품을 출시하고 그 다음주 까지 용량을 2배로 늘리겠다고 Management가 결정했다. “그 다음주”라는 키워드 때문에 C라고 생각 할 수도 있지만, Dynamic Scaling Policy를 통해 최소 용량을 선택 할 수 있기 때문에 2배로 늘리는 것도 만족 할 수 있고 2배의 용량을 뛰어넘는 traffic상황에서도 대처할 수 있기 때문에 B가 적절하다.

Reference : docs.aws.amazon.com/ko\_kr/autoscaling/ec2/userguide/as-scale-based-on-demand.html

4. A customer owns a simple API for their website that receives about 1,000 requests each day and has an average response time of 50 ms. It is currently hosted on one c4.large instance.  
Which changes to the architecture will provide high availability at the LOWEST cost?

A. Create an Auto Scaling group with a minimum of one instance and a maximum of two instances, then use an Application Load Balancer to balance the traffic.

B. Recreate API using Amazon API Gateway and use AWS Lambda as the service backend.

C. Create an Auto Scaling group with a maximum of two instances, then use an Application Load Balancer to balance the traffic

D. Recreate the API using Amazon API Gateway and integrate the new with the existing backend service.

Answer : B

Explanation

위 질문 리스트 중 고가용성을 보장하는 것은 serverless 한 lambda와 api를 통해 요청을 처리하는 것이다.

Reference : docs.aws.amazon.com/ko\_kr/lambda/latest/dg/welcome.html

5. A Solution Architect is designing an application that uses Amazon EBS volumes. The volumes must be backed up to a different region.  
How should the Architect meet this requirement?

A. Create EBS snapshots directly from one region to another.

B. Move the data to an Amazon Se bucket and enable cross-region replication.

C. Create EBS snapshots and then copy them to the desired region.

D. Use a script to copy data from the current Amazon EBS volume to the destination Amazon EBS volume.

Answer : C

Explanation

스냅샷을 다른 region에서 쓰게 하기 위해서는 해당 instance에서 스냅샷을 생성한 다음, 그 스냅샷을 다른 region으로 복사하여야 한다. S3는 단순 AMI(Amazon Machine Image)를 저장 할 수 있고, instance의 상태까지 복사 할 수 있는 snapshot는 지원하지 않는다. 그러므로 위 문제에서 요구한 Volume이 backup되어야하는 부분을 만족하는 것은 C이다.

Reference

docs.aws.amazon.com/ko\_kr/AWSEC2/latest/UserGuide/ebs-modifying-snapshot-permissions.html

6. A company is using an Amazon S3 bucket located in us-west-2 to serve videos to their customers. Their customers are located all around the world and the videos are requested a lot during peak hours. Customers in Europe complain about experiencing slow downloaded speeds, and during peak hours, customers in all locations report experiencing HTTP 500 errors.  
What can a Solutions Architect do to address these issues?

A. Place an elastic load balancer in front of the Amazon S3 bucket to distribute the load during peak hours

B. Cache the web content with Amazon CloudFront and use all Edge locations for content delivery.

C. Replicate the bucket in EU-west-1 and sue an Amazon Route 53 failover routing policy to determine which bucket it should serve the request to.

D. Use an Amazon Route 53 weighted routing policy for the CloudFront domain name to distribute the GET request between CloudFront and the Amazon S3 bucket directly.

Answer : B

Explanation

전 세계의 사용자가 비디오를 us-west-2에 위치한 S3 bucket에서 다운받고있다. 한 자원을 다양한 region의 사람들이 접근하므로 그만큼 부하가 걸릴 수 밖에 없다. 이를 CloudFront를 사용하여 캐싱서버를 구현하게 되면, 각 사용자들의 가까운 Edge-Location에서 요청을 처리 할 수 있기 때문에 위의 error 상황을 해결 할 수 있다.

Reference : docs.aws.amazon.com/ko\_kr/AmazonCloudFront/latest/DeveloperGuide/Introduction.html

7. A Solutions Architect is designing a solution that includes a managed VPN connection.  
To monitor whether the VPN connection is up or down, the Architect should use:

A. an external service to ping the VPN end point from outside the VPC

B. AWS CloudTrail to monitor the endpoint

C. the CloudWatch TunnelState Metric.

D. an AWS Lambda function that parses the VPN connection logs.

Answer : C

Explanation

A같은 경우, VPN은 public과 단절이기 때문에 ping을 보내든 안보내든 무응답이다. Cloudtrail는 api 호출 관련 이벤트를 처리하는 서비스이고, lambda는 지원하지 않는다.

Reference

docs.aws.amazon.com/ko\_kr/vpn/latest/clientvpn-admin/monitoring-overview.html

docs.aws.amazon.com/vpn/latest/s2svpn/monitoring-cloudwatch-vpn.html#metrics-dimensions-vpn

8. A social networking portal experiences latency and throughput issues due to an increased number of users. Application servers use very large datasets from an  
Amazon RDS database, which creates a performance bottleneck on the database.  
Which AWS service should be used to improve performance?

A. Auto Scaling

B. Amazon SQS

C. Amaozn ElastiCache

D. ELB Application Load Balancer

Answer : C

Explanation

Auto Scaling은 퍼포먼스 이슈보다는 고가용성을 해결하는 솔루션이다. SQS는 요청의 내구성과 안정성을 보장하는 서비스이며, ELB도 고가용성을 위한 솔루션이다. ElastiCache를 이용하여 In-memory cache환경을 구축하여 자주 사용하는 요청에 대해 캐시응답을 제공함으로써 퍼포먼스를 향상 시킬 수 있다.

Reference : docs.aws.amazon.com/AmazonElastiCache/latest/mem-ug/elasticache-use-cases.html

9. A Solutions Architect is designing network architecture for an application that has compliance requirements. The application will be hosted on Amazon EC2 instances in a private subnet and will be using Amazon S3 for storing data. The compliance requirements mandate that the data cannot traverse the public Internet.  
What is the MOST secure way to satisfy this requirement?

A. Use a NAT Instance

B. Use a NAT Gateway

C. Use a VPC endpoint

D. Use a Virtual Private Gateway.

Answer : C

Explanation

통상적으로 내부 자원을 보호하기 위해서 모두 퍼블릭으로 처리하는 것이 아니라 VPC를 구성하여 보호해야 할 자원들은 private subnet을 구성하여 보안을 향상시킨다. 이 private subnet과 안전하게 외부 자원에 대해 통신을 할 때 vpc endpoint를 이용하면 고가용성과 secure connection을 보장한다.

Reference : aws.amazon.com/ko/blogs/aws/new-vpc-endpoint-for-amazon-s3/

10. A Solutions Architect is designing a photo application on AWS. Every time a user uploads a photo to Amazon S3, the Architect must insert a new item to a DynamoDB table.  
Which AWS-managed service is the BEST fit to insert the item?

A. Lambda@Edge

B. AWS Lambda

C. Amazon API Gateway

D. Amazon Ec2 instance.

Answer : A

Explanation

Lambda@Edge는 lambda를 확장하여 lambda요청을 각 cloudfront상으로 처리 할 수 있게 해주는 서비스이다. Lambda와 기능적으로는 차이가 없지만, cloudfront를 이용하여 빠른 처리를 제공하는데 있어서 더 유리하다.

Reference

aws.amazon.com/ko/lambda/features/

docs.aws.amazon.com/ko\_kr/AmazonCloudFront/latest/DeveloperGuide/lambda-at-the-edge.html

11. An application relies on messages being sent and received in order. The volume will never exceed more than 300 transactions each second.  
Which service should be used?

A. Amazon SQS

B. Amazon SNS

C. Amazon ECS

D. Amazon STS

Answer : A

Explanation

Amazon SQS서비스를 통하여 안정성을 보장한 transaction을 수행할 수 있다. SQS 대기열 방식은 크게 2가지가 있다.

Standard Queue(표준 대기열) : 처리량이 중요한 application에 최적화

* 거의 무제한에 가까운 TPS를 제공
* 메시지가 최소 1번 전달되며, 가금 2개 이상의 메시지 복사본이 전달되는 경우가 있음.
* 메시지 순서와 다르게 전달 될 수 있음.

FIFO Queue : 이벤트 순서가 중요한 application에 최적화

* 일괄 처리를 통해 초당 최대 3000개의 메시지 지원
* 메시지가 한번 전달되고 consumer가 한번 처리할 때 까지 유지된다. 중복항목은 없음.
* 메시지가 전송되고 수신되는 순서가 엄격함.

“Being sent and received in order”의 문구를 참조하면 FIFO Queue를 사용하면 가장 적절할 것이다.

12. A Solutions Architect is designing an application on AWS that uses persistent block storage. Data must be encrypted at rest.  
Which solution meets the requirement?

A. Enable SSL on Amazon EC2 instances.

B. Encrypt Amazon EBS volumes on Amazon EC2 instances.

C. Enable server-side encryption on Amazon S3.

D. Encrypt Amazon EC2 Instance Storage.

Answer : B

Explanation

암호화 되어서 저장되어야 하고 persistent block storage임을 모두 만족하는 것은 B가 유일하다. D의 경우, 휘발성이기 때문에 persistent하지 못하다. SSL과 server-side encryption만으로 데이터가 유휴 상태일 때 암호화 할 수 없다.

Reference : docs.aws.amazon.com/ko\_kr/AWSEC2/latest/UserGuide/EBSEncryption.html

13. A company is launching a static website using the zone apex (mycompany.com). The company wants to use Amazon Route 53 for DNS.  
Which steps should the company perform to implement a scalable and cost-effective solution? (Choose two.)

A. Host the website on an Amazon EC2 instance with ELB and Auto Scaling, and map a Route 53 alias record to the ELB endpoint.

B. Host the website using AWS Elastic Beanstalk, and map a Route 53 alias record to the Beanstalk stack.

C. Host the website on an Amazon EC2 instance, and map a Route 53 alias record to the public IP endpoint.

D. Serve the website from an Amazon S3 bucket, and map a Route 53 alias record to the website endpoint.

E. Create a Route 53 hosted zone, and set the NS records of the domain to use Route 53 name servers.

Answer : D, E

Explanation

문제에서 static website를 launching한다고 되어있기 때문에, EC2상에 직접 호스팅 하는 것은 비효율 적이다. S3상에다가 static file들을 업로드 하게 되면 그에 맞는 url이 생성되는데, 이를 Route 53을 통해 record와 website endpoint를 alias시켜주면 된다.

S3를 사용하기 때문에 거의 무한정으로 scalable하고, EC2보다 상대적으로 cost-effective하다.

Reference

docs.aws.amazon.com/Route53/latest/DeveloperGuide/CreatingHostedZone.html

docs.aws.amazon.com/Route53/latest/DeveloperGuide/resource-record-sets-choosing-alias-non-alias.html

14. A manufacturing company captures data from machines running at customer sites. Currently, thousands of machines send data every 5 minutes, and this is expected to grow to hundreds of thousands of machines in the near future. The data is logged with the intent to be analyzed in the future as needed.  
What is the SIMPLEST method to store this streaming data at scale?

A. Create an Amazon Kinesis Firehouse delivery stream to store the data in Amazon S3.

B. Create an Auto Scaling group of Amazon EC2 servers behind ELBs to write the data into Amazon RDS.

C. Create an Amazon SQS queue, and have the machines write to the queue.

D. Create an Amazon EC2 server farm behind an ELB to store the data in Amazon EBS Clod HDD Volumes.

Answer : A

Explanation : 기계에서 나오는 실시간 데이터는 정형화 되지 않았기 때문에 RDS의 경우 변환작업을 거쳐야 한다. 그러나 Amazon Kinesis Firehouse같은 경우 데이터를 바로 저장 할 수 있어 RDS보다 상대적으로 작업량이 적어 B보다는 A에 정답이 가깝다.

Reference : docs.aws.amazon.com/ko\_kr/firehose/latest/dev/what-is-this-service.html

15. A bank is writing new software that is heavily dependent upon the database transactions for write consistency. The application will also occasionally generate reports on data in the database, and will do joins across multiple tables. The database must automatically scale as the amount of data grows.  
Which AWS service should be used to run the database?

A. Amazon S3

B. Amazon Aurora

C. Amazon DynamoDB

D. Amazon Redshift

Answer : B

Explanation

위 제품들 중 “automatically scale as the amount of data grows”를 만족하는 것은 Aurora와 DynamoDB,, redshift밖에 없다. S3는 테이블이 존재하지 않기 때문에 제외한다. 문제의 2번째 조건을 보면 “join across multiple tables”가 등장한다. Nosql기반인 DynamoDB와 Redshift는 join처리 능력에서 RDS보다 떨어진다. 그러므로 유일한 RDS인 Aurora가 정답.

16. A Solutions Architect is designing a new application that needs to access data in a different AWS account located within the same region. The data must not be accessed over the Internet.  
Which solution will meet these requirements with the LOWEST cost?

A. Add rules to the security groups in each account.

B. Establish a VPC Peering connection between accounts

C. Configure Direct Connect in each account

D. Add a NAT Gateway to the data account.

Answer : B

Explanation

보통 app은 여러 티어로 구성되어 있기 때문에 VPC로 구성하는게 일반적이다. VPC는 기본적으로 private이기 때문에 다른 외부와 통신이 되지 않는다. 이를 VPC Peering을 통해 가능케 한다.

Reference : docs.aws.amazon.com/ko\_kr/vpc/latest/peering/what-is-vpc-peering.html

17. A Solutions Architect is designing a mobile application that will capture receipt images to track expenses. The Architect wants to store the images on Amazon S3. However, uploading images through the web server will create too much traffic.  
What is the MOST efficient method to store images from a mobile application on Amazon S3?

A. Upload directly to S3 using pre-signed URL.

B. Upload to a second bucket, and have a Lambda event copy the image to the primary bucket.

C. Upload to a separate Auto Scaling group of servers behind an ELB Classic Load Balancer, and have them write to the Amazon S3 bucket.

D. Expand the web server fleet with Spot instance to provide the resources to handle the images.

Answer : A

Explanation

C와 D는 서버 리소스를 사용하는 방식이고, B는 버킷을 불필요하게 하나 더 만드는 작업이다. A는 instance를 사용하지 않고 바로 S3에 올리기 때문에 보다 빠른 속도를 제공한다.

18. A company requires that the source, destination, and protocol of all IP packets be recorded when traversing a private subnet.  
What is the MOST secure and reliable method of accomplishing this goal.

A. Create VPC flow logs on the subnet.

B. Enable source destination check on private Amazon EC2 instances.

C. Enable AWS CloudTrail logging and specify an Amazon S3 bucket for storing log files.

D. Create an Amazon CloudWatch log to capture packet information

Answer : A

Explanation

말이 필요없다 Reference를 참곻자.

Reference

docs.aws.amazon.com/vpc/latest/userguide/flow-logs.html

19. A Solutions Architect has a multi-layer application running in Amazon VPC. The application has an ELB Classic Load Balancer as the front end in a public subnet, and an Amazon EC2-based reverse proxy that performs content-based routing to two backend Amazon EC2 instances hosted in a private subnet. The Architect sees tremendous traffic growth and is concerned that the reverse proxy and current backend set up will be insufficient.  
Which actions should the Architect take to achieve a cost-effective solution that ensures the application automatically scales to meet traffic demand? (Select two.)

A. Replace the Amazon EC2 reverse proxy with an ELB internal Classic Load Balancer.

B. Add Auto Scaling to the Amazon EC2 backend fleet.

C. Add Auto Scaling to the Amazon EC2 reverse proxy layer.

D. Use t2 burstable instance types for the backend fleet.

E. Replace both the front-end and reverse proxy layers with an ELB Application Load Balancer.

Answer : B, E

Explanation

Content-based Routing을 제공하는 ELB는 Application Load Balancer밖에 없다. 현재 reverse proxy는 content-based routing을 제공하고 있는데, 이를 auto-scaling하는 방법도 좋지만, 이를 Application Load Balancer로 교체하는 것이 훨씬 더 비용적인 측면에서 좋다. Backend의 성능을 높이기 위해서 Auto-Scaling을 통해 해결한다.

Reference

aws.amazon.com/ko/blogs/korea/new-advanced-request-routing-for-aws-application-load-balancers/

aws.amazon.com/ko/elasticloadbalancing/features/#compare

20. A company is launching a marketing campaign on their website tomorrow and expects a significant increase in traffic. The website is designed as a multi-tiered web architecture, and the increase in traffic could potentially overwhelm the current design.  
What should a Solutions Architect do to minimize the effects from a potential failure in one or more of the tiers?

A. Migrate the database to Amazon RDS.

B. Set up DNS failover to a statistic website.

C. Use Auto Scaling to keep up with demand.

D. Use both a SQL and a NoSQL database in the region.

Answer : C

Explanation

Auso-scaling 을 통해 자동으로 traffic에 따라 용량을 조절 할 수 있다. 말이 필요없음.

21. A web application experiences high compute costs due to serving a high amount of static web content.  
How should the web server architecture be designed to be the MOST cost-efficient?

A. create an Auto Scaling group to scale out based on average CPU usage.

B. Create an Amazon CloudFront distribution to pull static content from an Amazon S3 bucket

C. Leverage Reserved Instances to add additional capacity at a significantly lower price.

D. Create a multi-region deployment using an Amazon Route 53 geolocation routing policy.

Answer : B

Explanation

S3와 CloudFront를 이용하면 빠르면서도 비용적으로 효율적인 웹컨텐츠를 제공 할 수 있다. Auto Scaling과 RI를 이용하면 그만큼의 인스턴스 비용이 나가고, multi-region역시 그러하다.

Reference

docs.aws.amazon.com/ko\_kr/AmazonCloudFront/latest/DeveloperGuide/Introduction.html

aws.amazon.com/ko/premiumsupport/knowledge-center/cloudfront-https-requests-s3/

22. A Solutions Architect plans to migrate NAT instances to NAT gateway. The Architect has NAT instances with scripts to manage high availability.  
What is the MOST efficient method to achieve similar high availability with NAT gateway?

A. Remove source/destination chech on NAT instances.

B. Launch a NAT gateway in each Avilability Zone.

C. Use a mix of NAT instances and NAT gateway.

D. Add an ELB Application Load Balancer in front of NAT gateway.

Answer : B

Explanation

NAT gateway는 각 AZ에다가 하나씩 생성하는 것이 일반적임.

Reference

docs.aws.amazon.com/ko\_kr/vpc/latest/userguide/vpc-nat-comparison.html

23. A Solutions Architect is designing a solution to store a large quantity of event data in Amazon S3. The Architect anticipates that the workload will consistently exceed 100 requests each second.  
What should the Architect do in Amazon S3 to optimize performance?

A. Randomize a key name prefix.

B. Store the event data in separate buckets.

C. Randomize the key name suffix.

D. Use Amazon S3 Transfer Acceleration.

Answer : A

Explanation

레퍼런스에 따르면 key name prefix에 따라서 저장되는 파티션이 달라진다고한다. 즉, key name prefix를 randomize하게 되면 그만큼 데이터들의 파티션이 분산되어서 저장되는 효과가 있고, 접근 시 한 파티션에 집중 되는 것을 피할 수 있다.

그러나 현재는 그럴 필요가 없어졌다고 공식 doc에 설명되어 있다.

Reference

aws.amazon.com/ko/blogs/aws/amazon-s3-performance-tips-tricks-seattle-hiring-event/ (2012)

docs.aws.amazon.com/ko\_kr/AmazonS3/latest/dev/optimizing-performance.html (latest)

24. A news organization plans to migrate their 20 TB video archive to AWS. The files are rarely accessed, but when they are, a request is made in advance and a 3 to 5-hour retrieval time frame is acceptable. However, when there is a breaking news story, the editors require access to archived footage within minutes.  
Which storage solution meets the needs of this organization while providing the LOWEST cost of storage?

A. Store the archive in Amazon S3 Reduced Redundancy Store.

B. Store the archive in Amazon Glacier and use standard retrieval for all content.

C. Store the archive in Amazon Glacier and pay the additional charge for expedited retrieval when needed

D. Store the archive in Amazon S3 with lifecycle policy to move this to S3 Infrequent Access after 30 days.

Answer : C

Explanation

Editor가 수분 이내로 접근이 가능하도록 요구하였으며, 20TB에 달하는 용량을 AWS에 archiving하려한다. 20TB의 용량은 S3보다는 Glacier에 적합하며, Glacier중 수분 내로 접근이 가능하게 하는 것은 expedited옵션이다. 그러므로 C가 가장 적절하다.

Reference

docs.aws.amazon.com/ko\_kr/AmazonS3/latest/dev/storage-class-intro.html

docs.aws.amazon.com/ko\_kr/AmazonS3/latest/dev/restoring-objects.html

25. A Solutions Architect is building a multi-tier website. The web servers will be in a public subnet, and the database servers will be in a private subnet. Only the web servers can be accessed from the Internet. The database servers must have Internet access for software updates.  
Which solution meets the requirements?

A. Assign Elastic IP addresses to the database instances.

B. Allow Internet on the private subnet through the network ACL.

C. Use a NAT Gateway

D. Use an egress-only Internet Gateway

Answer : C

Explanation

NAT instance 또는 Gateway를 통해 private subnet이 외부 인터넷과 통신 할 수 있다.

Reference

docs.aws.amazon.com/ko\_kr/vpc/latest/userguide/vpc-nat.html

26. A Solutions Architect is designing a Lambda function that calls an API to list all running Amazon RDS instances.  
How should the request be authorized?

A. Create an IAM access and secret key and store in the Lambda function

B. Create an IAM role to the Lambda function with permissions to list all Amazon RDS instances.

C. Create an IAM role to Amazon RDS with permissions to list all Amazon RDS instances.

D. Create an IAM access and secret key and store it in an encrypted RDS database.

Answer : B

Explanation

Lambda로 접근하려고 하면 Lambda에다가 IAM권한을 주어서 처리하는게 바람직하다.

Reference

docs.aws.amazon.com/ko\_kr/lambda/latest/dg/vpc-rds.html

27. A Solutions Architect is building an application on AWS that will require 20,000 IOPS on a particular volume to support a media event. Once the event ends, the IOPS need is no longer required. The marketing team asks the Architect to build the platform to optimize storage without incurring downtime.  
How should the Architect design the platform to meet these requirements?

A. Change the Amazon EC2 instant types.

B. Change the EBS volume type to Provisioned IOPS.

C. Stop the Amazon EC2 instance and provision IOPS for the EBS volume.

D. Enable an API Gateway to change the endpoints for the Amazon EC2 instance.

Answer : B

Explanation

20,000 IOPS를 지원하는 EBS Storage는 Privisioned IOPS SSD이다. 이에 맞는 답은 B와 C이며, C의 경우 instance를 stop시키기 때문에 B보다 비효율적이다.

Reference

docs.aws.amazon.com/ko\_kr/AWSEC2/latest/UserGuide/EBSVolumeTypes.html

28. A Solutions Architect is building a new feature using a Lambda to create metadata when a user uploads a picture to Amazon S3. All metadata must be indexed.  
Which AWS service should the Architect use to store this metadata?

A. Amazon S3

B. Amazon DynamoDB

C. Amazon Kinesis

D. Amazon EFC

Answer : B

Explanation

문제에서 메타데이터를 Lambda로 취급하고, 모든 메타데이터는 indexed 되여아한다는 조건을 모두 만족하는 것은 DynamoDB이다.

Reference

aws.amazon.com/ko/blogs/big-data/building-and-maintaining-an-amazon-s3-metadata-index-without-servers/

29. An interactive, dynamic website runs on Amazon EC2 instances in a single subnet behind an ELB Classic Load Balancer.  
Which design changes will make the site more highly available?

A. move some Amazon EC2 instances to a subnet in a different Zone(원래는 way인데 오타).

B. Move the website to Amazon S3.

C. Change the ELB to an Application Load Balancer.

D. Move some Amazon EC2 instances to a subnet in the same Availability Zone.

Answer : A

Explanation

고가용성을 보장하기 위해서는 EC2를 다른 존에다가 옮기면 하나의 Zone이 죽어도 다른 Zone이 작동하기 때문에 고가용성을 보장 할 수 있다.

Reference

기초내용임. 백서 참조.

30. A Solutions Architect is designing a web application that is running on an Amazon EC2 instance. The application stores data in DynamoDB. The Architect needs to secure access to the DynamoDB table.  
What combination of steps does AWS recommend to achieve secure authorization? (Select two.)

A. Store an Access key on the Amazon EC2 instance with rights to the DynamoDB table.

B. Attach an IAM user to the Amazon EC2 instance.

C. Create an IAM role with permissions to write to the DynamoDB table.

D. Attach an IAM role to the Amazon EC2 instance.

E. Attach an IAM policy to the Amazon EC2 instance.

Answer : C, D

Explanation

Access key를 직접 EC2안에 저장하는 것은 보안상 매우 좋지 않다. DynamoDB의 데이터를 app이 꺼내쓰는 구조인데, 이를 제어하기 위해선 DynamoDB접근을 허용하는 IAM 역할을 생성한 뒤 그 역할을 필요한 곳에다 부여하는 된다. 이를 만족하는 절차는 C -> D 이다.

Reference

31. A Solutions Architect is about to deploy an API on multiple EC2 instances in an Auto Scaling group behind an ELB. The support team has the following operational requirements:  
 1 They get an alert when the requests per second go over 50,000  
 2 They get an alert when latency goes over 5 seconds  
 3 They can validate how many times a day users call the API requesting highly-sensitive data  
Which combination of steps does the Architect need to take to satisfy these operational requirements? (Select two.)

A. Ensure that CloudTrail is enabled.

B. Create a custom CloudWatch metric to monitor the API for data access.

C. Configure CloudWatch alarms for any metrics the support team requires.

D. Ensure that detailed monitoring for the EC2 instances is enabled.

E. Create an application to export and save CloudWatch metircs for longer term trending analysis.

Answer : A,C

Explanation

B도 맞는거 처럼 보이는데, metric을 설정하고 alert을 설정 하지 않으면, 무용지물이다.

Reference

docs.aws.amazon.com/ko\_kr/AmazonCloudWatch/latest/monitoring/WhatIsCloudWatch.html

32. A media company asked a Solutions Architect to design a highly available storage solution to serve as a centralized document store for their Amazon EC2 instances. The storage solution needs to be POSIX-compliant, scale dynamically, and be able to serve up to 100 concurrent EC2 instances.  
Which solution meets these requirements?

A. Create an Amazon S3 bucket and store all of the documents in this bucket.

B. Create an Amazon EBS volume and allow multiple users to mount that volume to their EC2 instances.

C. Use Amazon Glacier to store all of the documents.

D. Create an Amazon Elastic File System (Amazon EFS) to store and share the documents.

Asnwer : D

Explanation

위 문제의 가장 큰 조건은 POSIX(이식가능한)와 centralized document store for their Amazon EC2 instances 이다. 즉, 이식 가능하며 중앙 문서관리가 되어야 하므로 위 선택지 중 EFS가 가장 적당하다.

Reference

docs.aws.amazon.com/ko\_kr/efs/latest/ug/whatisefs.html

33. A Solution Architect has a two-tier application with a single Amazon EC2 instance web server and Amazon RDS MySQL Multi-AZ DB instances. The Architect is re-architecting the application for high availability by adding instances in a second Availability Zone.  
Which additional services will improve the availability of the application? (Choose two.)

A. Auto Scaling group

B. AWS CloudTrail

C. ELB Classic Load Balancer

D. Amazon DynamoDB

E. Amazon ElastiCache

Answer : A, C

Explanation

CloudTrail는 API호출의 tracing을 제공하고, DyanamoDB와 ElastiCache는 HA와 거리가 멀다.

Reference

docs.aws.amazon.com/ko\_kr/AWSEC2/latest/UserGuide/ec2-increase-availability.html

34. A company is migrating its data center to AWS. As part of this migration, there is a three-tier web application that has strict data-at-rest encryption requirements. The customer deploys this application on Amazon EC2 using Amazon EBS, and now must provide encryption at-rest.  
How can this requirement be met without changing the application?

A. Use AWS Key Management Service and move the encrypted data to Amazon S3.

B. Use an application-specific encryption API with AWS server-side encryption.

C. Use encrypted EBS storage volumes with AWS-managed keys.

D. Use Third-party tools to encrypt the EBS data volumes with Key Management Service Bring Your Own Keys.

Answer : C

Explanation

AWS에서는 KMS를 통해 EBS volume의 encryption을 제공한다. 자세한 내용은 reference참조.

Reference

docs.aws.amazon.com/ko\_kr/AWSEC2/latest/UserGuide/EBSEncryption.html

35. A Solutions Architect is developing software on AWS that requires access to multiple AWS services, including an Amazon EC2 instance. This is a security sensitive application, and AWS credentials such as Access Key ID and Secret Access Key need to be protected and cannot be exposed anywhere in the system.  
What security measure would satisfy these requirements?

A. Store the AWS Access Key ID/Secret Access Key combination in software comments.

B. Assign an IAM user to the Amazon EC2 instance.

C. Assign an IAM role to the Amazon EC2 instance.

D. Enable multi-factor authentication for the AWS root account.

Answer : C

Explanation

EC2 instance에서 민감한 app이 돌아가고있다. 이 앱에 대한 인증 정보가 노출되어서는 안된다. 즉, EC2 instance에 함부로 접근 못하게 막으면 된다. 그럴 때는 EC2접근에 IAM을 부여하면 되는데, user단위로 하는 거 보다 role단위로 하는 것이 훨씬 효율적이다.

Reference

36. An AWS workload in a VPC is running a legacy database on an Amazon EC2 instance. Data is stored on a 200GB Amazon EBS (gp2) volume. At peak load times, logs show excessive wait time.  
What solution should be implemented to improve database performance using persistent storage?

A. Migrate the data on the Amazon EBS volume to an SSD-backed volume.

B. Change the EC2 instance type to one with EC2 instance store volumes.

C. Migrate the data on the EBS volume to provisioned IOPS SSD (io1).

D. Change the EC2 instance type to one with burstable performance.

Answer : C

Explanation

데이터베이스 퍼포먼스를 높이는데 다양한 방법이 있다. 그 중에서도 CPU의 성능을 높이거나 스토리지 엑세스 속도가 빠르거나 다양한 방법이 존대한다. D가 답이 될 수도 있겠지만, D를 적용시키기 위해서는 인스턴스를 정지시키고 작업을 해야한다. 이 방법은 문제에서 요구한 persistent storage조건에 위배되기 때문에 정답은 C가 된다.

Reference

www.eversql.com/5-easy-ways-to-improve-your-database-performance/ -> about performance

docs.aws.amazon.com/ko\_kr/AWSEC2/latest/UserGuide/ec2-instance-resize.html

docs.aws.amazon.com/ko\_kr/AWSEC2/latest/UserGuide/EBSVolumeTypes.html

37. A company’s website receives 50,000 requests each second, and the company wants to use multiple applications to analyze the navigation patterns of the users on their website so that the experience can be personalized.  
What can a Solutions Architect use to collect page clicks for the website and process them sequentially for each user?

A. Amazon Kinesis Stream

B. Amazon SQS standard queue

C. Amazon SQS FIFO queue

D. AWS CloudTrail

Answer : A

Explanation

SQS는 단순 큐 형태로 데이터의 처리 순서만 보장해주는 보안 호스팅 대기열만을 제공하는 서비스이고, CloudTrail은 API호출을 모니터링 하는 서비스이다. Kinesis는 위와 같은 빅데이터나 실시간 데이터 스트림 처리에 특화된 서비스이다.

Reference

aws.amazon.com/ko/blogs/aws/amazon-kinesis-real-time-processing-of-streamed-data/

docs.aws.amazon.com/ko\_kr/streams/latest/dev/introduction.html

38. A company wants to migrate a highly transactional database to AWS. Requirements state that the database has more than 6 TB of data and will grow exponentially.  
Which solution should a Solutions Architect recommend?

A. Amazon Aurora

B. Amazon Redshift

C. Amazon DynamoDB

D. Amazon RDS MySQL

Answer : A

Explanation

Aurora는 DB유형 중 OLTP(OnLine Transactional Processing)이고, RedShift는 OLAP(OnLine Analytic Processing)에 속한다. 둘다 될 수 있겠지만. 문제에서 요구한 것은 tramsactonal database를 요구 하였으므로 Aurora가 답에 가깝다.

Reference

blog.treasuredata.com/blog/2016/02/10/whats-the-difference-between-aws-redshift-aurora/

39. A company hosts a two-tier application that consists of a publicly accessible web server that communicates with a private database. Only HTTPS port 443 traffic to the web server must be allowed from the Internet.  
Which of the following options will achieve these requirements? (Choose two.)

A. Security group rule that allows inbound internet traffic for port 443.

B. Security group rule that denies all inbound internet traffic except port 443.

C. Network ACL rule that allows port 443 inbound and all ports outbound for internet traffic.

D. Security group rule that allows internet traffic for port 443 in both inbound and outbound.

E. Network ACL rule that allows port 443 for both inbound and outbound for all internet traffic.

Answer : A, E

Explanation

먼저 Security group과 NCAL의 inbound는 deny를 할 수 있는 rule이 없다. 기본으로 all deny가 설정되어있기 때문에 B는 답이 아니다. 443(HTTPS)로 통신을 하기 위해서는 outbound, inbound에 443포트가 모두 등록이 되어 있어야 한다. 이제 하나씩 살펴보자.

Security Group (basic rule : all deny inbound, all accept outbound)

443 inbound open vs 443 inbound, outbound open

전자가 적절하다. 외부와는 443포트로만 통신이 가능하기 때문에 inbound 443은 필수로 열어 두어야 하고, outbound의 경우는 모두 열어두어야 내부의 다른 서브넷과 통신이 가능하기 때문에 열어 놓는 것이 좋다. 그러므로 Security group의 경우의 답은 A가 적절하다.

Network ACL

443 inbound open & all outbound open vs 443 inbound and outbound open

후자가 적절하다. 문제 조건에서 오직 443포트만 웹서버(외부인터넷)과 통신이 가능하므로 443만 열고 나머지는 통신이 안되도록 차단하여야 한다.

Reference

40. A Solutions Architect is designing an Amazon VPC. Applications in the VPC must have private connectivity to Amazon DynamoDB in the same AWS Region.  
The design should route DynamoDB traffic through:

A. VPC peering connection

B. NAT gateway

C. VPC endpoint

D. AWS Direct Connect

Answer : C

Explanation

VPC endpoint를 통해 외부와 통신이 되지 않는 VPC내부 instance와 AWS service를 안전하게 연결 할 수 있다.

Reference

docs.aws.amazon.com/ko\_kr/vpc/latest/userguide/vpc-endpoints.html

41. A Solutions Architect is architecting a workload that requires a performant object-based storage system that must be shared with multiple Amazon EC2 instances.  
Which AWS service meets this requirement?

A. Amazon EFS

B. Amazon S3

C. Amaozn EBS

D. Amazon ElastiCache

Answer : B

Explanation

문제의 키워드는 “must be shared with multiple Amazon EC2”와 “object-based storage”이다. 이를 만족하는 서비스는 S3밖에 없다, Object>>>File

Reference

aws.amazon.com/ko/efs/when-to-choose-efs/

42. A Solutions Architect is developing a solution for sharing files in an organization. The solution must allow multiple users to access the storage service at once from different virtual machines and scale automatically. It must also support file-level locking.  
Which storage service meets the requirements of this use case?

A. Amazon S3

B. Amazon EFS

C. Amazon EBS

D. Cached Volumes

Answer : B

Explanation

여러명의 유저들이 여러 가상머신의 스토리지 서비스를 사용 할 수 있게 하여야 하며, 자동으로 용량을 조절한다. 그리고 무엇보다도 가장 중요한 “file-level locking”을 지원하여야 한다. S3도 locking을 지원하지만, file-level이 아닌 object-level이기 때문에 EFS가 적절하다.

Reference

docs.aws.amazon.com/ko\_kr/efs/latest/ug/whatisefs.html

43. A company runs a legacy application with a single-tier architecture on an Amazon EC2 instance. Disk I/O is low, with occasional small spikes during business hours. The company requires the instance to be stopped from 8 PM to 8 AM daily.  
Which storage option is MOST appropriate for this workload?

A. Amazon EC2 instance storage

B. Amazon EBS General Purpose SSD (gp2) storage

C. Amazon S3

D. Amazon EBS Provision IOPS SSD (io1) storage

Answer : B

Explanation

문제 조건 중 8PM~8AM까지는 instance가 stop되어야 하는 것으로 보아 휘발성 storage인 instance storage는 답이 아니다. D를 쓰자니 비싼 가격으로 인해 비 효율적이다. S3는 disk i/o가 이루어 지는 걸로 보아서 DB가 있는 것으로 보이는데 S3와 현재 상황과는 어울리지 않는다. 그러므로 답은 B. 가격이 S3가 쌀지는 몰라도 i/o특성으로 인해 EBS가 적절하다.

44. As part of securing an API layer built on Amazon API gateway, a Solutions Architect has to authorize users who are currently authenticated by an existing identity provider. The users must be denied access for a period of one hour after three unsuccessful attempts.  
How can the Solutions Architect meet these requirements?

A. Use AWS IAM authorization and add least-privileged permissions to each respective IAM role.

B. Use an API Gateway custom authorizer to invoke an AWS Lambda function to validate each user’s identity.

C. Use Amazon Cognito user pools to provide built-in user management.

D. Use Amazon Cognito user pools to integrate with external identity providers.

Answer : D

Explanation : ?????

Reference

es.slideshare.net/AmazonWebServices/security-best-practices-for-serverless-applications-july-2017-aws-online-tech-talks

serverless-stack.com/chapters/cognito-user-pool-vs-identity-pool.html

aws.amazon.com/ko/cognito/faqs/?nc1=h\_ls

45. An organization runs an online media site, hosted on-premises. An employee posted a product review that contained videos and pictures. The review went viral and the organization needs to handle the resulting spike in website traffic.  
What action would provide an immediate solution?

A. Redesign the website to use Amazon API Gateway, and use AWS Lambda to deliver content.

B. Add server instances using Amazon EC2 and use Amazon Route 53 with a failover routing policy.

C. Serve the images and videos via an Amazon CloudFront distribution create using the news site as the origin.

D. Use Amazon ElastiCache for REdis for caching and reducing the load requests from the origin.

Answer : C

Explanation

On-premise에 있는 media contents로 인한 spike를 다루기 위해서는 역시 CloudFront가 제일이다. 캐싱을 통해 빠른 응답속도를 구현 할 수 있고, 원본에 접근 하지 않아도 되기 때문이다.

Reference

docs.aws.amazon.com/ko\_kr/AmazonCloudFront/latest/DeveloperGuide/Introduction.html

46. A client notices that their engineers often make mistakes when creating Amazon SQS queues for their backend system.  
Which action should a Solutions Architect recommend to improve this process?

A. Use the AWS CLI to create queues using AWS IAM Access Keys.

B. Write a script to create the Amazon SQS queue using AWS Lambda.

C. Use AWS Elastic Breanstalk to automatically create the Amazon SQS queues.

D. Use AWS CloudFormation Templates to manage the Amazon SQS queue creation.

Answer : B, D

Explanation

밑 링크를 참조 바람.

B가 비용적인 측면에서 D한테 밀림.

Reference

docs.aws.amazon.com/ko\_kr/lambda/latest/dg/with-sqs.html

docs.aws.amazon.com/ko\_kr/AWSSimpleQueueService/latest/SQSDeveloperGuide/sqs-create-queue.html#create-queue-cloudformation

47. A development team is building an application with front-end and backend application tiers. Each tier consists of Amazon EC2 instances behind an ELB Classic Load Balancer. The instances run in Auto Scaling groups across multiple Availability Zones. The network team has allocated the 10.0.0.0/24 address space for this application. Only the front-end load balancer should be exposed to the Internet. There are concerns about the limited size of the address space and the ability of each tier to scale.  
What should the VPC subnet design be in each Availability Zone?

A. One public subnet for the load balancer tier one public subnet for the front-end-tier, and one private subnet for the backend tier.

B. One shared public subnet for all tiers of the application.

C. One public subnet for the load balancer tier and one shared private subnet for the application.

D. One shared private subnet for all tiers of the application.

Answer : C

Explanation

Reference

docs.aws.amazon.com/ko\_kr/elasticloadbalancing/latest/classic/elb-internet-facing-load-balancers.html

48. A Solutions Architect must select the storage type for a big data application that requires very high sequential I/O. The data must persist if the instance is stopped.  
Which of the following storage types will provide the best fit at the LOWEST cost for the application?

A. Amazon EC2 instance store local SSD volume.

B. Amazon EBS provisioned IOPS SSD volume.

C. Amazon EBS throughput optimized HDD volume.

D. Amazon EBS general purpose SSD volume.

Answer : C

Explanation

HDD는 빅데이터와 높은 I/O에 특화되어 있다. 가격적인 측면에서도 SSD보다 쌈.

Reference

docs.aws.amazon.com/ko\_kr/AWSEC2/latest/UserGuide/EBSVolumeTypes.html

49. Two Auto Scaling applications, Application A and Application B, currently run within a shared set of subnets. A Solutions Architect wants to make sure that Application A can make requests to Application B, but Application B should be denied from making requests to Application A.  
Which is the SIMPLEST solution to achieve this policy?

A. Using security groups that the security groups of the other application

B. Using security groups that the application server’s IP address.

C. Using Network Access Control Lists to allow/deny traffic based on application IP address.

D. Migration the applications to separate subnets from each other.

Answer : A

Explanation

Subnet 안에 2개의 application(instance)가 있다. 이들을 컨트롤 할 수 있는 것은 Network Access Control List가 아닌 Security group이다. 각 application의 역할이 다르므로 Security group를 다르게 가져가 accept/deny를 설정 해 줄 수 있다.

Reference

50. Legacy applications currently send messages through a single Amazon EC2 instance, which then routes the messages to the appropriate destinations. The Amazon EC2 instance is a bottleneck and single point of failure, so the company would like to address these issues.  
Which services could address this architectural use case? (Choose two.)

A. Amazon SNS

B. AWS STS

C. Amazon SQS

D. Amazon Route 53

E. Amazon Glue

Answer : A, C

Explanation

A를 통해 장애에 대한 알림을 받아 신속대응을 할 수 있다. 또한 SQS를 통해 대기하고 있는 메시지를 보호해줄 수 있다.

STS는 Security Token Service이기 때문에 병목 현상과 관계가 없으며, Route 53을 이용해 처리 하려고 해도 single EC2에서 legacy application이 돌아가고 있기 때문에 관계가 없다. Glue는 데이터의 분류, 정리에 사용되는 서비스이다

51. A Solutions Architect needs to design an architecture for a new, mission-critical batch processing billing application. The application is required to run Monday, Wednesday, and Friday from 5 AM to 11 AM.  
Which is the MOST cost-effective Amazon EC2 pricing model?

A. Amazon EC2 Spot instances

B. On-Demand Amazon EC2 instances

C. Scheduled Reserved Instances

D. Dedicated Amazon EC2 Instances

Answer : C

Explanation

중요한 배치작업이라고 했기 때문에 갑자기 종료될 위험성이 있는 spot instance는 적합하지 않다. 또한 장기간 이용시 on-demand보다는 reserved instance가 더 싸고, dedicated EC2는 자신의 하드웨어 자원을 쓰는 것이기 때문에 비용이 많이 든다.

Reference

docs.aws.amazon.com/ko\_kr/AWSEC2/latest/UserGuide/instance-purchasing-options.html

52. A workload consists of downloading an image from an Amazon S3 bucket, processing the image, and moving it to another Amazon S3 bucket. An Amazon EC2 instance runs a scheduled task every hour to perform the operation.  
How should a Solutions Architect redesign the process so that it is highly available?

A. Change the Amazon EC2 instance to compute optimized

B. Launch a second Amazon EC2 instance to monitor the health of the first.

C. Trigger a Lambda function when a new object is uploaded

D. Initially copy the images to an attached Amazon EBS volume.

Answer : C

Explanation

S3 bucket에 올리는 작업의 고가용성을 보장하는 방법에 대해서 질문하고 있다. A는 성능에 치우친 항목이고, B는 단순 모니터링이라 관계가 없다. D는 initial image만 뜬다고 해서 작업에 대해 HA가 보장되는 것이 아니다. C의 lambda를 이용하여 작업 후 작업이 제대로 이루어졌는지 체크 후 제대로 되었으면 ok, 안되었으면 다시 작업하게 하는 Lambda 함수를 작성하면 HA를 보장할 수 있다.

Reference

aws.amazon.com/ko/lambda/

53. An application is running on an Amazon EC2 instance in a private subnet. The application needs to read and write data onto Amazon Kinesis Data Streams, and corporate policy requires that this traffic should not go to the internet.  
How can these requirements be met?

A. Configure a NAT gateway in a public subnet and route all traffic to Amazon Kinesis through the NAT gateway

B. Configure a gateway VPC endpoint for Kinesis and route all traffic to Kinesos through the gateway VPC endpoint

C. Configure an interface VPC endpoint for Kinesis and route all traffic to Kinesis through the gateway VPC endpoint

D. Configure an AWS Direct Connect private virtual interface for Kinesis and route all traffic to Kinesis through the virtual interface.

Answer : C

Explanation

VPC상에서 AWS의 다른 서비스와 안전하게 통신하는데는 VPC endpoint를 이용하면 좋다. VPC endpoint에는 2종류가 있다.

Gateway VPC endpoint : dynamoDB, S3

Interface VPC endpoint : 그 외 다수. Reference 참고.

이에 해당하는 조건은 C이다.

Reference

docs.aws.amazon.com/ko\_kr/vpc/latest/userguide/vpc-endpoints.html

54. A Solutions Architect is building an application that stores object data. Compliance requirements state that the data stored is immutable.  
Which service meets these requirements?

A. Amazon S3

B. Amazon Glacier

C. Amazon EFS

D. AWS Storage Gateway

Answer : B

Explanation

순간적으로 A를 떠올릴 수도 있지만, S3는 object의 CRUD가 가능하다. 그래서 문제의 조건인 immutable를 만족시키지 못한다. Immutable를 만족 시키는 storage는 B이다.

Reference

aws.amazon.com/ko/glacier/features/

55. A Solutions Architect is defining a shared Amazon S3 bucket where corporate applications will save objects.  
How can the Architect ensure that when an application uploads an object to the Amazon S3 bucket, the object is encrypted?

A. Set a CORS configuration

B. Set a bucket policy to encrypt all Amazon S3 objects

C. Enable default encryption on the bucket

D. Set permission for users.

Answer : C

Explanation

KMS 또는 SSE-S3로 default encryption을 enable시킬 수 있다.

Reference

docs.aws.amazon.com/ko\_kr/AmazonS3/latest/user-guide/default-bucket-encryption.html

56. An application tier currently hosts two web services on the same set of instances, listening on different ports.  
Which AWS service should a Solutions Architect use to route traffic to the service based on the incoming request path?

A. Application Load Balancer

B. Amazon CloudFront

C. Amazon Classic Load Balancer

D. Amazon Route 53

Answer : A

Explanation

2개의 web service가 같은 instance에서 작동하고 있으며, 서로 다른 포트를 사용함으로써 접근을 통제한다. 이는 Application Load Balancer를 통해 Load Balancing하는 것이 가장 편리하다.

CloudFront는 CDN역할을 하는 캐싱서버, Classic Load Balancer는 EC2 – EC2 규모에서 가장 효율적이고, Route53는 네트워크 라우팅 정의에 관련 된 서비스이므로 답은 A

Reference

docs.aws.amazon.com/ko\_kr/elasticloadbalancing/latest/application/introduction.html

57. A data analytics startup company asks a Solutions Architect to recommend an AWS data store options for indexed data. The data processing engine will generate and input more than 64 TB of processed data every day, with item sizes reaching up to 300 KB. The startup is flexible with data storage and is more interested in a database that requires minimal effort to scale with a growing dataset size.  
Which AWS data store service should the Architect recommend?

A. Amazon RDS

B. Amazon Redshift

C. Amazon DynamoDB

D. Amazon S3

Answer : C

Explanation

Indexed data를 다루는 DB는 NoSQL인데, 위 4개위 답지 중 NoSQL를 다루는 것은 C이다.

Reference

docs.aws.amazon.com/ko\_kr/amazondynamodb/latest/developerguide/Introduction.html

58. A Solutions Architect needs to allow developers to have SSH connectivity to web servers. The requirements are as follows:  
 - Limit access to users origination from the corporate network.  
 - Web servers cannot have SSH access directly from the Internet.  
 - Web servers reside in a private subnet.  
Which combination of steps must the Architect complete to meet these requirements? (Choose two.)

A. Create a bastion host that authenticates users against the corporate directory

B. Create a bastion host with security group rules that only allow traffic from the corporate network.

C. Attach an IAM role to the bastion host with relevant permissions.

D. Configure the web server’s security group to allow SSH traffic from a bastion host.

E. Deny all SSH traffic from the corporate network in the inbound network ACL.

Answer : B, D

Explanation

위 문제는 bastion host에 관한 문제이다. Bastion host를 통해 필터링을 구현할 수 있는지를 물어보는 문제이다. 베스천호스트의 형태에 따라 다르지만, 일반적인 경우를 생각해보면, 베스천 호스트를 통해 1차적으로 패킷을 필터링 하는 것이라고 보면 된다. 문제 조건에서 회사 네트워크만 접근 가능해야 하며, ssh 통신이 되게 하되, 바로 웹서버에 되게 해선 안되기 때문에 베스천호스트를 통해서 가능하게 해야한다. 그러므로 정답은 B, D이다.

Reference

59. A Solutions Architect needs to use AWS to implement pilot light disaster recovery for a three-tier web application hosted in an on-premises datacenter.  
Which solution allows rapid provision of working, fully-scaled production environment?

A. Continuously replicate the production database server to Amazon RDS.

Use AWS CloudFormation to deploy the application and any additional servers if necessary

B. Continuously replicate the production database server to Amazon RDS.

Create one Application load balancer and register on-premise servers.

Configure Application load balancer to automatically deploy Amazon EC2 instances for application and additional servers if the on-premises application is down

C. Use a scheduled Labmda function to replicate the production database to AWS.

Use Amazon Route53 health checks to deploy the application automatically to Amazon S3 if production is unhealthy.

D. Use a scheduled Lambda function to replicate the production database to AWS. Register on-premises servers to an Auto Scaling group and deploy the application ad additional servers if production is unavailable.

Answer : A

Explanation

Pilot light disaster recovery는 최소한의 규모를 운영하고 있다가 재해가 나면 빠르게 복구 할 수 있게 해주는 서비스이다.

Reference

ecloudgate.com/Doc/DisasterRecovery\_Overview

60. A Solutions Architect notices slower response times from an application. The CloudWatch metrics on the MySQL RDS indicate Read IOPS are high and fluctuate significantly when the database is under load.  
How should the database environment be re-designed to resolve the IOPS fluctuation?

A. Change the RDS instance type to get more RAM

B. Change the storage type to Provisioned IOPS

C. Scale the web server tier horizontally

D. Split the DB layer into separate RDS instances

Answer : B

Explanation

문제에서 RDS의 IOPS가 부하가 걸릴 때 높게 나온다고 했으니 이에 대해 보완을 하면 된다. RDS storage의 IOPS를 높여 성능을 향상시키면 위와 같은 문제가 해결 될 것이다.

61. A Solutions Architect is designing a solution that can monitor memory and disk space utilization of all Amazon EC2 instances running Amazon Linux and Windows.  
Which solution meets this requirement?

A. Default Amazon CloudWatch metrics

B. Custom Amazon CloudWatch metrics

C. Amazon Inspector resource monitoring

D. Default monitoring of Amazon EC2 instances.

Answer : B

Explanation

CloudWatch에서 시스템 자원을 모니터링 할 수 있지만, 위 문제의 자원들에 대해서는 customizting을 해야한다.

Reference

62.. A Solutions Architect is creating a new relational database. The Compliance team will use the database, and mandates that data content must be stored across three different Availability Zones.  
Which of the following options should the Architect Use?

A. Amazon Aurora

B. Amazon RDS MySQL with Multi-AZ enabled

C. Amazon DynamoDB

D. Amazon ElastiCache

Answer : A

Explanation

A와 B둘다 HA를 보장 할 수 있는 솔루션이지만, Aurora는 자동으로 이를 구성해주기 때문에 RDS Multi-AZ보다 효율적이다. 그러므로 둘다 답이지만, 적절한 것을 고르라고 하면 A.

Reference

docs.aws.amazon.com/ko\_kr/AmazonRDS/latest/AuroraUserGuide/Concepts.AuroraHighAvailability.html

63. A company needs to quickly ensure that all files created in an Amazon S3 bucket in us-east-1 are also available in another bucket in ap-southeast-2.  
Which option represents the SIMPLIEST way to implement this design?

A. Add an S3 lifecycle rule to move any files from the bucket in us-east-1 to the bucket in ap-southeast-2

B. Create a Lambda function to be triggered for every new file in us-east-1 that copies the file to the bucket in ap-southeast-2

C. Use SNS to notify the bucket in ap-southeast-2 to create a file whenever the file is created in the bucket in us-east-1

D. Enable versioning and configure cross-region replication from the bucket in us-east-1 to the bucket ap-southeast-2

Answer : D

Explanation

A같은 경우 move이므로, us-east-1에서는 파일들이 없어진다. B와 C의 경우, 불필요한 서비스가 많이 들어가 비효율적이며, D는 단순히 S3 내부에서만 설정 할 수 있는 부분들이기 떄문에 가장 간단하다.

Reference

docs.aws.amazon.com/ko\_kr/AmazonS3/latest/dev/how-to-set-lifecycle-configuration-intro.html

64. An organization has a long-running image processing application that runs on Spot Instances that will be terminated when interrupted. A highly available workload must be designed to respond to Spot Instance interruption notices. The solution must include a two-minute warning when there is not enough capacity.

How can these requirements be met?

A. Use Amazon CloudWatch Events to invoke an Lambda function that can launch On-Demand Instance.

B. Regularly store data from the application on Amazon DynamoDB. Increase the maximum number of instance in the AWS auto Scaling group.

C. Manually place a bid for additional spot instances at a higher price in the same AWS region and availability zone.

D. Ensure that the Amazon Machine image associated with the application has the latest configurations for the launch configuration.

Answer : A

Explanation

Amazon 서비스의 제품의 모니터링은 CloudWatch가 관여한다. 이를 통해 특정 자원의 변동이 생기면 Lambda로 특정 행위를 trigger시킬 수 있다.

Reference

docs.aws.amazon.com/ko\_kr/AmazonCloudWatch/latest/monitoring/graph-dynamic-labels.html

65. A company has an Amazon RDS-managed online transaction processing system that has very heavy read and write. The Solutions Architect notices throughput issues with the system.

How can the responsiveness of the primary database be improved?

A. Use asynchronous replication for standby maximize throughput during peak demand.

B. Offload SELECT queries that can tolerate to READ replica.

C. Offload SELECT and UPDATE queries to READ replica.

D. Offload SELECT query that needs the most current data to READ replica.

Answer : ??????

Explanation

Reference

66. A company is designing a failover strategy in Amazon Route 53 for its resources between two AWS Regions. The company must have the ability to route a user's traffic to the region with least latency, and if both regions are healthy, Route 53 should route traffic to resources in both regions.

Which strategy should the Solutions Architect recommend?

A. Configure active-active failover using Route53 latency DNS records

B. Configure active-passive failover using Route 53 latency DNS records

C. Configure active-active failover using Route53 failover DNS records

D. Configure active-passive failover using Route53 failover DNS records

Answer : A

Explanation

문제에서 region이 살아있다면, route53은 두 region모두에게 트래픽을 전달해야 한다고 명시가 되어 있었다. 이 조건을 보아 active-active failover solution을 사용하며, “with least latency”를 요구하였으므로 지연시간 최적화에 사용하는 latency DNS record를 사용해야한다. 정답은 A

Reference

docs.aws.amazon.com/ko\_kr/Route53/latest/DeveloperGuide/routing-policy.html

67. A company is developing several critical long-running applications hosted on Docker.

How should a Solutions Architect design a solution to meet the scalability and orchestration requirements on AWS?

A. Use Amazon ECS and Service Auto Scaling

B. Use Spot Instances for orchestration and for scaling containers on exiting Amazon EC2 instances.

C. Use AWS OpsWorks to launch containers in new Amazon EC2 instances.

D. Use Auto Scaling groups to launch containers on existing Amazon EC2 instances.

Answer : A

Explanation

Docker로 구성된 어플리케이션은 ECS를 통해 Auto Scaling, ELB, CloudFormation 등을 사용할 수 있다.

Reference

docs.aws.amazon.com/ko\_kr/AmazonECS/latest/developerguide/Welcome.html#welcome-related

68. A Solutions Architect is developing a new web application on AWS. The Architect expects the application to become very popular, so the application must scale to support the load. The Architect wants to focus on software development and deploying new features without provisioning or managing instances.

What solution is appropriate?

A. Amazon API Gateway and AWS Lambda

B. Elastic Load Balancing with Auto Scaling groups and Amazon EC2

C. Amazon API Gateway and Amazon EC2

D. Amazon CloudFront and AWS Lambda

Answer : A

Explanation

문제에서 어플리케이션은 부하를 조절하기 위한 확장성이 필요하며 새로운 feature를 인스턴스의 프로비저닝과 관리를 하지 않고 deploy 할 수 있어야 한다고 하였다. 즉, serverless한 어플리케이션을 원하는 것으로 보인다. 그러므로 보기 중 serverless로 application을 설계 할 수 있는 A가 적절하다.

Reference

docs.aws.amazon.com/ko\_kr/lambda/latest/dg/with-on-demand-https-example.html

69. A Solutions Architect is deploying a new production MySQL database on AWS. It is critical that the database is highly available.

What should the Architect do to achieve this goal with Amazon RDS?

A. Create a read replica of the primary database and deploy it in a different AWS Region.

B. Enable multi-AZ to create a standby database in a different Availability Zone.

C. Enable multi-AZ to create a standby database in a different AWS Region.

D. Create a read replica of the primary database and deploy it in a different Availability Zone.

Answer : B

Explanation

DB의 고가용성을 보장하기 위해서는 다른 가용영역에 standby DB를 설치 함으로써 primary가 장애가 발생하여도 standby가 primary로 전환되며 가용성을 보장한다.

Reference

docs.aws.amazon.com/ko\_kr/AmazonRDS/latest/UserGuide/Concepts.MultiAZ.html

70. An organization designs a mobile application for their customers to upload photos to a site. The application needs a secure login with MFA. The organization wants to limit the initial build time and maintenance of the solution.

Which solution should a Soultions Architect recommend to meet the requirements?

A. Use Amazon Cognito identity with SMS-based MFA.

B. Edit AWS IAM policies MFA for all users.

C. Federate IAM against corporate AD that requires MFA.

D. Use Amazon API Gateway and require SSE for photos

Answer : A

Explanation

Cognito는 모바일상에서의 로그인에 특화되어 있으며, 여러가지 방식의 MFA를 통해 보안인증을 더 강화 할 수 있다.

Reference

docs.aws.amazon.com/ko\_kr/cognito/latest/developerguide/what-is-amazon-cognito.html

71. A Solutions Archtect is designing a solution to monitor weather changes by the minute. The frontend application is hosted on Amazon EC2 instances. The backend must be scalable to a virtually unlimited size, and data retrieval must occur minimal latency.

Which AWS service should the Architect use to store the data and achieve these requirements?

A. Amazon S3

B. Amazon DynamoDB

C. Amazon RDS

D. Amazon EBS

Answer : A

Explanation

위 정답지 중 virtually unlimited size, scalable을 둘다 만족 시키는 것은 S3이다. 크기 제약이 없으며, bucket에 데이터를 담는 만큼 크기가 정해지기 때문에 scalable하다

Reference

docs.aws.amazon.com/ko\_kr/AmazonS3/latest/dev/Introduction.html

72. A company hosts a website on premises. The website has a mix of static and dynamic content, but user experience latency when loading static files.

Which AWS service can help reduce latency?

A. Amazon CloudFront with on-premises servers as the origin

B. ELB Application Load Balancer

C. Amazon Route 53 latency-based routing

D. Amazon EFS to store and server static files

Answer : A

Explanation

Static file or dynamic contents을 CloudFront에 캐싱하여 제공하게 되면 해당 자료의 origin이 아닌 사용자와 가장 가까운 Edge Location에서 파일을 제공하여 지연시간이 짧은 접근을 보장한다.

Reference

docs.aws.amazon.com/ko\_kr/AmazonCloudFront/latest/DeveloperGuide/Introduction.html

73. A company wants to analyze all of its sales information aggregated over the last 12 months. The company expects there to be over 10TB of data from multiple sources.

What service should be used?

A. Amazon DynamoDB

B. Amazon Aurora MySQL

C. Amazon RDS MySQL

D. Amazon Redshift

Answer : D

Explanation

Redshift는 대용량 데이터를 처리하고 비용 효율적으로 분석할 수 있게 도와주는 완전관리형 데이터 웨어하우스 서비스이다. A, B, C도 Redshift처럼 쓸 수 있지만, 대용량에는 redshift가 더 적합하다.

Reference

docs.aws.amazon.com/ko\_kr/redshift/?id=docs\_gateway

74. A media company has deployed a multi-tier architecture on AWS. Web servers are deployed in two Availability Zones using an Auto Scaling group with a default Auto Scaling termination policy. The web servers' Auto Scaling group currently has 15 instances running.

Which instance will be terminated first during a scale-in operation?

A. The instance with the oldest launch configuration

B. The instance in the Availability Zone that has most instance

C. The instance closest to the next billing hour.

D. The oldest instance in the group

Answer : B

Explanation

AWS Auto Scaling의 default termination policy의 경우, instance를 최대한 고르게 분포시켜 가용 영역을 높이도록 설계하게 설정되어있다. 자세한 내용은 reference를 참고.

Reference

docs.aws.amazon.com/ko\_kr/autoscaling/ec2/userguide/as-instance-termination.html#default-termination-policy

75. A retail company has sensors placed in its physical retail stores. The sensors send messages over HTTP when customers interact with in-store product displays. A Solutions Architect needs to implement a system for processing those sensor messages; the results must be available for the Data Analysis team.

Which architecture should be used to meet these requirements?

A. Implement an Amazon API Gateway to server as the HTTP endpoint. Have the API Gateway trigger an AWS lambda function to process the messages, and save the results to an Amazon DynamoDB table.

B. Create an Amazon EC2 instance to server as the HTTP endpoint and to process the messages. Save the results to Amazon S3 for the Data Analysis team to download.

C. Use Amazon Route53 to direct incoming sensor messages to a Lambda function to process the message and save the results to Amazon DynamoDB table.

D. Use Amazon Direct Connect to connect sensors to DynamoDB so that data can be written directly to a DynamoDB table where it can be accessed by the Date Analysis team.

Answer : A

Explanation

일반적으로 센서 같은 장비의 정보들은 RDS보다는 noSQL을 다루는 것이 더 적합하다. 이 데이터들이 문제에서 Data Analysis team이 사용가능하게 만들어야한다고 한다. 이를 만족하기 위해선 먼저 DynamoDB가 필요하다. 다음, 최대한 serverless하게 만드는 것이 효율적이므로, 이를 모두 고려하기 하면 A가 가장 적합하다.

Reference

76. A client is migrating a legacy web application to the AWS Cloud. The current system uses an Oracle database as a relational database management system solution. Backups occur every night, and the data is stored on-premises. The Solutions Architect must automate the backups and identity a storage solution while keeping costs low.

Which AWS service will meet these requirements?

A. Amazon RDS

B. Amazon Redshift

C. Amazon Dynamo Accelerator

D. Amazon ElastiCache

Answer : A

Explanation

Oracle DB를 사용하기 때문에 먼저 RDS 제품군이 필요하다. 선택지 중 RDS관련 제품군은 RDS밖에 없다. Redshift는 대용량 데이터를 처리하기위한 서비스, Dynamo Acclerator는 NoSQL제품군, ElastiCache는 자주 쓰는 쿼리의 결과를 담고 있는 캐싱서버이다. 그러므로 답은 A

77. A company has an Amazon RDS database backing its production website. The Sales team needs to run queries against the database to track training program effectiveness. Queries against the production database cannot impact performance, and the solution must be easy to maintain.

How can these requirements be met?

A. Use an Amazon Redshift database. Copy the product database into Redshift and allow the team to query it

B. Use an Amazon RDS read replica of the production database and allow the team to query against it.

C. Use multiple Amazon EC2 instances running replicas of the production database, placed behind a load balancer

D. Use an Amazon DynamoDB table to store a copy of the date

Answer : B

Explanation

Replica를 둠으로써 장애 발생시 빠르게 복구 할 수 있고,???????

Reference

78. A company must collect temperature data from thousands of remote weather devices. The company must also store this data in a data warehouse to run aggregations and visualizations.

Which services will meet these requirements? (Choose two.)

A. Amazon Kinesis Data Firehouse

B. Amazon SQS

C. Amazon Redshift

D. Amazon SNS

E. Amazon DynamoDB

Answer : A, C

Explanation

스트리밍 데이터 처리에 특화된 kinesis와 웨어하우스격의 redshift로 위의 조건을 충족 시킬 수 있다.

Reference

79. A company has a legal requirement to store point-in-time copies of its Amazon RDS PostGreSQL database instance in facilities that are at least 200miles apart.

Use of which of the following provides the easiest way to comply with this requirement?

A. Cross.region read replica

B. Multiple Availability Zone snapshot copy

C. Multiple Availability Zone and replica

D. Cross-region snapshot copy.

Answer : D

Explanation

200 mlile 떨어져 있는 곳에 DB의 상태를 저장한 db instance를 생성하여야 한다. 이와 같은 거리면 region - region간의 거리고, 이 거리를 극복하기 위해서는 snapshot을 따서 원하는 region으로 복사 한 뒤 instance를 실행시키면 된다.

Reference

80. After reviewing their logs, a startup company noticed large, random spikes in traffic to their web application. The company wants to configure a cost-efficient Auto Scaling solution to support high availability of the web application.

Which scaling plan should a Solutions Architect recommend to meet the company’s needs?

A. Dynamic

B. Scheduled

C. Manual

D. Lifecycle

Answer : A

Explanation

Scheduled는 말그대로 예약을 해놓고 특정 scaling을 하는 옵션이고, Manual도 이와 비슷한 정책이다. Lifecycle (hook)의 경우는 auto scaling그룹에서 instance를 시작 또는 종료할 때 일시정지하여 사용자 작업을 할 수 있는 조정 정책이다. Dynamic은 EC2 구매옵션 중 on demand와 비슷하다고 보면 된다.

Reference

docs.aws.amazon.com/ko\_kr/autoscaling/ec2/userguide/as-scale-based-on-demand.html

81. To meet compliance standards, a company must have encrypted archival data storage. Data will be accessed infrequently, with lead times well in advance of when archived data must be recovered. The company requires that the storage be secure, durable, and provided at the lowest price per 1TB of data stored.

What type of storage should be used?

A. Amazon S3

B. Amazon EBS

C. Amazon Glacier

D. Amazon EFS

Answer : C

Explanation

Access가 infrequently하게 이루어 지고있다는 것을 보아 Glacier에 아카이빙 하는 것이 가장 싸고 오래가고 보안성이 있다. Glacier는 자체 암호화를 제공하고, 99.99의 내구성을 자랑한다.

Reference

docs.aws.amazon.com/ko\_kr/amazonglacier/latest/dev/introduction.html

82. An online company wants to conduct real-time sentiment analysis about its products from its social media channels using SQL.

Which of the following solutions has the LOWEST cost and operational burden?

A. Set up a streaming data ingestion application on Amazon EC2 and connect it to a Hadoop cluster for data processing Send the output to Amazon S3 and use Amazon Athena to analyze the data.

B. Configure the input stream using Amazon Kinesis Data Stream. Use Amazon Kinesis Data Analysis to write SQL queries against the stream.

C. Configure the input stream using Amazon Kinesis Data Stream. Use Amazon Kinesis Data Firehouse to send data to an Amazon Redshift cluster, and then query directly against Amazon Redshift.

D. Set up streaming data ingestion application on Amazon EC2 and send the output to Amazon S3 using Kinesis Data Firehouse. Use Athena to analyze the data.

Answer : B

Explanation

Real-time으로 데이터를 분석해야 하기 때문에 aws서비스 중 kinesis data stream 프레임워크를 사용하여 데이터를 수집하는 application을 개발한 다음, 이를 kinesis data analysis를 이용하여 이를 분석할 수 있다. A, D의 경우는 EC2요금이 많이 들어가며, C도 분석이 가능하긴 하나 많은 서비스를 포함하여 비용적으로 비효율이다.

Reference

docs.aws.amazon.com/ko\_kr/kinesisanalytics/latest/dev/what-is.html

docs.aws.amazon.com/ko\_kr/streams/latest/dev/introduction.html

83. An organization must process a stream of large-volume hashtag data in real time and needs to run custom SQL queries on the data to get insights on certain tags. The organization needs this solution to be elastic and does not want to manage clusters.

Which of the following AWS services meets these requirements?

A. Amazon Elastic Service

B. Amazon Athena

C. Amazon Redshift

D. Amazon Kinesis Data Analytics

Answer : B

Explanation

Athena는 standard SQL를 이용하여 S3의 데이터를 간편하게 분석 할 수 있는 대화식 쿼리 서비스다. Server-less이기 때문에 elastic하고 cluster를 사용 할 필요가 없다.

Reference

docs.aws.amazon.com/ko\_kr/athena/latest/ug/what-is.html

84. Which requirements must be met in order for a Solutions Architect to specify that an Amazon EC2 instance should stop rather than terminate when its Spot Instance is interrupted? (Choose two.)

A. The Spot instance request type must be one-time

B. The Spot instance request type must be persistent

C. The root volume must be an Amazon EBS volume

D. The root volume must be an instance store volume.

E. The launch configuration is charged

-> spot instance가 중지될 때 그 해당 인스턴스가 종료되지않고 중지 상태로 둘 수 있는 조건은?

Answer : B,C

Explanation

Spot instance 유형에는 2가지가 있다.

Request : 원하는 용량을 위한 1회성 요청

Maintain : 일정 시간동안 목표 용량을 유지하기 위한 요청

이 유형 중 maintain을 선택하게 되면 그 일정 시간동안은 on-demand처럼 중지 시작 계속 가능하다. 그리고 root volume이 EBS이면 중지되어도 유지가 되기 때문에 정답은 B,C이다.

Reference

docs.aws.amazon.com/ko\_kr/AWSEC2/latest/UserGuide/spot-fleet-requests.html

docs.aws.amazon.com/ko\_kr/AWSEC2/latest/UserGuide/spot-interruptions.html#interruption-behavior

85. An application hosted on AWS uses object storage for storing internal reports that are accessed daily by the CFO. Currently, these reports are publicly available.

How should a Solutions Architect re-design this architecture to prevent unauthorized access to these reports?

A. Encrypt the files on the client side and store the files on Amazon Glacier, then decrypt the reports on the client side

B. Move the files to Amazon ElastiCache and provide a username and password for downloading the reports

C. Specify the use of AWS KMS server-side encryption at the time of an object creation on Amazon S3.

D. Store the files on Amazon S3 and use the application to generate S3 pre-signed URLs to users.

Answer : D

Explanation

A와 B의 경우 두 경우 모두 각 선택지의 서비스를 이용 할 필요가 없어보이며, C의 경우 단순 데이터 암호화만 제공하는 솔루션이다. D의 경우 S3에서 해당 파일에 접근 할 수 있는 URL을 접근 권한이 있는 유저에게만 주기 때문에 다른 사람들은 접근 할 수 없다. 그러므로 가장 적절한 답은 D 이다.

Reference

docs.aws.amazon.com/ko\_kr/AmazonS3/latest/dev/ShareObjectPreSignedURL.html

docs.aws.amazon.com/ko\_kr/AmazonS3/latest/dev/PresignedUrlUploadObject.html

86. A Solutions Architect is designing an application on AWS that will connect to the on-premise data center through a VPN connection. The solution must be able to log network traffic over the VPN.

Which service logs this network traffic?

A. AWS CloudTrail logs

B. Amazon VPC flow logs

C. Amazon S3 bucket logs

D. Amazon CloudWatch logs

Answer : B

Explanation

VPN connection같은 경우, VPC dashboard에서 flow log를 필터를 적용하여 조회 할 수 있다. 자세한 내용은 reference를 참고.

Reference

aws.amazon.com/ko/blogs/korea/vpc-flow-logs-log-and-view-network-traffic-flows/

87. A company wants to durably store data in 8 KB chunks. The company will access the data once every few months. However, when the company does access the data, it must be done with as little latency as possible.

Which AWS service should a Solutions Architect recommend if cost is NOT a factor?

A. Amazon DynamoDB

B. Amazon EBS Throughput Optimized HDD Volumes

C. Amazon EBS Cold HDD Volumes

D. Amazon ElastiCache

Answer : A

Explanation

Access the data once every few months -> 자주 사용하지 않는 데이터 -> Cold HDD Volumes

must be done with as little latency as possible -> 지연시간이 거의 없어야 한다. -> ElastiCache, Throughput Optimized HDD Volumes

반면 DynamoDB는 단순 NoSQL을 위한 데이터베이스일 뿐이다.

Reference

docs.aws.amazon.com/ko\_kr/AWSEC2/latest/UserGuide/EBSVolumeTypes.html

88. A media company has more than 100TB of data to be stored and retrieved infrequently. However, the company occasionally receives requests for data within an hour. The company needs a low-cost retrieval method to handle the requests.

Which action should a Solutions Architect take to maintain performance as the user count increases?

A. Amazon S3 Standard

B. Amazon Glacier standard retrievals

C. Amazon Glacier bulk retrievals

D. Amazon S3 Standard Infrequent Access

Answer : D

Explanation

S3 standard는 자주 사용하지 않는 데이터를 저장하기에는 효율이 떨어지며, Glacier는 사용자 오구 중 1시간 이내로 데이터에 접근을 해야하는 부분을 수용하지 못한다. Glacier는 데이터 복원에만 최소 3~5시간이 걸린다.

Reference

docs.aws.amazon.com/ko\_kr/AmazonS3/latest/dev/storage-class-intro.html#sc-compare

89. An on-premises database is experiencing significant performance problems when running SQL queries. With 10 users, the lookups are performing as expected. As the number of users increases, the lookups take three times longer than expected to return values to an application.

Which action should a Solutions Architect take to maintain performance as the user count increases?

A. Use Amazon SQS

B. Deploy Multi-AZ RDS MySQL

C. Configure Amazon RDS with additional read replicas

D. Migrate from MySQL to RDS Microsoft SQL Server.

Answer : C

Explanation

SQS -> 순서 보장 및 메시지 대기열 서비스

Multi-AZ DB -> 고가용성 보장하는 솔류션

Reference

docs.aws.amazon.com/ko\_kr/AmazonRDS/latest/UserGuide/Concepts.MultiAZ.html

docs.aws.amazon.com/ko\_kr/AWSSimpleQueueService/latest/SQSDeveloperGuide/welcome.html

90. A team has an application that detects new objects being uploaded into an Amazon S3 bucket. The uploads trigger a Lambda function to write object metadata into an Amazon DynamoDB table and RDS PostgreSQL database.

Which action should the team take to ensure high availability?

A. Enable cross-region replication in the Amazon S3 bucket

B. Create a Lambda function for each Availability Zone the application is deployed in

C. Enable multi-AZ on the RDS PostgreSQL database

D. Create a DynamoDB stream for the DynamoDB table.

Answer : C

Explanation

문제가 애매하다. S3는 단순 raw데이터 저장을 위한 용도로 쓰이고 있기 때문에 replication하여도 가용성 보장에 대한 효과가 없다. Lambda의 경우 trigger하여 다른 서비스를 사용하는데 특화 되어있기 때문에 HA과는 연관이 적고, DynamoDB stream같은 경우 dynamoDB의 변경사항을 캡쳐하는데 사용되는 서비스이다.

Reference

docs.aws.amazon.com/ko\_kr/AmazonRDS/latest/UserGuide/Concepts.MultiAZ.html

91. A media company must store 10 TB of audio recordings. Retrieval happens infrequently and requestors agree on an 8-hour turnaround time.

What is the MOST cost-effective solution to store the files?

A. Amazon S3 Standard Infrequent Access

B. EBS Throughput Optimized HDD

C. EBS cold HDD

D. Amazon Glacier

Answer : D

Explanation

데이터 복구가 거의 안일어나고 8시간 이전에만 복구가 되면 된다고 언급 했으므로, 이 조건에 가장 적합한 storage는 Glacier이다.

Reference

docs.aws.amazon.com/ko\_kr/amazonglacier/latest/dev/introduction.html

92. A company wants to improve the performance of their web application after receiving customer complaints. An analysis concluded that the same complex database queries were causing increased latency.

What should a Solutions Architect recommend to improve the application's performance?

A. migrate the database to MySQL

B. Use Amazon Redshift to analyze the queries

C. Integrate Amazon ElastiCache into the application

D. Use a Lambda-triggered request to the backend database

Answer : C

Explanation

ElastiCache는 자주 사용되는 쿼리의 결과를 저장하여 이 쿼리를 빠르게 전달해 줄 수 있는 인메모리 서비스다.

Reference

docs.aws.amazon.com/ko\_kr/AmazonElastiCache/latest/red-ug/WhatIs.html

93. Which tool analyzes account resources and provides a detailed inventory of changes over time?

A. AWS config

B. AWS CloudFormation

C. Amazon CloudWatch

D. AWS Service Catalog

Answer : A

Explanation

Reference 참고

Reference

docs.aws.amazon.com/ko\_kr/config/latest/developerguide/WhatIsConfig.html

94. A Solutions Architect is designing a solution that will include a database in Amazon RDS. Corporate security policy mandates that the database, its logs, and its backups are all encrypted.

Which is the MOST efficient option to fulfill the security policy using Amazon RDS?

A. Launch an Amazon RDS instance with encryption enabled. Enable encryption for logs and backups

B. Launch an Amazon RDS instance. Enable encryption for database, logs and backups

C. Launch an Amazon RDS instance with encryption enabled. Logs and backups are automatically encrypted.

D. Launch an Amazon RDS instance. Enable encryption for backups. Encrypt logs a database-engine feature.

Answer : C

Explanation

Reference 참고

Reference

docs.aws.amazon.com/ko\_kr/AmazonRDS/latest/UserGuide/Overview.Encryption.html#Overview.Encryption.Enabling

95. A Solutions Architect is designing a public-facing web application for employees to upload images to their social media account. The application consists of multiple Amazon EC2 instances behind an elastic load balancer, an Amazon S3 bucket where uploaded images are stored, and an Amazon DynamoDB table for storing image metadata.

Which AWS service can the Architect use to automate the process of updating metadata in the DynamoDB table upon image upload?

A. Amazon CloudWatch

B. AWS CloudFormation

C. AWS Lambda

D. Amazon SQS

Answer : C

Explanation

AWS 상에서 특정 행위를 트리거 하는 제품은 Lambda이다. 이 제품으로 server-less하게 여러 제품끼리 연동 가능하다.

Reference

docs.aws.amazon.com/ko\_kr/lambda/latest/dg/welcome.html

96. A company's policy requires that all data stored in Amazon S3 is encrypted. The company wants to use the option with the least overhead and does not want to manage any encryption keys.

Which of the following options will meet the company's requirements?

A. ASW CloudHSM

B. AWS Trusted Advisor

C. Server Side Encryption (SSE-S3)

D. Server Side Encryption (SSE-KMS)

Answer : C

Explanation

S3에는 암호화를 위한 여러 서비스가 있다. 그 중 SSE-S3는 AES-256을 이용하여 데이터를 암호화 시킨다. 반면 SSE-KMS는 직접 키를 발급받아 관리하는 키를 기반으로 암호화를 진행한다. 문제에서는 암호키 관리를 하지 않았으면 좋겠다는 요구사항에 의해 정답은 C

Reference

docs.aws.amazon.com/ko\_kr/AmazonS3/latest/dev/UsingServerSideEncryption.html

97. A company has gigabytes of web log files stored in an Amazon S3 bucket. A Solutions Architect wants to copy those files into Amazon Redshift for analysis. The company's security policy mandates that data is encrypted at rest both in the Amazon Redshift cluster and the Amazon S3 bucket.

Which process will fulfill the security requirements?

A. Enable server-side encryption on the Amazon S3 bucket. Launch an unencrypted Amazon Redshift cluster. Copy the data into the Amazon Redshift cluster.

B. Enable server-side encryption on the Amazon S3 bucket. Copy data from the Amazon S3 bucket into an unencrypted Redshift cluster. Enable encryption on the cluster.

C. Launch an encrypted Amazon Redshift cluster. Copy the data from the Amazon S3 bucket into the Amazon Redshift cluster. Copy data back to the Amazon S3 bucket in encrypted form.

D. Enable server-side encryption on the Amazon S3 bucket. Launch an encrypted Amazon Redshift cluster. Copy the data into the Amazon Redshift cluster.

Answer : D

Explanation

Reference 참고

Reference

aws.amazon.com/ko/blogs/big-data/encrypt-your-amazon-redshift-loads-with-amazon-s3-and-aws-kms/

98. An application runs on Amazon EC2 instances in an Auto Scaling group. When instances are terminated, the Systems Operations team cannot determine the route cause, because the logs reside on the terminated instances and are lost.

How can the root cause be determined?

A. Use ephemeral volumes to store the log files.

B. Use a scheduled Amazon CloudWatch Event to take regular Amazon EBS snapshots.

C. Use an Amazon CloudWatch agent to push the logs to Amazon CloudWatch Logs.

D. Use AWS CloudTrail to pull the logs from the Amazon EC2 instances.

Answer : C

Explanation

위 상황은 instance storage를 사용하여 데이터들이 날아간 상황이다. 이때는 cloudwatch를 이용하여 로그들이 삭제되기 전에 cloudwatch agent를 이용하여 push해놓으면 된다.

Reference

docs.aws.amazon.com/ko\_kr/AmazonCloudWatch/latest/monitoring/Install-CloudWatch-Agent.html

99. A Solutions Architect is designing a customer order processing application that will likely have high usage spikes.

What should the Architect do to ensure that customer orders are not lost before being written to an Amazon RDS database? (Choose two.)

A. Use Amazon CloudFront to deliver the application front end.

B. Use Elastic Load Balancing with a round-robin routing algorithm.

C. Have the orders written into an Amazon SQS queue.

D. Scale the number of processing nodes based on pending order volume.

E. Have a standby Amazon RDS instance in a separate Availability Zone.

Answer : C,E

Explanation

먼저, SQS를 이용하여 대기열을 생성하여 요청이 누락되지 않게 한다. DB단에서 deadlock상황이 발생하면 deadlock상황에 요청된 쿼리는 유실된다(mysql테스트 하면서 MMM-asynchronous update로 primary DB를 제외한 다른 DB를 업데이트 하는 상황이었다. 이 경우, deadlock이 나게되면 해당 쿼리는 실행이 되지않고 유실되었다.)이를 방지하게 위해 standby를 늘려주게되면 deadlock이 나도 standby가 primary를 대체하면서 유실되는 상황을 막아 줄 수 있다.

Reference

docs.aws.amazon.com/ko\_kr/AWSSimpleQueueService/latest/SQSDeveloperGuide/welcome.html

aws.amazon.com/ko/about-aws/whats-new/2018/01/amazon-rds-read-replicas-now-support-multi-az-deployments/

100. Employees from several companies use an application once a year during a specific 30-day period. The periods are different for each company. Traffic to the application spikes during these 30-day periods.

How can the application be designed to handle these traffic spikes?

A. Use an Amazon Route 53 latency routing policy to route traffic to an Amazon EC2 instance with the least lag time.

B. Use Amazon S3 to cache static elements of the website requests.

C. Use an Auto Scaling group to scale the number of EC2 instances to match the site traffic.

D. Use Amazon CloudFront to serve static assets to decrease the load on the EC2 instances.

Answer : A (C) 잘 모르겠음.

Explanation

Reference

101. A restaurant reservation application needs the ability to maintain a waiting list. When a customer tries to reserve a table, and none are available, the customer must be put on the waiting list, and the application must notify the customer when a table becomes free.

What service should the Solutions Architect recommend to ensure that the system respects the order in which the customer requests are put onto the waiting list?

A. Amazon SNS

B. AWS Lambda with sequential dispatch

C. A FIFO queue in Amazon SQS

D. A standard queue in Amazon SQS

Answer : C

Explanation

Standard queue같은 경우 같은 요청이 여러 번 갈 수 있으며, 순서는 보장이 안되는 queue이다. 그러나 FIFO queue와 비교하여 상대적으로 처리속도는 빠르다는 장점이 있다.

Reference

docs.aws.amazon.com/ko\_kr/AWSSimpleQueueService/latest/SQSDeveloperGuide/welcome.html#sqs-queue-types

102. A Solutions Architect is designing a solution for a dynamic website, "example.com," that is deployed in two regions: Tokyo, Japan and Sydney, Australia. The Architect wants to ensure that users located in Australia are directed to the website deployed in the Sydney region and users located in Japan are redirected to the website in the Tokyo region when they browse to "example.com".

Which service should the Architect use to achieve this goal with the LEAST administrative effort?

A. Amazon CloudFront with geolocation routing

B. Amazon Route 53

C. Application Load Balancer

D. Network Load Balancer deployed across multiple regions

Answer : B

Explanation

링크 참조

Reference

aws.amazon.com/ko/blogs/aws/latency-based-multi-region-routing-now-available-for-aws/

docs.aws.amazon.com/ko\_kr/Route53/latest/DeveloperGuide/routing-policy.html

103. A company has a popular multi-player mobile game hosted in its on-premises datacenter. The current infrastructure can no longer keep up with demand and the company is considering a move to the cloud.

Which solution should a Solutions Architect recommend as the MOST scalable and cost-effective solution to meet these needs?

A. Amazon EC2 and an Application Load Balancer

B. Amazon S3 and Amazon CloudFront

C. Amazon EC2 and Amazon Elastic Transcoder

D. AWS Lambda and Amazon API Gateway

Answer : B, D

Explanation

왜일까유?

Reference

104. A company has instances in private subnets that require outbound access to the internet. This requires:

A. Assigning a public IP address to the instance.

B. Updating the route table associated with the subnet to point internet traffic through a NAT gateway.

C. Updating the security group associated with the subnet to allow ingress on 0.0.0.0/0.

D. Routing traffic from the instance through a VPC endpoint that has internet access

Answer : B

Explanation

NAT Gateway를 통해 외부와 통신 할 수 있는 routing table를 작성하여 통신이 가능하다.

Reference

docs.aws.amazon.com/ko\_kr/vpc/latest/userguide/vpc-nat-gateway.html

105. An organization regularly backs up their application data. The application backups are required to be stored on Amazon S3 for a certain amount of time. The backups should be accessed instantly in the event of a disaster recovery.

Which of the following Amazon S3 storage classes would be the MOST cost-effective option to meet the needs of this scenario?

A. Glacier Storage Class

B. Standard Storage Class

C. Standard Infrequent Access (IA)

D. Reduced Redundancy Class (RRS)

Answer : C

Explanation

자주 안쓰지만, 빠른 access를 원한다면 S3 Standard Infrequent Access만큼 좋은 것이 없다..

Reference

aws.amazon.com/ko/s3/storage-classes/

106. An organization runs an online voting system for a television program. During broadcasts, hundreds of thousands of votes are submitted within minutes and sent to a front-end fleet of auto-scaled Amazon EC2 instances. The EC2 instances push the votes to an RDBMS database. The database is unable to keep up with the front-end connection requests.

What is the MOST efficient and cost-effective way of ensuring that votes are processed in a timely manner?

A. Each front-end node should send votes to an Amazon SQS queue. Provision worker instances to read the SQS queue and process the message information into RDBMS database.

B. As the load on the database increases, horizontally-scale the RDBMS database with additional memory-optimized instances. When voting has ended, scale down the additional instances.

C. Re-provision the RDBMS database with larger, memory-optimized instances. When voting ends, re-provision the back-end database with smaller instances.

D. Send votes from each front-end node to Amazon DynamoDB. Provision worker instances toprocess the votes in DynamoDB into the RDBMS database.

Answer : A

Explanation

마지막 문장을 풀어보면, 가장 가격이 싸고 투표가 제 시간에 처리되도록 보장하는 방법을 찾고있다. SQS를 이용하여 순서를 보장하고 빠른 처리를 해주는 대기열을 사용하면 좋다.

Reference docs.aws.amazon.com/ko\_kr/AWSSimpleQueueService/latest/SQSDeveloperGuide/welcome.html

107. An application publishes Amazon SNS messages in response to several events. An AWS Lambda function subscribes to these messages. Occasionally the function will fail while processing a message, so the original event message must be preserved for root cause analysis.

What architecture will meet these requirements without changing the workflow?

A. Subscribe an Amazon SQS queue to the Amazon SNS topic and trigger the Lambda function from the queue.

B. Configure Lambda to write failures to an SQS Dead Letter Queue.

C. Configure a Dead Letter Queue for the Amazon SNS topic.

D. Configure the Amazon SNS topic to invoke the Lambda function synchronously.

Answer : A

Explanation

위와 같은 문제임. 생략

Reference

생략

108. An application uses an Amazon RDS MySQL cluster for the database layer. Database growth requires periodic resizing of the instance. Currently, administrators check the available disk space manually once a week.

How can this process be improved?

A. Use the largest instance type for the database.

B. Use AWS CloudTrail to monitor storage capacity.

C. Use Amazon CloudWatch to monitor storage capacity.

D. Use Auto Scaling to increase storage size.

Answer : D

Explanation

RDS도 auto-scaling이 가능하다. A는 불필요한 자원을 많이쓰고, B와 C는 모니터링만 할 뿐이지 실제로 늘려주지 않으므로 상대적으로 비효율적이다.

Reference

aws.amazon.com/ko/blogs/database/scaling-your-amazon-rds-instance-vertically-and-horizontally/

109. A customer owns a MySQL database that is accessed by various clients who expect, at most, 100 ms latency on requests. Once a record is stored in the database, it rarely changed. Clients only access one record at a time. Database access has been increasing exponentially due to increased client demand. The resultant load will soon exceed the capacity of the most expensive hardware available for purchase. The customer wants to migrate to AWS, and is willing to change database systems.

Which service would alleviate the database load issue and offer virtually unlimited scalability for the future?

A. Amazon RDS

B. Amazon DynamoDB

C. Amazon Redshift

D. AWS Data Pipeline

Answer : B or C

Explanation

Reference

docs.aws.amazon.com/ko\_kr/redshift/latest/mgmt/rs-resize-tutorial.html -> ????

110. A business team requires a structured storage solution to store all of a company's historical sales data. Currently there are 4 TB of data, which will grow to hundreds of terabytes within a few years. The team must be able to regularly run queries against the data using current business intelligence tools. Fast performance is required despite the dataset growth.

Which solution should the company use?

A. Amazon Redshift

B. Amazon Aurora

C. Amazon DynamoDB

D. Amazon S3

Answer : A

Explanation

대규모 데이터를 사용하여 BI, AI등 분석에 특화된 Redshift를 이용하여 최적의 분석을 할 수 있다.

Reference

111. A prediction process requires access to a trained model that is stored in an Amazon S3 bucket. The process takes a few seconds to process an image and make a prediction. The process takes a few seconds to process an image and make a prediction. The process is not overly resource-intensive, does not require any specialized hardware, and takes less than 512 MB of memory to run.

What would be the MOST effective compute solution for this use case?

A. Amazon ECS

B. Amazon EC2 Spot instances

C. AWS Lambda functions

D. AWS Elastic Beanstalk

Answer : C

Explanation

ECS는 컨테이너 기반 서비스이기 때문에 현재 문제와 관련이 없다. B의 경우 위 해당사항을 만족하나 C보다 효율성이 떨어진다. D는 배포 관리도구이기 때문에 위 문제와 거리가 멀다.

Reference

docs.aws.amazon.com/ko\_kr/lambda/latest/dg/welcome.html

112. An application that runs on an Amazon EC2 instance must make secure calls to Amazon S3 buckets.

Which steps can a Solutions Architect take to ensure that the calls are made without exposing credentials?

A. Generate an access key ID and a secret key, and assign an IAM role with least privilege.

B. Create an IAM policy granting access to all services and assign it to the Amazon EC2 instance profile.

C. Create an IAM role granting least privilege and assign it to the Amazon EC2 instance profile.

D. Generate temporary access keys to grant users temporary access to the Amazon EC2 instance.

Answer : C

Explanation

IAM을 이용한 보안은 최소권한의 IAM을 생성한 뒤, 이를 해당 자원에다 할당하는 것이 일반적이다.

Reference

docs.aws.amazon.com/ko\_kr/IAM/latest/UserGuide/tutorial\_cross-account-with-roles.html

113. A Solutions Architect needs to design a centralized logging solution for a group of web applications running on Amazon EC2 instances. The solution requires minimal development effort due to budget constraints.

Which of the following should the Architect recommend?

A. Create a crontab job script in each instance to push the logs regularly to Amazon S3.

B. Install and configure Amazon CloudWatch Logs agent in the Amazon EC2 instances.

C. Enable Amazon CloudWatch Events in the AWS Management Console.

D. Enable AWS CloudTrail to map all API calls invoked by the applications.

Answer : B

Explanation

CloudWatch Agent를 EC2 instance에다가 설치하게 되면 지속적으로 활동 로그를 수집할 수 있게 된다. 이를 이용하여 로그 백업도 가능함.

Reference

docs.aws.amazon.com/ko\_kr/AmazonCloudWatch/latest/monitoring/Install-CloudWatch-Agent.html

114. A company is using Amazon S3 as its local repository for weekly analysis reports. One of the company-wide requirements is to secure data at rest using encryption. The company chose Amazon S3 server-side encryption. The company wants to know how the object is decrypted when a GET request is issued.

Which of the following answers this question?

A. The user needs to place a PUT request to decrypt the object.

B. The user needs to decrypt the object using a private key.

C. Amazon S3 manages encryption and decryption automatically.

D. Amazon S3 provides a server-side key for decrypting the object.

Answer : D

Explanation

Server-side encryption을 사용했으면 당연히 server-side key가 뒤따르는 법이다.

Reference

docs.aws.amazon.com/ko\_kr/AmazonS3/latest/API/RESTBucketGETencryption.html

docs.aws.amazon.com/ko\_kr/AmazonS3/latest/dev/bucket-encryption.html

docs.aws.amazon.com/ko\_kr/AmazonS3/latest/dev/serv-side-encryption.html

115. A company is looking for a fully-managed solution to store its players' state information for a rapidly growing game. The application runs on multiple Amazon EC2 nodes, which can scale according to the incoming traffic. The request can be routed to any of the nodes, therefore, the state information must be stored in a centralized database. The players' state information needs to be read with strong consistency and needs conditional updates for any changes.

Which service would be MOST cost-effective, and scale seamlessly?

A. Amazon S3

B. Amazon DynamoDB

C. Amazon RDS

D. Amazon Redshift

Answer : B

Explanation

Conditional update를 하기 위해서 S3는 삭제 후 다시 업로드 해야하는 부분에 대해 비효율적이다. 그 다음 조건인 scale seamlessly를 보면, S3는 전체적인 데이터의 한도는 존재하지 않지만, 버킷당 한도가 존재한다. RDS의 경우 Auto-Scaling를 설정해주어야만 하며, RedShift도 node의 크기가 정해져있기 떄문에 별도의 설정을 해주어야 한다. 그러므로 알아서 확장을 해주는 DynamoDB가 가장 적절하다.

Reference

docs.aws.amazon.com/ko\_kr/amazondynamodb/latest/developerguide/Introduction.html

116. An application is running on Amazon EC2 instances behind an Application Load Balancer. The instances run in an Auto Scaling group across multiple Availability Zones. Four instances are required to handle a predictable traffic load. The Solutions Architect wants to ensure that the operation is fault-tolerant up to the loss of one Availability Zone.

Which is the MOST cost-efficient way to meet these requirements?

A. Deploy two instances in each of three Availability Zones.

B. Deploy two instances in each of two Availability Zones.

C. Deploy four instances in each of two Availability Zones.

D. Deploy one instance in each of three Availability Zones.

Answer : A

Explanation

문제 조건에서 “Four instances are required to handle a predictable traffic load”를 주목하자. 해석해보면, “예상되는 traffic load를 처리하려면 4개의 instance가 필요하다”이다. 이를 의역하면, traffic을 처리하기 위해서는 최소 4개의 instance가 필요하다는 뜻이 된다. 최소 4개의 인스턴스가 살아있기 위해서는 zone이 하나가 죽어도 다른 zone의 인스턴스의 개수를 합하면 4개의 instance가 나와야 한다. 이 조건과 매칭되는 선택지는 A와 C이며, 이들 중 가장 효율적인 선택지는 A이다.

Reference

117. A Solutions Architect is designing a three-tier web application that includes an Auto Scaling group of Amazon EC2 instances running behind an ELB Classic Load Balancer. The security team requires that all web servers must be accessible only through the Load Balancer, and that none of the web servers are directly accessible from the Internet.

How should the Architect meet these requirements?

A. Use a Load Balancer installed on an Amazon EC2 instance.

B. Configure the web servers' security group to deny traffic from the public Internet.

C. Create an Amazon CloudFront distribution in front of the ELB Classic Load Balancer.

D. Configure the web tier security group to allow only traffic from the ELB Classic Load Balancer.

Answer : D

Explanation

3tier로 구성된 application infrastructure의 자원 및 정보를 보호하기 위해서 VPC를 구성한 뒤, 외부 접근은 ELB만을 통해 허용하게 한다. VPC의 방화벽을 담당하는 NACL은 ELB만 허용하고, Web tier도 ELB와 WAS만 통과하게 하여 올바른 traffic만 통과하게 한다.

Reference

www.youtube.com/watch?v=PsEX3W6lHN4 -> 8:41이미지 참고

출처: YouTube AWS 공식채널

118. A Solutions Architect is designing a web application that will be hosted on Amazon EC2 instances in a public subnet. The web application uses a MySQL database in a private subnet. The database should be accessible to database administrators.

Which of the following options should the Architect recommend? (Choose two.)

A. Create a bastion host in a public subnet, and use the bastion host to connect to the database.

B. Log in to the web servers in the public subnet to connect to the database.

C. Perform DB maintenance after using SSH to connect to the NAT Gateway in a public subnet.

D. Create an IPSec VPN tunnel between the customer site and the VPC, and use the VPN tunnel to connect to the database.

E. Attach an Elastic IP address to the database

Answer : A,D

Explanation

B -> 이와 같은 설정을 하게 되면 public subnet에 접속이 가능한 사용자 모두 DB 접속이 되기 때문에 보안이 취약하다.

C -> SSH를 이용해 private subnet에 접속하기 위해 NAT를 이용할 수 있지만, 이는 외부 접속자 모두에게 SSH접근의 기회를 열어 놓는 것이 된다. 그러므로 보안적으로 취약하다,

E -> elastic ip address는 기본적으로 public IP이기 때문에 이를 할당하면 보안에 취약해진다.

Reference

docs.aws.amazon.com/ko\_kr/AWSEC2/latest/WindowsGuide/elastic-ip-addresses-eip.html

119. A web application running on Amazon EC2 instances writes data synchronously to an Amazon DynamoDB table configured for 60 write capacity units. During normal operation the application writes 50 KB/s to the tale, but can scale up to 500 KB/ s during peak hours. The application is currently throttling errors from the DynamoDB table during peak hours.

What is the MOST cost-efficient change to support the increased traffic with minimal changes to the application?

A. Use Amazon SQS to manage the write operations to the DynamoDB table.

B. Change DynamoDB table configuration to 600 write capacity units.

C. Increase the number of Amazon EC2 instances to support the traffic.

D. Configure Amazon DynamoDB Auto Scaling to handle the extra demand

Answer : D

Explanation

Peak hour동안, deadlock없이 처리량을 늘리기 위해서는 auto-scaling을 사용하여 임시로 확장할 수도 있고 줄이는 것도 가능하다.

Reference

aws.amazon.com/ko/about-aws/whats-new/2019/06/rds-storage-auto-scaling/

-> 우연히 구글링 하다 찾은 RDS Storage Auto-Scaling이 가능하다는 뉴스기사. (2019/06)

120. One company wants to share the contents of their Amazon S3 bucket with another company. Security requirements mandate that only the other company's AWS accounts have access to the contents of the Amazon S3 bucket.

Which Amazon S3 feature will allow secure access to the Amazon S3 bucket?

A. Bucket policy

B. Object tagging

C. CORS configuration

D. Lifecycle policy

Answer : A

Explanation

Bucket policy를 설정하여 다른 사용자의 접근 권한을 설정 할 수 있다.

CORS는 다른 endpoint에서도 해당 bucket에 대해 요청을 할 수 있도록 설정하는 것이다. CORS가 정답이 될 수도 있겠지만, 가장 먼저 Bucket Policy가 선행되어야 된다.

Reference

docs.aws.amazon.com/ko\_kr/AmazonS3/latest/dev/access-policy-language-overview.html

docs.aws.amazon.com/ko\_kr/AmazonS3/latest/dev/cors.html

121. A Solutions Architect is designing a service that must have four Amazon EC2 instances running between 8 AM and 6 PM daily. The service requires one EC2 instance outside of those hours.

What is the MOST cost-effective way to provide enough compute?

A. Use one Amazon EC2 Reserved Instance and use an Auto Scaling group to add and remove EC2 instances based on CPU utilization.

B. Use one Amazon EC2 On-Demand instance and use an Auto Scaling group to add and remove EC2 instances based on CPU utilization.

C. Use one Amazon EC2 On-Demand instance and use an Auto Scaling Group scheduled action to add three EC2 Spot instances at 7:30 AM and remove three instances at 6:10 PM.

D. Use one Amazon EC2 Reserved Instance and use an Auto Scaling Group scheduled action to add three EC2 On-Demand instances at 7:30 AM and remove three instances at 6:10 PM.

Answer :

Explanation

Auto-Scaling에 관한 문제이다. 문제와 같은 상황에서 CPU utilization을 이용한 Auto-Scaling을 하게 되면, 타이밍 맞게 traffic을 처리할 수 있도록 용량을 늘리는 속도가 느리다. 가격적인 측면을 고려 하였을 때, On-Demand보다 Reserved Instance를 사용 하는 것이 효율 적이며, 문제에서 무조건 4개의 instance가 08:00~18:00에 실행되어야 한다고 정의 되어 있었기 떄문에 A보다 D가 적절하다.

Reference

122. A company plans to use an Amazon VPC to deploy a web application consisting of an elastic load balancer, a fleet of web and application servers, and an Amazon RDS MySQL database that should not be accessible from the Internet. The proposed design must be highly available and distributed over two Availability Zones

What would be the MOST appropriate VPC design for this specific use case?

A. Two public subnets for the elastic load balancer, two public subnets for the web servers, and two public subnets for Amazon RDS.

B. One public subnet for the elastic load balancer, two private subnets for the web servers, and two private subnets for Amazon RDS.

C. One public subnet for the elastic load balancer, one public subnet for the web servers, and one private subnet for the database.

D. Two public subnets for the elastic load balancer, two private subnets for the web servers, and two private subnets for RDS

Answer : B

Explanation

ELB를 위해 2개의 public subnet을 할당할 필요는 없다. 그리고 문제의 조건 중 web, application, RDS DB serer는 외부로부터 접근이 불가하게 해야하므로, private subnet으로 구성하는 것이 바람직하다.

Reference

www.youtube.com/watch?v=PsEX3W6lHN4

123. A workload in an Amazon VPC consists of a single web server launched from a custom AMI. Session state is stored in a database.

How should the Solutions Architect modify this workload to be both highly available and scalable?

A. Create a launch configuration with a desired capacity of two web servers across multiple Availability Zones. Create an Auto Scaling group with the AMI ID of the web server image. Use Amazon Route 53 latency-based routing to balance traffic across the Auto Scaling group.

B. Create a launch configuration with the AMI ID of the web server image. Create an Auto Scaling group using the newly-created launch configuration, and a desired capacity of two web servers across multiple regions. Use an Application Load Balancer (ALB) to balance traffic across the Auto Scaling group.

C. Create a launch configuration with the AMI ID of the web server image. Create an Auto Scaling group using the newly-created launch configuration, and a desired capacity of two web servers across multiple Availability Zones. Use an ALB to balance traffic across the Auto Scaling group.

D. Create a launch configuration with the AMI ID of the web server image. Create an Auto Scaling group using the newly-created launch configuration, and a desired capacity of two web servers across multiple Availability Zones. Use Amazon Route 53 weighted routing to balance traffic across the Auto Scaling group.

Answer : C

Explanation

launch configuration을 AMI로 구성하여 등록 한 다음, 이를 기반으로 Auto Scaling Group를 만든다. 다음, HA와 Scalable을 만족하기 위해 multi-zone구성과 auto-scaling group을 구성한 다음 로드밸런싱을 구현 하는 것이 절차이다. 그러므로 A는 정답에서 제외다. 그리고 Route 53만으로 로드밸런싱을 구현 할 수 있으나, 현재 VPC상에서 app이 운영이 되고 있기 때문에 Route53은 독단적으로 VPC에 접근을 할 수가 없다. 그러므로 정답은 C

Reference

www.youtube.com/watch?v=PsEX3W6lHN4

124. A Solutions Architect is developing a new web application on AWS. The services must scale to support an increasing load. The Architect wants to focus on software development and deploying new features rather than provisioning or managing servers.

Which AWS service is appropriate?

A. Auto Scaling

B. Elastic Beanstalk

C. EC2 Container Service

D. CloudFormation

Answer : B

Explanation

Beanstalk는 provisioning과 management에서 자유롭게 하여 개발에만 집중 할 수 있는 환경으 ㄹ구성하는데 도움을 주는 서비스이다.

Reference

docs.aws.amazon.com/ko\_kr/elasticbeanstalk/latest/dg/Welcome.html

125. A company wants to migrate a three-tier web application to AWS. The company wants to control the placement of the instances and have visibility into underlying sockets and cores for licensing purposes.

Which compute model should a Solutions Architect choose to accomplish this task?

A. EC2 Reserved Instances

B. EC2 Spot Instances

C. EC2 Dedicated Hosts

D. EC2 Placement Groups

Answer : C

Explanation

회사의 구조에 맞게 전용 호스트를 구성하여 app을 deploy하고 구성을 바꿀 수 있다.

Reference

docs.aws.amazon.com/ko\_kr/AWSEC2/latest/UserGuide/dedicated-hosts-overview.html

aws.amazon.com/ko/ec2/dedicated-hosts/

126. An application runs on multiple Amazon EC2 instances. Each running instance of the application must have access to a shared file system.

Where should the data be stored?

A. Amazon S3

B. Amazon DynamoDB

C. Amazon EFS

D. Amazon EBS

Answer : C

Explanation

EFS를 구성하여 shared file system을 구성 할 수 있다. shared라는 키워드 때문에 S3가 생각날 수도 있지만, 문제의 조건에서 file system이고 running instance를 만족시키지 못하기 때문에 S3는 정답이 될 수 없다.

Reference

docs.aws.amazon.com/ko\_kr/efs/latest/ug/whatisefs.html

127. A Solutions Architect is designing a microservice to process records from Amazon Kinesis Streams. The metadata must be stored in Amazon DynamoDB. The microservice must be capable of concurrently processing 10,000 records daily as they arrive in the Kinesis stream.

The MOST scalable way to design the microservice is:

A. As an AWS Lambda function.

B. As a process on an Amazon EC2 instance.

C. As a Docker container running on Amazon ECS.

D. As a Docker container on an EC2 instance.

Answer : C

Explanation

모놀리스 구성의 어플리케이션을 마이크로 서비스로 쪼개어 현재 docker등의 container로 구성하여 운영하려고 하는 추세이다. 이와 맞는 선택지는 C이다. D도 맞는 선택이지만, ECS를 선택하면 VPC구성 같은 부분들이 한번에 해결되기 때문에 D보다는 C가 더 옳은 정답이다.

Reference

aws.amazon.com/ko/getting-started/projects/break-monolith-app-microservices-ecs-docker-ec2/

128. A university is running an internal web application on AWS that students can access from the university network to check their exam results. The web application runs on Amazon EC2 instances and pulls results from an Amazon DynamoDB table. Auto Scaling is currently configured to add a new web server when CPU is greater than 80% for 5 minutes. DynamoDB is configured to increase both read and write capacity units by five when utilization is greater than 80%. Exam results are released at 9:00 a.m. each Monday, and 80% of students, attempt to access their unique result within the first 30 minutes. Despite Auto Scaling being enabled, students are complaining of slow response times and errors when they view the site. There are no performance complaints after 9:30 a.m. on Monday.

Which recommendation should a Solutions Architect make to improve performance in a cost-effective manner?

A. Scale out the EC2 instances to ensure that the environment scales up and down based on the highest load.

B. Implement Amazon DynamoDB Accelerator to improve database performance and remove the need to scale the read/write units.

C. Use a scheduled job to scale out EC2 before 9:00 a.m. on Monday and to scale down after 9:30 a.m.

D. Use Amazon CloudFront to cache web request and reduce the load on EC2 and DynamoDB.

Answer : D

Explanation

학생들의 시험 결과는 static한 자료다. 이를 검색하기 위해 같은 영역에 사람들이 몰리다보니 장애가 발생하는 것으로 보이며, 이 같은 static한 자료들은 caching server인 CloudFront를 사용하여 접근성을 높여 빠른 속도에 제공할 수 있다.

Reference

docs.aws.amazon.com/ko\_kr/AmazonCloudFront/latest/DeveloperGuide/Introduction.html

129. As part of a migration strategy, a Solutions Architect needs to analyze workloads that can be optimized for performance and cost. The Solutions Architect has identified a stateless application that serves static content as a potential candidate to move to the cloud. The Solutions Architect has the flexibility to choose an identity solution between Facebook, Twitter, and Amazon.

Which AWS solution offers flexibility and ease of use, and the LEAST operational overhead for this migration?

A. Use AWS Identity and Access Management (IAM) for managing identities, and migrate the application to run on Amazon S3, Amazon API Gateway, and AWS Lambda.

B. Use a third-party solution for managing identities, and migrate the application to run on Amazon S3, EC2 Spot Instances, and Amazon EC2.

C. Use Amazon Cognito for managing identities, and migrate the application to run on Amazon S3, Amazon API Gateway, and AWS Lambda.

D. Use Amazon Cognito for managing identities, and migrate the application to run on Amazon S3, EC2 Spot Instances, and Amazon EC2.

Answer : C

Explanation

문제 요구사항 중 Least operational overhead for this migration이 있다. Operational overhead가 가장 작으려면, serverless하게 설계하면 된다. 이를 수용 할 수 있는 선택지는 A와 C이며, Facebook, Twitter, Amazon 등 외부 identify solution을 연동시키기 위해서 cognito를 사용하면 operational overhead를 덜 수 있다.

Reference

docs.aws.amazon.com/ko\_kr/cognito/latest/developerguide/what-is-amazon-cognito.html

130. A company needs to capture all client connection information from its Application Load Balancer every five minutes. This data will be used to analyze traffic patterns and troubleshoot the application.

How can a Solutions Architect meet this requirement?

A. Enable AWS CloudTrail for the Application Load Balancer.

B. Enable Access Logs on the Application Load Balancer.

C. Install CloudWatch Agent on the Application Load Balancer.

D. Enable CloudWatch metrics on the Application Load Balancer.

Answer : B

Explanation

Load Balancer는 instance가 아니기 때문에 Agent를 설치할 수 없다. 다만, Log에 대한 접근을 허용함으로써 app의 trouble을 control 할 수 있다.

Reference

docs.aws.amazon.com/ko\_kr/elasticloadbalancing/latest/userguide/elb-service-linked-roles.html#service-linked-role-permissions

131. An application runs on EC2 instances behind an Elastic Load Balancing Application Load Balancer. The instances run in an EC2 Auto Scaling group across multiple Availability Zones. The application provides a RESTful interface with both synchronous and asynchronous operations. The asynchronous operations require up to 5 minutes to complete. Although the application must remain available at all times, after business hours, the traffic going to the application is greatly reduced and often results in the Auto Scaling group running the minimum number of On-Demand Instances.

What should the Solutions Architect recommend to optimize the cost of the environment after business hours?

A. Change the Availability Zones in which the instances were created to another Availability Zone in the same region with a lower cost.

B. Replace all On-Demand Instances with Spot Instances in the Auto Scaling group.

C. Purchase Reserved Instances for the minimum number of Auto Scaling instances.

D. Reduce the number of minimum instances to 0. New requests to the Application Load Balancer create new instances.

Answer : C

Explanation

현재 Auto-Scaling Group는 minimum number of On-Demand Instance로 작동하고 있다. 문제의 조건 중 “must remain available at all time”을 고려하면 절대 instance가 종료 되어서는 안되는 것을 알 수 있다. 그러므로 spot instance는 부적절하다. 대신, On-Demand를 Reserved-instance로 바꾸면 비용을 상당히 절약 할 수 있다. A같은 경우는 가용성 issue관련 문항이고, D의 경우, minimum instance를 0으로 바꾸면 서비스가 중단되기 때문에 부적절하다.

Reference

132. A Solutions Architect is designing a web application for document sharing. The users will upload documents that are then made available to other users. There will be tens of thousands of these documents.

What is the MOST cost-effective storage solution?

A. Amazon EFS

B. Amazon S3

C. Amazon Glacier

D. Amazon EBS

Answer : B

Explanation

Glacier는 아카이빙 솔루션이기 때문에 정답이 아니고, EFS는 다른 시스템 유저와 시스템 자체는 공유 할 수 있으나, 외부 접속자와 공유하기에는 S3보다 효율이 떨어진다. EBS는 한 instance에만 종속이 되어있기 때문에 답이 되기 어렵다.

Reference

133. A Solutions Architect was tasked with reviewing several templates that build VPCs and ensuring that they meet specific security requirements. After reviewing the templates, the Architect realizes that all of the templates are missing important security best practices.

What should the Architect do to implement security best practices in an efficient manner?

A. Use VPC peering to enforce network consistency

B. Restrict users from deploying an AWS CloudFormation template

C. Provide the teams a nested AWS CloudFormation template that builds the VPC correctly

D. Create AWS Identity and Access Management (IAM) policies that enforce the corporate VPC architecture standards

Answer : D

Explanation

Nested AWS CloudFormation

Reference

docs.aws.amazon.com/ko\_kr/AWSCloudFormation/latest/UserGuide/best-practices.html#nested