# Exams Question SA–2

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***You are creating several EC2 instances for a new application. For better performance of the application, both low network latency and high network throughput are required for the EC2 instances. All instances should be launched in a single availability zone. How would you configure this?***

- [ ] A. Launch all EC2 instances in a placement group using a Cluster placement strategy.
- [ ] B. Auto-assign a public IP when launching the EC2 instances.
- [ ] C. Launch EC2 instances in an EC2 placement group and select the Spread placement strategy.
- [ ] D. When launching the EC2 instances, select an instance type that supports enhanced networking.

Placement groups - Amazon Elastic Compute Cloud
Use Amazon EC2 to configure, launch, and manage virtual servers in the AWS cloud.
https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/placement-groups.html

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**A large amount of structured data stored in JSON format is present in Amazon S3. To analyze this S3 data directly using standard SQL and visualize it easily through data dashboards, which of the following services would be the most appropriate.**

- [ ] **A.** Amazon Athena and Amazon QuickSight
- [ ] **B.**AWS Glue and Amazon Athena
- [ ] **C.**AWS Glue and Amazon QuickSight
- [ ] **D.** Amazon Kinesis Data Stream and Amazon QuickSight

Use Amazon Athena and Amazon QuickSight to build custom reports of AWS Well-Architected Reviews | Amazon Web Services
AWS Well-Architected helps cloud architects build secure, high-performing, resilient, and efficient infrastructure for their applications and workloads. Based on five pillars — operational excellence, security, reliability, performance efficiency, and cost optimization — AWS Well-Architected provides a consistent approach for customers and partners to evaluate architectures, and implement designs that can scale over
https://aws.amazon.com/blogs/mt/use-amazon-athena-and-amazon-quicksight-to-build-custom-reports-of-aws-well-architected-reviews/

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**A company runs an online voting system for a weekly live television program. During broadcasts, users submit hundreds of thousands of votes within minutes to a front-end fleet of Amazon EC2 instances that run in an Auto Scaling group. The EC2 instances write the votes to an Amazon RDS database. However, the database is unable to keep up with the requests that come from the EC2 instances. A solutions architect must design a solution that processes the votes in the most efficient manner and without downtime.**

- [ ] A) Migrate the front-end application to AWS Lambda. Use Amazon API Gateway to route user requests to the Lambda functions.
- [ ] B) Scale the database horizontally by converting it to a Multi-AZ deployment. Configure the front-end application to write to both the primary and secondary DB instances.

☐ C) Configure the front-end application to send votes to an Amazon Simple Queue Service (Amazon SQS) queue. Provision worker instances to read the SQS queue and write the vote information to the database.

☐ D) Use Amazon Event Bridge (Amazon CloudWatch Events) to create a scheduled event to re-provision the database with larger, memory optimized instances during voting periods. When voting ends, re-provision the database to use smaller instances.

**Hint - Ashish's decoupled architecture example**

docs.aws.amazon.com

https://docs.aws.amazon.com/pdfs/whitepapers/latest/microservices-on-aws/microservices-on-aws.pdf

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**A company runs a serverless mobile app that uses Amazon API Gateway, AWS Lambda functions, Amazon Cognito, and Amazon DynamoDB. During large surges in traffic, users report intermittent system failures. The API Gateway API endpoint is returning HTTP status code 502 (Bad Gateway) errors to valid requests.**
Which solution will resolve this issue?

☐ A) Increase the concurrency quota for the Lambda functions. Configure Amazon CloudWatch to send notification alerts when the ConcurrentExecutions metric approaches the quota.

☐ B) Configure notification alerts for the quota of transactions per second on the API Gateway API endpoint. Create a Lambda function that will increase the quota when the quota is reached.

☐ C) Shard users to Amazon Cognito user pools in multiple AWS Regions to reduce user authentication latency.

☐ D) Use DynamoDB strongly consistent reads to ensure that the client application always receives the most recent data.

AWS Serverless Multi-Tier Architectures with Amazon API Gateway and AWS Lambda - AWS Serverless Multi-Tier Architectures with Amazon A

This whitepaper illustrates how innovations from Amazon Web Services (AWS) can be used to change the way you design multi-tier architectures and implement p microservices, mobile backends, and single-page applications. Architects and developers can use Amazon API Gateway, AWS Lambda, and other services to redu operations cycles required to create and manage multi-tiered applications.

https://docs.aws.amazon.com/whitepapers/latest/serverless-multi-tier-architectures-api-gateway-lambda/welcome.html