

AWS EC2 Service Interview Questions & Answers



Bharath Kumar Reddy · [Follow](#)

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Here are interview questions related to AWS Elastic Compute Cloud (EC2) for experienced DevOps Engineer roles along with answers:

1. What is AWS EC2, and how does it fit into the DevOps workflow?

Answer: AWS EC2 is a web service that provides resizable compute capacity in the cloud. It plays a pivotal role in DevOps workflows by allowing DevOps engineers to provision and manage virtual machines (instances) for running applications, microservices, and infrastructure as code.

2. Explain the different instance types in EC2 and when you would choose one over the other.

Answer: EC2 offers various instance types optimized for different use cases, such as compute-optimized, memory-optimized, and storage-optimized instances. The choice depends on your application's requirements, with factors like CPU, memory, storage, and network performance influencing the decision.

3. What are Amazon Machine Images (AMIs) in EC2, and how do you create custom AMIs for your applications?

Answer: An AMI is a pre-configured virtual machine image that you can use to launch EC2 instances. To create a custom AMI, you typically start with an existing instance, customize it to your needs, and then create an image from that instance. Custom AMIs are useful for replicating application environments and configurations.

4. How can you secure your EC2 instances, and what are some best practices for enhancing EC2 security?

Answer: EC2 security best practices include:

- Restricting network access using Security Groups and Network ACLs.
- Applying IAM roles and policies for fine-grained access control.
- Using key pairs for secure SSH/RDP access.
- Regularly patching and updating your instances and applications.
- Implementing monitoring and logging, such as CloudWatch and AWS Config, to track security events.

5. Explain Auto Scaling in EC2 and how it helps ensure application availability.

Answer: Auto Scaling is a service that allows you to automatically adjust the number of EC2 instances in response to changing application demands. It helps maintain application availability, improves fault tolerance, and optimizes resource usage by scaling out during periods of high demand and scaling in during lower demand.

6. What is Elastic Load Balancing (ELB) in AWS, and how does it integrate with EC2 instances to improve application scalability and availability?

Answer: ELB is a service that automatically distributes incoming application traffic across multiple EC2 instances. It improves application availability and scalability by distributing traffic evenly, detecting and routing around unhealthy instances, and providing a single entry point for users.

7. How do you automate the provisioning and configuration of EC2 instances in a DevOps environment?

Answer: In a DevOps environment, you can automate EC2 provisioning and configuration using Infrastructure as Code (IaC) tools like AWS CloudFormation, Terraform, or Ansible. These tools allow you to define and manage your infrastructure as code, making it reproducible, version-controlled, and easily integrated into your CI/CD pipeline.

8. Explain the concept of EC2 instance metadata and user data.

Answer:

- EC2 Instance Metadata: EC2 instances have metadata that provides information about the instance, such as instance ID, public IP address, and IAM role. This metadata can be accessed from within the instance.

- User Data: User data is a script or data that can be passed to an EC2 instance during launch. It is often used to perform instance-specific configuration and customization.

9. What is an EC2 placement group, and in what scenarios would you use it?

Answer: An EC2 placement group is a logical grouping of instances that affects how they are placed in the underlying hardware. You might use placement groups for low-latency, high-throughput communication between instances, such as in a cluster or for high-performance computing workloads.

10. How can you resize an EC2 instance, and what are the considerations when doing so?

Answer: You can resize an EC2 instance by stopping it, changing its instance type, and then starting it again. However, it's essential to ensure that the new instance type meets your application's resource requirements and that any instance-specific settings and data are preserved during the process.

11. Explain the concept of EC2 instance types that are optimized for CPU, memory, and storage. Provide specific use cases for each.

Answer: EC2 offers instance types optimized for various resource requirements. For example, CPU-optimized instances (e.g., C5) are suitable for compute-intensive workloads, memory-optimized instances (e.g., R5) are ideal for memory-intensive applications, and storage-optimized instances (e.g., I3) are designed for data-intensive applications like databases.

12. What is an EC2 Spot Instance, and when would you use it in a DevOps environment?

Answer: Spot Instances allow you to use spare AWS capacity at a significantly lower cost. They are useful for non-critical, fault-tolerant workloads in a DevOps environment where you can handle interruptions and take advantage of cost savings by using Spot Instances.

13. How does EC2 handle instance failures, and what strategies can you implement to ensure high availability for your applications?

Answer: EC2 instances can fail, but you can enhance availability by:

- Using Auto Scaling to automatically replace failed instances.
- Distributing your application across multiple Availability Zones.
- Implementing load balancing with Elastic Load Balancing (ELB).
- Utilizing Elastic IP addresses and DNS solutions for failover.

14. Explain the process of attaching and managing EBS volumes to EC2 instances.

Answer: To attach an EBS volume to an EC2 instance, you:

- Create an EBS volume and specify its size and type.
- Attach the volume to the instance using the AWS Management Console, AWS CLI,

or SDK.

— Mount and format the volume on the instance to make it usable.

15. What are the differences between instance store (ephemeral) and EBS-backed EC2 instances, and when would you choose one over the other?

Answer: Ephemeral instances use instance store volumes, which provide high-speed, temporary storage. EBS-backed instances use network-attached EBS volumes for durable storage. The choice depends on the need for data durability; EBS-backed instances are preferred for important data, while instance store is suitable for temporary, high-performance storage.

16. How can you monitor and manage the performance of EC2 instances and underlying resources?

Answer: You can use Amazon CloudWatch to monitor EC2 instances and the underlying resources. CloudWatch provides metrics and logs for CPU utilization, memory, network, and other performance-related data. You can set up alarms and use the AWS Management Console to analyze performance.

17. Explain the concept of EC2 instance metadata and user data and how they are accessed within EC2 instances.

Answer:

— Instance Metadata: EC2 instance metadata is accessible from within an instance and provides information about the instance itself, such as instance ID, public IP, IAM role, and more. It can be accessed using a specific URL, like <http://169.254.169.254/latest/meta-data/>.

— User Data: User data is user-provided information or scripts that can be passed to an EC2 instance during launch. It can be accessed from within the instance, typically as part of the instance initialization process.

18. How can you automate EC2 instance provisioning and scaling using AWS services like AWS Auto Scaling and AWS CloudFormation?

Answer: AWS Auto Scaling allows you to automatically adjust the number of EC2 instances based on specified conditions, such as CPU utilization or application load. AWS CloudFormation, on the other hand, allows you to define and provision

infrastructure as code, including EC2 instances, making it repeatable and automatable as part of your DevOps pipeline.

19. What is an EC2 placement group, and what are the types of placement groups available in AWS?

Answer: An EC2 placement group is a logical grouping of instances to influence how they are physically placed within the data center. AWS offers three types of placement groups: Cluster Placement Group (low-latency clusters), Partition Placement Group (HPC workloads), and Spread Placement Group (fault-tolerant groups).

20. Explain how to implement an effective backup and disaster recovery strategy for EC2 instances and data.

Answer: To implement an effective backup and disaster recovery strategy for EC2, you can:

- Create regular EBS snapshots for data backup.
- Utilize automated backup solutions like AWS Backup.
- Replicate data across multiple Availability Zones.
- Implement standby instances and recovery procedures to minimize downtime during a disaster.

These questions and answers provide a deeper understanding of AWS EC2 and its use in DevOps environments, which is essential for experienced DevOps engineers with several years of AWS experience.

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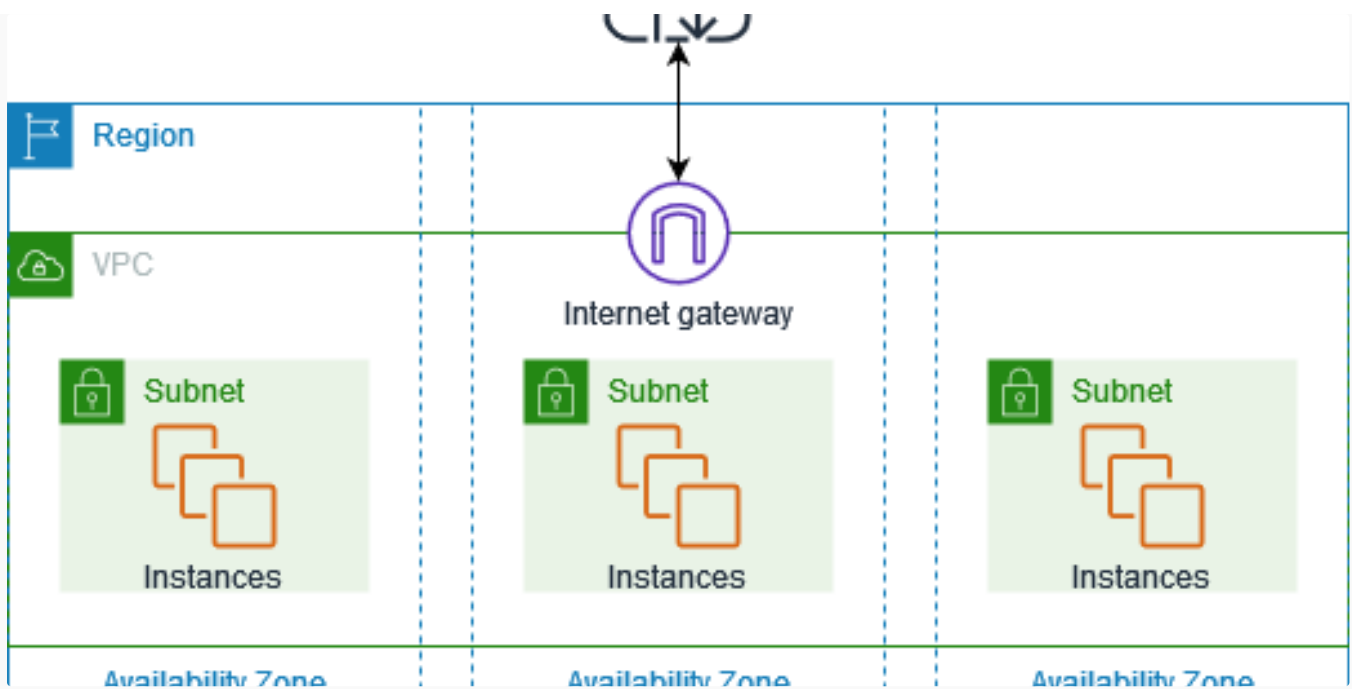
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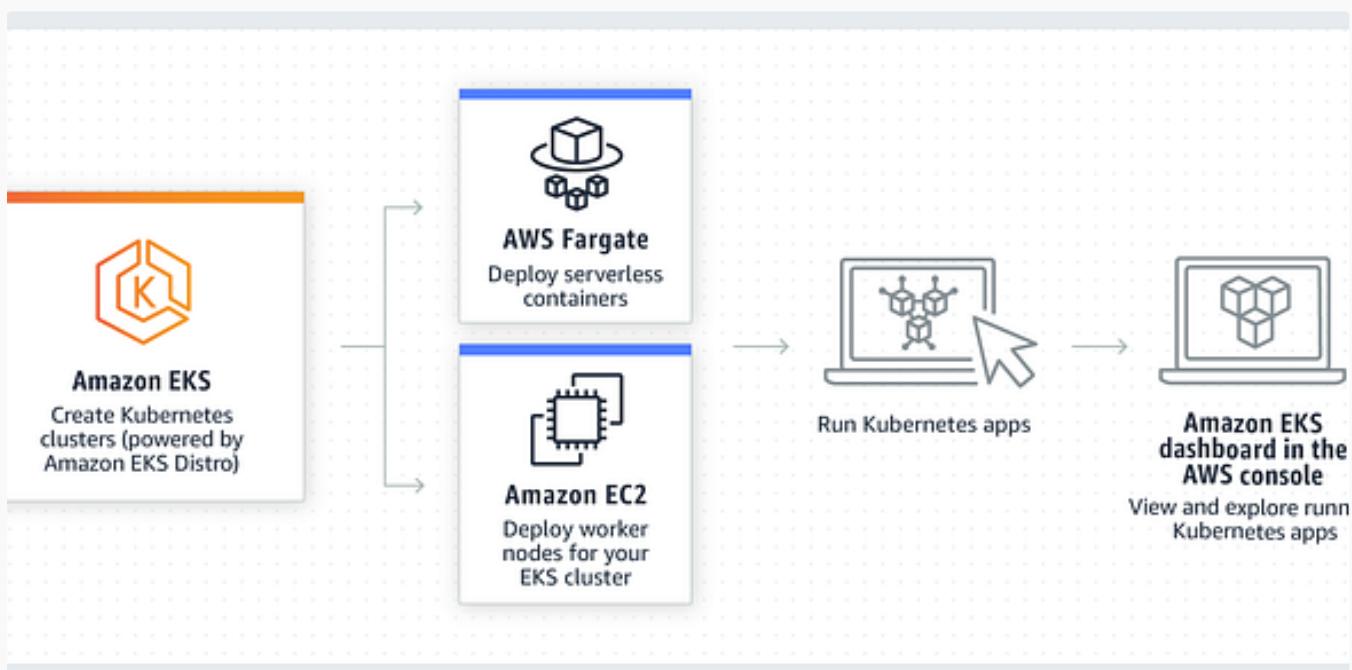


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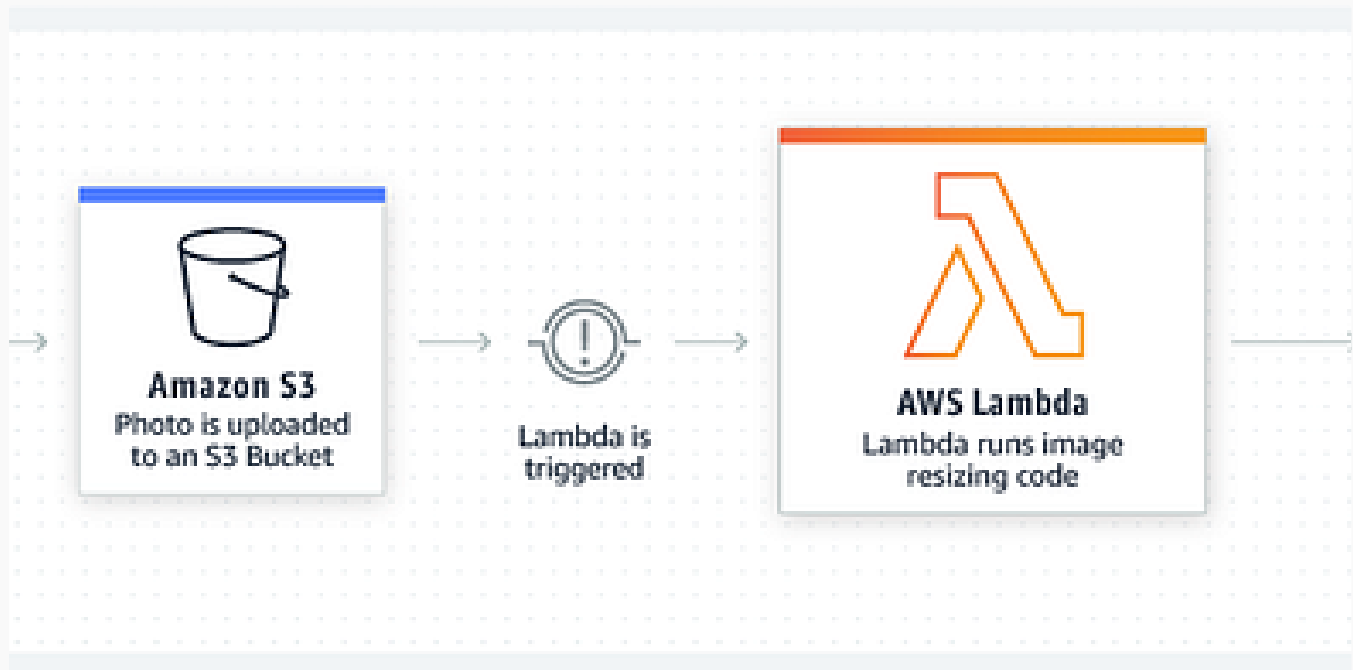
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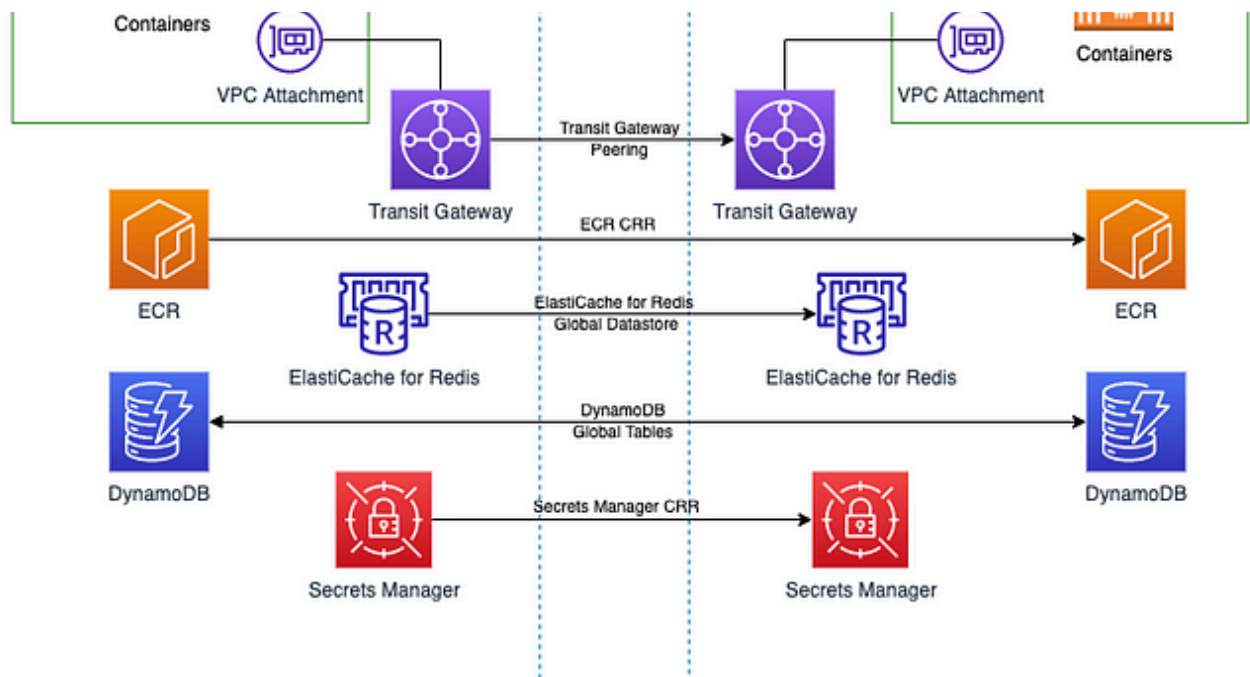
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
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Software Development Engineer

Seattle, WA

Mar. 2020 – May 2021

- Developed Amazon checkout and payment services to handle traffic of 10 Million daily global transactions
- Integrated Iframes for credit cards and bank accounts to secure 80% of all consumer traffic and prevent CSRF, cross-site scripting, and cookie-jacking
- Led Your Transactions implementation for JavaScript front-end framework to showcase consumer transactions and reduce call center costs by \$25 Million
- Recovered Saudi Arabia checkout failure impacting 4000+ customers due to incorrect GET form redirection

Projects

NinjaPrep.io (React)

- Platform to offer coding problem practice with built in code editor and written + video solutions in React
- Utilized Nginx to reverse proxy IP address on Digital Ocean hosts
- Developed using Styled-Components for 95% CSS styling to ensure proper CSS scoping
- Implemented Docker with Seccomp to safely run user submitted code with < 2.2s runtime

HeatMap (JavaScript)

- Visualized Google Takeout location data of location history using Google Maps API and Google Maps heatmap code with React
- Included local file system storage to reliably handle 5mb of location history data
- Implemented Express to include routing between pages and jQuery to parse Google Map and implement heatmap overlay



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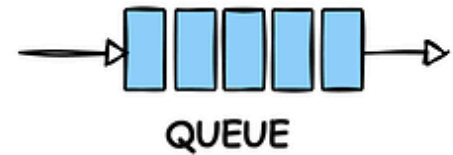
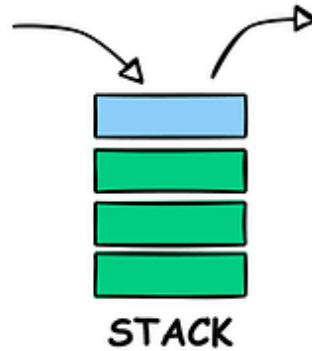
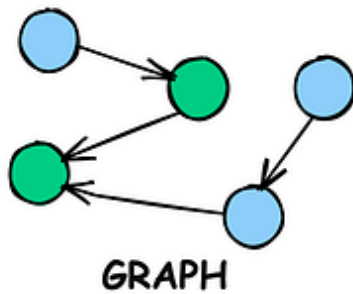
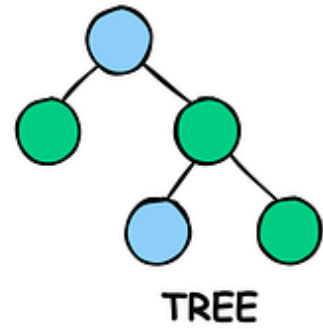
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


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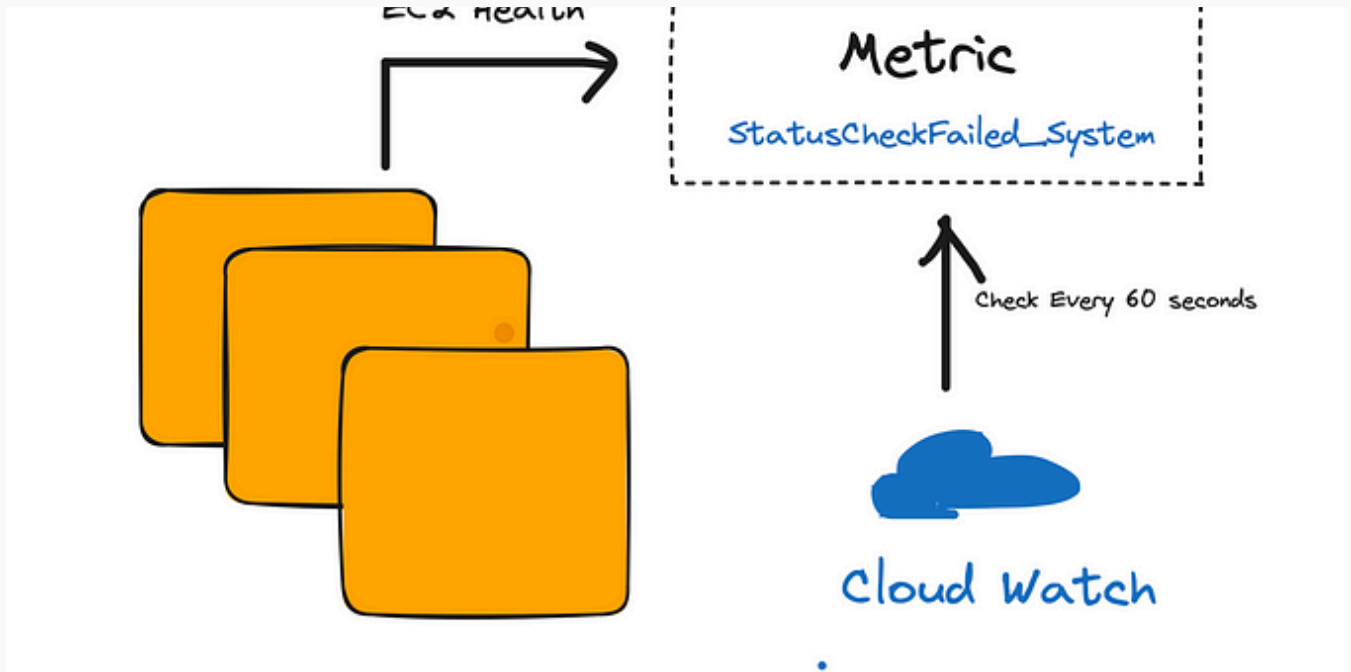


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