1. What are the Amazon EC2 API tools?
   1. They don’t exist. The Amazon EC2 AMI tools, instead, are used to manage permissions.
   2. **Command-line tools to the Amazon EC2 web service**
   3. They are a set of graphical tools to manage EC2 instances.
   4. They don’t exist. The Amazon API tools are a client interface to Amazon Web Services.
2. When a user is launching an instance with EC2, which of the below mentioned options is not available during the instance launch console for a key pair?
   1. Proceed without the key pair
   2. **Upload a new key pair**
   3. Select an existing key pair
   4. Create a new key pair
3. EC2 EBS-backed (EBS root) instance is stopped, what happens to the data on any ephemeral store volumes?
   1. Data is automatically saved in an EBS volume.
   2. Data is unavailable until the instance is restarted.
   3. **Data will be deleted and will no longer be accessible.**
   4. Data is automatically saved as an EBS snapshot.
4. When an EC2 instance that is backed by an S3-based AMI is terminated, what happens to the data on the root volume?
   1. Data is automatically saved as an EBS snapshot.
   2. Data is automatically saved as an EBS volume.
   3. Data is unavailable until the instance is restarted.
   4. **Data is automatically deleted.**
5. Which of the following will occur when an EC2 instance in a VPC (Virtual Private Cloud) with an associated Elastic IP is stopped and started? (Choose 2 answers)
   1. The Elastic IP will be dissociated from the instance
   2. **All data on instance-store devices will be lost**
   3. All data on EBS (Elastic Block Store) devices will be lost
   4. The ENI (Elastic Network Interface) is detached
   5. **The underlying host for the instance is changed**
6. Which of the following provides the fastest storage medium?
   1. Amazon S3
   2. Amazon EBS using Provisioned IOPS (PIOPS)
   3. **SSD Instance (ephemeral) store**(SSD Instance Storage provides 100,000 IOPS on some instance types, much faster than any network-attached storage)
   4. AWS Storage Gateway
7. A user has launched an EC2 instance from an instance store backed AMI. The infrastructure team wants to create an AMI from the running instance. Which of the below mentioned credentials is not required while creating the AMI?
   1. AWS account ID
   2. 509 certificate and private key
   3. **AWS login ID to login to the console**
   4. Access key and secret access key
8. A user has launched an EC2 Windows instance from an instance store backed AMI. The user wants to convert the AMI to an EBS backed AMI. How can the user convert it?
   1. Attach an EBS volume to the instance and unbundle all the AMI bundled data inside the EBS
   2. **A Windows based instance store backed AMI cannot be converted to an EBS backed AMI**
   3. It is not possible to convert an instance store backed AMI to an EBS backed AMI
   4. Attach an EBS volume and use the copy command to copy all the ephemeral content to the EBS Volume
9. A user has launched two EBS backed EC2 instances in the US-East-1a region. The user wants to change the zone of one of the instances. How can the user change it?
   1. Stop one of the instances and change the availability zone
   2. The zone can only be modified using the AWS CLI
   3. From the AWS EC2 console, select the Actions – > Change zones and specify new zone
   4. **Create an AMI of the running instance and launch the instance in a separate AZ**
10. A user has launched a large EBS backed EC2 instance in the US-East-1a region. The user wants to achieve Disaster Recovery (DR) for that instance by creating another small instance in Europe. How can the user achieve DR?
    1. Copy the running instance using the “Instance Copy” command to the EU region
    2. **Create an AMI of the instance and copy the AMI to the EU region. Then launch the instance from the EU AMI**
    3. Copy the instance from the US East region to the EU region
    4. Use the “Launch more like this” option to copy the instance from one region to another
11. A user has launched an EC2 instance store backed instance in the US-East-1a zone. The user created AMI #1 and copied it to the Europe region. After that, the user made a few updates to the application running in the US-East-1a zone. The user makes an AMI#2 after the changes. If the user launches a new instance in Europe from the AMI #1 copy, which of the below mentioned statements is true?
    1. The new instance will have the changes made after the AMI copy as AWS just copies the reference of the original AMI during the copying. Thus, the copied AMI will have all the updated data
    2. The new instance will have the changes made after the AMI copy since AWS keeps updating the AMI
    3. It is not possible to copy the instance store backed AMI from one region to another
    4. **The new instance in the EU region will not have the changes made after the AMI copy**
12. George has shared an EC2 AMI created in the US East region from his AWS account with Stefano. George copies the same AMI to the US West region. Can Stefano access the copied AMI of George’s account from the US West region?
    1. **No, copy AMI does not copy the permission**
    2. It is not possible to share the AMI with a specific account
    3. Yes, since copy AMI copies all private account sharing permissions
    4. Yes, since copy AMI copies all the permissions attached with the AMI
13. EC2 instances are launched from Amazon Machine images (AMIS). A given public AMI can:
    1. be used to launch EC2 Instances in any AWS region.
    2. only be used to launch EC2 instances in the same country as the AMI is stored.
    3. **only be used to launch EC2 instances in the same AWS region as the AMI is stored.**(An AMI is tied to the region where its files are located within Amazon S3)
    4. only be used to launch EC2 instances in the same AWS availability zone as the AMI is stored.
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    2. **Create an AMI of the instance and copy the AMI to the EU region. Then launch the instance from the EU AMI**
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    4. Use the “Launch more like this” option to copy the instance from one region to another
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    2. only be used to launch EC2 instances in the same country as the AMI is stored.
    3. **only be used to launch EC2 instances in the same AWS region as the AMI is stored.**(An AMI is tied to the region where its files are located within Amazon S3)
    4. only be used to launch EC2 instances in the same AWS availability zone as the AMI is stored.
21. Which of the following instance types are available as Amazon EBS-backed only? Choose 2 answers
    1. **General purpose T2**
    2. General purpose M3
    3. **Compute-optimized C4**
    4. Compute-optimized C3
    5. Storage-optimized 12
22. A t2.medium EC2 instance type must be launched with what type of Amazon Machine Image (AMI)?
    1. An Instance store Hardware Virtual Machine AMI
    2. An Instance store Paravirtual AMI
    3. **An Amazon EBS-backed Hardware Virtual Machine AMI**
    4. An Amazon EBS-backed Paravirtual AMI
23. You have identified network throughput as a bottleneck on your m1.small EC2 instance when uploading data Into Amazon S3 In the same region. How do you remedy this situation? Add an additional ENI
    1. **Change to a larger Instance**
    2. Use DirectConnect between EC2 and S3
    3. Use EBS PIOPS on the local volume
24. You are using an m1.small EC2 Instance with one 300 GB EBS volume to host a relational database. You determined that write throughput to the database needs to be increased. Which of the following approaches can help achieve this? Choose 2 answers
    1. **Use an array of EBS volumes**(Striping to increase throughput)
    2. Enable Multi-AZ mode.
    3. Place the instance in an Auto Scaling Groups
    4. Add an EBS volume and place into RAID 5 (RAID 5 is not recommended as it provides parity and EBS volumes are already replicated across multiple servers in an Availability Zone for availability and durability, so AWS recommends striping for performance rather than durability)
    5. **Increase the size of the EC2 Instance.**
    6. Put the database behind an Elastic Load Balancer.
25. You are tasked with setting up a cluster of EC2 Instances for a NoSQL database. The database requires random read IO disk performance up to a 100,000 IOPS at 4KB block side per node. Which of the following EC2 instances will perform the best for this workload?
    1. A High-Memory Quadruple Extra Large (m2.4xlarge) with EBS-Optimized set to true and a PIOPs EBS volume
    2. A Cluster Compute Eight Extra Large (cc2.8xlarge) using instance storage
    3. **High I/O Quadruple Extra Large (hi1.4xlarge) using instance storage**
    4. A Cluster GPU Quadruple Extra Large (cg1.4xlarge) using four separate 4000 PIOPS EBS volumes in a RAID 0 configuration
26. You are implementing a URL whitelisting system for a company that wants to restrict outbound HTTP’S connections to specific domains from their EC2-hosted applications you deploy a single EC2 instance running proxy software and configure It to accept traffic from all subnets and EC2 instances in the VPC. You configure the proxy to only pass through traffic to domains that you define in its whitelist configuration You have a nightly maintenance window or 10 minutes where ail instances fetch new software updates. Each update Is about 200MB In size and there are 500 instances In the VPC that routinely fetch updates After a few days you notice that some machines are failing to successfully download some, but not all of their updates within the maintenance window The download URLs used for these updates are correctly listed in the proxy’s whitelist configuration and you are able to access them manually using a web browser on the instances What might be happening? (Choose 2 answers) **[PROFESSIONAL]**
    1. **You are running the proxy on an undersized EC2 instance type so network throughput is not sufficient for all instances to download their updates in time.**
    2. You have not allocated enough storage to the EC2 instance running me proxy so the network buffer is filling up causing some requests to fall
    3. You are running the proxy in a public subnet but have not allocated enough EIPs to support the needed network throughput through the Internet Gateway (IGW)
    4. **You are running the proxy on a affluently-sized EC2 instance in a private subnet and its network throughput is being throttled by a NAT running on an undersized EC2 instance**
    5. The route table for the subnets containing the affected EC2 instances is not configured to direct network traffic for the software update locations to the proxy.
27. You have been asked to design the storage layer for an application. The application requires disk performance of at least 100,000 IOPS in addition; the storage layer must be able to survive the loss of an individual disk, EC2 instance, or Availability Zone without any data loss. The volume you provide must have a capacity of at least 3TB. Which of the following designs will meet these objectives? **[PROFESSIONAL]**
    1. Instantiate an i2.8xlarge instance in us-east-1a. Create a RAID 0 volume using the four 800GB SSD ephemeral disks provided with the instance. Provision 3×1 TB EBS volumes attach them to the instance and configure them as a second RAID 0 volume. Configure synchronous, block-level replication from the ephemeral backed volume to the EBS-backed volume. (Same AZ will not survive the AZ loss)
    2. **Instantiate an i2.8xlarge instance in us-east-1a. Create a RAID 0 volume using the four 800GB SSD ephemeral disks provided with the Instance Configure synchronous block-level replication to an identically configured Instance in us-east-1b.**
    3. Instantiate a c3.8xlarge Instance in us-east-1. Provision an AWS Storage Gateway and configure it for 3 TB of storage and 100,000 IOPS. Attach the volume to the instance. (Need synchronous replication to prevent any data loss)
    4. Instantiate a c3.8xlarge instance in us-east-1 provision 4x1TB EBS volumes, attach them to the instance, and configure them as a single RAID 5 volume Ensure that EBS snapshots are performed every 15 minutes. (RAID 5 not recommended by AWS and Need synchronous replication to prevent any data loss)
    5. Instantiate a c3 8xlarge Instance in us-east-1 Provision 3x1TB EBS volumes attach them to the instance, and configure them as a single RAID 0 volume Ensure that EBS snapshots are performed every 15 minutes. (Need synchronous replication to prevent any data loss)
28. If I want my instance to run on a single-tenant hardware, which value do I have to set the instance’s tenancy attribute to?
    1. **dedicated**
    2. isolated
    3. one
    4. reserved
29. You have a video transcoding application running on Amazon EC2. Each instance polls a queue to find out which video should be transcoded, and then runs a transcoding process. If this process is interrupted, the video will be transcoded by another instance based on the queuing system. You have a large backlog of videos, which need to be transcoded, and would like to reduce this backlog by adding more instances. You will need these instances only until the backlog is reduced. Which type of Amazon EC2 instances should you use to reduce the backlog in the most cost efficient way?
    1. Reserved instances
    2. **Spot instances**
    3. Dedicated instances
    4. On-demand instances
30. The one-time payment for Reserved Instances is \_\_\_\_\_\_\_\_\_\_ refundable if the reservation is cancelled.
    1. always
    2. in some circumstances
    3. **never**
31. You run a web application where web servers on EC2 Instances are In an Auto Scaling group Monitoring over the last 6 months shows that 6 web servers are necessary to handle the minimum load. During the day up to 12 servers are needed Five to six days per year, the number of web servers required might go up to 15. What would you recommend to minimize costs while being able to provide hill availability?
    1. **6 Reserved instances (heavy utilization). 6 Reserved instances (medium utilization), rest covered by On-Demand instances**
    2. 6 Reserved instances (heavy utilization). 6 On-Demand instances, rest covered by Spot Instances (don’t go for spot as availability not guaranteed)
    3. 6 Reserved instances (heavy utilization) 6 Spot instances, rest covered by On-Demand instances (don’t go for spot as availability not guaranteed)
    4. 6 Reserved instances (heavy utilization) 6 Reserved instances (medium utilization) rest covered by Spot instances (don’t go for spot as availability not guaranteed)
32. A user is running one instance for only 3 hours every day. The user wants to save some cost with the instance. Which of the below mentioned Reserved Instance categories is advised in this case?
    1. **The user should not use RI; instead only go with the on-demand pricing**(seems question before the introduction of the Scheduled Reserved instances in Jan 2016, which can be used in this case)
    2. The user should use the AWS high utilized RI
    3. The user should use the AWS medium utilized RI
    4. The user should use the AWS low utilized RI
33. Which of the following are characteristics of a reserved instance? Choose 3 answers (but 4 answers seem correct)
    1. **It can be migrated across Availability Zones** (can be modified)
    2. It is specific to an Amazon Machine Image (AMI) (specific to platform)
    3. **It can be applied to instances launched by Auto Scaling**(are allowed)
    4. It is specific to an instance Type (specific to instance family but instance type can be changed)
    5. **It can be used to lower Total Cost of Ownership (TCO) of a system**(helps to reduce cost)
34. You have a distributed application that periodically processes large volumes of data across multiple Amazon EC2 Instances. The application is designed to recover gracefully from Amazon EC2 instance failures. You are required to accomplish this task in the most cost-effective way. Which of the following will meet your requirements?
    1. **Spot Instances**
    2. Reserved instances
    3. Dedicated instances
    4. On-Demand instances
35. Can I move a Reserved Instance from one Region to another?
    1. **No**
    2. Only if they are moving into GovCloud
    3. Yes
    4. Only if they are moving to US East from another region
36. An application you maintain consists of multiple EC2 instances in a default tenancy VPC. This application has undergone an internal audit and has been determined to require dedicated hardware for one instance. Your compliance team has given you a week to move this instance to single-tenant hardware. Which process will have minimal impact on your application while complying with this requirement?
    1. Create a new VPC with tenancy=dedicated and migrate to the new VPC (possible but impact not minimal)
    2. Use ec2-reboot-instances command line and set the parameter “dedicated=true”
    3. Right click on the instance, select properties and check the box for dedicated tenancy
    4. **Stop the instance, create an AMI, launch a new instance with tenancy=dedicated, and terminate the old instance**
37. Your department creates regular analytics reports from your company’s log files. All log data is collected in Amazon S3 and processed by daily Amazon Elastic Map Reduce (EMR) jobs that generate daily PDF reports and aggregated tables in CSV format for an Amazon Redshift data warehouse. Your CFO requests that you optimize the cost structure for this system. Which of the following alternatives will lower costs without compromising average performance of the system or data integrity for the raw data? **[PROFESSIONAL]**
    1. Use reduced redundancy storage (RRS) for PDF and CSV data in Amazon S3. Add Spot instances to Amazon EMR jobs. Use Reserved Instances for Amazon Redshift. (Spot instances impacts performance)
    2. **Use reduced redundancy storage (RRS) for all data in S3. Use a combination of Spot instances and Reserved Instances for Amazon EMR jobs. Use Reserved instances for Amazon Redshift**(Combination of the Spot and reserved with guarantee performance and help reduce cost. Also, RRS would reduce cost and guarantee data integrity, which is different from data durability )
    3. Use reduced redundancy storage (RRS) for all data in Amazon S3. Add Spot Instances to Amazon EMR jobs. Use Reserved Instances for Amazon Redshift (Spot instances impacts performance)
    4. Use reduced redundancy storage (RRS) for PDF and CSV data in S3. Add Spot Instances to EMR jobs. Use Spot Instances for Amazon Redshift. (Spot instances impacts performance)
38. A research scientist is planning for the one-time launch of an Elastic MapReduce cluster and is encouraged by her manager to minimize the costs. The cluster is designed to ingest 200TB of genomics data with a total of 100 Amazon EC2 instances and is expected to run for around four hours. The resulting data set must be stored temporarily until archived into an Amazon RDS Oracle instance. Which option will help save the most money while meeting requirements? **[PROFESSIONAL]**
    1. **Store ingest and output files in Amazon S3. Deploy on-demand for the master and core nodes and spot for the task nodes.**
    2. Optimize by deploying a combination of on-demand, RI and spot-pricing models for the master, core and task nodes. Store ingest and output files in Amazon S3 with a lifecycle policy that archives them to Amazon Glacier. (Reserved Instance not cost effective for 4 hour job and data not needed in S3 once moved to RDS)
    3. Store the ingest files in Amazon S3 RRS and store the output files in S3. Deploy Reserved Instances for the master and core nodes and on-demand for the task nodes. (Reserved Instance not cost effective)
    4. Deploy on-demand master, core and task nodes and store ingest and output files in Amazon S3 RRS (RRS provides not much cost benefits for a 4 hour job while the amount of input data would take time to upload and Output data to reproduce)
39. A company currently has a highly available web application running in production. The application’s web front-end utilizes an Elastic Load Balancer and Auto scaling across 3 availability zones. During peak load, your web servers operate at 90% utilization and leverage a combination of heavy utilization reserved instances for steady state load and on-demand and spot instances for peak load. You are asked with designing a cost effective architecture to allow the application to recover quickly in the event that an availability zone is unavailable during peak load. Which option provides the most cost effective high availability architectural design for this application? **[PROFESSIONAL]**
    1. **Increase auto scaling capacity and scaling thresholds to allow the web-front to cost-effectively scale across all availability zones to lower aggregate utilization levels that will allow an availability zone to fail during peak load without affecting the applications availability.**(Ideal for HA to reduce and distribute load)
    2. Continue to run your web front-end at 90% utilization, but purchase an appropriate number of utilization RIs in each availability zone to cover the loss of any of the other availability zones during peak load. (90% is not recommended as well RIs would increase the cost)
    3. Continue to run your web front-end at 90% utilization, but leverage a high bid price strategy to cover the loss of any of the other availability zones during peak load. (90% is not recommended as high bid price would not guarantee instances and would increase cost)
    4. Increase use of spot instances to cost effectively to scale the web front-end across all availability zones to lower aggregate utilization levels that will allow an availability zone to fail during peak load without affecting the applications availability. (Availability cannot be guaranteed)
40. You run accounting software in the AWS cloud. This software needs to be online continuously during the day every day of the week, and has a very static requirement for compute resources. You also have other, unrelated batch jobs that need to run once per day at any time of your choosing. How should you minimize cost? **[PROFESSIONAL]**
    1. **Purchase a Heavy Utilization Reserved Instance to run the accounting software. Turn it off after hours. Run the batch jobs with the same instance class, so the Reserved Instance credits are also applied to the batch jobs.**(Because the instance will always be online during the day, in a predictable manner, and there are sequences of batch jobs to perform at any time, we should run the batch jobs when the account software is off. We can achieve Heavy Utilization by alternating these times, so we should purchase the reservation as such, as this represents the lowest cost. There is no such thing a “Full” level utilization purchases on EC2.)
    2. Purchase a Medium Utilization Reserved Instance to run the accounting software. Turn it off after hours. Run the batch jobs with the same instance class, so the Reserved Instance credits are also applied to the batch jobs.
    3. Purchase a Light Utilization Reserved Instance to run the accounting software. Turn it off after hours. Run the batch jobs with the same instance class, so the Reserved Instance credits are also applied to the batch jobs.
    4. Purchase a Full Utilization Reserved Instance to run the accounting software. Turn it off after hours. Run the batch jobs with the same instance class, so the Reserved Instance credits are also applied to the batch jobs.
41. What does Amazon EC2 provide?
    1. **Virtual servers in the Cloud**
    2. A platform to run code (Java, PHP, Python), paying on an hourly basis.
    3. Computer Clusters in the Cloud.
    4. Physical servers, remotely managed by the customer.
42. A user has enabled termination protection on an EC2 instance. The user has also set Instance initiated shutdown behavior to terminate. When the user shuts down the instance from the OS, what will happen?
    1. The OS will shutdown but the instance will not be terminated due to protection
    2. **It will terminate the instance**
    3. It will not allow the user to shutdown the instance from the OS
    4. It is not possible to set the termination protection when an Instance initiated shutdown is set to Terminate
43. A user has launched an EC2 instance and deployed a production application in it. The user wants to prohibit any mistakes from the production team to avoid accidental termination. How can the user achieve this?
    1. **The user can the set DisableApiTermination attribute to avoid accidental termination**
    2. It is not possible to avoid accidental termination
    3. The user can set the Deletion termination flag to avoid accidental termination
    4. The user can set the InstanceInitiatedShutdownBehavior flag to avoid accidental termination
44. You have been doing a lot of testing of your VPC Network by deliberately failing EC2 instances to test whether instances are failing over properly. Your customer who will be paying the AWS bill for all this asks you if he being charged for all these instances. You try to explain to him how the billing works on EC2 instances to the best of your knowledge. What would be an appropriate response to give to the customer in regards to this?
    1. Billing commences when Amazon EC2 AMI instance is completely up and billing ends as soon as the instance starts to shutdown.
    2. **Billing commences when Amazon EC2 initiates the boot sequence of an AMI instance and billing ends when the instance shuts down.**
    3. Billing only commences only after 1 hour of uptime and billing ends when the instance terminates.
    4. Billing commences when Amazon EC2 initiates the boot sequence of an AMI instance and billing ends as soon as the instance starts to shutdown.
45. When you view the block device mapping for your instance, you can see only the EBS volumes, not the instance store volumes.
    1. Depends on the instance type
    2. FALSE
    3. Depends on whether you use API call
    4. **TRUE**
46. Amazon EC2 provides a repository of public data sets that can be seamlessly integrated into AWS cloud-based applications. What is the monthly charge for using the public data sets?
    1. A 1 time charge of 10$ for all the datasets.
    2. 1$ per dataset per month
    3. 10$ per month for all the datasets
    4. **There is no charge for using the public data sets**
47. How many types of block devices does Amazon EC2 support?
    1. **2**
    2. 4
    3. 3
    4. 1
48. Please select the most correct answer regarding the persistence of the Amazon Instance Store
    1. **The data on an instance store volume persists only during the life of the associated Amazon EC2 instance**
    2. The data on an instance store volume is lost when the security group rule of the associated instance is changed.
    3. The data on an instance store volume persists even after associated Amazon EC2 instance is deleted
49. A user has launched an EC2 instance from an instance store backed AMI. The user has attached an additional instance store volume to the instance. The user wants to create an AMI from the running instance. Will the AMI have the additional instance store volume data?
    1. **Yes, the block device mapping will have information about the additional instance store volume**
    2. No, since the instance store backed AMI can have only the root volume bundled
    3. It is not possible to attach an additional instance store volume to the existing instance store backed AMI instance
    4. No, since this is ephemeral storage it will not be a part of the AMI
50. When an EC2 instance that is backed by an S3-based AMI Is terminated, what happens to the data on the root volume?
    1. Data is automatically saved as an EBS volume.
    2. Data is automatically saved as an EBS snapshot.
    3. **Data is automatically deleted**
    4. Data is unavailable until the instance is restarted.
51. A user has launched an EC2 instance from an instance store backed AMI. If the user restarts the instance, what will happen to the ephemeral storage data?
    1. All the data will be erased but the ephemeral storage will stay connected
    2. All data will be erased and the ephemeral storage is released
    3. It is not possible to restart an instance launched from an instance store backed AMI
    4. **The data is preserved**
52. When an EC2 EBS-backed instance is stopped, what happens to the data on any ephemeral store volumes?
    1. **Data will be deleted and will no longer be accessible**
    2. Data is automatically saved in an EBS volume.
    3. Data is automatically saved as an EBS snapshot
    4. Data is unavailable until the instance is restarted
53. A user has launched an EC2 Windows instance from an instance store backed AMI. The user has also set the Instance initiated shutdown behavior to stop. What will happen when the user shuts down the OS?
    1. It will not allow the user to shutdown the OS when the shutdown behavior is set to Stop
    2. **It is not possible to set the termination behavior to Stop for an Instance store backed AMI instance**
    3. The instance will stay running but the OS will be shutdown
    4. The instance will be terminated
54. Which of the following will occur when an EC2 instance in a VPC (Virtual Private Cloud) with an associated Elastic IP is stopped and started? (Choose 2 answers)
    1. The Elastic IP will be dissociated from the instance
    2. **All data on instance-store devices will be lost**
    3. All data on EBS (Elastic Block Store) devices will be lost
    4. The ENI (Elastic Network Interface) is detached
    5. **The underlying host for the instance is changed**