Create Backstory (AWS structure)

- Explanation of regions/zones/etc.

- Pricing structure (On-Demand, Reserved, Spot)

* How Spot pricing work

- Talk about New methods of termination – Stop, Hibernate in lieu of full termination.

- How it can be utilized ~ Yejur

Amazon EC2 resources are hosted in multiple locations worldwide. The resources are separated by geographic regions and within each regions further subdivided into isolated locations known as Region and Availability Zones respectively. The instances are selected using Amazon Machine Image available (AMI) in the zone which is highly scalable and portable.

For ease of use, instances are named after their region and availability zone, each capable of using distributed resources and other AWS features and platforms. Amazon’s state-of-the-art datacenter hosts these resources, therefore allowing us to scale our work to myriad possibilities. However, these resources are billed on the basis of use. The Pricing Structure is very interesting and is also debatable.

There are three main component of Pricing in reserving AWS EC2 instances. Firstly, subscription based pricing, i.e. highest price you pay with guaranteed service know as On-Demand Pricing. As called by AWS, this is their “Pay less by using more” model, where instances are discounted in terms of volumes and usage. Secondly, another subscription based pricing i.e. “Pay the price upfront” to get service in discounted price known as Reserved Instance Prices, where user select certain service with upfront charge and use selected service for paid term. This claims to save 32-43% of cost saving that regular On-Demand Pricing. These plans come with 3 options where no upfront, partial upfront or all upfront money is paid to reserve instances. Lastly, the third pricing model i.e. “Pay for the resources when underutilized” known as Spot Prices.These Spot Prices are offered when resources are underutilized and can be terminated with 2 minutes warning. It is highly discounted unto 90% compared to on-demand pricing.

Amazon sets prices for EC2 by analyzing supply and demand curve to enable discounted pricing for regions that are underutilized at given amount of time. The users can select the spot instances by simply following Spot Instance Advisor available in AWS platform (<https://aws.amazon.com/ec2/spot/instance-advisor/>) or use their best judgement to reserve instance by bidding a value. These are run for predefined duration in hourly increment for unto six hours with 30-50% discounted price off on-demand price.

The lifecycle of instances are also stages in various type. There are several modes such as Start, Stop, Hibernate, Reboot, Retire, Terminate, and Recover. When we start instance, it is tagged with instance id which is then mapped with selected resources in EBS root volume. It can be stopped at users will and can be restarted at time of need. Hibernation saves instance in RAM and can be reloaded. It is not available in Windows instance volume. Reboot instance is same as rebooting physical machine, retains all DNS name. Retire service is scheduled when irreparable failure or service end date is reached. Terminate service is equivalent as shutting down physical machine. Recover service is also available with CloudWatch alarm which monitors for hardware failures. This usually requires Amazon’s involvement as it may include problems like network connectivity, system power, software issues, and hardware issues. Terminated instances cannot be recovered.



References:

<https://aws.amazon.com/ec2/spot/pricing/>

<https://aws.amazon.com/ec2/spot/instance-advisor/>

https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/terminating-instances.html