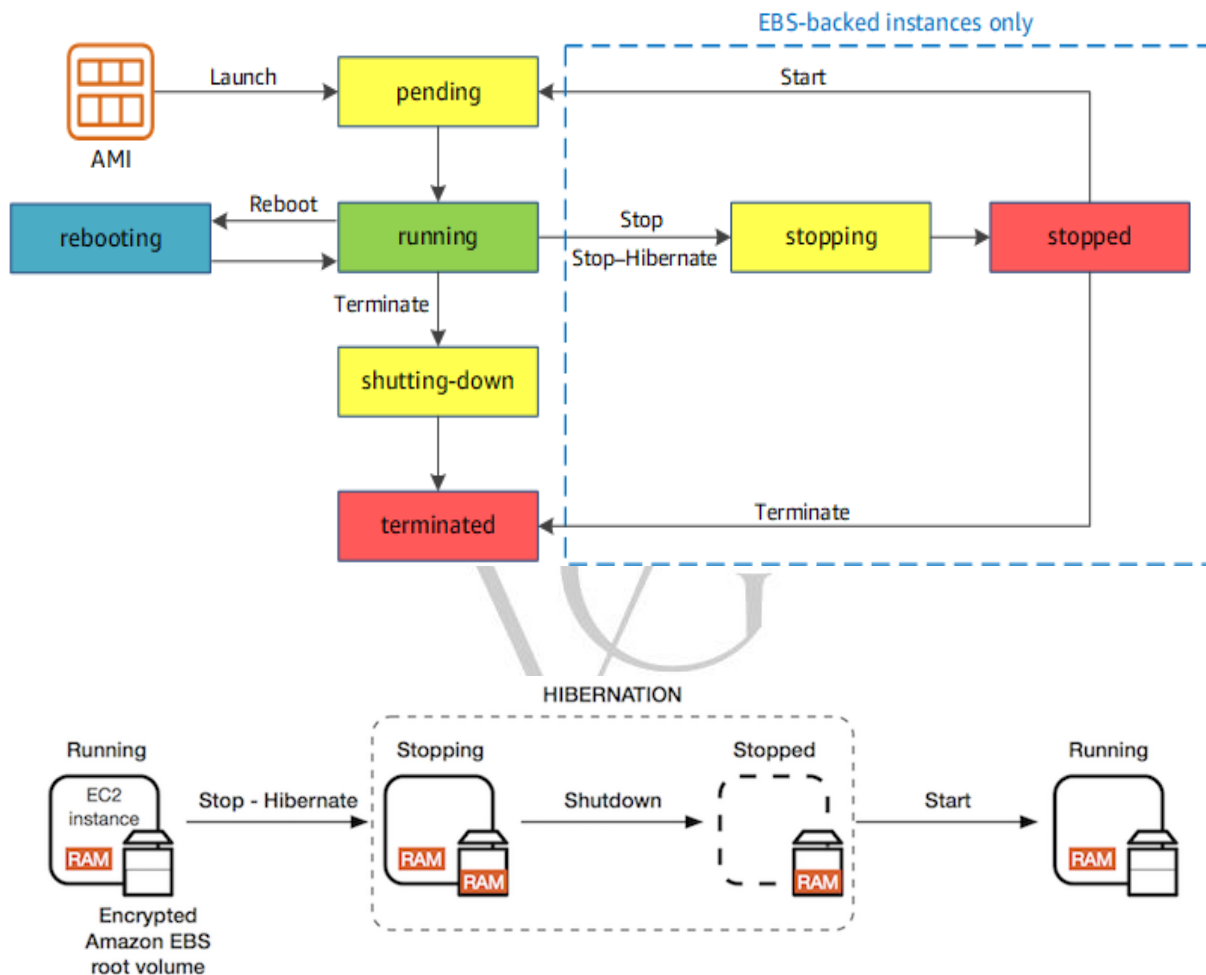# EC2 INSTANCE STATE

➢ Once the instance comes to running state it receives a private DNS Hostname and Possibly DNS hostname (depends on whether it is configured to receive public IP address)
➢ You can stop, star, reboot, terminate your instance

➢ If you reboot an EC2 instance, it is considered as running and does not add additional hour for you bill (not applicable for per second billing, which is minimum 60 second billing)
➢ Stopping and starting ADD an hour to your billing
➢ When you stop an instance, AWS shuts it down.
➢ Instance store backed instance cannot be stopped, they can only be rebooted and terminated.
➢ EBS backed instance can be stopped, no charges for stopped EC2 instances (but EBS volume incur charges)
➢ When you stop EBS backed instance any data in instance store volume is lost.
➢ WhenEC2 is restarted (means started), it will do on another physical host (likely)
➢ EC2 instance retains is private IPV4 ADD and IPV6 ADD but EC2 instances releases its IPV4 Public IP back to AWS Pool.
➢ EC2 instance retain its Elastic IP Address (it incurs charges even if it's not in used like EBS)

❖ **EC2 – Reboot Best Practices**

➢ Use EC2 reboot and not the instance and not the instance OS reboot.
➢ AWS when initiated a reboot, wait for 4min if instance did not reboot, will force hard reboot.
➢ Aws reboot created an AWS CloudTrail log which is useful for troubleshooting & audit purpose.

❖ **EC2 – Instance Termination**

➢ By default, EBS root device volumes (created by default when instance created) are deleted automatically when the EC2 instance is terminated.
➢ Any additional EBS volume (noon root/boot) volumes attached to the instance persists even after EC2 instance is terminated.
➢ You can modify this behavior of any EBS volume during instance launch or later by modifying the "Delete on Termination" attribute.
➢ You can view EBS root volume "Delete on Termination" behavior from "Block Device Mapping"
➢ This is a feature which you can enable so that EC2 is protected against accidental termination.
➢ CloudWatch cannot terminate EC2 instance with termination protection enabled.
➢ If you want to terminate an instance that has termination protection ON, you can do by choosing OS Shutdown and configure AWS to treat OS Shutdown as instance termination.
➢ EC2 Termination protection can configured at launch, while running or stopped (if EBS Backed volume)

Characteristic	Reboot	Stop/start (Amazon EBS-backed instances only)	Hibernate (Amazon EBS-backed instances only)	Terminate
Host computer	The instance stays on the same host computer	In most cases, we move the instance to a new host computer. Your instance may stay on the same host computer if there are no problems with the host computer.	In most cases, we move the instance to a new host computer. Your instance may stay on the same host computer if there are no problems with the host computer.	None
Private and public IPv4 addresses	These addresses stay the same	The instance keeps its private IPv4 address. The instance gets a new public IPv4 address, unless it has an Elastic IP address, which doesn't change during a stop/start.	The instance keeps its private IPv4 address. The instance gets a new public IPv4 address, unless it has an Elastic IP address, which doesn't change during a stop/start.	None
Elastic IP addresses (IPv4)	The Elastic IP address remains associated with the instance	The Elastic IP address remains associated with the instance	The Elastic IP address remains associated with the instance	The Elastic IP address is disassociated from the instance
IPv6 address	The address stays the same	The instance keeps its IPv6 address	The instance keeps its IPv6 address	None
Instance store volumes	The data is preserved	The data is erased	The data is erased	The data is erased
Root device volume	The volume is preserved	The volume is preserved	The volume is preserved	The volume is deleted by default
RAM (contents of memory)	The RAM is erased	The RAM is erased	The RAM is saved to a file on the root volume	The RAM is erased
Billing	The instance billing hour doesn't change.	You stop incurring charges for an instance as soon as its state changes to `stopping`. Each time an instance transitions from `stopped` to `running`, we start a new instance billing period, billing a minimum of one minute every time you start your instance.	You incur charges while the instance is in the `stopping` state, but stop incurring charges when the instance is in the `stopped` state. Each time an instance transitions from `stopped` to `running`, we start a new instance billing period, billing a minimum of one minute every time you start your instance.	You stop incurring charges for an instance as soon as its state changes to `shutting-down`.