Amazon Machine Images (AMI)
&
Packer

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What is Amazon Machine Images (AMI)?

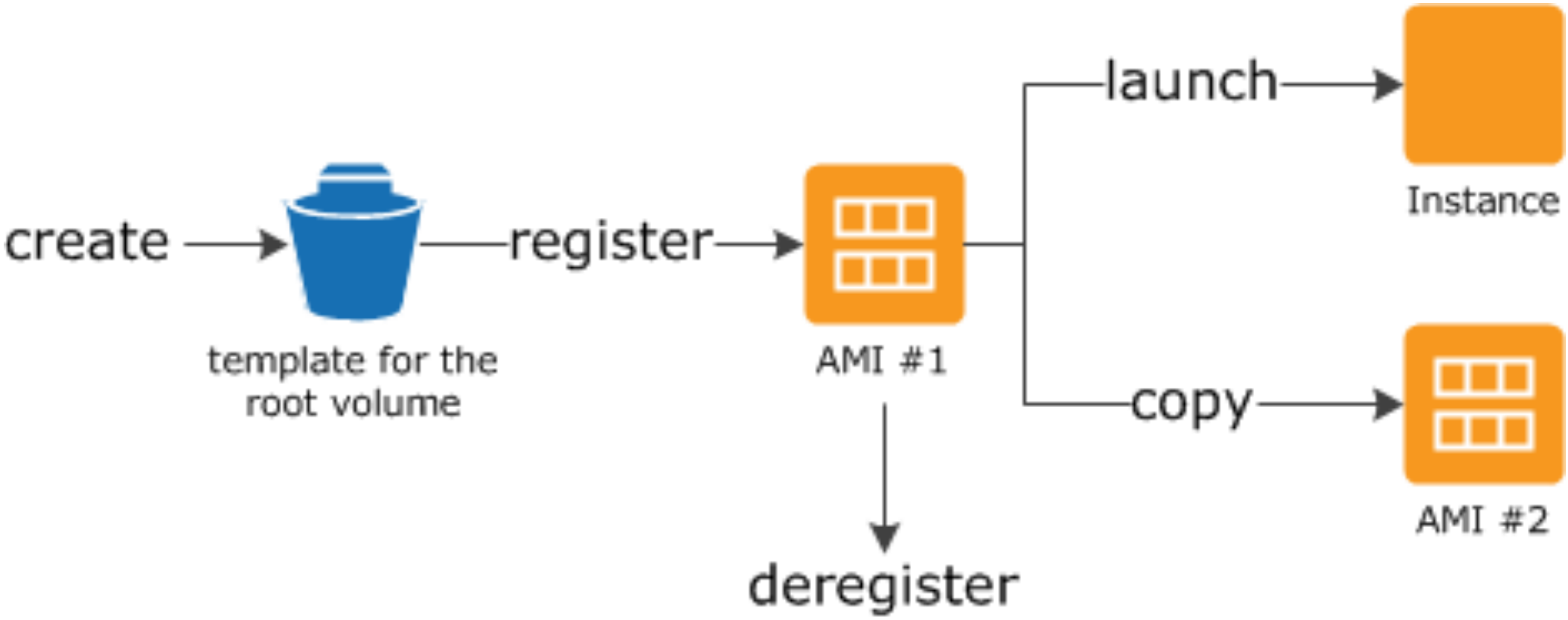
- An Amazon Machine Image (AMI) provides the information required to launch an EC2 instance.
- You must specify a source AMI when you launch an instance.
- You can launch multiple instances from a single AMI when you need multiple instances with the same configuration.
- You can use different AMIs to launch instances when you need instances with different configurations.

What’s in a AMI?

An AMI includes the following:

- A template for the root volume for the instance (for example, an operating system, an application server, and applications).
- Launch permissions that control which AWS accounts can use the AMI to launch instances.
- A block device mapping that specifies the volumes to attach to the instance when it's launched.

AMI Lifecycle



Creating Your Own AMI

- You can launch an instance from an existing AMI, customize the instance, and then save this updated configuration as a custom AMI.
- Instances launched from this new custom AMI include the customizations that you made when you created the AMI.

HashiCorp Packer

- Packer is an open-source tool for creating identical machine images for multiple platforms from a single source configuration.

AMI Use Cases

- **Golden Images** – Secure, immutable OS images are needed especially in Enterprise world where compliance issues matters.
- **Environment Parity** – Keep all dev/test/prod environment as similar as possible.
- **Auto-scaling Acceleration** – Launch completely provisioned and configured instances in seconds, rather than minutes or even hours.

Installing Packer

- https://www.packer.io/intro/getting-started/install.html
- Packer may be installed in the following ways:
  - Using a precompiled binary; We release binaries for all supported platforms and architectures. This method is recommended for most users.
  - Installing from source This method is only recommended for advanced users.
  - An unofficial alternative installation method

Build an Image – The Template

- The configuration file used to define what image we want built and how is called a *template* in Packer terminology.
- Packer uses the HashiCorp Configuration Language - **HCL** - designed to allow concise descriptions of the required steps to get to a build file.

Packer Docs

- https://www.packer.io/docs/templates
  - https://www.packer.io/docs/templates/hcl_templates
    - https://www.packer.io/docs/templates/hcl_templates/blocks
    - https://www.packer.io/docs/templates/hcl_templates/functions
- https://www.packer.io/plugins
  - https://www.packer.io/plugins/builders/amazon/ebs
- https://www.packer.io/docs/provisioners
  - https://www.packer.io/docs/provisioners/shell

Additional Resources

See Lecture Page