



Launching EC2 Instance on AWS & Configuring Web Server

Rashmi Kansakar

Launching EC2 Instance

➤ Creating AWS account

<https://aws.amazon.com/>

➤ Launching EC2 instance

https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/EC2_GetStarted.html

- Using Linux Image
- Using Amazon Image

- ▶ Choosing an AMI
- ▶ Choosing an instance type
- ▶ Configuring instance
- ▶ Adding storage
- ▶ Adding tags
- ▶ Configuring security groups
- ▶ Review

Download Key Pair for Apple MAC



Create key pair



Key pairs allow you to connect to your instance securely.

Enter the name of the key pair below. When prompted, store the private key in a secure and accessible location on your computer. **You will need it later to connect to your instance.** [Learn more](#)

Key pair name

Key4MAC

The name can include up to 255 ASCII characters. It can't include leading or trailing spaces.

Key pair type

RSA

RSA encrypted private and public key pair

ED25519

ED25519 encrypted private and public key pair (Not supported for Windows instances)

Private key file format

.pem

For use with OpenSSH

.ppk

For use with PuTTY

Cancel

Create key pair

Connect to instance

Connect to your instance i-029e714ed1ffd01af (EConWindows) using any of these options

EC2 Instance Connect

Session Manager

SSH client

EC2 serial console

Instance ID

i-029e714ed1ffd01af (EConWindows)

1. Open an SSH client.
2. Locate your private key file. The key used to launch this instance is ucaws.pem
3. Run this command, if necessary, to ensure your key is not publicly viewable.
`chmod 400 ucaws.pem`
4. Connect to your instance using its Public DNS:
`ec2-3-92-206-123.compute-1.amazonaws.com`

Example:

`ssh -i "ucaws.pem" ubuntu@ec2-3-92-206-123.compute-1.amazonaws.com`

Note: In most cases, the guessed user name is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI user name.

Download Key Pair for Windows

Create key pair X

Key pairs allow you to connect to your instance securely.

Enter the name of the key pair below. When prompted, store the private key in a secure and accessible location on your computer. **You will need it later to connect to your instance.** [Learn more](#)

Key pair name Key4Windows

The name can include up to 255 ASCII characters. It can't include leading or trailing spaces.

Key pair type RSA

RSA RSA encrypted private and public key pair

ED25519 ED25519 encrypted private and public key pair (Not supported for Windows instances)

Private key file format .ppk

.pem For use with OpenSSH

.ppk For use with PuTTY

Cancel Create key pair

Connect to instance [Info](#)

Connect to your instance i-029e714ed1ffd01af (EConWindows) using any of these options

[EC2 Instance Connect](#) [Session Manager](#) SSH client [EC2 serial console](#)

Instance ID i-029e714ed1ffd01af (EConWindows)

1. Open an SSH client.
2. Locate your private key file. The key used to launch this instance is ucaws.pem
3. Run this command, if necessary, to ensure your key is not publicly viewable.
chmod 400 ucaws.pem
4. Connect to your instance using its Public DNS:
ec2-3-92-206-123.compute-1.amazonaws.com

Example:

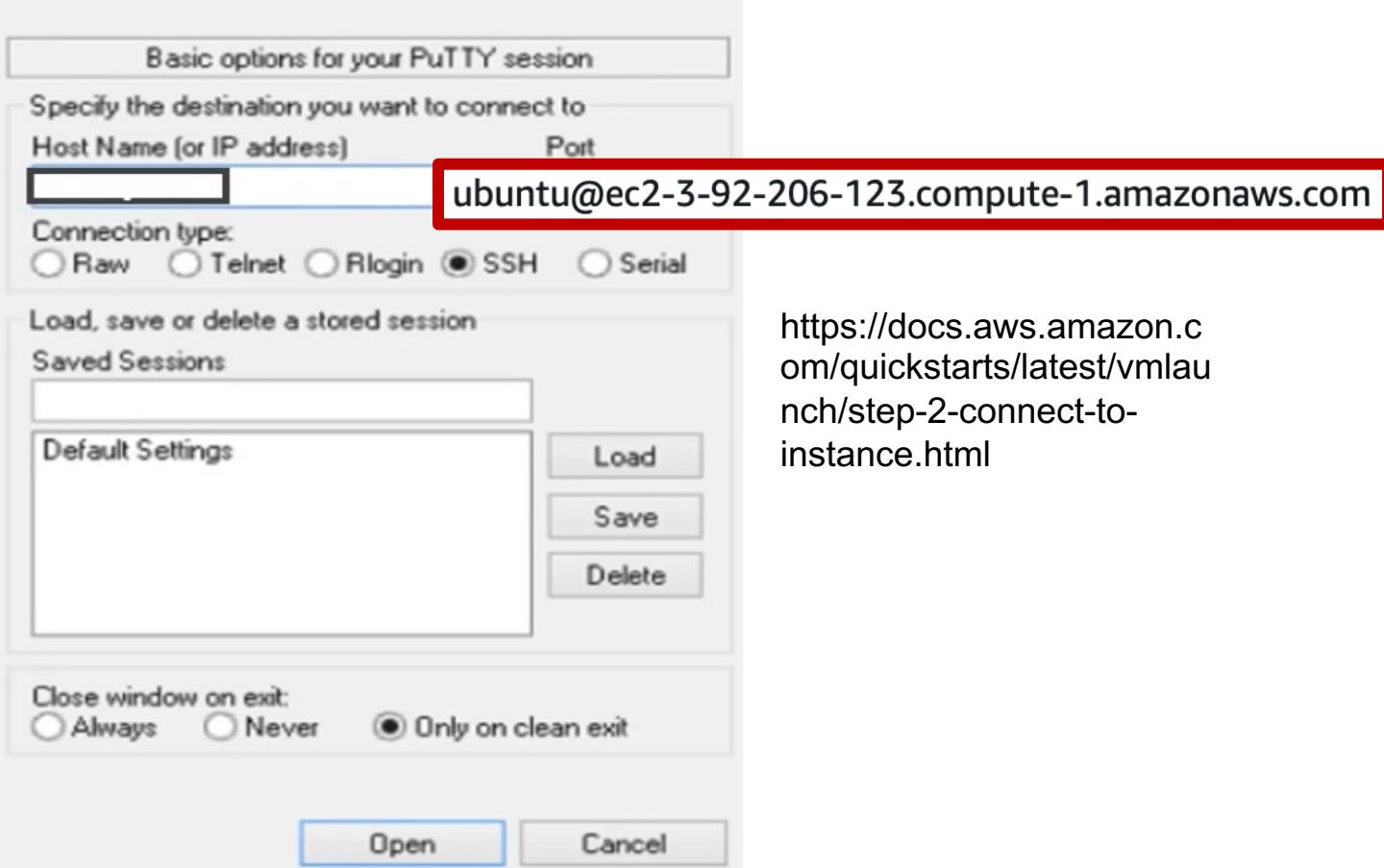
```
ssh -i "ucaws.pem" ubuntu@ec2-3-92-206-123.compute-1.amazonaws.com
```

i Note: In most cases, the guessed user name is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI user name.

Putty connection to AWS EC2

Category:

- [-] Terminal
 - Keyboard
 - Bell
 - Features
- [-] Window
 - Appearance
 - Behaviour
 - Translation
 - Selection
 - Colours
- [-] Connection
 - Data
 - Proxy
 - Telnet
 - Rlogin
 - [-] SSH
 - Kex
 - Auth
 - Trx
 - X11
 - Tunnels
 - Bugs



<https://docs.aws.amazon.com/quickstarts/latest/vmlaunch/step-2-connect-to-instance.html>

Category:

- Terminal
 - Keyboard
 - Bell
 - Features
- Window
 - Appearance
 - Behaviour
 - Translation
 - Selection
 - Colours
- Connection
 - Data
 - Proxy
 - Telnet
 - Rlogin
- SSH
 - Kex
 - AUTH**
 - Tty
 - X11
 - Tunnels
 - Bugs

AUTH is highlighted with a blue selection box and a cursor arrow pointing to it.

▼

Options controlling SSH authentication

Bypass authentication entirely (SSH-2 only)

Authentication methods

Attempt authentication using Pageant

Attempt TIS or CryptoCard auth (SSH-1)

Attempt "keyboard-interactive" auth (SSH-2)

Authentication parameters

Allow agent forwarding

Allow attempted changes of username in SSH-2

Private key file for authentication:

C:\Users\rashmi\Key4Windows.pkk

Browse...

Open Cancel

Insert the file path for:
C:\Users\rashmi\Key4Windows.pkk

Configuring Web Server Using Flask



➤ Web server using Flask

- <https://www.datasciencebytes.com/bytes/2015/02/24/running-a-flask-app-on-aws-ec2/>
- Use Python for writing website

Configuring Apache Web Server

➤ Running LAMP Stack on RedHat

- <https://hostadvice.com/how-to/how-to-install-lamp-stack-on-centos-7/>
- Same steps used for configuration of LAMP Stack on various version of linux

AWS Accounts Include 12 Months of Free Tier Access

Including use of Amazon EC2, Amazon S3, and Amazon DynamoDB

Visit aws.amazon.com/free for full offer terms

Create an AWS account

Email address

Password

Confirm password

AWS account name i

Continue

[Sign in to an existing AWS account](#)

← → C portal.aws.amazon.com/b... Q ☆ R :

aws

English ▾

Contact Information

All fields are required.

Please select the account type and complete the fields below with your contact details.

Account type ⓘ

Professional Personal

Full name

Phone number

Country/Region

Address

Apartment, suite, unit, building, floor, etc.

City

State / Province or region

Postal code

Check here to indicate that you have read and agree to the terms of the [AWS Customer Agreement](#)

← → C portal.aws.amazon.com/b... Q ☆ R :

aws

English ▾

Payment Information

We use your payment information to verify your identity and only for usage in excess of the [AWS Free Tier Limits](#). We will not charge you for usage below the AWS Free Tier Limits. For more information, see the [frequently asked questions](#).

(i) When you submit your payment information, we will charge \$1 USD/EUR to your credit card as a verification charge to ensure your card is valid. The amount may show as pending in your credit card statement for 3-5 days until the verification is completed, at which time the charge will be removed. You may be redirected to your bank website to authorize the verification charge.

Credit/Debit card number

Expiration date

Cardholder's name

Billing address
 Use my contact address
**2810 STRATFORD AVE APT 107
Cincinnati OH 45220
US**

Use a new address

awsrk2 — ubuntu@ip-172-31-42-9: ~ — ssh -i kansakri.pem ubuntu@ec2-3-19-141-72.us-east-2.compute.amazonaws.com — 163x37

```
-r-----@ 1 r188694 8451AD\Domain Users 1692 Jan 10 18:03 kansakri.pem
[(base) CINMAC11673:awsrk2 r188694$ ls -ltr
total 8
-r-----@ 1 r188694 8451AD\Domain Users 1692 Jan 10 18:03 kansakri.pem
[(base) CINMAC11673:awsrk2 r188694$ chmod 400 kansakri.pem
[(base) CINMAC11673:awsrk2 r188694$ ssh -i "kansakri.pem" ubuntu@ec2-18-222-255-139.us-east-2.compute.amazonaws.com
ssh: connect to host ec2-18-222-255-139.us-east-2.compute.amazonaws.com port 22: Operation timed out
[(base) CINMAC11673:awsrk2 r188694$ ssh -i "kansakri.pem" ubuntu@ec2-3-19-141-72.us-east-2.compute.amazonaws.com
The authenticity of host 'ec2-3-19-141-72.us-east-2.compute.amazonaws.com (3.19.141.72)' can't be established.
ECDSA key fingerprint is SHA256:6AxNx3wYLmv01dKnoUaE2u8Cm0q/1Bzhbn9I/GUHcYI.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'ec2-3-19-141-72.us-east-2.compute.amazonaws.com,3.19.141.72' (ECDSA) to the list of known hosts.
Welcome to Ubuntu 14.04.6 LTS (GNU/Linux 3.13.0-170-generic x86_64)

* Documentation: https://help.ubuntu.com/

System information as of Mon Jan 13 15:12:34 UTC 2020

System load: 0.0          Memory usage: 5%    Processes:      81
Usage of /: 10.3% of 7.74GB Swap usage: 0%    Users logged in: 0

Graph this data and manage this system at:
https://landscape.canonical.com/

0 updates can be installed immediately.
0 of these updates are security updates.

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

ubuntu@ip-172-31-42-9:~$
```

awsrk2 — ubuntu@ip-172-31-42-9: ~ — ssh -i kansakri.pem ubuntu@ec2-3-19-141-72.us-east-2.compute.amazonaws.com — 163x55

```
ubuntu@ip-172-31-42-9:~$ sudo apt-get update
Get:1 http://security.ubuntu.com trusty-security InRelease [65.9 kB]
Ign http://us-east-2.ec2.archive.ubuntu.com trusty InRelease
Get:2 http://us-east-2.ec2.archive.ubuntu.com trusty-updates InRelease [65.9 kB]
Hit http://us-east-2.ec2.archive.ubuntu.com trusty-backports InRelease
Hit http://us-east-2.ec2.archive.ubuntu.com trusty Release.gpg
Hit http://us-east-2.ec2.archive.ubuntu.com trusty Release
Get:3 http://us-east-2.ec2.archive.ubuntu.com trusty-updates/main Sources [431 kB]
Get:4 http://us-east-2.ec2.archive.ubuntu.com trusty-updates/restricted Sources [6,313 B]
Get:5 http://us-east-2.ec2.archive.ubuntu.com trusty-updates/universe Sources [231 kB]
Get:6 http://us-east-2.ec2.archive.ubuntu.com trusty-updates/multiverse Sources [7,535 B]
Get:7 http://us-east-2.ec2.archive.ubuntu.com trusty-updates/main amd64 Packages [1,177 kB]
Get:8 http://security.ubuntu.com trusty-security/main Sources [172 kB]
Get:9 http://us-east-2.ec2.archive.ubuntu.com trusty-updates/restricted amd64 Packages [17.2 kB]
Get:10 http://us-east-2.ec2.archive.ubuntu.com trusty-updates/universe amd64 Packages [525 kB]
Get:11 http://us-east-2.ec2.archive.ubuntu.com trusty-updates/multiverse amd64 Packages [14.6 kB]
Get:12 http://us-east-2.ec2.archive.ubuntu.com trusty-updates/main Translation-en [582 kB]
Get:13 http://security.ubuntu.com trusty-security/universe Sources [102 kB]
Get:14 http://us-east-2.ec2.archive.ubuntu.com trusty-updates/multiverse Translation-en [7,616 B]
Get:15 http://security.ubuntu.com trusty-security/main amd64 Packages [835 kB]
Get:16 http://us-east-2.ec2.archive.ubuntu.com trusty-updates/restricted Translation-en [4,028 B]
Get:17 http://us-east-2.ec2.archive.ubuntu.com trusty-updates/universe Translation-en [281 kB]
Get:18 http://us-east-2.ec2.archive.ubuntu.com trusty-backports/main Sources [9,709 B]
Get:19 http://us-east-2.ec2.archive.ubuntu.com trusty-backports/restricted Sources [28 B]
Get:20 http://us-east-2.ec2.archive.ubuntu.com trusty-backports/universe Sources [35.4 kB]
Get:21 http://us-east-2.ec2.archive.ubuntu.com trusty-backports/multiverse Sources [1,896 B]
Hit http://us-east-2.ec2.archive.ubuntu.com trusty-backports/main amd64 Packages
Hit http://us-east-2.ec2.archive.ubuntu.com trusty-backports/restricted amd64 Packages
Hit http://us-east-2.ec2.archive.ubuntu.com trusty-backports/universe amd64 Packages
Hit http://us-east-2.ec2.archive.ubuntu.com trusty-backports/multiverse amd64 Packages
Hit http://us-east-2.ec2.archive.ubuntu.com trusty-backports/main Translation-en
Hit http://us-east-2.ec2.archive.ubuntu.com trusty-backports/multiverse Translation-en
Hit http://us-east-2.ec2.archive.ubuntu.com trusty-backports/restricted Translation-en
Hit http://us-east-2.ec2.archive.ubuntu.com trusty-backports/universe Translation-en
Get:22 http://us-east-2.ec2.archive.ubuntu.com trusty/main Sources [1,064 kB]
Get:23 http://security.ubuntu.com trusty-security/universe amd64 Packages [294 kB]
Get:24 http://us-east-2.ec2.archive.ubuntu.com trusty/restricted Sources [5,433 B]
Get:25 http://security.ubuntu.com trusty-security/main Translation-en [448 kB]
Get:26 http://us-east-2.ec2.archive.ubuntu.com trusty/universe Sources [6,399 kB]
Get:27 http://security.ubuntu.com trusty-security/universe Translation-en [162 kB]
Get:28 http://us-east-2.ec2.archive.ubuntu.com trusty/multiverse Sources [174 kB]
Hit http://us-east-2.ec2.archive.ubuntu.com trusty/main amd64 Packages
Hit http://us-east-2.ec2.archive.ubuntu.com trusty/restricted amd64 Packages
Hit http://us-east-2.ec2.archive.ubuntu.com trusty/universe amd64 Packages
Hit http://us-east-2.ec2.archive.ubuntu.com trusty/multiverse amd64 Packages
Hit http://us-east-2.ec2.archive.ubuntu.com trusty/main Translation-en
Hit http://us-east-2.ec2.archive.ubuntu.com trusty/multiverse Translation-en
Hit http://us-east-2.ec2.archive.ubuntu.com trusty/restricted Translation-en
Hit http://us-east-2.ec2.archive.ubuntu.com trusty/universe Translation-en
Ign http://us-east-2.ec2.archive.ubuntu.com trusty/main Translation-en_US
Ign http://us-east-2.ec2.archive.ubuntu.com trusty/multiverse Translation-en_US
Ign http://us-east-2.ec2.archive.ubuntu.com trusty/restricted Translation-en_US
Ign http://us-east-2.ec2.archive.ubuntu.com trusty/universe Translation-en_US
Fetched 13.1 MB in 5s (2,466 kB/s)
Reading package lists... Done
```

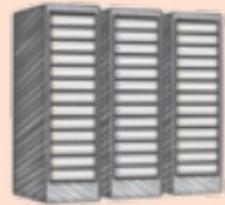
Launching EC2 Instance

- ▶ What is EC2?
- ▶ Use Case – Notifying users about a newsletter using EC2, SNS and S3
 - ▶ Steps to create an EC2 instance
 - ▶ Choosing an AMI
 - ▶ Choosing an instance type
 - ▶ Configuring instance
 - ▶ Adding storage
 - ▶ Adding tags
 - ▶ Configuring security groups
 - ▶ Review
 - ▶ Using SNS to notify users
 - ▶ Linking EC2 and S3

Launching EC2 Instance

- ▶ Choosing an AMI
- ▶ Choosing an instance type
- ▶ Configuring instance
- ▶ Adding storage
- ▶ Adding tags
- ▶ Configuring security groups
- ▶ Review

EC2 Foundations



Resources

Instances
Storage
Networking

Availability

Regions and AZs
Placement Groups
Load Balancing
Auto Scaling

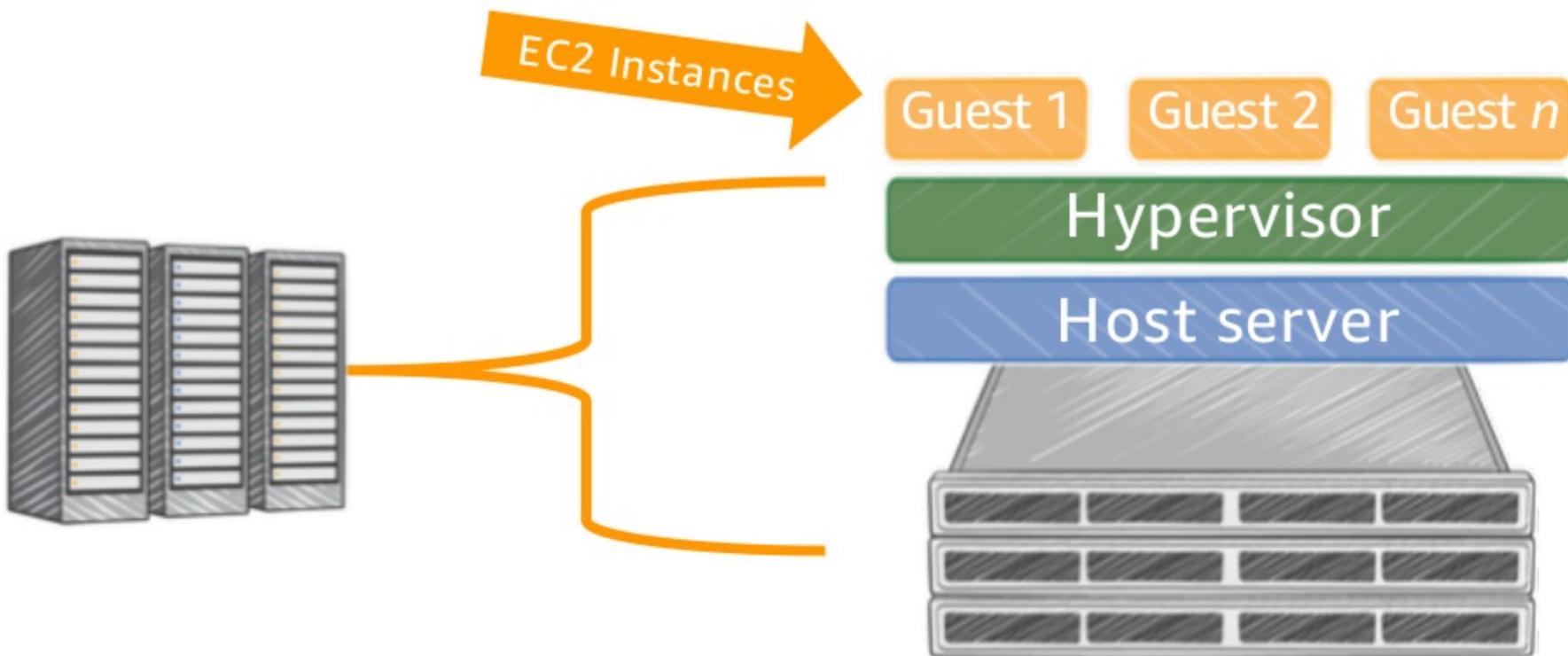
Management

Deployment
Monitoring
Administration

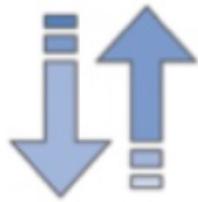
Purchase Options

On Demand
Reserved
Spot

Amazon Elastic Compute Cloud (EC2): Virtual servers in the cloud



Amazon EC2 11+ years ago...



**Scale up or
down quickly,
as needed**

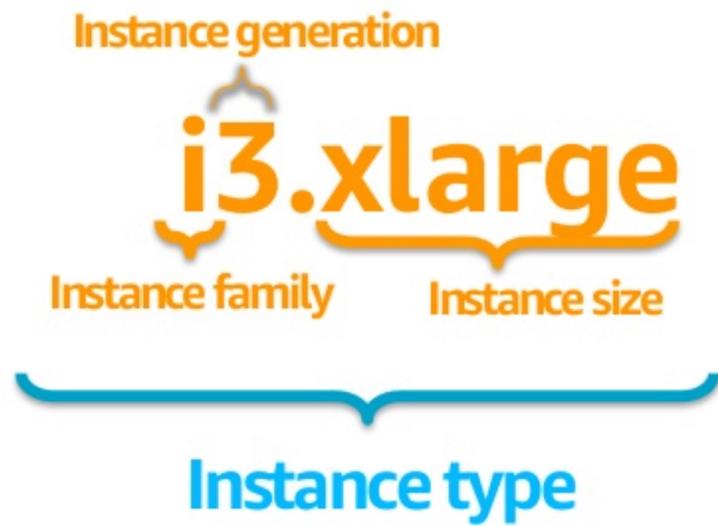
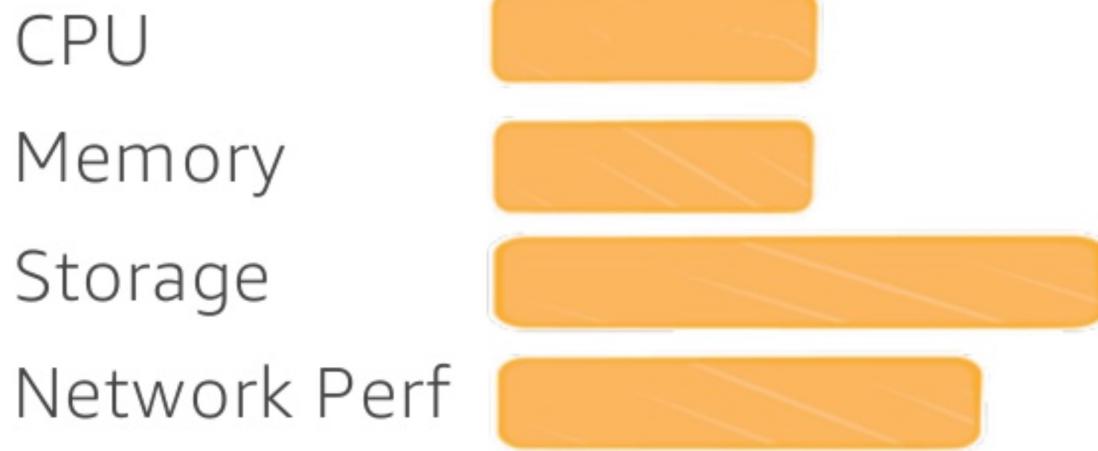


**Pay for what
you use**



“One size fits all”

EC2 instance characteristics



Amazon Machine Images (AMIs)

Amazon maintained

Set of Linux and Windows images
Kept up-to-date by Amazon in each region

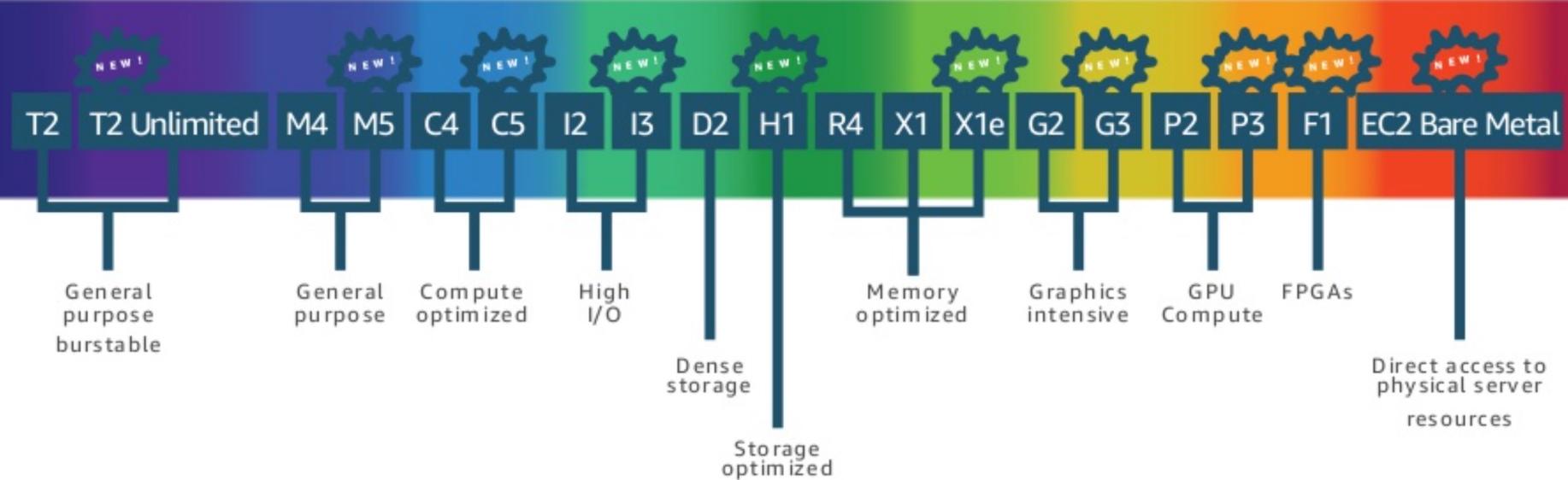
Community maintained

Images published by other AWS users
Managed and maintained by Marketplace partners

Your machine images

AMIs you have created from EC2 instances
Can be kept private or shared with other accounts

EC2 instances



General Purpose instance workloads

Web/app servers



Enterprise apps



Gaming servers



Caching fleets



Analytics applications

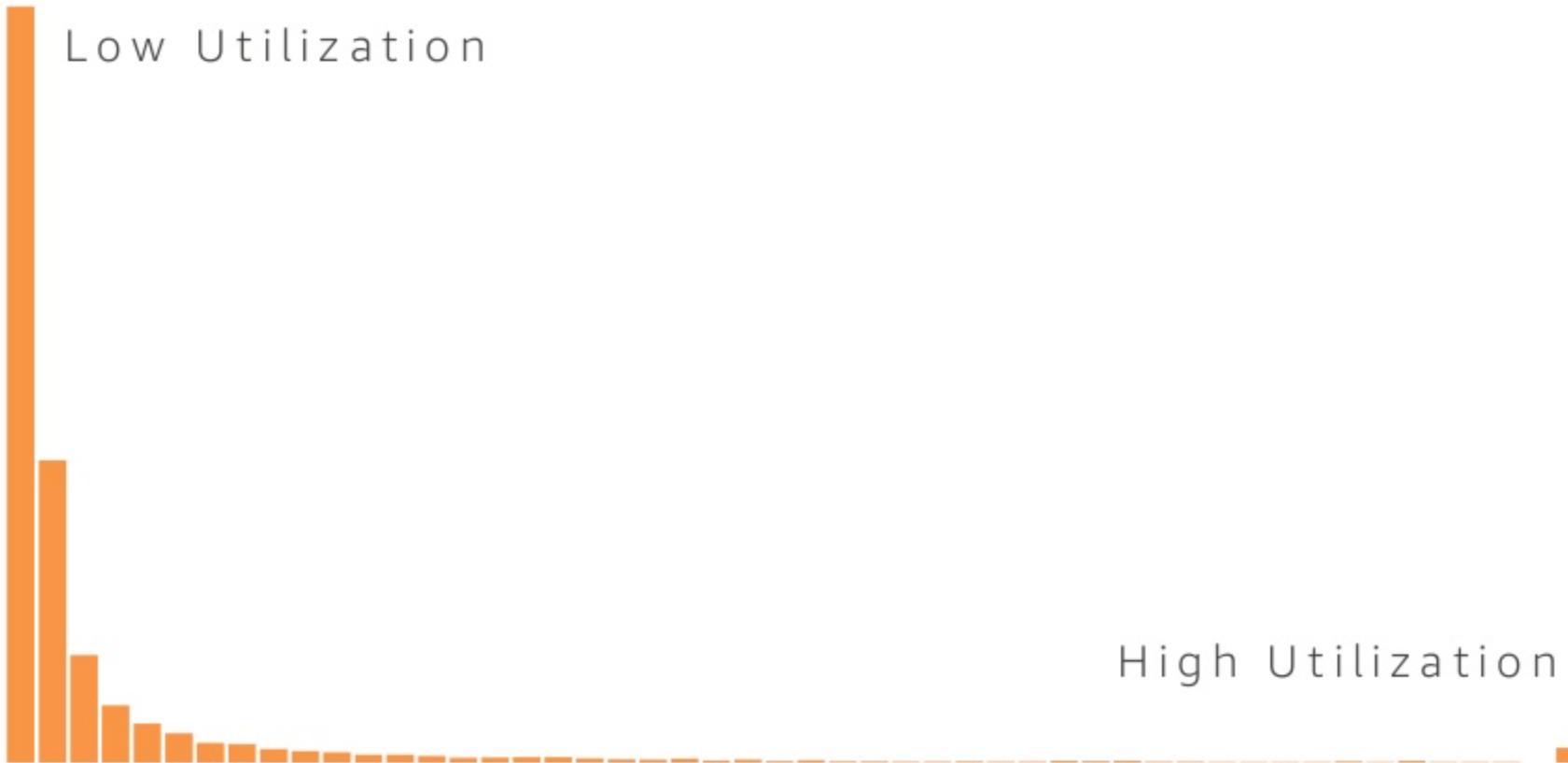


Dev/test environments



Opportunity: Most instances aren't very busy

Low Utilization



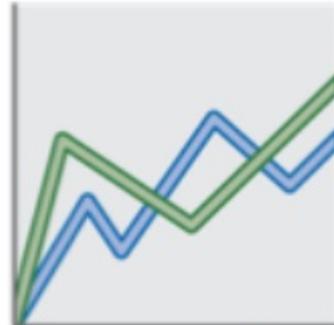
High Utilization

EC2 Purchasing Options

On-Demand

Pay for compute capacity **by the second** with no long-term commitments

Spiky workloads, to define needs

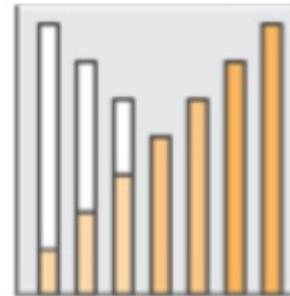


Per Second Billing for EC2 Linux instances & EBS volumes

Reserved

Make a 1- or 3-year commitment and receive a **significant discount** off of On-Demand prices

Committed, steady-state usage



Spot

Spare EC2 capacity at a **savings of up to 90%** off of On-Demand prices

Fault-tolerant, dev/test, time-flexible, stateless workloads



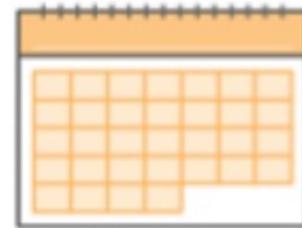
EC2 Reserved Pricing



Discount up to 75% off of the
On-Demand price



Steady state and
committed usage



1- and 3-year terms



Convertible RIs

Change instance family, OS,
tenancy, and payment



Reserve Capacity or opt
for flexibility across AZs
and instance sizes

1-Year Convertible RIs



Payment flexibility with
3 upfront payment options (*all, partial, none*)