

**Course: Artificial Intelligence and Machine Learning    Code: 20CS51I**  
**WEEK- 2 Cloud Computing**

- **Introduction to Containers**
- **Cloud Native application development**
- **Explore AI (ML and DL) services across public cloud platforms**
  - **- Getting to know cloud platform**
  - **- Creating an account**

**Session No. 5**

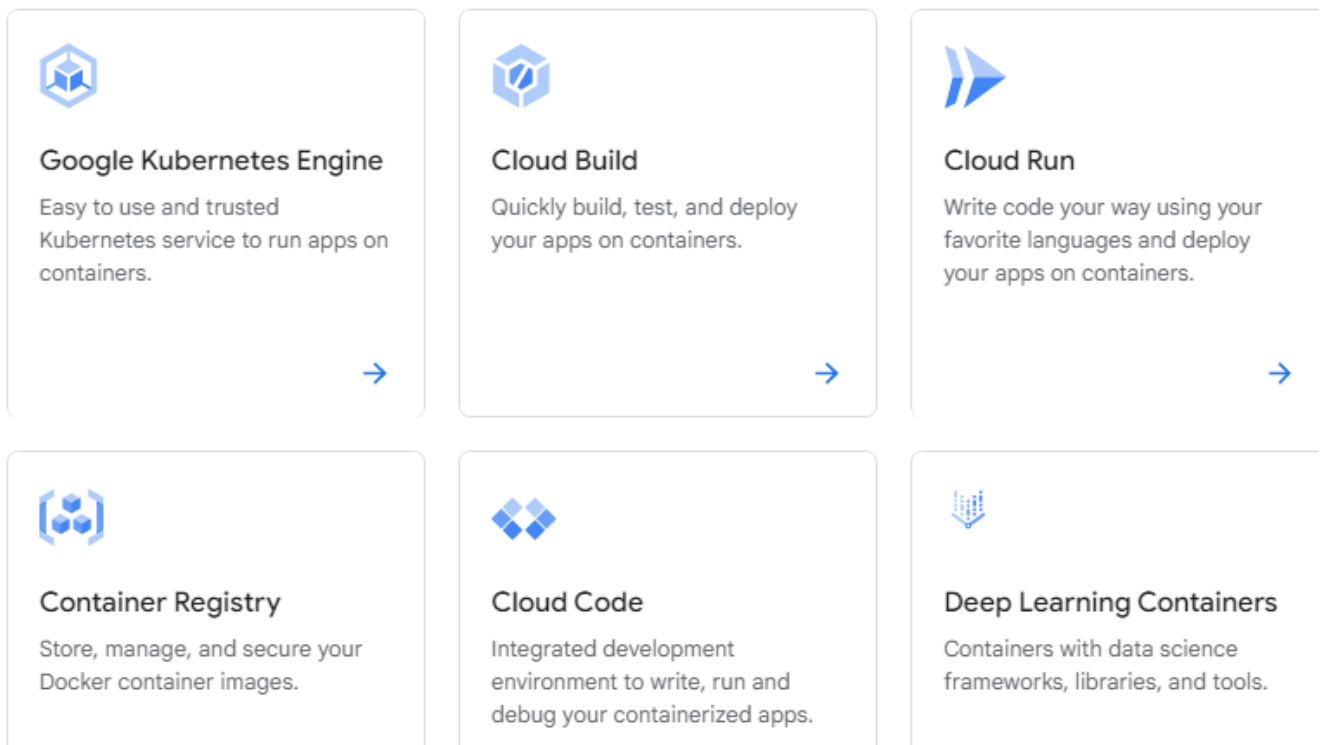
**What are Containers?**

Containers are packages of software that contain all of the necessary elements to run in any environment. In this way, containers virtualize the operating system and run anywhere, from a private data center to the public cloud or even on a developer's personal laptop. From Gmail to YouTube to Search, everything at Google runs in containers. Containerization allows our development teams to move fast, deploy software efficiently, and operate at an unprecedented scale. We've learned a lot about running containerized workloads and we've shared this knowledge with the community along the way.

**What are containers used for?**

Containers are a form of operating system virtualization. A single container might be used to run anything from a small microservice or software process to a larger application. Inside a container are all the necessary executables, binary code, libraries, and configuration files.

Containers offer a logical packaging mechanism in which applications can be abstracted from the environment in which they actually run. This decoupling allows container-based applications to be deployed easily and consistently, regardless of whether the target environment is a private data center, the public cloud, or even a developer's personal laptop.



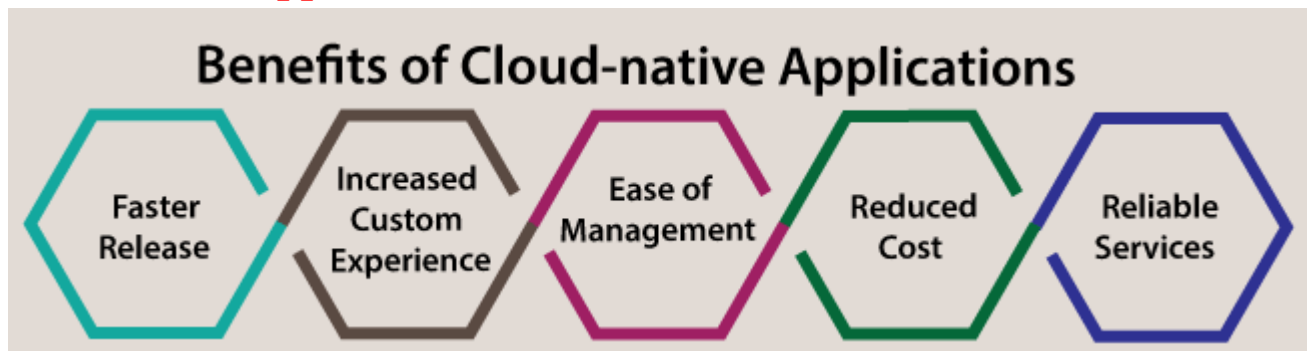
## Cloud-Native Applications

The Cloud-Native applications are a group of independent, small, loosely-coupled services. Cloud-native applications are created for delivering well-identified business value, as an ability to incorporate the feedback of users for extended improvements. In other words, cloud-native applications improvement is a way for speeding-up how we create applications users wish at the pace an enterprise requires.

If an application is Cloud-native, specifically, it's created for facilitating automated management and consistent development experience across hybrid, public, and private clouds. Enterprises use cloud computing for increasing the availability and scalability of applications. These aspects are accomplished through on-demand and self-service provisioning of various resources. It is also automating the lifecycle of an application to production from development.

The development of Cloud-native applications is an approach for quickly updating and building applications while reducing risk and improving quality. More specifically, it is a way to run and build fault-tolerant, scalable, and responsive applications anywhere inside the hybrid, public, and private clouds.

## Cloud-native applications



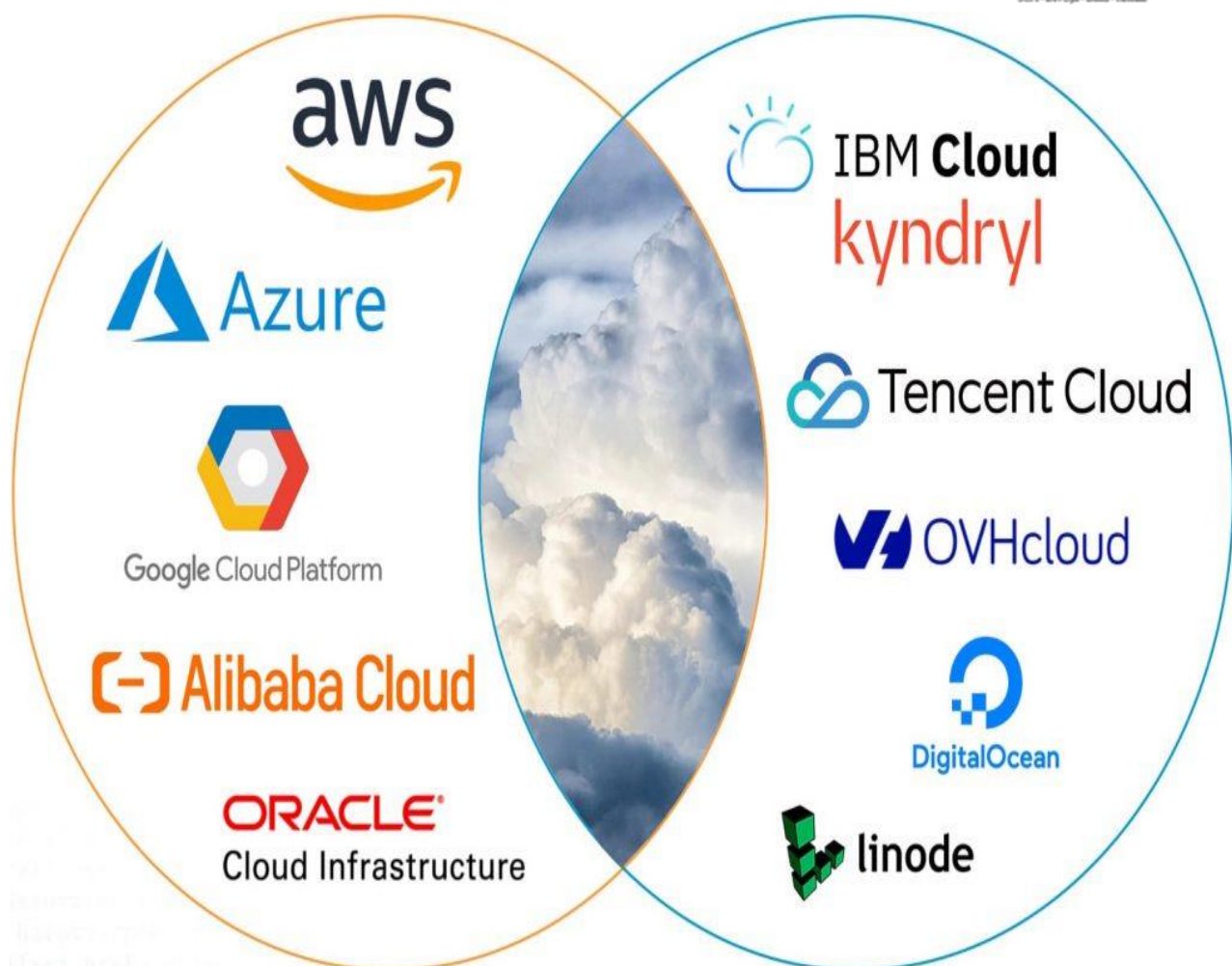
- **Faster release:** Faster deployment displays responsiveness and agility, which are essential to remain connected in today's changing business world rapidly. If we require explaining faster deployment, we require explaining DevOps because it provides collaboration and finds the way for quick delivery. The Cloud-native applications are often the outcome of any successful DevOps as operations, development. Testing groups can efficiently and easily coordinate for each release, even when they are within geographically distinct places.
- **Increased customer experience:** It is necessary to build a business model, i.e., **customer-centric**. Constant incremental developments are crucial to the applications for improving customer satisfaction. These iterations and changes can be easily carried out. Thus, it provides us a competitive edge needed to be customer-friendly and more engaging.
- **Ease of management:** Various cloud automation comes with advanced and comprehensive ecosystems that make framework management easy. Constantly, the cloud is evolving to contain even the complex application over its own.
- **Reduced cost:** The cloud provides **Containerization**. The containerization process is supported via Container-orchestration open-source systems such as **Kubernetes**. Kubernetes currently is an industry-standard to manage resources on any cloud. Containerization permits us to build Cloud-native abilities like compute time (pay-per-use) and server-less in milliseconds. It will add flexibility in the price to deploy and build applications.
- **Reliable services:** We can use the architecture of micro-services which can isolate and identify the failure impact to minimize the downtime using Cloud-native applications. With Containerization and micro-services, our applications can be made to become self-heal and fault-tolerant. Also, it improves customer-experience as the customers can like a highly reliable achievement.

## Explore AI (ML and DL) services across public cloud platforms

## Getting to know cloud platforms

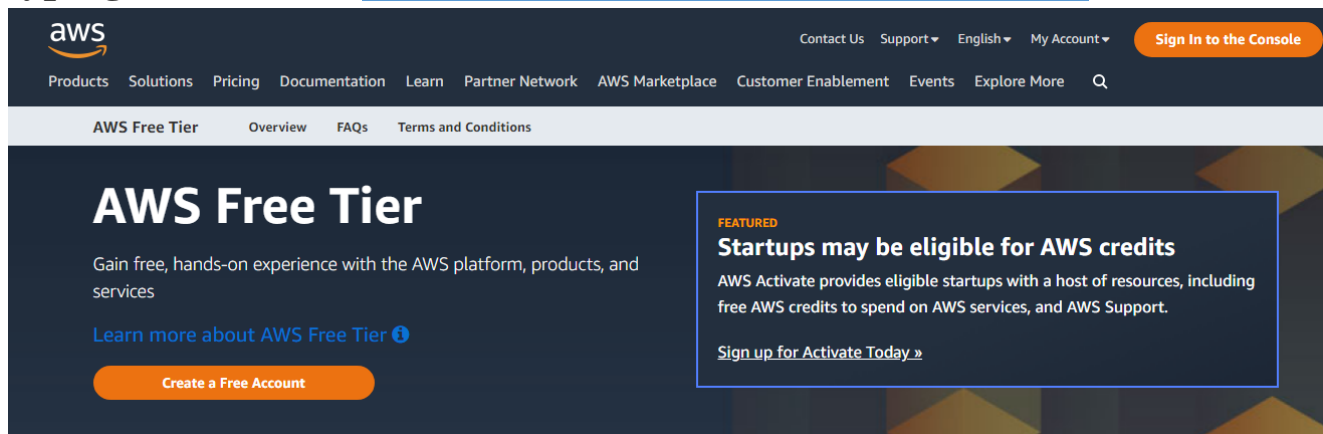


# Top 10 Cloud Platforms




## Creating an account AWS ACCOUNT

1. Select Amazon Web Services (AWS) as Free Tier Cloud Account by typing the URL as <https://aws.amazon.com/account/signup>




2. Click on “Create a free Account “and it will navigate to next Page



### Sign up for AWS

Explore Free Tier products with a new AWS account.

To learn more, visit [aws.amazon.com/free](https://aws.amazon.com/free).



Root user email address  
Used for account recovery and some administrative functions

AWS account name  
Choose a name for your account. You can change this name in your account settings after you sign up.

OR

3. Enter Email ID of your choice for Root User AWS Account. It will send the Verification CODE for the Email ID which is mentioned above.



**Explore Free Tier products with a new AWS account.**

To learn more, visit [aws.amazon.com/free](https://aws.amazon.com/free).



## Sign up for AWS

### Confirm you are you

Making sure you are secure -- it's what we do.

We sent an email with a verification code to **abc@gmail.com**. (not you?)

Enter it below to confirm your email.

Verification code

123456

**Verify**

Resend code



**Explore Free Tier products with a new AWS account.**

To learn more, visit [aws.amazon.com/free](https://aws.amazon.com/free).



## Sign up for AWS

### Create your password

✓ It's you! Your email address has been successfully verified. ✕

Your password provides you with sign in access to AWS, so it's important we get it right.

Root user password

.....

Confirm root user password

.....

**Continue (step 1 of 5)**

**4.After Successful verification of email it will as Password for Root User AWS Account.**





### Free Tier offers

All AWS accounts can explore 3 different types of free offers, depending on the product used.



**Always free**  
Never expires



**12 months free**  
Start from initial sign-up date



**Trials**  
Start from service activation date

## Sign up for AWS

### Contact Information

How do you plan to use AWS?

- ☐ Business - for your work, school, or organization
- ☒ Personal - for your own projects

Who should we contact about this account?

Full Name

LAVANYA M

Phone Number

 +91

1234567890


Country or Region

India


**5. Enter Full Name and Phone Number select Country/region as India.**




All AWS accounts can explore 3 different types of free offers, depending on the product used.



**Always free**  
Never expires



**12 months free**  
Start from initial sign-up date



**Trials**  
Start from service activation date

☐ Business - for your work, school, or organization

☒ Personal - for your own projects

Who should we contact about this account?

Full Name

LAVANYA M

Phone Number

+91 1234567890

Country or Region

India

Address

ABC

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

City

KOLAR

State, Province, or Region

KARNATAKA

Postal Code

563118

Customers with an Indian contract address are served by Amazon Internet Services Private Ltd. (AISPL). AISPL is the local seller for AWS services in India.


☒ I have read and agree to the terms of the [AWS Customer Agreement](#).


**Continue (step 2 of 5)**

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## 6. Enter Address as City, State and Pin Code

### Secure verification




 We will not charge you for usage below AWS Free Tier limits. We may temporarily hold up to \$1 USD (or an equivalent amount in local currency) as a pending transaction for 3-5 days to verify your identity.



### Billing Information

Credit or Debit card number

4013751500300939



AWS accepts all major credit and debit cards. To learn more about payment options, review our [FAQ](#)

Expiration date

July▼2023▼

Cardholder's name

SRINIVASAPPA K V

CVV

...

Billing address

☒ Use my contact address

ABC  
KOLAR KARNATAKA 563118  
IN

☐ Use a new address

Do you have a PAN?

Permanent Account Number (PAN) is a ten-digit alphanumeric number issued by the Indian Income Tax Department. This 10-digit number is printed on the front of your PAN card.

☐ Yes

☒ No

You can go on the [Tax Settings Page](#) on Billing and Cost Management Console to update your PAN information.

Verify and Continue (step 3 of 5)

**7. Enter Billing Information like Credit/Debit Card details like Number, Expiry date, Card Holder Name, CVV. It is mandatory to create Free Tier account**



## Sign up for AWS

### Confirm your identity

Before you can use your AWS account, you must verify your phone number. When you continue, the AWS automated system will contact you with a verification code.

How should we send you the verification code?

- ☒ Text message (SMS)  
☐ Voice call

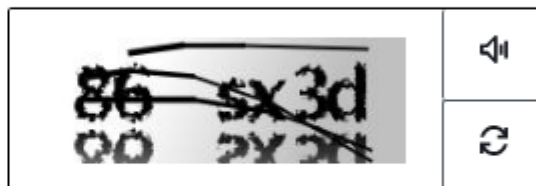
Country or region code

India (+91)

Mobile phone number

9738838488

Security check

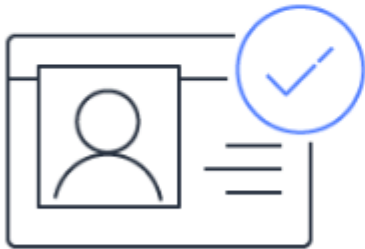


Type the characters as shown above

86sx3d

Send SMS (step 4 of 5)

**8. Confirm your Identity through SMS by giving Original Mobile number.**



## Sign up for AWS

### Confirm your identity

Verify code

**Continue (step 4 of 5)**




Having trouble? Sometimes it takes up to 10 minutes to retrieve a verification code. If it's been longer than that, [return to the previous page](#) and try again.

**9.You will receive Verification Code and enter the same**

# Sign up for AWS

## Select a support plan

Choose a support plan for your business or personal account. [Compare plans and pricing examples](#). You can change your plan anytime in the AWS Management Console.

<input checked="" type="radio"/> <b>Basic support - Free</b> <ul style="list-style-type: none"><li>Recommended for new users just getting started with AWS</li><li>24x7 self-service access to AWS resources</li><li>For account and billing issues only</li><li>Access to Personal Health Dashboard &amp; Trusted Advisor</li></ul> 	<input type="radio"/> <b>Developer support - From \$29/month</b> <ul style="list-style-type: none"><li>Recommended for developers experimenting with AWS</li><li>Email access to AWS Support during business hours</li><li>12 (business)-hour response times</li></ul> 	<input type="radio"/> <b>Business support - From \$100/month</b> <ul style="list-style-type: none"><li>Recommended for running production workloads on AWS</li><li>24x7 tech support via email, phone, and chat</li><li>1-hour response times</li><li>Full set of Trusted Advisor best-practice recommendations</li></ul> 
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### Need Enterprise level support?

From \$15,000 a month you will receive 15-minute response times and concierge-style experience with an assigned Technical Account Manager. [Learn more](#)

[Complete sign up](#)

**10. Always select basic Support- free from the above three options**



## Congratulations

Thank you for signing up for AWS.

We are activating your account, which should only take a few minutes. You will receive an email when this is complete.

[Go to the AWS Management Console](#)

[Sign up for another account](#) or [contact sales](#).