

(a)

1. IaaS: It means Infrastructure as a Service. It provides virtualized computing resources, including server, storage, network and other infrastructure components. Users utilize these infrastructures to deploy and run operating systems and applications.

Specific example: Using the AWS EC2 example to deploy a custom development environment

2. PaaS: It means Platform as a Service. It provides a platform for application development and deployment, including operating systems, databases, etc. Developers only need to focus on the code.

Specific example: In web application development, developers can directly deploy the code without the need to configure the server.

3. SaaS: This means Software as a Service. It offers a complete software package that allows users to directly use the application without the need for installation or maintenance.

Specific example: By using platforms such as Github and GitLab, code can be directly hosted.

(b)

Docker is an open-source containerization platform that enables developers to package applications and their dependencies into lightweight and portable containers. These containers run in isolated environments, ensuring consistency of the application across different settings.

Usage scenario: Microservice architecture development

For instance, developing an e-commerce platform that incorporates multiple functions. Containerized applications can package microservices into independent Docker containers, and then use Docker Compose to orchestrate all services in the development environment. Each service has its own dependent environment and does not interfere with each other.

Advantages

During the development process, containerization technology can ensure the consistency of the development environment. Members can quickly start the development environment, and the dependencies of each service are independently managed, avoiding version conflicts. During the deployment process, since each image has a specific version, it is convenient for rollback tracking. The same image can be quickly deployed at different stages of the deployment process, and it is also convenient to quickly expand container instances based on the load.

(c)

```
PS C:\Users\LENOVO> docker run -d --name n8n -p 5678:5678 -v n8n_data:/home/node/.n8n n8nio/n8n
23fe6350486d: Pull complete
c4a8c5e8e683: Pull complete
3efaf331e66e: Pull complete
87ab795ed18b: Pull complete
6a088b2daae0: Pull complete
9b94a1e882c2: Pull complete
52719e552fdf: Pull complete
Digest: sha256:c5fe3ff0b79f7831dc21f9c709bdb7eee4fff4453a28ce84c8e9fa5b9f562686
Status: Downloaded newer image for n8nio/n8n:latest
7deeca604b0cf5f1e5683e7f2c1311e73f147e0aa222cf3ed783d6f603753403
```

docker run: Create and start a new container

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-d (detached mode): Run the container in the background and return the container ID

--name n8n: Specify the name of the container as "n8n" for easier management in the future.

-p 5678:5678: Port Mapping

Host port: Container port

Map the 5678 port of the container to the 5678 port of the host.

This can be accessed via <http://127.0.0.1:5678> on n8n.

-v n8n_data:/home/node/.n8n: Mounting data volume

n8n_data: Named data volume (automatically managed by Docker)

/home/node/.n8n: The data storage path for n8n within the container

Function: To persistently store the workflow, configuration, and other data of n8n

n8nio/n8n: The name of the Docker image used

Download the official n8n image from Docker Hub



127.0.0.1:5678/setup

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n8n

Set up owner account

Email *

First Name *

Last Name *

Password *

8+ characters, at least 1 number and 1 capital letter

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I want to receive security and product updates

Next

