Containers 101

A container is a lightweight, portable approach to running multiple applications on the same operating system kernel. Applications are isolated and packaged only with their unique dependencies, allowing for increased density because containers consume fewer resources than traditional virtual machines.

Why containers?

Developers

Unlock ultimate productivity and freedom

Deploy as multi-tier distributed apps in IaaS or PaaS models, if needed

Operations

Provide standardized environments for development, QA, and production teams

Achieve higher utilization and compute density

Rapidly scale up or down to meet changing business needs

DevOps

Integrate people, processes, and tools for optimized app development

Focus on standardized infrastructure

Allow developers to focus on building, deploying, and testing apps

Development framework and languages

PHP, Python, Go, Node, JavaScript, Perl, Win32, C++, .Net, Java, Ruby

Development tools

The key for developers is the ability to choose the right tool at the right time.

PowerShell, eclipse, Visual Studio

Leveraging these tools, containers enable:

- Rapid deployment
- Track changes / rollback
- Greater flexibility

Docker integration

Docker Hub:
Download a huge collection of open and curated applications.

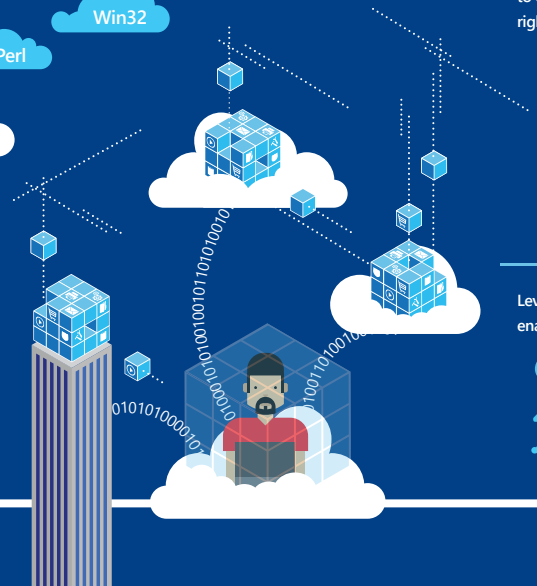
Docker Engine:
Docker Engine for Windows Server containers will be developed under the aegis of the Docker open source project.

Collaboration:
Bring Windows Server containers to the Docker ecosystem to expand the reach of both developer communities.

Docker client:
Windows customers can use the same Docker client and interface in multiple development environments.

Windows, Linux

docker



The technology

Container

No virtualized hardware components

Self-contained virtual instance with application and minimal OS components

High resiliency due to abstraction

Highly portable regardless of targeted host

Virtual machine

Fully virtualized set of abstracted hardware and drivers

Full production OS with maintenance, patching, and security protocols

Solutions installed as full applications

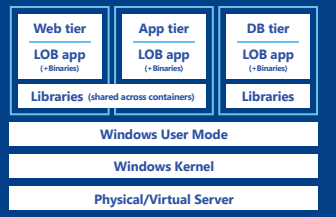
Higher resource consumption

Portability requires moving the entire virtual machine

Windows Server container

Shares OS kernel

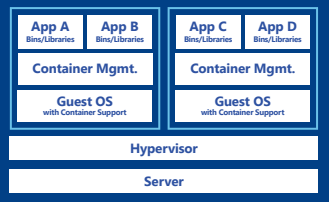
Deployed and managed with Microsoft Visual Studio, Windows PowerShell, or Docker client



Hyper-V container

Isolated kernels with hypervisor to separate containers

Deployed and managed with the same tools—Visual Studio, PowerShell, or Docker client



Microsoft