Containerizing CTS Tools on EDX

How Can Modern Technologies Enhance Efficiency and Scalability?

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Disclaimer & Acknowledgment

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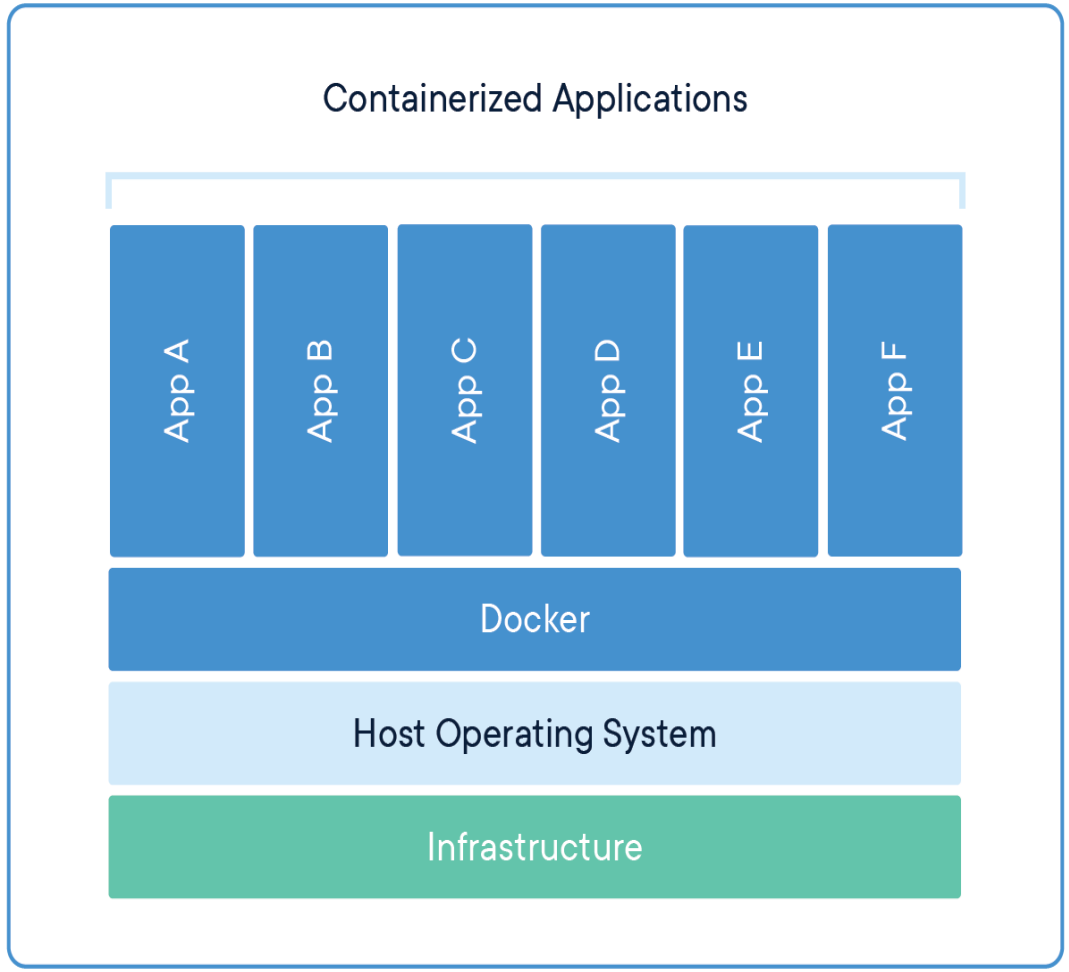
What is Containerization?

How Do Containers Ensure Consistency and Portability?

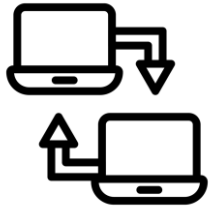
- **Definition**: A method of packaging an application and its dependencies into a standardized unit (container).
- **Key components**: Docker, Kubernetes.



Benefits of Containerization

What Advantages Do Containers Offer?

- **Consistency**: Works the same in development, testing, and production environments.



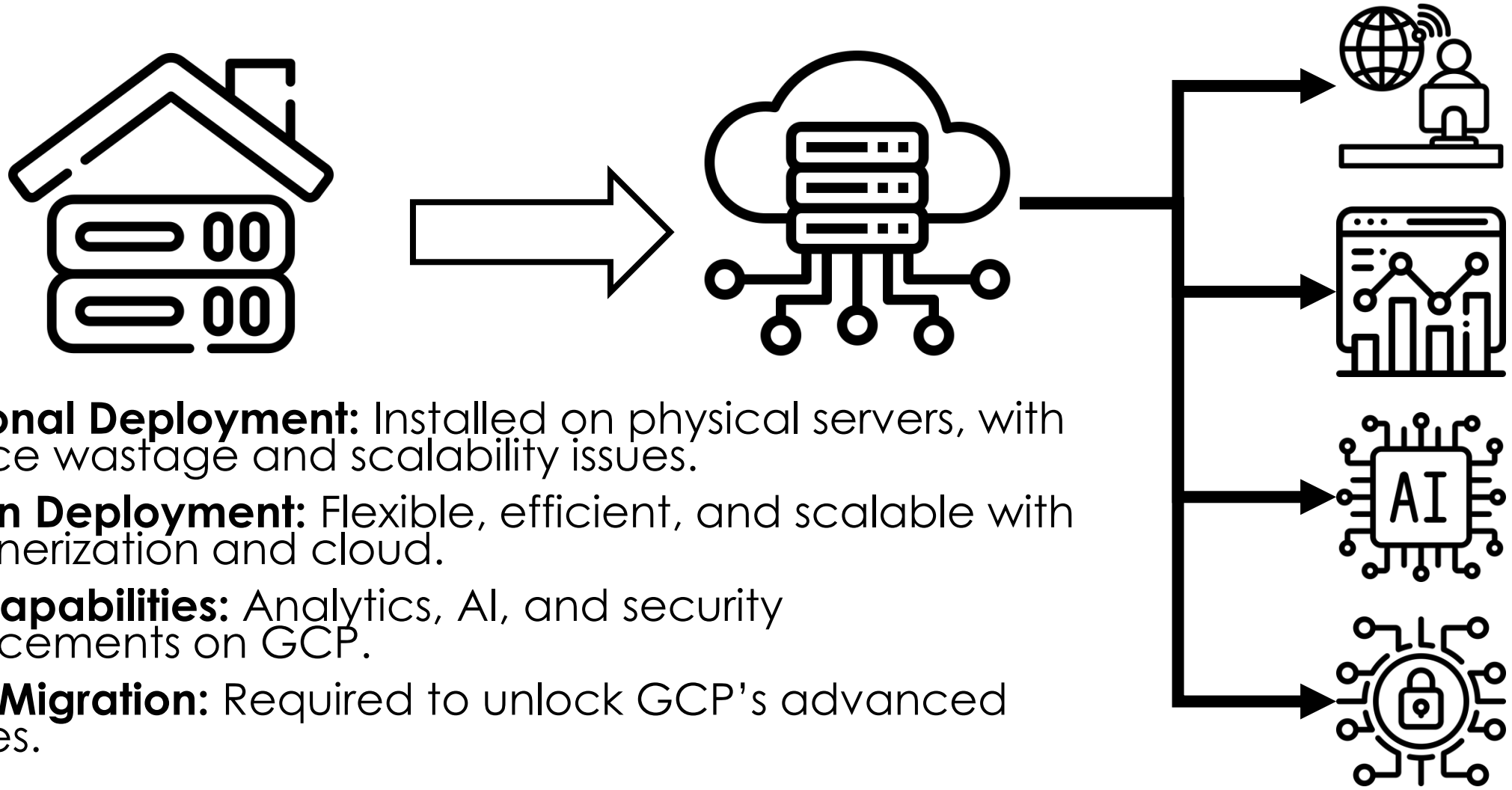
- **Portability**: Easily move applications across different environments and platforms.

- **Isolation**: Applications run in isolation, reducing conflicts and improving security.

- **Scalability**: Easily scale applications up or down.

Overview of Modern Deployment

Why Transition from Traditional to Modern Deployment?

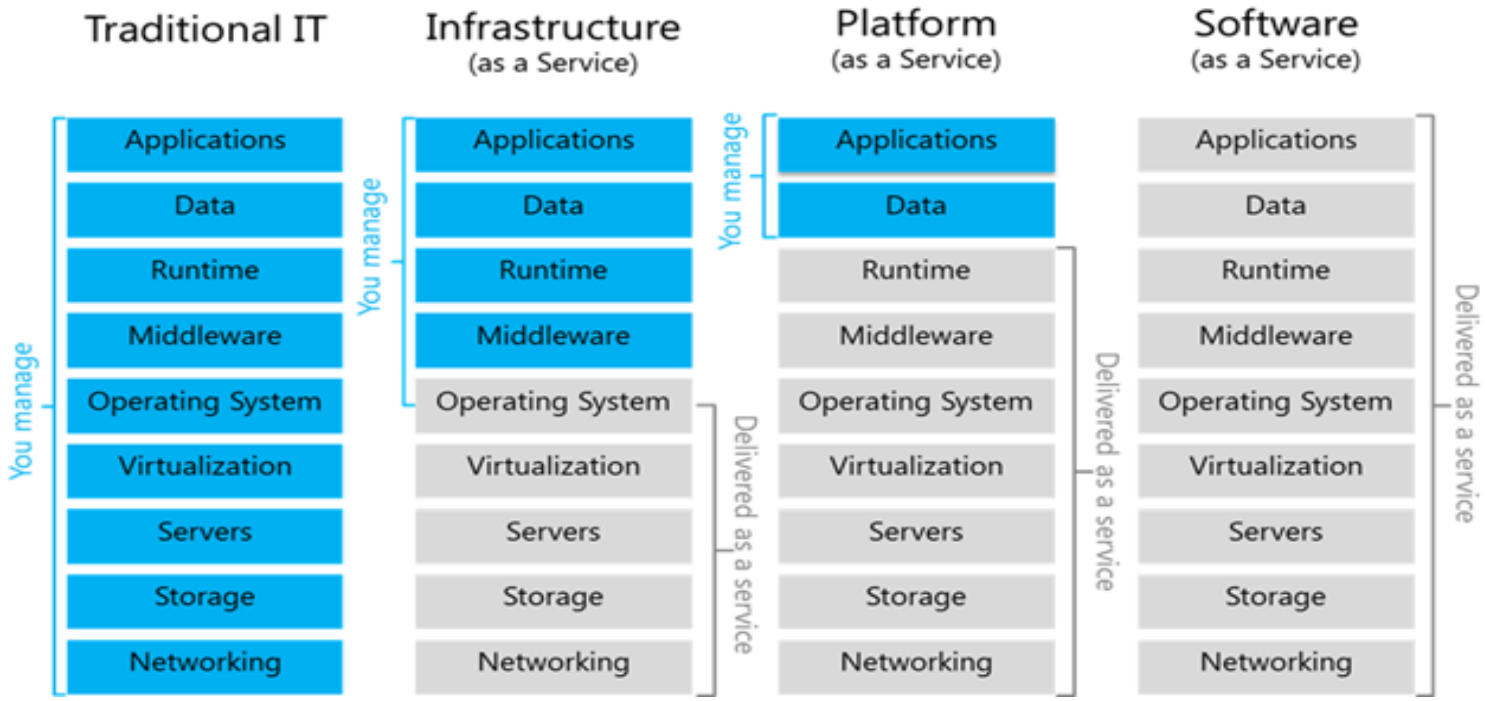


- **Traditional Deployment:** Installed on physical servers, with resource wastage and scalability issues.
- **Modern Deployment:** Flexible, efficient, and scalable with containerization and cloud.
- **New Capabilities:** Analytics, AI, and security enhancements on GCP.
- **Cloud Migration:** Required to unlock GCP's advanced features.

What is Cloud Computing?

How Does Cloud Computing Enable Flexibility?

- **Definition**: Delivery of computing services (servers, storage, databases, networking, software) over the Internet (the cloud).
- **Types**: Public, Private, Hybrid Clouds.
- **Models**: IaaS, PaaS, SaaS



Benefits of Moving to the Cloud

Why Should Projects Use Cloud Solutions?

Cost Efficiency: Pay-as-you-go model reduces capital expenditure.

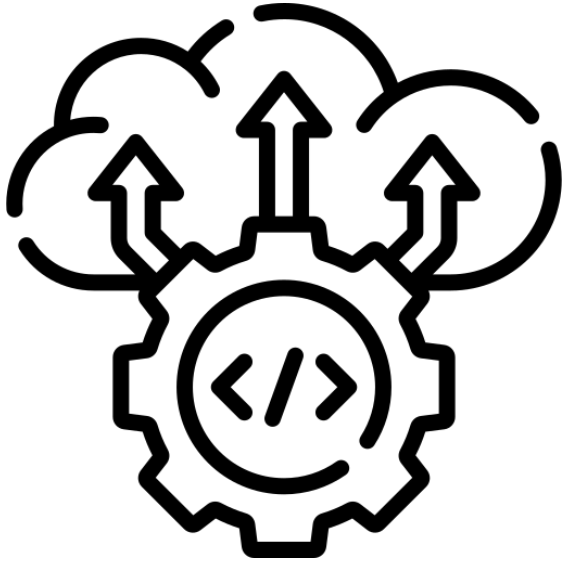
Scalability and Flexibility: Instantly scale resources to meet demand.

Disaster Recovery: Robust backup and recovery options.

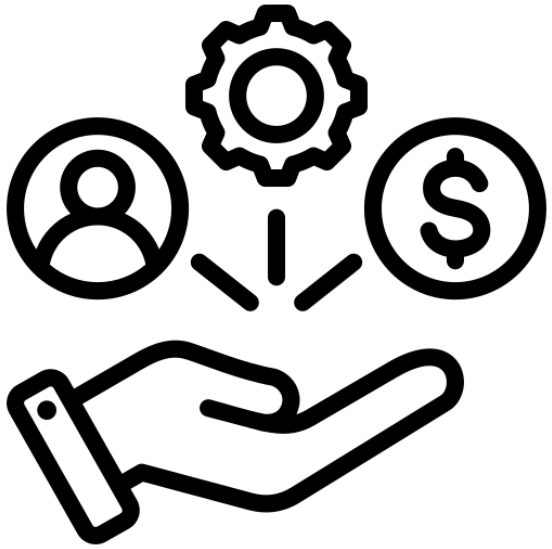
Access Anywhere: Access applications and data from anywhere.

Synergy of Containerization and Cloud

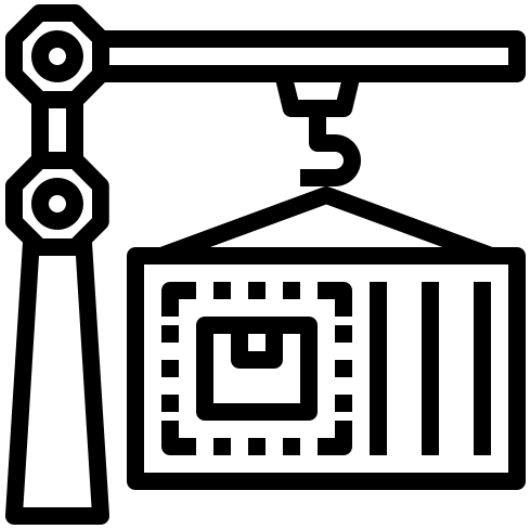
How Do Containers and Cloud Work Together?



- **Seamless Deployment**: Containers simplify moving applications to the cloud.



- **Enhanced Resource Utilization**: Cloud providers optimize container management.



- **Automated Management**: Tools like Kubernetes automate scaling, management, and deployment of containers in the cloud.

Benefits of Containerization on EDX

How Can We Support Your Modernization Journey?

Cybersecurity Reviews:
Navigate complex review processes to meet standards.

Containerization Assistance:
Assess, plan, and implement container strategies.

TIC 3.0 Architecture:
Benefit from existing infrastructure for compliance.

EDX OAuth2:
Implement secure user authentication.

EDX Containerization Use Cases

What Success Have Others Seen?

- Rokbase
- NRAP Open IAM Tool
- EDX4CCS Task 33 - Smart CO2 Transfer Routing Tool
- EDX4CCS Task 41- Living Database Web Front End
- EDX4CCS Task 48 - 3D Previewer Tool
- Additional projects in discussions with us.

DEMO & POSTER SESSION

TUESDAY, AUGUST 6, 2024
5:45 PM - 7:45PM
BALLROOM GALLERY

See Related Demos

EDX discover
CARBON TRANSPORT & STORAGE DATA AND INNOVATION TO BRIDGE THE DIGITAL DIVIDE

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