

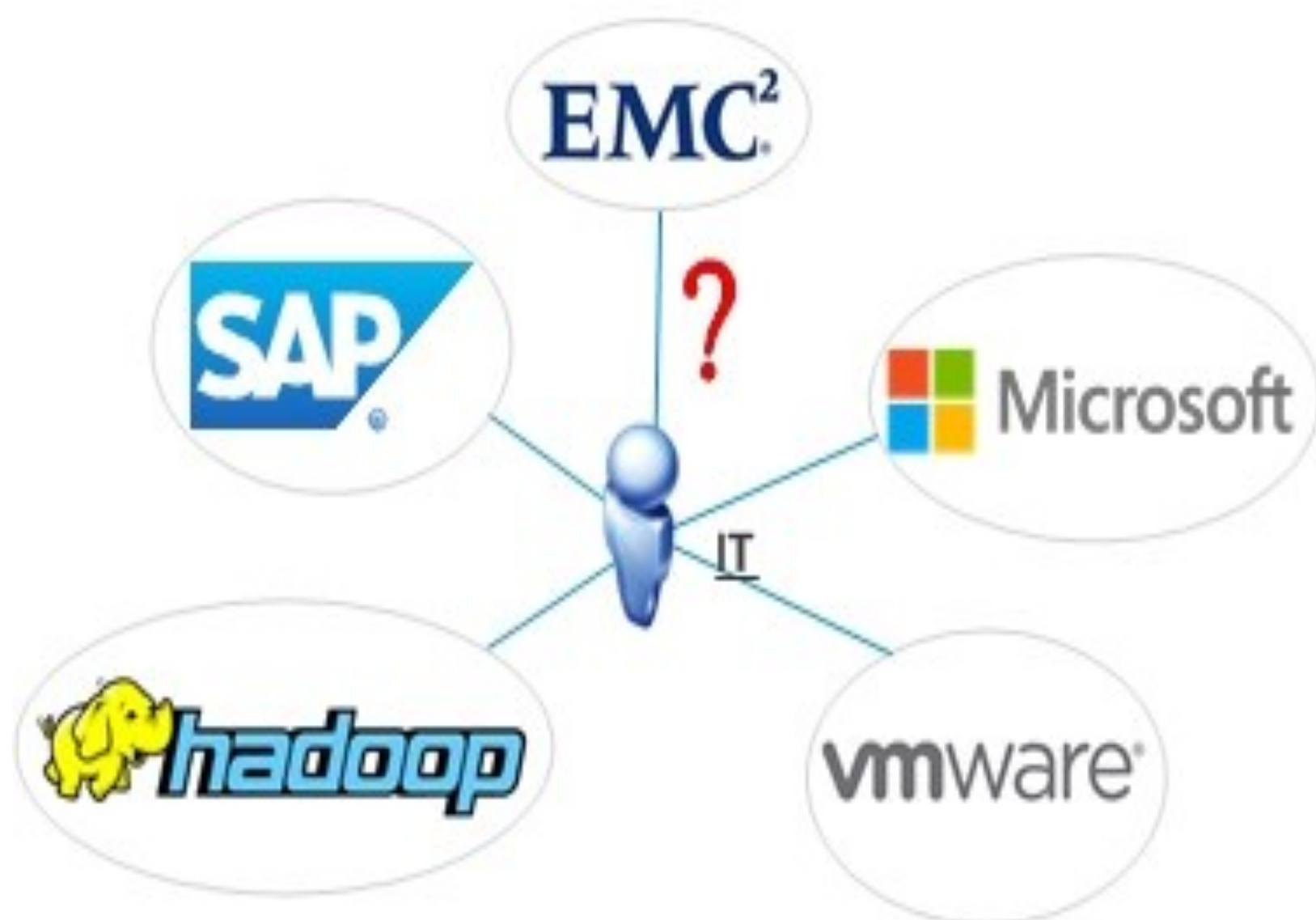
# USING CLOUD-BASED LABS

Research: *LEARNING LABORATORIES AS A SERVICE IN A PRIVATE CLOUD DEPLOYMENT IN HIGHER EDUCATION*

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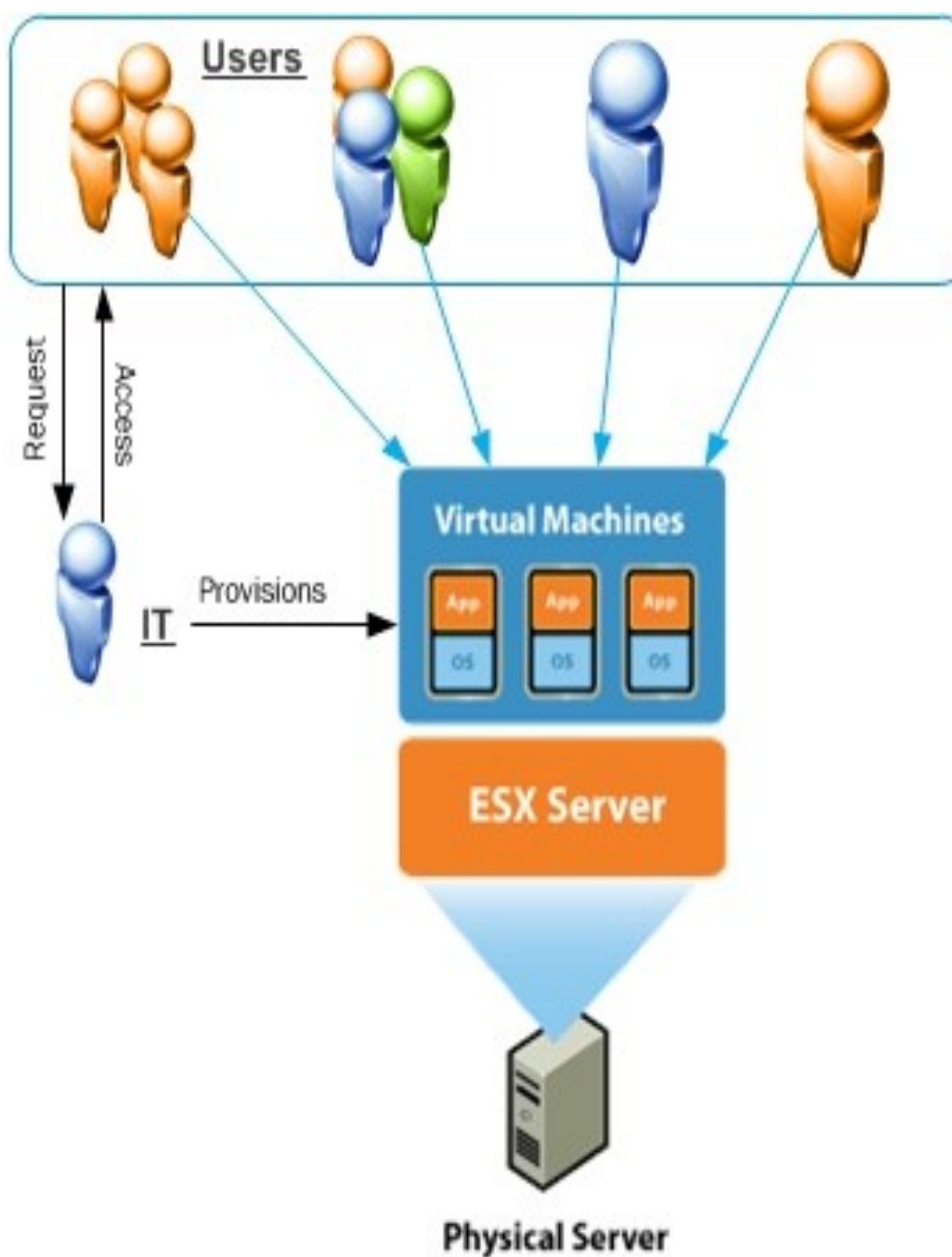
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## The Problem: Traditional IT



As applications become more complex, IT teams in Higher Education face a growing challenge to provide learning lab environments to provide students with hands-on experience.

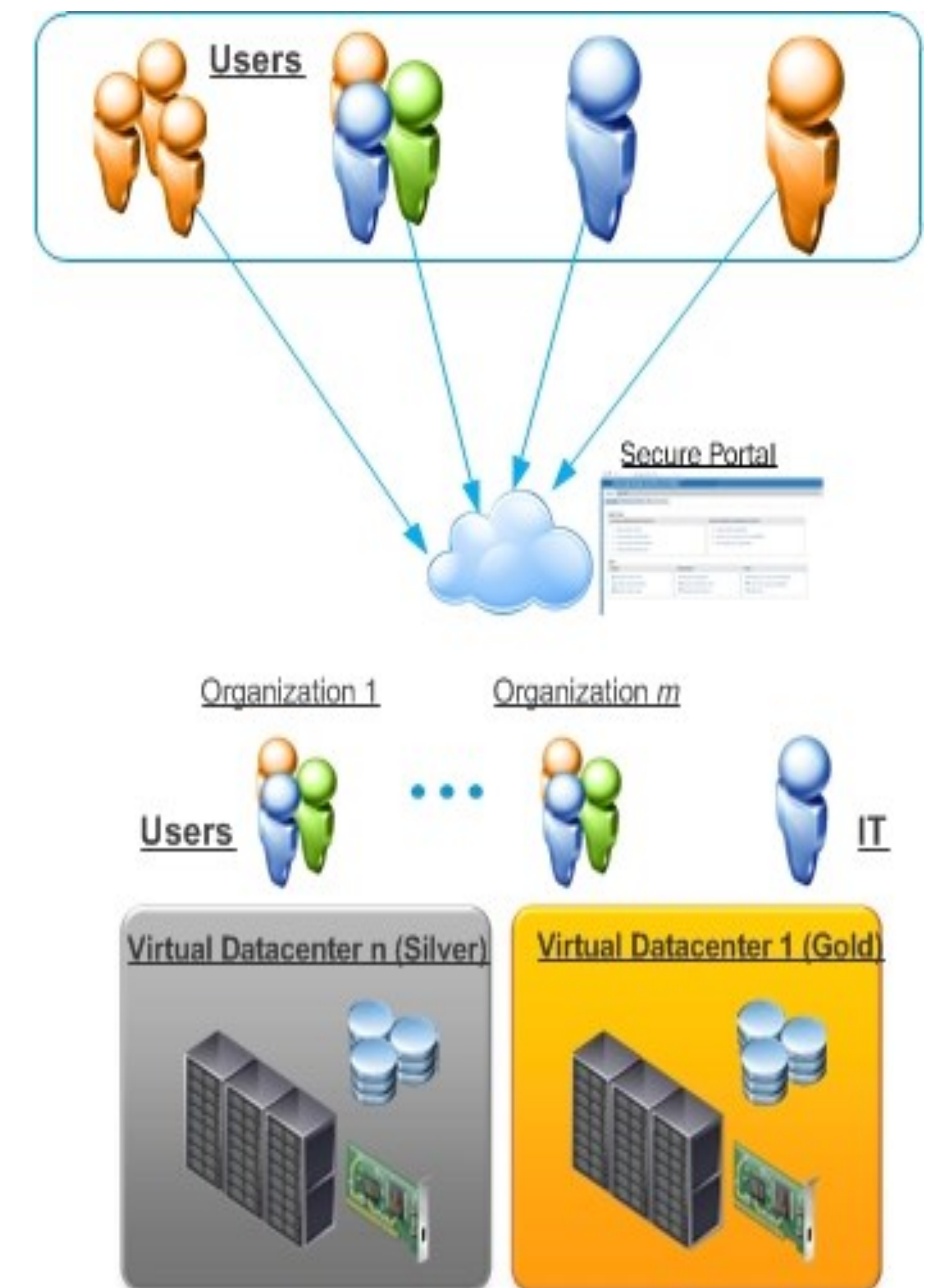
## Virtualization is not enough



IT teams are finding that virtualization alone falls short when provisioning and deploying infrastructure to support complex applications.

- High administrative overhead
- Difficult to maintain application lifecycles
- Lack of remote access to labs

## Private Cloud



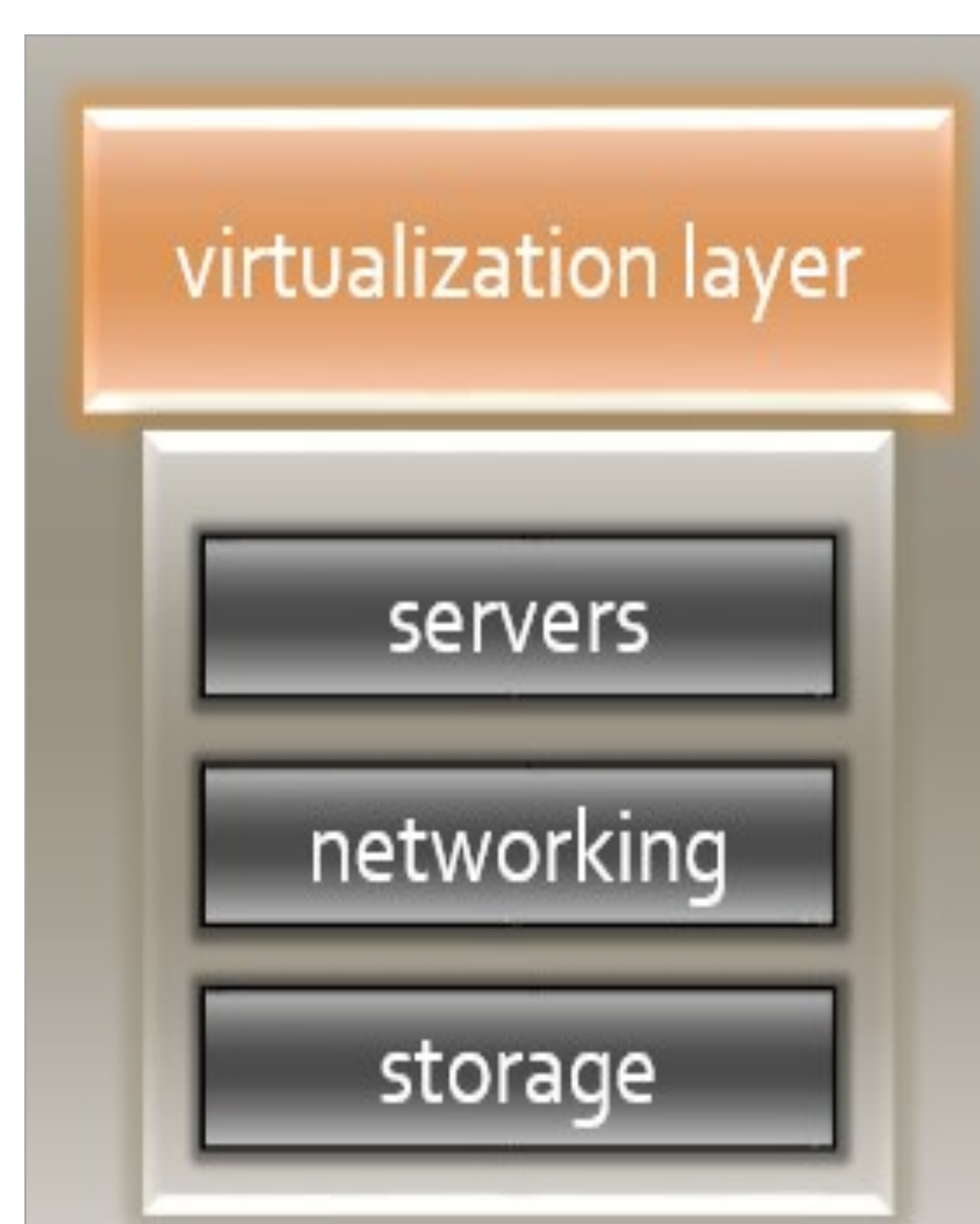
A private cloud approach improves the student learning experience while hardening network security and simplifying the computing resource provisioning.

Physical Approach	Virtualized Approach	Private Cloud Approach
Identity Management ✗ / Remote Access ✗	Identity Management ✓ / Remote Access ✗	Identity Management ✓ / Remote Access ✓
Self-service ✗ / Catalogs ✗	Self-service ✗ / Catalogs ✗	Self-service ✓ / Catalogs ✓
Automated Provisioning ✗ / Operations ✗	Automated Provisioning ✗ / Operations ✗	Automated Provisioning ✓ / Operations ✓
Flexibility ✗ / Self-Management ✗	Flexibility ✗ / Self-Management ✗	Flexibility ✓ / Self-Management ✓

Dedicated physical resources to host a single operating system with applications.



Virtualization has provided significant improvements in Higher Education, but it has many limitations when provisioning and deploying virtual infrastructure to support highly accessible learning labs.



This study helped the Georgia Southern IT Services to leverage VMware vCloud Director to provision hands-on labs for several classes in the College of Information Technology.

All infrastructure is virtualized and delivered as a service in the data center (software-defined data center)

