Cloud Computing

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Cloud Computing

NIST Definition

- *“ Convenient on-demand computing, that gives network access to a set of scalable pool of computing resources”*

What it means?

- Horizontal scalability
- On-demand access
- Utility based Computing
- Scale up or down depending upon requirement

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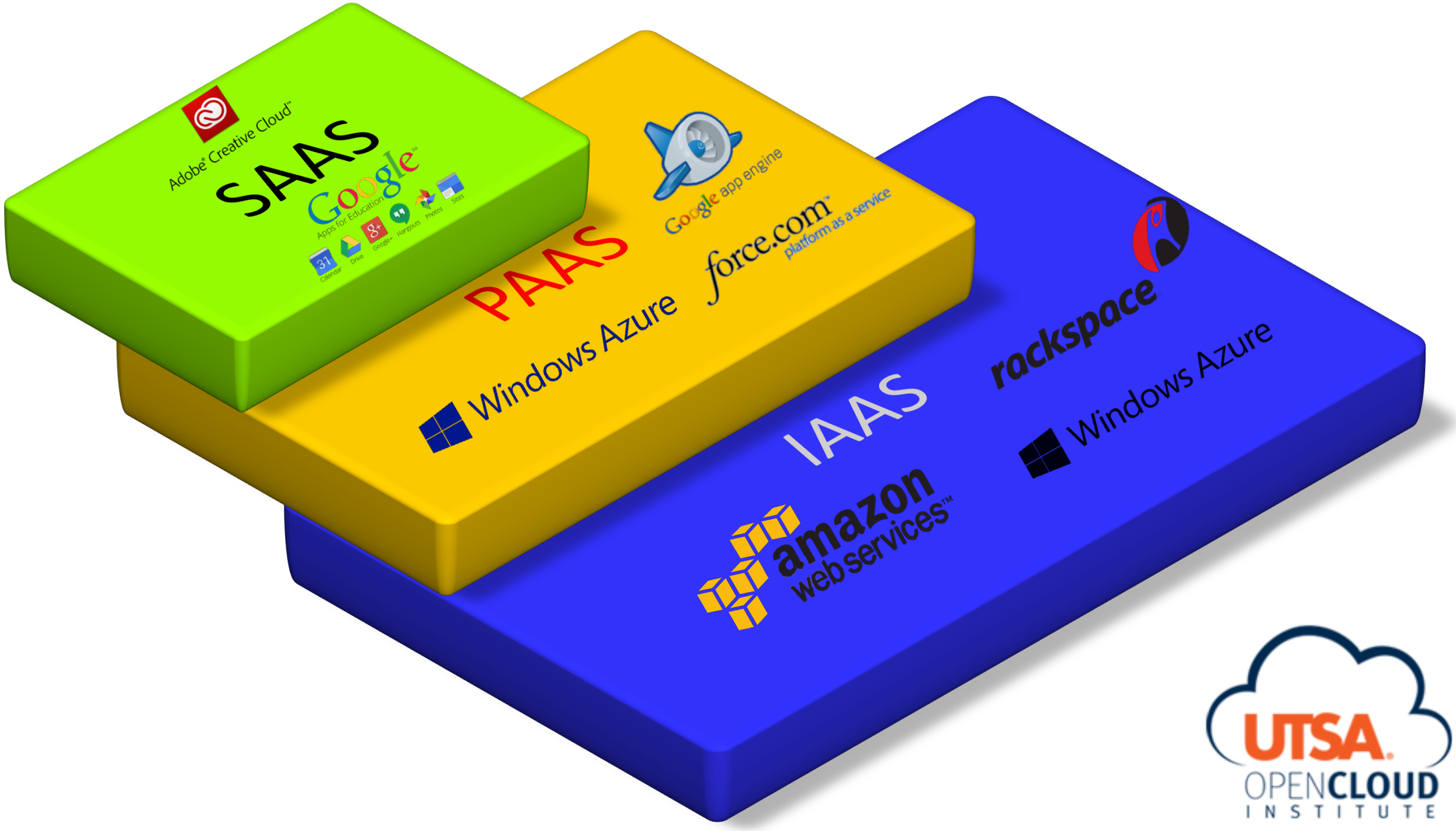
Adobe Creative Cloud
SAAS
Google
Apps for Education
Calendar
Drive
Google+
Hangouts
Photos
Sites
PAAS
Google app engine
Windows Azure
force.com
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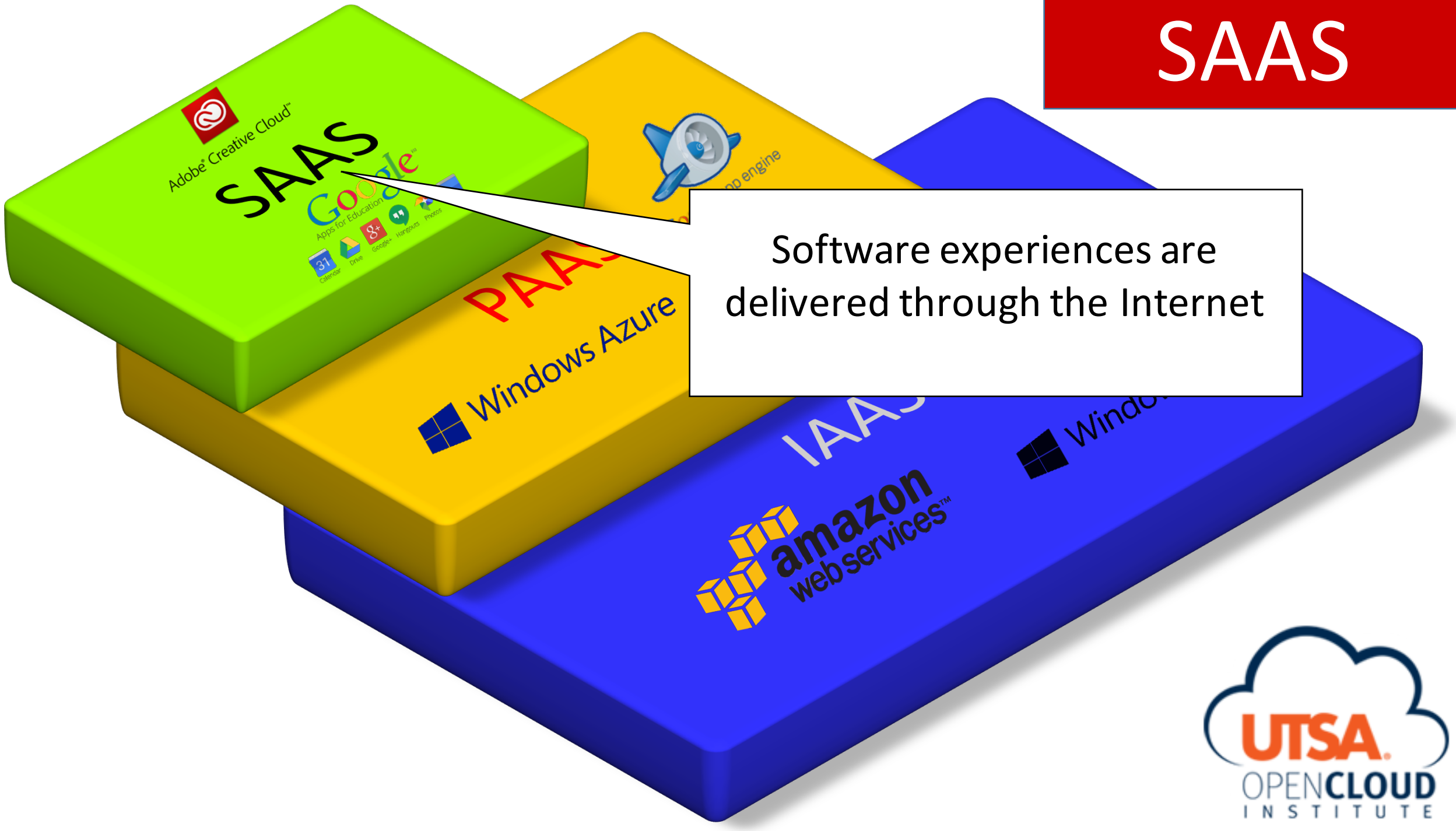

Software experiences are delivered through the Internet

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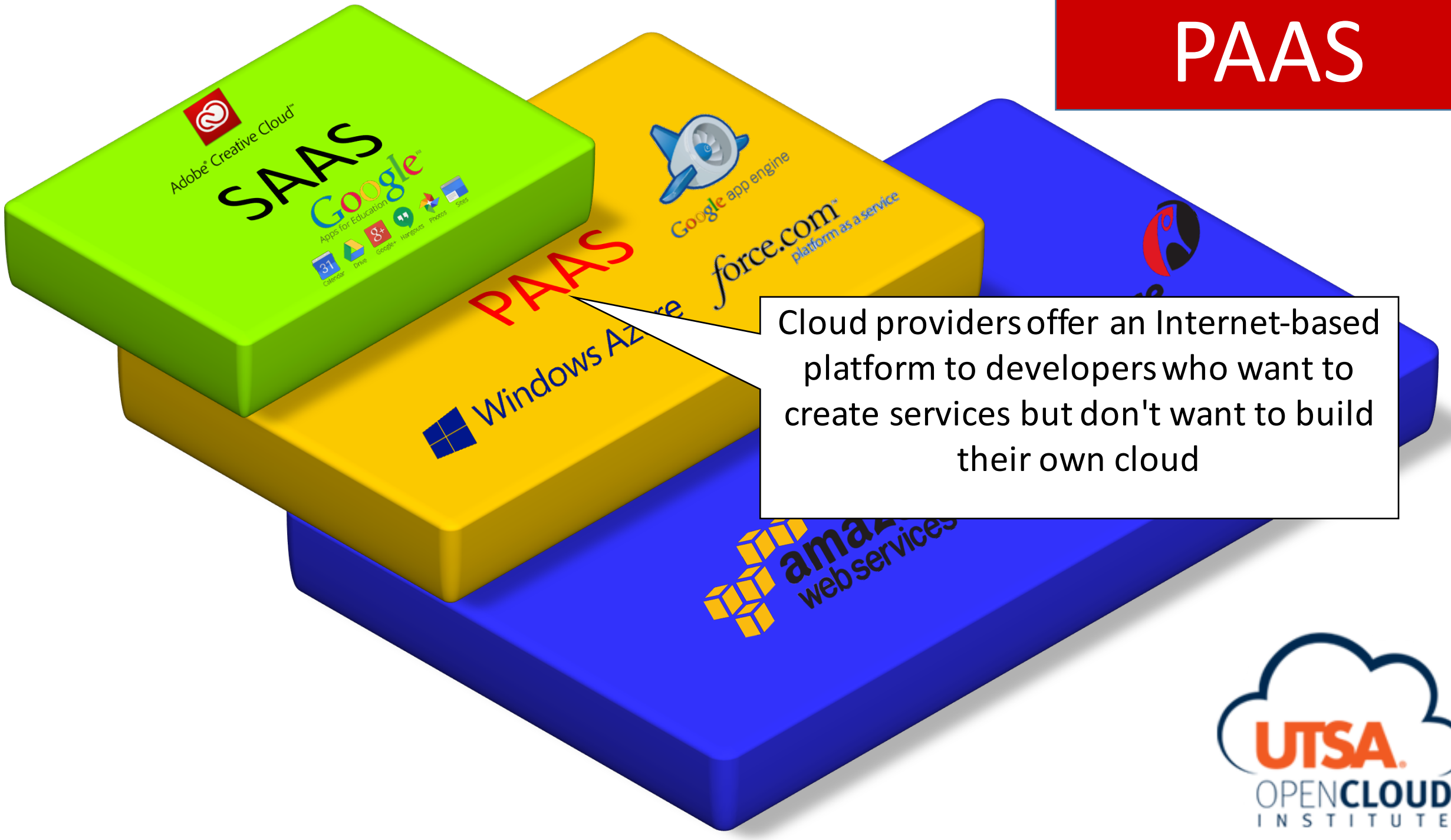

Cloud providers offer an Internet-based platform to developers who want to create services but don't want to build their own cloud

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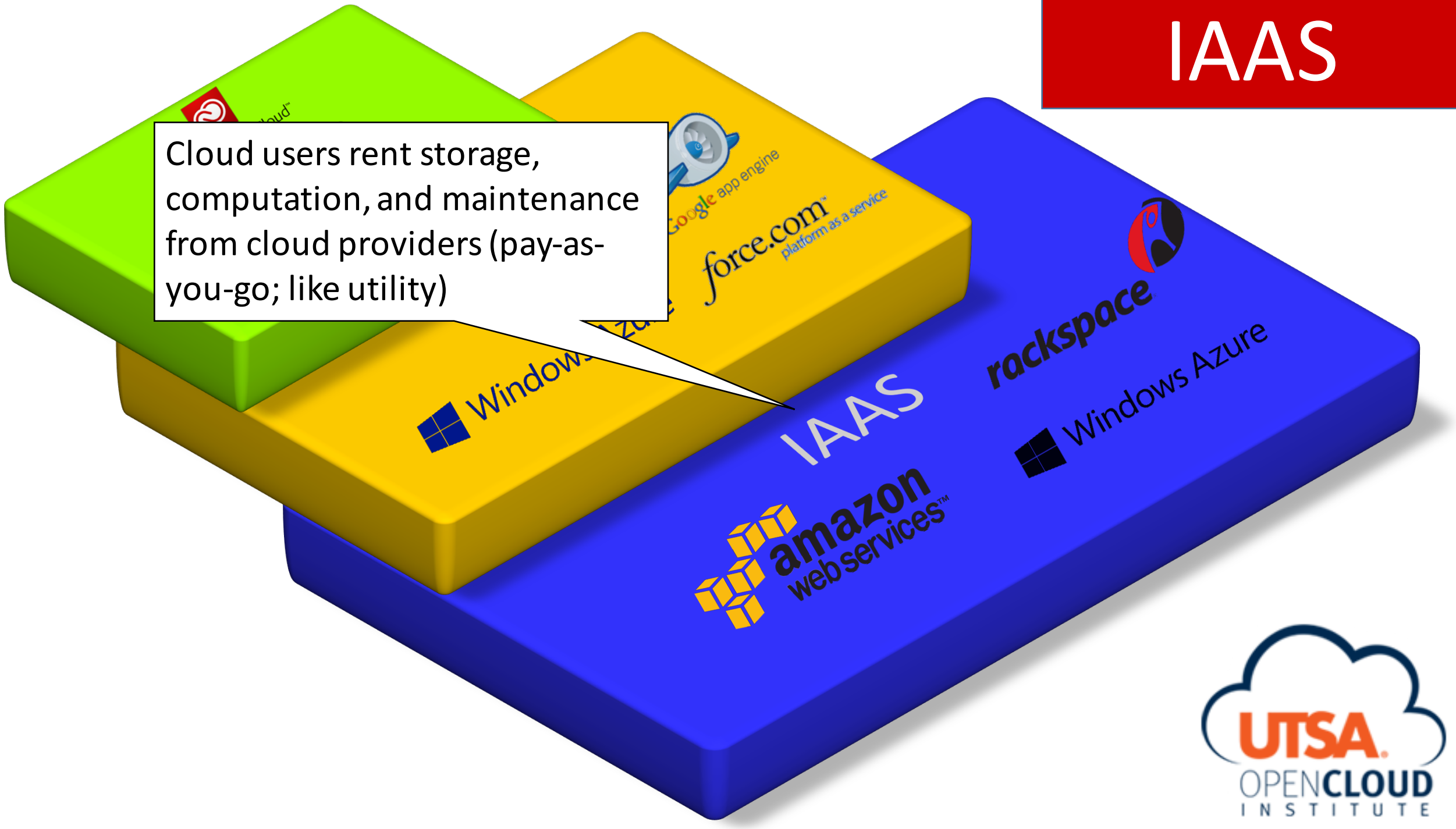

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OpenStack

OpenStack is a set of software services, each independant and self contained, which can be used to create custom **Cloud Infrastructure as a Service (IaaS)**

- Began as a collaboration between Nasa and Rackspace
- One of the Biggest open source projects
- 90% of code in Python 2.7
- Extensible API
- Big tent integration engine

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OpenStack - Components

- Compute fabric - Nova
- Storage as a Service - Swift (Object Storage), Cinder (Block Storage), Glance (Image Registry)
- Horizon - Dashboard
- Neutron - Networking as a Service
- Keystone - Identity and Service Catalog Management
- Ceilometer - Metering and Utility Computing as a Service

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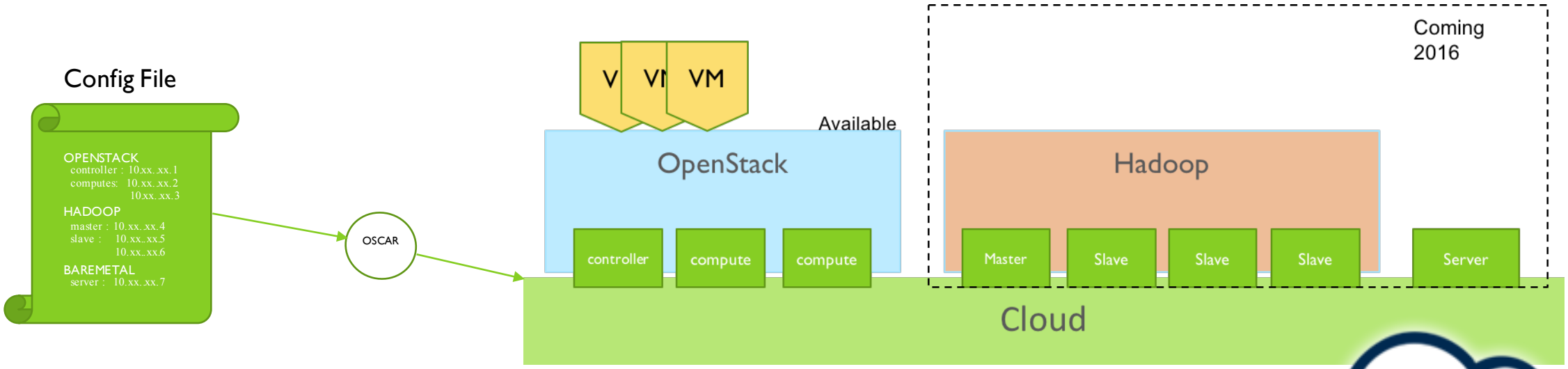
OSCAR

Open Software Configurator for Academic Research

- Software for building a research vDC (Virtual Data Center)
- Build a scalable Private Cloud



vDC's on top of Chameleon Cloud

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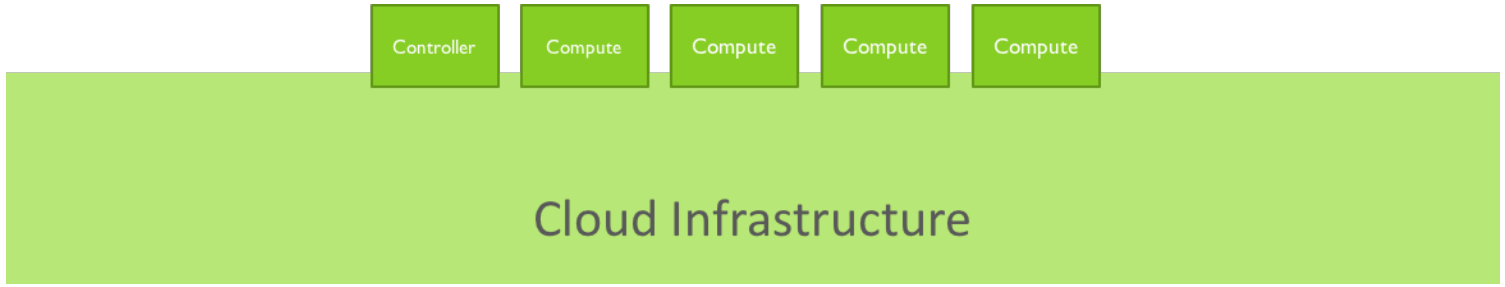
Step 1: OSCAR

- Pre configuring the environment for Openstack



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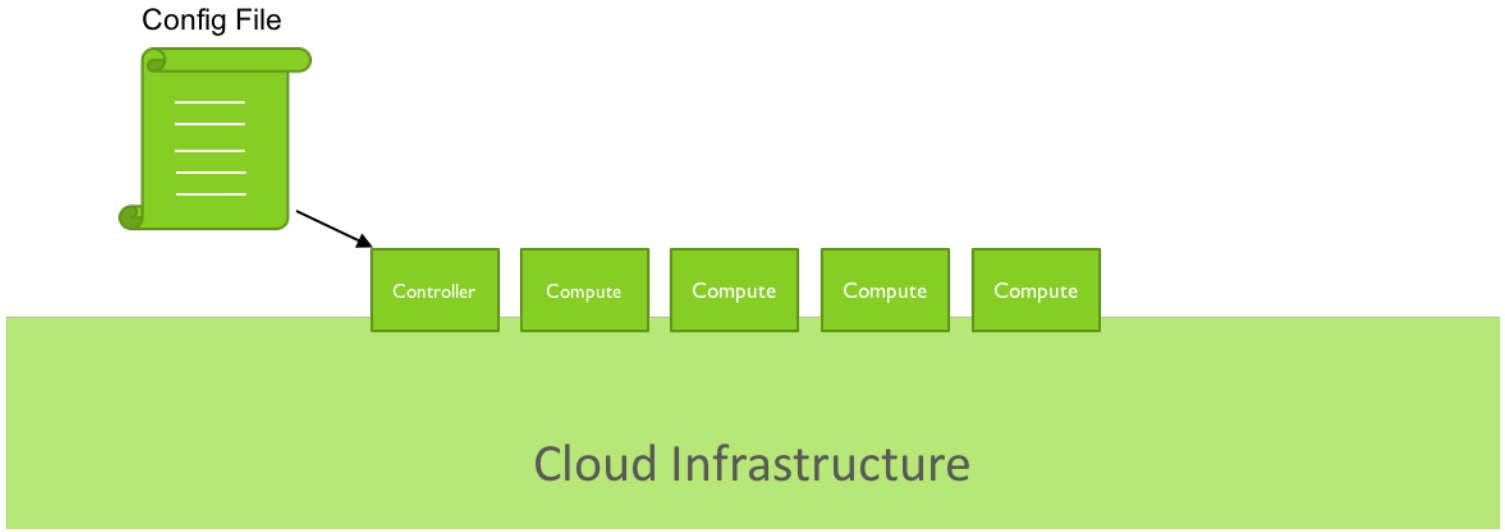
Step 2: OSCAR

- Pre configuring the environment for Openstack



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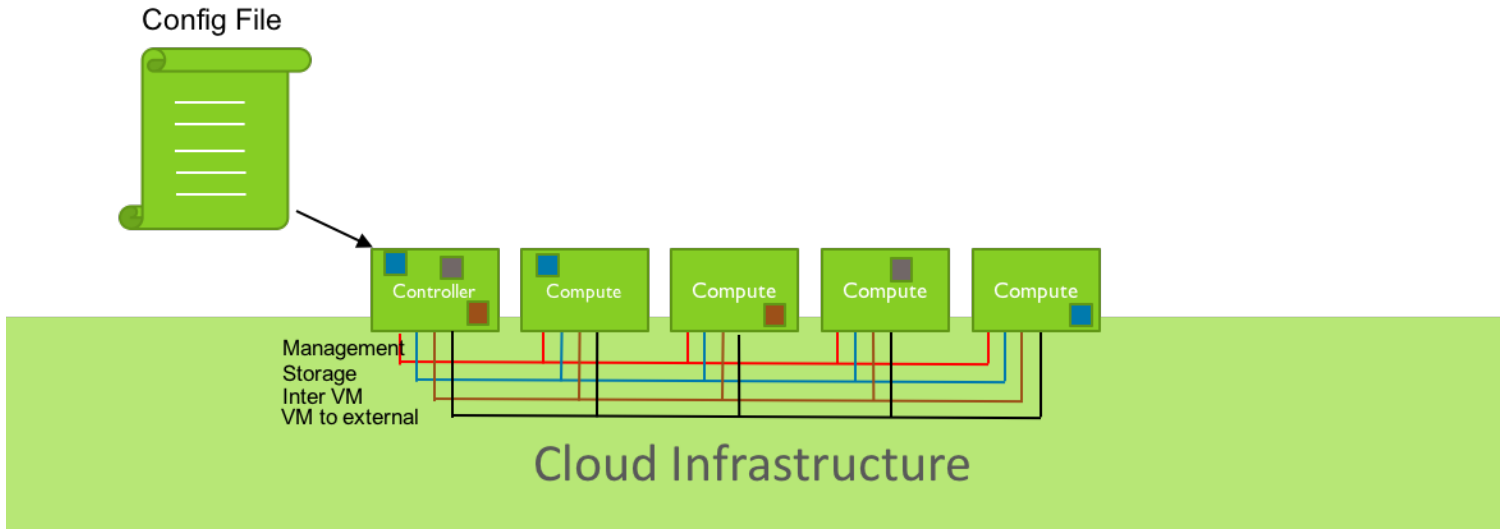
Step 2: OSCAR

- Pre configuring the environment for Openstack



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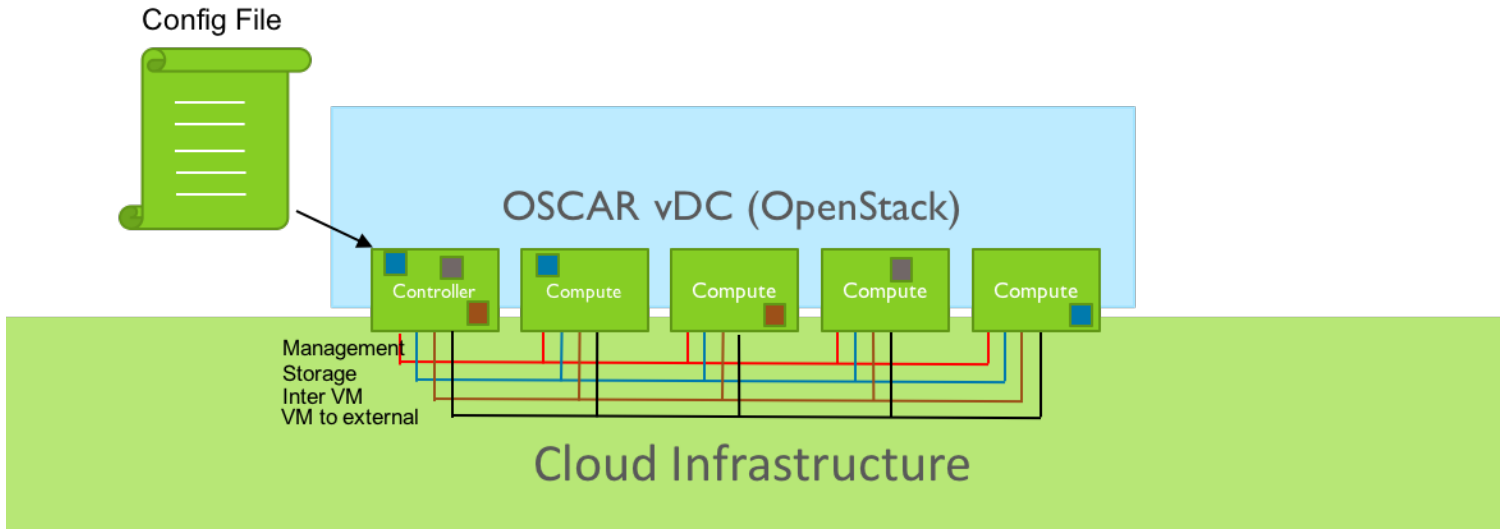
Step 3: OSCAR

- Installing OpenStack



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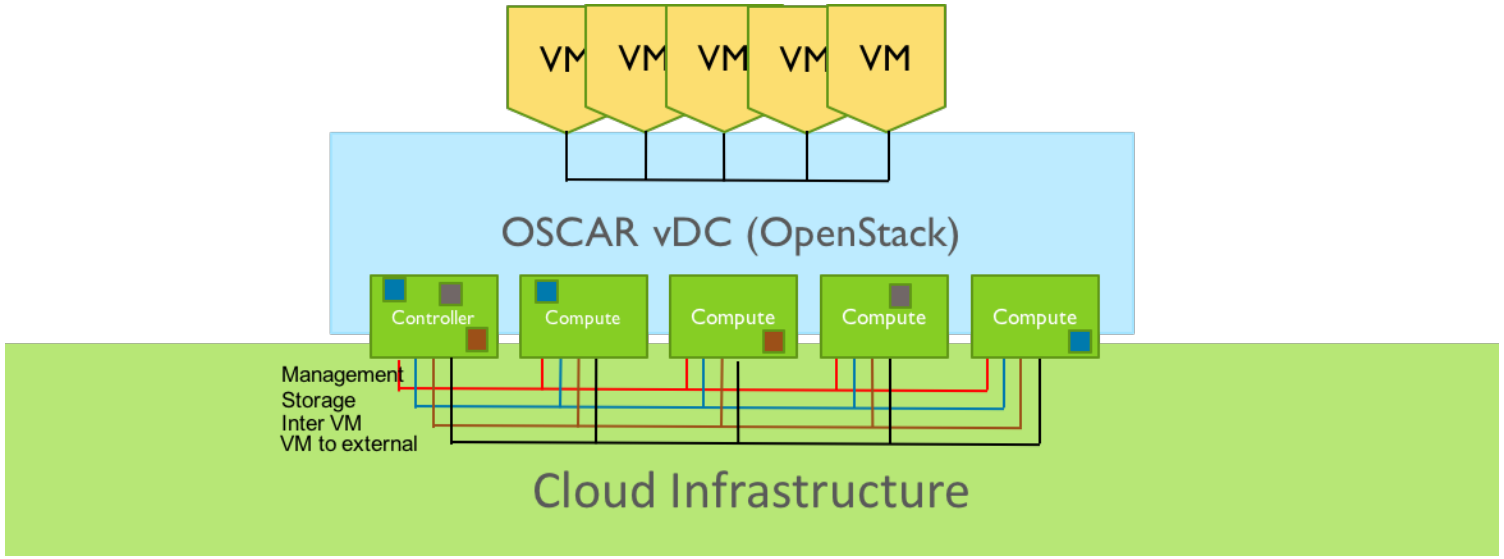
Hands on exercises

- Hand on exercise
  - Spinning an instance
  - VLAN experiment
  - NFS experiment



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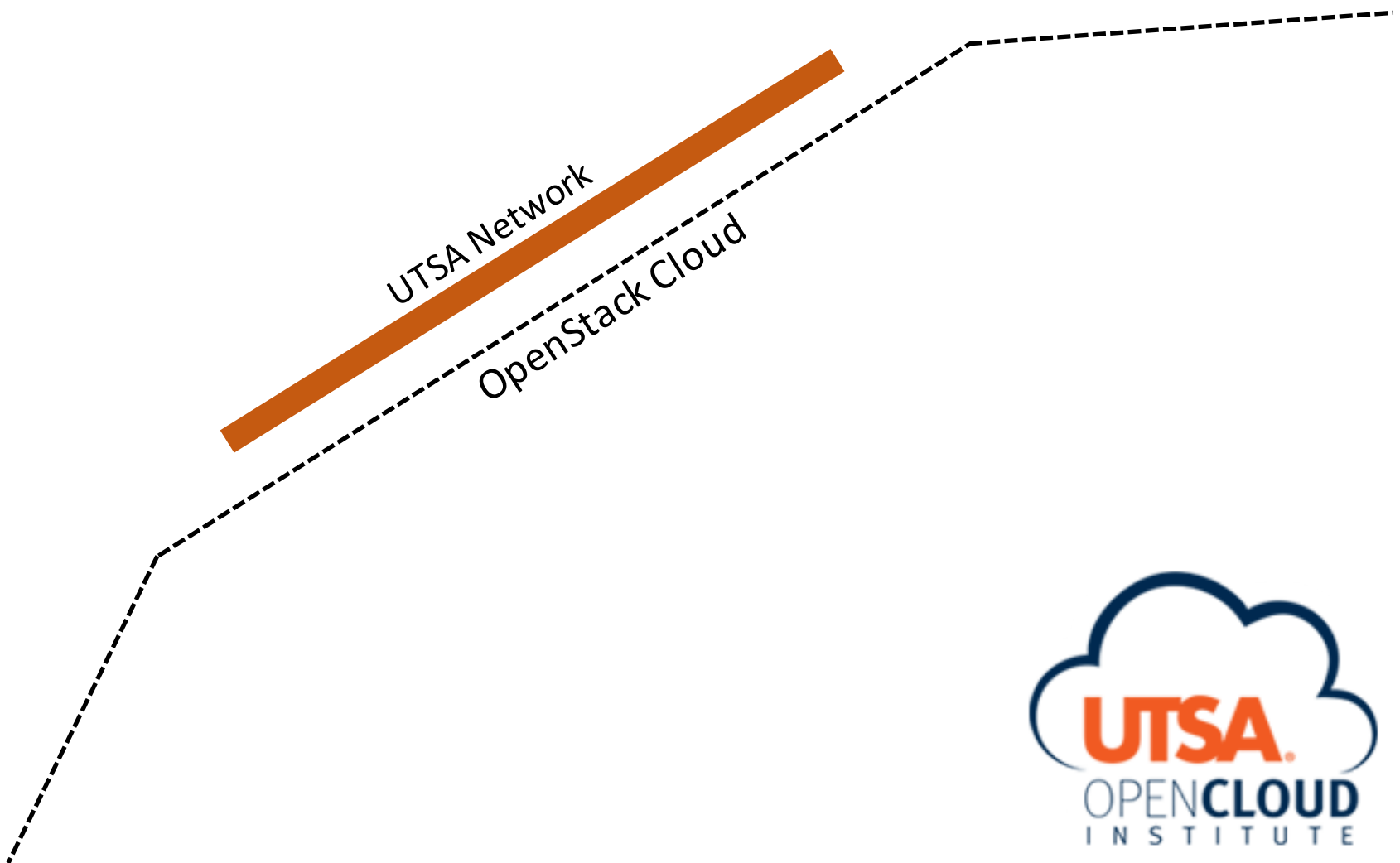
Excercise 1: Spinning an Instance



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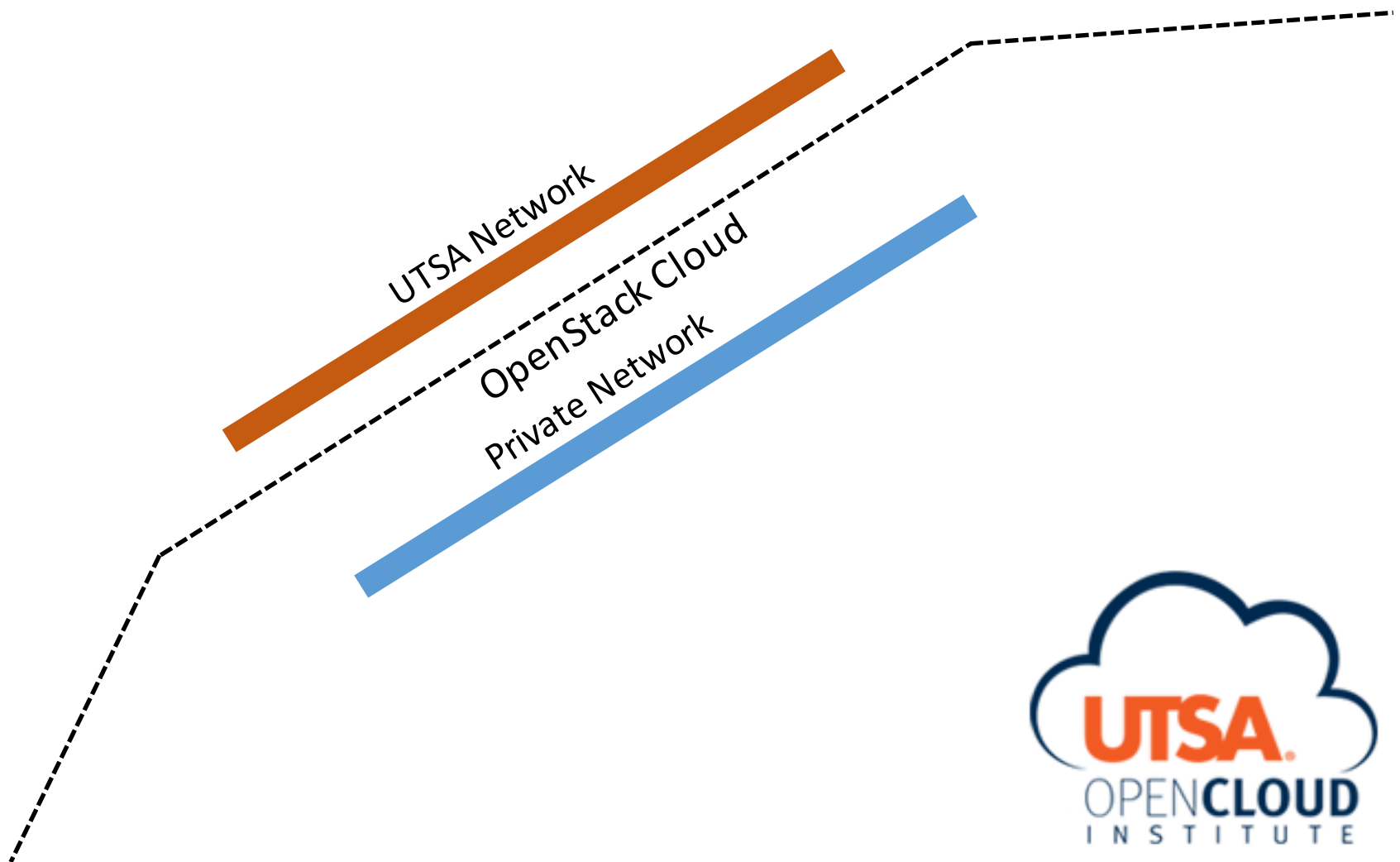

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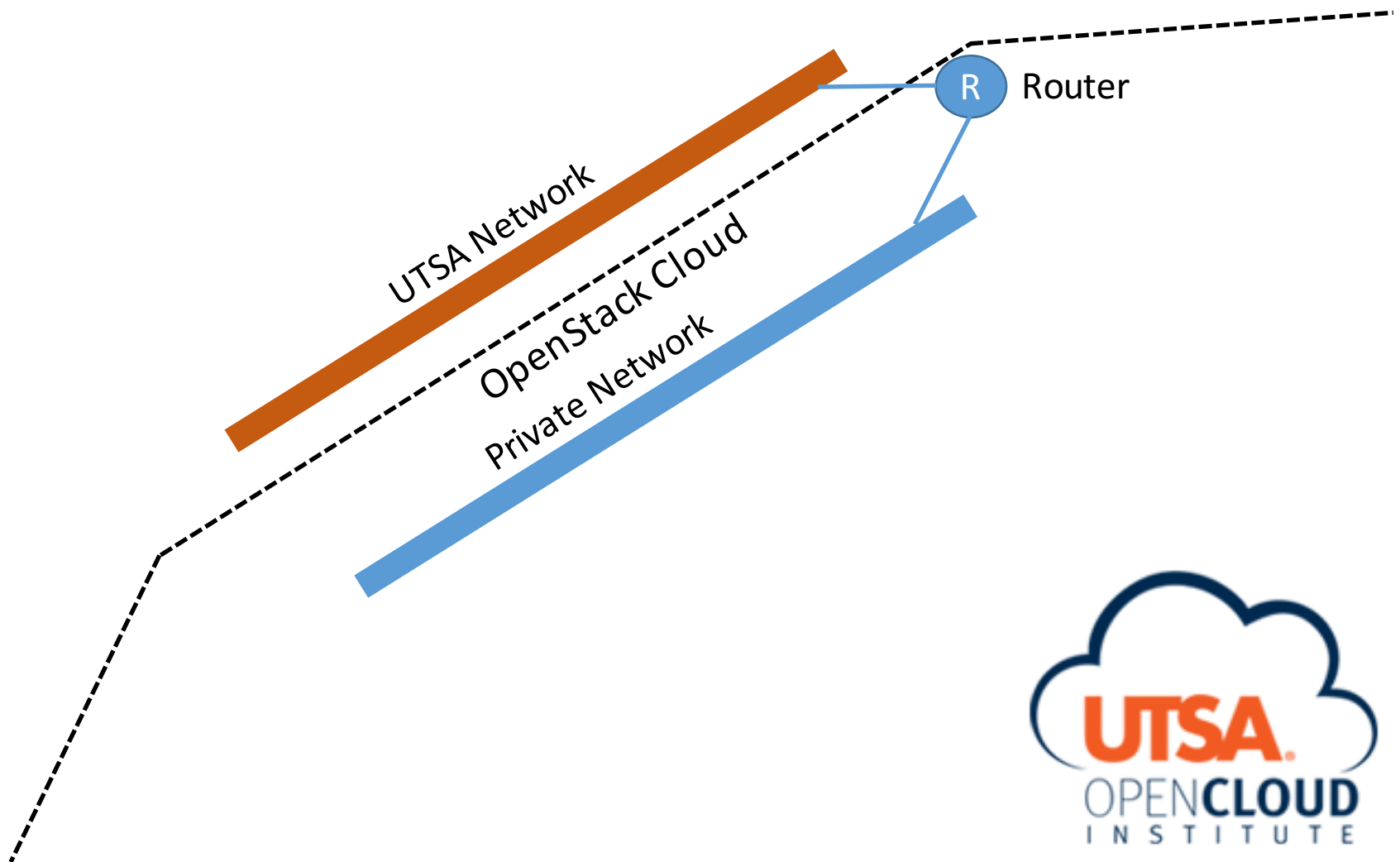

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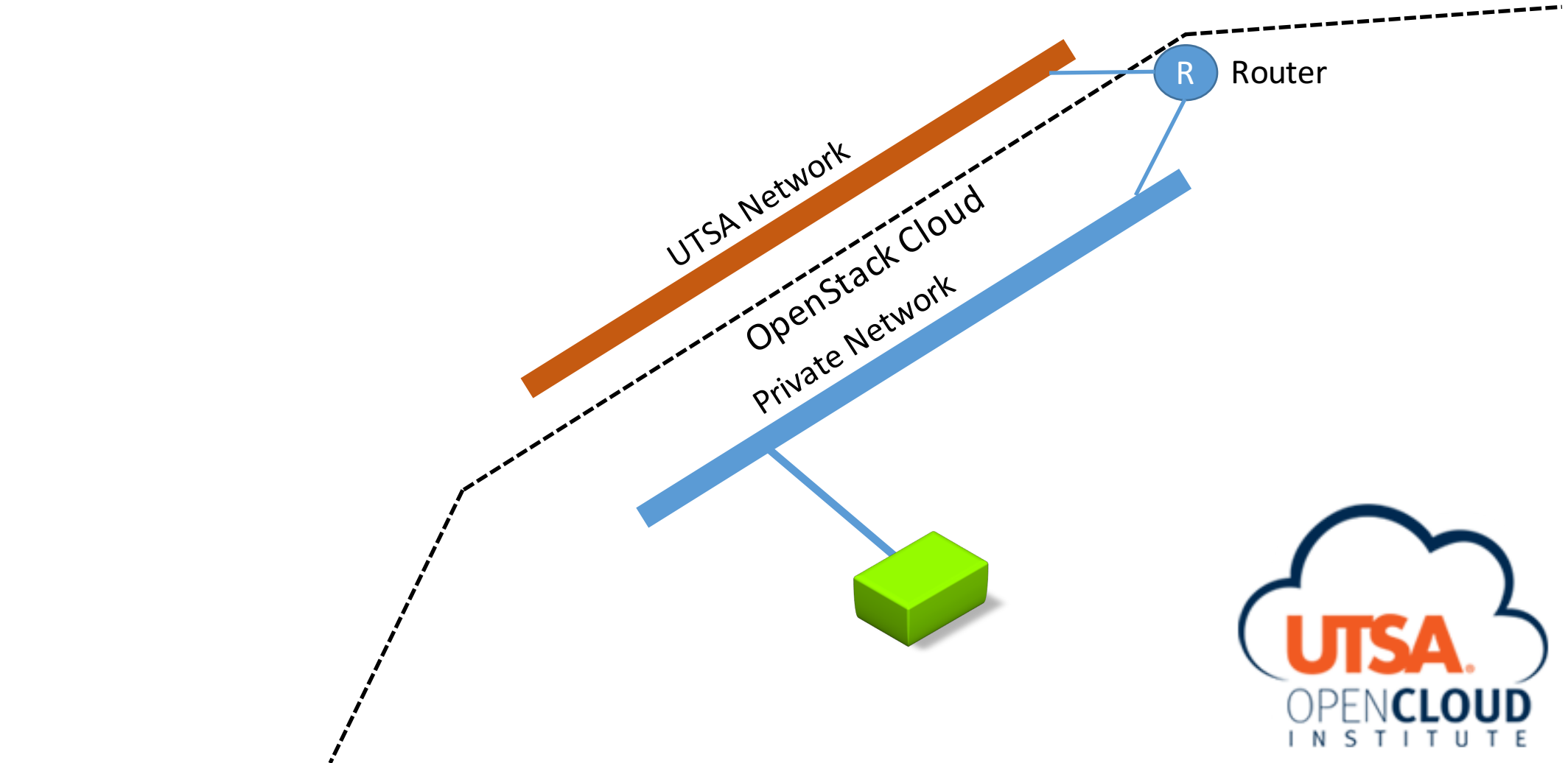

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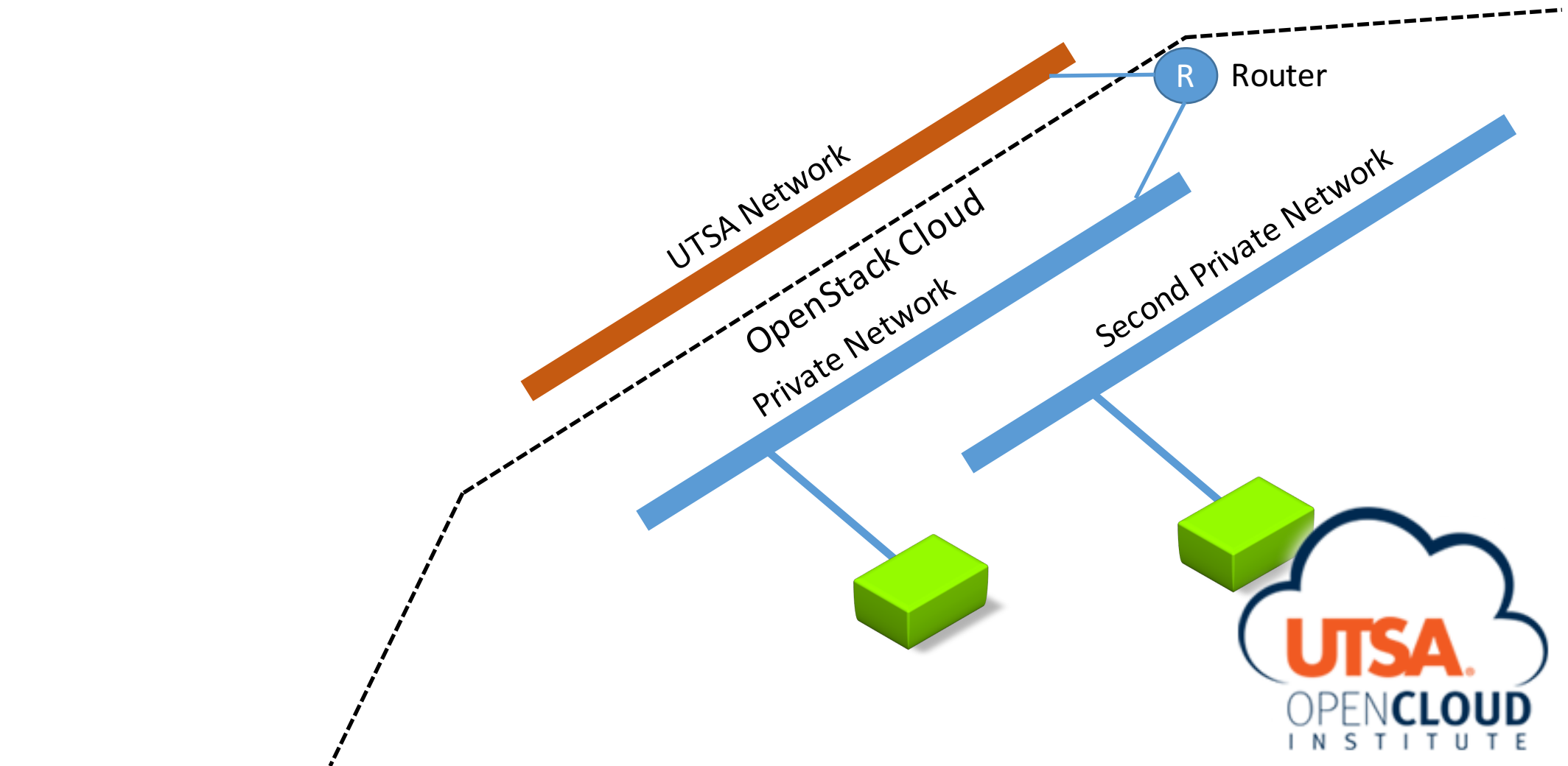
Excercise 2: VLAN Experiment



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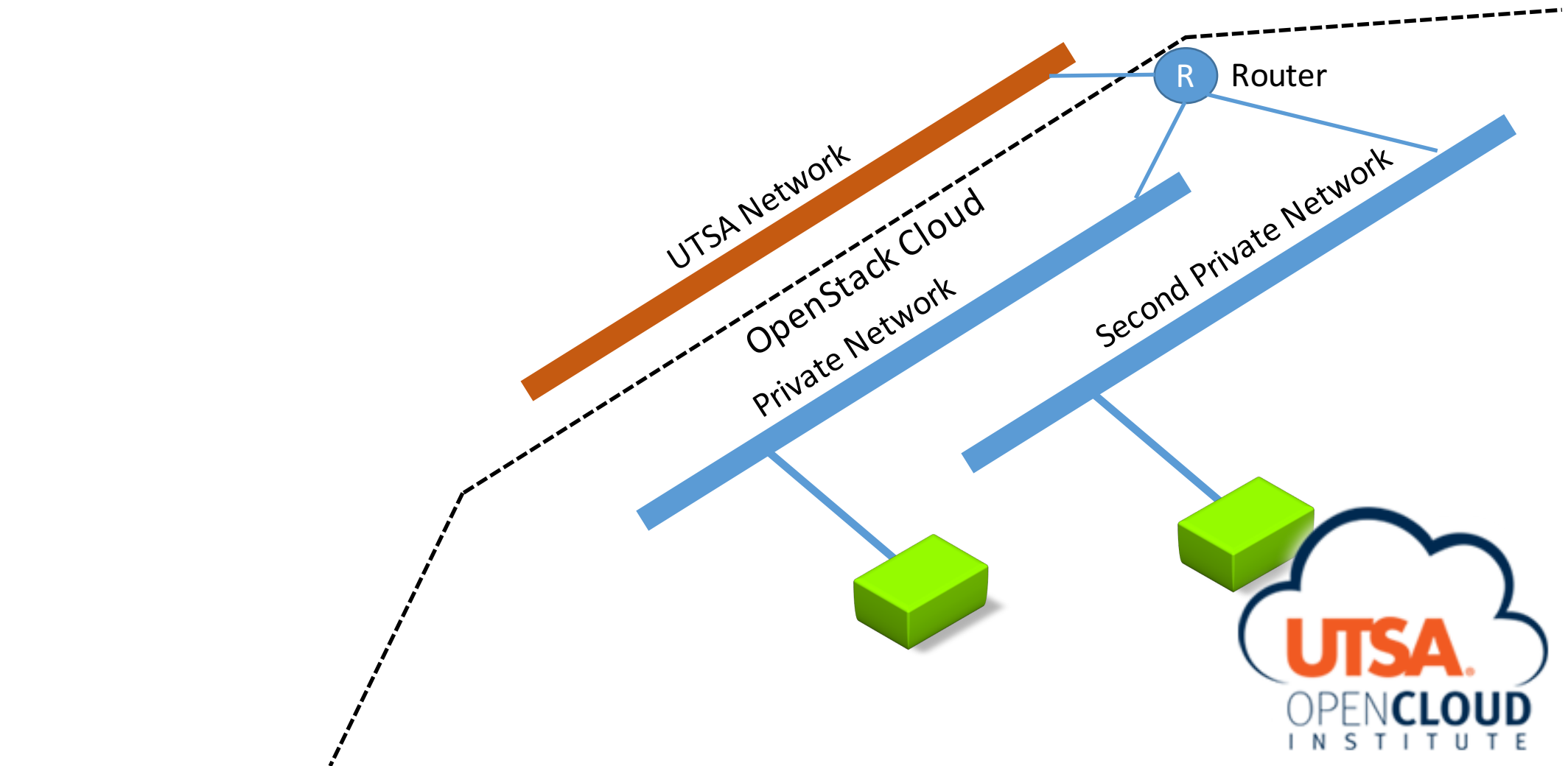

Excercise 3: Network File System