WINDOWS AZURE (IAAS) Infrastructure as a service

Users who need computing, servers, storage, and networking purchase hardware and application software and install it in their data centers. This purchase cycle can be lengthy because IT organizations require pricing, purchase orders, and subsequently manpower to install and maintain the hardware and applications. Often this infrastructure is under-utilized because applications are not used every day of the month and servers are often sized for more compute power than required. Virtualization achieves some economies of scale as servers are virtualized and IT organizations achieve optimal hardware utilization. However, end users are still dependent on IT to purchase, configure, and deploy physical or virtual servers.

Public infrastructure cloud computing provides individuals and organizations with raw computing, servers, networking, and storage as a utility. This public cloud service is called Infrastructure as a Service (IaaS). Users of a public cloud computing utility pay only for the service utilized and most importantly end users can self-service their computing needs by creating virtual servers, networks, and storage as required.

There are many public cloud vendors, such as Amazon Web Services, Rackspace, Terremark, and Microsoft Windows Azure. Public cloud IaaS can be compared with internal server deployment in the following table.

Activity	**Public Cloud Computing**	**Internal Data Center**
Procure hardware	Self-service; create a virtual server, storage, and networking using a browser	Submit purchase order, IT racks, and install hardware and software
Time to up and running	Several minutes	Several weeks
Cost	"Pay as you go," rental model, operational expense	Capital expense, entire cost borne up-front or amortized over several years
Hardware maintenance	None; responsibility borne	Internal IT sys admin cost to

Activity	Public Cloud Computing	Internal Data Center
	by cloud provider who in turn provides an SLA to the end user	maintain hardware and software

This article compares Microsoft's IaaS offering, Windows Azure, to Amazon Web Services (AWS), which is widely recognized as the market leader in public IaaS, and focuses on the basic task of deploying a virtual server, storage, and some of the associated security and identity features.

Windows Azure is an IaaS platform from Microsoft. This service allows users to create virtual machines (VMs) in the cloud, either a raw server image or a customized server with applications, features, even a development platform.

There are three methods for creating a VM:

1. Using the GUI quick method—There are six boxes to fill out to create a VM, name, type of server, disk, network, login/password; the cloud server takes about 5-6 minutes to boot.
2. Using the GUI method from the Gallery—There are pre-built images; a vanilla OS example; Windows Server 2012 or Windows Server 2008; Windows with SharePoint; Linux images, such as Ubuntu, CentOS, SUSE; and a variety of sizes, from extra small to extra large.
3. Using PowerShell scripts to add features, roles, and applications to a virtual server.

Note:

See your video Lesson for an example of creating a virtual Server in Window Azure

Sample Price Comparison

A complete price comparison would be exhaustive when one considers the plethora of services: storage, content delivery network (CDN) bandwidth costs, networking, virtual servers, databases. The following table provies a simple overview of the cost of a basic virtual server, probably the most common item deployed in an IaaS.

Virtual Machine Cost Per Hour

Item	Windows Azure	Amazon Web Services
Micro Windows VM	$0.02	$0.091
Medium Windows VM	$0.23	$0.182
Extra Large Windows VM	$0.92	$0.728
Micro Linux VM	$0.02	$0.06
Medium Linux VM	$0.17	$0.12
Extra Large Linux VM	$0.68	$0.48

Conclusion

Microsoft is helping pave the road for enterprise adoption. Microsoft balances the comfort and familiarity for customers who have used other IaaS platforms and are familiar with Microsoft from their own data centers.

Windows Azure is a powerful cloud service for compute and development. A user can self-serve a variety of VMs, both pre-built and unconfigured, with a SQL Server back end for development. There is high availability and redundancy, an easy-to-use interface, and command-line tools for all operating systems. Virtual networks and storage can be easily deployed. Other services, such as Active Directory, mobile services, a service bus, SQL Server and reporting, websites, etc., can be easily deployed for a robust IaaS. Windows Azure pricing is very competitive with Amazon Web Services.