



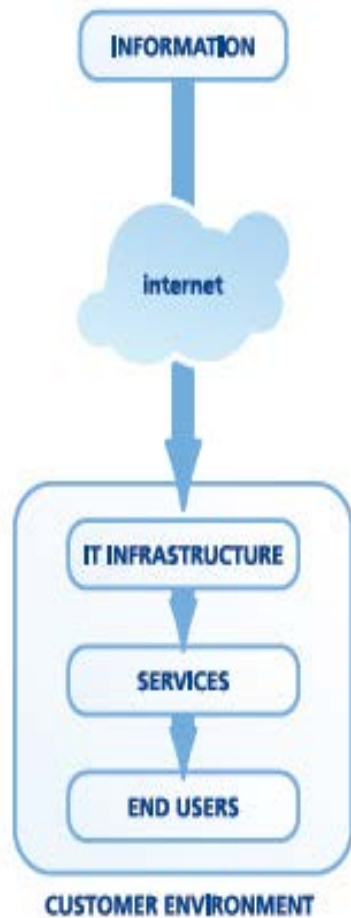
# **DMAC WORKSHOP 2012**

## **CLOUD HOSTING**

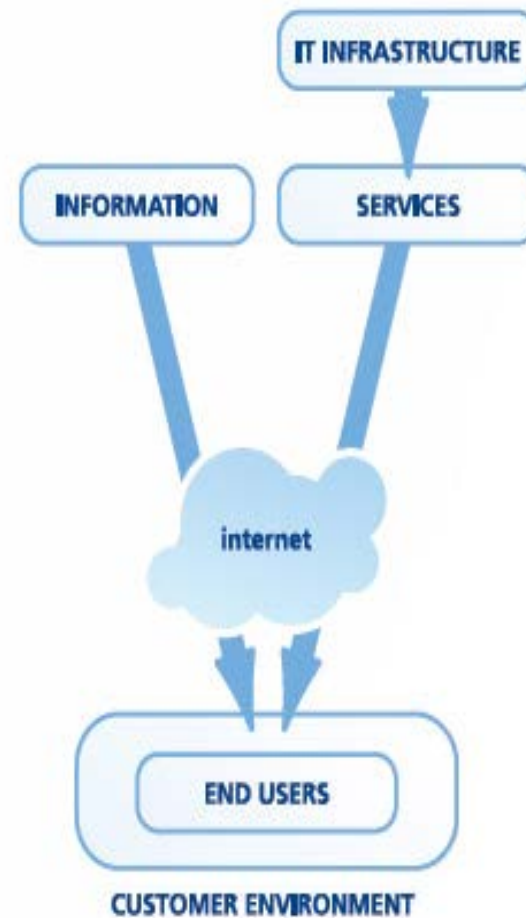
**Steven Le**

# TRADITIONAL IT VS CLOUD SERVICE

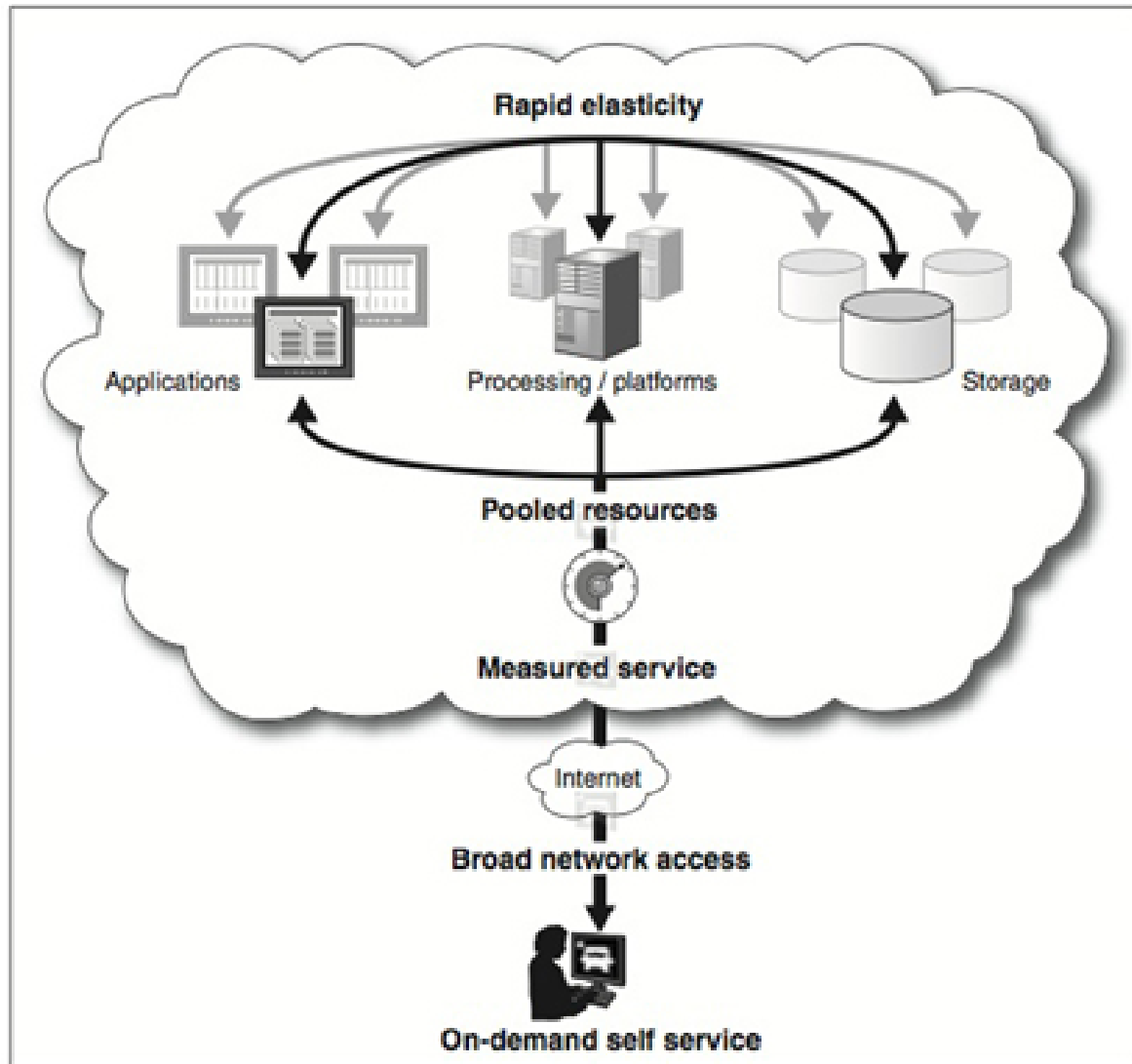
## Traditional Service



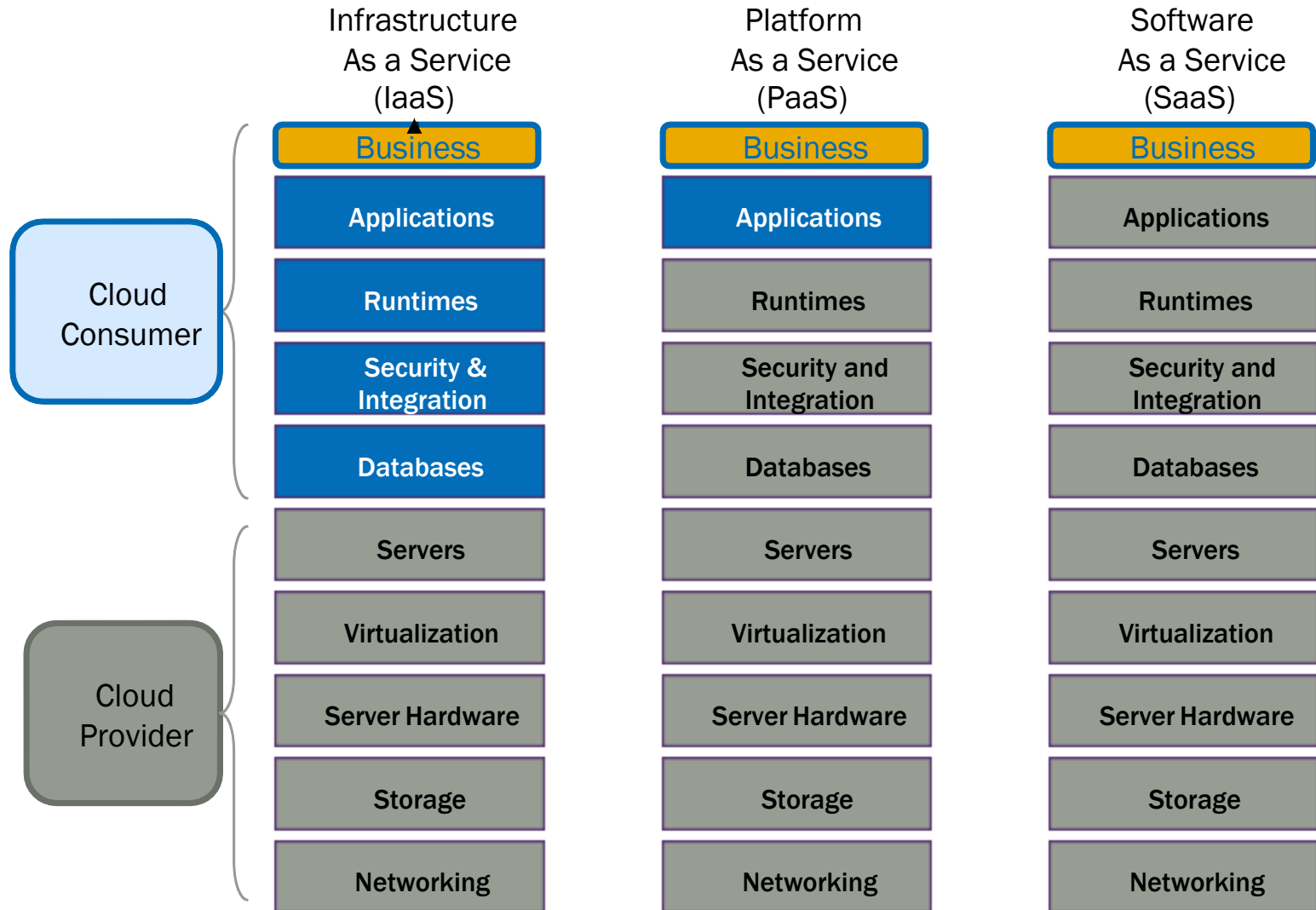
## Cloud Service



# CLOUD HOSTING = IT ON DEMAND



# HOSTING OPTIONS



# AMAZON AMI

## **Amazon Machine Images (AMIs)**

An Amazon Machine Image (AMI) is a special type of pre-configured operating system and virtual application software which is used to create a virtual machine within the Amazon Elastic Compute Cloud (EC2). It serves as the basic unit of deployment for services delivered using EC2.



Choose region:

US-East (Northern Virginia) &amp; US-Star

Inbound Data Transfer is Free and Outbound Data Transfer is 1 GB free per region per month 

Amazon Elastic Compute Cloud (Amazon EC2) is a web service that provides resizable compute capacity in the cloud. It is designed to make web-scale computing easier for developers. Amazon Elastic Block Store (EBS) provides persistent storage to Amazon EC2 instances.

Add To Bill

Clear Form

### + Compute: Amazon EC2 On-Demand Instances:

	Instances	Description	Operating System	Instance Type	Usage	Detailed Monitorin
<input type="checkbox"/>	1	Database	Linux	Medium	100 % Utilized/Month	<input type="checkbox"/>
<input type="checkbox"/>	1	App Server	Linux	Large	100 % Utilized/Month	<input type="checkbox"/>
<input type="checkbox"/>	1	Harvester	Linux	Medium	100 % Utilized/Month	<input type="checkbox"/>
<input type="checkbox"/>	1	Staging Server	Linux	Medium	100 Hours/Month	<input type="checkbox"/>

### + Compute: Amazon EC2 Reserved Instances:

### + Storage: Amazon EBS Volumes:

	Volumes	Description	Volume Type	Provisioned Storage	Average IOPS or Provisioned IOPS	Snapshot Storage
<input type="checkbox"/>	1	Customer data	Standard	10 GB-month	10	10 % Change for daily snapshots

### Elastic IP:

Number of Additional Elastic IPs:

Elastic IP Non-attached Time:  Hours/Month

Number of Elastic IP Remaps:  Per Month

### Amazon EC2 Data Transfer:

Data Transfer In:  GB/Week

Data Transfer Out:  GB/Month

Regional Data Transfer:  GB/Month

Public IP/Elastic IP Data Transfer:  GB/Month

### Elastic Load Balancing:

Number of Elastic LBs:

Total Data Processed by all ELBs:  GB/Week



## Estimate of Your Monthly Bill

 Show First Month's Bill (include all one-time fees, if any)


With AWS, You only pay for what you use. Below you will see an estimate of your monthly bill. Expand each line item to see cost breakout of each service. To save this bill and input values, click on 'Save and Share' button. To remove the service from the estimate, click on the red cross.

<input type="checkbox"/>	Amazon EC2 Service (US-East)		\$	<input type="text" value="514.98"/>	<input type="button" value="✕"/>
	Compute:	\$	<input type="text" value="484.48"/>		
	Regional Transfer:	\$	<input type="text" value="0.00"/>		
	EBS Volumes:	\$	<input type="text" value="1.00"/>		
	EBS IOPS:	\$	<input type="text" value="2.60"/>		
	EBS Snapshots:	\$	<input type="text" value="3.22"/>		
	Reserved Instances (One-time Fee):	\$	<input type="text" value="0.00"/>		
	Elastic IPs:	\$	<input type="text" value="3.66"/>		
	Elastic LBs:	\$	<input type="text" value="18.30"/>		
	Data Processed by Elastic LBs:	\$	<input type="text" value="1.72"/>		
<input type="checkbox"/>	Amazon S3 Service (US-East)		\$	<input type="text" value="3.95"/>	<input type="button" value="✕"/>
<input type="checkbox"/>	Amazon SNS Service (US-East)		\$	<input type="text" value="0.00"/>	<input type="button" value="✕"/>
<input type="checkbox"/>	Amazon CloudFront Service		\$	<input type="text" value="43.87"/>	<input type="button" value="✕"/>
<input type="checkbox"/>	Amazon Route 53 Service		\$	<input type="text" value="1.00"/>	<input type="button" value="✕"/>
<input type="checkbox"/>	Amazon SimpleDB Service (US-East)		\$	<input type="text" value="0.01"/>	<input type="button" value="✕"/>
<input type="checkbox"/>	AWS Support		\$	<input type="text" value="0.00"/>	<input type="button" value="✕"/>
<input type="checkbox"/>	AWS Data Transfer In		\$	<input type="text" value="0.00"/>	
<input type="checkbox"/>	AWS Data Transfer Out		\$	<input type="text" value="51.48"/>	
	<b>Free Tier Discount:</b>		\$	<input type="text" value="-22.67"/>	
	<b>Total One-Time Payment:</b>		\$	<input type="text" value="0.00"/>	
	<b>Total Monthly Payment:</b>		\$	<input type="text" value="592.62"/>	




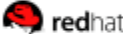









## Request Instances Wizard

Cancel 



Choose an Amazon Machine Image (AMI) from one of the tabbed lists below by clicking its **Select** button.

**Quick Start** | My AMIs | Community AMIs | AWS Marketplace

	<b>Amazon Linux AMI 2012.03</b> The Amazon Linux AMI 2012.03 is an EBS-backed, PV-GRUB image. It includes Linux 3.2, AWS tools, and repository access to multiple versions of MySQL, PostgreSQL, Python, Ruby, and Tomcat. Root Device Size: 8 GB	<input checked="" type="radio"/> 64 bit <input type="radio"/> 32 bit		<b>Select</b> 
	<b>Red Hat Enterprise Linux 6.3</b> Red Hat Enterprise Linux version 6.3, EBS-boot. Root Device Size: 7 GB	<input checked="" type="radio"/> 64 bit <input type="radio"/> 32 bit		<b>Select</b> 
	<b>SUSE Linux Enterprise Server 11</b> SUSE Linux Enterprise Server 11 Service Pack 2 basic install, EBS boot with Amazon EC2 AMI Tools preinstalled; Apache 2.2, MySQL 5.0, PHP 5.3, and Ruby 1.8.7 Root Device Size: 10 GB	<input checked="" type="radio"/> 64 bit <input type="radio"/> 32 bit		<b>Select</b> 
	<b>Ubuntu Server 12.04.1 LTS</b> Ubuntu Server 12.04.1 LTS, with support available from Canonical ( <a href="http://www.ubuntu.com/cloud/services">http://www.ubuntu.com/cloud/services</a> ). Root Device Size: 8 GB	<input checked="" type="radio"/> 64 bit <input type="radio"/> 32 bit		<b>Select</b> 
	<b>Ubuntu Server 11.10</b> Ubuntu Server 11.10 with support available from Canonical ( <a href="http://www.ubuntu.com/cloud/services">http://www.ubuntu.com/cloud/services</a> ). Root Device Size: 8 GB	<input checked="" type="radio"/> 64 bit <input type="radio"/> 32 bit		<b>Select</b> 

 Free tier eligible if used with a micro instance. See [AWS free tier](#) for complete details and terms.





## Request Instances Wizard

Cancel 

CHOOSE AN AMI

**INSTANCE DETAILS**

CREATE KEY PAIR

CONFIGURE FIREWALL

REVIEW

Provide the details for your instance(s). You may also decide whether you want to launch your instances as "on-demand" or "spot" instances.

Number of Instances:

Instance Type:

Micro (t1.micro, 613 MiB)

Launch as an EBS-Optimized instance

Launch Instances

EC2 Instances let you pay for on-demand instances with large fixed costs into much smaller, more flexible costs.

Launch into:

EC2

Available

Request Spot Instances

Type	CPU Units	CPU Cores	Memory
Micro (t1.micro) ★ Free tier eligible	Up to 2 ECUs	1 Core	613 MiB
Small (m1.small)	1 ECU	1 Core	1.7 GiB
High-CPU Medium (c1.medium)	5 ECUs	2 Cores	1.7 GiB
Medium (m1.medium)	2 ECUs	1 Core	3.7 GiB
Large (m1.large)	4 ECUs	2 Cores	7.5 GiB
Extra Large (m1.xlarge)	8 ECUs	4 Cores	15 GiB
High-Memory Extra Large (m2.xlarge)	6.5 ECUs	2 Cores	17.1 GiB
High-Memory Double Extra Large (m2.2xlarge)	13 ECUs	4 Cores	34.2 GiB
High-Memory Quadruple Extra Large (m2.4xlarge)	26 ECUs	8 Cores	68.4 GiB
High-CPU Extra Large (c1.xlarge)	20 ECUs	8 Cores	7 GiB

# FEDERAL CLOUD COMPUTING STRATEGY

## Cloud First

*“...This policy is intended to accelerate the pace at which the government will realize the value of cloud computing by requiring agencies to evaluate safe, secure cloud computing options before making any new investments.”*

Mr. Vivek Kundra  
U.S. Chief Information Officer (CIO)  
February 8, 2011

Source: <http://www.cio.gov/documents/federal-cloud-computing-strategy.pdf>



# CLOUD BENEFITS: EFFICIENCY, AGILITY, INNOVATION

## US CIO' Executive Summary

EFFICIENCY	
Cloud Benefits	Current Environment
<ul style="list-style-type: none"> <li>Improved asset utilization (server utilization &gt; 60-70%)</li> <li>Aggregated demand and accelerated system consolidation (e.g., Federal Data Center Consolidation Initiative)</li> <li>Improved productivity in application development, application management, network, and end-user</li> </ul>	<ul style="list-style-type: none"> <li>Low asset utilization (server utilization &lt; 30% typical)</li> <li>Fragmented demand and duplicative systems</li> <li>Difficult-to-manage systems</li> </ul>
AGILITY	
Cloud Benefits	Current Environment
<ul style="list-style-type: none"> <li>Purchase "as-a-service" from trusted cloud providers</li> <li>Near-instantaneous increases and reductions in capacity</li> <li>More responsive to urgent agency needs</li> </ul>	<ul style="list-style-type: none"> <li>Years required to build data centers for new services</li> <li>Months required to increase capacity of existing services</li> </ul>
INNOVATION	
Cloud Benefits	Current Environment
<ul style="list-style-type: none"> <li>Shift focus from asset ownership to service management</li> <li>Tap into private sector innovation</li> <li>Encourages entrepreneurial culture</li> <li>Better linked to emerging technologies (e.g., devices)</li> </ul>	<ul style="list-style-type: none"> <li>Burdened by asset management</li> <li>De-coupled from private sector innovation engines</li> <li>Risk-adverse culture</li> </ul>



# CLOUD COMPUTING/HOSTING FOR IOOS?

- Neutral network infrastructure
- Time to setup= minutes, not months
- Computing resource utilization
- Sharing, pooling resources
- No up-front capital expenditure
- Scale up/down as needed

