



# Lessons for Long Life as a CIO

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**CIO Perspectives**  
*San Francisco, CA*

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長壽十則

多菜少肉 多酢少鹽  
多果少糖 多咀少食  
多眠少妖 多笑少怒  
多行少言 多施少欲  
多浴少衣 多步少車



# Ten Lessons for Long Life

- More Vegetables → Less Meat
- More Vinegar → Less Salt
- More Fruit → Less Sugar
- More Chewing → Less Swallowing
- More Sleep → Less Worry
- More Laughter → Less Anger
- More Action → Less Words
- More Giving → Less Wanting
- More Bathing → Less Clothing
- More Walking → Less Riding

# Model One

	<b>1</b> <b>Traditional</b>
<b>SW</b>	<b>\$4000/user</b> <b>(one time)</b>
<b>Support</b>	<b>\$800/user/</b> <b>year</b>

# Model Two

	1 Traditional	2 Open Source
SW	\$4000/user (one time)	\$0/user
Support	\$800/user/ year	\$1600/user/ year

# Cost to Manage Software is 4x the Purchase Price per Year



# Model Three

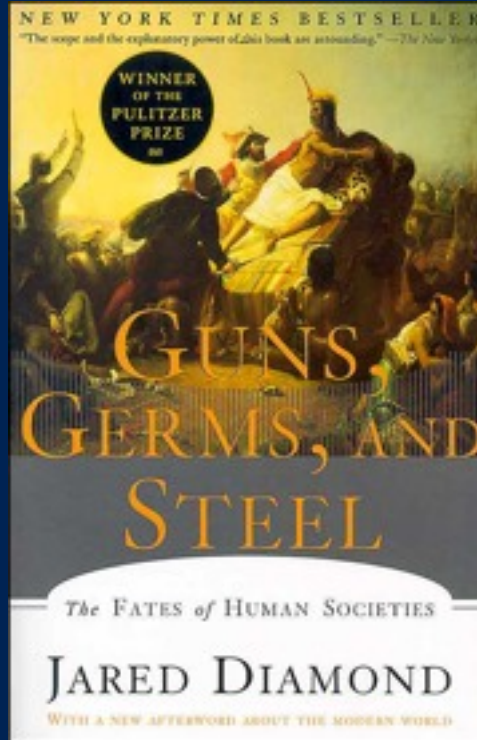
	1 Traditional	2 Open Source	3 Outsourcing
SW	\$4000/user (one time)	\$0/user	\$4000/user (one time)
Support	\$800/user/ year	\$1600/user/ year	\$800/user/ year
Mgmt			Bid <1300/user /month
			@H @C

# Model Four

	1 Traditional	2 Open Source	3 Outsourcing	4 Hybrid
SW	\$4000/user (one time)	\$0/user	\$4000/user (one time)	<b>\$4000/user (one time)</b>
Support	\$800/user/ year	\$1600/user/ year	\$800/user/ year	<b>\$800/user/ year</b>
Mgmt			Bid <1300/user /month	<b>\$150/user/ month</b>
			@H @C	@H @C



# Standardization, Specialization, Repetition...



# Model Five

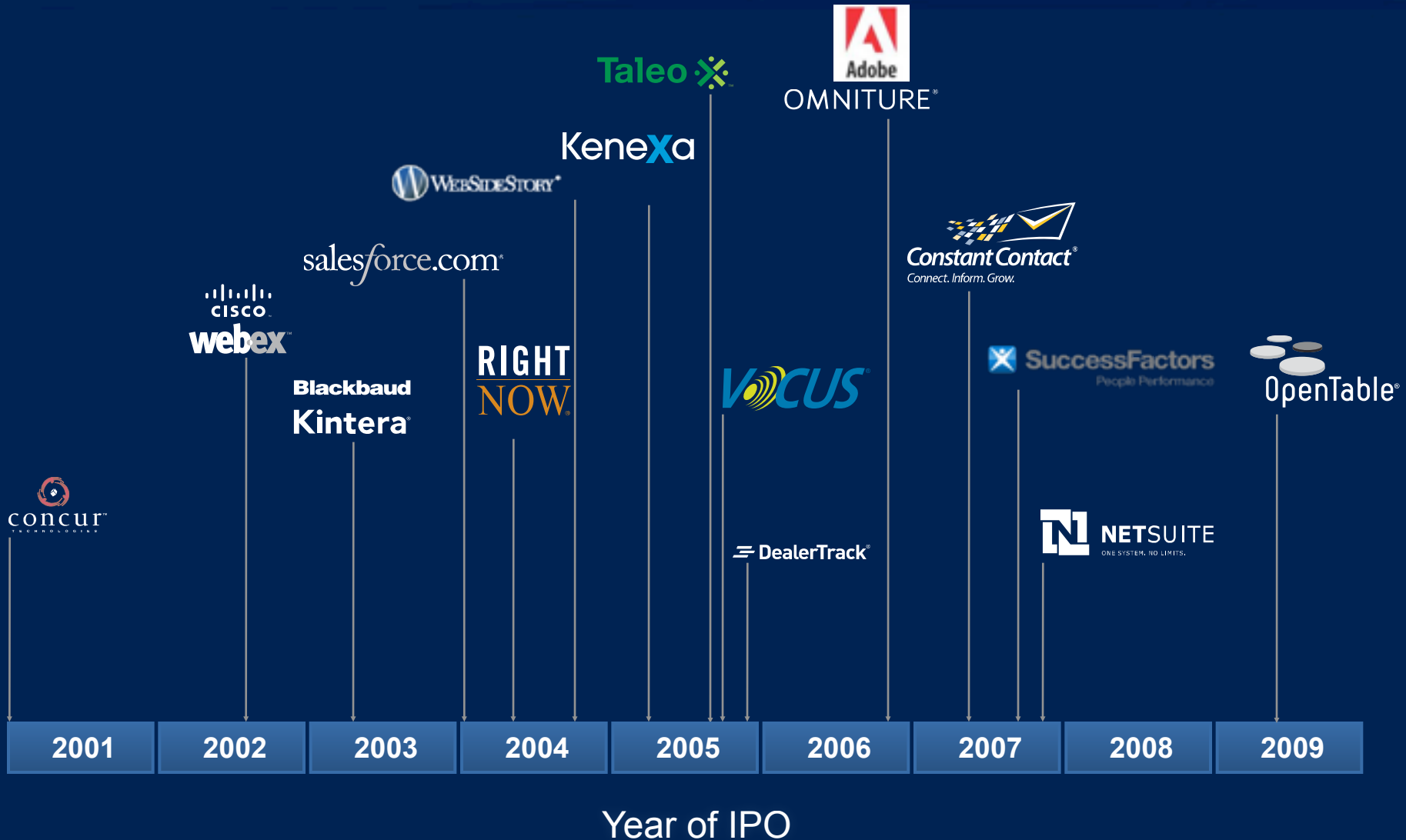
	1 Traditional	2 Open Source	3 Outsourcing	4 Hybrid	5 Hybrid+	
SW	\$4000/user (one time)	\$0/user	\$4000/user (one time)	\$4000/user (one time)		
Support	\$800/user/ year	\$1600/user/ year	\$800/user/ year	\$800/user/ year		\$300/user/ month
Mgmt			Bid <1300/user /month	\$150/user/ month		
			@H @C	@H @C	@H @C	

# Model Six

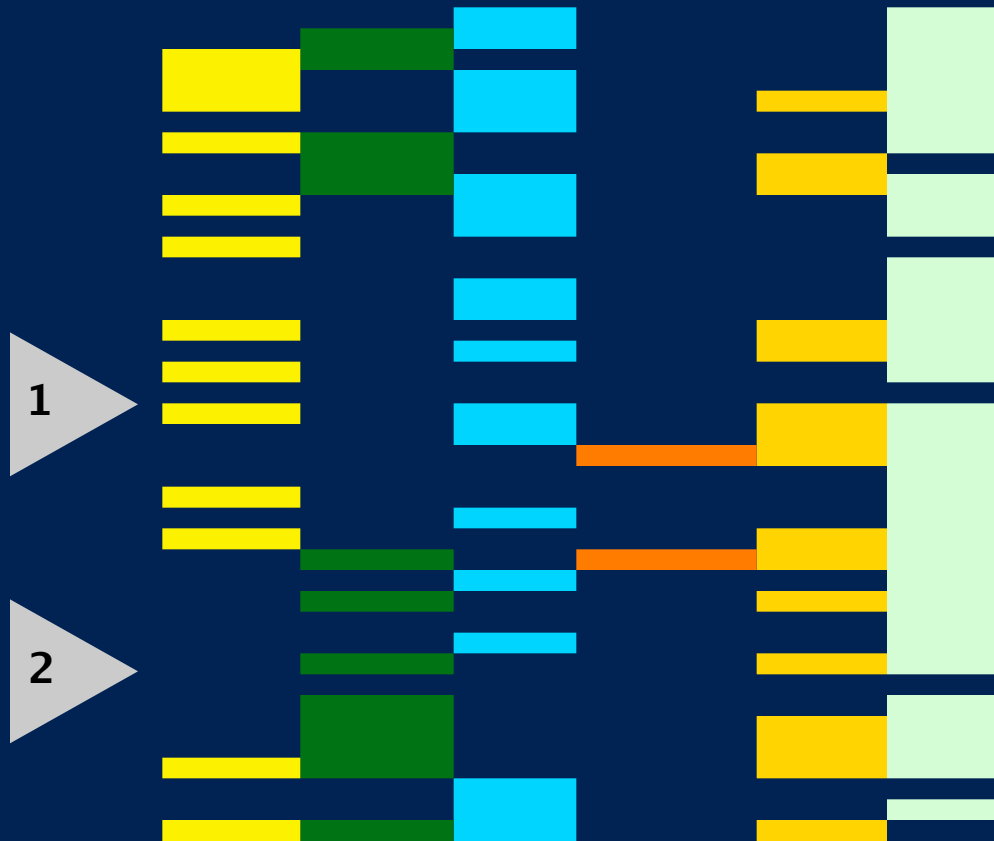
	1 Traditional	2 Open Source	3 Outsourcing	4 Hybrid	5 Hybrid+	6 SaaS
SW	\$4000/user (one time)	\$0/user	\$4000/user (one time)	\$4000/user (one time)	\$300/user/ month	<\$100/user/ month
Support	\$800/user/ year	\$1600/user/ year	\$800/user/ year	\$800/user/ year		
Mgmt			Bid <1300/user /month	\$150/user/ month		
			@H @C	@H @C	@H @C	

# Application Cloud Services

## \$10B+ worth of Business Applications delivered



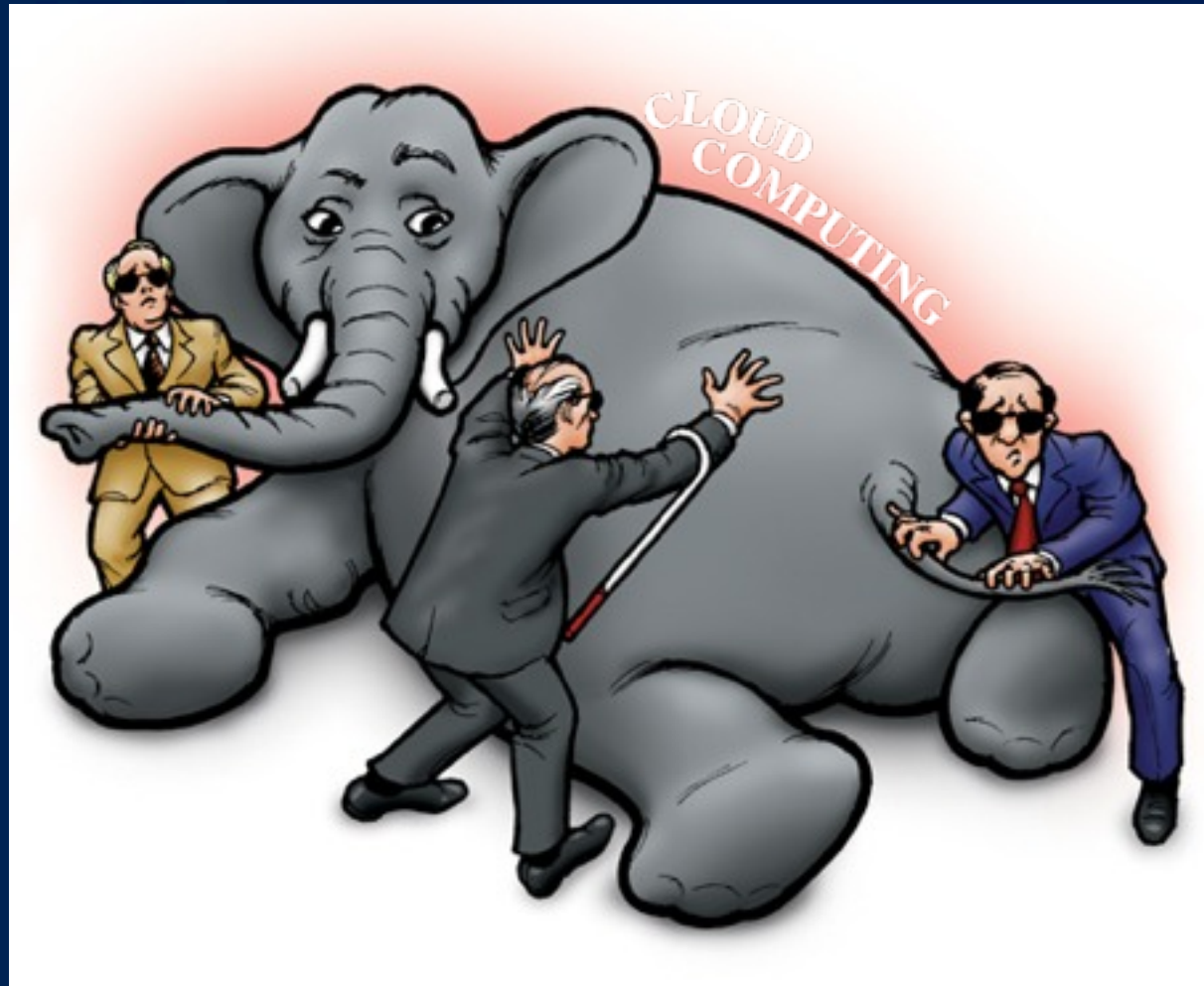
# 38 out of 40 of the Largest Companies in the World use one of these Application Cloud Services



# Model Seven

	1 Traditional	2 Open Source	3 Outsourcing	4 Hybrid	5 Hybrid+	6 SaaS	7 Internet		
<b>SW</b>	\$4000/user (one time)	\$0/user	\$4000/user (one time)	\$4000/user (one time)			<b>Ads</b>  <b>Transaction</b> <b>s</b>  <b>Embedded</b> <b>(&lt; \$10/user/</b> <b>Month)</b>		
<b>Support</b>	\$800/user/ year	\$1600/user/ year	\$800/user/ year	\$800/user/ year				\$300/user/ month	<\$100/user/ month
<b>Mgmt</b>			Bid <1300/user /month	\$150/user/ month					
			@H @C	@H @C	@H @C				

# What is Cloud Computing?



# We've all used Consumer Application Cloud Services









# And there are many Business Application Cloud Services



# All Use The Original Cloud






**Consumer Application Cloud Services**









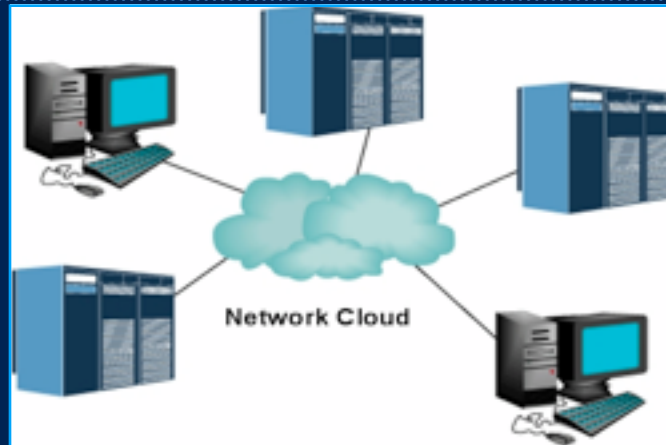

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**Business Application Cloud Services**





**Network Cloud Services**









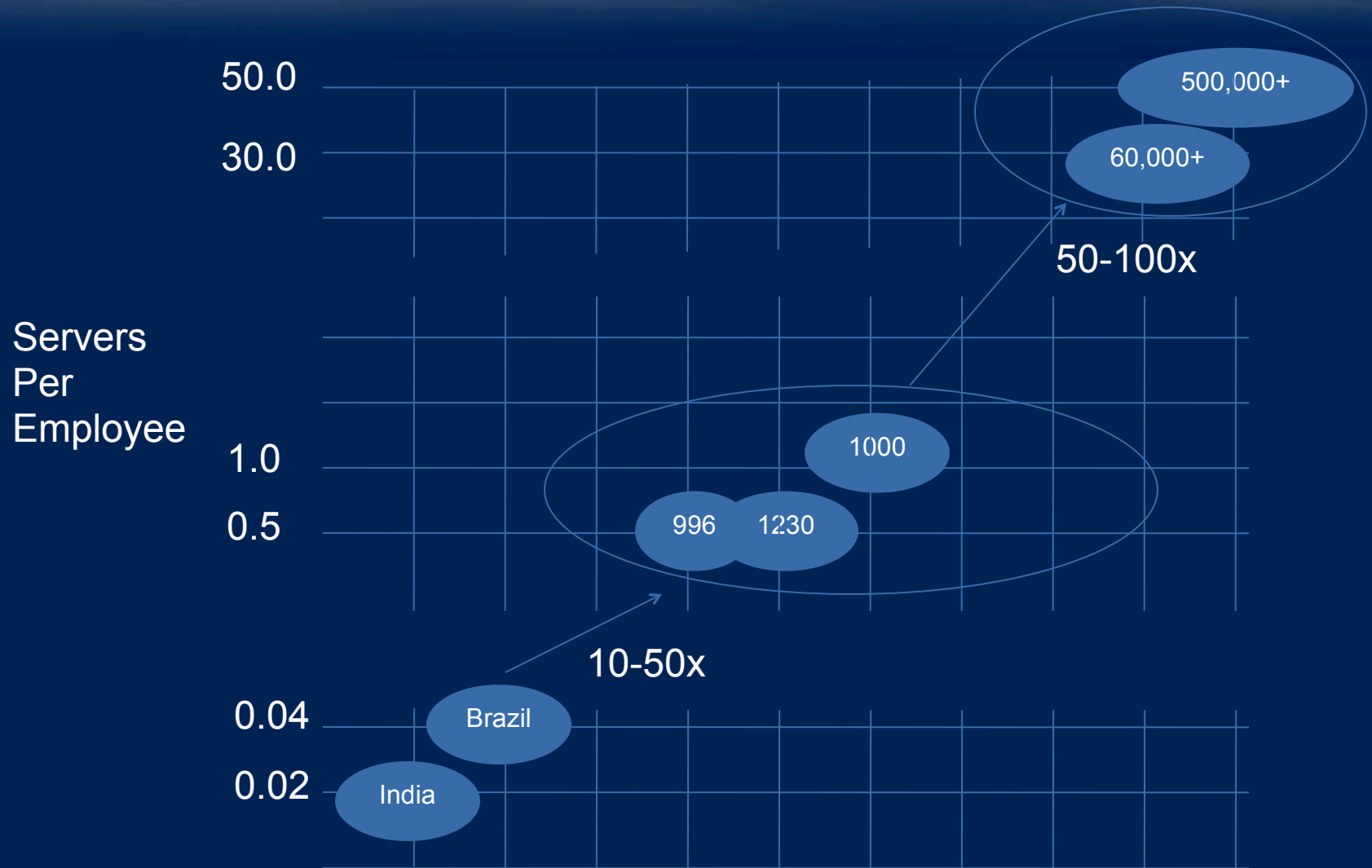




# Many also use Datacenter Cloud Services

  	Consumer Application Cloud Services	  
     	Business Application Cloud Services	    
   	Datacenter Cloud Services	  
   	Network Cloud Services	   

# Servers Per Employee



# Compute & Storage Cloud Services

## Amazon opened the door



Compute & Storage  
Cloud Services



November 2006



Datacenter  
Cloud Services



Network  
Cloud Services



# Many, many new Compute & Storage Cloud Services

Compute & Storage Cloud Services

Logos included in this section: NTT Communications, at&t, IBM, EMC<sup>2</sup> (where information lives<sup>®</sup>), Decho (YOUR DIGITAL ECNO), carinet (Better Servers. Better Services), amazon.com web services, Joyent, layeredtech, NaviSite, the rackspace cloud, terremark, GÜGRID, and Windows Azure.

Datacenter Cloud Services

Logos included in this section: layeredtech, SAVVIS, terremark, DIGITAL REALTY TRUST, INTERNAP, NTT Communications, and rackspace HOSTING.

Network Cloud Services

Logos included in this section: Bell, Qwest, XO (Not just talk.), at&t, verizon, MASERGY (Global Networking Redefined), Sprint, and Level(3) COMMUNICATIONS.

# Virtualization is a Technology Cloud Computing is a Business Model

US – N. Virginia	US – N. California	EU – Ireland	APAC – Singapore
<b>Standard On-Demand Instances</b>		<b>Linux/UNIX Usage</b>	<b>Windows Usage</b>
Small (Default)		\$0.085 per hour	\$0.12 per hour
Large		\$0.34 per hour	\$0.48 per hour
Extra Large		\$0.68 per hour	\$0.96 per hour
<b>Micro On-Demand Instances</b>		<b>Linux/UNIX Usage</b>	<b>Windows Usage</b>
Micro		\$0.02 per hour	\$0.02 per hour
<b>High-Memory On-Demand Instances</b>			
Extra Large		\$0.50 per hour	\$0.72 per hour
Double Extra Large		\$1.00 per hour	\$1.24 per hour
Quadruple Extra Large		\$2.00 per hour	\$2.48 per hour
<b>High-CPU On-Demand Instances</b>			
Medium		\$0.17 per hour	\$0.29 per hour
Extra Large		\$0.68 per hour	\$1.16 per hour



## Compute

Per service hour

**\$0.12/hour**

+ Variable Instance Sizes

## Storage

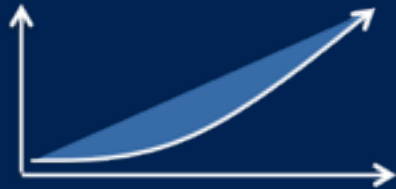
Per GB stored and  
transactions

**\$0.15 GB/month**

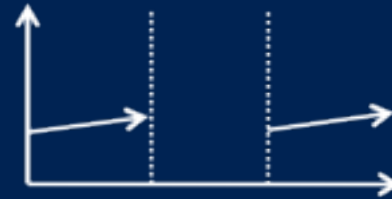
\$0.01/10k transactions

# Cloud Application Workloads

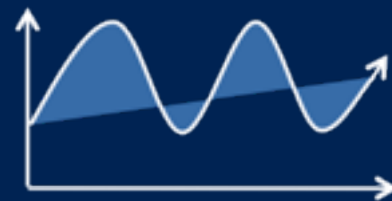
High Growth



On-Off



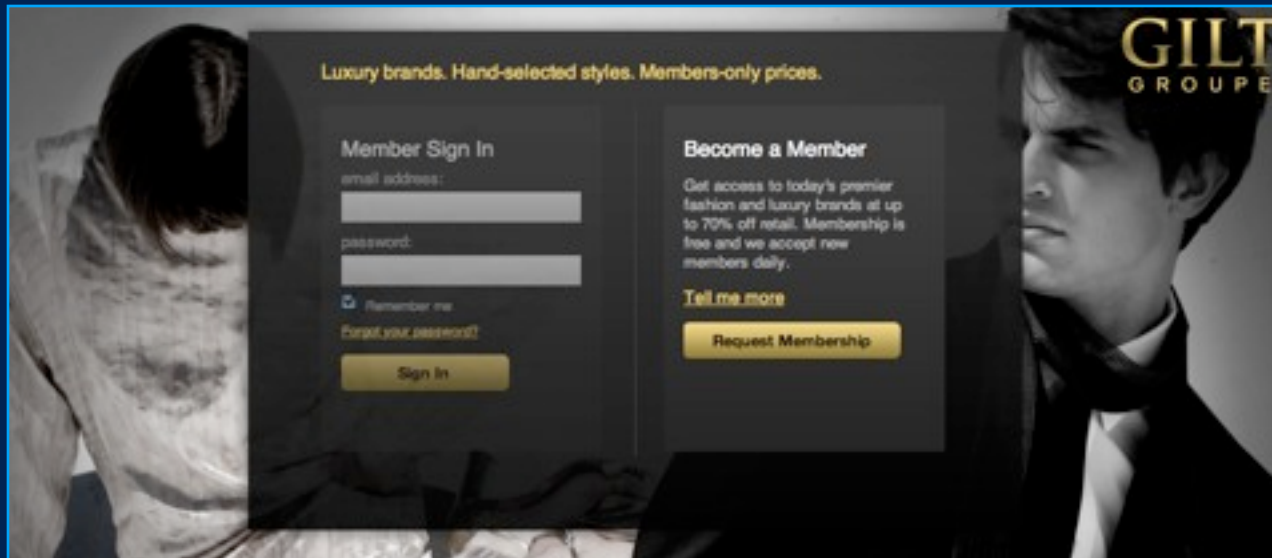
Aperiodic Bursting



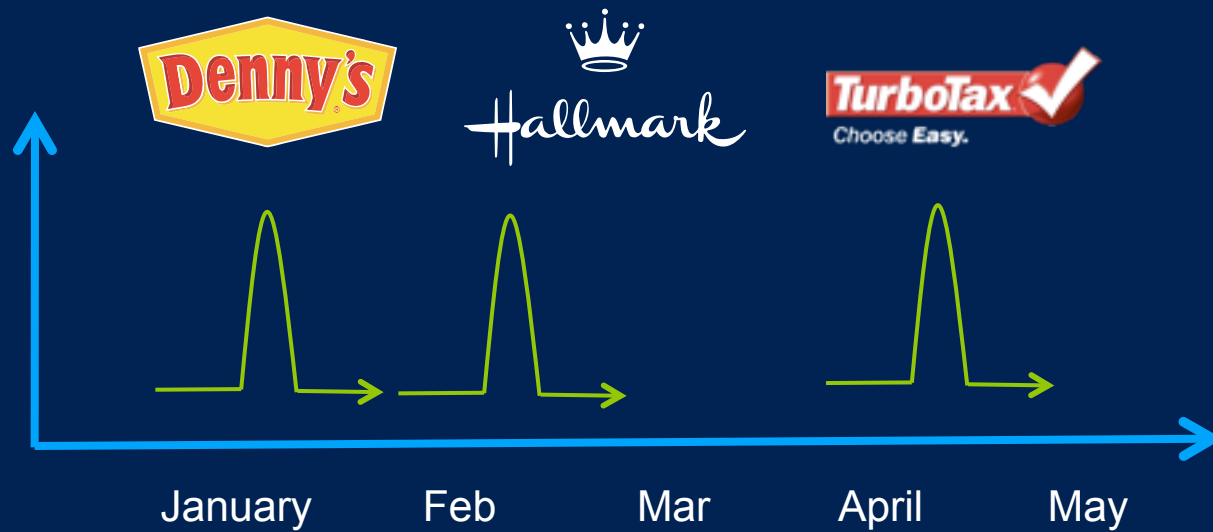
Periodic Bursting



# High Growth Applications



# Aperiodic Bursting



# On-Off Applications



 **Pathwork.**  
Diagnostics

## RECENT NEWS

**March 30, 2009**

Pathwork Tissue of Origin Test  
Validation Study Published in  
Journal of Clinical Oncology

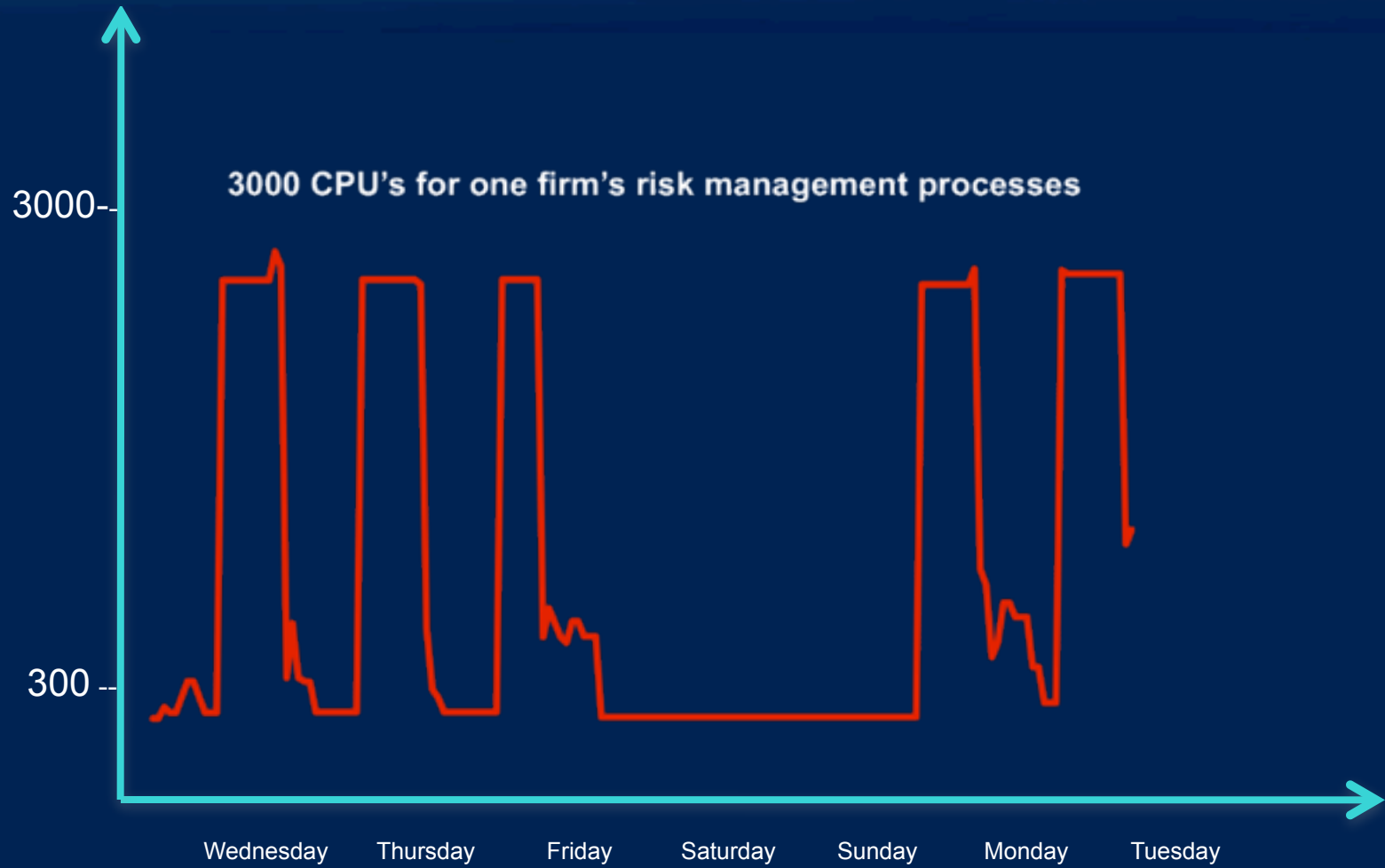
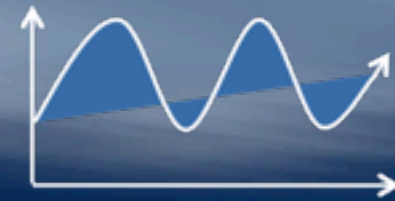
Aiding cancer identification



# know your target

Introducing a gene expression test that reliably pinpoints a tumor's origin

# Periodic Bursting



# Create Specialized Compute & Storage Cloud Services



Compute & Storage  
Cloud Services



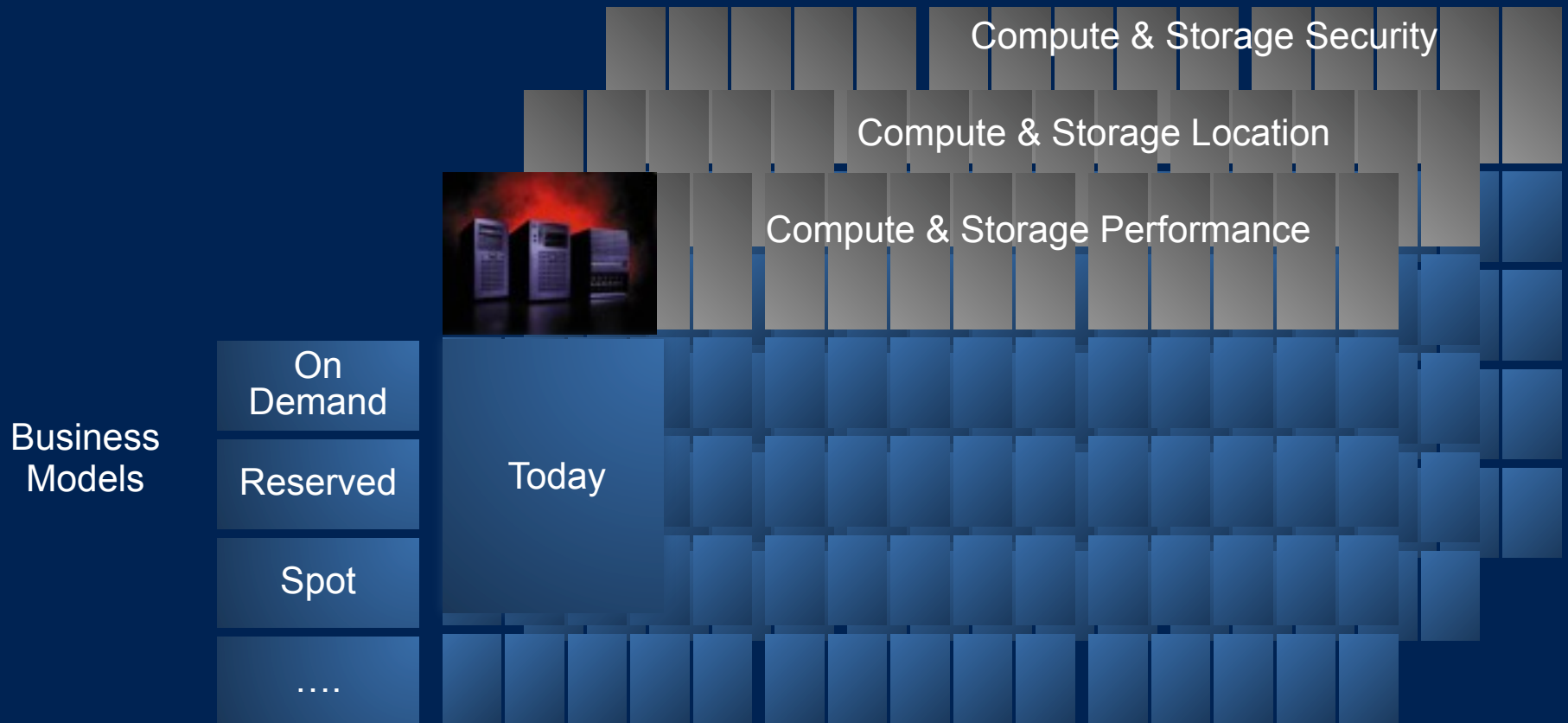
Datacenter  
Cloud Services



Network  
Cloud Services



# Specialized Compute & Storage Cloud Services



# Software Development Cloud Services

## Application



SW Development  
Cloud Services



Compute & Storage  
Cloud Services



Datacenter  
Cloud Services



Network  
Cloud Services



# Operations Management Cloud Services

## Application

Ops Management Cloud Services



Compute & Storage Cloud Services



Datacenter Cloud Services



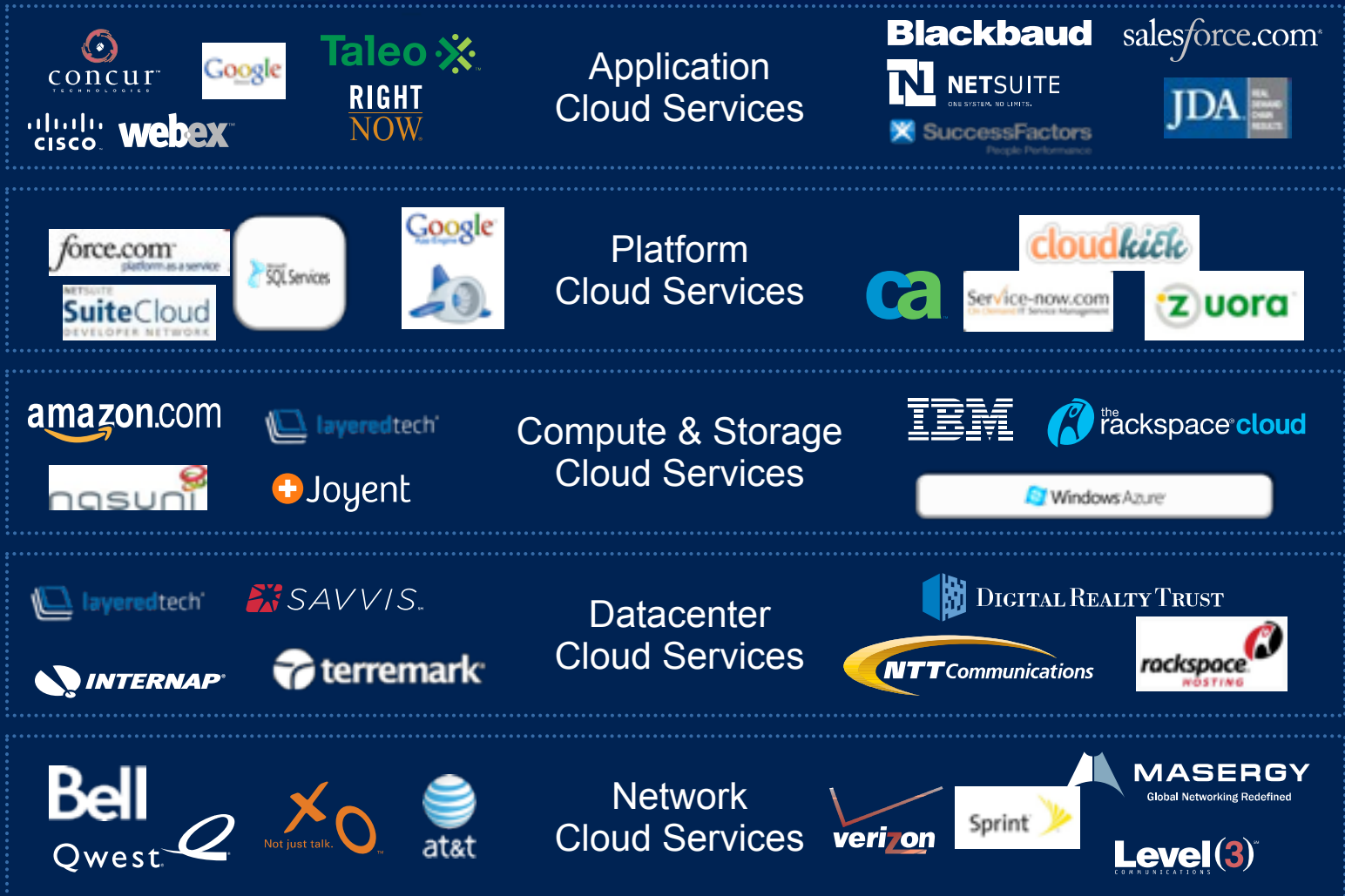
Network Cloud Services





# 1000s of Cloud Services

[www.cloudbook.net](http://www.cloudbook.net)



# Homework

# Get Smart – Get Specialists

Application  
Cloud Services

Platform  
Cloud Services

Compute & Storage  
Cloud Services

Datacenter  
Cloud Services

Network  
Cloud Services



[www.cloudbook.net](http://www.cloudbook.net)

# Application Cloud Strategy

Application  
Cloud Services



Platform  
Cloud Services

Compute & Storage  
Cloud Services

Datacenter  
Cloud Services

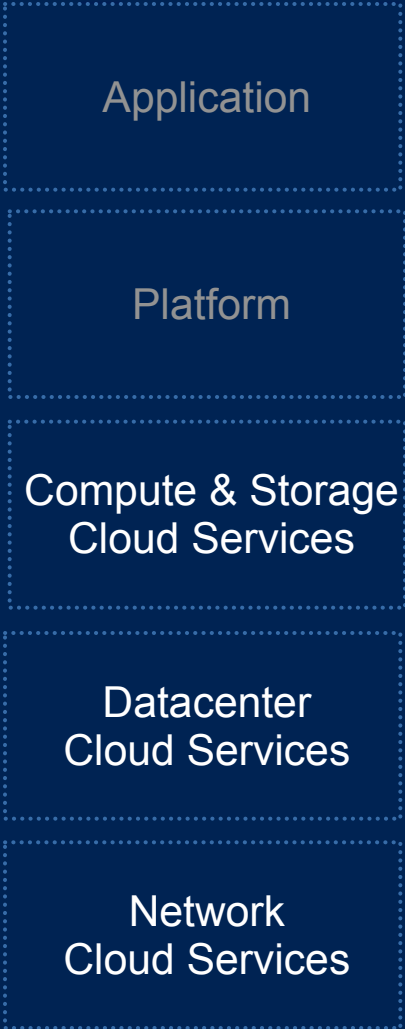
Network  
Cloud Services

1. Ask your traditional app suppliers to manage their software
2. Surround traditional apps with new application cloud services
3. Procure only new application cloud services



# Compute & Storage Cloud Strategy

1. Inspect your current servers, storage, datacenter and network infrastructure
  - Architect at the server, storage, datacenter and network level a series of solutions using the 3 classes of cloud services
  - Select & Implement



amazon.com layeredtech IBM the rackspace cloud

terremark Joyent Windows Azure

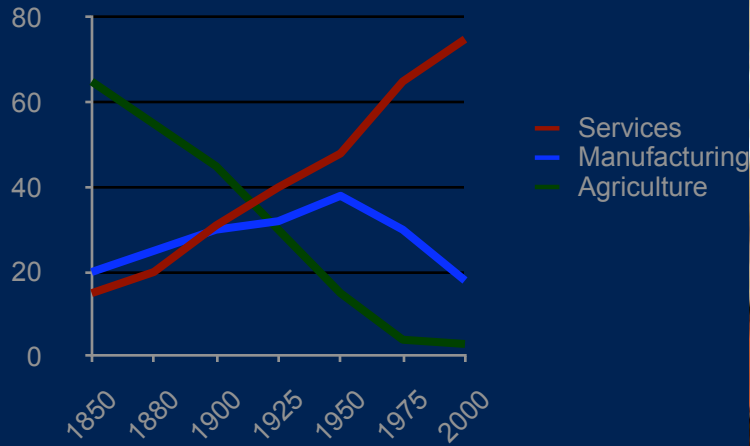
layeredtech SAVVIS DIGITAL REALTY TRUST 365 MAIN

INTERNAP SUNGARD NTT Communications

Bell Qwest XO Not just talk. at&t verizon Sprint MASERGY Global Networking Redefined Level(3) COMMUNICATIONS

# Business Innovation

## Service is Information, Personal to You



A screenshot of the Amazon.com website. The page displays a book recommendation for "The Life and Extraordinary Afterlife of Humphrey Bogart" by Stefan Kanfer. The book cover is visible, along with the title and author's name. Below the main recommendation, there are several other book titles and their prices, including "West of Here" by Jonathan Evison, "Endgame: Bobby Fischer's Remarkable..." by Frank Brady, "A Discovery of Witches: A Novel" by Deborah E. Harkness, and "The Illumination: A Novel" by Kevin Brockmeier. The page also features a sidebar with "Browse Books" categories and a "More Items to Consider" section.

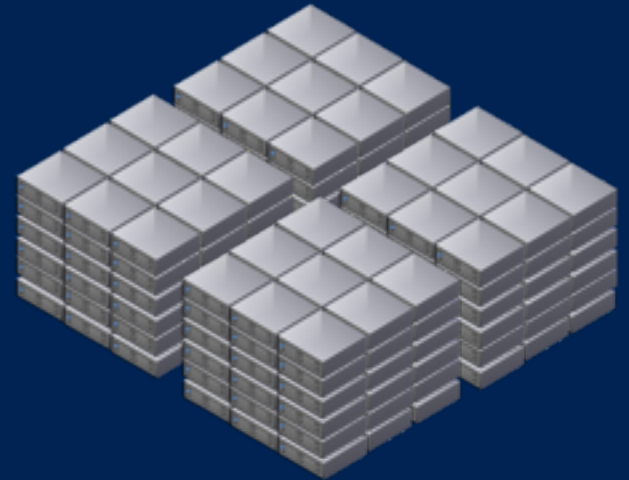
# What's Different?

1 Computer

3.5 years

10,000  
Computers

30 minutes





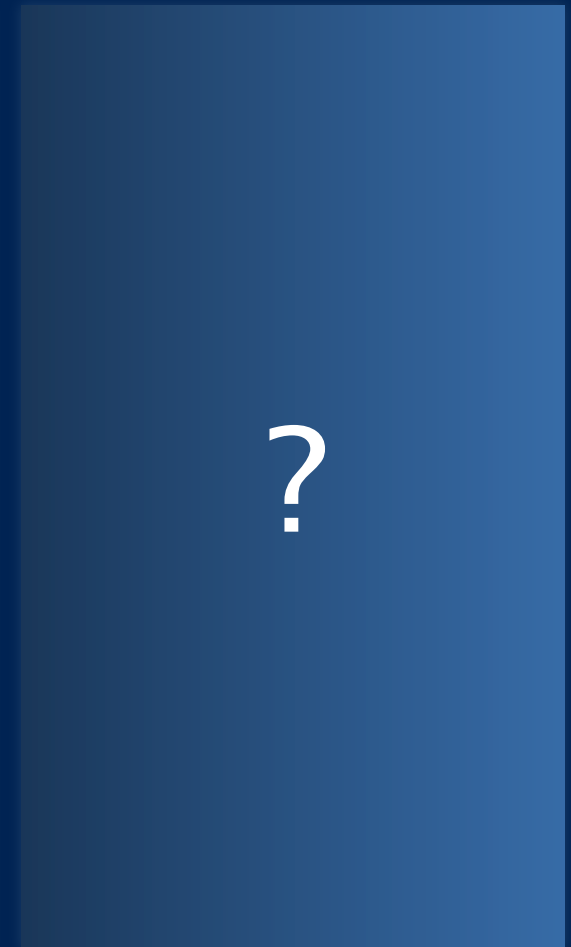
# Mainframe – Client/Server - Cloud



60s



80s



00s

長壽十則

多菜少肉 多酢少鹽  
多果少糖 多咀少食  
多眠少妖 多笑少怒  
多行少言 多施少欲  
多浴少衣 多步少車



# Software Development Cloud Strategy

Application  
Cloud Services

Platform  
Cloud Services

Compute & Storage  
Cloud Services

Datacenter  
Cloud Services

Network  
Cloud Services

1. Form a small team who builds new apps on the next generation of software development cloud services