



AMAZON ENTERS THE CLOUD COMPUTING BUSINESS

TABLE OF CONTENTS

1. **Introduction**
2. **Company Overview**
 - 2.1. The Founding of Amazon
 - 2.2. Amazon's Culture
 - 2.3. Amazon's Retail Business
 - 2.4. Amazon's Other Services & Products
 - 2.5. Financial Performance of Amazon
 - 2.6. Competition and Competitive Trends
3. **Cloud Computing Overview**
4. **Amazon Enters the Market for Cloud Computing and Storage Services**
 - 4.1. Amazon's Elastic Compute Cloud (EC2)
 - 4.2. Amazon's Simple Storage Service (S3)
 - 4.3. Customers of Amazon's Cloud Computing
 - 4.4. Partners of Amazon's Cloud Computing
5. **Industry and Analyst Responses**
 - 5.1. Microsoft
 - 5.2. Google
 - 5.3. Sun Microsystem
 - 5.4. IBM
 - 5.5. Market Analysts
6. **Exhibits**
7. **References**

Professors Micah Siegel (Stanford University) and Fred Gibbons (Stanford University) guided the development of this case using the CasePublisher service, available online at www.casepublisher.com, as the basis for class discussion rather than to illustrate either effective or ineffective handling of a business situation.

INTRODUCTION

Amazon CEO Jeff Bezos looked at the clock on the instrument panel of his Segway Human Transporter; it was 7:52AM and he knew he would need a little luck to get to his 8:00AM meeting at Amazon's Beacon Hill headquarters. The sidewalks of Seattle were as crowded as ever; he nevertheless threw caution into the wind by leaning forward and pushing the Segway to its top speed of 12.5 mph.

Jeff was looking forward to the meeting with Amazon's senior management. They were to discuss the implications of Amazon entering into the cloud computing market just two years earlier.

In 2006, Bezos realized that a large part of Amazon's hardware infrastructure went unused during periods of low demand, and decided to harness these untapped resources and steer Amazon towards a whole new market. He saw an opportunity to leverage Amazon's technological infrastructure and expertise to lease hardware storage and computing power.

Since then, the cloud computing market had matured; both customers and competition now populated the playing field. With industry behemoths like Microsoft, Google and IBM entering the market, Bezos pondered whether his entry into the cloud computing market had been the right thing to do, and how they might choose the best strategic position for Amazon's future.

With steely resolve, Jeff tightened his helmet strap and charged up the last block toward the familiar PacMed building, where the meeting was set to begin in just a few minutes.

COMPANY OVERVIEW

Founding of Amazon

While working as a financial analyst for D. E. Shaw & Co. in 1993, Bezos noticed a 2300% year-over-year increase in Internet usage and recognized the tremendous growth potential of online commerce. He devised a business plan for an online bookstore that would not be bound to the shelf-space limitation of traditional retail bookstores and could therefore offer an unprecedented selection of books to its customers. In 1994, Bezos founded Amazon.com in the garage of his home in Bellevue, Washington. The company began as an online book-

store named “Cadabra.com”, which was later renamed to “Amazon” after the world's most voluminous river.

The website was officially launched as an online bookstore in 1995 and sales were immediate. Over time, Amazon evolved to include additional features such as customer reviews, product recommendations, selling of second-hand books, and more. The company also began expanding its business from books to a wide variety of consumer products and services. By 2002, Amazon had become a Fortune 500 company.

The company's initial business plan did not expect to turn a profit for four to five years; this was an effective if unusual strategy. Amazon grew steadily in the late 1990s while other Internet companies grew blindingly fast. When the dot-com bubble burst, and many e-companies went out of business, Amazon persevered. It finally turned its first profit in the fourth quarter of 2002.

As of 2008, the Seattle-based company has over 17,000 employees worldwide, software design centers in eight countries, and thirty fulfillment centers and warehouse locations spread around the world.

Amazon's Culture

When Bezos founded Amazon.com, he envisioned a corporate culture that was intense, yet friendly, and brought in people from diverse backgrounds with a common desire to succeed ([Exhibit 1 - Jeff Bezos](#)). His approach was influenced by the culture of the software giant Microsoft, but with less internal competition.

Amazon's corporate culture reflected its drive to innovate as well as its focus on customer satisfaction. Teams were typically small and had the authority to solve a problem as they saw fit. Moreover, developers were encouraged to focus on the value added to customers rather than just adapting new technology. Amazon strived to be the world's most accessible and customer-centric company, endeavoring to offer its customers both the largest possible selection and the lowest possible price.

To satisfy customer requirements in the best way, Amazon followed a process of “working backwards,” starting with customer needs and working backward until the minimum set of technology requirements to satisfy these needs had been obtained. This customer-centric approach earned the company extremely high customer satisfaction scores every year since 2000 ([Exhibit 2 - American Customer Satisfaction Index 2007](#)), resulting in a large pool of loyal customers, who, as of 2008, accounted for about 66% of Amazon's sales.

Amazon's Retail Business

Amazon's retail portal attracted over 615 million visitors in 2007 and offered more than 16 million items for sale. In 2007, Amazon accounted for approximately 6% of the \$136 billion online retail market in the U.S ([Exhibit 3 - U.S. Online Retail Sales Revenues](#)). Sales grew 21% to \$175 billion in 2007, and despite the economic slowdown of early 2008, a report from Forrester Research and Shop.org forecasts 17% growth in 2008, up to \$204 billion.

Amazon has invested heavily in R&D over the years, taking advantage of its proprietary technology to improve process efficiency and support for infrastructure web services. The company has patented a “1-Click” ordering system allowing for return business without information re-entry. It has also developed artificial intelligence-based dynamic pricing and a sophisticated system for making personalized product recommendations.

A major challenge for Amazon in the retail segment has been cost and time of delivery. Amazon relies on a limited number of shipping companies to deliver orders to their customers. To minimize shipping costs, Amazon has developed a widespread distribution system, allowing the company to keep delivery times as short as possible. Inventory is kept to a minimum to cut down on overhead costs, enabling lower prices. Despite gains in operational efficiency, profit margins remain low due to its choice of low-margin product segments, very aggressive pricing strategy, and offers of free shipping service for select products.

As the international online retail market grew, Amazon expanded its presence and operations globally. A locally targeted website was made available in both the country's native language and English. Amazon achieved this “think global, act locally” approach through a single piece of global software which could handle any language. This has reduced entry costs for other potential international markets.

Amazon's other Services and Products

Amazon offers a variety of services and products outside of its main business, which leverage its expertise in online software and retailing. These include:

- Amazon Associates (1996) is an affiliate marketing program where participants can receive up to 10% in referral fees by linking to Amazon products and services.
- Amazon Auctions (1999) is a web auction service competing against leading online auction company eBay.

- Amazon Marketplace (1999) is a fixed-price marketplace (and competitor to eBay's Half.com) where a variety of vendors can sell new and used goods on a storefront tightly integrated with Amazon's retail storefront.
- Amazon Services (2003) allows other companies (such as Target and Bebe Stores) to sell their products on Amazon.com's platform. Amazon gets a commission based on click-through customer referrals and resulting product sales.
- Pinzon (2005) is Amazon's private label that focuses on textiles, kitchen utensils, and other household goods.
- Webstore (2006) allows businesses to create their own e-commerce websites using their own photos and branding (backed by Amazon's code-base). As of 2008, sellers pay \$59.95/month to subscribe and a 7% referral fee.
- Kindle (2007) is an e-book reader which renders print-like text with adjustable font size on a digital screen (b/w e-ink). The device features wireless Internet connectivity (over EVDO or iRRTT) and the capacity for storing hundreds of books at a time, allowing users to buy books wherever they have cell access.
- Digital Content offerings (2007-2008) include an online video on-demand service called Unbox, as well as an online music store that competes directly with Apple's iTunes and Walmart by offering DRM-free songs at a lower price. In January 2008, Amazon acquired Audible (a company that sells more than 80,000 audio versions of books, newspapers, and magazines as well as television and radio content) for \$300 million.
- Applications for Social Networks (2008) include Amazon Giver and Grapevine which allow Facebook users to view friends' Amazon wish lists and purchases.

Over the years, the company made several acquisitions to diversify its service offerings as well as increase its product and customer base (See [Exhibit 4 - Amazon's Acquisitions Over the Years](#)).

In addition, Amazon offers web hosting and operation services for brick-and-mortar retailers such as Borders, Waldenbooks, Virgin Megastores, and HMV. Amazon also provides a unified multichannel platform for a number of enterprise clients (Marks & Spencer, Benefit Cosmetics, Mothercare), which supports consumer interaction with retail websites, in-store terminals, and customer support.

Financial Performance of Amazon

Amazon's fees are primarily based on retail or marketplace business models. For the Amazon Marketplace service, fees are charged not only to list a product but also for each product sold. Amazon charges several optional fees like shipping as well. Commission rates of 6% to 15% of the sale price were customary. Amazon also earns some revenue from advertising on the site and derived about 40% of its sales from partners participating in their "Associates" program.

The company first reported a profit in Q4 2002, five years after going public. Since then, Amazon has shown a positive net income. Between 1998 and 2007, sales grew from \$609 million to almost \$15 billion. Q1 of 2008 saw revenues rise to \$4.13 billion from last year's \$3.02 billion, corresponding to a 37% increase. ([Exhibit 5 - Income Statement and Balance Sheet FY07](#), [Exhibit 6 - Income Statement and Balance Sheet Summary, Last 10 years](#) and [Exhibit 7 - Cash Flow Statement FY 07-08](#).)

Despite Amazon's continued profitability in recent years, its overall deficit in 2008 stood at \$1.8 billion. Profit margins have been consistently lower than the industry average, with a five-year average of 3.5% compared to the sector average of 7.3%. Some investors were worried that Amazon's capital investment in technological initiatives such as Amazon Web Services would cause profits to decline even further in the short term.

[Exhibit 8 - Amazon Stock Price since its IPO compared to major competitors](#), shows Amazon's stock performance from 1994-2008, as compared to other technology companies and the market.

Competition and Competitive Trends

In 1997, the largest U.S. bookstore chain, Barnes & Noble, launched its own website. As of 2008, however, they continue to trail Amazon in sales. They often imitated Amazon's offerings, making themselves a target of several patent infringement lawsuits filed by Amazon, most notably regarding the "1-click ordering" functionality.

Amazon's largest e-commerce competitor is eBay. Competition between the two companies has increased over the years, with the companies facing off against each other in several key areas such as online auctions and marketplaces. A stock performance summary of Amazon and its major competitors is included in [Exhibit 9 - Direct Competitors of Amazon](#).

Consumer preference to shop at physical retail establishments has also been a consistent threat for Amazon. In 2008, online sales represented only a small percentage of the total retail market and penetration varied widely by category. As a result, although Amazon can

reduce prices and make its offerings cheaper, the company continues to face stiff competition from retailers focusing on specialty markets and providing a higher quality of service.

Amazon offers millions of products at competitive prices and has an extensive distribution network. New entrants that are willing to compete at the same scale are faced with the challenges of the huge initial investment required to develop competing market presence. Internet retail websites are common, but they tend to be much smaller in scale compared to Amazon; they tend to specialize in a smaller subset of products and cater to a smaller market segment.

CLOUD COMPUTING OVERVIEW

“Cloud computing” is a term used to describe massively scalable, hosted computing that is made available to all consumers (individuals, small-business, enterprises). ([Exhibit 10 - Cloud Computing Overview](#)). The computing resources exist as part of a network of computers that are typically owned and operated by a third-party through consolidated data centers. Consumers of the cloud are primarily concerned with the computing services it can deliver and are mostly indifferent to underlying technology and implementation; they can expect to save on equipment and energy costs while benefiting from increased efficiency, productivity, and reliability.

Several factors, including the decline in data transport costs, hardware virtualization, and multicore CPUs, and the proliferation of MIDs (mobile internet devices) have contributed to the growth of cloud computing. Further, the popularization and proliferation of web-based email, calendars, and collaborative office productivity applications has fostered a new market for cloud computing.

In essence, developers of cloud computing sought to transform IT computing into a commoditized utility. As Bezos said, “You don't generate your own electricity. Why generate your own computing?”

A list of cloud computing vendors is provided in [Exhibit 11 - Cloud Computing Vendors](#). [Exhibit 12 - Myths and Limitations](#) discusses the technical aspects of cloud computing.

AMAZON ENTERS THE MARKET FOR CLOUD COMPUTING AND STORAGE SERVICES

Amazon's computing demands experience large seasonal variations, such as the surge in traffic before the winter holidays. Ensuring the necessary capacity to handle peak usage results in up to 90% idle time for Amazon's servers. Amazon identified this excess processing power as a revenue stream by offering cloud computing services.

Launched in July 2002, Amazon Web Services (AWS) allowed developers to outsource their online and application infrastructure needs at commodity prices. AWS included the following services:

- Alexa Web Information Service: web information service (acquired in 1999)
- Mechanical Turk: dividing work into many tasks for humans (2005)
- Elastic Compute Cloud: computing platform (2006)
- Simple Storage Service: storage platform (2006)
- Simple Queue Service: web service for storing and queuing messages across the Internet (2007)
- Flexible Payments Service: online payment platform (2007)
- Simple DB: web service for running queries on structured data in real time (2007)
- Persistent Storage: allows developers to earmark a storage volume online for people to save files in different file systems (2008)

As of 2008, Amazon has not released exact figures on revenue from AWS, but did announce that 330,000 customers had signed up as of late 2007. Analysts estimated Amazon's cloud computing revenues to be less than \$50 million. A list of web services provided by Amazon is in [Exhibit 13 - Amazon Web Services](#).

Amazon's Elastic Compute Cloud (EC2)

Launched in August 2006, Amazon Elastic Compute Cloud (EC2) had pioneered the field of “infrastructure-as-a-service” (IaaS) by presenting a virtual computing environment allowing customers to use web interfaces to requisition machines. Common operations included installing an application environment, managing network access permissions, and running programs. EC2 was designed to make web-scale computing more convenient and inexpensive for developers and allow easy access to Amazon's proven computing infrastructure.

Three key features of the EC2 service are real-time scaling capacity, Amazon's large computing infrastructure, and flexibility to allow customers to easily match fluctuating resource requirements. This service addressed the common problem of highly variable traffic faced by many web start-ups. Before the introduction of services like EC2, the only solution was to offer services and bandwidth to the scale of the expected surges of activity, which is cost-prohibitive and capital-inefficient for many small companies. Since the launch of EC2, engineers at Amazon have invested resources in making these services customer-friendly. To combat security concerns regarding the shared EC2 service, Amazon provided interfaces that allowed users to configure firewall settings to control network access between groups of instances.

With the elastic IP Address feature of EC2, Amazon also made a step into the web hosting market. This feature allowed Amazon Web Services users to set up static IP addresses, making it easy to host websites, web services, and other online applications. EC2 as a web hosting service competed with lower bandwidth costs (\$0.10 to \$0.18 per GB) compared to conventional hosting services (\$0.50 per GB or higher).

Amazon's Simple Storage Service (S3)

Amazon's Simple Storage Service (S3) provides a simple web service interface for storing and retrieving any amount of data from anywhere on the web. It gives developers access to the same highly scalable, reliable, fast, and inexpensive data storage infrastructure that Amazon uses to run its own global network of websites. ([Exhibit 14 - Amazon S3 Objects](#))

In Fall 2007, there were cases of customers not being able to access their data due to outages on S3. To offset these risks, Amazon offered a “99.9% Monthly Up-time Percentage” Service Level Agreement (SLA) for S3, committing to an average availability of 99.9% every month. However, according to a CNet report, some customers feel that for many applications that need to leverage cloud computing resources, the SLA does not provide enough assurance. It is Amazon's reputation and track record for reliability that is often more important than the SLA in determining the appropriateness of S3 for any particular application.

Customers of Amazon's Cloud Computing

Amazon's EC2 service was primarily targeted towards companies without the time or resources to build their own dedicated computing infrastructure such as early-stage startups, as well as research organizations who needed infrequent but heavy computing resources. EC2 was also aggressively marketed to large, well-known companies, including NASDAQ, SanDisk and the New York Times. Adam Selipsky, VP of Product Management for AWS, remarked about the wide range of customers, “We always knew this would appeal to startups. The value proposition is strong. But we have been pleasantly surprised to see take-up by larger companies too.”

In 2008, in order to meet the needs of a variety of developers, Amazon expanded its service to include more pricing and computing power options ([Exhibit 15 - Available Instance Types and Price](#)). Developers could now choose the amount of memory, processing power and storage necessary for their application, paying for extra features as necessary. APIs also allowed applications to automatically scale computing resources on the fly. Amazon made these services convenient and user-friendly, negating the need for its customers to contact sales and customer-support frequently.

Some examples of how specific customers used and taken advantage of AWS:

- Microsoft used the storage service to support a high volume of software downloads.
- Von Kempelen used Amazon Mechanical Turk to provide customers with fast, automated, human-completed translation services at a reasonable cost.
- Zillow.com, a two-year-old real estate website that receives four million visitors per month, used EC2 for what they call “overflow-computational-capacity.”
- The New York Times used the capabilities of AWS to electronically process 150 years' newspaper articles.
- Smugmug.com stores its 80 TB of images, with an increasing rate of 10 TB of new images per month, on Amazon S3, creating an estimated savings of \$500,000 per year in storage costs and maintenance.

Partners of Amazon's Cloud Computing

Amazon EC2 has had success in attracting many influential partners, including:

- **Sun Microsystems:** Sun collaborated with AWS to offer OpenSolaris on Amazon EC2, allowing developers to have access to a free, open source operating system based on Sun's Solaris OS technology. This open source access could gain popularity around the globe.

- **MySQL AB:** MySQL Enterprise subscription offers support for Amazon EC2's virtual computing environment, allowing developers to deploy an open source database “in the cloud”, with MySQL AB offering full software and production support.
- **Facebook:** Facebook and AWS teamed up to help Facebook developers scale their applications using Amazon's on-demand computing infrastructure. By daily growth of Facebook network's users, this could be a major development for Amazon's infrastructure.
- **Red Hat Linux:** Red Hat supports over 3000 Red Hat Enterprise Linux-certified applications on Amazon EC2's virtual computing environment.

Briefly, Amazon collaborates with major players required for development of the platform, including both Windows and Linux based users.

INDUSTRY AND ANALYST RESPONSES

Microsoft

In April 2008, Microsoft launched its first cloud computing offering, Live Mesh, signaling a shift in Microsoft's focus from packaged software towards software services. Live Mesh is a synchronization system that allows application data to be synchronized among different devices through the web or across internal IT networks. Devices in this relationship are collectively referred to as a “mesh.” By leveraging its dominant position in the OS market, Microsoft aims to make up for its late entry into the hosted software market, which could still be vital for Microsoft's future survival in software services and products.

Google

In March 2008, Google launched its “App Engine” offering, which allows third-party developers to use Google's cloud technologies to develop and host their own applications. Customers of App Engine were able leverage existing Google products through an API instead of building their own from scratch. In sharp contrast to Amazon's open-ended capacity ceilings, Google has imposed capacity limits on many of its web services. ([Exhibit 16 - Amazon vs Google](#)).

Google CEO Eric Schmidt believes that advertising enables the new cloud-computing-based paradigm: “The analogous thing that happened to make this possible was the development of advertising in this new forum. What’s interesting is that the two – cloud computing and

advertising – go hand-in-hand. There is a new business model that’s funding all of the software innovation to allow people to have platform choice, client choice, data architectures that are interesting, solutions that are new – and that’s being driven by advertising.”

Sun Microsystems

Before cloud computing was introduced, Sun offered grid computing services on the Sun Grid at Network.com. In March 2007, Sun offered a pay-as-you-go cloud computing service on its Network.com platform for high-performance applications. They partnered with Amazon in May 2008, making OpenSolaris, MySQL, and Glassfish available with commercial support on Amazon's EC2. OpenSolaris on Amazon EC2 was made available for no additional charge.

In May 2008, Sun laid out its vision for a future cloud computing platform code-named Hydrazine. Robert Brewin, CTO of Sun, described Hydrazine as a combination of Amazon’s EC2, Microsoft’s Live Mesh, and Google Analytics integrated into a single product. In addition, Sun plans a repository where its customers can store services that run on the cloud as well as a library of metadata that can be reused when building applications.

IBM

IBM launched Blue Cloud in November 2007, providing a management environment via a web-based interface and allowing users to request access to infrastructure resources from the cloud. This technology, primarily targeted at financial services companies, aims to give IT departments the ability to build internal computing clouds that could link to other public or private clouds. In May 2008, IBM announced a global, online marketplace for software applications under a plan called the Blue Business Platform. The marketplace would feature a mix of business applications and services aimed primarily at small and mid-sized companies.

IBM's first product offering to come out of the Blue Business Platform was IBM Lotus Foundations, an application delivered as an on-premise software server. IBM is also working with Google to provide cloud computing to universities, with the service being currently available in 6 major US universities.

Market Analysts

Amazon’s e-commerce success has been noticed on Wall Street. The company’s shares soared 135% in 2007, nearly three times the stock-value growth of Google. However, Ama-

zon had to meet very high quarterly growth expectations just to maintain stock prices, creating notable risks for investors.

Some analysts, particularly at Gartner, suggested that cloud computing would dominate Amazon's future business model, classifying it as a disruptive technology. Larry Dignan, executive editor of the technology news website ZDNet, explained, "Amazon's real business down the line will be its cloud services. [...] Books will be just a front to sell storage and cloud computing." Dignan also felt that Amazon was far ahead of its competitors, and he added that "everyone else — Google and Microsoft — are working on their cloud computing services, but they are really in the first revision of their respective offerings. Amazon is ahead and tweaking."

Other observers believe that Amazon's cloud computing platform is a doomed effort, and they view it as similar to the millions of dollars Amazon had invested during the dot-com boom on unprofitable distribution centers. Many investors had expected consistent profit growth by 2008, but Amazon's profit had actually fallen, dragged down in part by spending on new technology investments.

A significant barrier keeping Amazon from grabbing a big piece of the enterprise computing market was its limited compatibility with Microsoft Windows-based IT infrastructures. Despite Amazon's claim that the S3 data storage service was platform agnostic, the EC2 computing service was open only to Linux-based platforms. EC2's default operating system was Red Hat Linux, which many customers replaced with their own preferred version of Linux. As of 2008, Microsoft did not offer a license to fit this type of computing infrastructure. Amazon would never embrace Windows on EC2 for cost reasons; it could be prohibitive to the company's pricing strategy—offering computing power at nickels per hour.

In addition, several AWS customers took notice of a major service outage in the Fall of 2007. Said Animoto's CTO Jefferson: "We had several instances that went down. Luckily for us, it wasn't a complete outage because we had multiple instances of the servers."

As of 2008, many businesses were still in the experimentation phase with Amazon's two-year-old cloud computing offerings. "At this stage," Forrester's Staton says, "it's still very much a do-it-yourself service. As a result, there are a lot of companies trying it out, but not many are betting their businesses on it. We see a lot of enterprises tipping their toes in and trying it out, but not a lot running things that they count on."

EXHIBITS

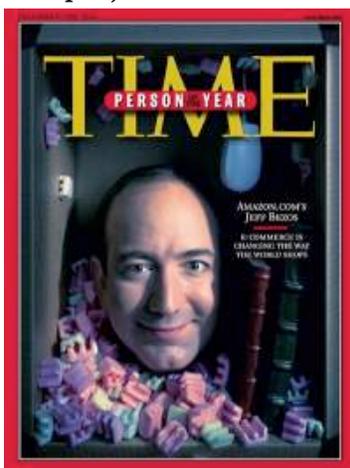
Table of Exhibits

1. Jeff Bezos
2. American Customer Satisfaction Index 2007
3. U.S. Online Retail Sales Revenues (1999 - 2006)
4. Amazon's Acquisitions Over the Years
5. Amazon: Income Statement and Balance Sheet, FY07
6. Amazon: Income Statement and Balance Sheet Summary, Last Ten Years
7. Amazon: Cash Flow Statement, FY07-08
8. Amazon Stock Price Since its IPO compared to Major Competitors
9. Direct Competitors of Amazon
10. Cloud Computing Overview
11. Cloud Computing Vendors
12. Cloud Computing - Myths and Limitations
13. Amazon Web Services
14. Amazon S3 Objects
15. Available EC2 Instance Types and Pricing
16. Amazon vs Google
17. Cloud Computing, SaaS, and PaaS Industries

Exhibit 1: Jeff Bezos

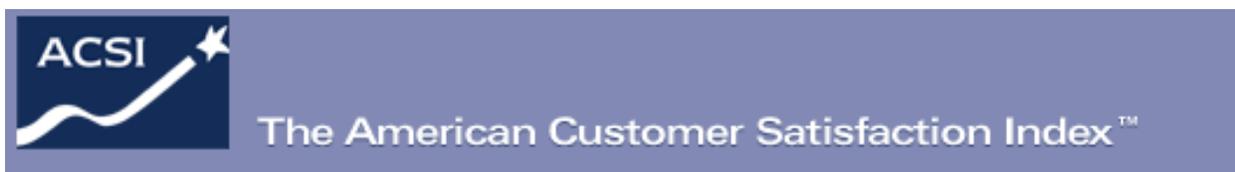
Jeffrey Preston Bezos is Amazon's founder, president, CEO, and Chairman of the Board. he strives to ensure that the company is never satisfied with the status quo and emphasizes, "I ask our people to wake up afraid and terrified every morning." A hands-on leader, Bezos reviews details of the business at all levels and relentlessly recruits talented, innovative individuals. His guiding principles for Amazon include:

- **Communication is terrible:** When employees said they needed to communicate more within the company, he shocked them by shooting back: "No, communication is terrible." To promote his decentralized vision of the company, he created "two-pizza teams": highly autonomous task forces with five to seven people who innovate and test new features.
- **Take leaps of faith:** Bezos takes risks on ideas - such as letting surfers search the full texts of thousands of books - that are so bold and innovative that the only way to know whether they will work is to try them on a grand scale.
- **Be simple-minded:** Bezos prefers making decisions based on hard data, but when that is not possible, he believes in the power of being "simple-minded," relying on common sense about what would be in the best interest of his customers.
- **Add up lots of little advantages:** Amazon does not have any single big advantage over potential competitors, so he is constantly introducing small but innovative features that add up to a superlative experience for customers. This overall ecosystem associated with Amazon differentiates it against its competitors.
- **Just do it:** Bezos has instated a corporate policy which encourages employees to work on side projects without asking for permission.



Source: <http://www.time.com/time/covers/0,16641,19991227,00.html>

Exhibit 2: American Customer Satisfaction Index 2007



Scores By Company

Amazon.com, Inc.

	00	01	02	03	04	05	06	07	Previous Year % Change	First Year % Change
<u>Amazon.com, Inc.</u>	84	84	88	88	84	87	87	88	1.1	4.8
<u>Newegg Inc</u>	NM	87	N/A	N/A						
<u>Netflix, Inc.</u>	NM	84	N/A	N/A						
<u>Internet Retail</u>	78	77	83	84	80	81	83	83	0.0	6.4
<u>All Others</u>	77	75	82	83	79	80	82	82	0.0	6.5
<u>eBay Inc.</u>	80	82	82	84	80	81	80	81	1.3	1.3
<u>Overstock.com, Inc.</u>	NM	80	N/A	N/A						
<u>Buy.com Inc.</u>	78	78	80	80	80	80	81		N/A	N/A
<u>Egghead.com, Inc.</u>	73	#							N/A	N/A
<u>barnesandnoble.com llc</u>	77	82	87	86	87	87	88		N/A	N/A
<u>1- 800- FLOWERS.COM, Inc.</u>	69	76	78	76	79	77	77		N/A	N/A
<u>uBid.com Holdings, Inc. (Petters Group Worldwide, LLC)</u>	67	69	70	73	73	73	74		N/A	N/A

Source: http://www.theacsi.org/index.php?option=com_content&task=view&id=147&Itemid=155&i=Internet+Retail

Exhibit 3: U.S. Online Retail Sales Revenues (1999 - 2006)



Exhibit 4: Amazon's Acquisitions Over the Years

- **2008**

- Audible.com: an audiobook provider

- **2007**

- dpreview.com: a digital photography review website
- Brilliance Audio: the largest independent publisher of audiobooks in the U.S.

- **2006**

- Shopbp: women's designer clothing and accessories retailer

• 2005

- BookSurge: a print-on-demand company
- Mobipocket.com: an eBook software company
- CreateSpace: a distributor of on-demand DVDs

• 2004

- Joyo.com: a Chinese e-commerce website

• 2003

- CD Now: a rival online music retailer

• 1999

- Alexa Internet: provides information on web traffic to other websites
- Accept.com: a startup that developed solutions to simplify Internet transactions
- Exchange.com: specializes in hard-to-find books, music, and memorabilia

• 1998

- Internet Movie Database (IMDb): an online database for actors, movies, and TV shows
- PlanetAll: a web-based address book, calendar, and reminder service
- Jungle: an XML-based data mining startup.

Exhibit 5: Amazon: Income Statement and Balance Sheet, FY07

	Year Ended December 31,				
	2007	2006	2005	2004	2003
	(in millions, except per share data)				
Income Statement:					
Net sales	\$14,835	\$10,711	\$8,490	\$6,921	\$5,264
Income from operations	655	389	432	440	270
Income before change in accounting principle	476	190	333	588	35
Cumulative effect of change in accounting principle	—	—	26	—	—
Net income	476	190	359	588	35
Basic earnings per share (1):					
Prior to cumulative effect of change in accounting principle	\$ 1.15	\$ 0.46	\$ 0.81	\$ 1.45	\$ 0.09
Cumulative effect of change in accounting principle	—	—	0.06	—	—
Basic earnings per share (1)	\$ 1.15	\$ 0.46	\$ 0.87	\$ 1.45	\$ 0.09
Diluted earnings per share (1):					
Prior to cumulative effect of change in accounting principle	\$ 1.12	\$ 0.45	\$ 0.78	\$ 1.39	\$ 0.08
Cumulative effect of change in accounting principle	—	—	0.06	—	—
Diluted earnings per share (1)	\$ 1.12	\$ 0.45	\$ 0.84	\$ 1.39	\$ 0.08
Weighted average shares used in computation of earnings per share:					
Basic	413	416	412	406	395
Diluted	424	424	426	425	419
Cash Flow Statement:					
Net cash provided by operating activities	\$ 1,405	\$ 702	\$ 733	\$ 566	\$ 393
Purchases of fixed assets, including internal-use software and website development	(224)	(216)	(204)	(89)	(46)
Free cash flow (2)	\$ 1,181	\$ 486	\$ 529	\$ 477	\$ 347
	December 31,				
	2007	2006	2005	2004	2003
	(in millions)				
Balance Sheet:					
Total assets	\$ 6,485	\$ 4,363	\$3,696	\$3,248	\$2,162
Long-term debt	1,282	1,247	1,480	1,835	1,919

	December 31,	
	2007	2006
ASSETS		
Current assets:		
Cash and cash equivalents	\$ 2,539	\$ 1,022
Marketable securities	573	997
Inventories	1,200	877
Accounts receivable, net and other	705	399
Deferred tax assets	147	78
Total current assets	5,164	3,373
Fixed assets, net	543	457
Deferred tax assets	260	199
Goodwill	222	195
Other assets	296	139
Total assets	\$ 6,485	\$ 4,363
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	\$ 2,795	\$ 1,816
Accrued expenses and other	919	716
Total current liabilities	3,714	2,532
Long-term debt	1,282	1,247
Other long-term liabilities	292	153
Commitments and contingencies		
Stockholders' equity:		
Preferred stock, \$0.01 par value:		
Authorized shares—500		
Issued and outstanding shares—none	—	—
Common stock, \$0.01 par value:		
Authorized shares—5,000		
Issued shares—431 and 422		
Outstanding shares—416 and 414	4	4
Treasury stock, at cost	(500)	(252)
Additional paid-in capital	3,063	2,517
Accumulated other comprehensive income (loss)	5	(1)
Accumulated deficit	(1,375)	(1,837)
Total stockholders' equity	1,197	431
Total liabilities and stockholders' equity	\$ 6,485	\$ 4,363

Exhibit 6: Amazon's Income Statement and Balance Sheet Summary, Ten Years

Exhibit 7: Amazon: Cash Flow Statement, FY07-08

Cash Flow: Quarterly Financials for Amazon.Com, Incorporated

All amounts in millions of USD except per share amounts.

	Q1	Q4	Q3	Q2
	03/2008	12/2007	09/2007	06/2007
Operating Activities				
Net Income (Loss)	143	476	269	189
Depreciation	0	0	0	0
Amortization	-64	-211	0	0
Amortization of Intangibles	0	0	0	0
Deferred Income Taxes	-19	-99	-1	0
Operating (Gains) Losses	3	22	7	13
Extraordinary (Gains) Losses	0	0	0	0
(Increase) Decrease in Receivables	139	-255	-17	56
(Increase) Decrease in Inventories	148	-303	-72	151
(Increase) Decrease in Prepaid Expenses	0	0	0	0
(Increase) Decrease in Other Current Assets	0	0	0	0
(Increase) Decrease in Payables	-1003	928	-216	-520
(Increase) Decrease in Other Curr Liabs.	-125	429	29	-28
(Increase) Decrease in Other Working Capital	79	244	26	17
Other Non-Cash Items	-11	-72	49	20
Net Cash from Continuing Operations	-645	1405	257	20
Net Cash from Discontinued Operations	0	0	0	0
Net Cash from Operating Activities	-645	1405	257	20
Investing Activities				
Sale of Property, Plant, Equipment	0	0	0	0
Sale of Long Term Investments	0	0	0	0
Sale of Short Term Investments	271	1271	1156	945
Purchase of Property, Plant, Equipment	-61	-224	-151	-82
Acquisitions	-355	-75	-47	-22
Purchase of Long Term Investments	0	0	0	0
Purchase of Short Term Investments	-382	-930	-777	-694
Other Investing Changes Net	0	0	0	0
Cash from Disc. Investing Activities	0	0	0	0
Net Cash from Investing Activities	-527	42	181	147
Financing Activities				
Issuance of Debt	52	24	21	0
Issuance of Capital Stock	2	91	79	44
Repayment of Debt	-26	-74	-63	-46
Repurchase of Capital Stock	0	-248	-248	-248
Payment of Cash Dividends	0	0	0	0
Other Financing Charges, Net	64	257	93	60
Cash from Disc. Financing Activities	0	0	0	0
Net Cash from Financing Activities	92	50	-118	-190
Effect of Exchange Rate Changes	37	20	24	5
Net Change in Cash & Cash Equivalents	-1043	1517	344	-18
Cash at Beginning of Period	2539	1022	1022	1022
Cash at End of Period	1496	2539	1366	1004

Last updated: 2008-05-10 23:30:00

Exhibit 8: Amazon Stock Price Since its IPO compared to Major Competitors



Amazon (AMZN)'s stock performance since its IPO, compared to NASDAQ (IXIC), eBay (EBAY), Microsoft (MSFT) and Google (GOOG)

Source: <http://finance.google.com>

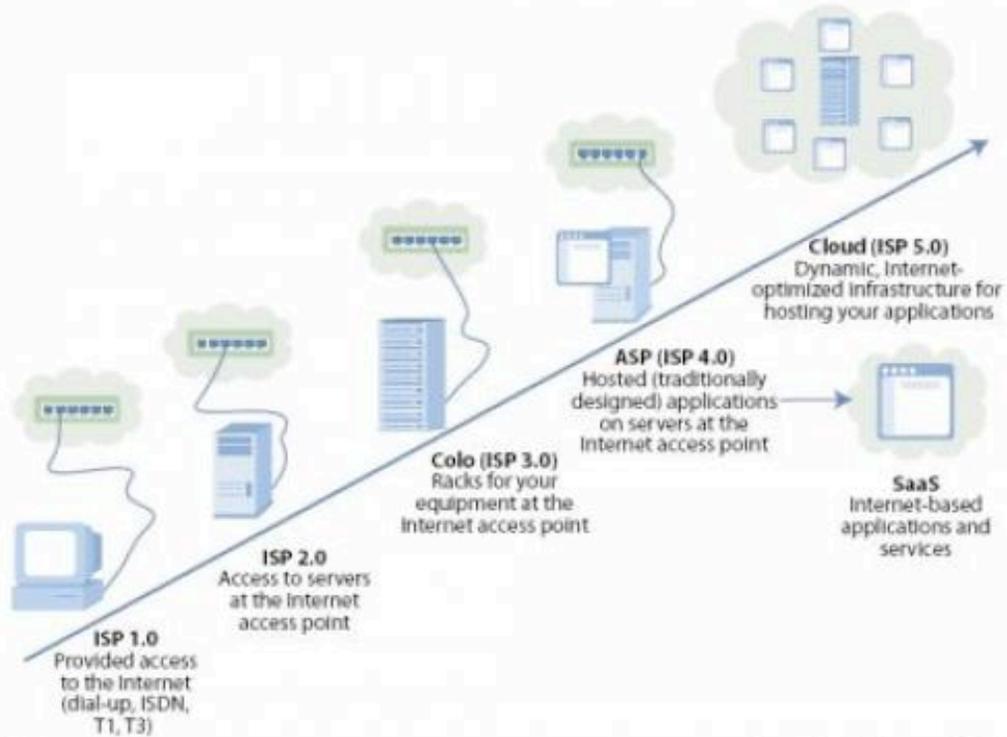
Exhibit 9: Direct Competitors of Amazon

DIRECT COMPETITOR COMPARISON					
	<u>AMZN</u>	<u>BKS</u>	<u>Pvt1</u>	<u>EBAY</u>	<u>Industry</u>
Market Cap:	30.24B	1.75B	N/A	39.48B	251.73M
Employees:	17,000	40,000	2,300 ¹	15,500	332
Qtrly Rev Growth (yoy):	37.10%	-1.70%	N/A	24.00%	15.40%
Revenue (ttm):	15.96B	5.41B	401.90M ¹	8.10B	698.07M
Gross Margin (ttm):	22.50%	36.54%	N/A	76.60%	46.57%
EBITDA (ttm):	957.00M	386.22M	N/A	2.71B	21.41M
Oper Margins (ttm):	4.44%	3.96%	N/A	25.80%	3.10%
Net Income (ttm):	508.00M	135.80M	N/A	430.79M	-10.16K
EPS (ttm):	1.194	2.025	N/A	0.315	N/A
P/E (ttm):	60.64	14.90	N/A	95.24	16.45
PEG (5 yr expected):	2.22	1.45	N/A	1.08	0.94
P/S (ttm):	1.91	0.33	N/A	4.91	0.60

Source: <http://finance.yahoo.com/q/co?s=AMZN>

Exhibit 10: Cloud Computing Overview

Figure 3 Cloud Computing: The Latest Evolution Of Hosting



44229

Source: Forrester Research, Inc.

Exhibit II: Cloud Computing Vendors

Cloud Vendor	Level	Type	Status	Based Off	Beta Status	Notes	Level	Description
3Tera	3	Server	Not a Provider (1)	Software Based	Production	3Tera does provide hosting however their goal is to be a software solution not a hosting solution	0	Cloud Look-Alike
Adobe Air	1	Application	Not a Provider	Backbone	TBD	Desktop play	1	Cloud Guests
Akamai	0	Server	Not a Provider	Software Based	Production	CDN	2	Cloud Hosts
Amazon EC2	2	Server	Provider	Backbone	Beta		3	Cloud Disruptor
Amazon S3	2	Storage	Provider	Backbone	Beta			
Amazon SimpleDB	2	Database	Provider	Backbone	Beta			
Apache CouchDB	2	Database	Not a Provider	Software Based	Production	IBM is involved		
Apache Hadoop	2	Database	Not a Provider	Software Based	Production			
Areti Internet	0	Application	Provider	3Tera	Production			
Box-Net	1	Storage	Provider	Backbone	Production			
Cassatt Corporation	0	Server	Not a Provider	Software Based	Production	Provisioning play		
Citrix (XenSource)	0	Utility	Not a Provider	Software Based	Production			
CohesiveFT	1	Utility	Not a Provider	Amazon EC2	Beta	Supports XEN and VMWare		
Dell DCS	2	Server	Provider	Backbone	TBD			
Elastra	1	Server	Provider	Amazon EC2	Beta			
EMC Mozy	1	Storage	Provider	Backbone	Production	Cloud Services Play		
Enki	1	Server	Not a Provider	3Tera	Production	Heavier as a services player		
Enomaly	1	Server	Not a Provider	Amazon EC2	Beta	Heavier as a services player		
Enomaly ElasticDrive	1	Storage	Not a Provider	Amazon EC2	Beta			
EnterpriseDB	1	Database	Not a Provider	Amazon EC2	Beta	Have a cloud offering		
Flexiscale	2	Server	Provider	Backbone	Production	UK Based		
Fortress ITX	1	Server	Not a Provider	3Tera	Production			
Google Apps	1	Application	Provider	Backbone	Beta	Desktop play		
HP AaaS	2	Server	Provider	Backbone	TBD			
IBM Blue Cloud	0	Server	Provider	Backbone	TBD	Provisioning play		
iCloud	1	Application	Provider	Backbone	Production	Desktop Cloud		
Joyent	2	Server	Provider	Backbone	Production	Solaris based cloud		
JungleDisk	1	Storage	Not a Provider	Amazon EC2	Beta	Low cost utility for S3		
Layered Technology	1	Server	Provider	3Tera	Production	A 3Tera mega partner		
LongJump	1	Database	Not a Provider	Amazon EC2	Beta			
Microsoft SSDS	1	Database	Provider	Backbone	TBD	Competes w/Amazon SimpleDB		
MorphExchange	1	Utility	Not a Provider	Amazon EC2	Beta	Ruby on Rails cloud		
Mosso	2	Server	Provider	Rackspace	Production	Owned by by Rackspace		
Rackspace	0	Server	Provider	Amazon EC2	Production			
Rightscale	1	Server	Provider	Amazon EC2	Beta			
Salesforce.com	0	Application	Provider	SaaS	Production			
Sun Caroline	2	Server	Provider	Backbone	TBD			
Sun MySQL	1	Database	Provider	Backbone	TBD	Not sure of plans		
Terremark	0	Server	Provider	Backbone	Production			
VMWare	0	Utility	Not a Provider	Software Based	Production			

Source: <http://www.johnmwillis.com/mysql/cloud-vendors-a-to-z/>

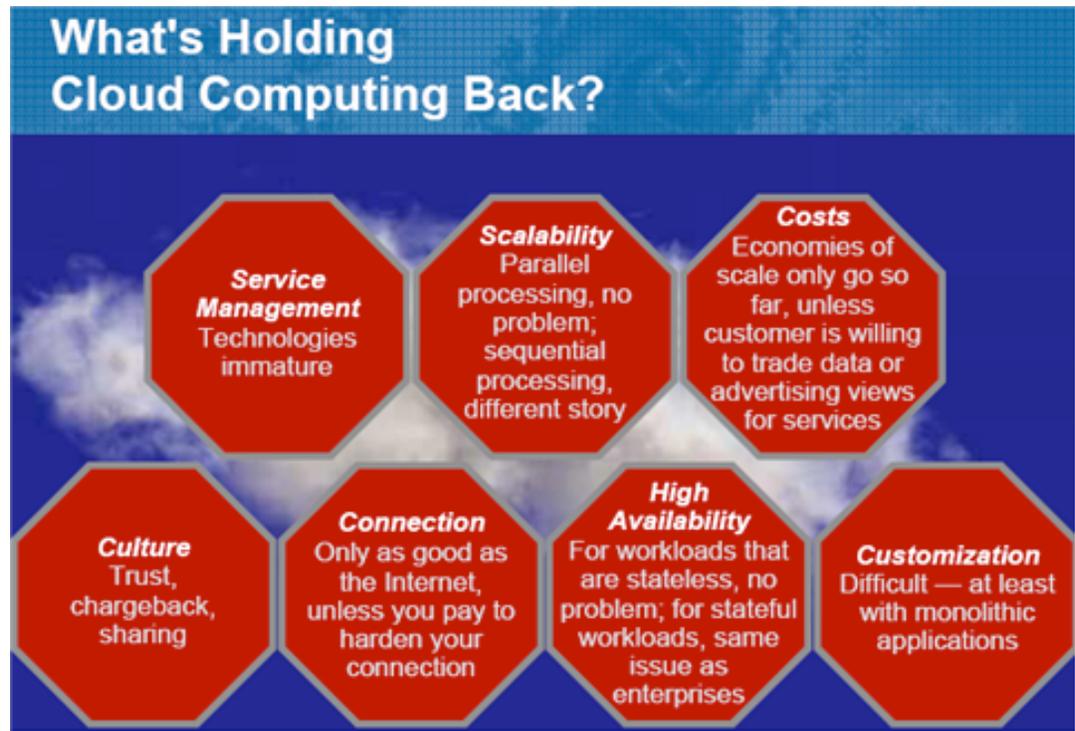
Exhibit 12: Cloud Computing - Myths and Limitations

What Is Cloud Computing? Myths to Explore

Cloud computing myths are growing as the phenomenon gains popularity. Don't let the promise derail what you need to get done.

- Myth No. 1: • Cloud computing is an architecture or an infrastructure.
- Myth No. 2: • Every vendor will have a different cloud.
- Myth No. 3: • SaaS is the cloud.
- Myth No. 4: • Cloud computing is a brand new revolution.
- Myth No. 5: • All remote computing is cloud computing.
- Myth No. 6: • The Internet and the Web are the cloud.
- Myth No. 7: • Everything will be in the cloud.
- Myth No. 8: • The cloud eliminates private networks.

Gartner.



Gartner.

Source: <http://blogs.zdnet.com/BTL/?p=8409>

Exhibit 13: Amazon Web Services

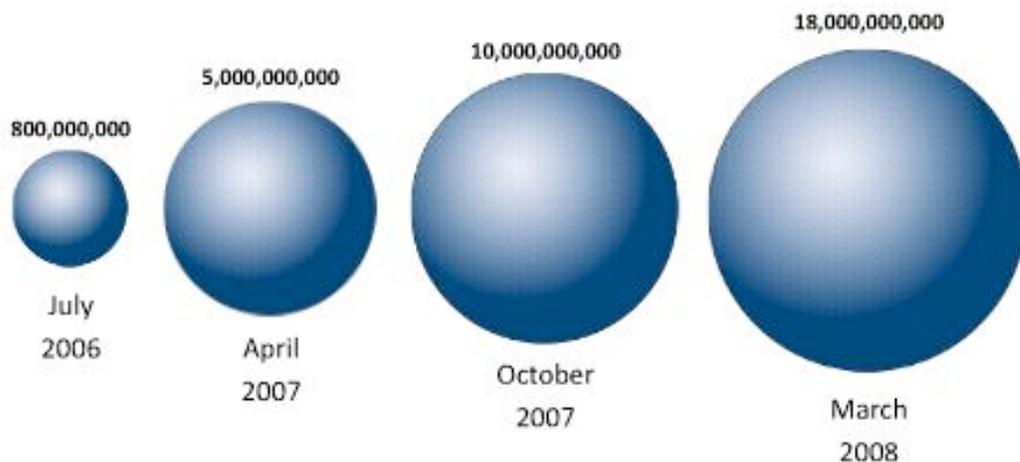
Amazon Web Services Stack



Source: http://www.readwriteweb.com/archives/amazon_webos.php

Exhibit 14: Amazon S3 Objects

Amazon S3 Objects



Source: Jeff Bezos talk at Startup School, April 19, 2008

Exhibit 15: Available EC2 Instance Types and Pricing

Amazon Elastic Compute Cloud (Amazon EC2) provides the flexibility to choose from a number of different instance types to meet your computing needs. Each instance provides a predictable amount of dedicated compute capacity and is charged per instance-hour consumed.

- Small Instance (default)
 - 1.7 GB memory
 - 1 EC2 Compute Unit (1 virtual core with 1 EC2 Compute Unit)
 - 160 GB instance storage (150 GB plus 10 GB root partition)
 - 32-bit platform
 - I/O Performance: Moderate
 - Price: \$0.10 per instance hour
- Large Instance
 - 7.5 GB memory
 - 4 EC2 Compute Units (2 virtual cores with 2 EC2 Compute Units each)
 - 850 GB instance storage (2 x 420 GB plus 10 GB root partition)
 - 64-bit platform
 - I/O Performance: High
 - Price: \$0.40 per instance hour
- Extra Large Instance
 - 15 GB memory
 - 8 EC2 Compute Units (4 virtual cores with 2 EC2 Compute Units each)
 - 1,690 GB instance storage (4 x 420 GB plus 10 GB root partition)
 - 64-bit platform
 - I/O Performance: High
 - Price: \$0.80 per instance hour

Source: <http://www.amazon.com/gp/browse.html?node=201590011>

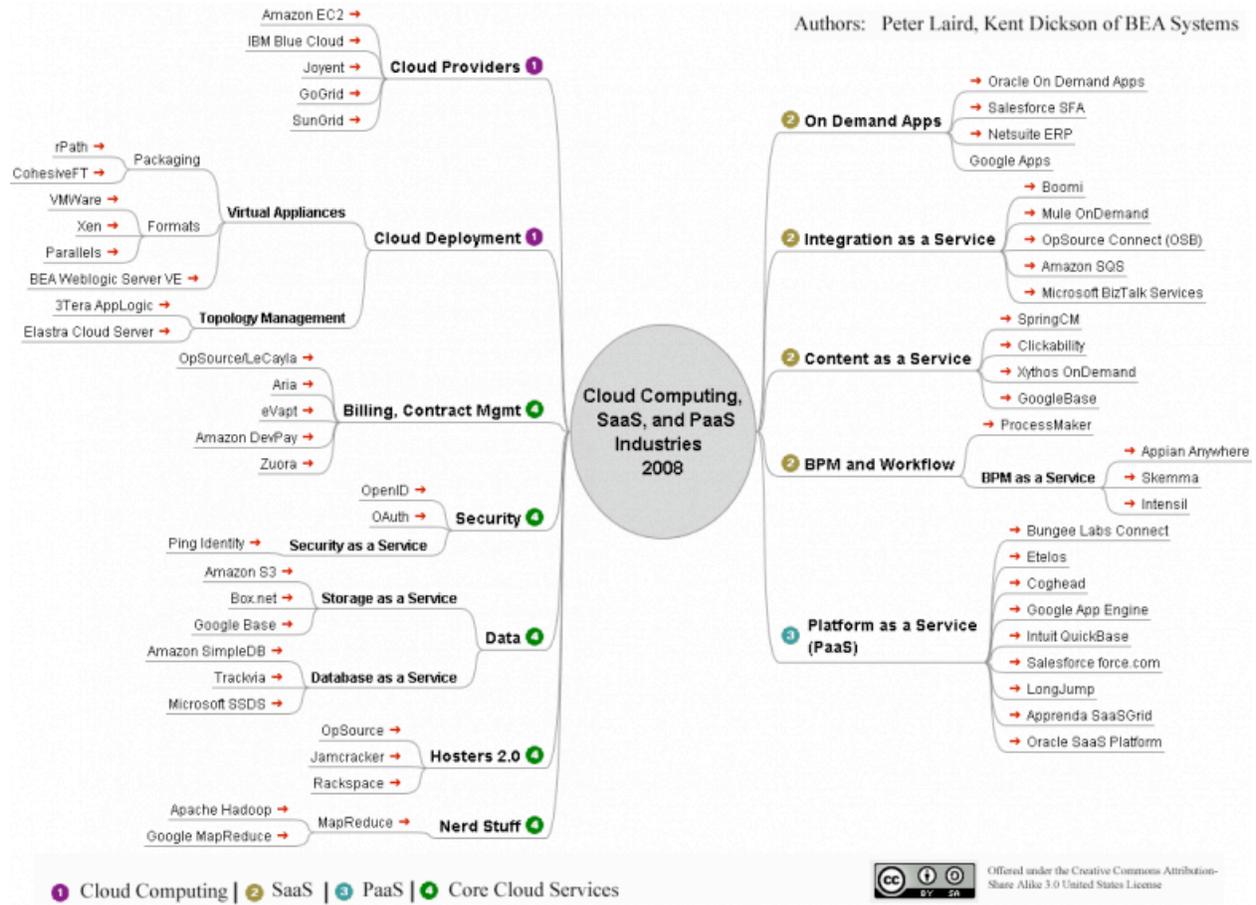
Exhibit 16: Amazon vs. Google

Comparing Two of the Leading Software Platforms In The Cloud



Source: <http://blogs.zdnet.com/Hinchcliffe/?p=166>

Exhibit 17: Cloud Computing, SaaS, and PaaS Industries



Source: <http://saaslink.googlepages.com/saasindustrymp>

REFERENCES

Company Overview

- [1] [Amazon Timeline](#)
- [2] [Bloomberg.com, "Amazon Web Services Launches 'Elastic IPs'.](#)
- [3] [Amazon's Ownership](#)
- [4] E-Commerce Times: Toys 'R' Us wins right to end amazon partnership., March 3, 2006
- [5] [CNN.com, "The charmed life of Amazon's Jeff Bezos."](#)
- [6] ["Corporate Culture - AMZN"](#)
- [7] [Fastcompany.com, "Inside the Mind of Jeff Bezos."](#)
- [8] [Indeed, What's the company culture at Amazon.com?](#)
- [9] [International Herald Tribune, "Amazon benefits from music industry's anger at Apple," 14 January 2008.](#)
- [10] [Jeff's NNDB Listing](#)
- [11] [M/Cyclopedia of new media, "Amazon - History and Development."](#)
- [12] [M/Cyclopedia of new media, "Amazon - Business Model"](#)
- [13] [M/Cyclopedia of new media, "Amazon - Online Advertising and Promotion"](#)
- [14] [M/Cyclopedia of new media, "Amazon - Customer Interface"](#)
- [15] [The American Customer Satisfaction Index 2007.](#)
- [16] ["Time 2008 100 - Jeff Bezos"](#)
- [17] [Wikipedia, "Amazon.com."](#)

Cloud Computing Overview

- [1] [Amazon.com, "Amazon Elastic Compute Cloud \(Amazon EC2\)."](#)
- [2] [Amazon.com, "Amazon Simple Storage Service \(Amazon S3\)."](#)
- [3] [Balding, Craig. "Cloud Computing and Security For the Masses: Interview on NPR," 5 May 2008.](#)
- [4] [Boulton, Clint. eWeek.com, "Google vs. Amazon Web Services," April 2008.](#)
- [5] [CNN : Google Seeks Deal With IBM To Sell Desktop Business Tools" May 2008](#)
- [6] [IBM launches a platform for SMBs - One-stop online shop launched](#)
- [7] [Broadcast Engineering, "Cisco markets faster switch for cloud computing," 4 February 2008.](#)
- [8] [Brooks, Barnes, The New York Times: NBC in Deal With Amazon to Sell Shows on the Web, 5 September 2007.](#)
- [9] [Burrows, Peter, "Amazon Takes On IBM, Oracle, and HP," 9 April 2008.](#)

- [10] [Best of BusinessWeek](#)
- [11] [Catone, Josh, "Read Write Web: Cloud Computing for the Rest of Us," 19 February 2008.](#)
- [12] [Dhanjani, Nitesh, "ONLamp.com: Amazon's Elastic Compute Cloud \[EC2\]: Initial Thoughts on Security Implications," 27 April 2008.](#)
- [13] [Eric Knorr and Galen Gruman, "InfoWorld - The New York Times: What Cloud Computing Really Means," April 7, 2008](#)
- [14] [Foley, Mary Jo. ZDNet: Ten things to know about Microsoft's Live Mesh.](#)
- [15] [Forbes - Google's Cloud 06 May 2008](#)
- [16] [Google. Google Code: What Is Google App Engine?](#)
- [17] [Hiner, Jason. Tech Republic: Sanity check: 10 trends that will transform IT over the next five years, 18 February 2008.](#)
- [18] [Knorr, Eric. New York Times: What Cloud Computing Really Means, 7 April 2008.](#)
- [19] [Kusnetzky, Dan. ZDNet: Pawtucket School District: A Virtual Iron Success Story, 1 April 2008.](#)
- [20] [IBM To Launch Web-Based Application Market](#)
- [21] [LaMonica, Martin. News Blog: Study: Cloud computing to brighten future of data centers, 10 March 2008.](#)
- [22] [McMahon, Freddie. Freddie McMahon: Gartner 2012 Prediction, 15 April 2008.](#)
- [23] [Wikipedia: "Amazon Elastic Compute Cloud."](#)
- [24] [Wikipedia: "Amazon S3."](#)
- [25] [Wikipedia: "Cloud computing."](#)
- [26] [Wikipedia: "Grid Computing."](#)
- [27] [Wikipedia: "Infrastructure as a Service."](#)
- [28] [Wikipedia: "Software as a Service"](#)
- [29] [WIRED: The Information Factories.](#)

Amazon Enters the Market for Cloud Computing and Storage Services

- [1] [Burrows, Peter, "Amazon Takes On IBM, Oracle, and HP," 9 April 2008.](#)
- [2] [AWS organises contest for customers](#)
- [3] [The Economist: Lifting the bonnet.](#)
- [4] [The Register - Web startups crumble under S3 outage](#)
- [5] [Why Amazon's HaaS \(Hardware as a Service\) Strategy is a Winner?](#)
- [6] [WIRED: Cloud Computing. Available at Amazon.com Today.](#)
- [7] [Virtualization Report "Amazon EC2 and Sun OpenSolaris VMs together in Beta"](#)
- [8] [Amazon's EC2 Takes On Web Hosting Market](#)

- [9] [Wikipedia, "Amazon Web Services."](#)
- [10] [Amazon Web Services @ Amazon.com - Success Story: SmugMug](#)

Industry and Analyst Responses

- [1] [Amazon.com, INC. Amazon's Form 10-K for Period Ending December 31, 2003.](#)
- [2] [Amazon.com, INC. Amazon's Form 10-K for Period Ending December 31, 2007.](#)
- [3] [Amazon.com, INC. SEC Filings: QUARTERLY REPORT ON FORM 10-Q for period ending March 31, 2008.](#)
- [4] [Business Week: eBay vs. Amazon.com, 31 May 1999.](#)
- [5] [Business Week: Jeff Bezos' Risky Bet, 13 November 2006.](#)
- [6] [Business Week: Hof, Rob, Amazon's Newest Product: Storage.](#)
- [7] [Business Week: The 100 Top Brands 2006.](#)
- [8] [Can Microsoft Afford Live Mesh Success?](#)
- [9] [Dignan, Larry. ZDNet: Amazon's cloud computing will surpass its retailing business, 14 April 2008.](#)
- [10] [Flynn, Laurie J. The New York Times: Costs of Competition Send Amazon Profit Down 58%, 26 July 2006.](#)
- [11] [Gomolski, Barbara. Gartner: Finding: Cloud Computing Will Impact IT Budgets and Balance Sheets.](#)
- [12] [Microsoft Behind on Cloud Computing](#)
- [13] [Mintz, Jessica. msnbc: Amazon.com promotes competitors' prices. 13 February 2008.](#)
- [14] [Shinal, John. MarketWatch: Amazon competition woes hit stock, 3 February 2005.](#)
- [15] [Stone, Brad. The New York Times: Amazon Gains, Despite an Economic Slowdown, 24 April 2008.](#)
- [16] [The New York Times, "Google Gets Ready to Rumble With Microsoft."](#)
- [17] [Yahoo! - Stock price for AMAZON.com INC \(Comparison to other competitors\), 2008.](#)
- [18] [ZDNet - Hinchcliffe, Dan. : Comparing Amazon's and Google's Platform-as-a-Service \(PaaS\) Offerings.](#)

Authors of 2008-353-1

Cite this paper: [G. Papadimitriou et al. "Amazon Enters the Cloud Computing Business"](#)

[Stanford CasePublisher 353-2008-1. 20 May 2008.](#)

(395) Georgios Papadimitriou	(60) Pradeep Jayaraman
(375) Aaditya Satija	(54) Dan Wilson
(352) Siddharth Gupta	(52) Simon Roberts
(326) Danny Lin	(50) Jessica Riley
(301) Rahil Jogani	(43) Ahmet Akyildiz
(262) Matthew Duncan	(43) Krishna Monian
(205) Evan Rosenfeld	(42) Lei Ma
(192) Hesaam Esfandyarpour	(40) Eytan Daniyalzade
(181) Rajiv Prabhakar	(39) Bernie Rihn
(160) Nitin Dua	(32) Ryoulhee (Ryan) Kwak
(150) Huang Lee	(31) Chen Wu
(148) Qianwen Lin	(30) Heng Ren
(142) Srinivasa Rangan	(27) Nick Chang
(127) Cenk Yildiz	(26) Faramarz Kashi
(124) Jonathan Hsieh	(22) Alex Austin
(117) Jay Huang	(16) Doug Murphy
(117) Nicholas Sergeant	(15) Olivier Pinçon
(111) Tim Su	(12) Anish Adukuzhiyil
(100) Ankit Patel	(12) Jamie Wu
(97) Nicholas A. Dovidio	(10) Babak Pahlavan
(93) Tai-Jin Lee	(10) Max Klein
(92) Andrew Chen	(9) Walt Cannon Wyman
(86) Timothy Hunter	(8) Francisco Adarve Martin
(83) Irene Chu	(5) Marius Kwong
(80) Naren Raghavan	(3) James Mao
(76) Hari Kannan	(2) Shuqing Cao
(70) Jared Kruzek	(1) Anirudh Dhurka

(68) Shohini Banerjee

Professors Micah Siegel (Stanford University) and Fred Gibbons (Stanford University) guided the development of this case using the CasePublisher service, available online at www.casepublisher.com, as the basis for class discussion rather than to illustrate either effective or ineffective handling of a business situation.