



# **Job Growth in the Forecast:**



**How Cloud Computing is  
Generating New Business  
Opportunities and  
Fueling Job Growth in the  
United States**



*This white paper was made possible by SAP.*

About Sand Hill Group (<http://sandhill.com>) provides strategic management, investment, and marketing services to emerging market leaders. Sand Hill Group is best known for its work in the \$600-billion software and services market. As founder of the “Enterprise” and “Software” conference series, Sand Hill Group has been credited with uniting the software business ecosystem of executives, entrepreneurs, investors, and professionals. The firm is also the publisher of SandHill.com, the premier online destination for business strategies for the software, cloud, and mobile ecosystem. The site and its newsletters are read by thousands of top software industry executives as well as CIOs and IT buyer executives. Sand Hill Group also funds primary research into key technology and business model trends that impact business in the software, cloud, and mobile ecosystem.



# Job Growth in the Forecast:

## How Cloud Computing is Generating New Business Opportunities and Fueling Job Growth in the United States

### Executive Summary

In an economic and competitive environment where companies and governments must deliver more value with even fewer resources than in the past, cloud computing is the subject of great debate: *does it create jobs, or just the opposite?*

This white paper demonstrates that cloud computing is a powerful catalyst for job creation. Indeed, cloud computing already generates a sizable number of U.S. jobs today; and based on numerous trends, leading economic indicators, and investment profiles, cloud computing has the potential to create **massive business opportunities and hundreds of thousands of new jobs in the United States and worldwide.**

Using data from credible sources and Sand Hill Group's own research, this paper examines how cloud computing impacts job creation across key segments of the business lifecycle, including:

**Cloud computing has the potential to have a much bigger economic impact and create more jobs than the Internet as cloud applications and platforms begin to transform the entire IT landscape.**

- How cloud computing has greater job-creation potential than the Internet did in its early years
- How existing cloud companies are creating jobs and experiencing rapid growth
- How the cloud enables venture capital growth and startups, which creates jobs
- How the cloud creates efficiencies that allow a company to focus on its core competencies, and then re-invest the savings from those efficiencies into growing the business and creating jobs

Key findings in this report include the following:

- Eleven cloud companies added 80,000 jobs in the United States in 2010 alone.
- Companies selling cloud services are projected to grow cloud-based revenues an average of \$20 billion per year which, in turn, has a potential of generating as many as 472,000 jobs in the United States and abroad in the next 5 years.
- Venture capital investments in cloud are projected to be \$30 billion cumulative in the next 5 years, which could add another 213,000 new jobs in the United States and abroad.
- The economic impact of the cloud for companies buying cloud services can be even more significant. Cloud computing can save U.S. businesses as much as \$625 billion over 5 years, much of which could be reinvested to create new business opportunities and additional jobs.

This paper also briefly examines the U.S. government’s impact on cloud adoption and job creation, through both its purchases and its policies. Finally, the paper includes two case studies highlighting the economic benefits gained by two companies that migrated their businesses to the cloud.

## Cloud Computing is More Transformational than the Internet

In the mid-1990s, the Internet took the United States and world economy by storm. In just over 15 years, it transformed communications and commerce. Today, 2 billion people are connected to the Internet and almost \$8 trillion is exchanged each year via e-commerce.

Fast forward to the early 21st century in which a new IT revolution is taking place with even more potential for positive economic impact. Cloud computing pioneers such as Salesforce.com have developed cloud enterprise applications; Amazon and Rackspace have created cloud infrastructure services; and a host of major players like Microsoft, Google, SAP, and others have developed robust cloud platforms and applications. No doubt, cloud computing is a disruptive innovation, shaking the entire technology stack—from infrastructure and platforms to applications and business processes—and accelerating the trend towards wide-scale consumerization of IT and the utility-based consumption model.

According to a McKinsey Global Research report, “Internet matters: The Net’s sweeping impact on growth, jobs, and prosperity,” the Internet accounted for almost 3.4 percent of the GDP in a group of 13 developed countries and created 2.5 new jobs for every job lost over the past 15 years.

Now traditional businesses of all kinds—even those that don’t define themselves as technology companies—can benefit from cloud innovations to improve their productivity and agility, reduce costs, free up resources for investment, and compete globally with larger companies.

## Three New Industry Trends Propelling Cloud Computing and Creating Jobs

A confluence of technological and economic factors enabled cloud computing to burst onto the scene over the last 10 years. First, the commodization of high-end computing, high-bandwidth Internet access, and enabling technologies such as virtualization and multi-tenancy progressed to a point of widespread adoption. Second, global economic turmoil continued to siphon funds from IT budgets and prompted the C-suite to seek more ways to reduce costs.

Now three new industry trends are adding rocket fuel to propel cloud growth and jobs growth into the stratosphere: mobile, social, and Big Data.

1. **Mobile.** Clocking a nearly 45 percent year-over-year growth rate, smartphones sales hit 117 million in Q3 of 2011. In fact, in Q4 of 2010 smartphone sales overtook PC sales. Nearly half a billion users will connect to the cloud from mobile devices this year

alone. According to a new research report from analyst firm [Berg Insight](#), the number of mobile application downloads worldwide will grow at a compound annual growth rate of 56.6 percent between 2010 and 2015 to reach 98 billion at the end of the period. Mobile apps will drive massive demand for cloud services on the back end, such as app stores, databases, and storage. The recent success of tablet devices will further expand the demand for cloud services as these mobile devices give users greater access to information.

2. **Social.** [Facebook](#) already has 800 million users, a third of whom connect via mobile devices. The growth of Twitter, LinkedIn, and any number of other social networking sites is no less spectacular. Such massive scalability and elasticity would not be possible without cloud computing technologies to drive these sites. This revolution is now moving into the enterprise with collaboration solutions such as Jive, Yammer, Salesforce Chatter, and SAP StreamWork.
3. **Big Data:** In its May 2011 report, [Big Data: The next frontier for innovation, competition, and productivity](#), the McKinsey Global Institute estimated that enterprises globally stored 7 exabytes of data on disk drives in 2010, and consumers stored 6 exabytes of data on their laptops and PCs. One exabyte is 4,000 times the volume of information stored in the U.S. Library of Congress, which today houses 29 million books, 2.7 million recordings, 12 million photographs, 4.8 million maps, and 58 million manuscripts. Clearly, cloud infrastructure and platforms will play a huge role in accessing, processing, and analyzing such massive amounts of data. This is where cloud-based systems shine. However, many challenges remain to be addressed in the areas of security, performance and latency, data migration, bandwidth limitations, and application architectures.

Mobile knowledge workers, including virtual office workers, work-from-home employees, and “road warriors”—people who use IT that is untethered from a desk—today comprise an increasing portion of the total workforce in the United States, according to a January 2011 [InfoTrends](#) report. Mobile and social technologies improve collaboration among employees and move them out of their PC dependencies. Most importantly, these technologies enable companies to recruit new talent wherever they may be, potentially adding new jobs in neglected areas of the nation. Indeed, the next generation of workers will consider access to these technologies a key factor in choosing their employer. A 2011 [Cisco Systems study](#) found that “employees under the age of 30 said they would prioritize social media freedom, device flexibility and work mobility over salary in accepting a job offer.”

The [McKinsey report on Big Data](#) estimates the need for as many as 140,000 - 190,000 jobs requiring deep analytical skills. In addition, the report projects the need for 1.5 million additional managers and analysts in the United States who can ask the right questions and consume the results of the big data effectively.

## Impressive Returns, Revenue Growth, and Jobs in 2010

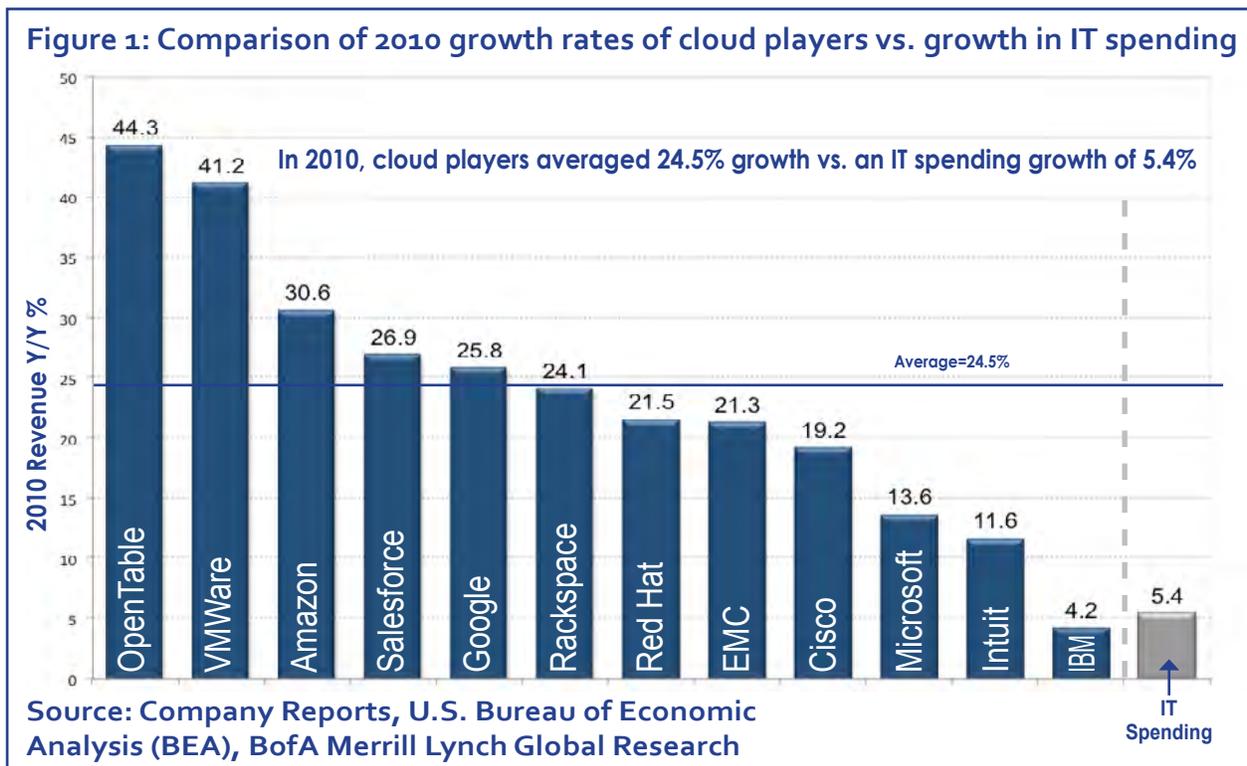
Companies delivering cloud services experienced the following results in 2010:

- Added 80,000 new jobs
- Grew five times faster than overall IT spending
- Generated attractive returns on the stock market

The following data detail the growth highlighted above.

Cloud Companies added 80,000 new jobs in the United States and abroad in 2010. As they grow rapidly, cloud companies add employees quickly. A recent research report from Bank of America Merrill Lynch Global, “Cloud Wars Part IV,” calculated the total number of employees at 11 cloud companies (Amazon, Google, Netflix, OpenTable, Salesforce, Taleo, SuccessFactors, RightNow, Intuit, NetSuite, and Concur) in January 2010 and January 2011. The total number of employees grew 27 percent during that 1-year period, which was an additional 80,000 new jobs.

The employee growth at these 11 cloud companies is almost five times the employee growth rate for the high-tech services sector overall, which grew only 5.9 percent to add less than 17,500 jobs over the 8-month period from February 2010 through fall 2011. (See Jones Lang LaSalle report: [High-Technology Industry: U.S. Office Outlook, Fall 2011.](#)) (While all the jobs created by these 11 companies might not be entirely “cloud,” since cloud operations in these companies are a significant business unit, these growth numbers are telling.)



The 12 companies (see Figure 1) clocked an impressive average of 24.5 percent year-over-year revenue growth in 2010, compared to the average IT spending growth of 5.4 percent.

And these same 12 companies also handily outperformed NASDAQ by 54 percent. The top performers were Rackspace (+150%), OpenTable (+110%), Salesforce (+50%), and Amazon (+50%).

## Poised for Strong Revenue and Job Growth through 2014

Driven by the attractive business opportunity and potential for massive growth of the cloud, many traditional enterprise technology companies—including industry leaders such as IBM, Microsoft, SAP, EMC, Cisco, AT&T, etc.—are beginning to offer cloud products and services (see Figure 2).

For many of the traditional companies, the cloud business model, which has pay-as-you-go subscription revenue instead of license revenue, has begun to cannibalize their existing licensed software revenues. This is a real concern; however, based on our analysis, cloud revenues are still a very small percentage of overall revenues for many traditional technology companies. This is also true for the entire enterprise IT market, with cloud services constituting only 4.5 percent to 6.5 percent of the total market. Nonetheless, the traditional business lines will need to evolve to meet this new reality.

Furthermore, the cloud expands the pie by opening up new markets, especially the untapped emerging economies like Brazil, India, Russia, and China (the “BRIC” nations) and small and medium-sized enterprise (SME) markets—to create new revenue opportunities.

In other examples of new offerings, SAP offers a mix of on demand solutions for startups and small to medium-sized businesses as well as tools, virtual appliances, and services to run SAP on premise systems in the cloud. Systems integrator Accenture offers managed private cloud services, and EMC and VMware offer an end-to-end stack for delivering enterprise applications in the cloud.

According to a recent [Gartner report](#), the worldwide enterprise software market in 2010 increased by a healthy 8.5 percent to \$226 billion, which was more or less in line with Gartner’s seven-year prediction in 2007. As a result of the expanding overall market and the time it takes for

**Figure 2: Traditional industry giants are offering cloud products and services**

Company	Cloud Revenue 2010 (in millions)	Percent of Total Revenue
IBM	\$2,200	14%
Microsoft	\$1,958	12%
Oracle	\$1,177	7%
AT&T	\$865	5%
Cisco	\$690	4%
Adobe	\$550	3%
Verizon	\$488	3%
Citrix	\$361	2%
Symantec	\$391	2%
Ultimate Software	\$228	1%

Source: BofA Merrill Lynch Global Research

**Prominent industry analysts including Gartner and Forrester predict strong growth in cloud revenues.**

cloud offerings to replace traditional offerings, we believe overall revenues will continue to rise as predicted by Gartner and will not be significantly diminished by the transition to the cloud services deployment model.

Furthermore, in its April 2011 report, “Sizing the cloud,” Forrester predicted that the total cloud market will be \$118.17 billion by 2014, growing at more than 45 percent annually from \$27 billion in 2010. Gartner’s projections are \$74 billion in 2010 growing to \$177 billion in 2015, which is a more modest 25 percent annual growth estimate. In either case, cloud companies will add an average of \$20 billion of net new revenues every year for the next 4-5 years.

How does revenue growth translate into job growth? Revenue-per-full-time-employee is an effective metric to measure management efficiency and employee productivity and is used to benchmark companies in various industries. Companies typically employ this metric to compare competitiveness among fast-growth organizations or to estimate the number of employees needed to achieve future revenues. The metric varies from company to company and from industry to industry. According to a [report by the EPHOR Group](#), the average revenue-per-employee for Internet Services and Software companies is \$352,805 for mature technology leaders and \$141,868 for small and medium-sized companies.

**By applying a revenue-per-full-time-employee metric for technology companies, we calculate that \$20 billion/year revenue growth translates to almost 472,000 new jobs in the next 5 years.**

Averaging these two revenue-per-full-time-employee numbers yields \$212,000. Dividing the \$20 billion average annual revenue growth (estimated above) by \$212,000, results in 94,339 new jobs per year. In other words, to support that much more revenue, at a medium rate of \$212,000 revenue-per-FTE, we could expect tens of thousands of jobs to be created in the United States and abroad. If that growth rate is sustained over the next 5 years, the total number of jobs created could be almost 472,000 in the United States and overseas. Since the United States is the leader in cloud innovation at this early stage of the market, it is reasonable to expect that the bulk of new jobs will be concentrated in the United States.

## Venture Capital Drives Innovation and the Majority of Industry Jobs

Cloud solutions lower barriers for startups and fuel innovation. Venture firms and companies do not need to invest large amounts of capital to develop and launch new software products. Sand Hill Group’s [Leaders in the Cloud](#) research found that companies often use cloud as an “innovation sandbox” to rapidly prototype and experiment with new product and market concepts. For example, some leading venture capital firms standardized their portfolio companies on the Amazon cloud, while Amazon itself engaged in direct outreach to investors and entrepreneurs to promote Amazon Web Services as the preferred platform for startups.

Startup companies find it more convenient and cost-effective to run their businesses using the cloud's pay-as-you-go model by adopting Software-as-a-Service (SaaS) applications for functions such as accounting, sales force automation, marketing automation, and human resource management. The potential to access seemingly unlimited storage, functionality, and scale on an as-needed basis gives startups the flexibility to operate like major enterprises.

Because the venture-capital ecosystem is highly evolved in the United States, the economic impact of venture capitalists is significant. VC-backed companies accounted for 11.9 million jobs in 2010, which in turn accounts for 11 percent of the 107.3 million total private-sector jobs according to [IHS Global Insight](#).

The National Venture Capital Association (NVCA) tracked more than 17,000 information technology companies that received venture funding. The result of these investments is entirely new industries and transformative innovations that changed the quality of life in the U.S. society as a whole. Figure 3 clearly demonstrates how VC-backed investments generated a major portion of the industry jobs in 2008, the most recent year for which data are available.

High-technology companies continue to be the predominant focus of venture capital investments, as they have been for several decades. In the past 10 years, the focus shifted to Internet-based companies and, more

## CASE STUDY: Startup Launched Business Using SaaS Applications and Created New Jobs

As an example of how cloud solutions lower barriers for startups, fuel innovation, and create jobs, consider this example of an IT services startup company with 4 employees, which was launched without buying any servers to run its business. Using many cloud services, the company:

- Provided all the basic requirements to launch the business without heavy capital investments
- Began operations in days and weeks instead of months or quarters
- Paid only for services consumed
- Avoided lock-in to long-term contracts, which reduced risk in case the venture failed or the business opportunity changed, leaving the company with no residual debt

The company uses the following applications in the cloud:

- Email
- Collaboration
- Conferencing
- Telephone system
- Sales force automation
- Website
- Human resource management
- Marketing automation

In less than a year, the company grew its revenues to \$5 million and added 30 new employees. The company expects to double revenues and add another 30 employees next year. They expect that the cloud applications will continue serving their needs well into the next couple of years through their incredible growth.

recently (in the past 3-5 years), to companies with a significant cloud component.

The NVCA data for the past 5 years shows that IT services and software received nearly \$40 billion in investment (see Figure 4). Internet-based investments at \$28 billion accounted for nearly 70 percent of the overall investment.

The percentage increased to 80 percent in 2011. (Note: Venture investments were mostly cloud investments in the past 5 years due to the development of Infrastructure-as-a-Service (IaaS) and Software-as-a-Service technologies).

**Figure 3: Technology job creation in 2008 resulting from venture-capital investments**

Sector	VC-backed jobs	Percent of total industry jobs
Software	817,000	81%
Telecommunications	737,000	74%
Semiconductors and Electronics	581,000	63%

*Note: The figures above are rounded to whole numbers.*  
 Source: The Economic Importance of Venture Capital-Backed Companies to the US Economy (IHS Global Insight, National Venture Capital Association), 2008

**Figure 4: Venture capital investments from 2006-2011**

Year	2006	2007	2008	2009	2010	2011	Total
Total Internet-specific investments (in billions)	\$4.5	\$5.1	\$5.1	\$3.5	\$4.4	\$5.4	\$28
IT Services+Software investments (in billions)	\$6.7	\$7.5	\$7.7	\$4.9	\$6.5	\$6.8	\$40.99
% Internet investments	66.7%	68%	66.2%	71.4%	67.8%	79%	69.7%

*Note: The figures above are rounded to the nearest tenth.*

Source: Derived from data from National Venture Capital Association: Recent Stats and Studies

Given the trends in the past 5 years, and barring any unforeseen factors such as a major new economic downturn, it is reasonable to assume that cloud investments will continue in the range of \$6 billion per year or approximately \$30 billion for the next 5 years.

How many jobs can \$30 billion of venture capital add to the economy? Using the SME revenue-per-full-time-employee metric as above (\$141,000), we estimate that \$30 billion in VC investments has the potential to support nearly 213,000 jobs over 5 years.

**Cumulative venture capital investments in cloud companies are projected to be almost \$30 billion in the next 5 years, adding as many as 213,000 new jobs to the economy.**

Some IT jobs estimated in the venture capital section might also be accounted for in the cloud market sizing section, thereby resulting in a partial overlap of the estimated job growth prospects.

## Government Spending and Policies Drive Cloud Adoption

Government policies and purchasing decisions at the federal, state, and local levels can also be expected to have a major influence on cloud adoption and job growth. The [2011 Federal Cloud Computing Strategy](#), issued by the Federal Chief Information Officer, characterized cloud computing as a “profound economic and technical shift [with] great potential to reduce the cost of federal Information Technology (IT) systems while ... improving IT capabilities and stimulating innovation in IT solutions.”

The federal cloud computing vision is exciting to technology vendors and the industry in general. With an \$80 billion IT budget—\$20 billion of which will be migrated to the cloud according to the “Cloud First” policy—the U.S. government represents the largest and most reliable source for IT spending today and therefore can wield an enormous influence on how the industry will define and use the cloud.

The federal government will play a major role in driving private cloud innovations as it consolidates more than 1,000 data centers and creates cost efficiencies. [According to Federal CIO Steven VanRoekel](#), this initiative alone may yield \$3-\$5 billion savings in the next few years.

IT consolidation and shared-services strategies are also “top-of-mind” considerations for state CIOs, according to the National Association of State Chief Information Officers (NASCIO) [October 2011 survey](#). These consolidation initiatives include email, collaboration, data centers, backup and recovery, storage, and content management. Cloud computing solutions play strongly in all these areas and are already underway. One innovative example is the [IlliniCloud](#) community cloud that provides state-of-the-art computing resources to the State of Illinois’ K-12 school districts and has achieved industry recognition.

At the local level, [city and county governments](#) also drive cloud computing initiatives to maintain applications or provide services for email and archiving, document storage, public information requests, and more.

Government policies also have a major role to play in influencing IT innovation, cloud adoption, and U.S. job growth. A pro-innovation, pro-cloud policy agenda would include the following at a minimum:

- Promoting stronger [STEM](#) education and training in U.S. schools to produce a technologically capable workforce
- Promoting IT innovation in major economic sectors such as health care and energy
- Strengthening cyber-security laws and practices, including using advanced security technologies, reducing data center footprint, and much more
- Investing in broadband and mobility infrastructure, to reach more communities faster with the highest-speed technology
- Developing policies and mechanisms to address privacy and jurisdictional issues when data crosses borders

On the international front, governments in Europe, Asia, the Americas, and elsewhere also pursue cloud computing as a means to:

- Fuel small business creation for their economies
- Deliver better services at reduced cost
- Manage energy and smart grids more effectively
- Carve their piece of the global IT revenue pie

The world market offers additional opportunities for U.S. companies, the leaders in cloud computing, to grow their revenue—and, consequently, create U.S. jobs.

### Impact of Cloud on Job Creation in Companies Buying Cloud Solutions

Executives participating in Sand Hill Group’s [2011 Leaders in the Cloud](#) study are achieving competitive advantages from their early cloud-computing initiatives. The top benefits they cited are as follows:

- Improved business agility (49 percent cited this as a reason for moving to cloud)
- Reduced costs
- Generated attractive return on investment
- Accelerated time to value
- Jump-started innovation programs
- Scaled the business rapidly

**Figure 5: Business agility and cost are primary drivers for moving to the cloud**



Source: Sand Hill Group study, “2011 Leaders in the Cloud”

Besides business agility, the survey results (Figure 5) show that 46 percent of the survey respondents also cited cost savings as a key driver. When we followed up with personal interviews, a near-unanimous 91 percent of the business and IT executives interviewed in the Sand Hill Group study cited cost savings as a critical objective when they implemented cloud solutions. The savings come from three sources:

- IT CapEx savings
- Higher operational efficiencies such as a lower admin-to-server ratio. This does lead to a reduction in IT administrative jobs, some of which will be replaced by other skilled jobs (e.g., architecture, project management, strategic vendor management, etc.)
- Data center consolidation and reduction in power and cooling costs

An average savings of 25 percent across IT services and hardware is not inconceivable. [Forrester reported that the annual U.S. IT spend in 2010 was \\$564 billion and growing at almost 8 percent a year. Twenty-five percent cost savings could translate to more than \\$125 billion per year. While the cost savings certainly has a positive economic impact, the bigger story is how companies reinvest the money saved to create new business opportunities.](#)

**Cost savings of \$625 billion re-invested into new business opportunities can yield hundreds of thousands of new jobs in 5 years.**

## **LARGE ENTERPRISE CASE STUDY: Cost Advantages of the Cloud**

A manufacturing company was frustrated with the cost, complexity, and limited functionality of its traditional on premise applications. The company evaluated several on premise applications and corresponding cloud equivalents for its human resources, IT problem resolution, and customer relationship management systems. The findings listed below made a convincing argument for the multiple benefits of cloud applications:

- 25 percent lower investment than with traditional applications
- 70 percent fewer resources to administer/run the cloud application versus traditional applications
- 25 percent lower TCO (total cost of ownership) over a 5-7 year time frame compared to the on premise application
- 40 percent cost and time savings with a Platform-as-a-Service pilot project
- Impressive improvements in usability, simplicity, performance, and speed of implementation
- Security concerns addressed with totally encrypted database, point-to-point security and authentication and access control
- Substantial IT savings to fund business innovation that could lead to growth and new jobs

A CIO of a major media company said:

“ When we started our journey to the cloud two and a half years ago, 95 percent of the IT budget and headcount was allocated to the operations side of our business. Only 5 percent was funneled to change management, project management and the “new” side. By moving to the cloud, we were able to reinvest every penny and headcount we saved on the traditional side in the change-the-business side. By the end of last year, we were able to move the dial down from 95 percent operational to 50 percent; so we released 45 percent of our budget into the new areas of the business where we were going digital and generating new revenue streams. By the end of this year, we want to get that figure to about 30 percent so we can get 70 percent in the transformational budget.”

– *CIO, major media company*

If companies were to completely reinvest their \$125 billion cost savings for the next 5 years (that is, \$625 billion) into new business opportunities, this could result in hundreds of thousands of new jobs.

The number of jobs could be even higher if we were to analyze the number of new businesses that companies can start more easily and successfully because of cloud computing enablers. The number could also go higher if underlying economic conditions improve, or lower if the economy turns down again. These additional analyses are outside the scope of this report.

Finally, the Center for Economics and Business Research in London ([www.cebr.com](http://www.cebr.com)) released a [report](#) in December 2010 that estimated that cloud computing will generate more than €763 billion in economic benefits over the next 5 years and will create approximately 2.3 million jobs in five major European economies, including France, Germany, Italy, Spain, and the UK.

## Conclusion

A great deal of evidence points to the conclusion that cloud computing is a powerful catalyst for job creation. Although some lower-skilled jobs will be lost because of the higher automation and efficiencies of the cloud, we expect cloud computing to generate hundreds of thousands of net new jobs in the United States and worldwide, based on the following evidence to date:

- Eleven leading cloud companies added as many as 80,000 jobs in the United States and abroad in 2010 alone, and almost all of these companies are experiencing high growth rates. These companies demonstrated robust and rapid growth in the past few years *despite the recession*.
- The recent 25 percent combined growth of companies selling cloud services, if maintained, could generate more than \$20 billion in revenues each year, which could translate into almost 472,000 new jobs in the next 5 years.
- Venture capital investments in cloud are projected to be \$30 billion cumulative in the next 5 years and could account for nearly 80 percent of all software and IT investments. This could add another 213,000 new jobs to the economy beyond the 472,000 jobs above, thus yielding 685,000 jobs from both startups and cloud services providers.
- The economic impact of the cloud for companies buying cloud services can be even more significant. Cloud computing can save U.S. businesses as much as \$625 billion over 5 years, much of which could be reinvested to create new business opportunities leading to hundreds of thousands of jobs beyond the 685,000 above.
- In major European economies, cloud is expected to generate more than €763 billion and generate 2.3 million jobs. The United States is ahead of Europe in cloud adoption and can be expected to gain bigger benefits more quickly.
- U.S. government entities at all levels are driving IT innovation through their own cloud outlays and policies that will impact U.S. business innovation and job growth.
- International governments also seek to benefit from the cloud computing wave and are heavily pursuing their own investments that could lead to U.S. commercial opportunities and jobs.

**In major European economies, cloud is expected to generate more than €763 billion and generate 2.3 million jobs. The United States is ahead of Europe in cloud adoption and can be expected to gain bigger benefits more quickly.**

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