

WHITE PAPER
Cloud Computing | April 2011

multiple paths to cloud computing

options for service providers in building
and delivering cloud-based IT management
services through the comprehensive
CA Technologies portfolio



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executive summary

Challenge

Cloud computing is fast transitioning from an alternative delivery system for applications, infrastructure and platforms to a necessary component of the business technology infrastructure. Nearly every enterprise is using at least one cloud-computing service today, and expectations are for rapid expansion of cloud-service adoption over the next five years. Enterprises want to source cloud-computing from reliable, flexible, scalable, secure and affordable application and infrastructure service providers. Service providers need to make choices about their cloud strategy, applications and delivery infrastructure to capitalize on this multi-billion-dollar opportunity.

Opportunity

The cloud computing opportunity is real. Enterprises are steadily shifting their IT spending to cloud services. While many are starting with hosted email and Web-based CRM applications, the adoption of Infrastructure-as-a-Service (IaaS) and Platforms-as-a-Service (PaaS) is increasing significantly. According to IDC, “Public IT cloud services will grow at over five times the rate of traditional IT products. Worldwide revenue from public IT cloud services exceeded \$16 billion in 2009 and is forecast to reach \$55.5 billion in 2014, representing a compound annual growth rate of 27.4%. This rapid growth rate is over five times the projected growth for traditional IT products (5%).”¹ Clearly, service providers able to offer cloud services that meet and satisfy the insatiable enterprise demand for cloud computing will reap sustained and predictable revenue and profitability.

Benefits

Service providers don't just become cloud-computing specialists overnight. They must make choices on the types of clouds they deliver, how they efficiently and effectively deliver cloud services, and what their plans are for future growth in cloud products as their infrastructure and customer base mature. Service providers that develop extensible cloud strategies and infrastructures, build automated delivery systems, and craft customer engagements that build confidence in Web-based IT will reap the rewards of the cloud-computing era. CA Technologies is providing the technologies that give service providers options in the following areas:

- Cloud platforms
- IT-as-a-Service
- Cloud-adoption accelerators

Cloud transformation

Efficient and reliable Internet connectivity, and the steep economic downturn. Prior to 2008, enterprises were dabbling in Web-based applications and hosting services. These services—mostly relegated to non-mission critical applications—were novelties. The recession of 2008–2009 forced CIOs to rethink budget allocations and seek alternatives to on-premise systems that maintained efficient operations and reduced costs. The cloud—powered by large, distributed data centers and enabled by persistent Internet connections—provided many answers for that equation.

What is the cloud? It's not a stupid question. Many people confuse what the cloud is and does—especially from a service provider perspective. The National Institute of Standards and Technology defines cloud computing as “a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction.”

Cloud computing has many segments. The three most common are as follows:

- **Platform-as-a-Service (PaaS):** A hosted infrastructure on which users can develop applications with programming languages or tools supported by the provider.
- **Infrastructure-as-a-Service (IaaS):** Hosted resources for deploying and running processing, storage, networks and other fundamental computing resources on which users can run arbitrary software.
- **Software-as-a-Service (SaaS):** Hosted applications accessible to users through a thin-client or a Web browser.

Cloud computing is rapidly transforming the way enterprises consume technology. Consequently, “the cloud” is changing the way service providers, integrators, managed services and solution providers deliver platforms, infrastructure and applications. Over the next decade, enterprises will steadily shift much of their applications and infrastructure to private, hybrid and public clouds as the combined enterprise cloud-computing marketplace swells to \$100 billion to \$150 billion, by some analyst forecasts.

Economic conditions

Driving enterprise adoption of cloud-computing services is pure economics. Cloud computing is recognized as an operational expense, and most cloud services are billed on a recurring schedule—often monthly—in fractions of the total cost of on-premise licenses. The operational expense model makes cloud computing more affordable by relieving enterprises of the burden of large capital outlays to acquire IT software and hardware.

During the recession, IT budgets were slashed. Enterprises cut IT spending by nearly 9 percent, by some estimates. While IT spending is recovering, many CIOs are being asked to do more with less. The best and most cost-effective alternative to expensive legacy systems is cloud computing, and since all things IT are being ported to the cloud, it's becoming increasingly viable to source technology needs as a service.

Cloud computing offers enterprises several economic benefits:

- **Automation:** Reduction of management staffing burdens and expenses
- **Scalability:** The ability to rapidly expand and contract services based on consumption needs
- **Lower adoption barrier to entry:** Diminished need for large capital outlays for on-premise equipment and software licenses
- **Ease of management:** Administration and maintenance responsibilities are either born by the service provider or diminished through centralization
- **Latest technology:** Clouds delivered by service providers run the latest applications, ensuring access to current technology advancements and features
- **Agility:** Resources, particularly those hosted by service providers, enable enterprises to be nimble in deploying new applications and resources
- **Consumption-based computing:** Enterprises can meter their use of IT applications and resources in a fashion similar to utilities

The benefits from cloud computing are prompting enterprises to increase expenditures for cloud services. Over the next five years, enterprises will seek more cloud services and support across all delivery segments, e.g. IaaS, PaaS and SaaS. Service providers have a tremendous growth opportunity in cloud platforms, hosted IT management or discreet cloud applications.

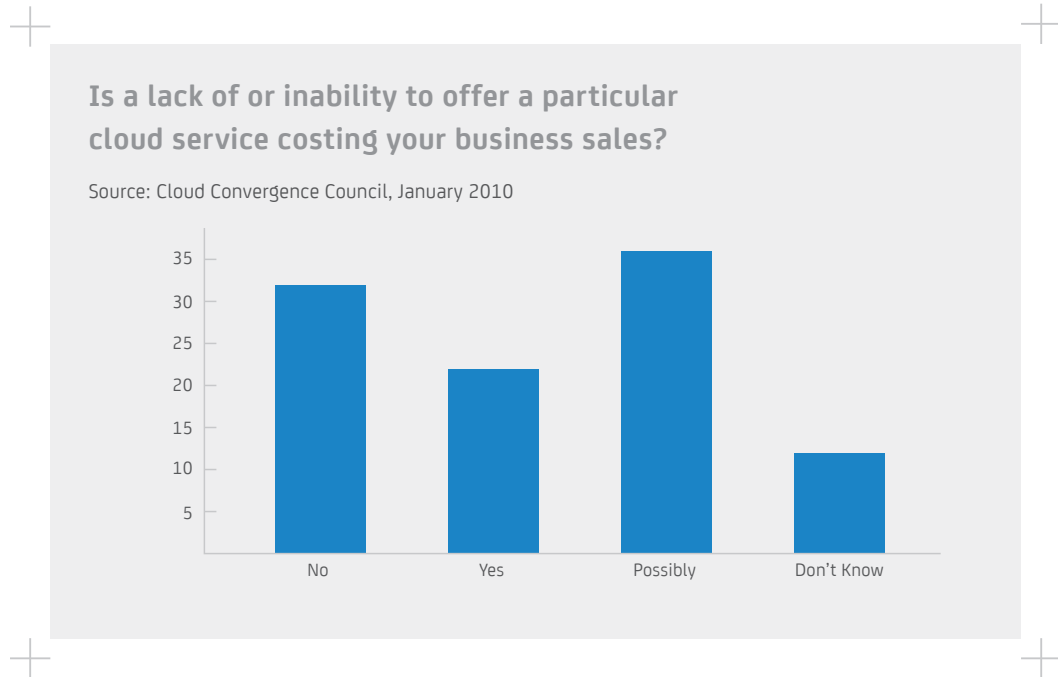
The cloud imperative

Why should service providers consider moving to the cloud? It's not a fad, as indicated by the above sales numbers and economic benefits. Today, roughly half of all service providers earn less than 10 percent of their gross revenue from the sale and support of cloud-computing services, according to the Cloud Convergence Council². Fewer than one in five service providers earn as much as 25 percent of their revenue from cloud computing.

The cloud-computing marketplace may be nascent, but it's in high demand among enterprises. According to the Cloud Convergence Council, 20 percent of service providers report losing sales opportunities because they lacked cloud services sought by their enterprise customers (see Figure 2: Cloud Shortcomings' Impact on Service Provider Sales). Another third of solution providers surveyed by the council suspect they lost deals because they lacked cloud services.

Figure 1

Cloud shortcomings' impact on service provider sales



Cloud computing is still in its infancy, which means it's a green field opportunity for most service providers willing to make the investment in developing cloud strategies and infrastructures. Service providers who develop a flexible strategy for cloud services will earn the rewards of first mover advantage. Attaining first-mover advantage requires the adoption of the right tools to power efficient and effective cloud infrastructures.

Service providers adopting cloud services will gain:

- Predictable, recurring revenues through subscription sales
- Efficient and cost-effective service delivery models
- Sustainable profitability
- Deeper customer engagements
- Higher attached sales

Probably the most significant of these benefits is creating stickiness with customers. As service providers convert customers from on-premise implementations to cloud-based or managed services, they will be on perpetual contracts. In such arrangements, subscribers are entirely reliant on the service provider to maintain accessibility to application and computing resources lest they risk disruptions. Once a business enters into a service, they are highly unlikely to revert back to an on-premise model. Moreover, they are unlikely to switch service providers if service levels are being met. In cloud relationships, continuity takes priority. As result, service providers enjoy sustained margins and predictable revenue streams.

Not all service providers will reach the cloud-computing era in the same way. Service providers have options for how they will approach the cloud. They can build and optimize their clouds, offer applications hosted in the cloud, or provide incremental steps to the cloud through discreet services.

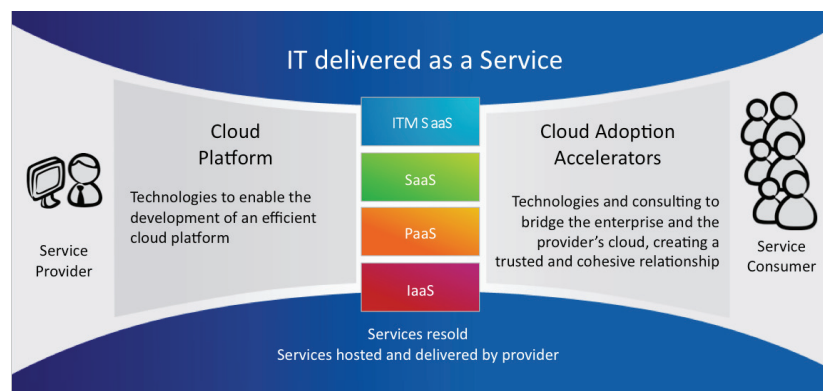
Cloud choices

Service providers are beginning to understand the imperative to transform their businesses to capitalize on the cloud-computing trend. The challenge facing many service providers is the daunting array of technology and business-model options for entering the cloud. Further, the fractionalized marketplace for cloud-computing tools and resources makes it difficult for service providers to select and source cloud technologies.

CA Technologies, the leader in IT infrastructure management and cloud-computing technologies, is revolutionizing cloud computing for service providers by delivering software, infrastructure and tools designed specifically for service providers at different levels of maturity in the cloud-computing equation. CA has developed the first end-to-end cloud-computing portfolio, giving service providers the tools to offer their customers cloud services on a variety of levels. The CA Technologies portfolio includes:

- Cloud Platforms
- IT-as-a-Service
- Cloud Adoption Accelerators

Figure 2



Inside the CA Technologies cloud portfolio

CA Technologies studied the migration of service providers in cloud computing and noted two things:

- Not every service provider will deliver the cloud in the same way.
- Service providers need options for developing and delivering cloud services to enterprises.

Regardless of whether a service provider chooses to offer platforms, infrastructure, software or everything as-a-service, it will require a set of core elements for its cloud practice:

Core element	Function
Portal User Experience	A single pane of glass for interfacing with and managing hosted resources
Service Catalog	The ability to offer a variety of applications and products delivered via a cloud services
Orchestration	The ability to automate common processes and quickly provision new resources on demand
Insight	The ability to monitor cloud activities for compliance with service-level agreements and regulatory compliance
Security	The ability to safeguard and protect applications, resources and data transacted in the cloud environment
Management	The ability to manage virtualized, hosted and distributed resources
Optimization	The ability to gather and analyze operational performance and plan for future capacity needs

The CA Technology cloud portfolio is designed with flexibility and speed in mind. It gives service providers the flexibility to bring a comprehensive portfolio of services—or a small, select list of finite products—to their customers based on business model and go-to-market strategy. The foundation of this strategy is manageability and scalability: Through its portfolio of infrastructure, virtualization, security, storage and systems management tools, CA Technologies enables service providers to offer cloud services based on proven technologies that can easily scale to meet expanded business and customer needs.

Cloud platforms

The Cloud Platform from CA Technologies allows service providers to develop and deliver new services and bring them to market fast. These are examples of services that can be developed and sold:

- Hosted IaaS/PaaS sold to enterprises or wholesaled to channel partners for SMBs
- CRM, email, IP communications and security sold as SaaS to large enterprises or wholesaled to channel for SMBs
- Web content, gaming, media and services
- Large-enterprise, business-critical applications hosted in geographically distributed data centers
- Seasonal, time-based, cloud-burst IaaS solutions for large enterprises' private clouds

Cloud Platform products provide the software resources required to build scalable data centers for the delivery of different types of cloud services, including infrastructure, platform and software. The combined CA Technologies portfolio gives service providers everything they need to deliver, manage and maintain a high-performance, enterprise-class cloud-computing offering. The cloud management stack gives service providers the ability to optimize and extend service offerings to ensure high delivery efficiency and sustained profitability.

IT-as-a-Service

As a leader in IT management and security, CA Technologies offers a diverse portfolio of IT management applications that can be offered to a service provider's customers and delivered through an SaaS model. CA Technologies uses a "white-label" approach that enables service providers to profit from an "acquire-once-and-sell-many" business model. CA Technologies offers these as a CA Technologies hosted solution, or solutions service providers can host themselves. These services are in the following categories:

- **Infrastructure:** Today's business applications run on SaaS, cloud, managed and virtualized environments, as well as in legacy data centers. CA Technologies' monitoring solutions let you monitor, manage and optimize performance across all customer environments.
- **Project Portfolio Management:** You can increase agility using best-practice project execution, resource optimization and comprehensive project management. Our solution helps you evaluate and prioritize projects while providing visibility into every strategic initiative.
- **Service Management:** Versatile, ready-to-use on-demand service desk management solutions allow you to build a superior request, incident, change and problem-solving system.
- **Security:** The product can increase the strength of user authentication, mitigate on-line fraud and ease the expansion of advanced authentication to all users, without inconveniencing legitimate users, systems, applications and data to be available without additional infrastructure costs.

- **Backup and Recovery:** You can provide combined business continuity (BC) and disaster recovery (DR) capabilities, all of which allow your customers' critical business systems, applications and data to be available without additional infrastructure costs.
- **Energy Management and Sustainability:** You can measure, assess and report your customers' environmental impact and performance, align their sustainability initiatives with business goals and automate their sustainability processes across geographic and functional boundaries—helping them accelerate energy and corporate sustainability efforts.

IT-as-a-Service is intended for service providers who want to enter the cloud-computing marketplace without the capital expense of building and supporting a large IT infrastructure. Through CA Technologies' hosted infrastructure and applications, service providers are able to resell or white-label cloud computing to enterprises relatively quickly and with little expense.

Cloud adoption accelerators

Not all enterprises are racing to the cloud. Just as they have with new technologies and delivery systems for applications, storage and security, enterprises are taking a “walk before you run” approach to cloud-computing adoption. In fact, even by 2015, only 30 percent of Fortune 500 companies will have migrated at least one mission-critical application to a cloud environment, according to Gartner.

Many enterprises will take a cautious approach to cloud computing by adopting a select few applications or services in isolation. They will not make a full commitment until they gain confidence in reliability, economic benefit, security and scalability.

Cloud adoption accelerators are solutions designed to simplify the bridge between the enterprise's operational environment and the service provider's cloud platform. The combined environments need to be managed, secured and operated as one. By the service provider simplifying the migration process and creating a transparent link, they create a trusted relationship with their customer.

The accelerators address the following customer barriers to cloud adoption:

- Cloud capacity requirements
- Joint strategy and execution plans
- Seamless operation across organizations through automation and management
- Security, access control and data integrity
- Service-level agreement requirements

The CA Technologies discreet cloud offerings in security and identity management, SLA assurance, server virtualization and automated provisioning, and capacity planning give service providers the products that enable enterprises to experiment with cloud services. Over time, businesses will develop confidence and an appreciation for cloud services, which will lead to greater cloud utilization through service provider offerings.

CA Technologies supports partner clouds

Regardless of which cloud-computing path service providers decide to follow, CA Technologies is committed to assisting its partners in the development of cloud capabilities and practices. With all of its cloud offerings, CA Technologies enables partners with the following:

- Sales training designed to overcome customers concerned with migrating to the cloud
- Pricing and billing flexibility
- Market-targeting and analysis
- Joint market planning

CA Technologies succeeds when its service provider partners reach their goals. These development programs are designed to ensure service providers don't have to go at it alone into the cloud by giving them the option to leverage the expertise and resources from CA Technologies in the cloud to bring the cloud vision to fruition with minimal risk and high probability of success.

Cloud advancement (summary)

Service providers have only begun to scratch at the full potential of cloud computing as a business and revenue model. Over the next decade, enterprises will steadily increase their consumption of cloud-based services and, conversely, decrease their reliance on legacy on-premise technologies. During this period, savvy service providers will build cloud offerings and deliver cloud services that best meet their enterprise customers' needs.

Service providers have choices for how they will adopt and deliver cloud services. Each option comes with different risk/rewards equations; however, that doesn't necessarily mean service providers that do not build and support their own cloud-computing infrastructures will sacrifice profitability. Cloud computing opens the door to tremendous on-premise design, implementation, migration and complementary technology sales opportunities—particularly in hybrid environments. The CA Technologies cloud paradigm is designed to give service providers the maximum opportunity to capitalize on cloud computing and ensure their ability to grow with their enterprises' need for hosted services.

CA Technologies has crafted its cloud-computing strategy with the only end-to-end cloud management and enablement portfolio, and the resources to make a service provider's cloud-computing practice a reality. Unlike other cloud-computing offerings, CA Technologies allows service providers to select the set of products and solutions that's right for their business model and customer needs. And with cloud services based on the CA Technologies portfolio, service providers can expand existing and adopt new cloud services with confidence that their previous investments are secure.

With CA Technologies, service providers are not only launching into the next-generation of IT delivery, but future-proofing their investments in infrastructure, software and service offerings. With CA Technologies, service providers are able to build optimized service delivery systems that generate profits and retain value.

CA Technologies is an IT management software and solutions company with expertise across all IT environments—from mainframe and distributed, to virtual and cloud. CA Technologies manages and secures IT environments and enables customers to deliver more flexible IT services. CA Technologies innovative products and services provide the insight and control essential for IT organizations to power business agility. The majority of the Global Fortune 500 rely on CA Technologies to manage their evolving IT ecosystems. For additional information, visit CA Technologies at ca.com.

1 IDC, Worldwide and Regional Public IT Cloud Services 2010–2014 Forecast, Doc #223549, June 2010

2 Cloud Convergence Council (Virgo Publishing and The 2112 Group), Cloud Convergence Trends Survey, June 2011