

# The Art of the Cloud

How cloud computing models help small to midsize businesses master IT challenges while lowering costs and expanding capabilities.



## EXECUTIVE SUMMARY

In 19th-century France, the annual Salon art exhibition was the single most prestigious art event in the Western world, exerting massive influence on the reputations and career paths of artists throughout Europe. For years, one particular group of new artists was consistently rejected by the Salon jury, which called their work “radical” and “unsophisticated.” These painters often staged one-man shows but gained only limited public exposure. In 1874, however, they pooled their resources to stage a large, independent exhibit timed to compete directly with the Salon. It was a hit with the public, launching the Impressionist movement and the careers of such now-recognized masters as Monet, Renoir, Degas, Cézanne and Pissarro.

On their own, none of these artists had the clout or financial wherewithal to challenge the official hierarchy. By pooling resources, they were able to defy the status quo and establish one of the most popular art movements of all time.

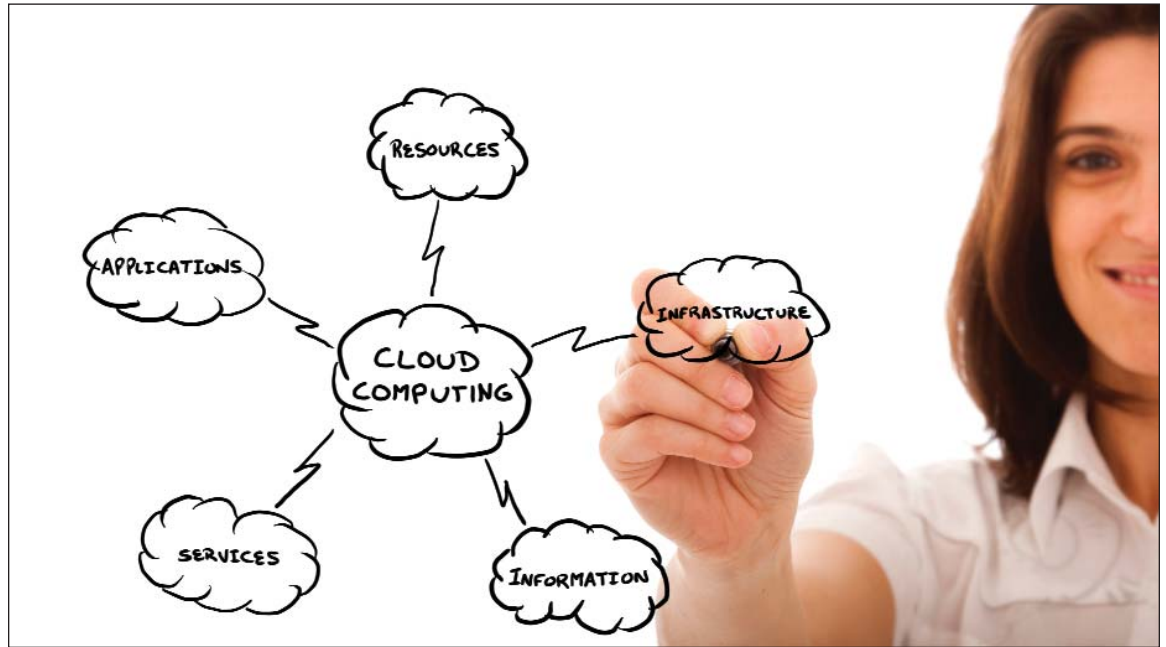
The concept of pooled resources is also what makes cloud computing such a force multiplier for today’s small to midsize businesses (SMBs). A cloud model allows SMBs to use enterprise-class technology without having to buy it. They can get out of the business of owning and maintaining an IT shop and tap into the investments service providers have made in the very latest IT infrastructure, applications and tools.

Massive data centers housing huge networks of servers and storage — once unattainable for SMBs — can now be accessed on demand through an Internet connection. Accessing these resources through an arrangement with a service provider allows SMBs to experience previously impossible economies of scale without incurring onerous capital expenses, training costs and licensing fees. On-demand pricing makes cloud computing infinitely flexible and scalable since an organization can purchase as much or as little storage and processing power as needed at any particular time.

Furthermore, the low barrier to entry makes it practical for SMBs to consider new ways to employ these powerful technologies to enhance and extend the business while lowering operational expenses. Desktop virtualization and thin-client technology can be employed to create a secure and controlled setting in which data is protected on each and every desktop, without the cost and hassle of managing desktops, patching operating systems, or installing and updating applications. Organization-wide mobility also comes within easy reach, with the cloud allowing end-users to access applications and data from anywhere using any network-connected device.

In this white paper, Atlantic-IT.net will explain the basics of cloud computing, take a closer look at the different service models and explore the range of opportunities for SMBs in the cloud.

## DEFINING THE CLOUD



The cloud is the one of the hottest buzzwords in an industry fond of buzzwords. Like most buzzwords, it is somewhat vague and frequently misused. In an effort to develop a clear and consistent definition, the National Institute for Standards and Technologies (NIST) describes the cloud as a model for enabling on-demand network access to a pool of configurable computing resources that can be rapidly provisioned with minimal management effort. This definition includes some key characteristics:

**Pooled resources.** The provider's computing resources serve multiple customers in a multi-tenant model, with those resources dynamically assigned and reassigned according to customer demand.

**On-demand self-service.** The customer can unilaterally provision computing resources as needed without requiring human interaction from the provider.

**Rapid elasticity.** Resources can be provisioned rapidly — in some cases, automatically — allowing users to scale up or down on demand. To the customer, the capacity should appear to be unlimited and can be purchased in any quantity at any time.

The NIST further describes three distinct service models:

**Software as a Service (SaaS).** The customer uses the provider's applications running on a cloud infrastructure. The applications are accessible from various client devices through a thin-client interface such as a Web browser (e.g., Web-based e-mail). The customer does not manage or control the underlying cloud infrastructure or even individual application capabilities, with the possible exception of limited user-specific application configuration settings.

**Cloud Platform as a Service (PaaS).** The customer deploys applications onto the cloud infrastructure using programming languages and tools supported by the provider. The customer does not manage or control the underlying cloud infrastructure but has control over the deployed applications and possibly application hosting environment configurations.

**Cloud Infrastructure as a Service (IaaS).** The customer taps processing, storage, networks and other fundamental computing resources where the customer can deploy and run any software. The consumer does not manage or control the underlying cloud infrastructure but has control over operating systems, storage, deployed applications and possibly limited control of select networking components (e.g., host firewalls).

Architecturally, each model provides business value by masking complexity. The technology behind the user interface is essentially invisible to the user, making cloud computing very user-friendly. This means end-users can be less tech-savvy and more focused on their particular expertise and business function.

## HOW TO CHOOSE

While each service model can improve operational efficiency, they are nevertheless distinct categories. To understand their differences — and how they are related — it is useful to consider a transportation analogy. Think of the infrastructure as the interstate highway system: It provides the basic framework for moving people and goods across the country. In this analogy, the cars and trucks moving along those roads would be the platform sitting on top of the infrastructure, and the people and goods inside those vehicles would be the applications and data.

To date, SaaS has by far the greater share of the cloud market among SMBs. In a recent survey from Techaisle, a research firm that specifically tracks SMB tech trends, 46 percent of SMBs who have adopted cloud computing services say they only use SaaS business apps, while another 26 percent said they use SaaS apps along with IaaS.

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It's easy to see and understand why SMBs have chosen the SaaS route for their initial forays into the cloud. Smaller organizations often don't have the manpower for much job specialization, so each person may have a variety of job requirements. They aren't likely to have a great deal of interest in the underlying technology — they simply want apps that work to help them do their jobs easier and better.

However, SaaS may not always be the best choice and is expected to lose some market share in the coming years. Latency issues involved in transferring data to and from a cloud app can be a significant problem for operations that require extremely fast processing of real-time data. Integration between cloud software and other systems is another growing concern. Vendor lock-in and limited customization can also become issues.

PaaS offers the customization capabilities to avoid some of these issues, and industry insiders generally agree that the category is due for significant growth in the next few years. However, most of that growth will likely come in the enterprise sector as more and more developers move away from traditional development models. Few SMBs have the people or skill sets to tackle application development or customization.

IaaS, however, is ideally suited to SMBs. IaaS lets these organizations take advantage of the very latest computing technology with no capital outlays. They can access enterprise-class IT services without the cost and complexity of evaluating, purchasing, implementing and maintaining new technologies in-house. Additionally, it relieves SMBs of a tremendous management burden while delivering significantly improved service levels. Providers have the manpower and expertise to deliver much higher levels of performance and reliability than most SMBs can get from a typical on-premises installation. Consider, too, that service provider generally hosts the physical infrastructure in a Tier 3 data center facility with redundant power, cooling and network connections to ensure 99.982 percent availability, thus delivering improved uptime, greater resiliency and reduced risk.

Another benefit is improved protection against disaster. Because IaaS solutions provide the agility to turn the infrastructure on and off as needed, with fees based upon usage, organizations can use an IaaS environment as a “warm” disaster recovery (DR) site that can sustain operations in the event of a power outage, system failure, natural disaster or other emergency. During normal operations, data can be mirrored to virtual machines in the DR site. Should a disaster strike, the full capacity of the DR site can be turned on, often automatically.



## CONSIDERATIONS

To reap all the potential benefits of cloud computing, organizations must do their homework and make good decisions up front. An excellent starting point is a cloud readiness assessment. A readiness assessment can help organizations determine what architectural adjustments might be necessary to ensure a smooth transition. Here are six important considerations for companies looking at cloud computing architectures:

**Connectivity.** Because most cloud services flow from the public Internet, a quality Internet connection is a must. An assessment can help ensure that the bandwidth, latency, jitter and overall usage levels of your existing connection will meet or exceed cloud requirements.

**Availability.** Organizations need to identify which applications need to be highly available, which can accept downtime and how much downtime is acceptable.

**Security.** Security is still the primary concern for businesses regarding the cloud. Organizations need to know how the cloud provider's multitenant environment is segmented to prevent customer overlap and the potential exposure of sensitive data.

**Manageability.** Few public cloud vendors provide administrative support, so organizations may need the technical expertise of an outside provider to define what level of management their applications require and to establish a change management process.

**Performance.** It is important to understand workload demands on the infrastructure and identify potential bottlenecks. It may be useful to use an outside provider to evaluate how a cloud environment will affect compute, storage and network resources.

**Compliance.** Organizations need clarity about how data privacy regulations apply in the cloud. They also need to understand which areas of compliance the service provider controls and how to audit against the standards and regulations to which they need to adhere.

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Atlantic-IT.net has developed a suite of cloud computing solutions that deliver these benefits:

- **No capital investments.** Take advantage of the latest technology without purchasing new equipment — a real boon to those facing Microsoft server or desktop upgrades.
- **Business agility.** Scale your IT environment up or down as needed and quickly roll out new applications to meet changing requirements.
- **Predictable budget.** Pay for what you use and forget about the cost and business disruption of IT upgrades.
- **Disaster preparedness.** Securely access your applications and data from anywhere should disaster strike.
- **Expert management and support.** Rest assured that your IT infrastructure will be available, secure and performing optimally.

## CONCLUSION

The most sophisticated technologies and IT services are no longer limited to large enterprises with huge budgets and massive resources. The cloud has leveled the playing field for SMBs, allowing them to compete in today's quickly changing business environment by spending less time and money on IT while simultaneously enhancing their ability to use technology to grow the business.

In a recent Microsoft survey, 63 percent of SMBs using cloud services today expect to grow in sales in the next 12 to 18 months while 55 percent believe technology will power their growth. Fifty percent of SMBs say cloud computing is going to become more important for their operations, and 58 percent believe working in the cloud can make companies more competitive.

Cost savings spurred SMBs' initial ventures into the cloud, and that remains a significant benefit. Today, however, these organizations are recognizing the true value of the cloud comes from the applications and advanced services they can leverage. Mobility is of particular interest, with SMBs craving the ability to move beyond email and begin delivering productivity and business apps to mobile devices. In its 2013 Global SMB Cloud Insights report, the hosting firm Parallels predicts the global SMB market for cloud mobility services will grow from \$4.8 billion to \$14.3 billion in three years — a year-over-year growth rate of 44 percent.

However, SMBs seeking to adopt cloud solutions still need support. While the cloud offers an easier path to advanced technologies, it is not an effortless undertaking. Some elements of the IT environment — such as Internet connectivity — become even more critical in a cloud setting. For this reason, local is better when it comes to service providers. The Microsoft survey found that past experience with support is a key driver of service provider selection among SMBs. Eighty-two percent of SMBs said buying cloud services from a provider with local presence is critical or important.

Degas once said that “art is not what you see, but what you make others see.” This, in a sense, also describes the art of the cloud. It shifts the focus from the physical components of the IT infrastructure to the services and benefits those components make possible. For SMBs in particular, the ability to access dynamic computing resources at a fraction of the cost of ownership creates a fresh perspective of business conditions. With a rich palette of applications and resources at their command, these organizations can be better prepared to respond quickly to changing needs, introduce new services and take advantage of new opportunities.



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