

Cloud Computing 2.0

How to Shape Your Cloud Strategy
to Fit Your Changing Needs



Cloud Computing

“If you’re uneasy about jumping right into the cloud, start small with an easy, low-risk service, and grow your usage of the cloud as you gain a comfort level with cloud services and how to manage your risk.”

Mike Martin
Director of Cloud
Computing,
Logicalis

This feature will look at all of your cloud options, with an emphasis on developing a strategy that begins with your current situation and is tailored to your specific needs and available resources.

The word “cloud” is popping up everywhere and is being used to describe virtually anything associated with the delivery of information technology.

New products, new providers, new promises: new definitions of cloud computing are offered reassuringly almost every day. The best short definition of cloud computing is that it is an elastic delivery model for the consumption of IT as a service.

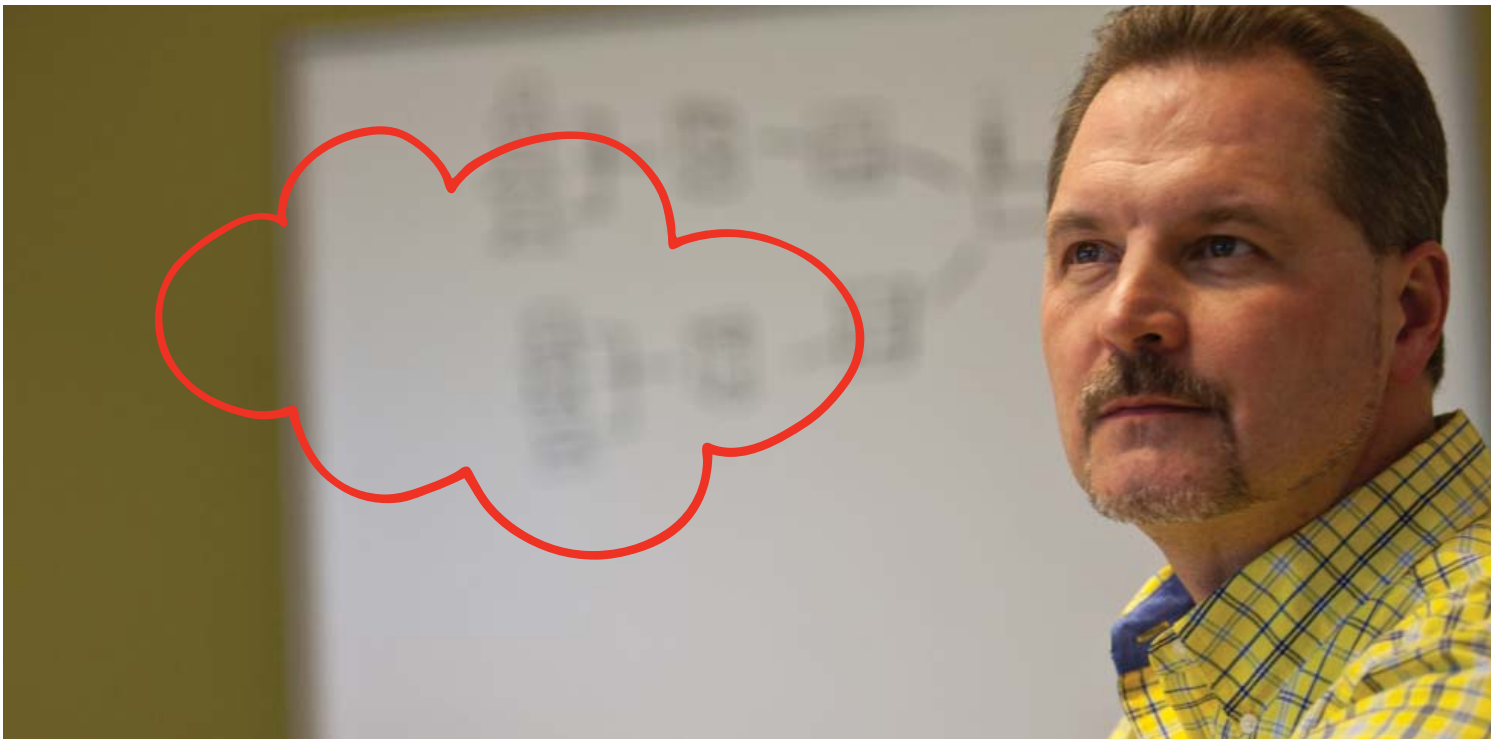
What is both so disruptive and so exciting about cloud computing is that it offers an insight into the nature of change itself. Cloud computing makes it possible for IT to take another full step closer to the ultimate goal of providing IT as a service and respond dynamically and automatically to changing business requirements.

Cloud computing is the ultimate enabler and reflection of another hot new buzzword in the business press today: “business agility”—the ability of a business to respond rapidly and cost-efficiently to changes in the business environment. One key characteristic of business agility is that it makes change a routine part of organizational life. In many ways, business agility is the business counterpart of cloud computing. Both have a little of the feel of controlled chaos about them.

Cloud Insight

Waiting for cloud computing to stop changing before taking advantage of it, as a result, is problematic. Cloud computing will continue to change. A better option is using the insight that cloud computing offers to help you develop ways to respond to changing business and IT requirements within your own organization. For example:

- If you need an application but you don’t want to develop, manage, support and host it in your own data center, you can access it in the cloud as software-as-a-service (SaaS).
- If you need a stable platform to launch your own SaaS offering or spin up new capacity on demand, you can access a platform-as-a-service (PaaS) on a public cloud and specify the configuration and relevant regulatory compliance, e.g., HIPAA.
- If you need to add capacity to your own data center, but don’t want to build and support it yourself, you can access an infrastructure-as-a-service (IaaS) in the cloud with readymade compute, storage and networking infrastructure, delivered as an SLA-based, contractual service.
- If you want the benefits of cloud without leaving the security of your own data center



for your mission-critical applications, you can build your own private cloud internally and share resources between departments to optimize your existing IT assets.

- If you have your own private cloud but need access to compute, storage or network capacity to meet short-term excess requirements, a hybrid cloud strategy will let you move workloads between your private cloud and public clouds to accommodate demand.

In this second wave of the cloud computing phenomenon, forward-looking organizations are learning how to shape their cloud strategy to fit their changing needs. This feature will look at all of your cloud options, with an emphasis on developing a strategy that begins with your current situation and is tailored to your specific needs and available resources.

Public Clouds

The attributes most associated with public cloud computing—rapid self-provisioning, automation and capacity ondemand—offer something for both the business and IT sides of an organization. IT benefits from available, flexible and affordable computing resources. Business benefits from the ability to shift the balance from a capital expense model with a significant up-front commitment of funds to an operational expense model with a variable fixed cost aligned with business/IT needs.

No leap of faith required. “If you’re uneasy about jumping right into the cloud, start small with an easy, low-risk service, and grow your usage of the cloud as you gain a comfort level with cloud services and how to manage your risk,” says Logicalis Director of Cloud Computing Mike Martin.

Real Clouds

Cloud computing may still seem ethereal, but the benefits have proven to be very real. The best way to provide some form to cloud computing is by defining a specific solution to a business problem that leverages the attributes of cloud technology. The enabling factor is your willingness to look at solving your computing needs in a different way. What does that look like in practice?

API Healthcare provides a great example. API Healthcare is an independent software vendor (ISV) that offers a comprehensive workforce management solution to healthcare organizations of all sizes. Its product line includes everything from a touchscreen badge reader for employee self-service to business analytics that help departments effectively manage the complex staffing requirements of their organizations. API Healthcare has been in business for over 28 years and has more than 1,000 hospitals and healthcare organizations as clients.



API Healthcare's clients had been asking about accessing its solutions as a service instead of having to host it in their own data centers—a classic operating expense vs. capital expense argument. The problem for API Healthcare was that providing its software as a service would require building up its own data center, not its core competency.

The cloud computing model seemed like a potential solution, but not just any cloud would do. API Healthcare had very defined technical requirements and a host of healthcare clients that must comply with specific industry regulations. "Our solutions aren't something you can just throw on your basic public cloud," says API Healthcare Technical Product Manager Jon Hardenbrook.

Hardenbrook says when he asked his contacts at HP and IBM for a recommendation, they all told him he should talk to Logicalis. The Logicalis Enterprise Cloud had everything API needed—and was, in fact, developed in part with API in mind.

Logicalis' Enterprise Cloud is a multi-tiered cloud infrastructure built on a set of predefined services with flexible support levels. The infrastructure underlying the platform incorporates ITIL V3 best management practices. It is designed for complete redundancy, leveraging enterprise-class servers, storage and networking infrastructure. It is SAS70 certified and has implemented safeguards that are in line with HIPAA and other regulations.

The Logicalis Enterprise Cloud is also supported by more than a decade's worth of experience that Logicalis has gained as a managed services provider. For API Healthcare, that means Logicalis is able to monitor and manage everything from the operating system down, leaving API Healthcare free to focus on developing and managing its applications for its clients.

"Logicalis Managed Services auto-generates incident reports, and we have a dashboard

so we can see exactly what resources we are consuming—everything we need to know," Hardenbrook says.

API Healthcare's clients like the hosted model on several levels: Their business units like the workflow capabilities of the API Healthcare solutions that make it possible to more effectively manage their staff and provide better quality care to their patients while controlling labor costs; their CFOs like the idea of being able to pay a fixed fee for the service out of their operations budget; and their IT departments like the fact that they don't have to support, monitor or manage the solution in their already crowded data centers.

API Healthcare is now offering all of its applications as SaaS through the Logicalis Enterprise Cloud. Hardenbrook says some clients who previously had an API Healthcare solution in their data centers have since migrated to the hosted version. "I sincerely think that this is a trend. It makes too much fiscal sense for the life of the solution to move it out to a managed format instead of keeping it all in-house. Logicalis has put us on the leading edge of that trend."

Private Clouds

For a variety of reasons, not every organization wants to have critical IT resources running in someone else's data center. Private clouds give you most of the benefits of cloud computing without leaving the security of your own data center. You have to lay out the capital for the required infrastructure, but you do get all the other benefits of cloud computing, including:

- Preservation of capital
- Elasticity to respond to changing business needs
- Rapid self-provisioning
- Capacity on demand
- Reduction of carbon footprint through consolidation
- The spread of fixed costs over a longer term

But you don't have to choose either a private cloud or a public cloud. That's old-school thinking. A hybrid approach to cloud



Further Reading

Visit

www.us.logicalis.com/api

Read

You can read the complete API Healthcare case study at www.us.logicalis.com/api

computing spans both public and private cloud environments and allows you to tap whichever resource is most appropriate at any given time—all under a single management regime.

The hybrid cloud model, as an integrated private and hosted cloud solution, provides a virtualization reference architecture built on matching hypervisors that enables the migration of application services or data between your private cloud infrastructure and a public cloud. The hybrid cloud concept is ideal for organizations looking to cap the size of their own IT cloud infrastructure or those who may have run out of power or space. It also works well for those who may need a representative infrastructure for disaster recovery or application test and development and need a trusted and integrated service they can use on demand.

The hybrid model is one of the cloud solutions that, frankly, is still taking shape on the cloud horizon. The true potential of the hybrid model will only be possible when cloud standards are implemented by the industry at large. In the meantime, it is possible to build solutions that allow private clouds and public clouds to interact seamlessly with existing technology.

Case in point: Logicalis developed a solution for a healthcare services provider that delivers the benefits of a hybrid cloud environment by allowing an application running in VMware in the client's data center to work together with an identical instance of the application running in VMware in the Logicalis Enterprise Cloud. To be a true hybrid environment, the two virtual applications would interact with each other at the hypervisor layer. Instead, the two applications are synchronized through SQL Server and the Double-Take replication utility. Although it is a quasi-hybrid, the solution does deliver the desired effect by enabling users to access either application, dramatically decreasing response time by distributing the workload.

“The simplest advice? If an application is core to your business, keep it in-house within a private cloud solution, and if it's a commodity or non-core service, move it into the public cloud,”

Martin says. “I think you'll see more things going into the cloud than not, but it's not something you just do overnight. A strategic cloud roadmap will help you develop a big-picture approach. You get the most value from cloud when you figure out how to utilize private and public cloud options together based on your business needs.”

The Journey

Most organizations today have taken at least a half step on the journey into cloud computing by implementing some level of virtualization in their IT infrastructure. The virtues of virtualization are well documented. For example: One Logicalis customer consolidated 94 servers down to four. In practical terms, that amounts to an effective reduction of the customer's server environment—including power, floor space and cabling—of 96 percent.

Virtualization, however, only takes you part of the way to cloud computing. To begin to leverage the full potential of cloud computing, your systems need to be able to dynamically provision IT resources as needed on the fly, and to do that, you need to implement an orchestration level above your virtualized infrastructure that controls resource provisioning. The addition of a self-service portal above the orchestration level provides on-demand consumption, or reduction of IT services as business requirements change.

Self-Service

The concept of self-service provisioning of IT is both compelling and scary. It is compelling in as much as it enables IT and designated users to spin up capacity as needed. As such, it is the feature most directly linked to providing business agility.

Self-service provisioning is scary for the same reason. The runaway proliferation of virtual machines that virtualization unleashed in many data centers is a good example of what can happen when trained IT personnel have easy access to resources. The very thought of giving non-IT users easy access to resources sends shivers down the spine of many an IT pro.

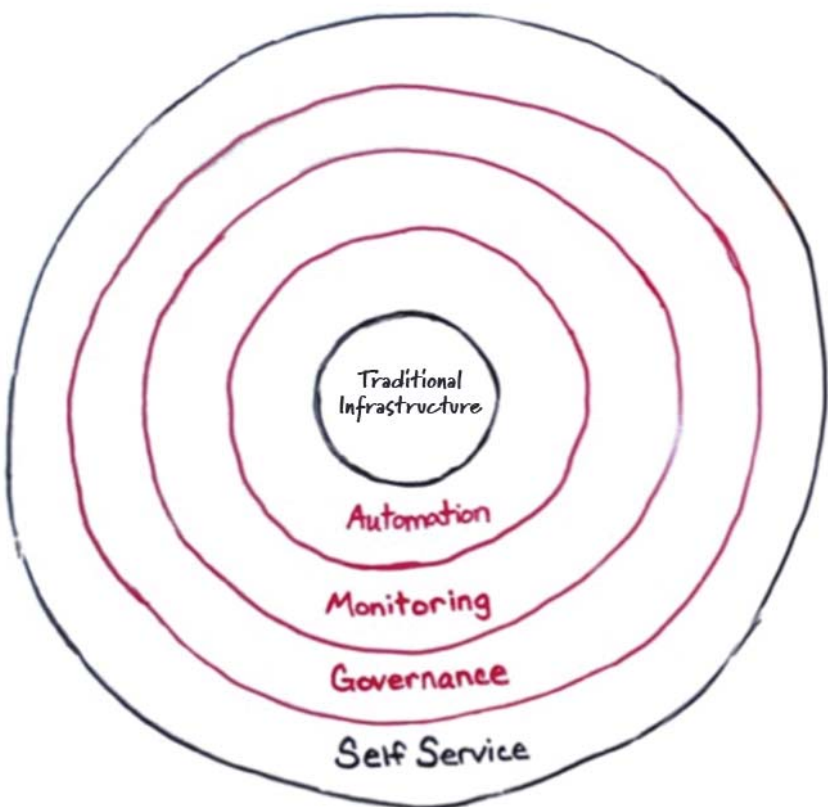
“Cloud computing is all about providing IT as a service,” says Martin. “You are really looking at redefining the way IT is delivering and consuming services and how that is aligned with the business requirements.”

Logicalis Cloud Architect Steve Pelletier’s sketch of a functional cloud environment looks like an onion with traditional infrastructure at the center and a self-service layer around the outside. Between the resources and the self-service portal are distinct layers for automation, monitoring and governance.

“Automation, monitoring and governance are what make cloud computing livable,” Pelletier says. “Self-service does not mean instant gratification. You need to have things like chargeback and/or show back so you can demonstrate that you are spending money by serving yourself these corporate assets.”

Pelletier notes that each of the controlling layers needs to be implemented by automated management tools. “If it is not automated, you are going to need to triple your IT staff and there is no such thing as a ‘cloud IT force’ where you have more people coming in on demand. You need tools to do that. That is why Logicalis bundles managed services and ITIL guidelines with its enterprise cloud offering. Without monitoring and management, self-service provisioning is like the Wild West all over again.”

The Cloud “Onion”



A Custom Job

Because the business needs are unique for every organization, every private cloud is a custom job. Implementing a private cloud is an extremely hands-on undertaking that requires a range of skills spanning the entire IT infrastructure. Everyone wants to say they “do cloud computing,” but very few providers have all the skills required.

Leading industry partners have very specific cloud messages focused on their own approach to implementing private clouds. But implementing a cloud strategy is not something that you can just buy. It’s a process that you develop, and it is unique to every organization. Instead of looking for ways to fit your IT into any particular vendor’s private cloud, a more effective strategy is to start with your needs and see what cloud options could work for you.

Key cloud considerations addressed by Logicalis’ private cloud methodology, for example, include:

- Defining a service catalog for end users that meets all corporate guidelines
- Developing a delivery model of scalable virtual resources
- Abstraction of infrastructure to extend virtualization
- Configuring auto-provisioning and self-service tools
- Implementing monitoring and capacity management capabilities
- Calibrating chargeback/show back for IT services used
- Ensuring security and compliance
- Enhancing business continuity
- Hybrid cloud integration

You’ll notice that the above list of considerations cuts across the silos that exist in conventional IT departments dividing servers, storage, networks and management into often jealously guarded fiefdoms. Perhaps the most disruptive aspect of cloud computing is that it rises above conventional fiefdoms.

“Cloud computing is all about providing IT as a service,” says Martin. “You are really looking at redefining the way IT is delivering and



consuming services and how that is aligned with the business requirements. It starts with a detailed business-to-IT strategy assessment. You need to define the business challenges that you must meet—your business continuity requirements and growth plans, as well as your technology assets and your financial goals and objectives—and, from these components, you develop feasible options and solutions for a more cost-effective way to manage your IT.”

Don't overlook the demands that cloud computing can make on your data center. You'll want to invite your data center operations team to sit down with your IT operations team to ensure that your cloud strategy works on the ground.

Implementing a private cloud can have serious impacts on a data center. While your private cloud is responding to changing business demands on the front end, the back end of the cloud in your data center needs to be able to respond to changing demands for power and cooling. Servers that become virtualized require specific power and cooling needs. As private cloud features like self-provisioning are introduced, hot aisles may get hotter, requiring more cooling in that region. Power consumption

fluctuates when virtual machines are spun up and down and will require smart power solutions and monitored distribution paths.

Monitoring the data center in a private cloud environment is key. Data Center Infrastructure Management (DCIM) tools should be deployed so the operations teams can actually see what is happening in the data center with regards to these changing power and cooling dynamics.

Full Potential

Although virtualization was unleashed by hypervisor software, most of the emphasis has been placed on the impact of virtualization on the hardware infrastructure. The full potential of cloud computing, however, will only be realized through advances in lean/agile development of applications that can fully leverage the cloud environment. Instead of having to over-buy to support peak demands, the new generation of applications is capable of automatic self-provisioning and can expand and contract as business requirements change.

Unfortunately, unless you've just started a brand-new organization, your IT environment is currently running a diverse collection of last-generation and older applications. It is these

Jeff Nessen,
Logicalis

“So, face it, the cloud is going to be in your IT environment in the future. The only question is: Are you going to maintain control, or is it going to be a free for all? The choice is yours.”

legacy applications that were deployed with the one-application-per-server rule of thumb that unleashed the server sprawl that most organizations are still recovering from.

The last wave of change that swept through application development was a decade ago, when IT departments spent millions of dollars building complicated websites using tools that required cumbersome application servers to run. This generation of applications got organizations onto the Web, but the applications themselves were hard to build and complicated to maintain. The only way to ensure that you had enough resources to meet demand was to over-buy everything.

With virtualization, self-provisioning and other cloud-enabled advances, it is now possible to develop applications that can right-size themselves dynamically according to pre-determined criteria. That's great for new applications, and great news for IT departments.

Build, Buy or Pay As You Go?

The efficiency of new application development techniques directly affects the build-or-buy decision IT departments face when it comes to replacing legacy applications and/or building new apps that can take full advantage of the cloud deployment model.

Cloud also introduces a third option: Pay as you go. Surveys indicate that the majority of ISVs are actively working on SaaS offerings of their applications that will provide access to

applications hosted in a public cloud. CFOs particularly like the SaaS option because you don't have to buy or develop the software and can pay for it on a predictable monthly basis. This means costs are spread out over time and treated as an ongoing operating expense. More importantly, SaaS gets applications running faster, so their benefits can be more quickly factored into financial results. It also means expenses get reported in periods that better align with how your business sees its software paybacks.

User Driven

The inexorable force behind cloud computing is the same one that has driven all major changes in computing: users. They want cloud computing, and the history of computing has clearly demonstrated that users will work through you to get what they need or will work around you.

Logicalis' Director of Virtualization Jeff Nessen notes, "Users got their way in the client-server trend. I guarantee it wasn't IT that was saying, 'Let's make the environment more complex with more parts that can break.' Then users wanted to run their apps on the Web, and now in the cloud. YouTube, Gmail, Netflix, Hulu—everyone who has technology in their house understands the value proposition of the cloud at its most basic level. It's not going to be long before users at work are going to want the same access and flexibility they get from the applications they have at home.



“Users always get what they want in the end,” Nessen adds. “So, face it, the cloud is going to be in your IT environment in the future. The only question is: Are you going to maintain control, or is it going to be a free for all? The choice is yours.”

About Logicalis

Logicalis is an international provider of integrated information and communications technology (ICT) solutions and services founded on a superior breadth of knowledge and expertise in communications and collaboration, data center, and professional and managed services.

Logicalis Group employs over 1,900 people worldwide, including highly trained service specialists who design, specify, deploy and manage complex ICT infrastructures to meet the needs of over 5,000 corporate and public sector customers. To achieve this, Logicalis maintains strong partnerships with technology leaders such as Cisco, HP, IBM and Microsoft.

The Logicalis Group has annualized revenues of \$1 billion, from operations in the UK, US, Germany, South America and Asia Pacific,

and is fast establishing itself as one of the leading IT and communications solution integrators, specializing in the areas of advanced technologies and services.

The Logicalis Group is a division of Datatec Limited, listed on the Johannesburg and London AIM stock exchanges, with revenues in excess of \$4 billion.

For more information, visit www.us.logicalis.com.

What can we do for your organization?

Contact Logicalis to learn how we can help.

Visit www.us.logicalis.com/

Call 866.456.4422