

# Five trends that will affect your cloud strategy

by David W Cearley and David Mitchell Smith

*Evaluating the benefits of the cloud computing model is not straightforward; companies must carefully consider implications for cost and security among other issues*

## Emergence of formalised frameworks

Cloud computing services exist along a spectrum of capabilities ranging from system and application infrastructure services through application and information services to high-level business services. There are also security, provisioning, management, governance and brokerage services to facilitate the use of other cloud services.

Cloud computing is generally thought of as a model in which an external service provider delivers IT capabilities as a service to individuals or businesses (aka the public cloud). However, the cloud style also can be applied internally to influence how an enterprise builds its own infrastructure and applications to deliver private cloud services.

The cloud promises to deliver a range of benefits including a shift from capital-intensive to operational cost models, lower overall cost, greater agility and reduced complexity. It can also be used to shift the focus of IT resources to higher value-added activities for the business, or to support business innovation and, potentially, lower risks. However, these prospective benefits need to be examined carefully and mapped against a number of challenges including security, lack of transparency, concerns about performance and availability, the potential for vendor lock-in, licensing constraints and integration needs. In addition, a careful analysis shows that, over time, cloud computing will not always save money.

These issues create a complex environment in which to evaluate individual cloud offerings. This complexity is further increased by the fact that the requirements and constraints of particular workloads and the datasets associated with them have a significant impact on the potential benefits and risks of various cloud models. Companies will increasingly codify and formalise frameworks to evaluate particular cloud services options based on the characteristics of specific workloads and the security and compliance needs of the associated datasets.

## Hybrid cloud computing

Hybrid computing refers to the coordination and combination of external cloud computing services (public or private) and internal infrastructure or application services (private cloud or traditional delivery, including outsourced models). However, hybrid computing does not refer to using internal systems and external cloud-based services in a disconnected or loosely connected fashion. Hybrid computing implies significant integration or coordination between the internal and external environments at the data, process, management or security layers. Most large companies will use some form of hybrid computing.

Over time, hybrid cloud computing could lead to a unified model in which there is a single "cloud" made up of multiple cloud platforms (internal or external) that can be used, as needed, based on changing business requirements.

Cloudbursting would allow an application to automatically reach out to external cloud services when additional resources are needed. However, the full promise of this unified cloud may not be realistic, and in any case will take many years to mature. In the meantime, less ambitious hybrid cloud approaches still allow for cost optimisation, flexible application deployment options and a coordinated use of internal and external resources.

## Cloud brokerage

As cloud computing adoption proliferates, so does the need for consumption assistance. A cloud services brokerage (CSB) is a service provider that plays an intermediary role in cloud computing. A CSB is primarily made up of three roles – aggregator, integrator and customiser. These roles are adopted by IT services providers, B2B providers and new cloud specialists.



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During 2011 there was an increase in interest in the CSB concept from IT users and providers, and the market saw an expansion of CSB offerings and more adoption of CSB services. Over the next three years, we expect this trend to accelerate, with an expanded set of providers and offerings. Deploying cloud services will involve substantial integration work, and many CSBs will deliver integration services and employ business process management suites (BPMSs) to address this complexity. Steady investments by IT distributors and communication service providers (CSPs) for cloud aggregation brokerage offerings will help small or midsize businesses acquire, leverage and maximise investments involving multiple cloud services.

IT departments should explore how they can position themselves as CSBs to the enterprise by establishing a purchasing process that accommodates cloud adoption and encourages business units to come to the IT organisation for advice and support. This will enable IT to track the services that business users are acquiring and bring a degree of governance to the process.

#### Cloud-centric design

Many organisations look first for opportunities to migrate existing enterprise workloads to a cloud system and/or an application infrastructure. This approach may provide benefits where the workload has a highly variable resource requirement, or where the application naturally lends itself to horizontal scalability. However, to fully exploit the potential of a cloud model, applications need to be designed with the unique characteristics, limitations and opportunities of a cloud model in mind. The architectural and design principles for cloud-optimised applications include:

- Applications optimised for dynamic resource use versus predictable resource use
- Failure-aware applications designed for resiliency, rather than assuming a resilient infrastructure
- A modular, asynchronous and stateless architecture that takes into account latency across internal and external services
- Parallel execution to increase performance and remove bottlenecks
- Dynamic execution supporting reconfiguration based on runtime data
- Use of content delivery networks, data replication and caching, and other new approaches to data management optimised for the cloud

#### Data centre and operational models

In public cloud computing, an enterprise is acting as a consumer of services, with the cloud services provider handling the implementation details, including the data centre and related operational models. However, to the extent that the enterprise

## Impacts and recommendations for five cloud computing trends that will affect cloud strategy

Impacts		Top recommendations
Formal decision frameworks facilitate cloud investment optimisation		<ul style="list-style-type: none"> <li>• Develop a model to identify the legal, compliance and corporate sensitivity regarding your data (eg, data classification scheme). For particular workload data combinations, map the anticipated benefits against the associated risks for public cloud services. For any given project, consider the timing of the anticipated impact, and focus attention on projects with a near-term impact on the business versus those with a longer term indirect impact.</li> </ul>
Hybrid cloud computing is an imperative		<ul style="list-style-type: none"> <li>• Establish security, management and governance models to coordinate the use of internal and external services. Focus near-term efforts on application and data integration, linking fixed internal and external applications with a hybrid solution. Approach sophisticated integrated solutions, cloudbursting and dynamic execution cautiously, because these are the least-mature and most problematic hybrid approaches.</li> </ul>
Cloud brokerage will facilitate cloud consumption		<ul style="list-style-type: none"> <li>• Position IT as an internal cloud services broker providing advice, guidance and intermediary service for the consumption of cloud services.</li> <li>• Evaluate third-party cloud services brokers that can facilitate the consumption of cloud services.</li> <li>• Train IT staff in relationship management to better enable them to manage cloud provider relationships and contracts.</li> </ul>

SOURCE: GARTNER (FEBRUARY 2012)

continues to build its own data centres, they will be influenced by the implementation models used by cloud services providers.

Through 2014, IT organisations will spend more money on private cloud computing investments than on offerings from public cloud providers. Over time, IT can leverage public and private cloud services in hybrid models. However, not all applications of cloud computing concepts or enabling technologies will result in a full private cloud that delivers all the attributes of cloud computing and easily interoperates with public cloud services.

## Deploying cloud services will involve substantial integration work



*This report is based on independent technology advisory research from Gartner, Inc. Gartner delivers the technology-related insight necessary for IT leaders to make the right decisions every day.*