: What are benefits of decision support applications in the cloud?

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Cloud computing is a distributed computing model that uses a network to share resources. The resources are data and applications like business intelligence systems and other decision support systems (DSS). There are four major cloud architectures including: 1) a private cloud, 2) a hosted private cloud, 3) a public cloud, and 4) a hybrid cloud (Irvine 2012). People access cloud-based applications through a web browser, desktop or mobile applications. Organizations using mobile applications, big data or with many locations can benefit from a cloud.

Irvine (2012) defines a private cloud as technology "hosted and managed on-premises by the client, usually behind a firewall, and access to cloud services is exclusive to that client or a known set of users." The main change for a hosted private cloud is that the technology is "hosted off-premises and managed by a cloud service provider, but access to cloud services is exclusive to one client". A public external cloud is hosted and managed by a cloud service provider, and multiple clients have access. Finally, a hybrid cloud has a more complex architecture with both public and private components. Cloud computing is like an electric utility that is sharing computing resources which creates economies of scale.

The National Institute of Standards and Technology defines cloud computing as technology and a computing model for providing " ... 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 delivery models include infrastructure as a service (IaaS), platform as a service (PaaS), and software as a service (SaaS). Organizations can rent servers, or both servers and software, including decision support applications. The number of cloud decision support applications is increasing. One example is the cloud-based clinical decision support system developed by IBM and Aetna subsidary ActiveHealth Management. The application "analyzes patient data stored in electronic medical records (EMRs) and administrative data systems and sends updates on treatment progress, drug interactions and best practices to physicians".

IBM provided a global private cloud for the 2012 Roland-Garros (French Open) tennis tournament. The IBM cloud technology enabled "the French Open to satisfy increasing tennis fan demand for real-time data, scores, statistics and videos accessible through the Web, smartphones and tablets such as the iPad."

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A well-designed cloud that uses redundancy can be reliable, secure, and suitable for business applications. Using a cloud to deliver decision support can reduce capital expenses and reduce operationing cost (Irvine, 2002). According to Jackson (2011), "proper deployment can provide significant savings, better IT services and a higher level of reliability." Other benefits claimed are agility, accessibility to software and device and location independence. In summary, benefits include:

- Greater reliability. A DSS is more likely to perform when and where it is needed.
- More secure. Proper implementation of safeguards result in a system that is less vulnerable to physical and cyber attacks.
- More suitable for distributed business operations.
- Reduce capital expenses. Rent versus own. Outsource technology and support.
- Reduce direct and indirect operating cost for IT and IT dependent tasks. Pay for only what you use.
- Agility. Faster to create and deploy new decision support applications.
- Accessibility. Available anywhere and anytime.
- Available on many diverse devices.
- Scalable. Expand and contract capability to meet needs.
- Disaster backup. Cloud infrastructure is a remote capability with backup to protect against disaster.
- Expertise. Cloud vendors and staff become part of a company's information technology capability.

A recent review and evaluation by Marston et al. (2011), notes "if cloud computing is to achieve its potential, there needs to be a clear understanding of the various issues involved, both from the perspectives of the providers and the consumers of the technology."

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Managers must understand the "cloud" is hardware and software that is located on the network and not on his/her local computer or in his/her organization facilities. The cloud is a distributed infrastructure we access over the Internet for storage and applications.

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