Cloud Computing for Business

Summarized by Lu Yang
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Dr. Lu Yang presented the following contents in his talk “Cloud Computing to Business” to the OSC community.

- Technology trend for industries

The Information Technology (IT) industry is rapidly evolving, with cloud computing and artificial intelligence (AI) leading the latest trends. Cloud computing is reshaping IT infrastructure, as businesses migrate to the cloud for scalability, cost-efficiency, and flexibility. This shift encompasses Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS), giving organizations greater ease in deploying and managing resources. Multi-cloud and hybrid cloud environments are gaining popularity, offering redundancy and allowing companies to take advantage of different cloud providers' strengths.

- What is Cloud Computing

Cloud computing delivers computing resources and services over the internet on demand. Users can access and utilize a variety of resources remotely without owning or maintaining physical hardware or software. These resources are hosted in data centers managed by cloud service providers (CSPs), allowing users to scale their usage up or down as needed.

- Benefits of Cloud Computing

I focused more on Scalability, Automation, Disaster Recovery, Managed Services and Sustainability in the following list.

  - Cost Savings
  - Security
  - Flexibility
  - Scalability
  - Increased Collaboration
  - Automation
  - Disaster Recovery
  - Loss Prevention
  - Managed Services
  - Competitive Edge
  - Sustainability

- Misunderstandings of Cloud Computing

Many people have misconceptions about cloud computing. Some think it's too cheap or too expensive, but costs depend on the cloud's design and architecture. Cloud computing offers more security tools than traditional data centers, yet its safety is often questioned.

The ease of configuring cloud resources depends on the design and implementation of the architecture.

Cloud Service Providers (CSPs) offer fine-grained access and permission control through Identity and Access Management (IAM), allowing for granular permissions. CSPs also ensure service stability with built-in redundancies, backups, and disaster recovery plans. Cloud services suit both startups and large enterprises because of their flexibility, on-demand provisioning, and rent-based agreements.

Cloud storage provides scalable, unlimited space with various options to meet different needs. This is distinct from personal cloud storage like Google Drive or OneDrive, offering enterprise-grade reliability and security.

- Industry use cases

Cloud computing has a broad range of use cases across various industries and applications. Here are some key examples:

  - Data Storage and Backup: Cloud computing provides scalable and cost-effective storage solutions for data, allowing organizations to store vast amounts of information with flexible access.
  - Software Development and Testing: With cloud resources, developers can quickly spin up environments for testing without investing in physical hardware, allowing for continuous integration and continuous deployment (CI/CD).
  - Artificial Intelligence and Machine Learning: Cloud platforms offer powerful AI/ML services for training and deploying machine learning models. Organizations can leverage these capabilities without needing specialized hardware, accelerating AI adoption.
  - Hosting Websites and Applications: Cloud computing allows businesses to host websites, mobile apps, and other online services with high availability and scalability.
  - Content Delivery and Media Streaming: The cloud is used to deliver digital content, such as videos, music, and games, to users worldwide. Content delivery networks (CDNs) and media streaming services leverage cloud infrastructure for fast and reliable content distribution.
  - Internet of Things (IoT): Cloud computing plays a central role in IoT applications, providing the infrastructure to collect, process, and analyze data from connected devices. This enables real-time monitoring and control in industries like smart homes, healthcare, and manufacturing.

- Support

Dr. Lu Yang is available to offer cloud support on behalf of DeepSense, the Faculty of Computer Science at Dalhousie University, or as an independent consultant.