**Cloud Computing**

The advent of cloud computing has heralded a new paradigm in the IT world, ‘Software as a Service’ is now the primary business model for most leading software technology companies. Businesses and consumers are no longer required to fork out hundreds or thousands of dollars ‘up front’ for software utility services such as the Adobe or Autodesk suites, opting rather to a monthly, or yearly subscription model. Eliminating the need for consumers to purchase upgraded versions, whilst providing predictable cashflow for leading software companies.

The rise of ‘Cloud’ has seen significant advancements in supplementary IT disciplines such as cyber security, AI (Artificial Intelligence), data science and business intelligence. Cloud computing is the new hybrid, non-static model of data storage. Most services boast 99% uptime of hosted infrastructure, with dynamic redundancy to ensure data protection and security.

Before cloud, online data systems were primarily stored via dedicated or shared access solid state servers, often located on business premises, costing tens of thousands of dollars to set up and maintain. Uptime and bandwidth were area dependent, with redundancy and backup systems quite costly and inefficient.

Cloud computing is offered primarily as a ‘pay as you go’ model, pricing dependent on performance and storage requirements. The key competitors in the cloud space (market share 2022) are Amazons AWS (32%), Microsoft azure (20%) , Google Cloud (9%), Alibaba (6%) and IBM (5%).  
 *statistics sourced* à [*https://www.wpoven.com/blog/cloud-market-share/*](https://www.wpoven.com/blog/cloud-market-share/)

Cloud services are provided under a tiered offering, the premium being a ‘private cloud’ giving full autonomy to user, followed by ‘public cloud’ whereby the provider is responsible for maintenance, software installations and security of the server, then finally a ‘hybrid’ option combining features from both private and public.

Cloud systems are structured depending on client usability needs, standard models include, IaaS (Infrastructure as a Service), PaaS (Platform as a Service) and SaaS (Software as a Service).

**Infrastructure as a Service**  **à** Includes hosted infrastructure tailored to storage and networking requirements, gives users the flexibility to choose and scale dependency resources.

**Platform as a Service à** Is provider managed to host specific applications and testing environments, accessible by remote users on demand.

**Software as a Service à** This refers to consumer access for subscription software such as Canva.com, Proto.io, Adobe suite, etc., accessibility to clients via single login access page. The hosted environment for the SaaS is set up through an ‘Infrastructure as a Service’ model from the perspective of the provider.

Cloud has reduced the storage and performance requirements for personal user devices, as complex computations can be outsourced to cloud server-side infrastructure and returned to users’ devices via internet connection.

As with any innovative technology the surge of ‘the cloud’ also presents certain challenges particularly surrounding privacy and security. Given that servers are accessible via an internet connection, risks are presented by way of unwanted or malicious activity, therefore the multibillion-dollar cybersecurity industry has formed to prevent data abuse, utilizing various encryption methods and client-side access protocols to protect data integrity.