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USING THE ARCHITECTURE AND APPROACHES OF CLOUD COMPUTING IN LOGISTIC SYSTEMS

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Over the years, several technologies have matured and played a crucial role in making cloud computing a viable solution. This introduction explores the technological advancements that have contributed to the development of cloud computing. It discusses concepts, developments, and categorizes the most relevant research and development efforts in cloud computing, particularly focusing on public clouds, management tools, and development frameworks. The introduction also highlights practical realizations of cloud computing, emphasizing architectural aspects and innovative technical features.
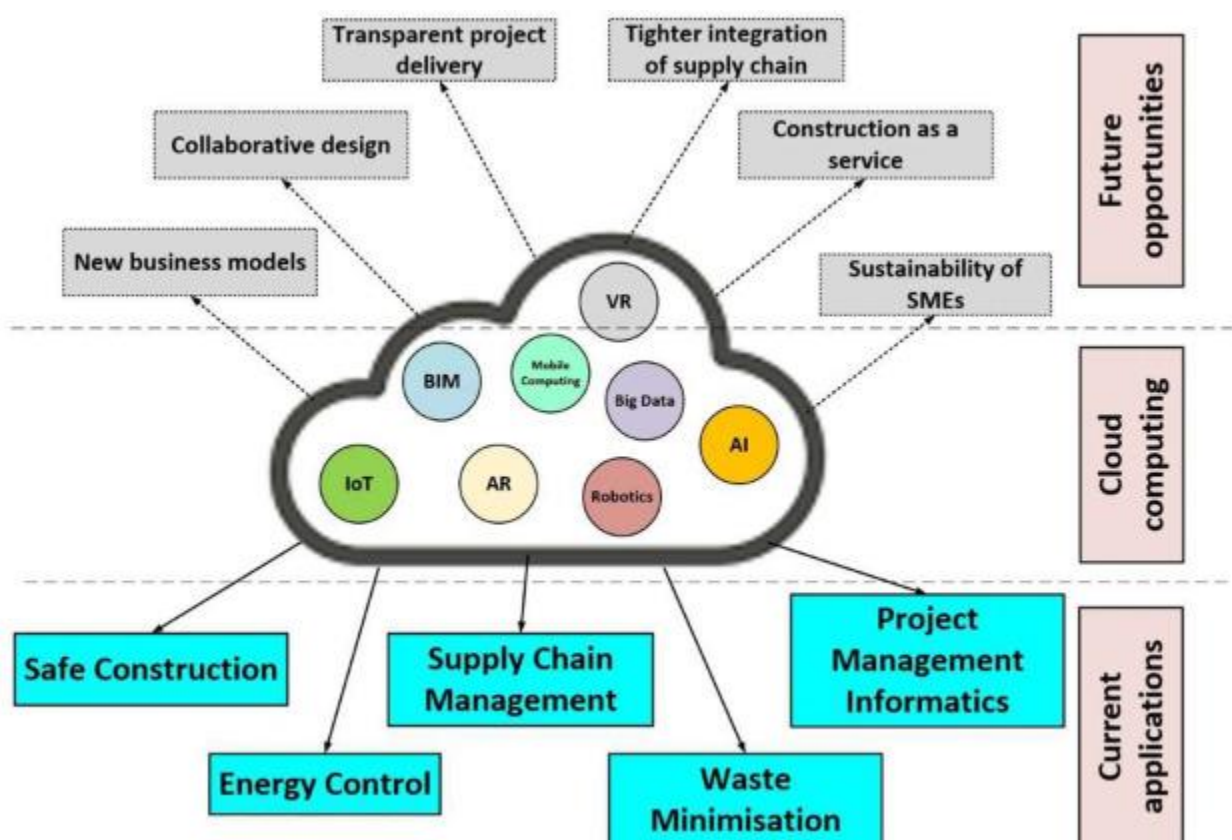

Figure 1. Depicts the convergence of multiple advancements that have ultimately led to the emergence of cloud computing.

This model offers advantages to both IT service consumers and providers. Consumers can experience cost savings by opting for more affordable services from external providers instead of making significant investments in IT infrastructure and personnel. The "on-demand" nature of this model enables consumers to adjust their IT usage according to rapidly changing or unpredictable computing requirements. On the other hand, IT service providers benefit from improved operational costs. By building hardware and software infrastructures that cater to multiple solutions and serve numerous users, providers can enhance efficiency, leading to faster return on investment (ROI) and reduced total cost of ownership (TCO).

Cloud computing presents a distinct value proposition compared to traditional enterprise IT environments. By leveraging virtualization and aggregating computing resources, it offers economies of scale that would otherwise be inaccessible. It also provides immediate opportunities to utilize existing hardware and software, eliminating the need for designing, deploying, and testing new implementations, which saves time and resources.

One of the key advantages of cloud computing is that it allows organizations to treat infrastructure and its management as operational expenses rather than capital investments. This has tax benefits and enables businesses to conserve capital for other purposes. Additionally, cloud computing provides a centralized and remote computing facility, leading to economies of scale in hardware and software usage and reducing the administrative resources required for management.

The ability to access computing resources instantly, without the need for extensive time and skilled resources to set up infrastructure, results in faster time to value. This can lead to enhanced revenue, increased business agility, a larger market share, and other benefits.

It's important to note that cloud computing doesn't exist in isolation. Most organizations already have a diverse range of applications running in their data centers. Cloud computing typically extends existing infrastructure, either by using it primarily for new projects or as overflow capacity to ensure a certain level of performance for enterprise computing.
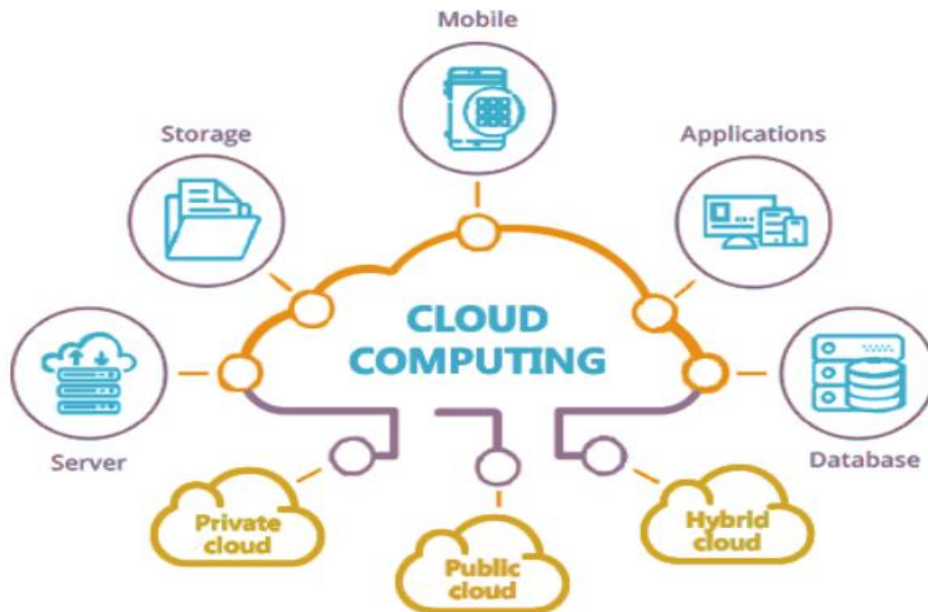
Figure 2. Cloud computing

The architecture and approaches of cloud computing involve the systems architecture of software systems used in delivering cloud services. Typically, this architecture includes multiple cloud components that communicate with each other using loose coupling mechanisms, such as messaging queues. The concept of elastic provision involves intelligent usage of tight or loose coupling mechanisms and other techniques.

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