



## The Future of Enterprise and Innovation is Compute as a Commodity, or CaaS

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**Abstract** – A great amount of processing power may now be accessible with only a few clicks of the mouse owing to the advent of cloud computing, which has made this option viable. Cloud computing has made it possible to access this data. "Computer as a commodity" rather than "Computer as a service" is the appropriate manner in which businesses should start addressing its use for the very first time. The method in which companies approach computers for the purposes of conducting research and carrying out commercial operations will undergo a significant transformation as a consequence of this. This is because of the fact that this is the case.

**Keywords:** Cloud, Compute, Commodity, Azure, AWS.

### 1. INTRODUCTION

When there is a shift in the way in which individuals and organizations obtain access to and make use of processing power, there will be a major transformation in the pace of business application workload or innovation [1-5]. This change will have a considerable impact on the rate of innovation. This modification will take place without incurring any capital expenditures (CAPEX) and with operational expenses (OPEX) that are extraordinarily cheap (pay as per usage model). In the same way that water and electricity are becoming more widespread, conveniently available, and available at more inexpensive prices, computing resources are gradually becoming more widespread. This is one of the ways in which the availability of computer resources is increasing [6-7]. This move marks a substantial democratization of computing power, which means that it will have an influence on every industry and will ignite the flames of innovation at a rate that has never been seen before. In other words, it will have an effect on everything.

There is a high probability that the future of business and innovation will be found in the notion of computing as a commodity, which is usually referred to as CaaS [8-9].

### What is Compute as Commodity?

Obtaining seamless immediate and extremely low-cost access to any quantity of computing power across the board for the purpose of commercial application or innovation is the objective of the idea known as "Compute as a Commodity." This concept was developed with the intention of achieving those goals. This idea was conceived with the purpose of contributing to the accomplishment of this objective. The general population should have easier access to the availability of computer power, and this power should be disseminated across a wide range of various sources. I may acquire 500 virtual CPUs and 2 terabytes of

random access memory (RAM) from a variety of different vendors for a very low cost, for instance, if I need to run my new artificial intelligence model for a few hours. [10] This is possible because of the availability of a large number of suppliers. Making a few clicks with the mouse is all that is required.

## COMPUTE AS COMMODITY MODEL

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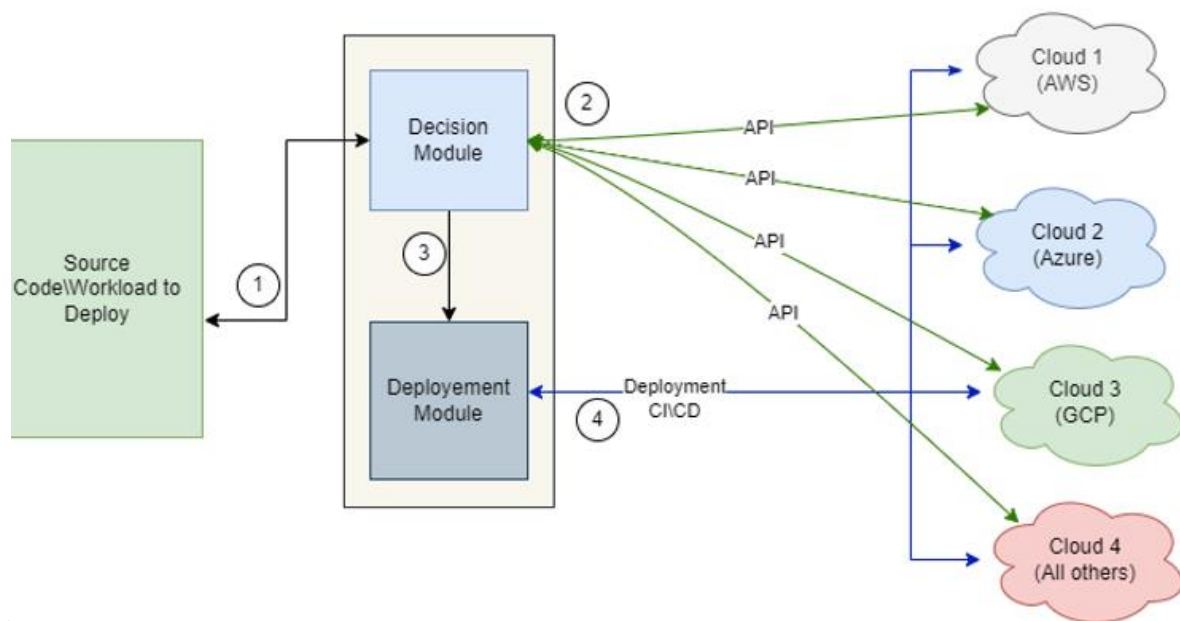


Fig -1: Compute as Commodity Model

## Benefits and Challenges:

CaaC offers numerous benefits:

- **Scalability and Flexibility:** Businesses are able to easily scale their computational resources up or down according to their requirements, so eliminating the risks and expenses associated with operating infrastructure that is located on their own premises [12-13].
- **Cost-Efficiency:** The cost of having a CaaC model is significantly lower than the cost of using a single cloud platform. This is due to the fact that you are utilizing on-sale computing capacity from many providers.



- **Creativity:** Having easier access to sophisticated computing resources encourages creativity and experimentation, which ultimately results in the creation of new goods and services.
- **Application testing on cloud platforms:** This will provide you the freedom to test your Apps and Models on a variety of cloud platforms and optimize them accordingly. This includes optimizing the performance of your Apps and Models in a variety of processing units, graphics processing units, disks, and other resources [14].

However, challenges also exist:

- **Scalability and Flexibility:** Businesses are able to simply scale their computational resources up or down according to their requirements, so eliminating the difficulties and expenses associated with in-house infrastructure management.

As a result of utilizing on-sale processing power across many providers, the cost of the CaaS model is significantly lower when compared to the cost of a single cloud platform.

- **Creativity:** Having easier access to sophisticated computing resources encourages experimental thinking and creativity, which ultimately results in the creation of new goods and services.
- **Testing of applications on cloud platforms:** This will provide you the ability to test your applications on a variety of cloud platforms and optimize them accordingly. This includes optimizing the performance of your applications on a variety of resources, such as the CPU, GPU, disk, and other resources [15].

## CaaS can Reshape the Industries:

The commercialization of computing is a driving force behind innovation in a variety of different industries:

The deployment of large workloads across computer resources by researchers in the healthcare business has made it feasible to provide personalized therapy, speed up the process of drug development, and analyze complex datasets. All of these things are achievable because to the widespread availability of computational resources.

Banking and other financial organizations are able to make use of vast processing power on demand, which enables them to carry out transactions in a more expedient manner, enhance security, and identify fraudulent activity in a more efficient manner [16].

Studios are able to employ numerous parallel computing capacity from a range of cloud providers for the purpose of rendering films, animating their material, and developing personalized content. This is a benefit that is available to the media and entertainment industry.

The retail sector: Artificial intelligence and machine learning algorithms may be deployed by retailers to lower the amount of processing resources necessary to improve the customer experience, optimize logistics, and adapt marketing activities. This can be accomplished by reducing the quantity of data that has to be processed.

The CaaS is not a concept that is static in any way. The following are some of the areas in which we might anticipate greater advancements:

The adoption of edge computing, which entails bringing computational power closer to the devices and data sources, will result in the achievement of real-time processing capabilities as well as a reduction in latency.



There are a few other names for edge computing, including computational edge computing and edge computing [17-25].

**Quantum Computing:** Although it is still in its early phases, quantum computing has the ability to tackle very difficult issues that are beyond the capabilities of conventional computers. This is despite the fact that it is more basic than standard computers. Despite the fact that it is still in its preliminary phases, this is the consequence.

This strategy, which is based on a pay-per-use model, eliminates the need for server administration, which in turn makes the process of acquiring access to computing resources substantially simpler. The term "server less computing" refers to yet another type of computing that is included in this category [26-31].

## CONCLUSION

The movement that is commonly referred to as "Compute as a Commodity" is, in a nutshell, a revolution that is still going on in the present day. It is becoming easier for the general people to have access to a significant amount of processing capability, which is simultaneously causing a wide variety of organizations to undergo transformation. It is feasible that we may be able to expect even more innovative and forward-thinking applications of this revolutionary trend as technology continues to advance, which will push the limits of what is possible. These technological advancements will push the limits of what is now achievable.

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