

Celestial Computing: Defining the Unnamed Idea

Christopher Colantuono
Logos.Earth Research & Development
Vermont, USA somedude409@gmail.com
June 10, 2020

Melody Colantuono
Logos.Earth Operations Research Florida,
USA songofgrace21@gmail.com

Abstract

A new defining term is needed to explain an emerging space within the tech community. Celestial Computing is proposed as a new term to define this 'cloud-like' space. *When in house, cloud, hybrid and decentralized computing are homogeneously utilized, this becomes Celestial Computing.* Like Cloud Computing, Celestial Computing is not one concise thing per se, but a spectrum defining a particular technological space.

Key Words

Celestial Computing, Cloud Computing, Blockchain, aaS (as a service)

1. Introduction

In IT there are many forms of services that are available to a client, these are referred to as aaS (or as a service). For example, Infrastructure (IaaS), Platform (PaaS), Software (SaaS), and Blockchain (BaaS), to name a few. These services are available in a number of ways, predominantly through cloud services. However, there is an emerging way of offering these services which utilizes a number of technologies as needed in real time called Celestial Computing. Here Celestial Computing will be defined and differentiated from other service models.

2. aaS Services are Expanding

In the space of aaS there are a number of new technologies available; recently Celestial Computing has emerged. As multiple aaSs which used to be formerly individual services are merged into one service, Celestial Computing is born. Thus, *when in house, cloud, hybrid and decentralized computing are homogeneously utilized, this becomes Celestial Computing.* When multiple services are linked together to form a single new service; a new product is born.

The key factor to what makes Celestial Computing is how the computation and data management systems are linked and what that combination of methods ultimately creates. This is inherently different from the function, capacity and capability of Cloud Computing. For example, the term (and service of the) Hybrid Cloud is achieved by linking the Cloud with in-house servers. In the same way, Celestial Computing is achieved by linking BaaS with other aaS services together. This creates a new single service; thus, a single term must be created to describe this new service and technological advancement.

The capabilities and impact of Celestial Computing is just starting to be tested, deployed and adopted. However, due to the nature of this type of computing it is with expectation that it will be able to create trust, security and efficiency that was otherwise not possible. There is great potential in the services offered that combine all aaS services, utilizing each function as is best suited to the immediate task.

3. Defining Parameters around what Celestial Computing is

There are a number of key features about Celestial Computing that set it apart from other existing services.

- Cloud Computing is managed by users in contrast to Celestial Computing which is managed by Smart Contracts.
- When properly deployed Celestial Computing utilizes the strengths of both blockchain and traditional computing (centralized servers) [also distributed private servers may be used as well] while mitigating their respective weaknesses. This makes it a hybrid model that integrates these models together at a lower level of operation than just a user utilizing these services at once to achieve an end; these services are mixed together to give you the best of both worlds for a single application.
- Celestial Computing heavily relies on centralized virtual machines/virtual cores. In addition to hypothetical machines utilizing hypothetical cores (Example: some Blockchains and Cluster Managers). These hypothetical cores are referred to as Theoretical Cores as the type of core that is used inside blockchain technology.
- Celestial Computing is connecting and utilizing all forms of data storage to meet the need of the user in the fastest, cheapest and most secure way.
- **Note:** Some types of consortiums would be a type of Celestial Computing. As they have a blockchain regulating individual computers acting as redundant servers.

4. Chart

Please, reference **chart** at **end of document**.

5. Conclusion

More forms of classification need to arise so that a better understanding of the space is understood. This is usually considered to be self-evident for the adoption of anything new. Already this technology exists but goes by many

names that are typically isolated to a particular company as a single term or a string of hyphenated adjectives and adverbs. Like Cloud Computing, Celestial Computing is not one concise thing per se, but a spectrum defining a particular technological space. Within that spectrum there will always be many variations. Greater detail of classification is needed to help explain the space for non-engineers so that informed decisions can be made when planners are investigating requirements for a project.

6. Authorial Presuppositional Acknowledgements

Because the nature of this paper deals with Philology and not a hard science, typical studies and research are not able to be produced. However, with the creation of this paper, and defining a new conceptual idea, scientific research can be targeted on that specific field now that it has been defined.

The purpose of this paper is to define Celestial Computing in as general of terms as possible so that it is able to be understood by people without a degree in computer science. This is to empower future development for people at all levels of education within the field. It is the presuppositional belief of the authors that unless a term is created to describe this technology mass adoption of such technology will not be able to occur. This is because there will not be a term that encompasses the scope and capability of the technology/service in order to describe why such a technology is a meaningful solution opposed to other technologies.

Words are ideas, and without an idea there are no words. All we would be left with is never-ending descriptions of what we think something is unless we have the word to encapsulate it.

7. Note on Sources

Wikipedia has been extensively utilized for nearly every jargon word. This is so a generalization of each concept surrounding a word is represented accurately in this document, to the point of a community consensus of its generalization.

8. Sources

Blockchain. (2020, June 7). Retrieved from wikipedia:
<https://en.wikipedia.org/wiki/Blockchain>

Cloud computing. (2020, June 8). Retrieved from wikipedia:
https://en.wikipedia.org/wiki/Cloud_computing

Edge computing. (2020, May 23). Retrieved from wikipedia:
https://en.wikipedia.org/wiki/Edge_computing

logos-earth/Whitepaper. (2019, August 19). Retrieved from github.com:
<https://github.com/logosearth/Whitepaper>

Server (computing). (2020, June 9). Retrieved from wikipedia:
[https://en.wikipedia.org/wiki/Server_\(computing\)](https://en.wikipedia.org/wiki/Server_(computing))

Comparison of Computational Services

<div style="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Centralized</div> <div style="flex-grow: 1; border-left: 1px solid black; border-right: 1px solid black; position: relative; margin: 0 5px;"> <div style="position: absolute; top: 0; left: 0; right: 0; height: 10px; background: linear-gradient(to bottom, transparent 49%, black 49% 51%, black 51% 52%, transparent 52%);"></div> </div> </div>	Services	Thesis	Physical Makeup	Cores	Final Authority	Cost of its Services
	Server	In computing, a server is a computer device that provides functionality for other programs or devices. Servers can provide various functionalities, such as sharing data or resources among multiple clients, or performing computation for a client.	A computer with a network connection.	Physical	Owner (is User)	Costs of hardware and space plus upkeep of space, network, electricity and finance charges.
	Cloud Computing	Cloud Computing is the on-demand availability of computer system resources, without direct active management by the user. The term is generally used to describe data centers available to many users over the Internet.	Remote computers running different things. Redundancy is accomplished through failovers.	Virtual <small>[overgeneralization]</small>	Host	On demand rent agreement
	Edge ^{Cloud Computing}	Large clouds, predominant today, often have functions distributed over multiple locations from central servers. If the connection to the user is relatively close, it may be designated an edge server.	Redundant Cloud Computers which provide their processing as physically close to their users as possible.		Usually there is a central host machine which maintains the edge machines of the network.	
	Celestial Computing	Celestial Computing is when in house, cloud, hybrid, blockchain and decentralized computing are homogeneously utilized. It is with the expectation of this merger to be able to create trust, security and efficiency that was otherwise not possible with any one of these technologies alone. This can be deployed by or issued as a service to a user(s). Enforced authority is distributed to whatever scope is needed; broad or narrow.	A hybrid of blockchain, servers and cloud computing utilizing the best of what each other does organized in a network of remote authentication of each other.	Variable	Advanced Smart Contracts	On demand virtual contracts
	Blockchain	A blockchain, is a growing list of records, called <i>blocks</i> , that are linked using cryptography. Each block contains a cryptographic hash of the previous block, a timestamp, and transaction data. It is an open, distributed ledger that can record transactions between two parties efficiently and in a verifiable and permanent way. For use as a distributed ledger, a blockchain is typically managed by a peer-to-peer network collectively adhering to a protocol for inter-node communication and validating new blocks.	A bunch of computers running the same thing. Complete redundancy creates the network.	Theoretical	Community Consensus <i>and</i> Private Key	Mining fees upon ledger writes <small>[may not be applicable to user]</small>
	Permissioned ^{Blockchain}	Permissioned blockchains are networks that require access to view and/or maintain. This blockchain type, has a control layer that runs on top of the blockchain which governs the actions performed by the allowed participants.	Redundant computers which mine the same thing. Only certain computers are allowed to join in the mining and use its services.		The permitted miners	
<div style="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Decentralized</div> <div style="flex-grow: 1; border-left: 1px solid black; border-right: 1px solid black; position: relative; margin: 0 5px;"> <div style="position: absolute; top: 0; left: 0; right: 0; height: 10px; background: linear-gradient(to bottom, transparent 49%, black 49% 51%, black 51% 52%, transparent 52%);"></div> </div> </div>	Open ^{Blockchain}	An open blockchain is a blockchain network that anyone can view and/or maintain. It is secured by proof of work of those who join the network, using the blockchain as a transport layer.	Redundant computers which mine the same thing. Anyone at anytime from anywhere may join in the mining and use its services.		The computational power that is >50% of the total network hashing power; and Private Key. <small>[overgeneralization]</small>	