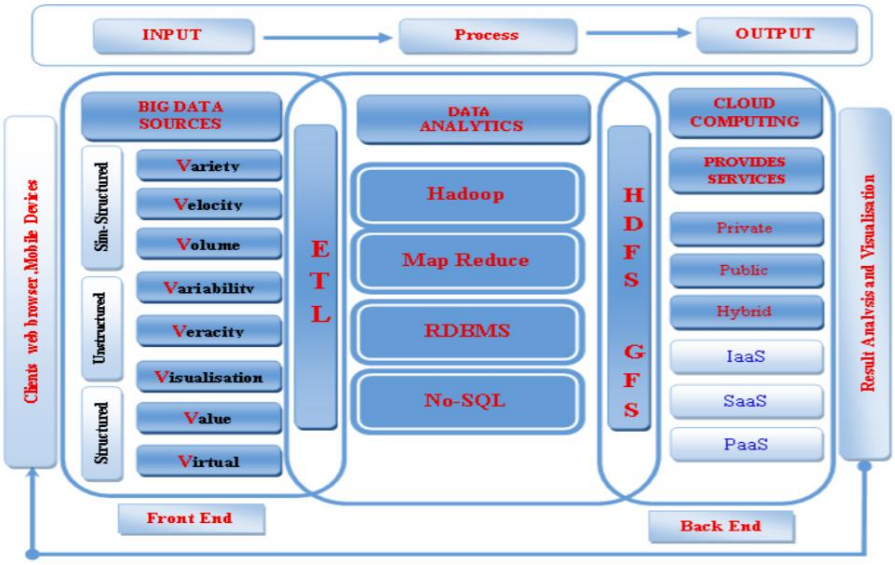
Your report will focus on the relationship between Big Data technology and Cloud Computing. Your conclusion will wrap up your findings by pinpointing important facts and strategies implemented in the industry. The report should not exceed 2 pages.

Big data consist of data from multiple sources and operations. It needs sufficient computing power and potential for analysis. The most significant use of the big data is analytics which in turn helps in making informed decision to solve problems and provide services. (Crawford, 2011)

The jargon big data not only refers to the high-speed, heterogenous data collected from multiple sources but it has other characteristics as well. The main characteristics of the big data generally represented as fiveV's can be seen in the picture below

Figure1

(Nabeel Zanoon1, 2017)



The figure depicts the relationship between cloud computing and big data technology

1. **Volume**: It refers to the huge size of the data collected from the different sources and are usually represented by number in zeta bytes.
2. **Variety**: Variety relates to the types of data, data are collected from mobile smart phones, network services, Internet of things (IOT). Unlike traditional structured data, big data includes both structured and unstructured data in the form of video, audio, music, images and SMS. (Gavgani, 2016)
3. **Veracity**: It refers to the precision and accuracy of data, the generated data is almost useless for analytics if they are not accurate. The quality of the data directly affects the results of the analysis performed on that data.
4. **Value**: The value is the ultimate stage obtained after processing voluminous, heterogenous data. Data itself has no meaning. Value is generated after performing analysis in the data and those obtained insights are real values of big data. (Demchenko, 2013)
5. **Velocity**: It refers to the speed in which data are produced from the different sources and stored. Applications such as twitter and Facebook are generating data at huge speed. Such increase in data generation demands the system which can analyze and process the data in the same speed.

Cloud computing

Cloud computing is collection of on-demand computer system resources such as computing power and data storage where users can scale their demand as per their requirements. These resources mostly include platform, computer infrastructure, software, and computing power as services. They leverage the common pool of these resources to provide scalability in desktop applications, server storage and applications.

On-demand self-service, Broad network access, Resource pooling, Rapid elasticity and Measured services are some of the characteristics of cloud computing.

Relationship between Big data Technology and Cloud Computing.

The cloud provides the features to handle big data. All the infrastructure required to build big data solutions are offered by cloud on demand, can set, re-set and scale easily. Cloud offers it services anywhere in the world and offers faster access to the resources. Big data often includes the collection of the data from different location and resources thus big data can rely on the services provided by the cloud to collect data and process them in different locations.

The structure of the cloud has scalability features which align with small and big data size. Big data involves distributed parallel processing where the data are divided into parts for storage and computation which can be achieved by using infrastructure as Service (Iaas) provided by cloud. Cloud offers the model called "Pay as you go" which means the user must pay only for the resources they use this might reduce the cost significantly for the big data applications. Flexibility is also requirement for big data, the volume and velocity of the data may increase in certain point of time, the infrastructure of the big data should be able to dynamically scale to meet the resources required, such infrastructure is offered by cloud.

Big data leverage the integrity to enhance effectiveness. Storing the big data at local level requires a lot of manual process for merging the data to manage them. Cloud offers the solution to store and manage data from one site which helps to reduce exhaustion and save time invested in managing and merging the data.

Common points between Cloud Computing and Big data technology.

- Big data needs to store and process high speed voluminous data without any interruption which is made possible by cloud infrastructure.
- As the volume and speed of big data may differ time and again which demands the **scalability** of underlying architecture which is provided by cloud services.
- Availability of same security and confidentiality in big data which is guaranteed by cloud service provider. Cloud services abstract underlying detail and provides security and protection to user data regardless of size whether small or big.
- Fault tolerance, availability and distributed architecture are features provided by the cloud that ensure the smooth and effective big data solutions.

Conclusion

The relationship between big data technology and cloud computing is complementary. Distributed system architecture provides strong foundations for both cloud and big data technologies. The requirements of big data is one of the factor that motivates cloud service provider for continuous development. Leveraging on the features of cloud computing big data can switch from traditional on-premises hardware to more scalable and managed infrastructure.

References

Crawford, B. a. (2011). Six provocations of big data. *Symposium on the dynamics of the internet and*, V0l 21.

Demchenko, Y. (2013). *Big security for big data Addressing Security Challenges for the big data infrastructure.* Springer.

Gavgani, P. A. (2016). A Review on Relationship and Challenges of Cloud Computing And Big Data: Methods of Analysis and Data Transfer. *Asian Journal of Information Technology*, 2516 - 2525.

Nabeel Zanoon1, A. A.-H. (2017). Cloud Computing and Big Data is there a Relation between the Two. *International Journal of Applied Engineering Research*, 6970-6982.

Serrao, J. A. (2015). *Security and Privacy Issues of Big Data.* IGI Globa.