# Explain how Cloud Computing is impacting Data Engineering

Cloud computing has impacted data engineering in many ways. However, first of all, I’d argue that cloud computing enabled data engineering in the form we know of today. The job description of data engineers at many firms states that the data engineering will be responsible for transforming and transporting data at large quantities while ensuring its integrity and security. It is quite difficult to imagine that a lot of firms, especially the companies on either end of the size spectrum – the technology giants and the up-and-coming startups, would attempt to complete those tasks without the help of cloud computing. After all, cloud computing makes modern data engineering scalable, cost effective, and secure.

For technology giants and startups, ensuring their data engineering framework is future proof is essential. Technology giants likely receive terabytes of data each day, so their data is always growing at considerable speed. Startups would want to have a plan for when they “make it” and start growing at rocket speed, at which point they’d need to quickly scale up their data engineering. Data engineering systems built in the cloud has the advantage of being easily scalable. As businesses need to use more processing power or more databases, they can easily provision them almost instantaneously. This way, they wouldn’t need to worry about leaving enough space and computational power for future growth.

Because businesses wouldn’t need to build in extra space and computational power just for the sake of the future, cloud computing also makes data engineering more cost efficient than the traditional data warehouses. Hardware would only need to be rented as they are required instead of having to be purchased at the get go. In addition, using cloud computing also makes running a data engineering team more cost efficient. To set up a data warehouse, a business would need to hire experts of hardware and infrastructure – talents with those skillsets could be quite expensive. On the other hand, to run a data engineering team using cloud computing, the firm would only require its engineers to know how to provision resources using code. The complex job of setting up the hardware and infrastructure has been taken care of by the cloud service provider, probably at a higher quality than what the firm could have done.

Cloud computing also makes data engineering more secure. Cloud computing service providers invest lots of resources and manpower into ensuring the security of their service. Unless the user explicitly leaves a loophole (e.g. make a data bucket public), data stores on the cloud of major service providers has a very low chance of being leaked. Plus, cloud services has virtually no downtime, whereas the dare warehouses may run into all kinds of issues, from scheduled maintenance downtimes to natural disasters that could result in loss of data. With robust backup strategies, data stored on the cloud would never be lost.

With all its benefits, cloud computing returns the focus of data engineering back to data. Data engineers would need to spend less time worrying about issues such as scalability and security, and can focus more of their energy on what matters – creating applications that transform and transport data to the business’s needs.