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2

a)

Currently $\frac{1300}{20} = 65$ GB per hour is processed on the company servers. For the upgraded servers to be able to process the data by 8:00 am would mean $\frac{1300}{12} \approx 108.33$, or an increase of $\frac{108.33}{65} \approx 1.66$ times in the processing speed.

b)

To send the data to the cloud,

$$\frac{\text{Data size}}{\text{company internet speed}}$$

$$\text{Data size} = 1300 \text{ GB} = 1300 * 8 \text{ MB} = 1300 * 8 * 1024 \text{ Mb} = 10649600 \text{ Mb}$$

Let's say that the company has an internet speed of 1024 Mb per second. Then the data transfer will take:

$$\frac{1300 * 8 * 1024}{1024} = 1300 * 8 = 10400s \approx 2.89h$$

That means it will take 2.89 hours to send the data to the cloud. This number is a theoretical speed, in practice the internet speed might not be utilized to 100%. Leaving 9 hours for the cloud to process and send back the results.

So, for a) to be feasible, the company has to be able to upgrade their servers by a factor of 1.7, for now. This is not an unreasonable upgrade if their current servers are outdated, but will require money, time, space and expertise, and perhaps most daunting continuous upgrades to keep up with the increasing generated data.

Sending the data to the cloud takes time, but does not require any physical space for servers. If the company has the internet speed to transfer all the data, this could be the more scalable option.