## Part 1: Script

### What is the Cloud?
If you've ever experienced internet lags while watching your favorite binge-worthy series or called a friend to leave a voicemail just to get the message "this person's mailbox is full and cannot accept messages at this time," then you know storage space and processing power on our devices have their limits. This is why people and companies often prefer to store their content on the cloud. By using cloud storage, what you're really doing is sending the content to other devices with more storage and power, then accessing it on your own device through the internet.

### What is Cloud Elasticity?
However, cloud storage options aren't exactly limitless for users either because individuals and organizations have different needs at different times in regards to storage space. The idea that cloud storage space may need to increase or decrease and the ability of cloud services to meet these demands is known as cloud elasticity. Just think of the cloud growing and shrinking like the elastic in a rubber band, how it can stretch to hold more or shrink back down. Some cloud servers have more elasticity than others, just like some rubber bands are more flexible and can stretch to cover more space than others. If your cloud service is more elastic, then it has more capability to meet the needs of your organization as those needs change.
Two ways to ensure your cloud remains elastic are by scaling up or scaling out.

### Scaling Out or Horizontal Scaling
Let's say, you subscribe to a cloud service for storing your photos. If that's the case, then you may not have to choose between deleting pictures of your niece or your pup to make room for more photos, you can simply pay to increase your storage and keep them all while adding those selfies of you with your new haircut. This is known as "scaling out". Think about it this way... When you scale out, you increase the storage and power of your cloud by adding servers. Going along with the photo example, this would be like purchasing another scrapbook to accommodate your growing picture collection. Likewise, you could decrease your storage by removing a server.

### Scaling Up or Vertical Scaling
Think back to our example of lagging during your favorite program. Perhaps originally you invested in the cheapest internet plan and experienced no issues. However, since then, your family has grown. Now, you don't have enough bandwidth to watch your show uninterrupted. You may decide to upgrade your internet package so it can handle what you need even while your teenagers are live streaming games and your partner is video chatting relatives. Soon, your oldest will move out and you can resubscribe to a lower tier.

Scaling up and scaling out have their own advantages and disadvantages, but both have the potential to increase the elasticity of your cloud server.

## Part 2: Activity and Assessment

**Purpose:** Apply understanding of cloud elasticity scaling to scenarios by identifying each example as scaling out or scaling up.

**Activity:** Use your knowledge of scalability to place each scenario in the correct category. Here are some helpful reminders from your video lesson.

1. Scaling up equates to changing out resources to something that better suits your needs for power/storage, like how you can switch your internet service to give you the potential for more or less bandwidth.
2. Scaling out equates to adding more or fewer resources to meet your needs for power/storage, like adding or removing scrapbooks for your photo collection.

Examples: *(with answer key)*

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| Usually you order the standard size dog food bag, but decide to order it in a bulk size instead because your puppy has almost tripled in size and is eating much more than he used to. *(Scaling up)* |
| Your wardrobe has expanded and your clothes no longer fit in your dresser, so you purchase additional plastic bins to organize and store the overflow. *(Scaling out)* |
| You love your two-seater convertible, but you're expecting twins and need to trade it in for a more family-friendly vehicle. *(Scaling up)* |
| In the past, you couldn't stand spicy foods, but lately your tolerance for heat has increased immensely and you find yourself adding higher does of potent spices to your dishes. *(Scaling up)* |
| For the holidays this year, your family has decided to only purchase gifts for the younger children, so you buy and deliver fewer packages than in the past. *(Scaling out)* |

| Scaling Up | Scaling Out |
|---|---|
| *Drag examples of scaling up to this box.* | *Drag examples of scaling out to this box.* |

**Assessment Question:** Use your knowledge from the activity and the lesson to answer.

You have a subscription to a food box service. Normally, you order 1 weekly box with portions set for 2 people. However, you're planning on having company for a week in July. In preparation, what would be the best way to change your oder so that you are scaling out to meet the demands of feeding 2 extra people?

A) **You would double your order to include 2 boxes instead of one.**
B) You would double the serving size to 4 for the box coming that week.
C) You would order groceries online instead of using the service.
D) You would visit local restaurants in lieu of using the service.