AWS Direct Connect

It is a private/dedicated connection between your datacenter,office, co-location and AWS.It has two very-fast-network connection options:

1. Lower Bandwidth 50MBps-500MBps
2. Higher Bandwith 1GBps or 10GBps

Direct Connect Locations are trusted partnered datacenters that you can establish a dedicated high speed, low-latency connection from your on-premise to AWS.

Local Zones are datacenters located very closely to a densly populated area to provide single-digit milisecond low latecny performance (eg-7 ms) for that area. The identifier looks like the following us-west-2-lax-1a.

Ony specific AWS services have been made available.

The purpose of Local Zone is the support of highly-demanding aopplications sensitive to latencies:

- Media & Entertainment
- Ad-tech
- Machin learning
- Electronic Design Automation

Wavelengh Zone

AWS wavelengh zone allows for edge-computing on 5G newtorks. Application will have ultra-low latency being as close as possible to the users.

You can create a Subnet tied to a wavelength zone and then you can lauch vm to the edge of the targeted 5G networks.

Data Residency

Phyical and Geographic locations of where an organization or cloud reside.

Compliance Boundry-A regulatory (legal requirment) by a govement or organization that describes where data and cloud resources are allowed to reside.

Data Sovereignty-It is the juridictional control or leagal authority that can be asserted over data because it's physical location is within jurisdictional boundries.

For workloada that need to meet compliance boundries strictly defining that data residency of day and cloud resources in AWS you can use:

1) **AWS outpots**- It is a physical rack of serves that you put in your data center. Your data will resid where-ever the outost resides
2) **AWS config**- It is a policy as Cod service. You can create rules to continous check AWS resources configuration. If they deviate from your expections you are alerted or AWS config can in some cases auto-remediate.
3) **IAM polices** can we written explicitly deny access to specific AWS regions. A **Service control Policy** (SCP) are permissions applied organization wide.

AWS Government
AWS can be uitilized by Govements and this is done by meeting regulatory compliance programs along with specific governance and security controls. Eg AWS has special regions for US regulation called GovColud and AWS china (to use AWS Chia go to amazonaws.cn)

Sustainability
AWS co-founded the climate pledge to achieve Net-Zero carbon emissions by 2040.
AWS cloud sustainability golas are composed by three parts:
1) Renewable energy
2) Cloud Efficieny
3) Water Steardship

AWS Ground Station
It is a fully managed service that let you control satellite communication process data, and scale your operations.

Use case for ground stations can inlude cloud forcasting, communications, etc.

To use ground station you schedule a contact (select satellite, start and end time and the ground location). Use the aws ground station EC2 AMI to lauch EC2 instances that will uplink and downlink data during the contact or receive downlinked data in an Amazon S3 bucket