AWS Global Infrastructure :-

globally distributed hardware and datacenters
physically networked together to act as one
large resource for end customer.

Availability Zone :- Physical location made up of
one or more datacenter

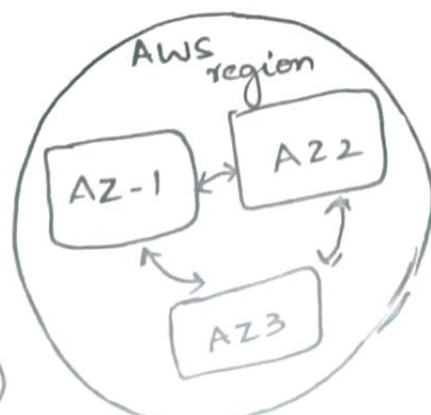Each Region generally has 3 'Availability zones.

High Availability → Common Practice to run
workloads in atleast 3 AZS to ensure services
remain available in case one or two datacenters
fail.

Subnet is associated with an availability zone

Never choose AZ,
always choose subnet associated with AZ.

AZS are interconnected
with high bandwidth,
low latency network

AZs are
within
100 kms
of each
other)

AWS region

AZ-1 ↔ AZ2

AZ3

(dedicated
metro
fibre)

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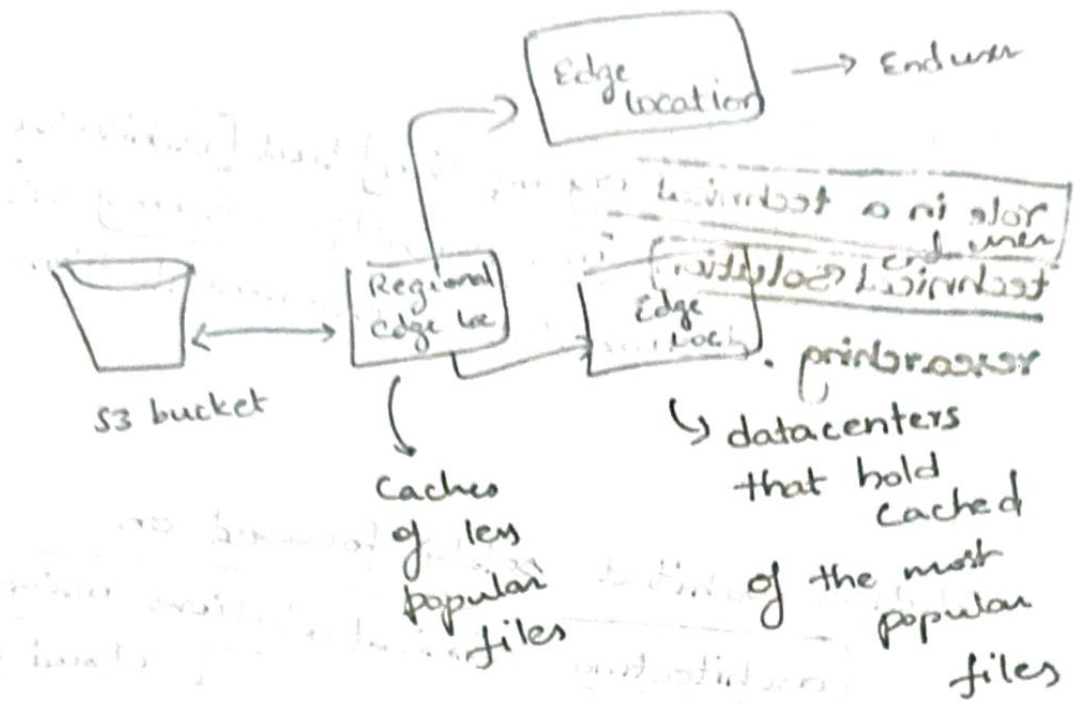Fault Domain :-

Section of a network | vulnerable to damage | if a particular device/system fails.

• Can have fault domains inside fault domains

Fault level :- Collection of fault domains.

Each Amazon Region is designed to be completely isolated from other regions.

↳ Achieves greatest possible fault tolerance & stability

* Each AZ is [isolated] but the AZs in the region are connected through low-latency links.

* Each AZ is designed as an independent failure.

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                        ┌──────────────┐
                   ──→  │ Edge         │  ──→  End user
                   │    │   location   │
                   │    └──────────────┘
                   │      ┌─────────────────────────────┐
                   │      │  role in a website           │
                   │      ┌─────────────────────────────┐
       ┌─────┐   ┌──────┐ │  website 1. website          │
       │ S3  │←→ │Region│→│ Edge │. prinbrowser
       │bucket│  │al    │ │ loc. │
       └─────┘   │edge  │ └──────┘
                 │ loc  │    ↳ datacenters
     S3 bucket   └──────┘       that hold
                   │             cached
                 Caches      of the most
                  of less        popular
                  popular          files
                   files
```

Combinedly called

PoP (point of presence)

AWS direct Connect:

private/ dedicated Connection b/w your
datacenter/office and
AWS

Direct Connect Locations :-
 trusted partnered datacenters that
 you can establish a dedicated high-speed
 connection to AWS.

local Zones :-
 data centers located very close to a
 densely populated area to provide single-digit
 millisecond low latency performance.

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