

Network Performance

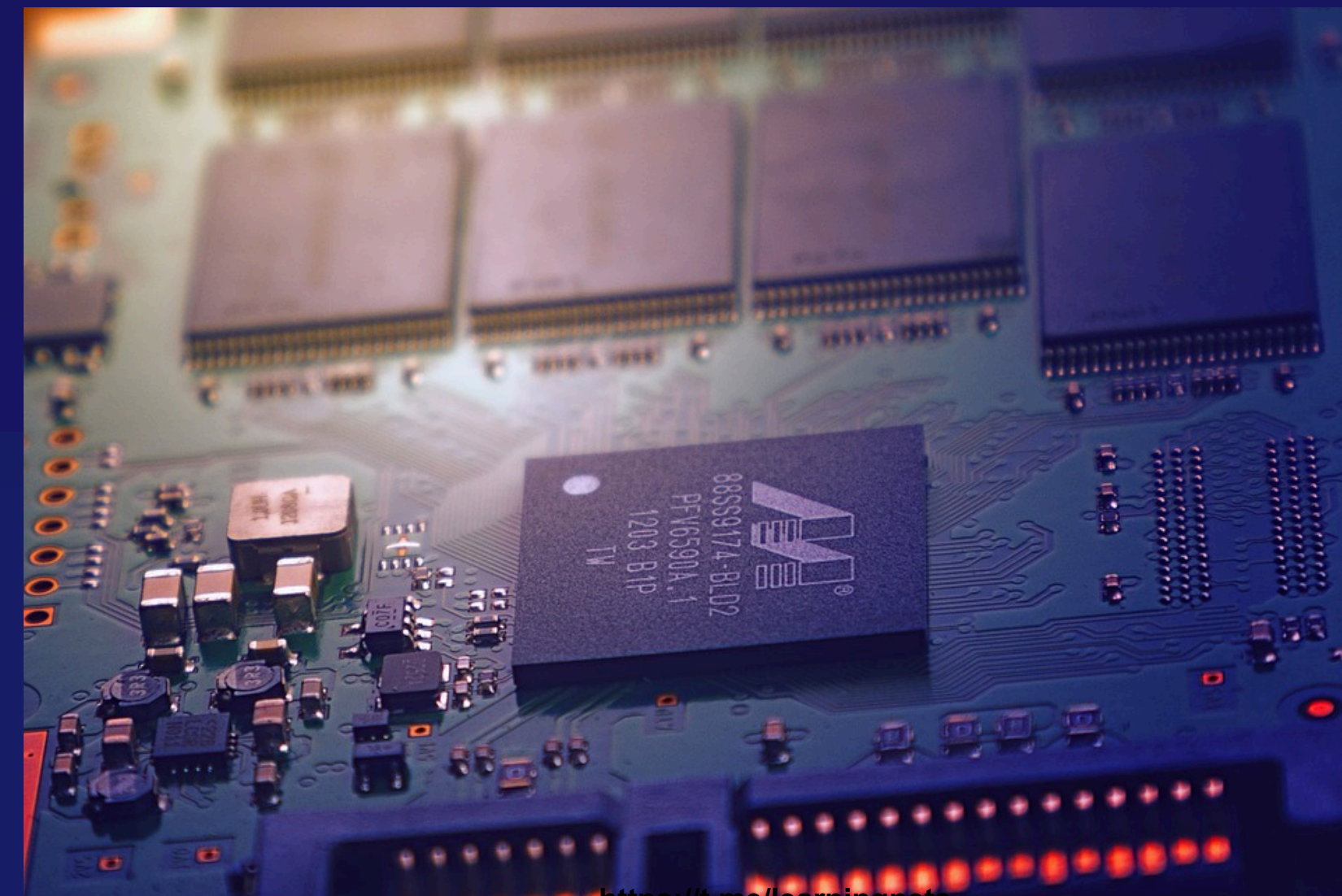
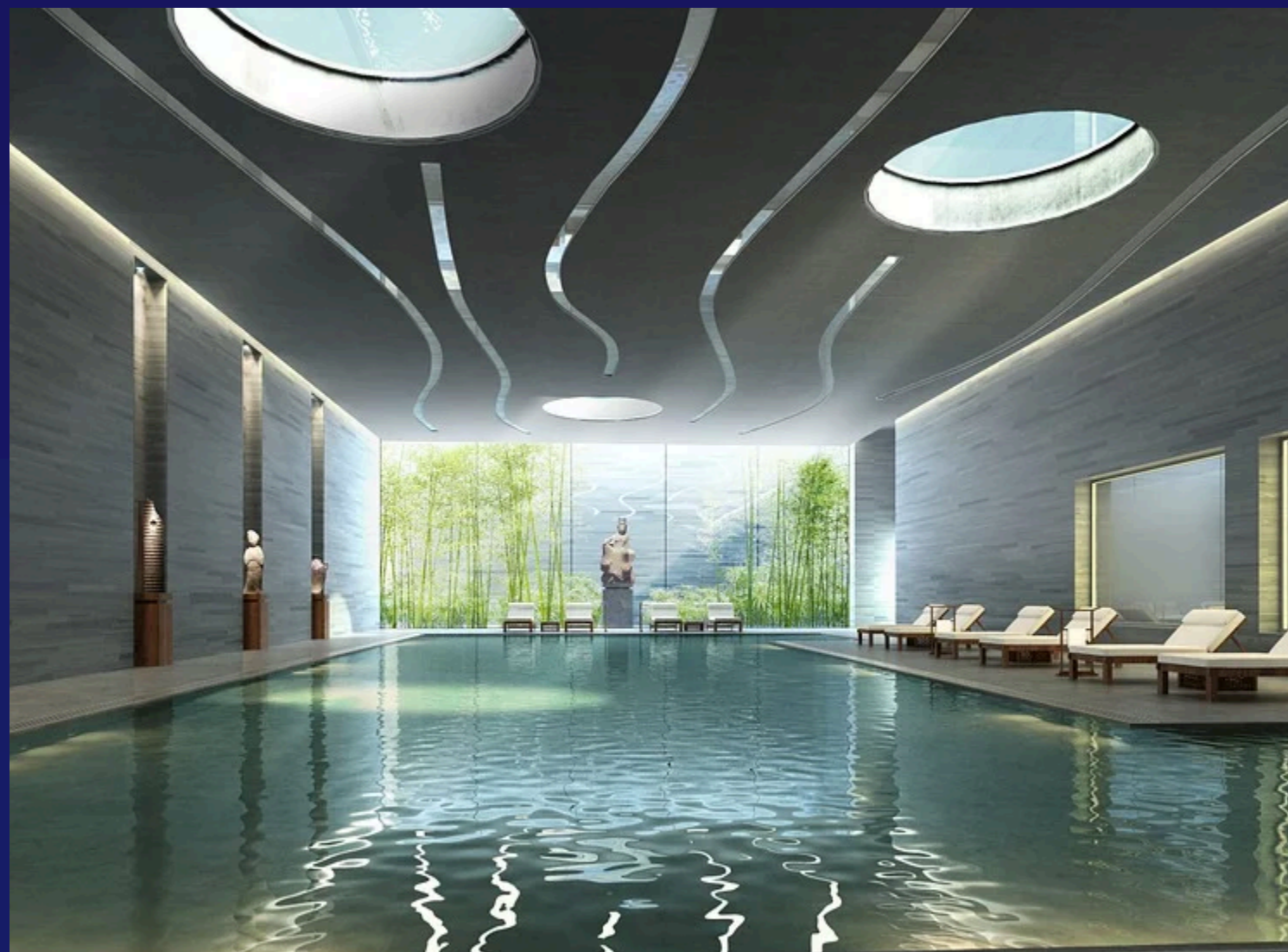
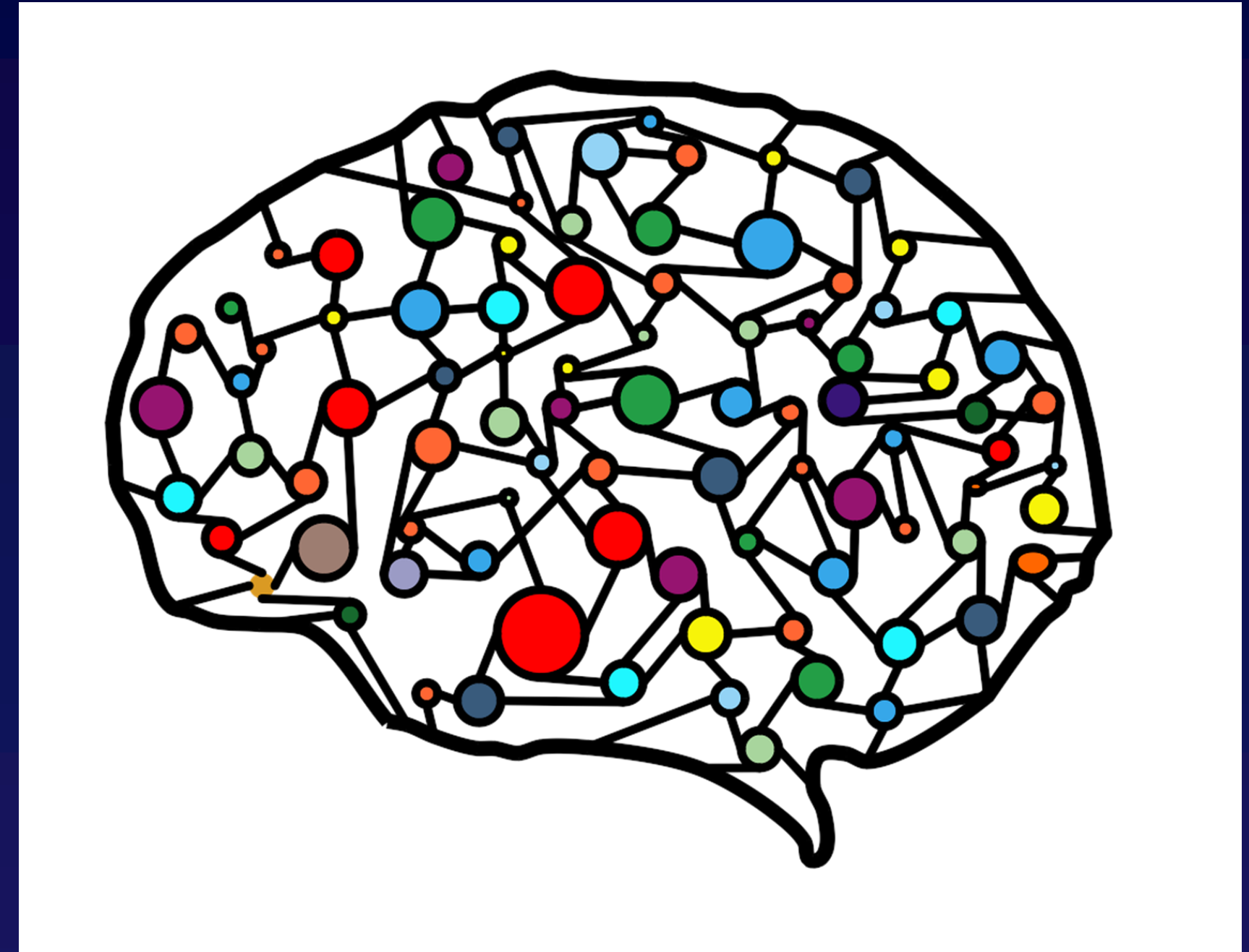


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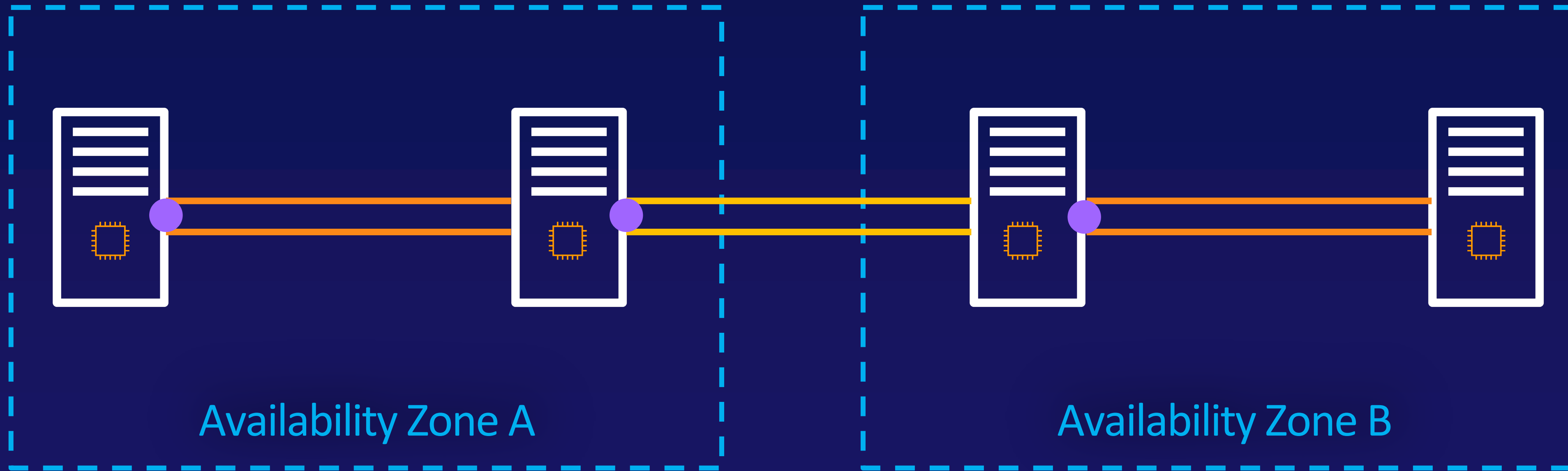
TECHNICAL INSTRUCTOR

High Performance Computing In AWS

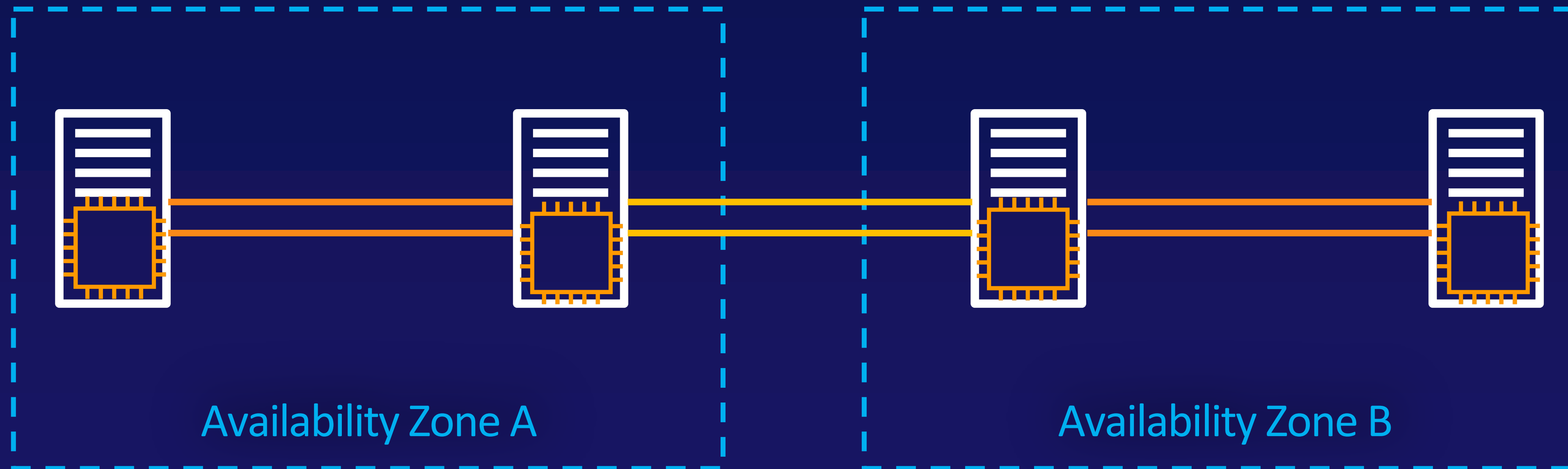
HIGH PERFORMANCE COMPUTING IN AWS



High Performance Computing In AWS



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3 Options for HPC Network Performance

1

Instance Type

Enhanced networking uses single root I/O virtualization to provide high-performance networking capabilities on supported instance types.

2

Placement Groups

Using clustering placement groups packs instances close together inside an Availability Zone.

3

Enabling Enhanced Networking

All Amazon EC2 instance types support 1500 MTU, and many current instance sizes support 9001 MTU, or jumbo frames.

Instance Types

Instance Mechanism	Notes	Instance Family
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Instance Types

Instance Mechanism	Notes	Instance Family
Elastic Network Adapter (ENA)	The Elastic Network Adapter (ENA) supports network speeds of up to 100 Gbps for supported instance types.	A1, C5, C5d, C5n, F1, G3, G4, H1, I3, I3en, Inf1, m4.16xlarge, M5, M5a, M5ad, M5d, M5dn, M5n, P2, P3, R4, R5, R5a, R5ad, R5d, R5dn, R5n, T3, T3a, u-6tb1.metal, u-9tb1.metal, u-12tb1.metal, u-18tb1.metal, u-24tb1.metal, X1, X1e, and z1d.

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Intel 82599 Virtual Function (VF) interface	The Intel 82599 Virtual Function interface supports network speeds of up to 10 Gbps for supported instance types.	C3, C4, D2, I2, M4 (excluding m4.16xlarge), and R3.

Cluster Placement Group



Cluster Placement Group

1

Instance Types

It is recommended to use the same instance type for all instances in a cluster placement group.

2

Enhanced Networking

Instances within a cluster placement group can use up to 10 Gbps for single-flow traffic.

3

Internet and DX Traffic

Network traffic to the internet and over an AWS Direct Connect connection to on-premises resources is limited to 5 Gbps.

Enhanced Networking

1

Maximum Transmission Unit (MTU)

The maximum transmission unit (MTU) of a network connection is the size, in bytes, of the largest permissible packet that can be passed over the connection.

2

Ethernet Frames

Most common is Ethernet v2 frame format. It supports 1500 MTU, which is the largest Ethernet packet size supported over most of the Internet.

3

Jumbo Frames

All EC2 instance types support 1500 MTU, and many current instance sizes support 9001 MTU, or jumbo frames.

4

Use With Caution

Jumbo frames should be used with caution for Internet-bound traffic or any traffic that leaves a VPC.

Enhanced Networking Jumbo Frames

