Hello, Cloud Gurus, and welcome to this lesson,

which will introduce MemoryDB for Redis.

And we'll begin with, what is MemoryDB for Redis?

What is it suitable for?

We'll take a look at the differences

between MemoryDB and ElastiCache, and my exam tips as well.

So what is MemoryDB for Redis?

Well, it's a massively scalable in-memory database

that scales from gigabytes to over 100 terabytes.

It's highly available, so multi-AZ

and includes a transaction log

for recovery and durability of your transactions.

It's so scalable that it can be used as a primary database

so the entire data set

of an application can actually be stored

in memory instead of using a traditional database

by itself or a traditional database

plus a cache for the frequently accessed queries.

And with MemoryDB for Redis, you get ultra fast performance

and it supports over 160 million requests per second

and you get microsecond read

and single digit millisecond write latency.

And I know what you might be thinking,

microseconds and milliseconds,

they're both really tiny.

But what's the difference?

Well, the way that I remember it is

that 1 millisecond is 1 thousandth of a second.

So it's really, really small just like a millipede.

Whereas a microsecond is 1 millionth of a second.

So think about something that is so small

that you might need a microscope to see it.

And with MemoryDB for Redis,

you are getting microsecond read latency

and single digit millisecond latency for writes.

So it is really, really fast for both reads and writes.

So with that in mind, what is it actually suitable for?

While it's great for workloads

requiring an ultra fast Redis compatible primary database,

high performance applications

that need an in-memory database to handle millions

of requests per second,

application that are data intensive

or low latency applications

that also require high scalability

and highly scalable microservices based architectures.

And an example use case is an online gaming company

that needs a way for millions of concurrent users

to generate interactive 3D digital worlds

and share digital assets.

Now, you might be thinking, what's the difference

between ElastiCache for Redis and MemoryDB for Redis?

And I don't blame you,

I was confused myself

because they are both in memory data stores

that help applications to access data faster

than reading from disk,

but there are some key differences.

So ElastiCache for Redis is a database cache

so it's an in-memory database cash service

and it sits in front of a traditional database like RDS.

It's fast, but it is not ultra fast.

So you get millisecond read latency.

And a common use case would be a website

that needs to store session data for its customers.

Whereas MemoryDB for Redis

can be used as your primary database,

so you can reduce complexity by removing the need

of a traditional RDS database plus a cache.

You get Ultrafast performance,

so you get microsecond read

and single digit millisecond, write latency;

and a common use case is the online gaming company

with millions of users sharing digital assets.

So for the exam,

memoryDB for Redis is an in-memory database

with ultra fast performance, microsecond read

and single digit millisecond writes.

It's also massively scalable

to over 100 terabytes, use cases include high performance,

large scale microservices applications.

For instance, an online game with millions of users,

sharing digital assets.

And if you have a choice

between MemoryDB and ElastiCache,

just remember that MemoryDB is so scalable

it can store your entire dataset in memory,

no database required.

Whereas ElastiCache is an in-memory cache for databases

and it's gonna sit in front of an RDS database.

So that's it for this lesson.

Any questions, let me know,

otherwise, I'll see you in the next one, thank you.