AI Evaluation of Building Blocks in Online Education System

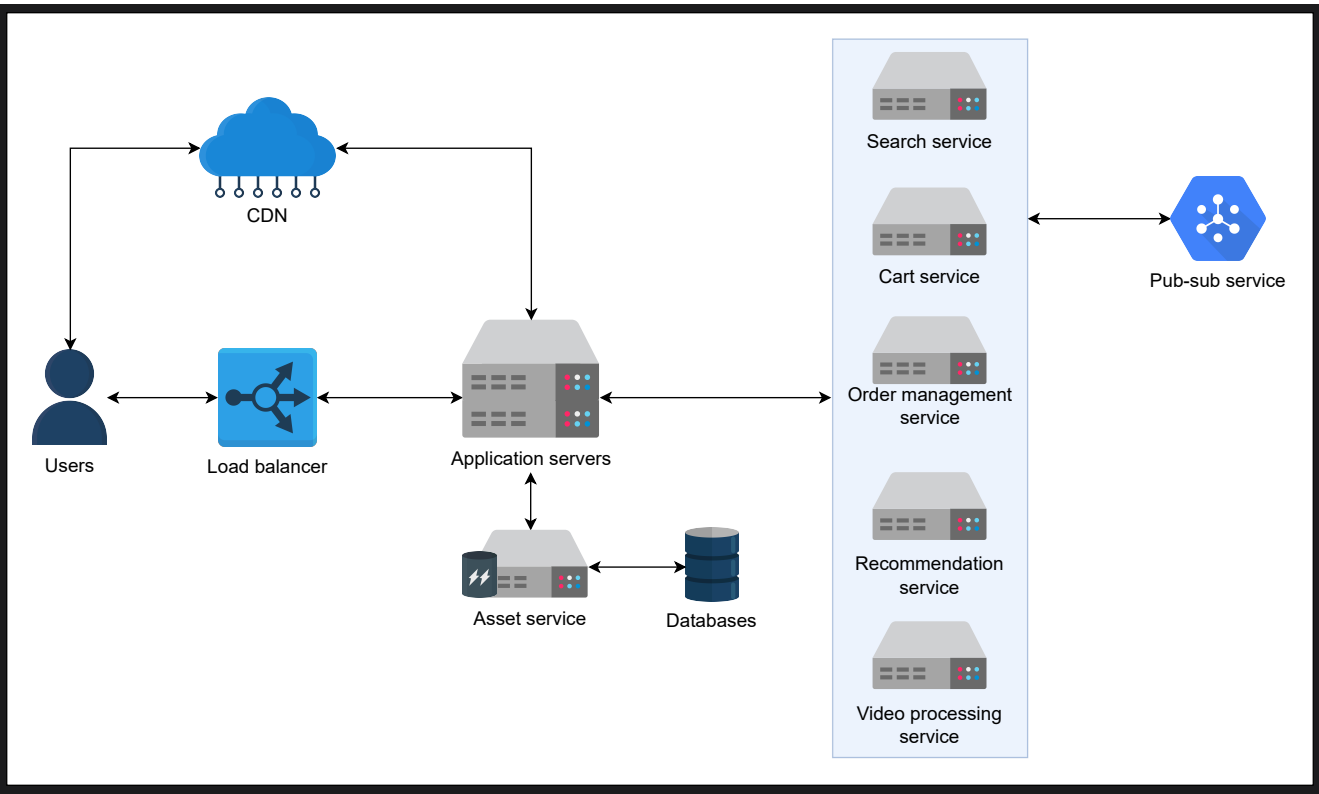
Let AI evaluate your understanding of building blocks through the abstract system design of an online education system.

We'll cover the following

Online education system

The following is a high-level system design of an online education system that provides different types of video tutorials for various subjects. Users opt for courses to buy and watch video tutorials. Take a look at the architecture to answer the questions provided below. The details of different types of services included in the design are also given.

Service Details



An abstract system design of an online education system

As we can see, the given design is simplified, but there are certain issues that the system faces, which we've listed below. In this exercise, your task is to identify the building blocks that, if incorporated, can remove these problems for optimal operation of the system. Here are the problems the system is currently facing:

1. If certain users continuously send an excessive number of requests (probably a denial of service attack), the system could potentially overwhelm our back-end servers. It's imperative to mitigate such request surges to prevent any adverse impact on the server

2. Suppose we're managing a user base of 200 million, and they're generating a massive volume of requests across various categories, for example, video uploads, comments, forum discussions, and module additions. Managing and distinguishing these activities within the system can be a challenge. To efficiently

address this issue and uniquely identify each request, which component or building block is needed?

3. The engineering team currently invests a significant amount of time in identifying and troubleshooting system failures. To streamline this process, it's crucial to integrate an appropriate building block or service into the system design. What component do you recommend for identifying and troubleshooting failures in the system?
4. Besides the drawbacks, we want to add a feature to allow users to see the number of views on each video tutorial. Essentially, we need a counter to keep a count of the large number of views on a video. What approach would you propose to efficiently estimate the approximate number of views in this high-traffic environment?

Note: Please provide answers in the same order as that of the questions.

Want to know the correct answer?

Improve the system design of an online education system.

H1 H2 H3 | B I | | | |

Provide your answer here!