𝟗 𝐊𝐞𝐲 𝐒𝐭𝐫𝐚𝐭𝐞𝐠𝐢𝐞𝐬 𝐭𝐨 𝐁𝐨𝐨𝐬𝐭 𝐀𝐏𝐈 𝐏𝐞𝐫𝐟𝐨𝐫𝐦𝐚𝐧𝐜𝐞  
  
◾ Use Caching  
Store frequently accessed data in memory so you don’t have to fetch it from the database or other slow sources repeatedly. This drastically cuts down on response time.  
  
◾ Minimize Payload Size  
Send only the necessary data in responses. Avoid sending large, unneeded chunks of data by filtering fields or compressing the payload, which reduces bandwidth usage and speeds up responses.  
  
◾ Use Asynchronous Processing  
For tasks that don’t need an immediate response (like sending emails or processing large data sets), use asynchronous methods. This keeps the API responsive while the heavy work happens in the background.  
  
◾ Load Balancing  
Distribute incoming API requests across multiple servers to prevent any single server from becoming overloaded. This improves availability and handles more traffic efficiently.  
  
◾ Optimize Data Formats  
Use lightweight data formats like JSON or Protocol Buffers instead of XML. Smaller data formats reduce the time spent parsing and transmitting data.  
  
◾ Connection Pooling  
Reuse existing connections to the database or other services rather than opening a new one for each request. Connection pooling significantly reduces the overhead of establishing connections.  
  
◾ Use Content Delivery Networks (CDNs)  
For APIs serving static content (such as images or scripts), use CDNs to deliver content more quickly by caching it closer to the user’s location, thereby reducing latency.  
  
◾ Implement API Gateway  
An API Gateway can help in routing requests, handling authentication, rate limiting, and caching. By offloading these tasks from your API, you can improve its overall performance.  
  
◾ Avoid Overfetching and Underfetching  
Design your API endpoints to return the exact amount of data required. GraphQL, for example, allows clients to request exactly what they need, thereby avoiding the issues of overfetching and underfetching common in REST APIs.  
  
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