

Big Tech Interview Bootcamp







Performance Indicators

This are the three central figures that need to be calculated as part of the capacity estimation section in the system design interview.

Throughput

Daily active users x Number of requests / 10^5

Bandwidth

Total Request per second x Request size

Storage

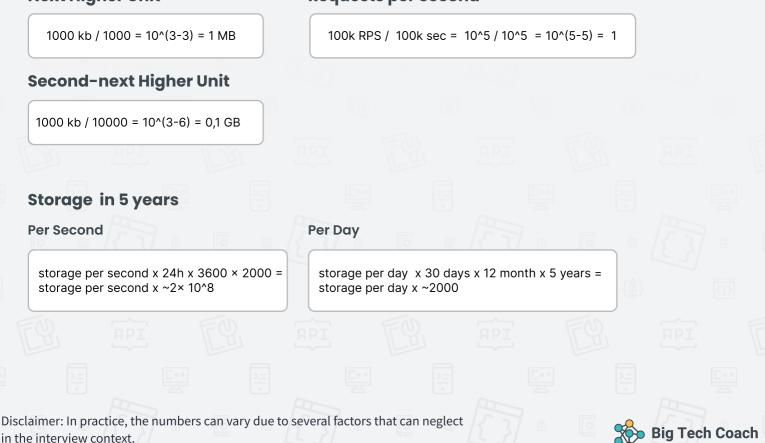
Write requests per second x Request size x Replication factor

Shorthands

This shorthands help you to calculate the most common conversions with ease and without the risk of making small but impactful mistakes.

Next Higher Unit

Requests per Second





Bandwidth Requirements

Bandwidth	Application
80 Kbps	VoIP calling
150 Kbps	Screen Sharing
0.5 Mbps	Live streaming Webinars
3 Mbps	720p video / zoom meetings
5 Mbps	HD 1080p video streaming (youtube/netflix)
25 Mbps	4k Ultra HD video

Datastore Latency

The latency to fetch for 1 MB of data requires the fixed cost of seeking where the data is and sequentially reading the data.

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	Storage		Latency	,						
	Disk		3ms							
	SSD		0.2ms (15	x faster)						
	Memory		0.01ms (3	00x faste	r)					
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File Sizes for Estimations

Use these numbers on file sizes for capacity estimation.

Images

Quality	Size	Example				
Low	10 KB	Thumbnail, small website images				
Medium	100 KB	Website photos				
High	2 MB	Phone camera photo				
Very High	20 MB	RAW photographer image				

Video

Quality Size		Example		
Low	2 MB/min	480p video		
Medium	20 MB/min	1080p video		
High	80 MB/min	4k video	++	
Audio				
Quality	Size	Example		
Low	700 KB	Low quality Mp3	++	
High	3 MB	High quality Mp3		
EB PPI	EL API		<u> </u>	

Big Tech Coach

Disclaimer: In practice, the numbers can vary due to several factors that can neglect in the interview context.