During a major cricket tournament, Disney+ Hotstar captured 5 billion emojis to distill the mood of the 50 million-strong streaming audience in real-time.   
  
Curious how they did it? They revealed the design in an engineering blog post [1].   
  
1. Hotstar mobile clients send emojis using a lightning-fast HTTP API written in Golang.   
  
2. The API server doesn't waste time processing emojis.   
  
It batch sends the high volume of incoming emojis to Apache Kafka every 500ms for downstream async processing. Apache Kafka was selected for its high throughput and low latency.   
  
3. Apache Spark is the streaming processor on the other end of Kafka. It aggregates emojis every 2 seconds. This interval is tunable.   
  
4. Apache Spark writes the aggregated emoji data into another Apache Kafka.   
  
5. The consumers on the other end pull the aggregated emoji data from Apache Kafka and push it into the PubSub infra.   
  
6. The PubSub infra broadcasts the aggregated emoji data to all clients in real-time. The PubSub infra is built on MQTT to handle 50M concurrent connections. [2]   
  
References:   
[1]: <https://lnkd.in/gxxPwr9b> (image source)   
[2]: <https://lnkd.in/gDZTQq9a>   
  
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