# Performance Efficiency

- Performance efficiency is the ability of workload adjust according the demands.
- It can handle an increase in load without compromising the user experience.
- It can also conserve the resources when there is decrease in workload.

# Tradeoffs

1. Reducing replication and increased density.

2. Performance optimization can remove or bypass the components or processes that can contribute to delay in flow. But this can compromise security.

3. The cost optimization technique wants the less number of components to reduce the cost but to increase the performance we need to use extra components.

4. Reducing log and metric volume to reduce the processing time spent on collecting telemetry instead of other tasks reduces the overall observability of the system.

5. Increased complexity in operations.

# Recommendation: Capacity planning

The process of predicting the resources a workload needs to meet its performance targets.

Capacity planning is a forward-looking process that involves making decisions based on anticipated workload demands and patterns. Its goal is to optimize workload performance across both continuous and peak load scenarios. By understanding changes in usage, such as seasonal shifts or product releases, you can allocate resources strategically, preventing system strain during high demand periods. This proactive strategy reduces disruptions and bolsters performance efficiency. By analyzing past usage trends and growth data, you can forecast short and long-term needs. You can pinpoint potential bottlenecks and scaling issues, ensuring consistent and efficient workload performance.