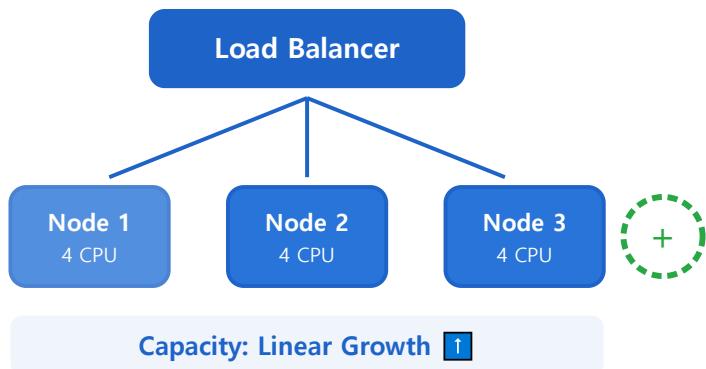
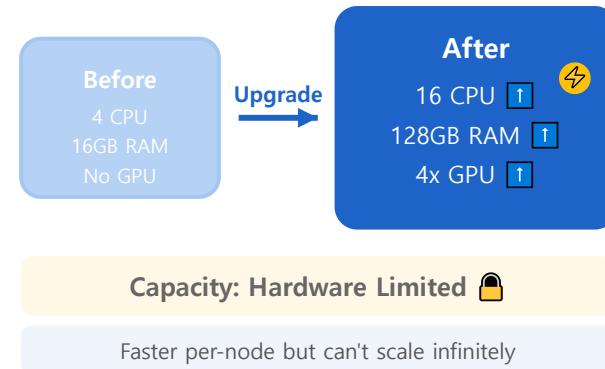


# Scalability Patterns

## ↔ Horizontal Scaling



## ↔ Vertical Scaling



## ☒ Sharding Strategies

### Hash-based

Uniform distribution

### Range-based

Date/category sharding

### Geo-based

Regional data locality

## 🛡 High Availability

✓ 3x replication factor

✓ Auto-failover in <5s

✓ 99.99% uptime SLA