

Edge vs Cloud

Computing

Strategic decision framework for choosing the right computing architecture for your applications and workloads.





Agenda

01. Edge Computing

When to choose edge computing for low latency and local processing requirements.

02. Cloud Computing

When cloud infrastructure provides the best solution for scalable and elastic workloads.

03. Hybrid Approach

Combining edge and cloud for optimal performance and resource utilization strategies.

04. Decision Framework

Summary and comparison to guide your architecture decisions and implementations.



Choose EDGE Computing When

Edge Computing Advantages

Edge computing brings computation closer to data sources, reducing latency and enabling real-time processing for time-sensitive applications and scenarios requiring local processing power.



Low Latency Requirements

Latency target less than 100ms or offline use is common for your applications and user experience.



Sensitive Data Protection

Data is sensitive or costly to ship including PII, PHI, IP, or expensive per GB transfer costs.



Local Power Budget

Local power budget can support compute requirements and you have safe OTA plus rollback capabilities.



Choose CLOUD Computing When

Cloud Computing Benefits

Cloud computing provides unlimited scalability, elastic resource management, and centralized processing power ideal for heavy computational workloads and distributed applications requiring global coordination.



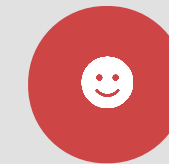
Bursty Heavy Workloads

Workloads are bursty or heavy such as training, large inference, or computation intensive processing tasks.



Cross Device Aggregation

You need cross-device aggregation, global models, or centralized data processing and coordination across multiple sources.



Elastic Scale Operations

Compliance allows central storage and elastic scale with simpler device operations matter for your use case.



Go HYBRID When Best

Hybrid Architecture Strategy

Hybrid approaches combine the best of edge and cloud computing, leveraging local processing for immediate needs while utilizing cloud power for heavy computational tasks and centralized coordination.



Edge Preprocessing Cloud Processing

Edge pre-filters and aggregates data while cloud does the heavy computational lift for optimal resource utilization.



Local Features Cloud Updates

On-device features for immediate response while cloud handles model updates, analytics, and global intelligence coordination.



Version Control Rollback

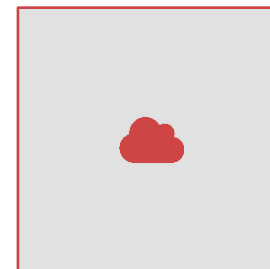
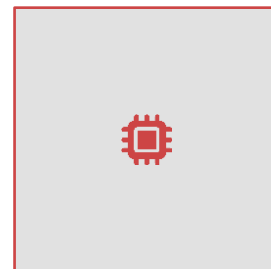
Version pins and rollback strategies are clearly defined for seamless deployment and reliable system management.



Architecture Decision Framework

EDGE Computing Scenarios

Sub-100ms latency needs, offline operations, sensitive data, adequate local power, and safe deployment capabilities.

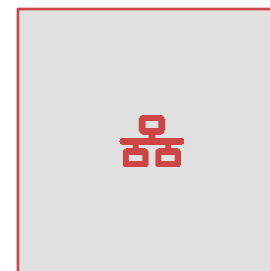
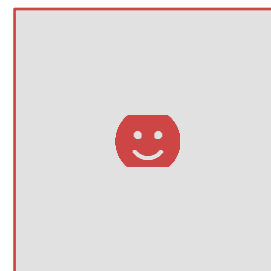


CLOUD Computing Scenarios

Bursty workloads, cross-device needs, compliant central storage, elastic scaling, and simplified device operations required.

Key Decision Factors

Latency requirements, data sensitivity, computational needs, compliance, power budget, and operational complexity considerations.



HYBRID Computing Scenarios

Edge preprocessing with cloud heavy lifting, local features with cloud updates, defined version control.



Thank You

Questions about your specific architecture decisions and implementation strategies?

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