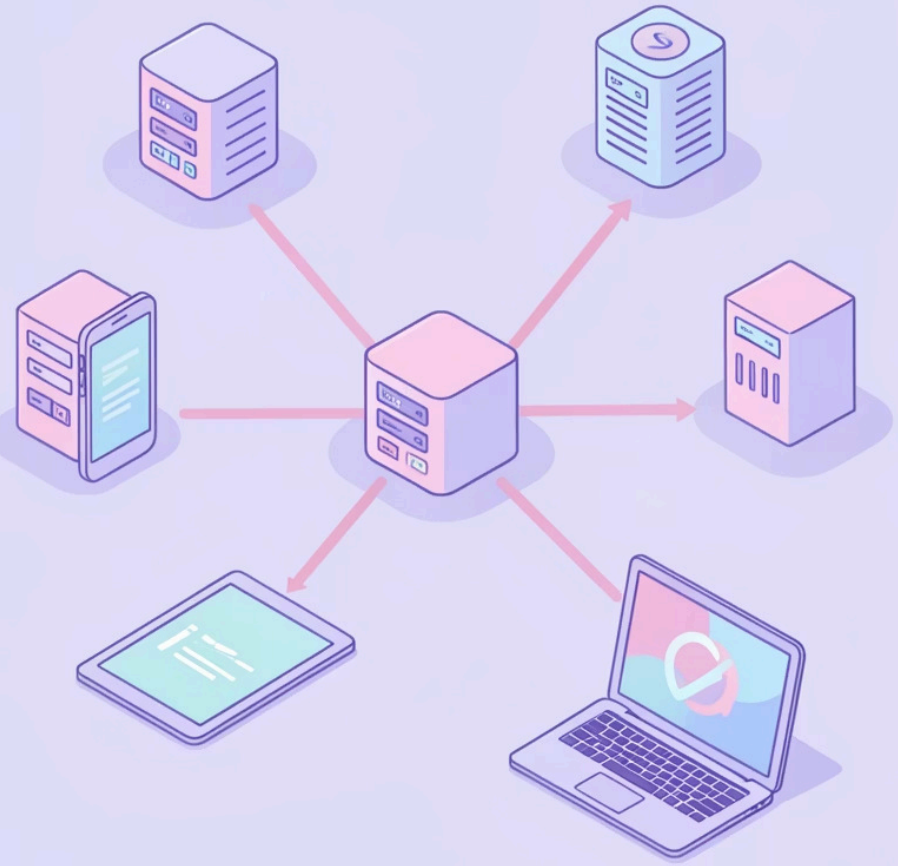
Implementing Edge Computing in Your Business

Bringing data processing closer to where work happens—faster response, better uptime, lower costs.



INTRODUCTION

The Edge Computing Challenge

Many firms collect real-time data from apps, machines, and customers. Sending all that data to distant clouds creates problems:

- Slow response times
- High bandwidth costs
- Security risks with sensitive data

Edge computing solves this by processing data locally—at devices and sites where work happens.

3

Key Benefits

Faster response, better uptime, lower bandwidth use

STEP 1

Start With Clear Business Goals

01

Define Outcomes

Faster factory alerts? Smoother retail video? Better energy control across sites?

02

Set Measurable Metrics

Time to detect faults, cost per gigabyte, uptime at remote sites

03

Assign Ownership

Tie each goal to a team owner with target dates

04

Limit Scope

Define what you won't do in phase one—avoid solving everything at once

STEP 2

Identify The Best Use Cases

Not every workload fits edge computing. Choose cases where local action matters most.

Low Latency Needs

Safety shutoffs, fraud checks requiring instant response

Limited Networks

Ships, mines, rural stores with weak connectivity

High Data Volume

Video, audio, sensor streams generating massive data

Data Compliance

Regulations requiring local data handling

Pro tip: Start with 1-2 use cases showing results in under 12 weeks. Common starting points: quality inspection, predictive maintenance, smart inventory, site security.

STEP 3

Build A Simple Target Architecture

Devices & Sensors

Create data at the source

Local Gateway/Server

Run apps and process time-sensitive tasks

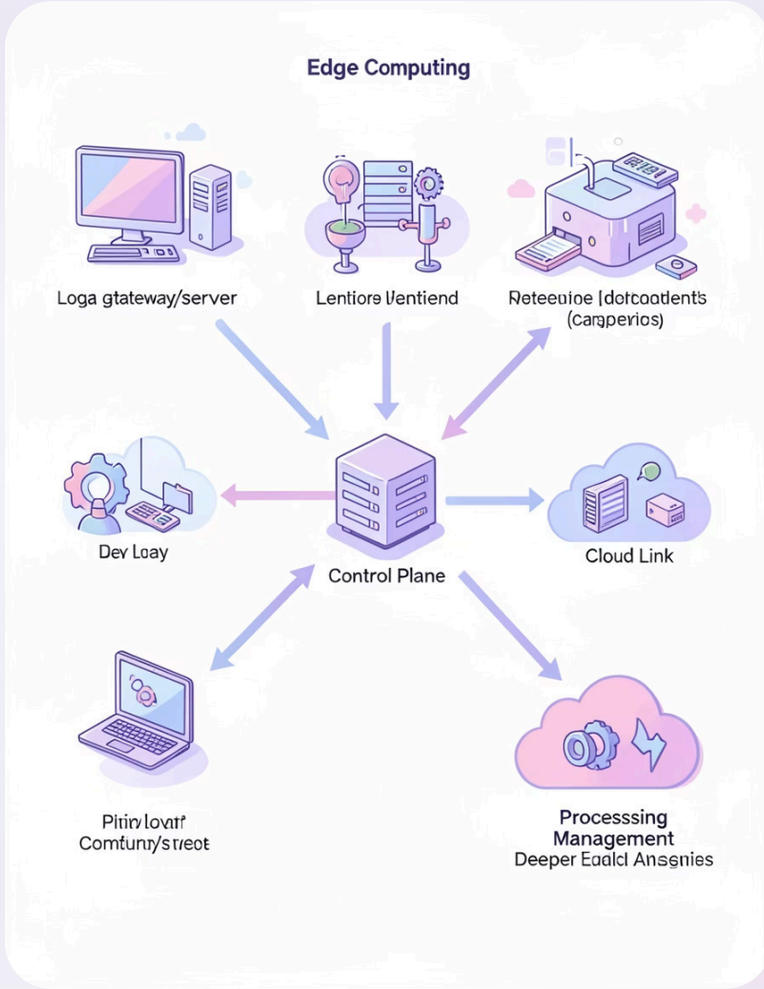
Control Plane

Manage updates, policy, monitoring

Cloud Link

Model training, storage, deeper analysis

Use containers as standard runtime—they package apps and enable safer updates at scale.



STEP 4

Select Hardware & Connectivity

Hardware Checklist

- Compute and memory needs
- Storage for local buffering
- Power and cooling limits
- Physical security requirements
- Lifecycle and vendor support

Choose based on workload: industrial PC for light tasks, GPU support for AI video, rugged gear for harsh environments.

Connectivity Strategy

Design for outages with local caching and store-and-forward methods.

Stable Fiber

High-bandwidth sites

LTE/Satellite

Remote locations

Offline Mode

Work continues during outages

STEP 5

Plan Data Flow & Governance

1 — **Define Collection**

What data you collect and from where

2 — **Set Retention**

How long you keep it locally vs. cloud

3 — **Control Access**

Who can use the data

4 — **Filter & Compress**

Send events and trends, not raw records

> "Don't move data just because you can. Move it because you need it."

Set rules for data labeling and time sync. Use consistent clock sources across devices. For regulated sectors, document where data is stored and processed early.

CRITICAL

Secure The Edge From Day One

Remote sites often have less physical control. Start with a zero trust mindset.

Strong Identity

Use device certificates and authentication

Encryption

Protect data in transit and at rest

Access Control

Lock down ports, apply least privilege

Monitoring

Watch for drift and unusual behavior

Patch Management

Routine, safe updates with staged rollouts

Incident Response

Plan alerts and node isolation procedures

Implementation Roadmap

Set Clear Goals

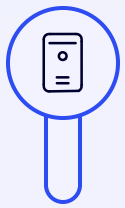
Define measurable outcomes and limit scope

Choose Use Cases

Pick 1-2 high-impact scenarios for 12-week pilot

Design Architecture

Split workloads between edge and cloud



Deploy Infrastructure

Select hardware and plan for connectivity issues

Implement Security

Zero trust, encryption, patch management

Scale & Optimize

Expand with repeatable playbook, measure results

Key Takeaways

Start Focused

Clear goals, short use case list, measurable impact

Design Smart

Simple architecture splitting edge and cloud workloads

Secure Always

Zero trust, encryption, and patch management from day one

Edge computing makes data work faster and closer to where value is created. Run a focused pilot, then scale with a repeatable playbook. When done well, it boosts uptime, cuts data costs, and helps teams act in the moment across many locations.