Edge Computing System Design Canvas

Purpose

What is the purpose of the system?

What is going to do?

What problem resolve?

Challenges

What are the challenges of running software at the edge or in the cloud?

What are the challenges communication edge devices with the cloud in the system?

Costs

How does

What are the cost of my devices?

What are the cost of my sensors?

What are the cost of my cloud provider?

Who are my hardware providers?

What additional cost I have to consider?

People

What are the necessary skills to build the system?

How many people is necessary to build the system?

How to manage the project, in quarters, semesters, 2 week sprints, etc.?

Features

What are the main features of your system?

What functionalities brings to the clients?

What are the unique features of this system?

Automation

What process is going to be automated?

the code versioning will be implemented?

Do you need CICD or GitOps?

How software testing will be implemented?

Data

Does the system will use NoSQL databases?

Does the system will use SQL databases?

What type of data (JSON, CSV, etc) the system is going to use?

What characteristics does my database needs?

Security

Which security strategies are going to be implemented in your system?

Where data encryption needs to be used in the system?

How system authentication works in the system?

Cloud

What cloud provider fit your system needs the most?

What managed services does the system needs?

Is there any third party services that could be critical to use in the system?

Communication

How the edge devices will transfer data to the cloud?

What type of communication is going to be used to communicate edge devices and the cloud?

Does the system will use Lora, WiFi, Bluetooth, Sigfox or other protocols to communicate your devices at the edge or to the cloud?

Does the communication will be synchronous or asynchronous to store data?

Metrics

What type of metrics the systems is going to collect?

Which metrics will be generated and used in the system?

How does the system is going to visualize data?

Is the system going to use a dashboard software to visualize data like Grafana or similar?

Edge

What is going to run at the edge?

Which software is you going to run in your devices?

Does the system needs single or multi-node cluster running at the edge?

Does the software will run using virtual machines, containers, binaries, etc?

Devices

What type of processor your devices will use?

What additional hardware my device needs to use?

How do the devices will be powered using batteries or DC?

How do the devices will manage local time?

What is the amount of memory for your firmware and data storage available for your device?

Sensors

Which sensors are you going to use?

What the sensors are going to measure?

Does the sensors needs a source of power? What type of power is need it?

How the sensors will be calibrated?

Edge Computing System Design Canvas

Purpose

Problem to solve

Challenges

Detect happy paths and blockers

Costs

devices, sensors

cloud provider

storage

hardware provider

People

Skills

Number of members

Project management

Features

Features of the system

Non functional requeriments

Automation

CICD, code versioning, GitOps and testing

Data & Security

Security strategies

Databases capabilities

NoSQL or SQL

Data using JSON, Text, etc

Authentication

Backups

Cloud

Services running in the cloud

Managed services

Third party services

Communication

Communication between layers

LoRa, WiFi, Bluetooth, Sigfox or other protocols to communicate your devices

Internet connection

Asynchronous or synchronous data storage

Metrics

Metrics to collect

Tools to visualize data

Edge

Edge Clusters

Software running at the edge

Virtualization, containers, binaries, etc

Software to run on my devices

Devices

Processor type

Accessories for your device

Additional hardware

Power suppy

Local time management

Amount of memory for your firmware

Sensors

Measure temperature, humidity, etc

Sensors to use

Power supply

Calibration

Edge Computing System Design Canvas

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