

# EdgeAI: πλατφόρμα βαθιάς μάθησης για εφαρμογές με κάμερα

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# NVIDIA Jetson

## Specifications:

- CPU: 64-bit Quad-core ARM A57 @ 1.43GHz
- GPU: 128-core NVIDIA Maxwell @ 921MHz
- Memory: 4GB 64-bit LPDDR4 @ 1600MHz | 25.6 GB/s
- Video Encoder: 4Kp30
- Video Decoder: 4Kp60
- Storage: MicroSD card
- Network: Ethernet, Wi-Fi, 5G, 4G



# Wireless Connectivity

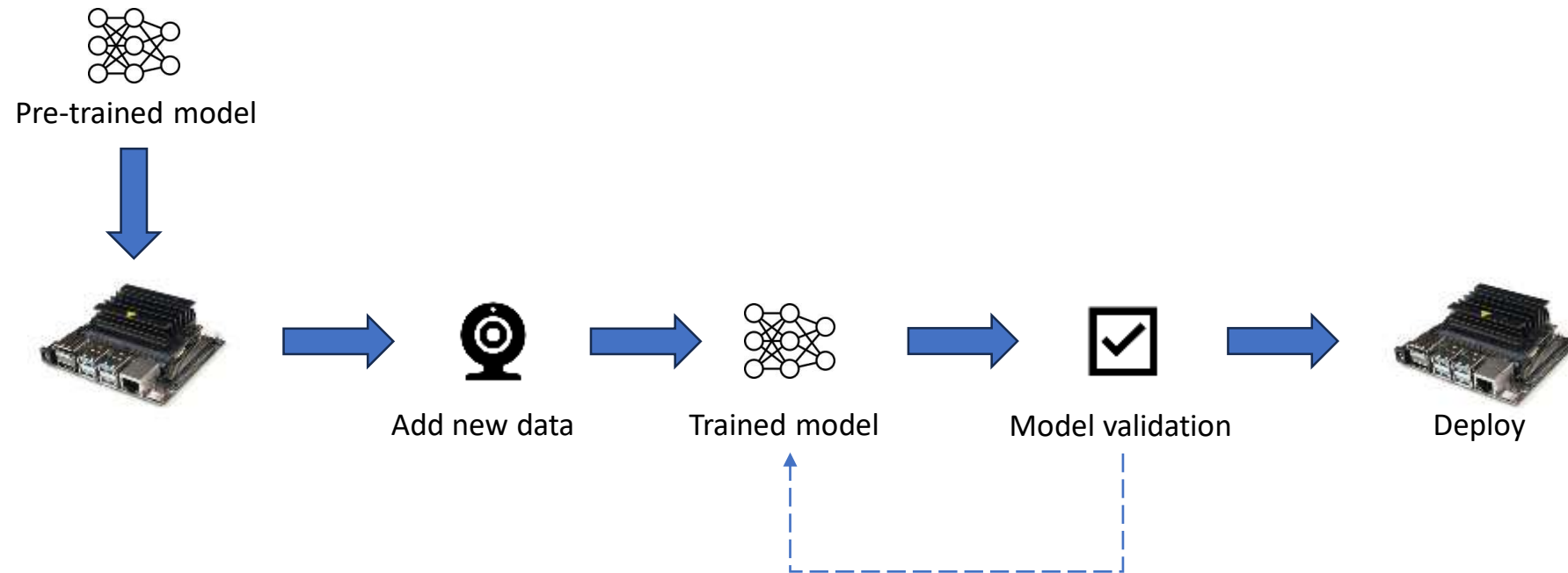
Wi-Fi module



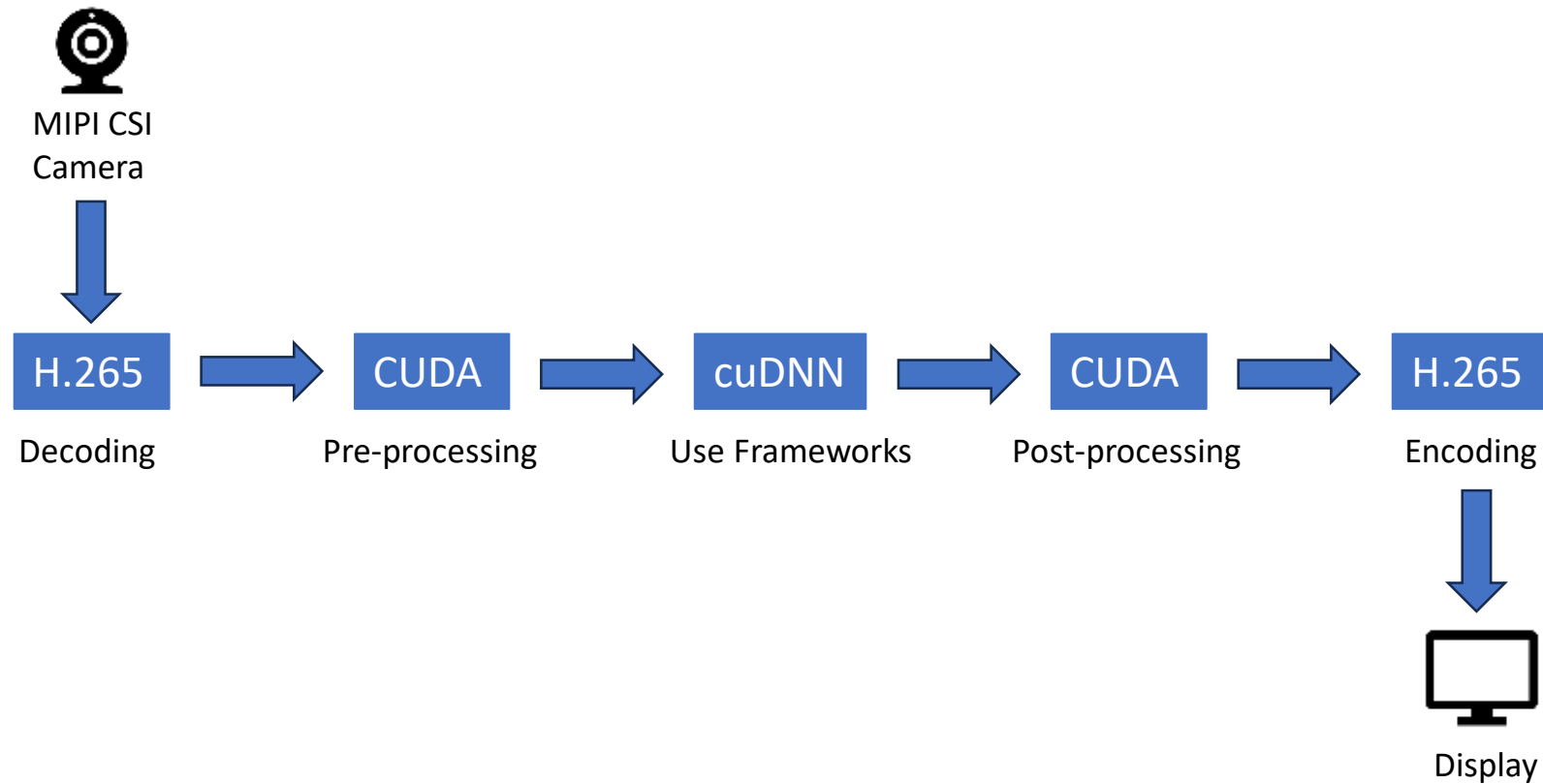
5G module



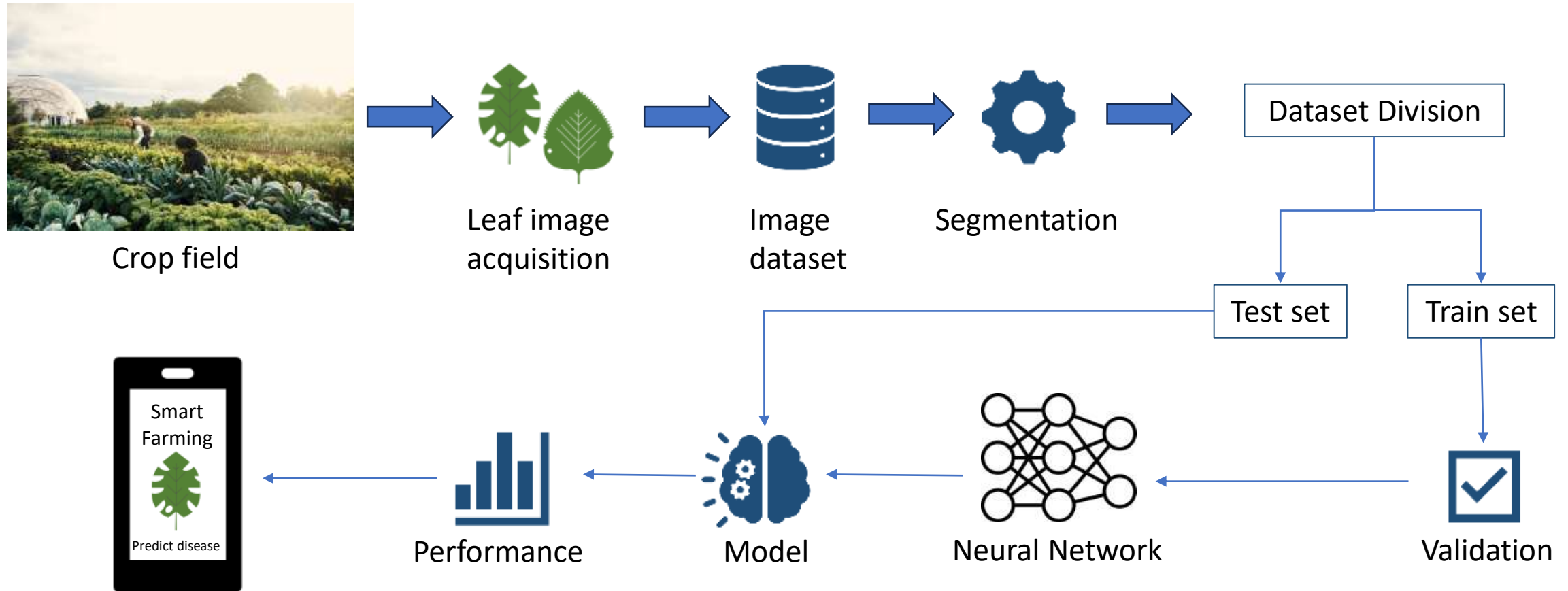
# Train models to deploy to the JETSON for computer vision



# Pipeline of Jetson



# Agriculture

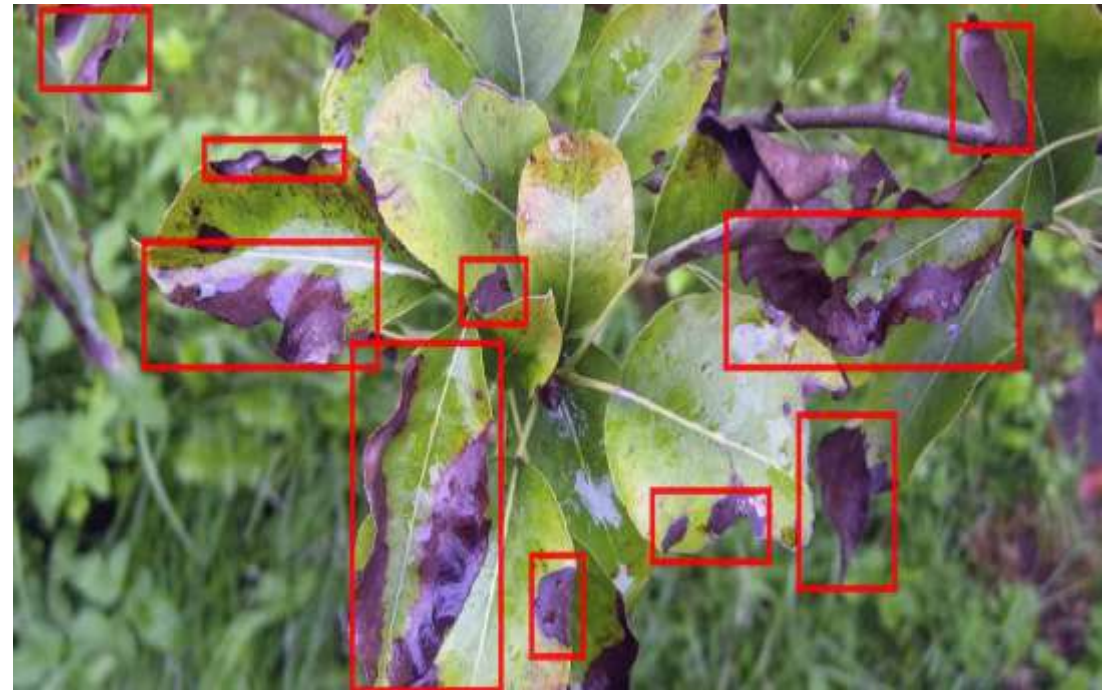


# Agriculture Use Case

## DenseNet201

Architecture: DenseNet201 is an extension of DenseNet121 with a deeper network having 201 layers. It retains the dense block architecture, where each layer receives input from all preceding layers and passes its output to all subsequent layers.

Use Case: DenseNet architectures are known for their parameter efficiency and feature reuse, making them effective for tasks with limited data or computational resources



## Pre-trained model

TrafficCamNet : detects one or more physical objects from four categories within an image and returns a box around each object, as well as a category label for each object. The four categories of objects detected by this model are car, persons, road signs and two-wheelers.





## Pre-trained model

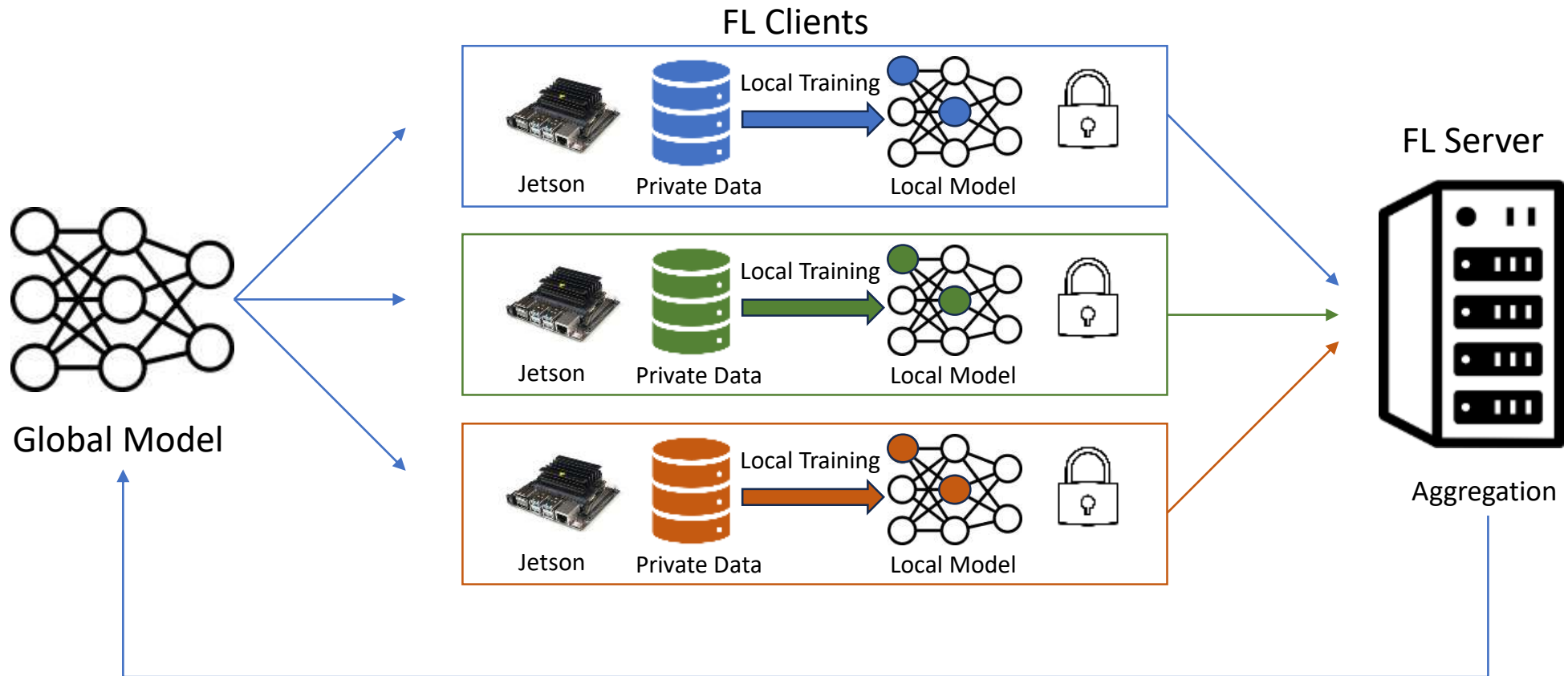
### Automatic-Number-Plate-

**Recognition-YOLOv8:** A YOLOv8 pre-trained model (YOLOv8n) was used to detect vehicles.

A licensed plate detector was used to detect license plates. The model can be trained with YOLOv8 using dataset of license plates



# Federate Learning

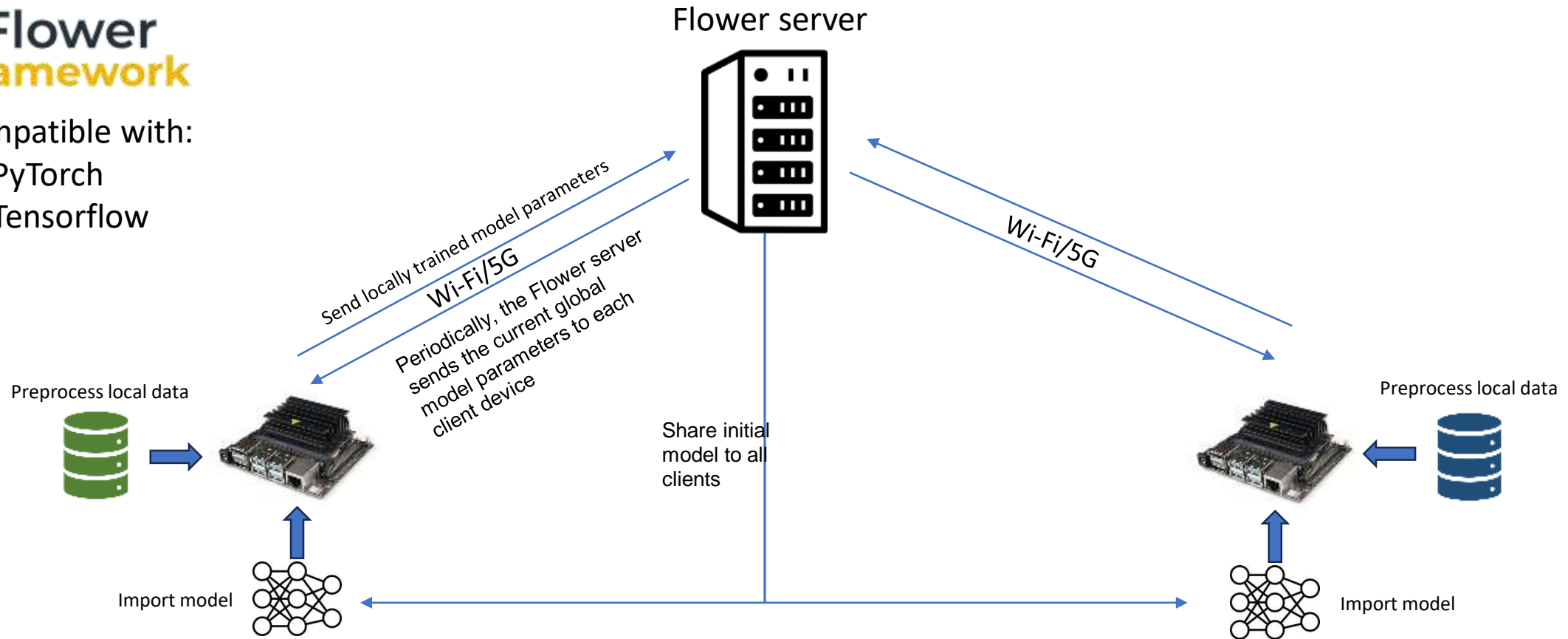


# Federate Learning for autonomous collaborative learning over Wi-Fi/5G



Compatible with:

- PyTorch
- Tensorflow



# Thank you!

