



Decenter

Robotic logistic use case

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ABOUT ROBOTNIK

Robotnik Automation S.L.L. (www.robotnik.eu) designs, manufacture, customize, integration of mobile robots and manipulators.

Robotnik is a small medium enterprise with more than 18 years of experience based on Valencia, Spain. Is integrated of more than 50 members including highly qualified mechatronic engineers and software developers, manufacture specialists.

In Decenter project we are the Robotic Logistics Use Case owner.



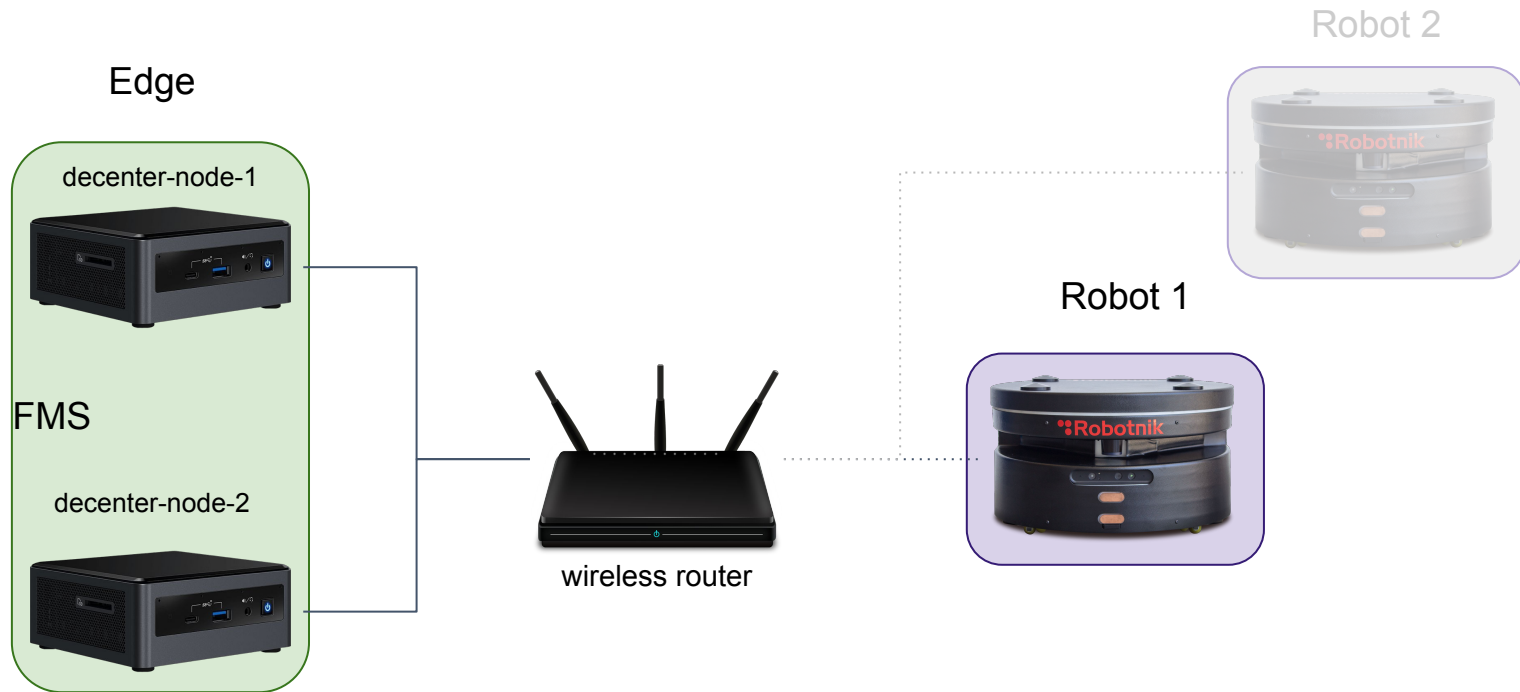
Robotic logistic problems

- High deployment time
- Computation intense algorithm cannot be used
- Each robot behave as individual
- Version fragmentation
- Clients will benefit using AI Services but we Robots experts, AI is beyond our scope

Why decenter?

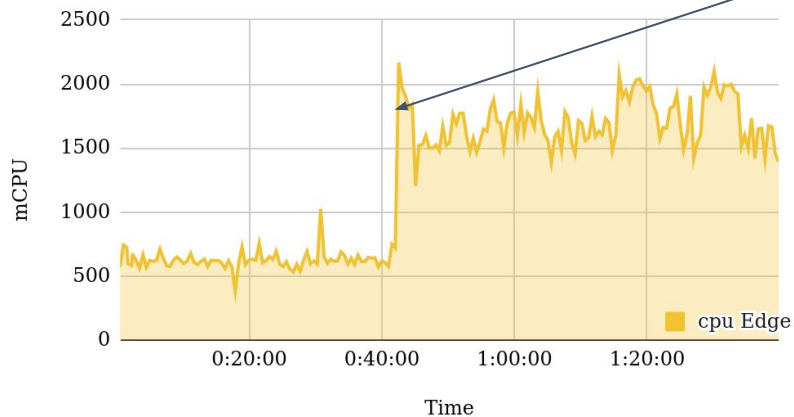
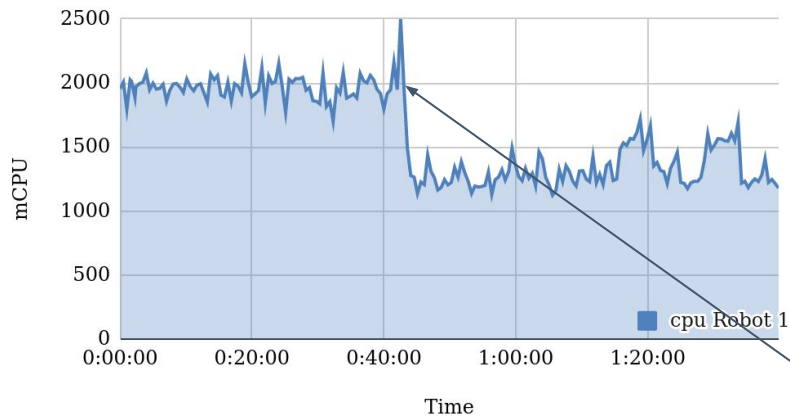
- Use of containerization technology -> Fast Homogenous deployments
- We can use AI customized packages and models from external providers in private and easy way.
- The robot fleet behave like a swarm -> We can offload computation to idle robots of the edge devices (battery saving)
- Adds AI object recognition in order to improve multi robot decision making

Setup



Vertical Offloading

CPU consumption - Robot 1



Before offloading:

- Robot 1: ~2000 mCPU
- Edge: ~750 mCPU

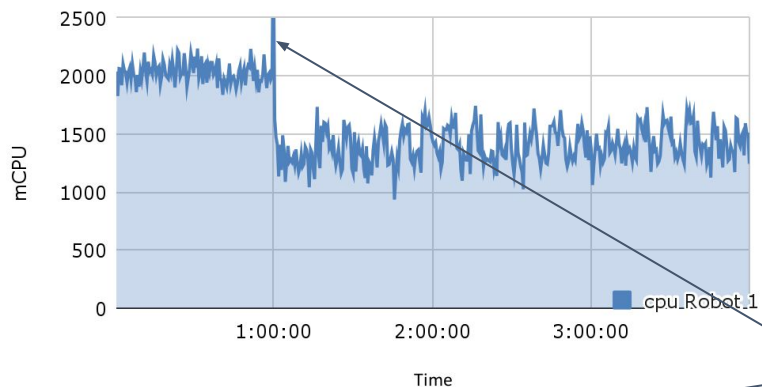
After offloading:

- Robot 1: ~1400 mCPU
- Edge: ~1500 mCPU

>30% of CPU usage saving

Horizontal Offloading

CPU consumption - Robot 1



Offloading Point

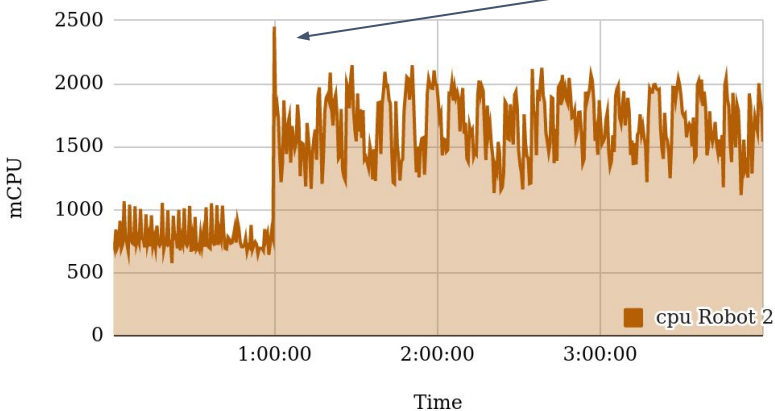
Before offloading:

- Robot 1: ~2000 mCPU
- Robot 2: ~750 mCPU

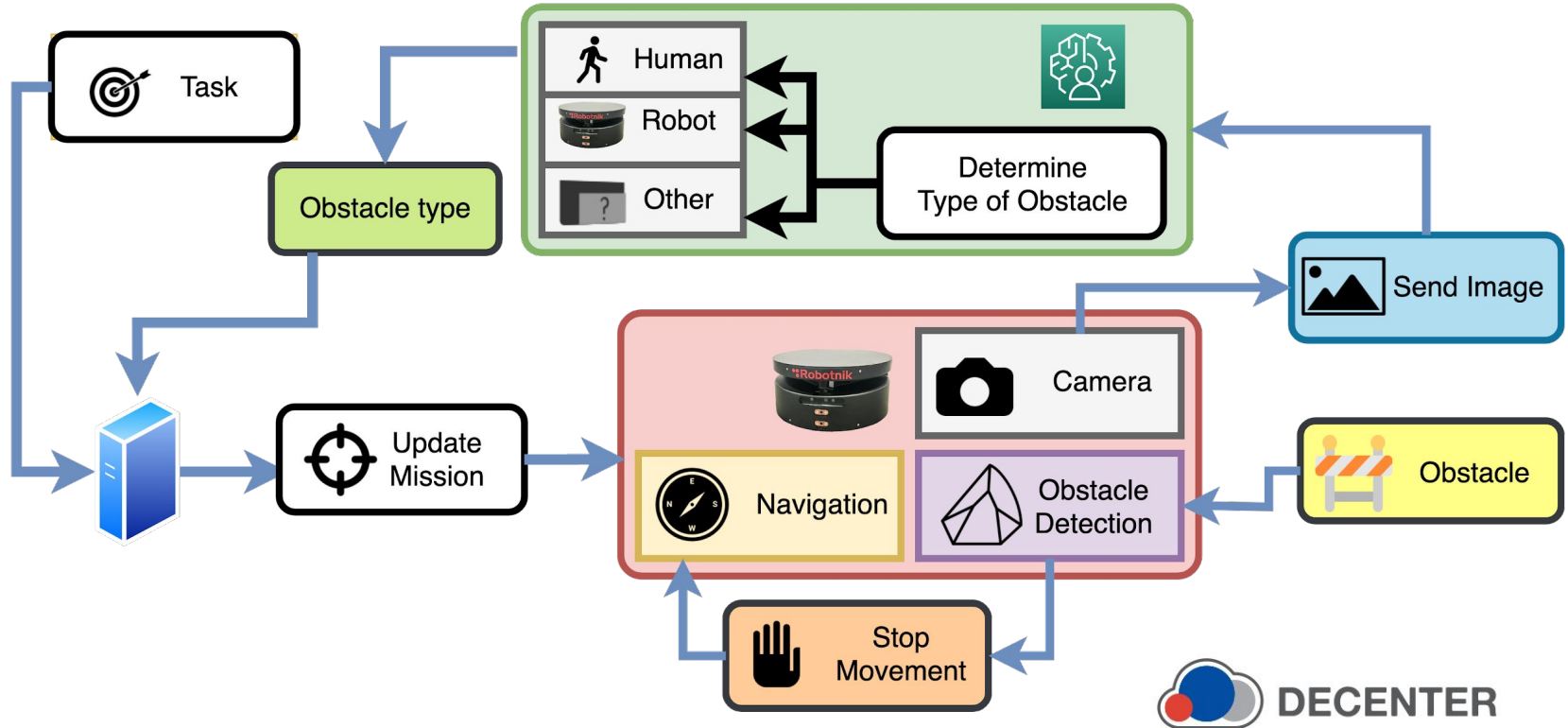
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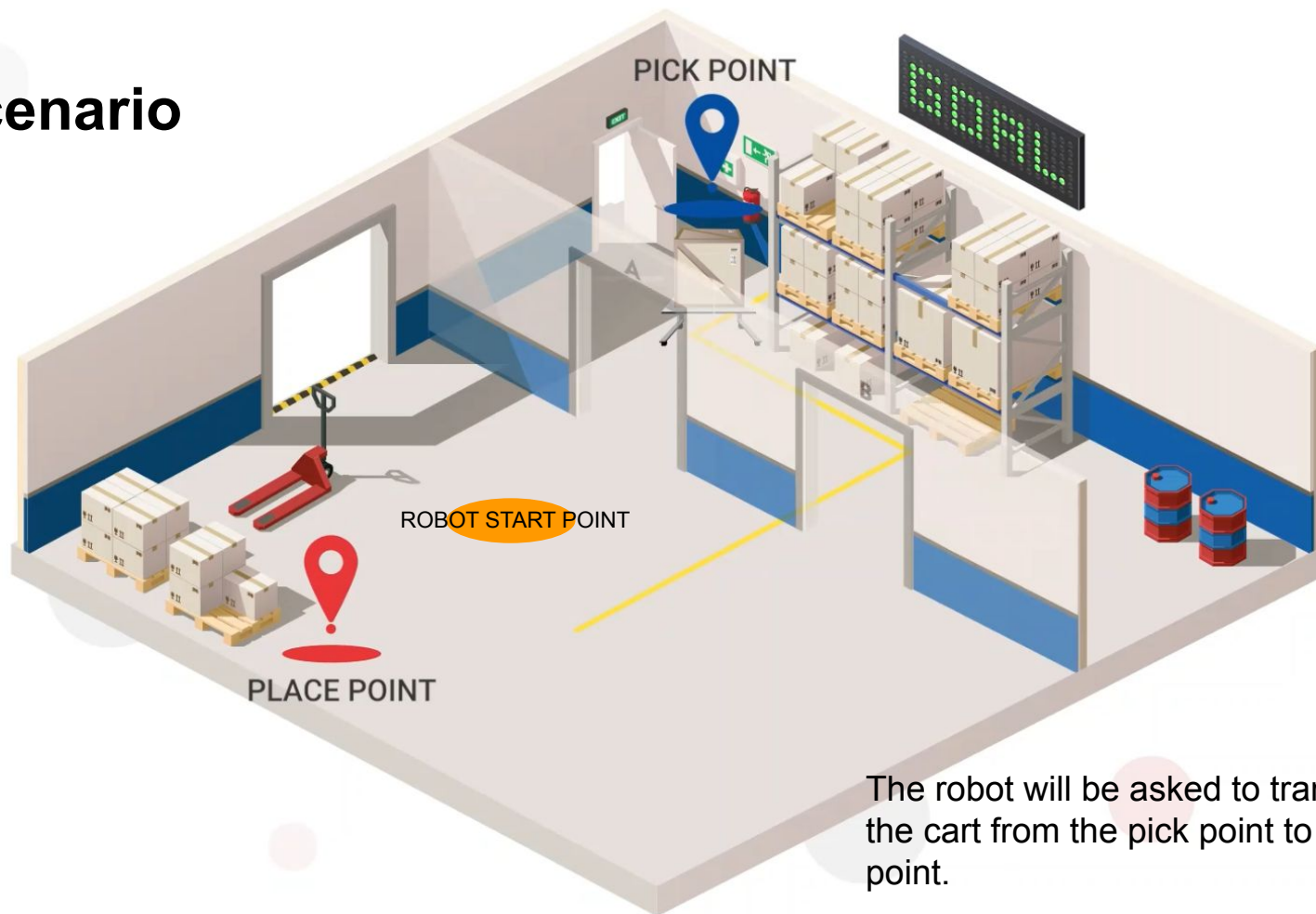


Obstacle detection and Smart decision



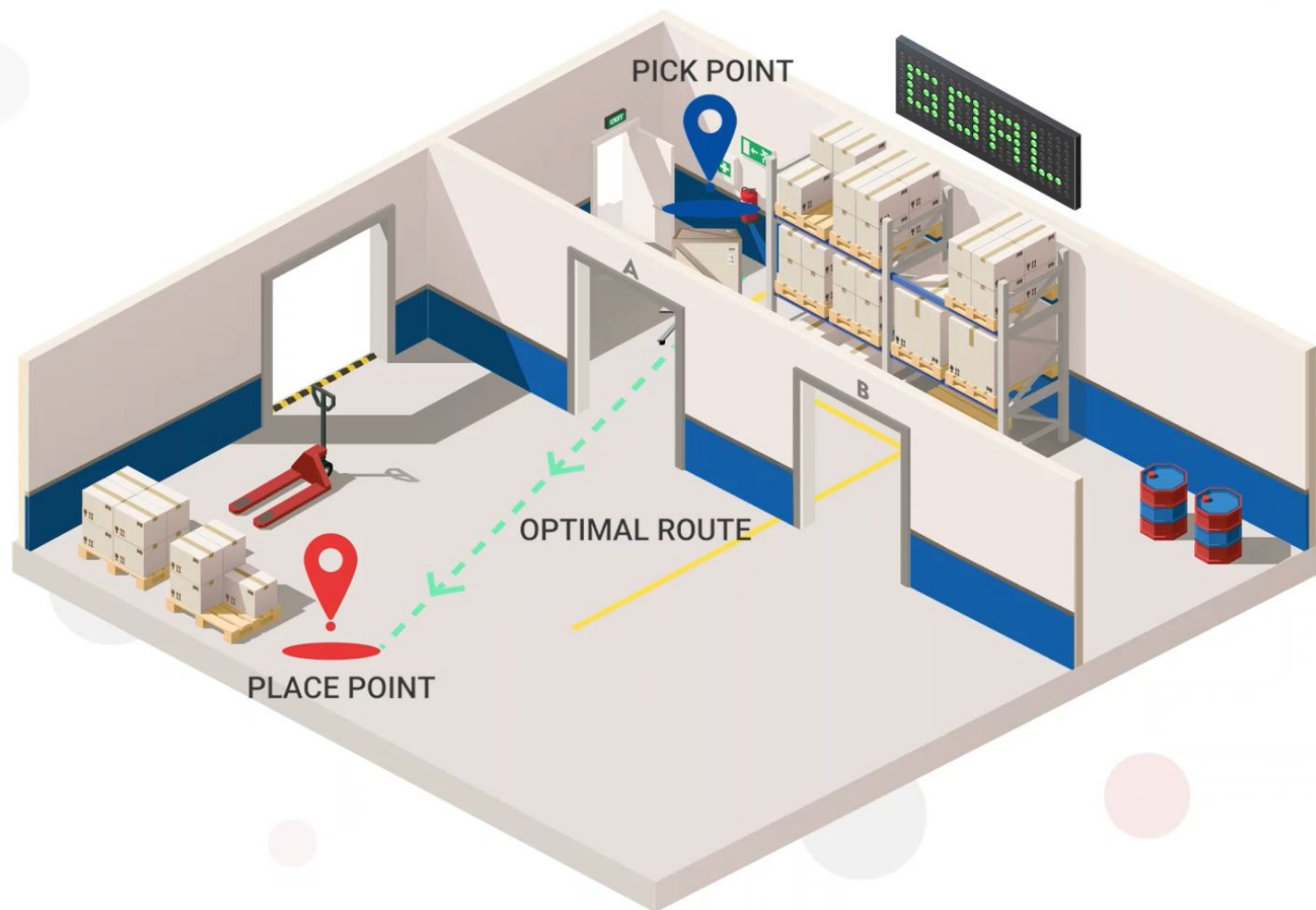


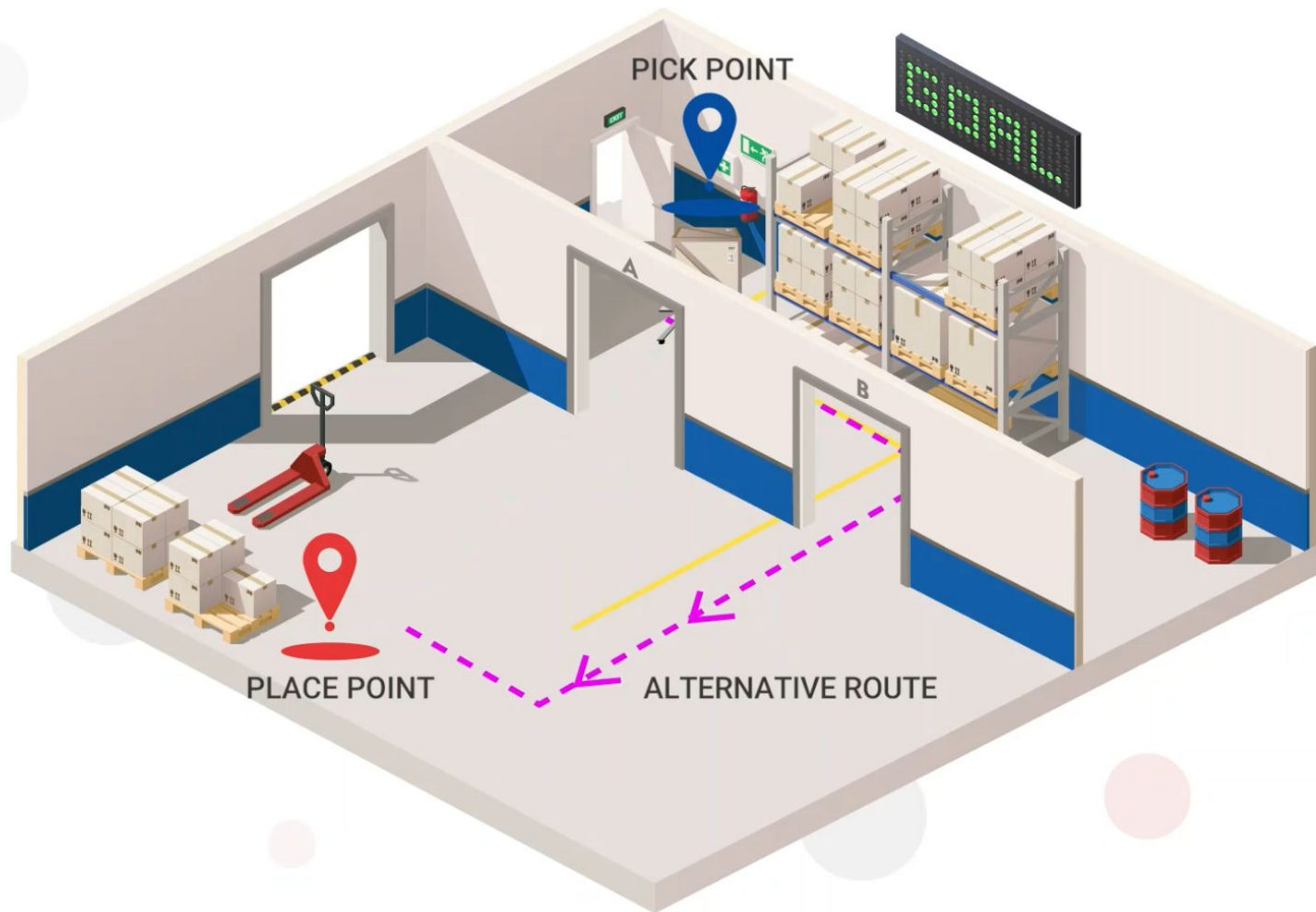
Scenario

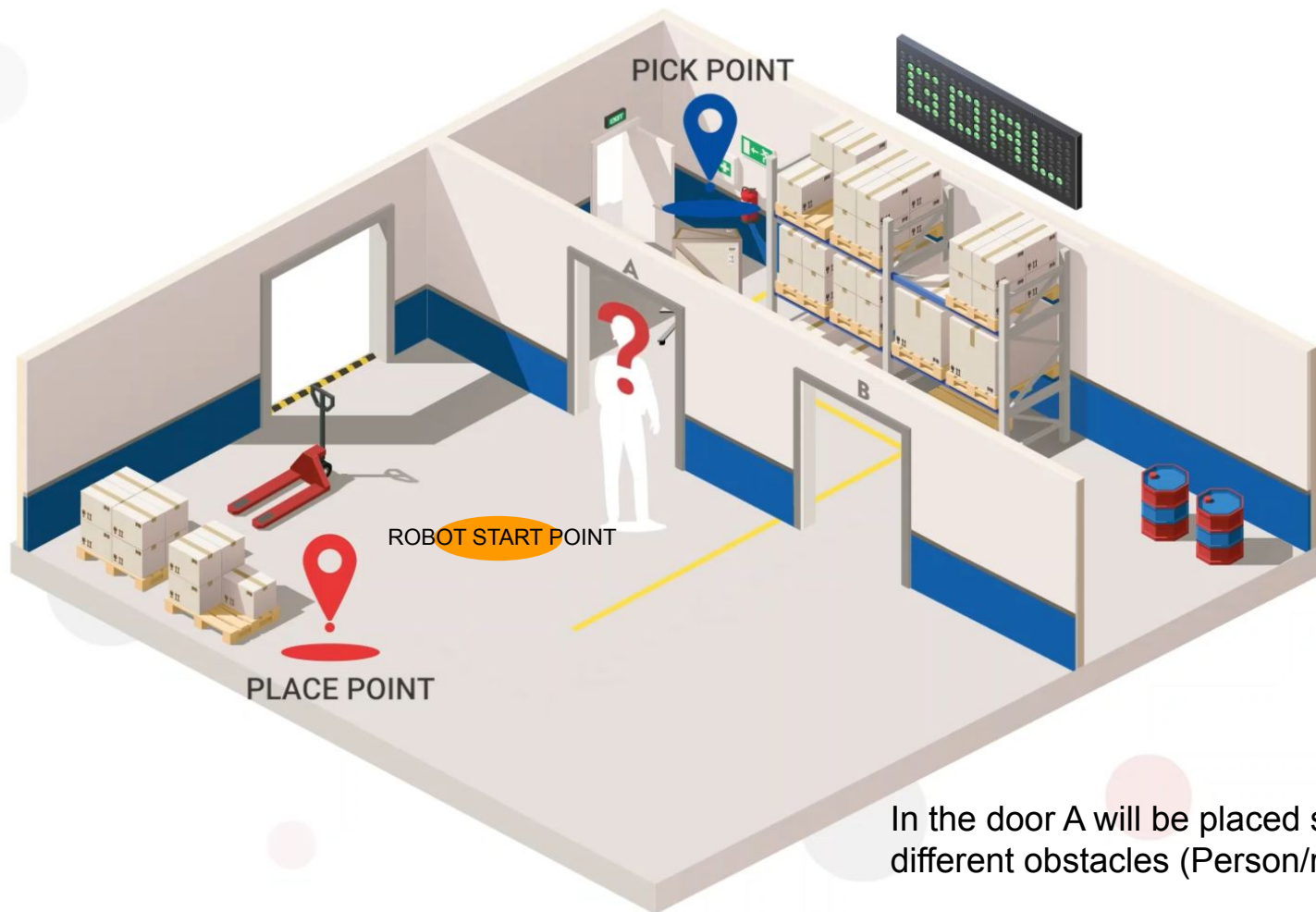


The robot will be asked to transport the cart from the pick point to place point.









In the door A will be placed several different obstacles (Person/robot/box)





Benefits of DECENTER

- Better service to the customer with AI services
- Improvement of robotics deploying by using cloud native technologies
- Battery saving (longer runtime)