AWS re:Invent

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ROB202

Building cloud connected robots

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Introductions

Use cases for AWS and robotics

Introduction to AWS RoboMaker/AWS IoT Greengrass

Workshop introduction

Hands-on

Dance party

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Robotics



Last-mile delivery

Surgical

Warehouse



Security, disaster recovery, companion, etc.

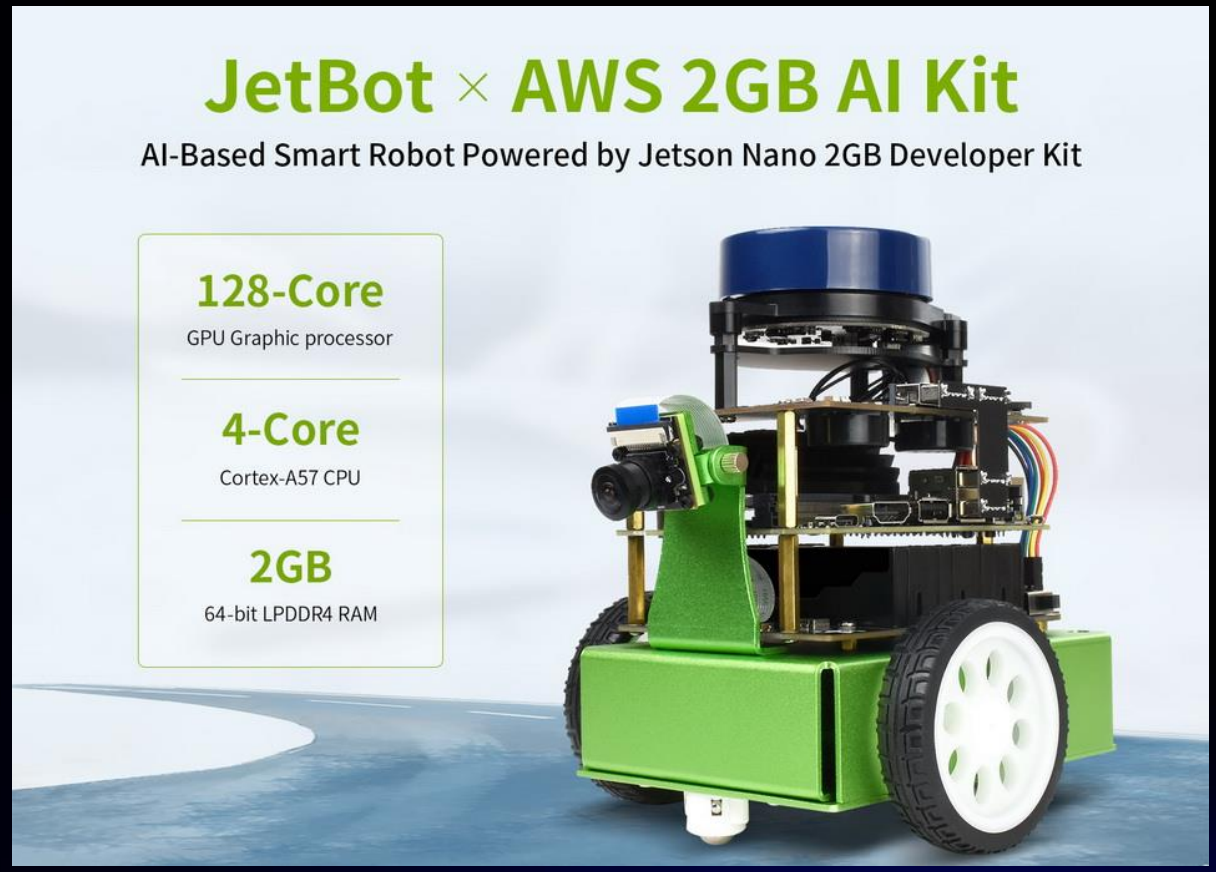
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Jetbots

Waveshare Jetbot



AWS Waveshare Jetbot



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Mobile robotics use is accelerating

By 2023

It’s estimated that mobile autonomous robots will emerge as the standard for logistic and fulfillment processes



By 2030

70% of all mobile material handling equipment will be autonomous

Source: IDTechEx

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Building autonomous robots is difficult

Build

- Multi-domain expertise required
- Iterative development to get it right

Test

- Limited robot hardware
- Simulation without the right tools is costly and complicated

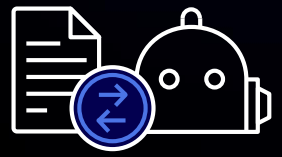
Manage

- Deployment and updates needed
- Configuration management is hard
- Updating ML models for adding new skills via inference at the edge



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AWS robotics solutions



Manage software on robot fleets *over-the-air updates and provisioning*



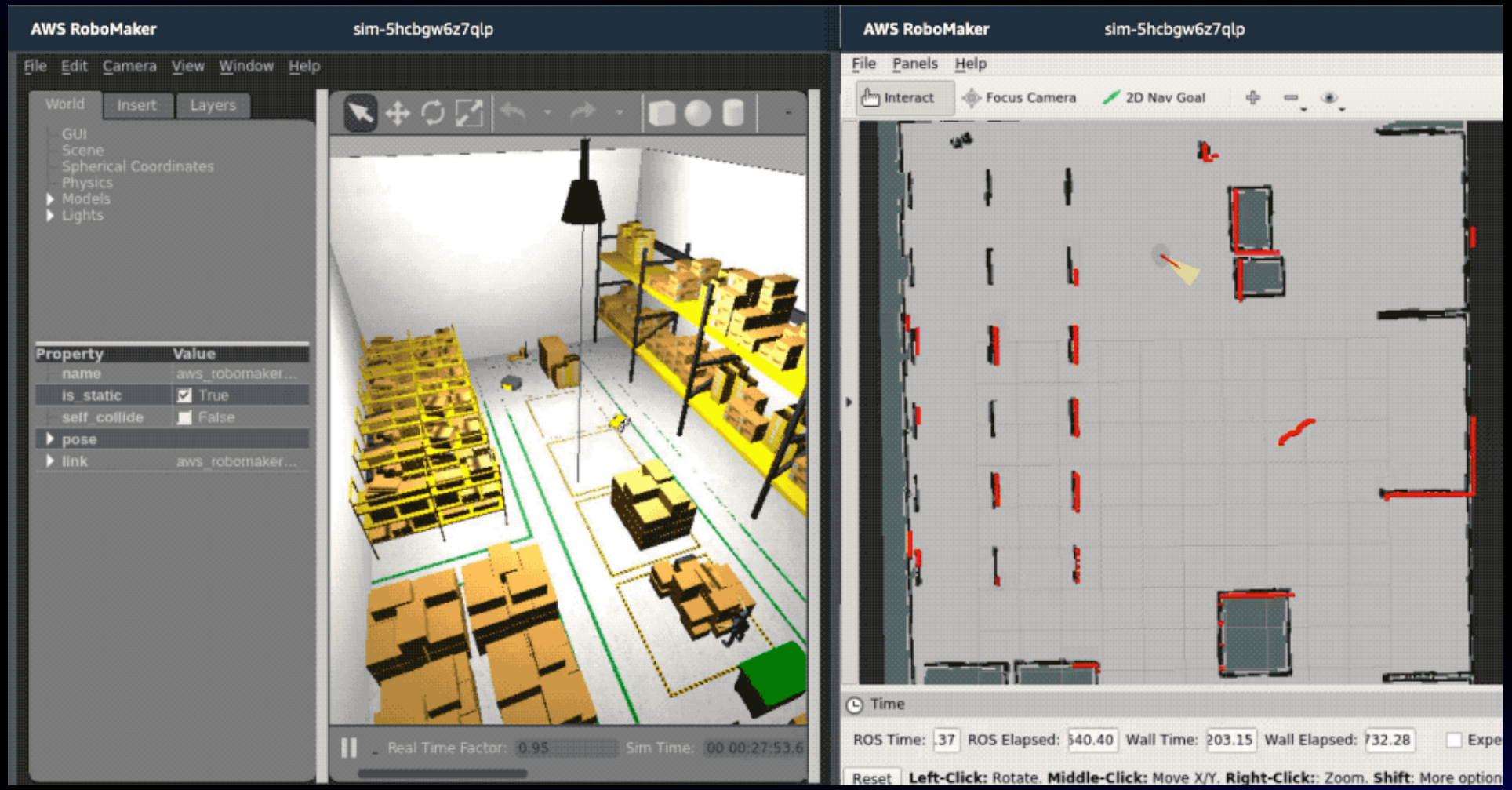
Build cloud-enhanced robots



Simulation-based testing and validation

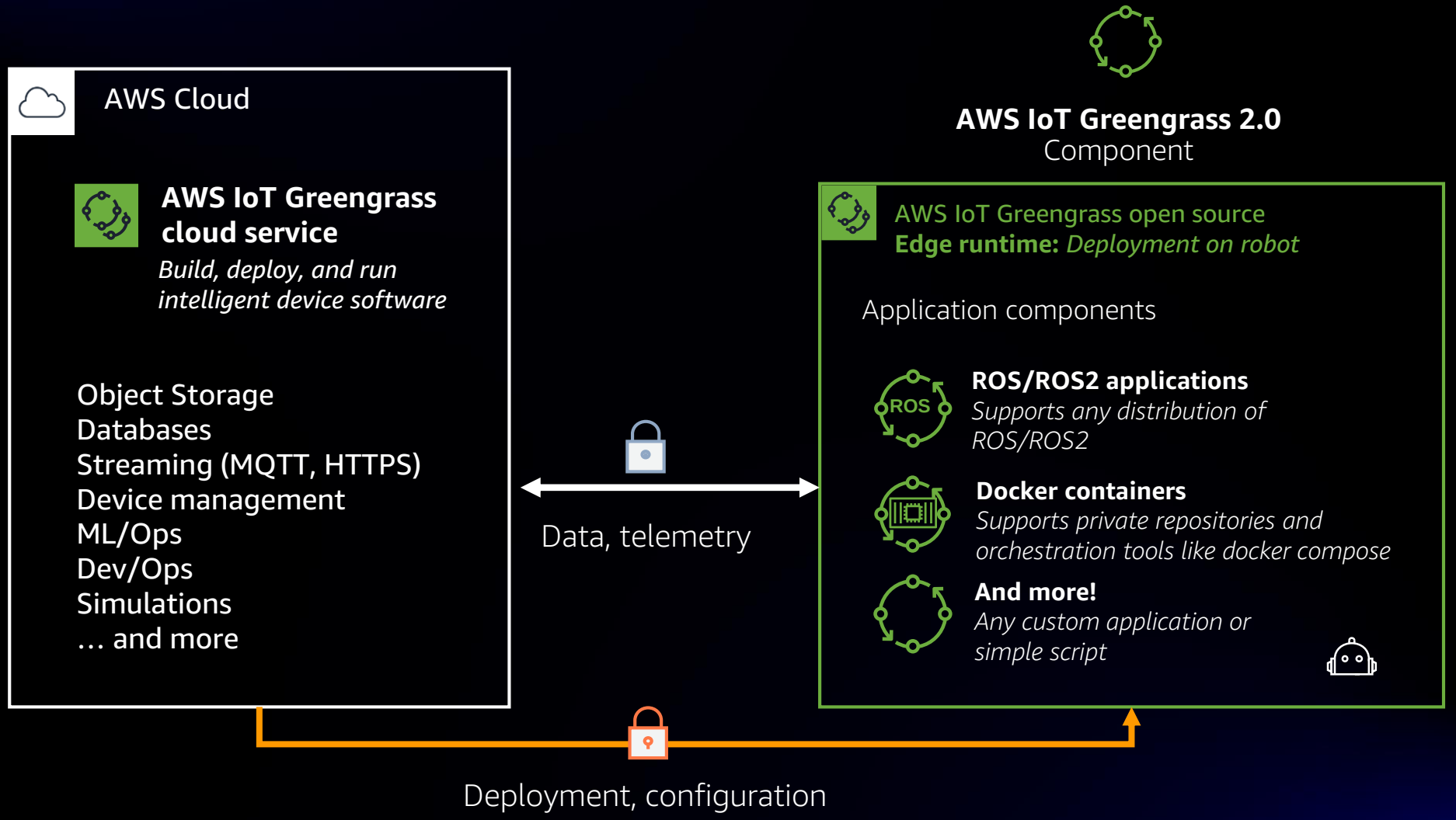
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Simulation with an API using AWS RoboMaker



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AWS Cloud at the edge



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AWS IoT Greengrass 2.0 pre-built components

Public components are pre-built AWS-provided components with common functionality that you can deploy to your robots

Examples of pre-built AWS integrations to speed up development time

Secure tunnels
Enable remote access to robots over secure tunneling

Log manager
Automatically capture component logs in the cloud with CloudWatch Logs

Stream manager
Reliably manage local data streams into AWS

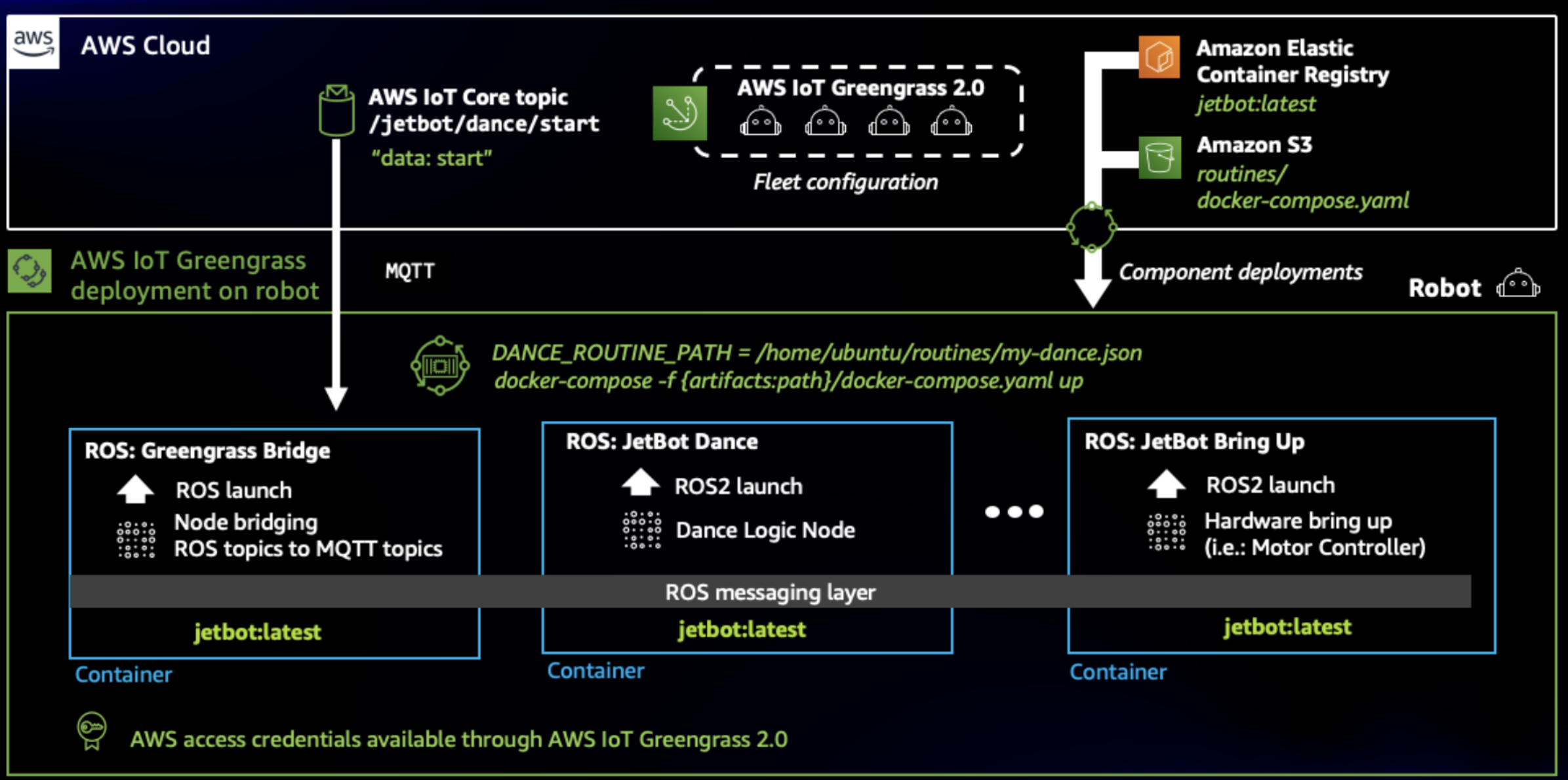
Edge ML inference frameworks
With TensorFlow or SageMaker Neo Deep Learning Runtime (DLR)

Includes pre-trained models for object detection and image classification

And more!
Over 20+ public components are available today

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