

Living On The (Cloud) Edge

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Living on the (Cloud) Edge

Managing Workloads at Scale

Edge Computing places enterprise applications closer to where the data is created, and where actions need to be taken. There are real business needs for Edge Computing. Here are some use-cases:

Low/No Latency : A round-trip to / from the cloud causes an unavoidable delay in data processing, which in many cases is unacceptable for response to data collected by devices.

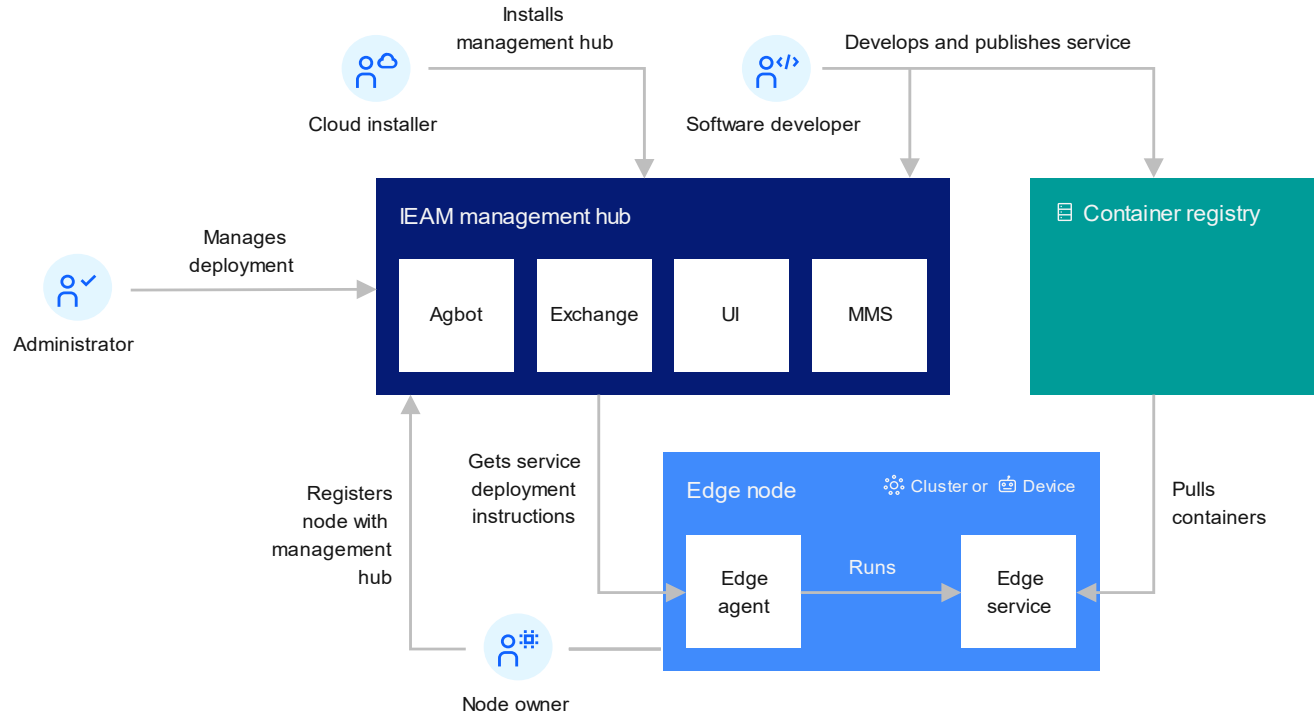
Network Bandwidth : The amount of data from devices is growing exponentially. Transmitting all of data to the cloud for analysis is untenable in many situations.

Privacy Security : To maintain privacy and adhere to data residency laws and regulation, the data must remain where it is generated.

Continuous Operation : There is increasing need for flexibility with running full processing capabilities/compute autonomously in disconnected scenarios ensuring operations continue without disruption

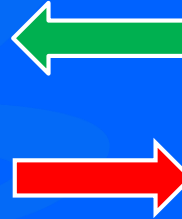
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IBM Edge Application Manager



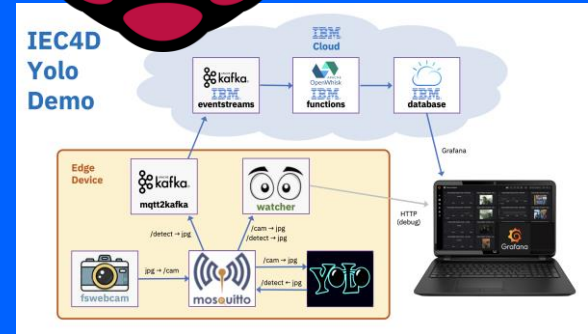
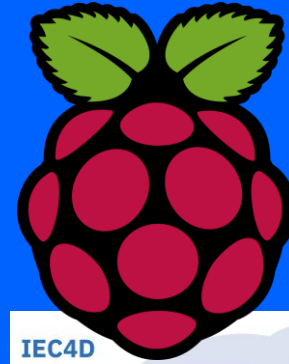
Devices on the Edge

First of a Kind - Pros and Cons



Devices on the Edge

Car Entertainment System Emulation



Devices on the Edge Challenges

- Many models of cars released each year
- Several custom versions of each model
- Cars last much longer

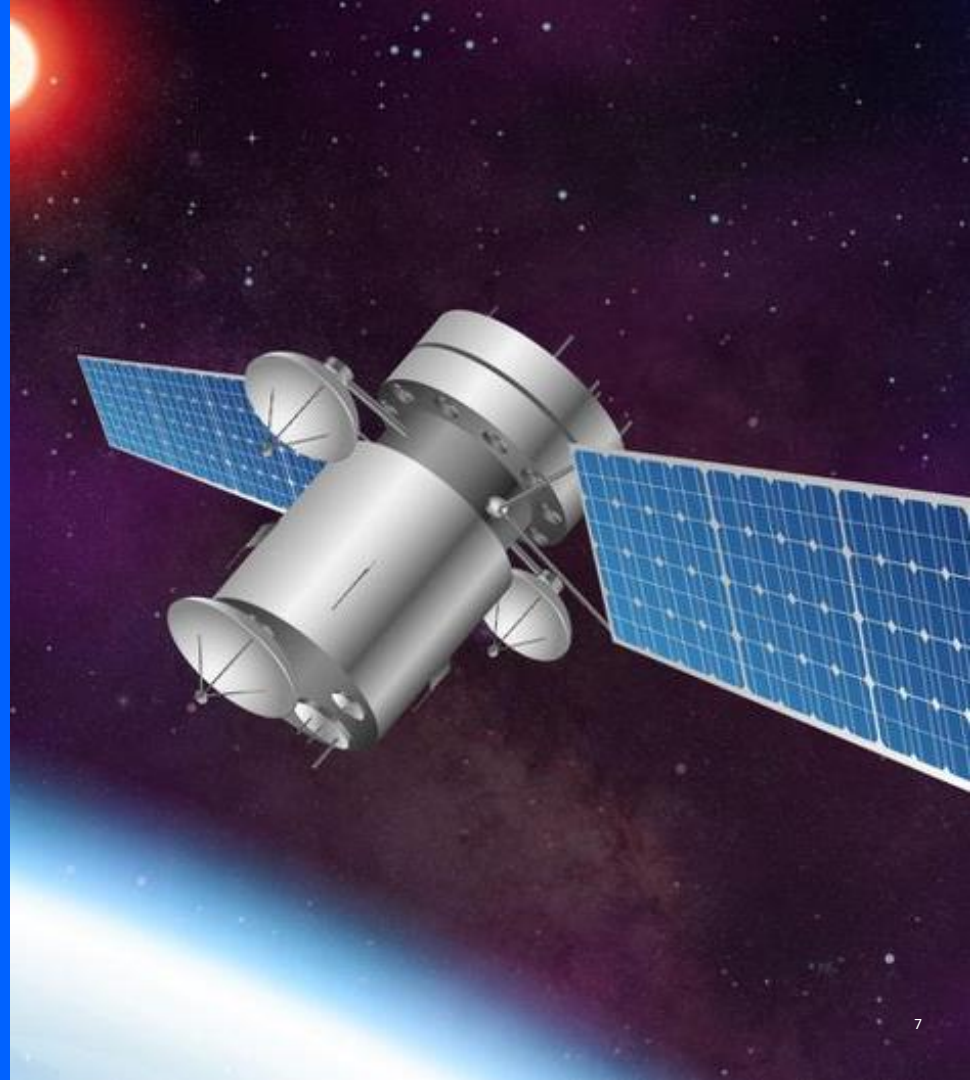
Impact : Need to retain every version of the application / module



Clusters On The Edge

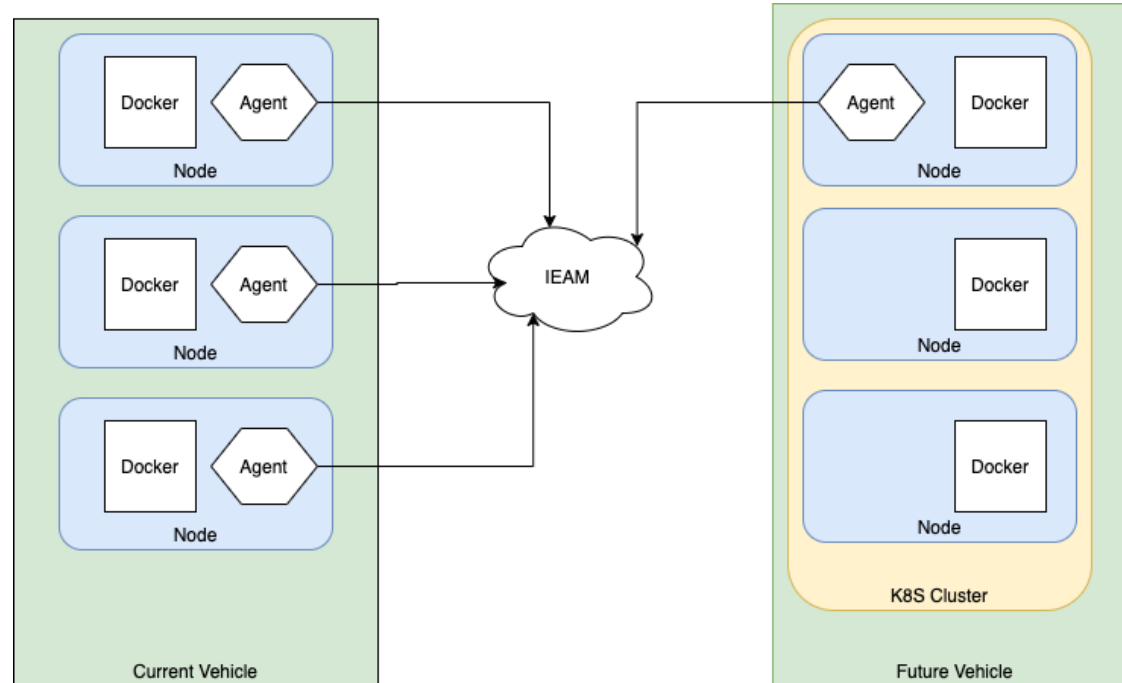
What's Different?

- More compute resources available
- Manage as one edge device
- There may be multiple devices attached



Clusters On The Edge

Transition to Clusters



DevOps on Edge - Services

What is an Edge Service?

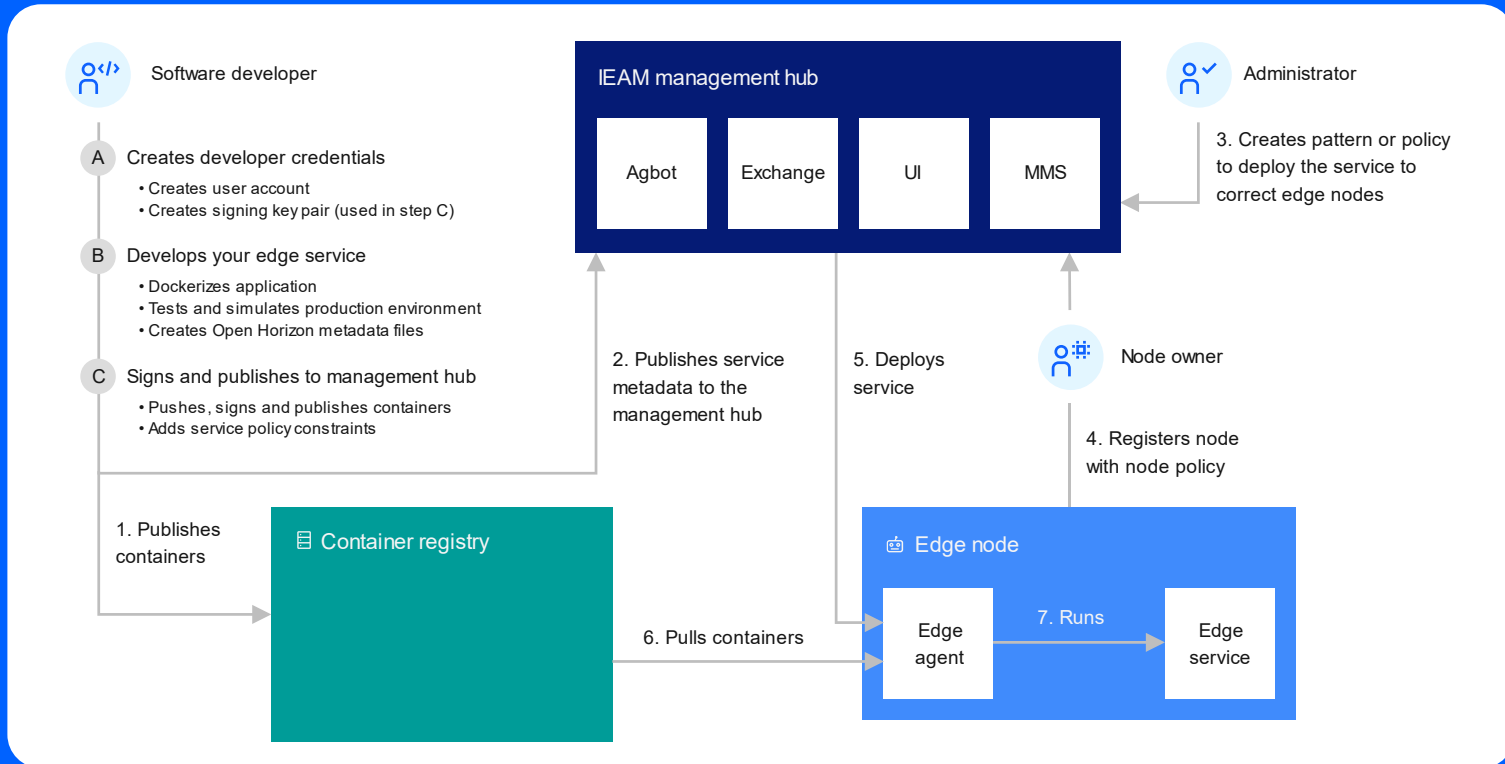
- Cloud Native Application
- Includes additional open-horizon meta data
- Can also include related machine learning assets (AI Models)

How are Edge Services deployed?

- Edge Service (apps) - deployed as a pattern or policy
- The IBM Edge Application Manager (IEAM) deploys the service to the Edge Node
 - Edge Device: Services are published as container image
 - Edge Cluster: Services are published as a Kubernetes operator

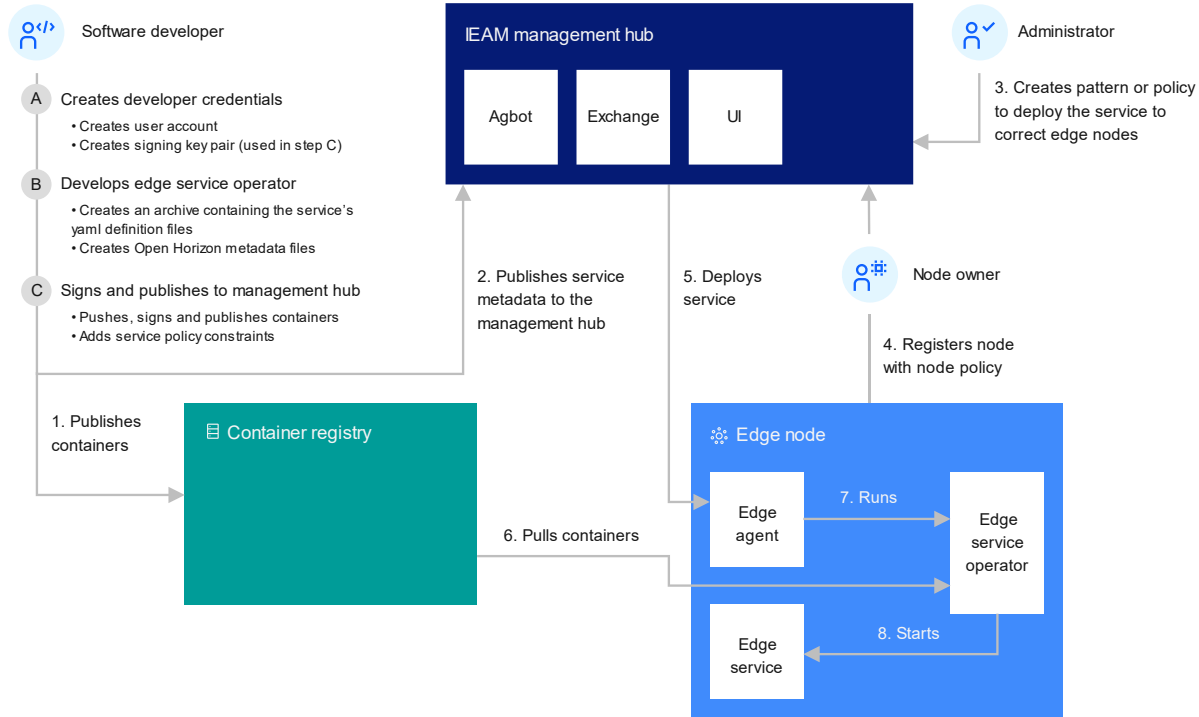
DevOps on The Edge

Developing Edge Services For Node Devices



DevOps On The Edge

Developing Edge Services for Node Clusters



DevOps On Edge

DevOps Pipeline

- Environment in RedHat OpenShift using open source tooling for testing, building and publishing the Edge Service into IBM Edge Application Manager.
- It incorporates best practices that increase developer velocity for efficient delivery of business value.



DevOps on Edge Resources

Resources

- Edge Architecture Center
<https://www.ibm.com/cloud/architecture/architectures/edge-computing>
- Open-Horizon
<https://www.lfedge.org/projects-old/openhorizon/>
- IBM Edge Application Manager – Developing Edge Services
https://www.ibm.com/support/knowledgecenter/SSFKVV_4.1/devices/developing/developing_edge_services.html
- IBM Edge Application Manager – Model Management
https://www.ibm.com/support/knowledgecenter/SSFKVV_4.1/devices/developing/model_management_details.html
- Best Practices for Developing Edge Services
https://www.ibm.com/support/knowledgecenter/SSFKVV_4.1/devices/developing/best_practices.html

DevOps on Edge Resources

Resources

- Edge Blog
<https://www.ibm.com/cloud/blog/analytics-at-the-edge>
- Developing a Kubernetes Operator
https://www.ibm.com/support/knowledgecenter/SSFKVV_4.1/devices/developing/service_operators.html

Why IBM Cloud Integration Expert Labs?

Our purpose

Expedite the successful deployment of IBM's Cloud Integration Solutions

How we drive success

Through our deep technical expertise, methodology, repeatable patterns, learning services and mentoring

How you benefit

Faster time to value from your IBM Cloud Integration Solutions



Contact us through email: labs@us.ibm.com

Thank You

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