

# John Deere Operation Center's Development Journey & Ecosystems





# About John Deere



# John Deere Intelligent Solutions Group

## High Level Overview



<https://www.deere.com/en/technology-products/precision-ag-technology/>



# John Deere Operation Center

## Apps

**Field Analyzer**

**Agronomic Report**

**Files Manager**

**JDLink Dashboard**

**Land Manager**

**Maintenance Manager**

**Product Manager**

**Setup Builder**

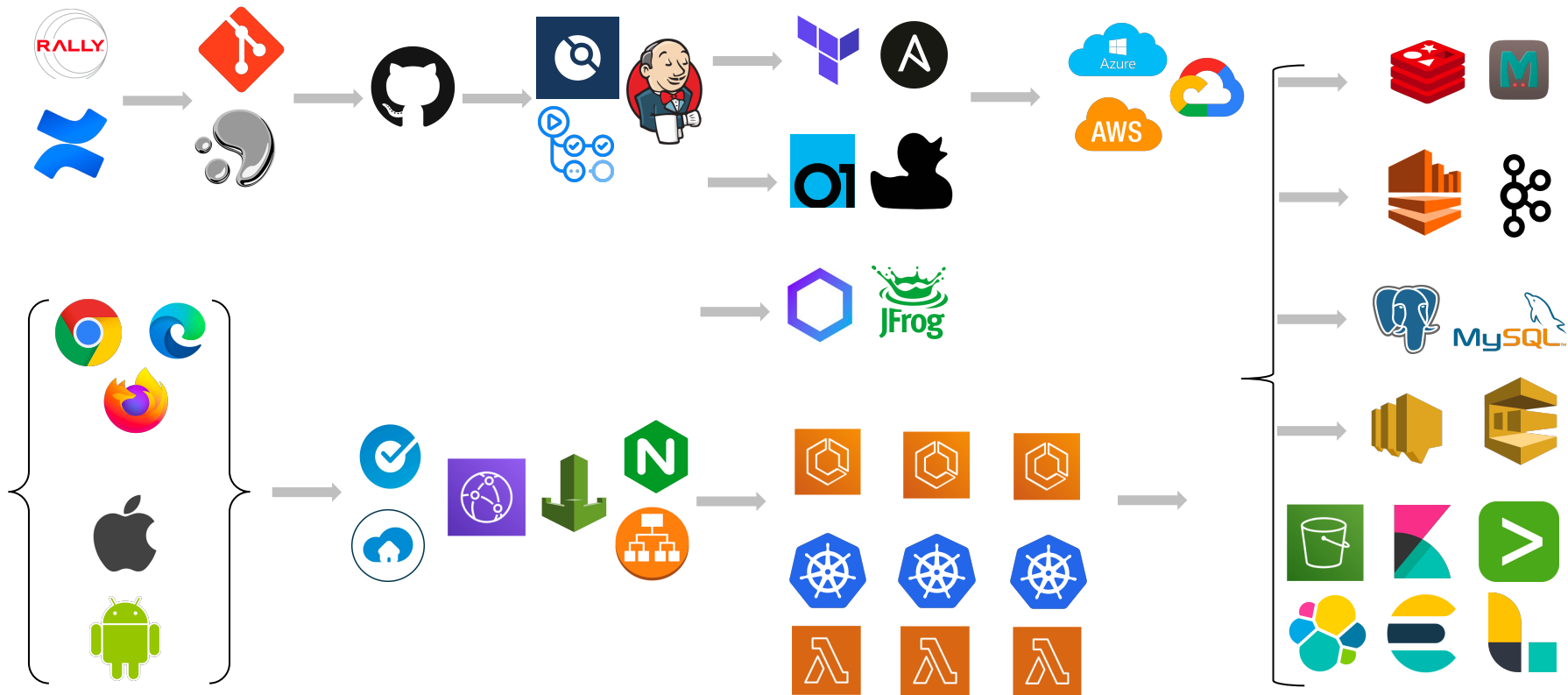
**Machine Analyzer**

**Work Manager...**



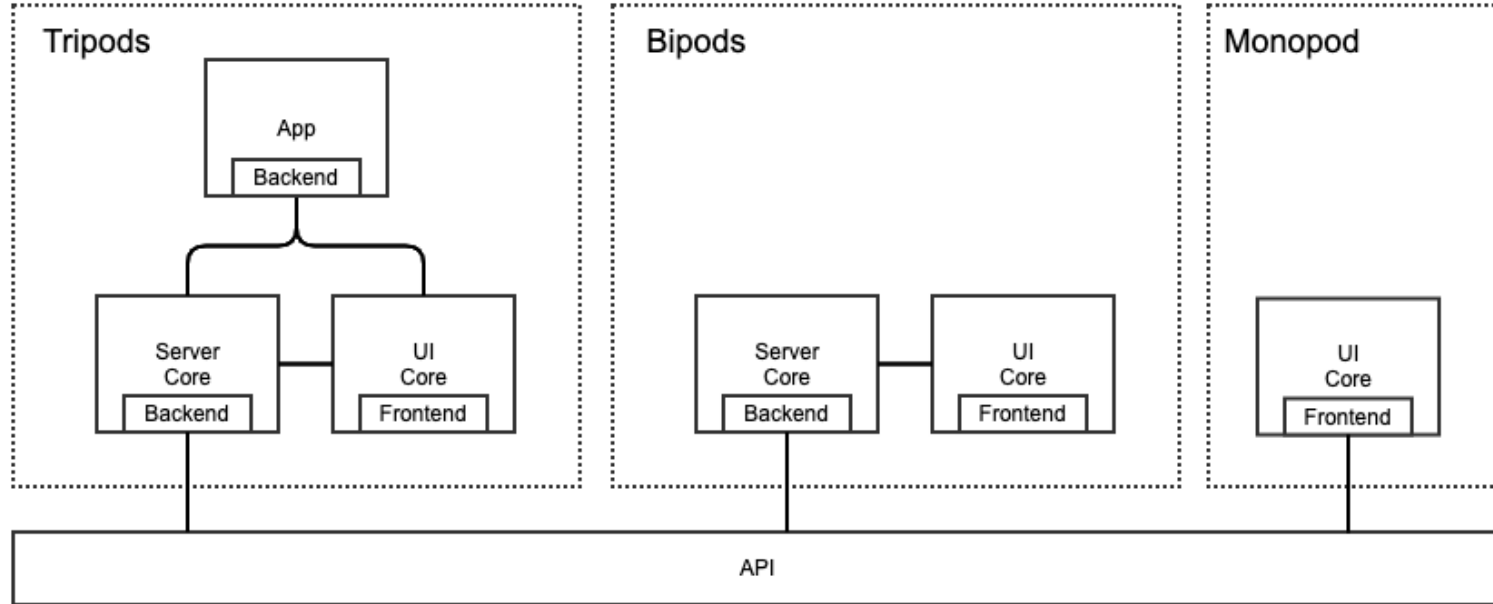


## 10,000 ft view



# John Deere Operation Center

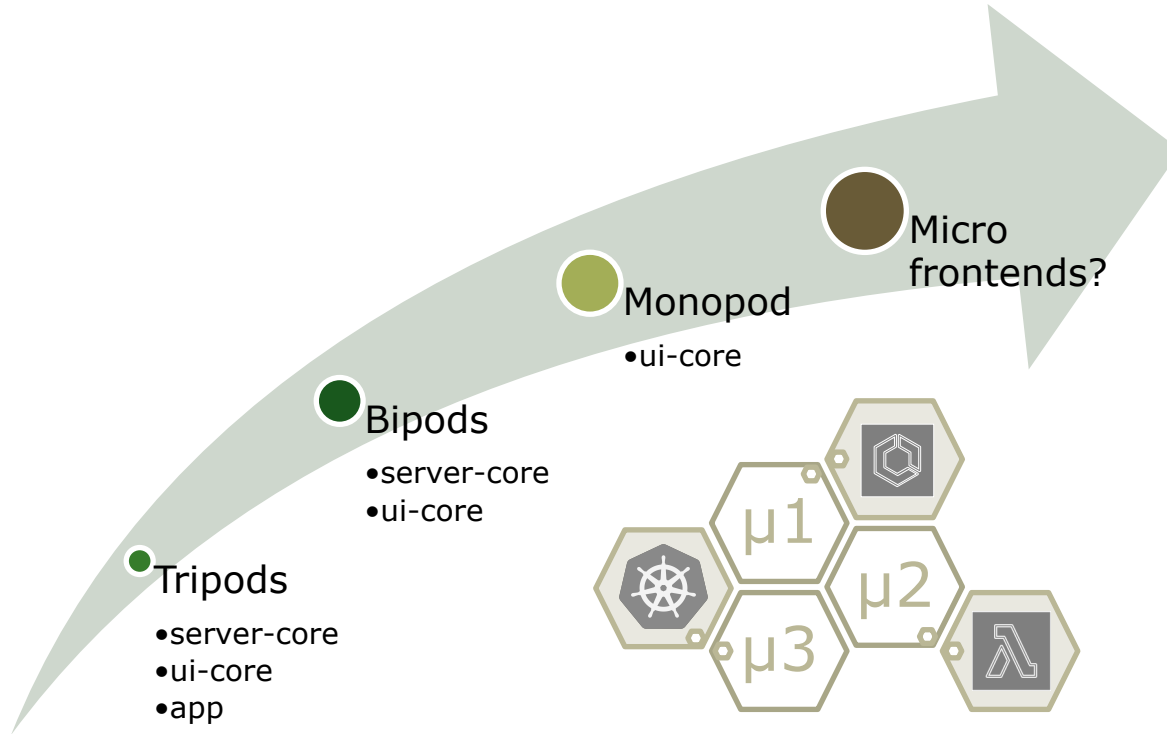
## Overview of Application Architecture





# John Deere Operation Center

architectural journey from tripods to monopod...

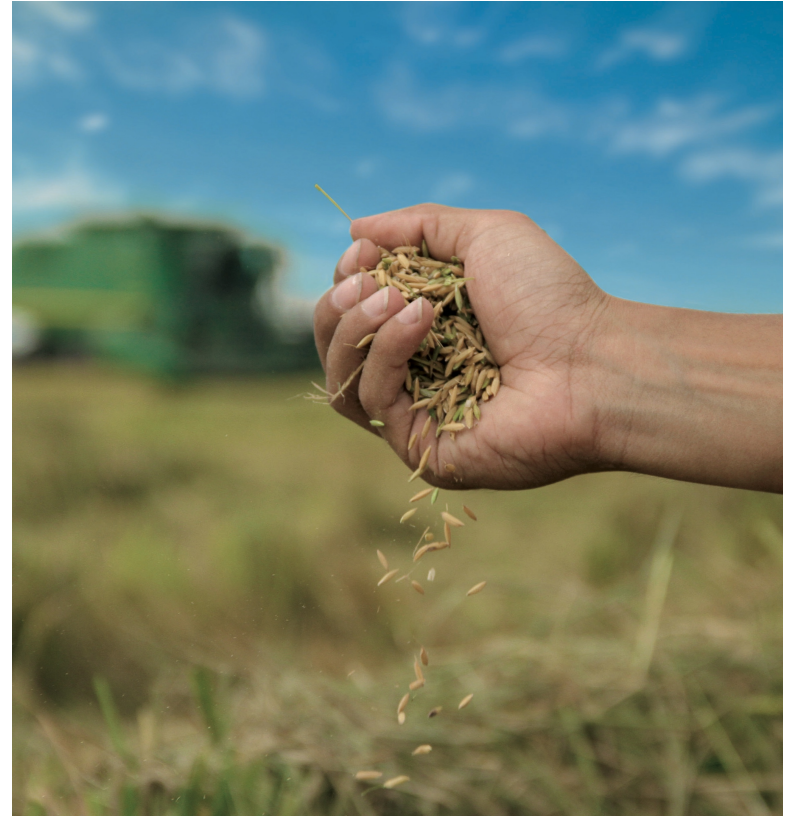


**Lets build  
Web Applications**



# Foundational Bricks

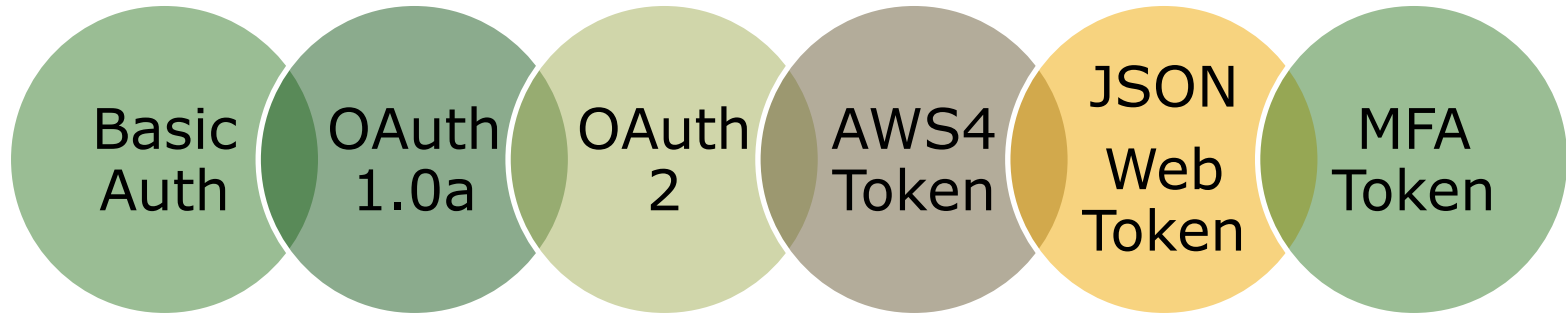
- Auth Layer
- Proxy Layer
- Compute Layer
- Coding Layer
- Automation Layer
- Config Layer
- Network Layer
- Data Layer
- And so on...



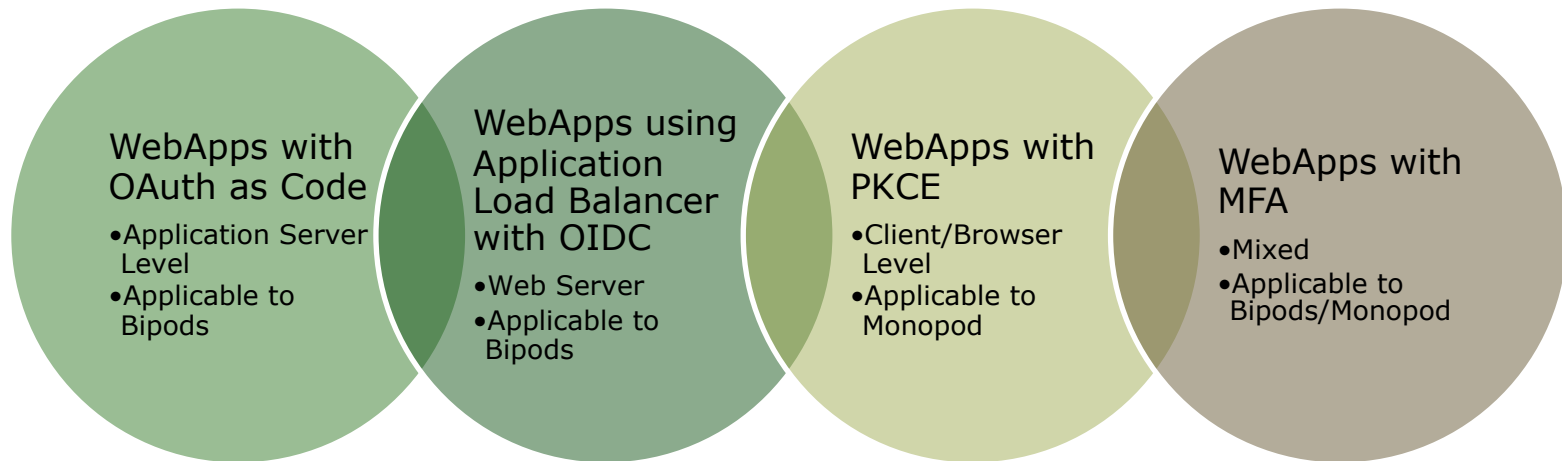
# Auth Layer



# Authentication Layer - API Level



# Authentication Layer – Emerging Patterns





# Compute Layer

## Compute Layer

Single EC2 Instance



```
graph TD; A[Single EC2 Instance] --> B[Multiple EC2 Instance based Cluster]; B --> C[Multiple Containers on a Cluster]; C --> D[Containers as Serverless]; D --> E[Functions as Serverless];
```

The diagram illustrates the evolution of the Compute Layer through five stages, represented by colored rectangular boxes arranged in a descending staircase pattern from top-left to bottom-right. Each box is connected to the next by a grey downward-pointing arrow. The stages are: 1. Single EC2 Instance (dark green), 2. Multiple EC2 Instance based Cluster (dark green), 3. Multiple Containers on a Cluster (light green), 4. Containers as Serverless (brown), and 5. Functions as Serverless (orange).

Multiple EC2 Instance based Cluster

Multiple Containers on a Cluster

Containers as Serverless

Functions as Serverless

## Compute Layer

Containerization



Orchestrators - Tasks/Pods

Distributed Systems - EMR

Data Lake - Batch - Glue



# Haven't talked about

Each topic has its own story

- Data Layers
  - Analyze Layer – Logging/Monitoring/Analytics
  - Secrets Layer
  - Config Layer
- Container/Image/Build Layer
  - Deployment Strategies
- Sustainability Strategies
- Network Layers
- Compliance Strategies
- Security Strategies...

## Q&A

If not, share your experience

#john-deere

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<https://www.deere.com/en/technology-products/precision-ag-technology/>



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