

Smart Farm on AWS Architecture

Smart Farm on AWS



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Smart Farm on AWS: Smart Farm on AWS Architecture

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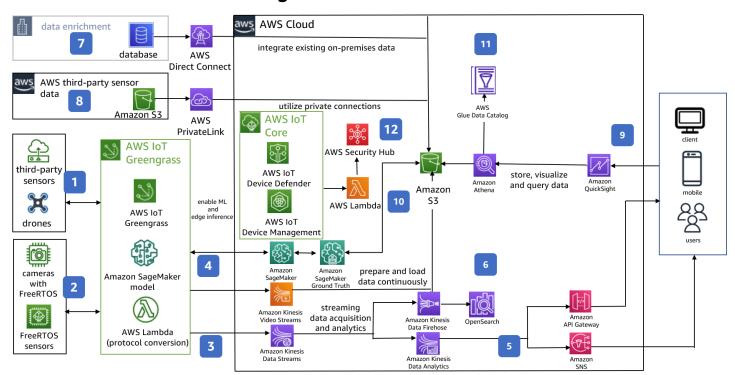
Smart Farm on Amazon Web Services

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This Connected Farm reference architecture enables sensors, computer vision, and edge inference in agriculture by focusing on ensuring scalability, elasticity, and a responsiveness for each operation's growing and changing needs.

Smart Farm on Amazon Web Services Diagram

Reference Architecture Diagram



- 1. Third-party sensors or drones not using **FreeRTOS** send data through **AWS Lambda** for protocol conversion.
- 2. Sensors or cameras running **FreeRTOS** send data to **AWS IoT Greengrass**, providing protection from intermittent connectivity.
- 3. AWS IoT Greengrass streams enable ingestion from edge devices to Kinesis Data Streams.
- 4. Use real-time video via **Amazon Kinesis Video Streams** for streaming and replay of video content.

- 5. Derive real-time insights with **Amazon Managed Service for Apache Flink** and notify users via **Amazon Simple Notification Service**.
- Enable analytics with OpenSearch and use Amazon Simple Storage Service for a data lake strategy.
- 7. Transfer owned data, like planting records or farm finances, securely into your data lake with **AWS Direct Connect**.
- 8. Securely consume data from a sensor ecosystem hosted on AWS with AWS PrivateLink.
- 9. Empower users with insights delivered via **Amazon API Gateway** or visualizations with **QuickSight**.
- 10Build and deploy machine learning (ML) models for edge inference with **Amazon SageMaker AI**. Use **Amazon SageMaker Ground Truth** to manage data labeling workflow.
- 11Each time a new file is written into **Amazon S3**, **AWS Glue crawler** crawls the data to infer the schema and make it available into the **AWS Glue Data Catalog**. **Amazon Athena** does ondemand querying.
- 12Use a **Lambda** function that imports the **AWS IoT Device Defender** reports into **AWS Security Hub** to centralize incident response.

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Sign up for an AWS account. New accounts include 12 months of <u>AWS Free Tier</u> access, including the use of Amazon EC2, Amazon S3, and Amazon DynamoDB.

Further reading

For additional information, refer to

- AWS Architecture Icons
- AWS Architecture Center
- AWS Well-Architected

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Diagram history

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Description Change Date

Reference architecture **Initial publication** October 24, 2022

diagram first published.



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Diagram history