



Architecture Diagrams

Electro-Optical Imagery Reference Architecture



Electro-Optical Imagery Reference Architecture: Architecture Diagrams

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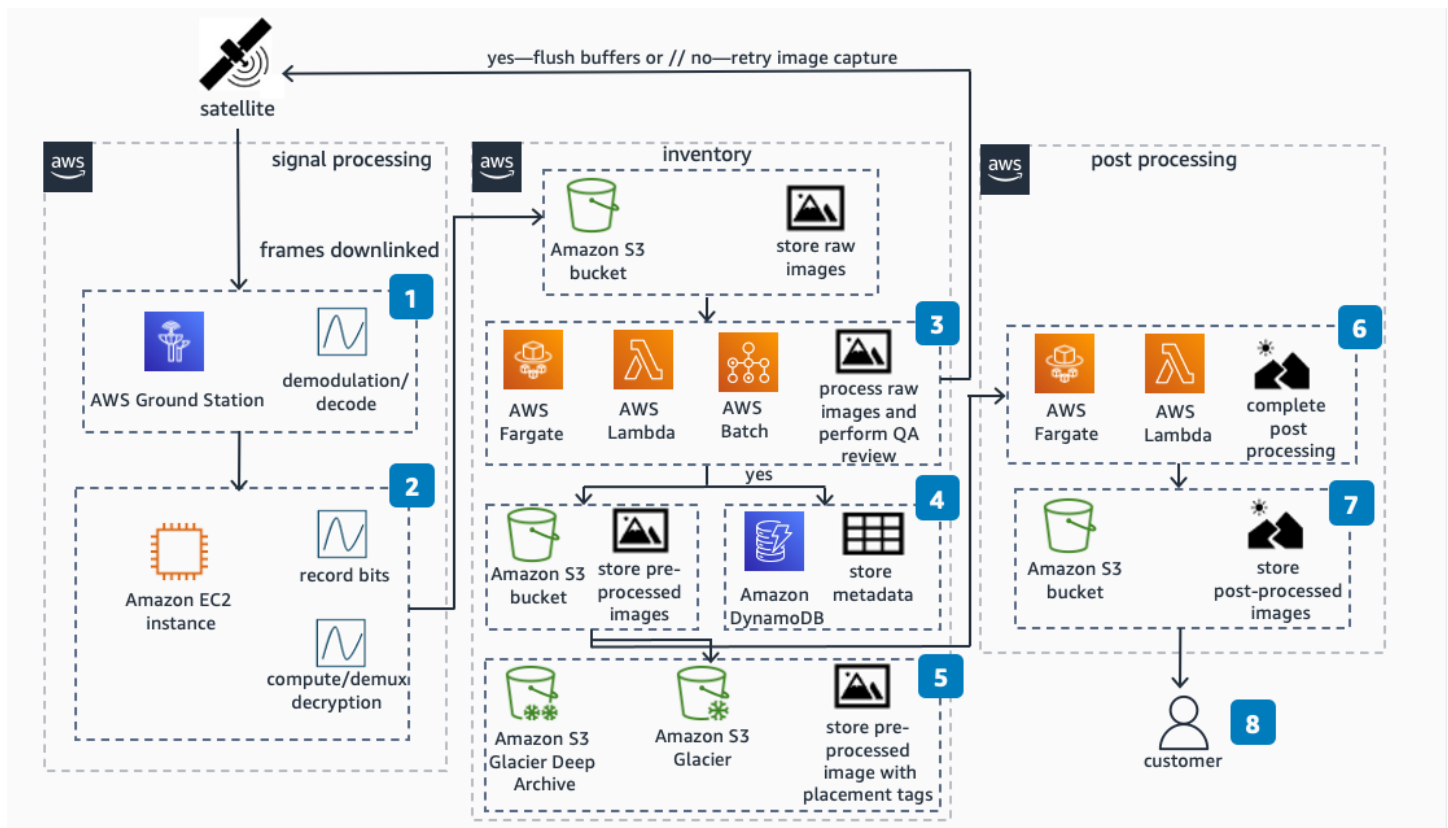
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Electro-Optical Imagery on AWS

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This diagram demonstrates how to extract, process, and store electro-optical satellite imagery by using AWS.

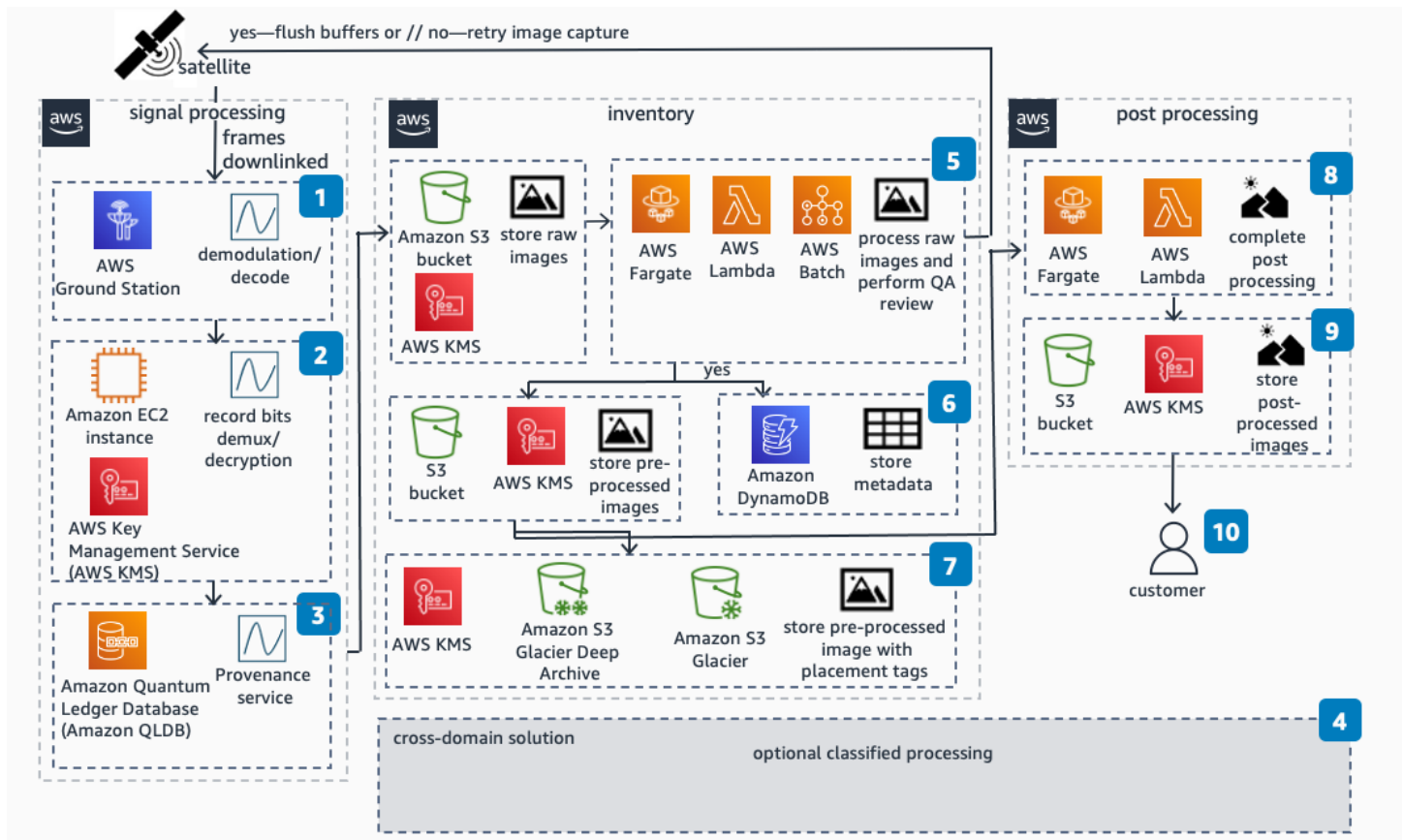
Electro-Optical Imagery on AWS Diagram 1



1. Demodulate and decode: Extract baseband waveform from modulated carrier; remove forward error correction.
2. Convert into raw sensor data: Decommutate signal frames; decrypt data.
3. Process raw images and perform QA review.
 - QA review: Confirm Images are sufficient for processing.
 - **AWS Batch:** Run multiple jobs in parallel.
 - **AWS Fargate and AWS Lambda:**
 - Sensor correction: Apply corrections for optical distortions.

- Orthorectify: Sensor perspective.
 - Georeference: Apply image to spatial grid and assign known coordinate system.
 - Generate thumbnails: Create post-processed thumbnails for customer purchase.
4. Store metadata: Store information on latitude/longitude collection, Region collection, time and date of retrieval.
 5. Storage: Store preprocessed images in a variety of **Amazon Simple Storage Service** (Amazon S3) services by balancing cost savings and time of retrieval
 6. Post processing and analysis: Complete imagery processing.
 - Feature extraction: Identify features in images (such as ships).
 - Naming/tagging of features: Tag features by name or identification system.
 - Time series creation: Tag images to sort by time.
 7. Storage and dissemination: Final storage of images and analytics for end customer.
 8. Customer delivery: Deliver final images to end customers.

Electro-Optical Imagery on AWS Diagram 2: Classified Processing



1. Demodulate and decode: Extract baseband waveform from modulated carrier; remove forward error correction.
2. Convert into raw sensor data: Decommutate signal frames; decrypt data.
3. Immutable transaction log: Cryptographically establish provenance and fidelity.
4. Optional classified processing: Throughout the image processing, move data to the appropriate regions for classified processing.
5. Process raw images: Process raw images and perform QA review:
 - QA Review: Confirm Images are sufficient for processing
 - **AWS Batch**: Run multiple jobs in parallel.
 - **AWS Fargate and AWS Lambda**:
 - Sensor correction: Apply corrections for optical distortions.
 - Orthorectify: Sensor perspective.

- Georeference: Apply image to spatial grid and assign known coordinate system.
 - Generate thumbnails: Create post-processed thumbnails for customer purchase.
6. Store metadata: Store information on latitude/longitude collection, Region collection, time, and date of retrieval.
 7. Storage: Store preprocessed images in a variety of Amazon S3 services by balancing cost savings and time of retrieval.
 8. Post processing and analysis: Complete imagery processing.
 - Feature extraction: Identify features in images (such as ships).
 - Naming/tagging of features: Tag features by name/identification system.
 - Time series creation: Tag images to sort by time.
 9. Storage and dissemination: Final storage of images and analytics for end customer.
 10. Customer delivery: Deliver final images to end customers.

Further reading

For additional information, refer to

- [AWS Architecture Icons](#)
- [AWS Architecture Center](#)
- [AWS Well-Architected](#)

Diagram history

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