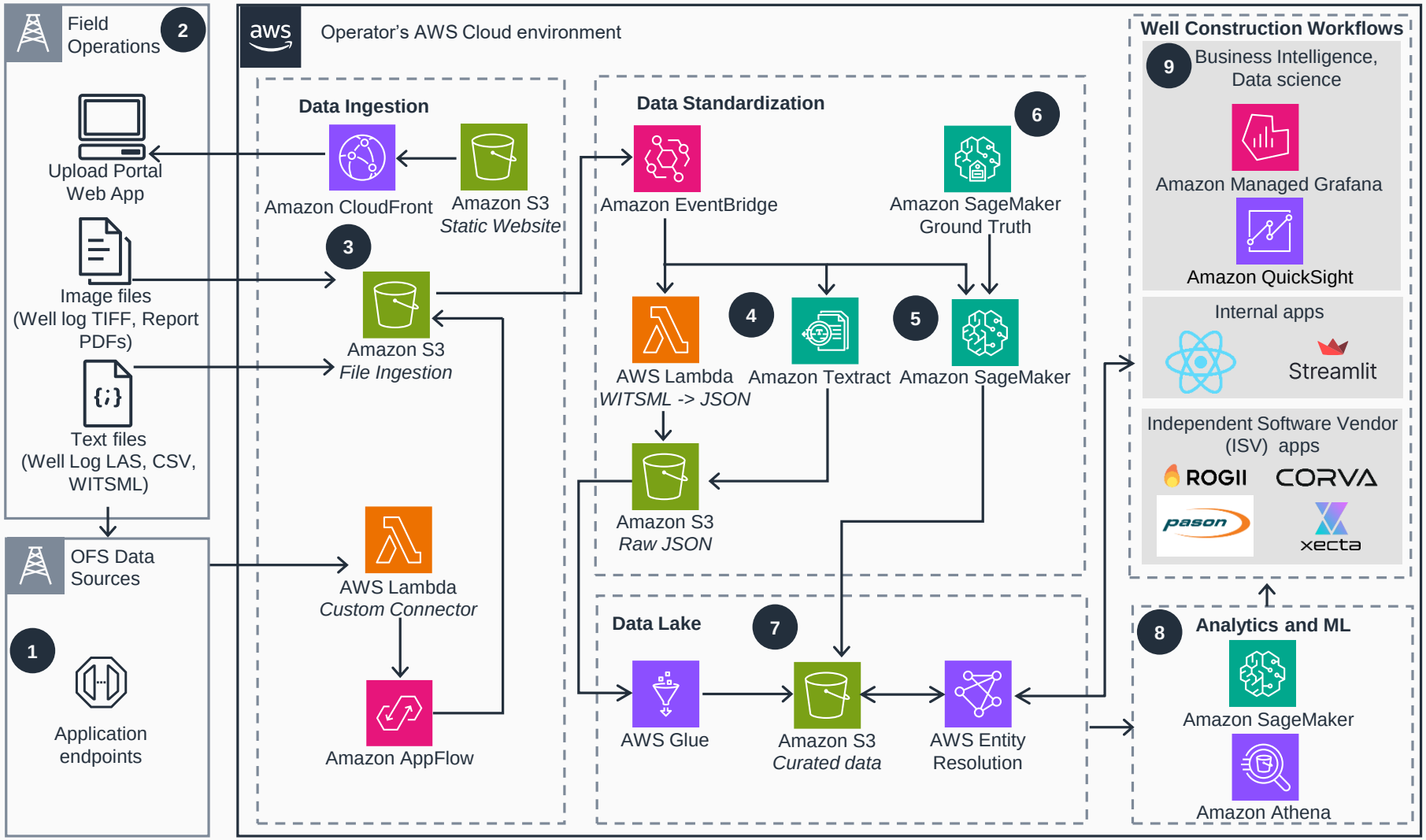
Guidance for Well Construction Operator Analytics on AWS

This architecture diagram shows how to ingest, store, and process operational data in a single environment, even if the data stems from various service providers. It helps you to monitor and analyze your operations and improve construction efficiency. Steps 1-7 are outlined here. For more on Steps 8-9, See the next slide.



1. Operators consume data and services from many oilfield equipment and services (OFS) companies. **Amazon AppFlow** automates data flows from applications to **Amazon Simple Storage Service (Amazon S3).** Deploy data connectors from the AWS Marketplace, or build custom connectors using **AWS Lambda**.

2. Field Personal can upload files, such as well-site information transfer standard markup language (WITSML) and PDFs, through a secure upload portal delivered through **Amazon CloudFront**. Route files to custom data extraction pipelines.

3. Store raw data in **Amazon S3** to preserve the data in the original format. **Amazon EventBridge** initiates customizable data processing tasks.

4. Integrate WITSML data into downstream machine learning (ML) applications by **Lambda** to transform it into the JSON format.

5. **Amazon Textract** extracts text, handwriting, data tables, and form information from image files.

6. Build user-friendly custom PDF data extraction pipelines with **Amazon SageMaker Ground Truth**. Its capabilities include identifying relevant sections of text. **Amazon SageMaker** training models extract that information at scale.

7. Store curated data in your data lake. **AWS Glue** defines schemas to enable applications to make SQL queries on the data. **AWS Lake Formation** manages the data lake with fine-grained governance and access control features. **AWS Entity Resolution** optimizes record matching and standardizes data formats.

Reviewed for technical accuracy November 17, 2023

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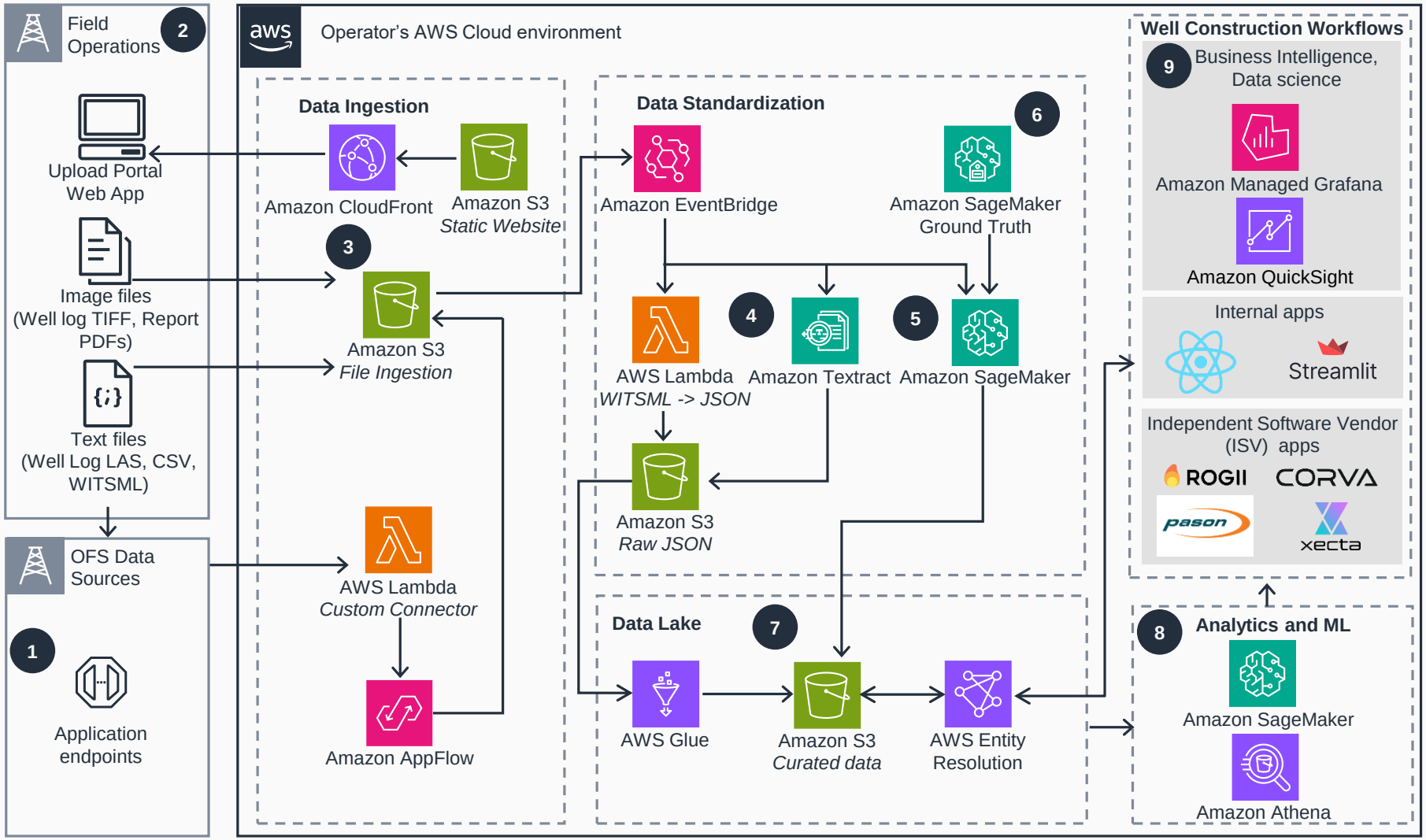
Steps 8-9



8 **Amazon Athena** runs specialized queries to analyze drilling data. **SageMaker** optimizes operations using machine learning.

9 The results of well construction data can be leveraged by your internal applications. For example, **Amazon Managed Grafana** or **Amazon QuickSight** for business intelligence, or web apps built with React or Streamlit. External applications for analytics (Rogii), dashboarding (Corva) and drilling optimization (Xecta and IVAAP) can also be integrated.

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