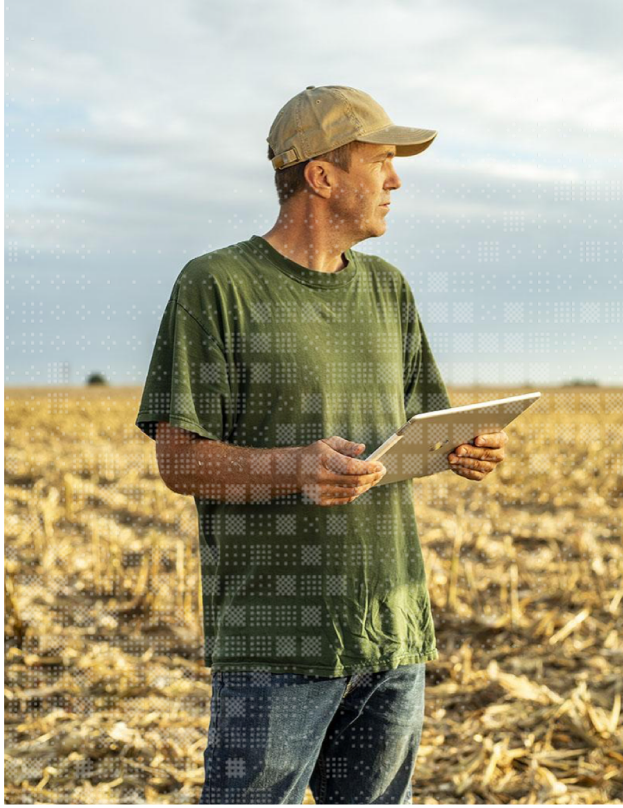
How Climate Grew Its Data Science Capabilities 10x in 2 Years



CLIMATE FIELDVIEW™

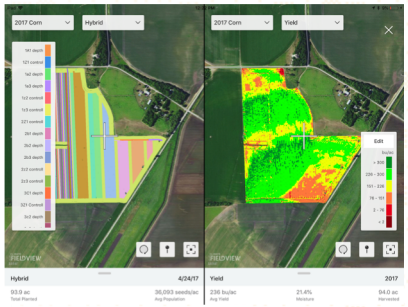
What does the The Climate Corporation do?

- Digital tools to help the world's farmers understand their fields in ways never possible before

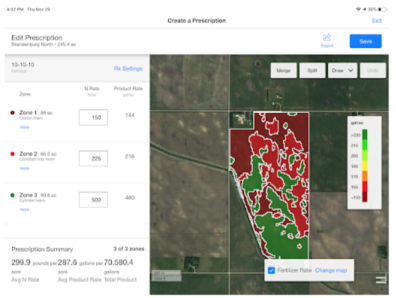
Data Connectivity

Data Visualization

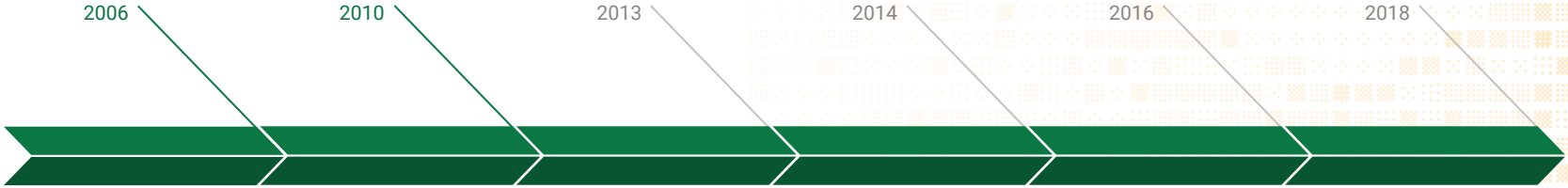
Data Analysis



Recommendations



A brief history of The Climate Corporation



2006

Founded as Weatherbill

Primary goal of the company was to provide weather insurance to ski resorts and farmers

2010

Total Weather Insurance Product

Changed to focus on agriculture, product was launched for corn/ soybeans

2013

Acquired by the Monsanto Corporation

Merged with Monsanto's Integrated Farming System and Precision Planting divisions

2014

Climate Basic & Pro launched

Set of advisory tools for farmers utilizing data science

2016

Climate as a Platform

Data connectivity agreements with several Ag retailers

2018

Monsanto Acquired by Bayer

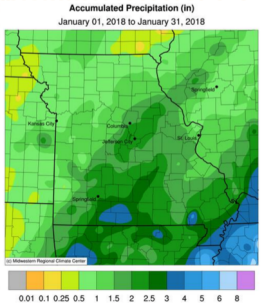
Climate FieldView™ is the defacto Digital Platform for all enterprise operations

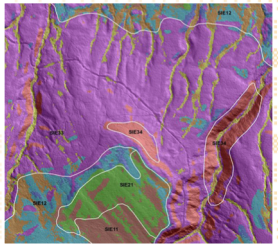
Data Science challenges

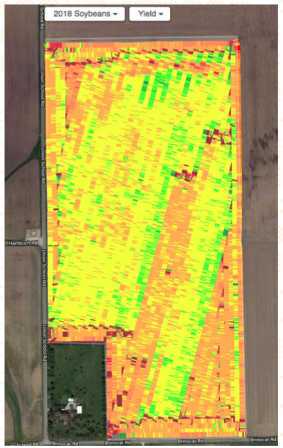
- Recommendation for nitrogen
- Predict best hybrid for a farmer's field
- Predict Yield based on imagery

Agronomic Data

- Public Datasets
  - NASS (Elevation)
  - SSurgo (Soil)
  - Weather (NOAA)
- Internal Grower Data sets
  - Machine Data
  - Machine information
- Enterprise Datasets
  - Research farm data

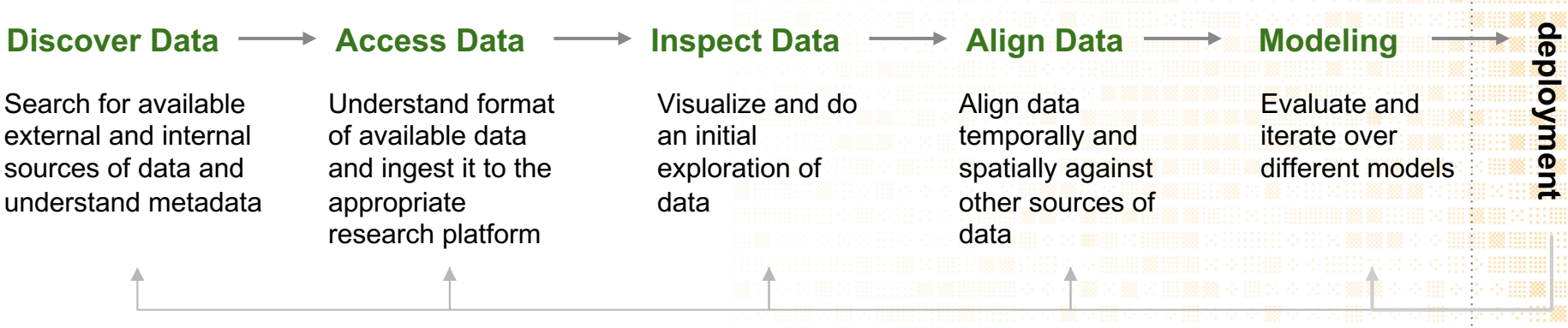






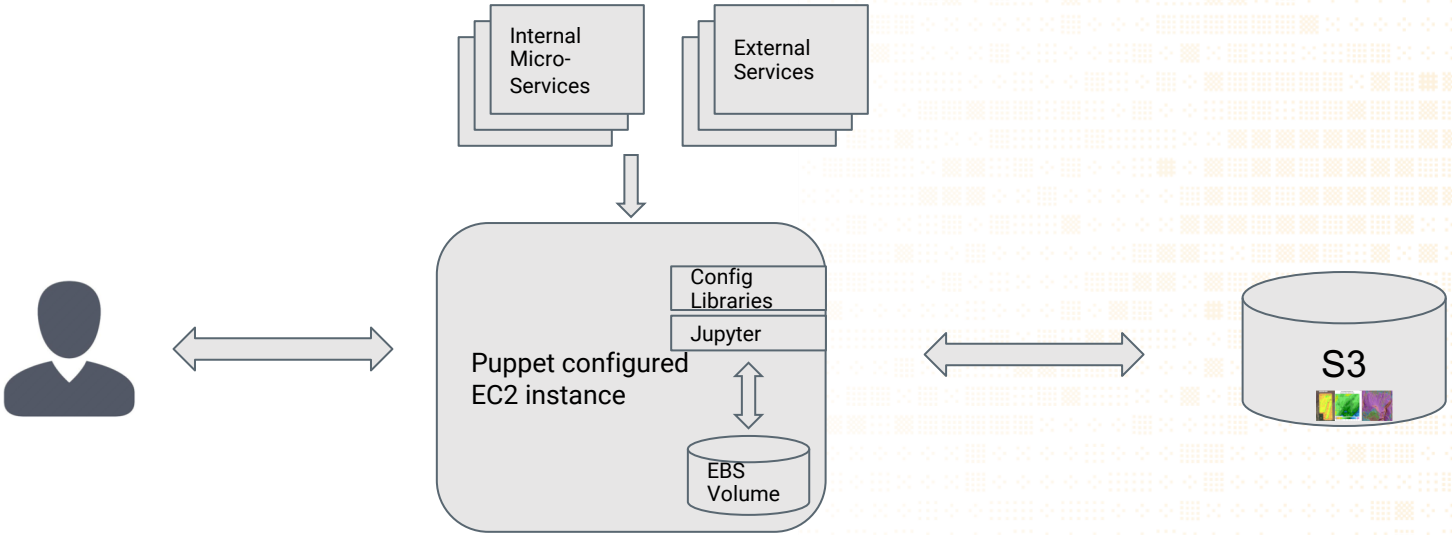
Accelerating data scientist workflow

Data Science Researcher Workflow

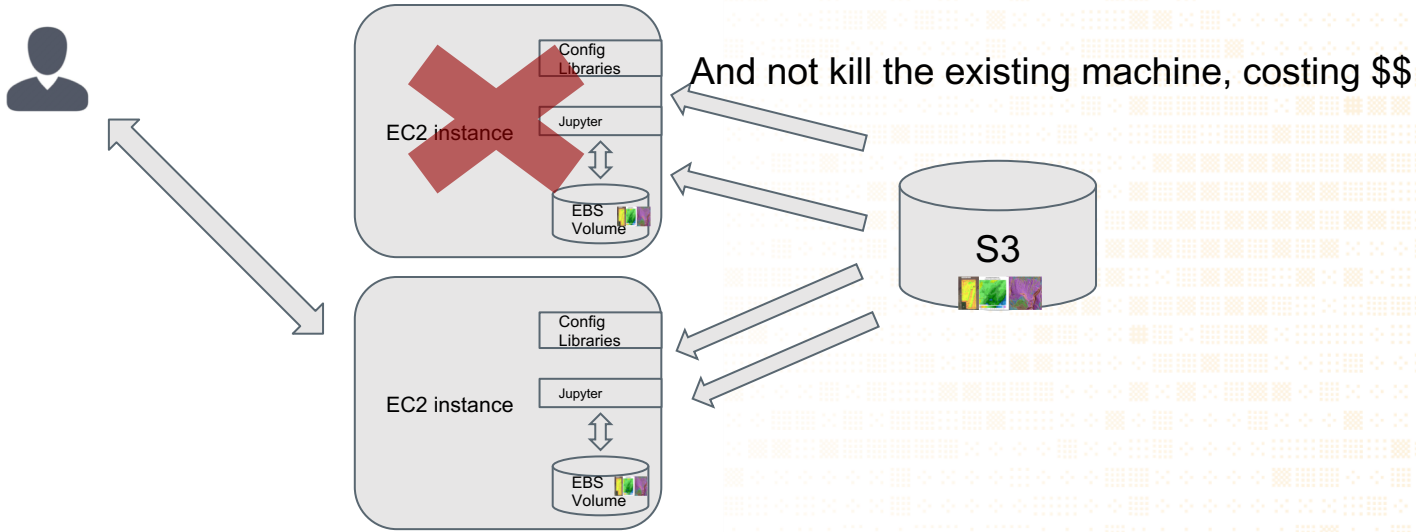


Data Scientists spend 80% of their time in data discovery and data alignment

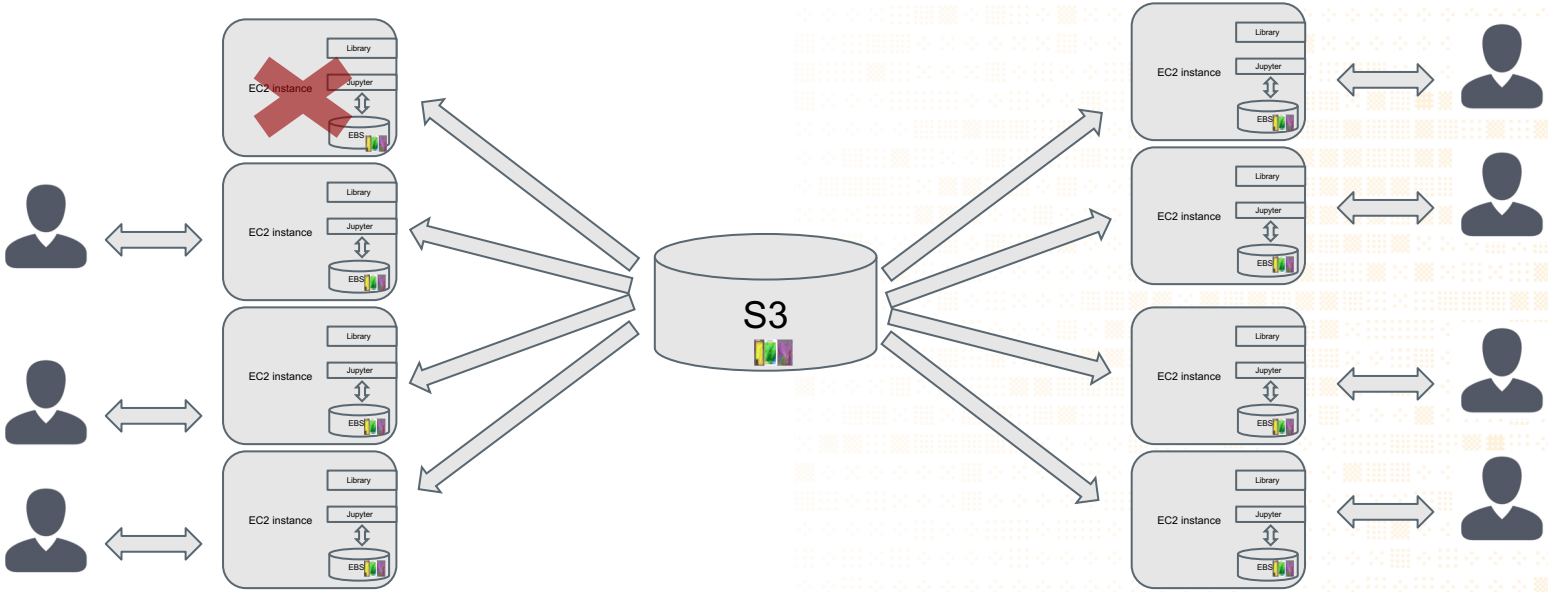
Where we were when we started ...



Sometimes users had to get a new instance ...



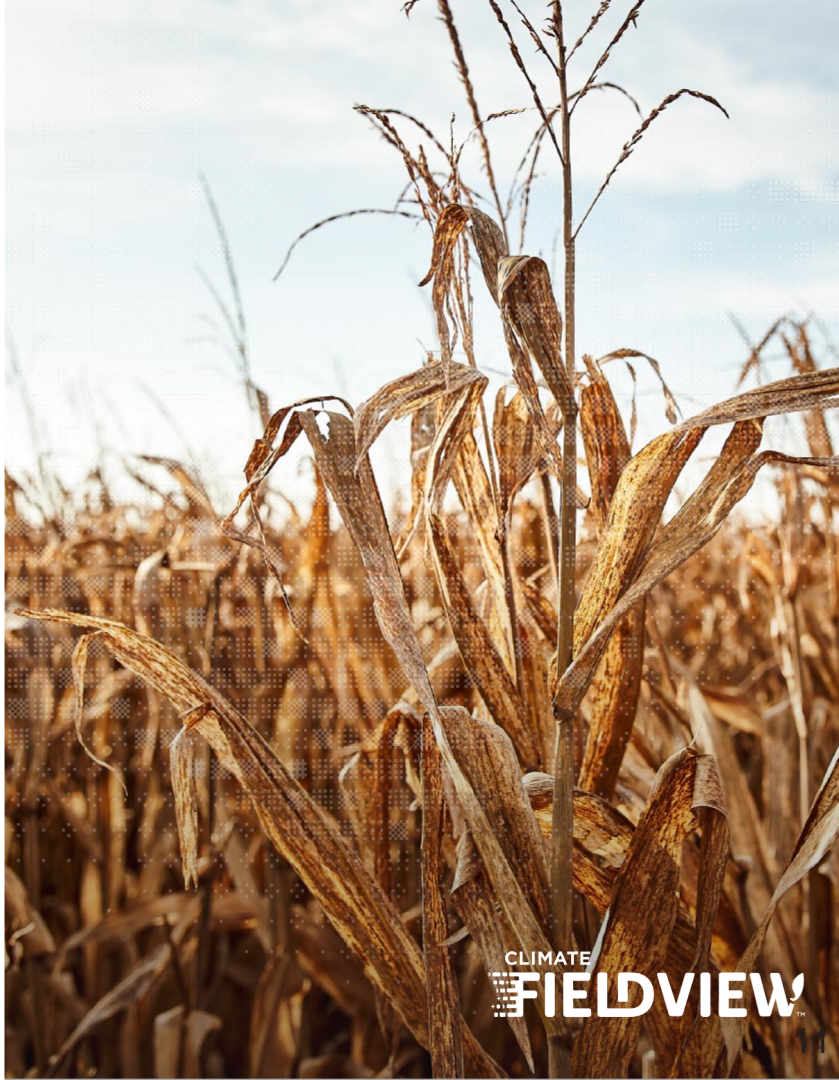
Eventually it became unmanageable...



Evolution of the Climate data science platform

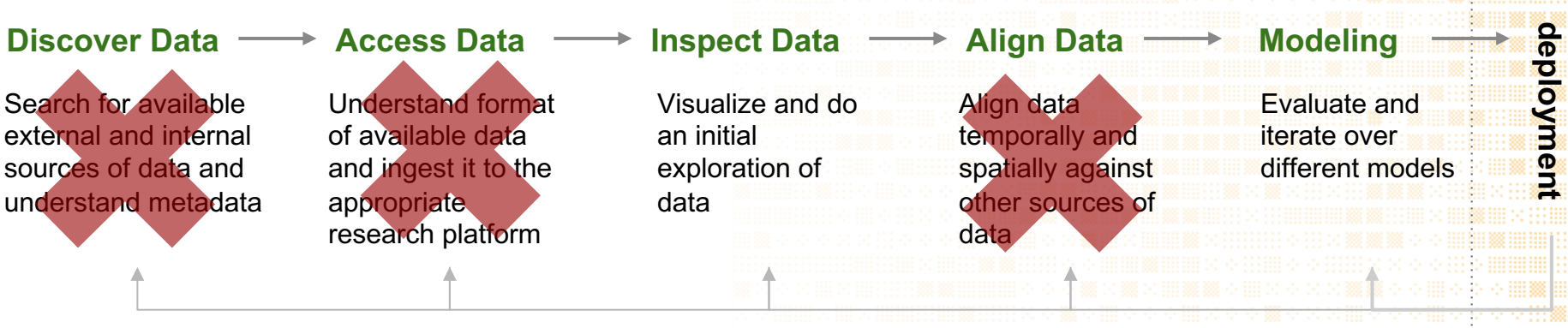
- Problems to address
  - Too much time spent on discovering/ accessing/ aligning data
  - Lost time due to configuration of servers
  - No concept of user groups/ organizations to manage resources
  - Inefficient use of resources (dedicated instances)
  - Reduced capability to share notebooks with other researchers

Evolution of the Climate Science Data Lake



Accelerating data scientist workflow

Data Science Researcher Workflow



Data Scientists spend 80% of their time ~~in data discovery and data alignment~~* inspecting data and modeling

Climate Science Data Lake

Siloed Product Data Sources

External Data

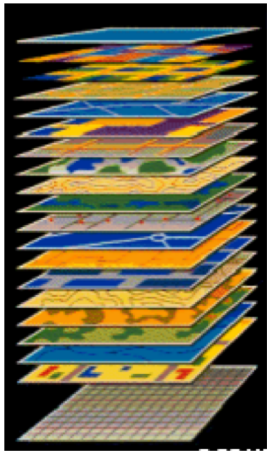
- Soil Data
- Weather
- Elevation Data

Internal Data

- Machine sensor data
- Users
- Fields
- Rx Zones
- Nitrogen Management

Consolidated Scalable Data & Analytics Research Platform

Ingest
Clean
Standardize
Grid
Integrate

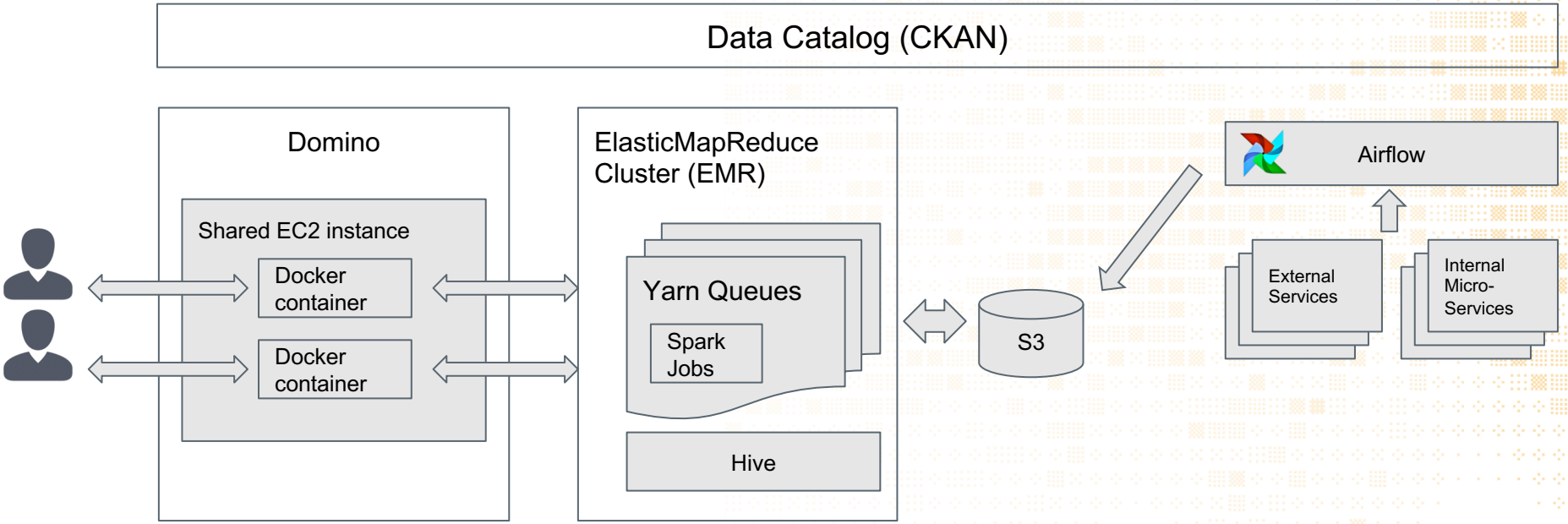


- Scalable Machine Learning
- Scalable Data Visualization
- Rapid Research Prototyping Framework
- Derived Data Layers

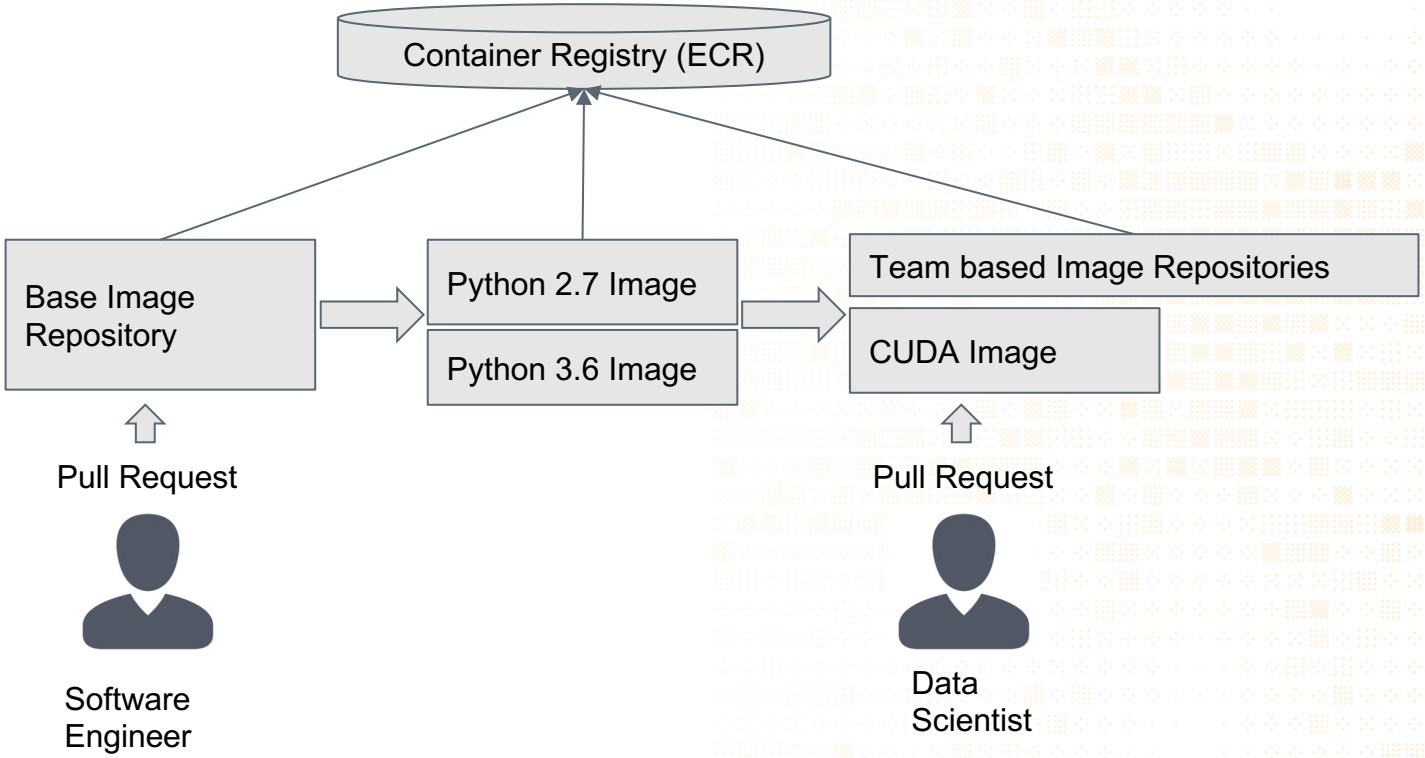
Yield & Grower Insights

Planting Management
Fertility Management
Pest & Disease Management
Tiling Practices
Irrigation Practices
Benchmark growers

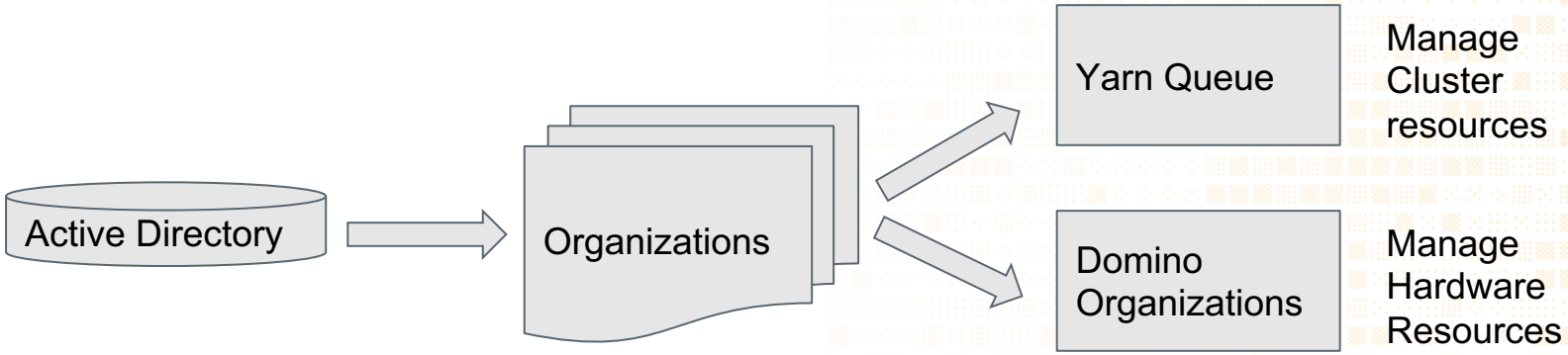
Where we are now



Using Docker/Jenkins to automate the build process



Organizing our users



Next Steps in our evolution

- Model platform
  - Training Deep learning models
  - Integration with Sagemaker

Thank You

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