**What is Anomaly Detection**

* Definition of anomaly detection
* Bigeye’s definition of anomaly detection

**Alternatives to Anomaly Detection**

Manual thresholds

Formulaic Thresholds

**Why is Anomaly Detection Critical for Data Observability**

* What are scenarios where manually set rules don't work?
  + When you have more than 10 metrics, becomes impossible to set them all by hand
* What are scenarios where simpler anomaly detection methods (e.g. standard deviations) don't work?
  + Comparing the current data point to the mean/standard deviation of a certain lookback window
    - Commonly used by engineering teams because it’s the simplest thing to do
  + Doesn’t work if you have data that goes through phases, or data where the current value has some association/correlation with the previous value because businesses make changes incrementally, and make a change that will create a huge jump – rolled out
* What are scenarios where advanced anomaly detection like Bigeye has created can catch things that would otherwise be missed and would have been expensive problems?
  + Slow degradation – a metric that trends downwards or upwards
  + Over time, it’s a problem because the average profits quarter over quarter is trending down; you don’t get an alert
  + Bigeye offers a way that understands trends and seasonality
  + If there’s a huge jump in the data, it can progress the history and the pattern by looking at user feedback
* How can anomaly detection be extended to a proactive mode?
  + Before I do anything for machine learning, I have to determine that the data is good, for example – how many missing values, any problematic values; if I’m expecting any numeric columns, and see strings/letters in the columns, patterns/trends/ seasonality
  + The graphs available in Bigeye can supercharge data analysis to understand how much data to pull, which data column to review, etc.

**Summarize the benefits of anomaly detection for data observability**

* Accurate Detection
* Intelligent Adaptation
* Continuous Improvement

**Anomaly Detection helps you do data observability at scale**

* Manual can still be done within the app
* In practice, if you were a data scientist or engineer, you don’t want to spend hours and hours re-tuning everything