



INNOVATE2018

ONLINE CONFERENCE



Detect Anomalies in Your Data with Amazon SageMaker (Level 300)

Will Badr, Senior Technical Account Manager

Agenda

- Why Anomaly Detection?
- What Is Anomaly?
- Ways to detect anomalies.
- An overview about Random Cut Forest Algorithm.
- Demo

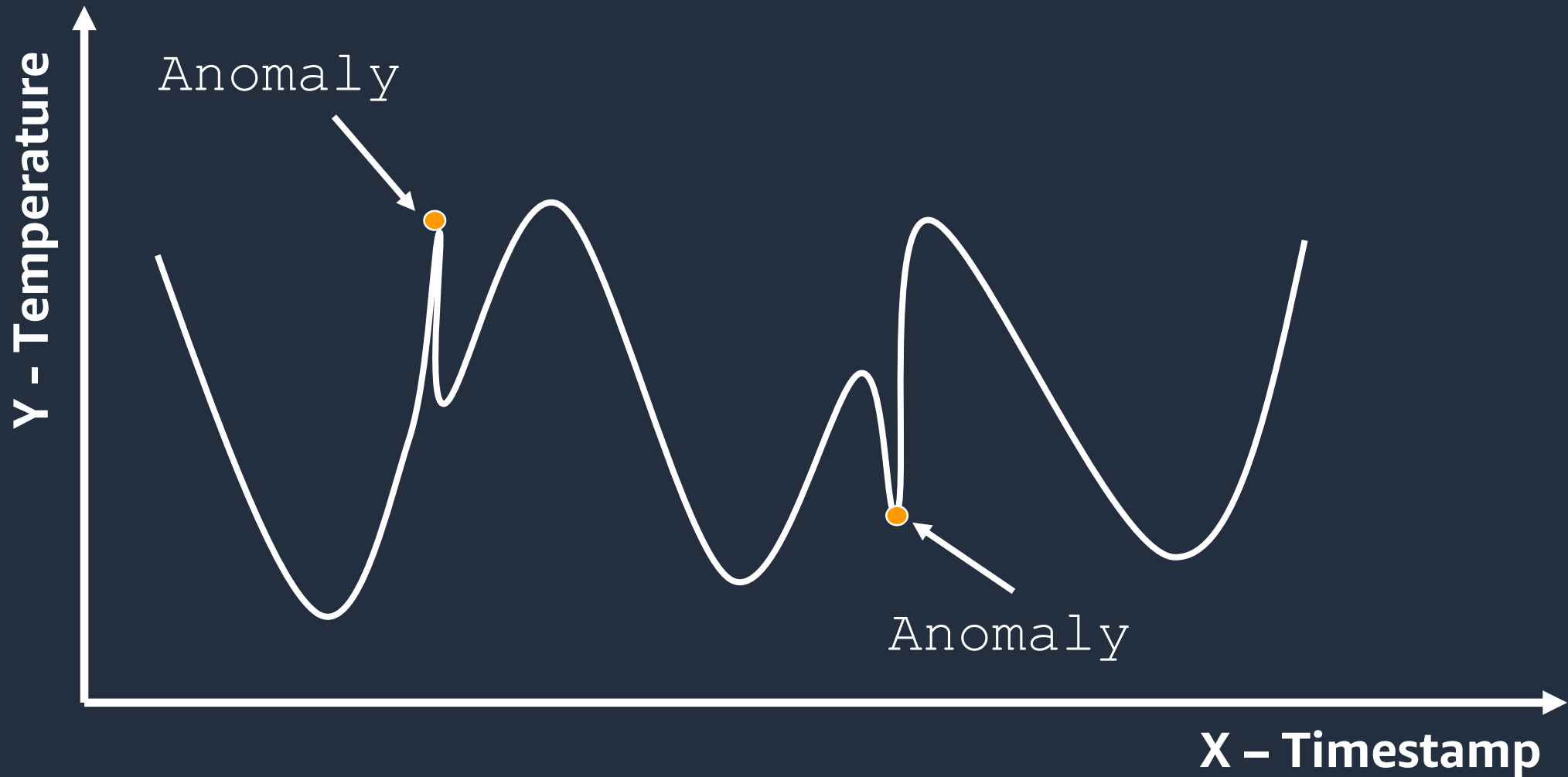
Why Anomaly Detection?



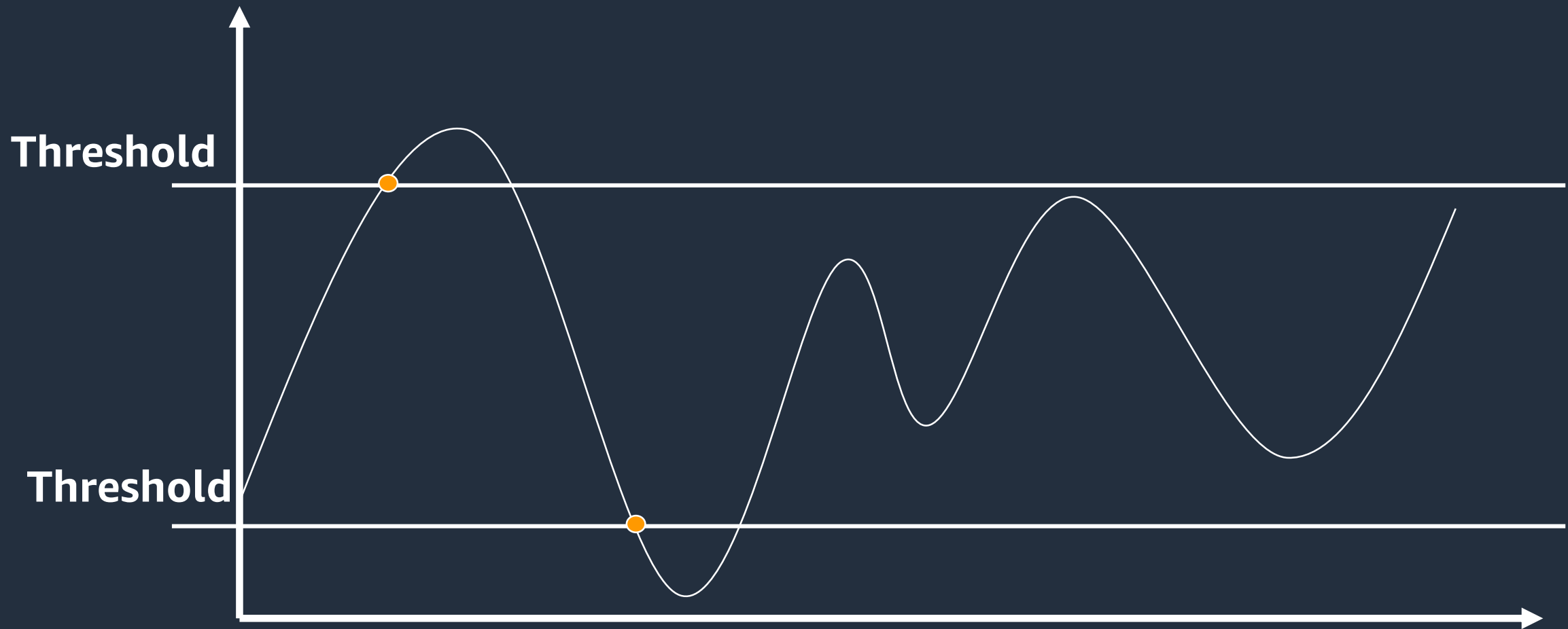
What is Anomaly?

An *anomaly* is an observation that diverges from otherwise well-structured data.

What is Anomaly?



Detecting Anomalies:



Amazon SageMaker

A **fully managed service** that enables **data scientists** and **developers** to quickly and easily **build** machine-learning based models **into production** smart applications.



End-to-End Machine
Learning Platform



In-Built ML
Algorithms



Flexible Model
Training



Pay by the
second

SageMaker's Built-in Algorithms

K-means Clustering

PCA

Neural Topic Modelling

Factorisation Machines

Linear Learner – Regression

XGBoost

Random Cut Forest

Latent Dirichlet Allocation

Image Classification

Seq2Seq

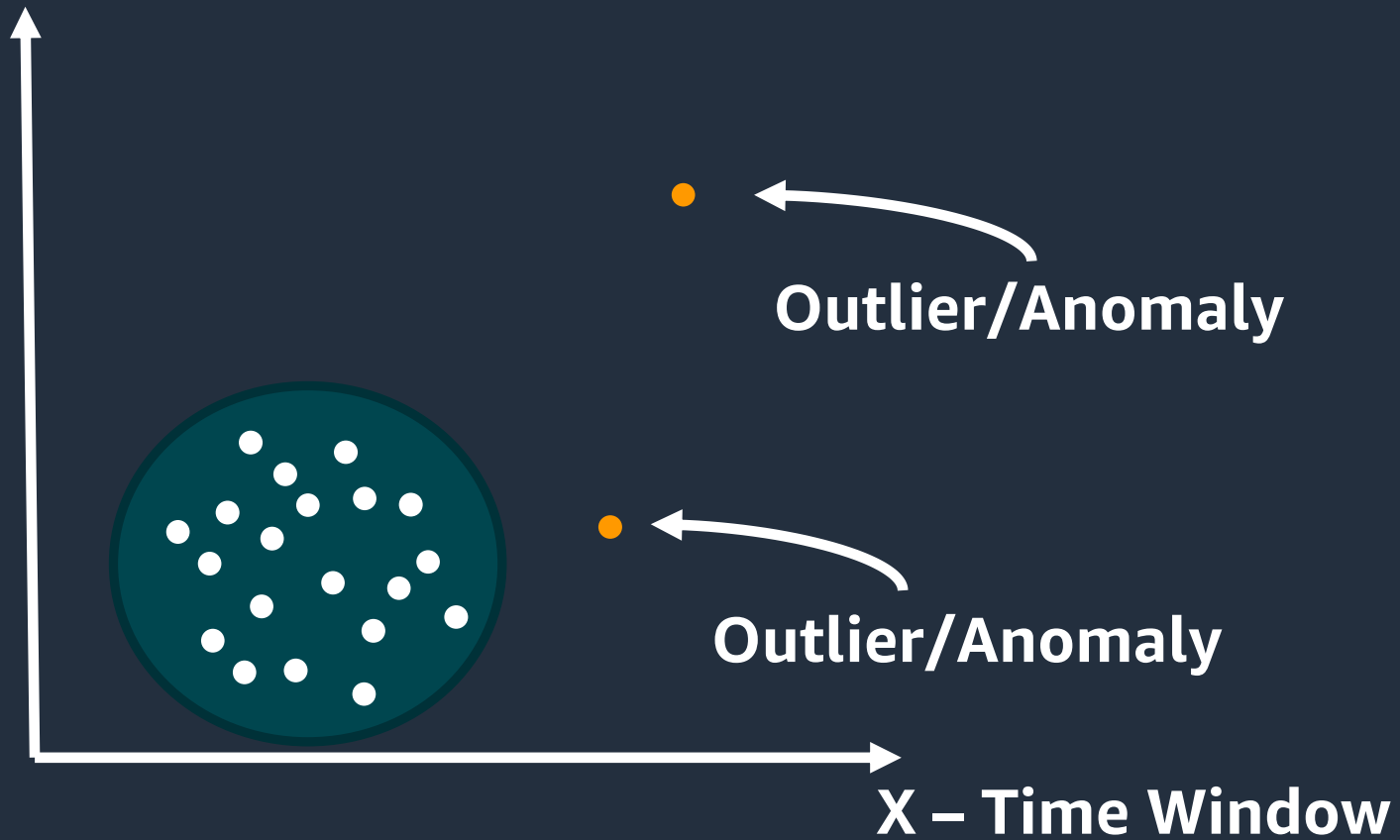
Linear Learner

Binary Classification

DeepAR Forecasting

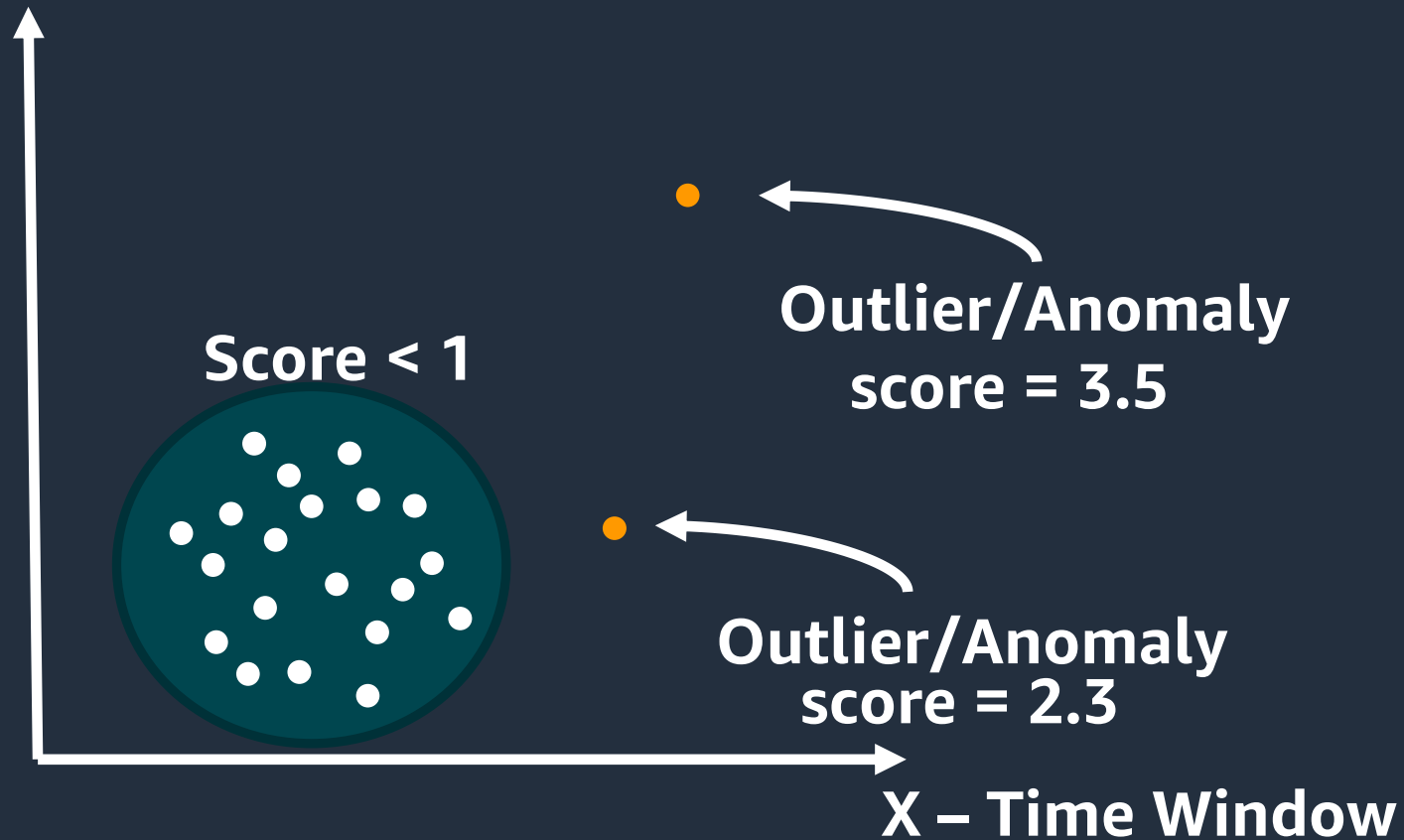
Random Cut Forest Algorithm

Y - Temperature



Random Cut Forest Algorithm

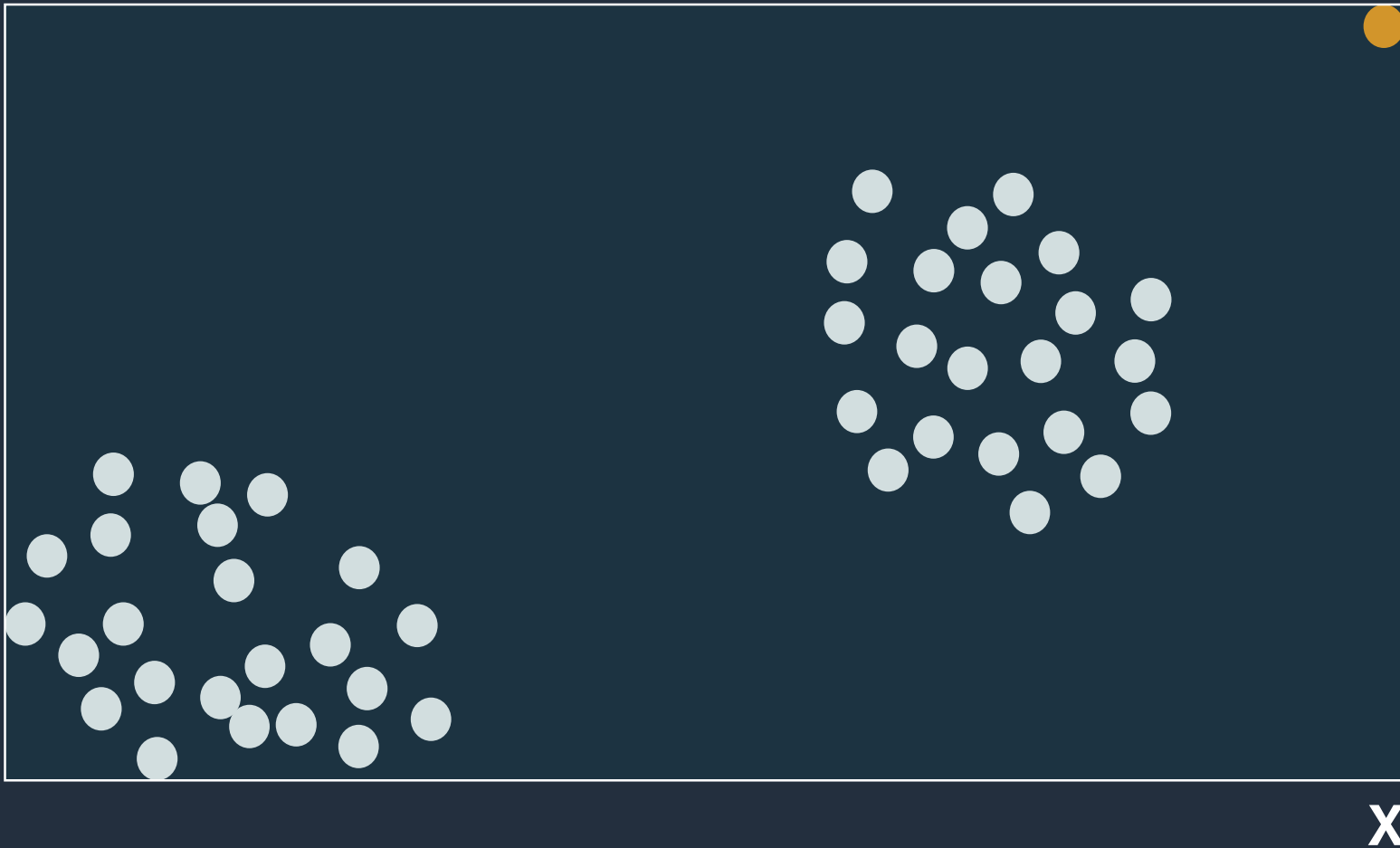
Y - Temperature



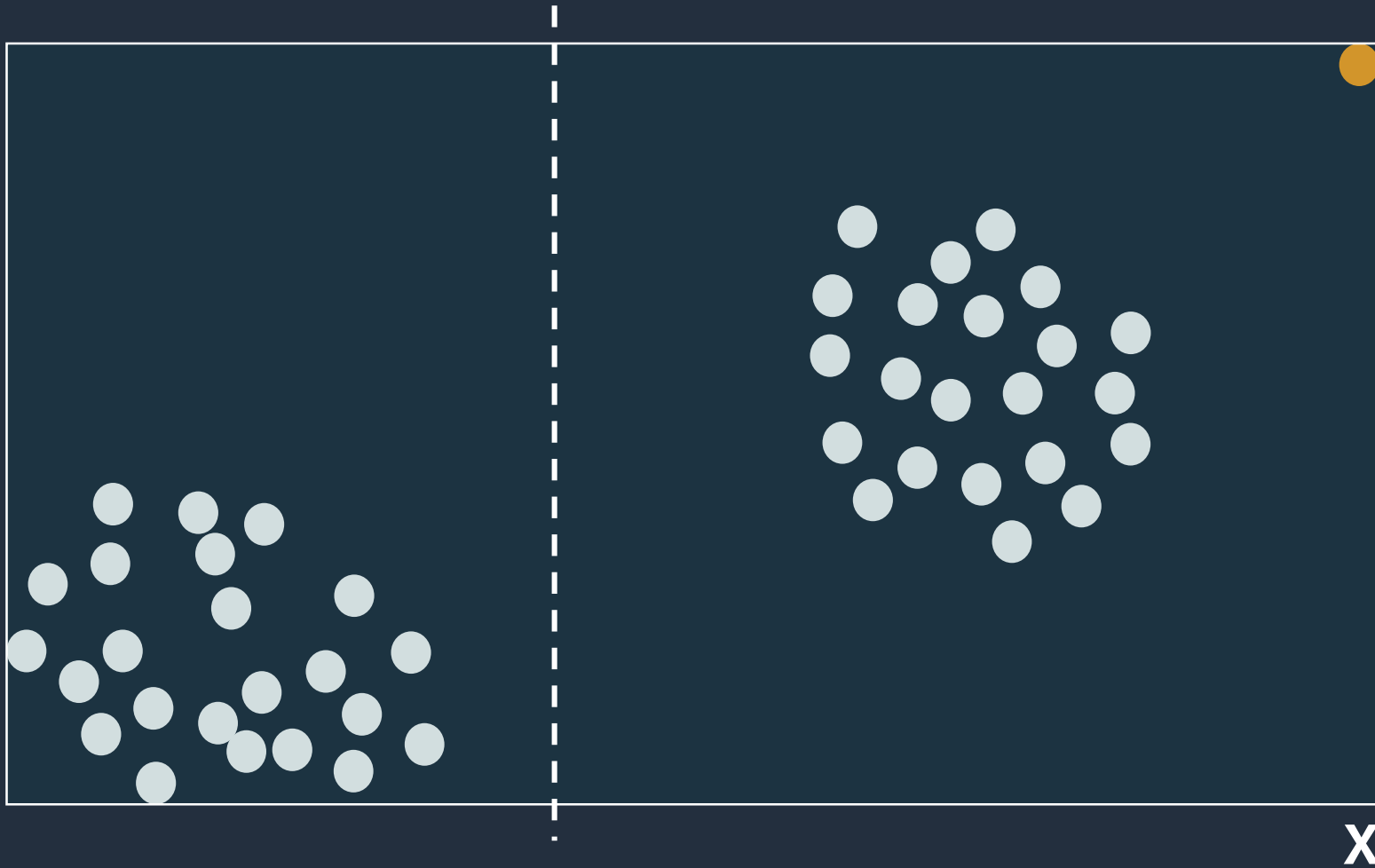
Random Cut Forest Algorithm: How Does It Work?



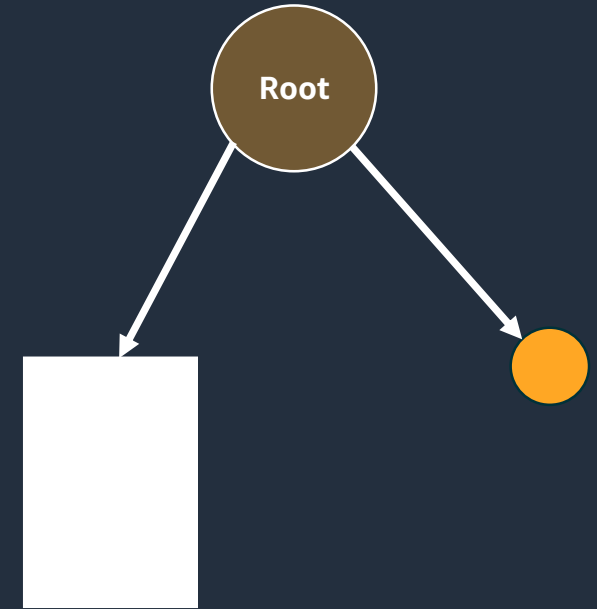
Random Cut Forest Algorithm: How Does It Work?



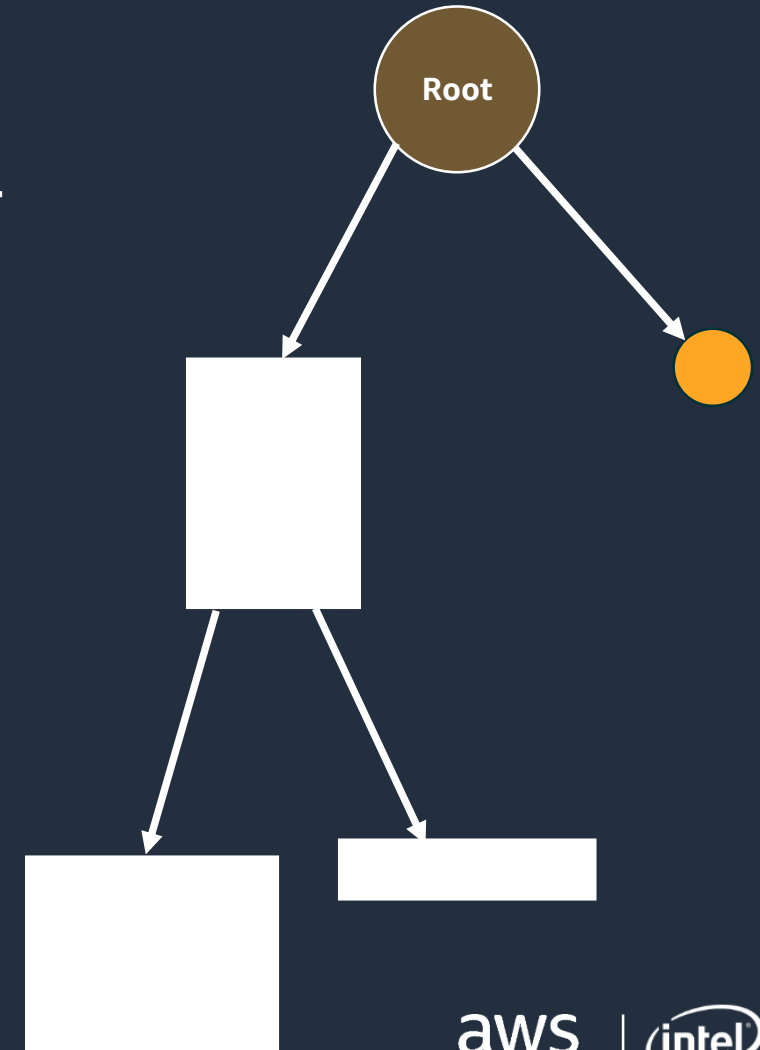
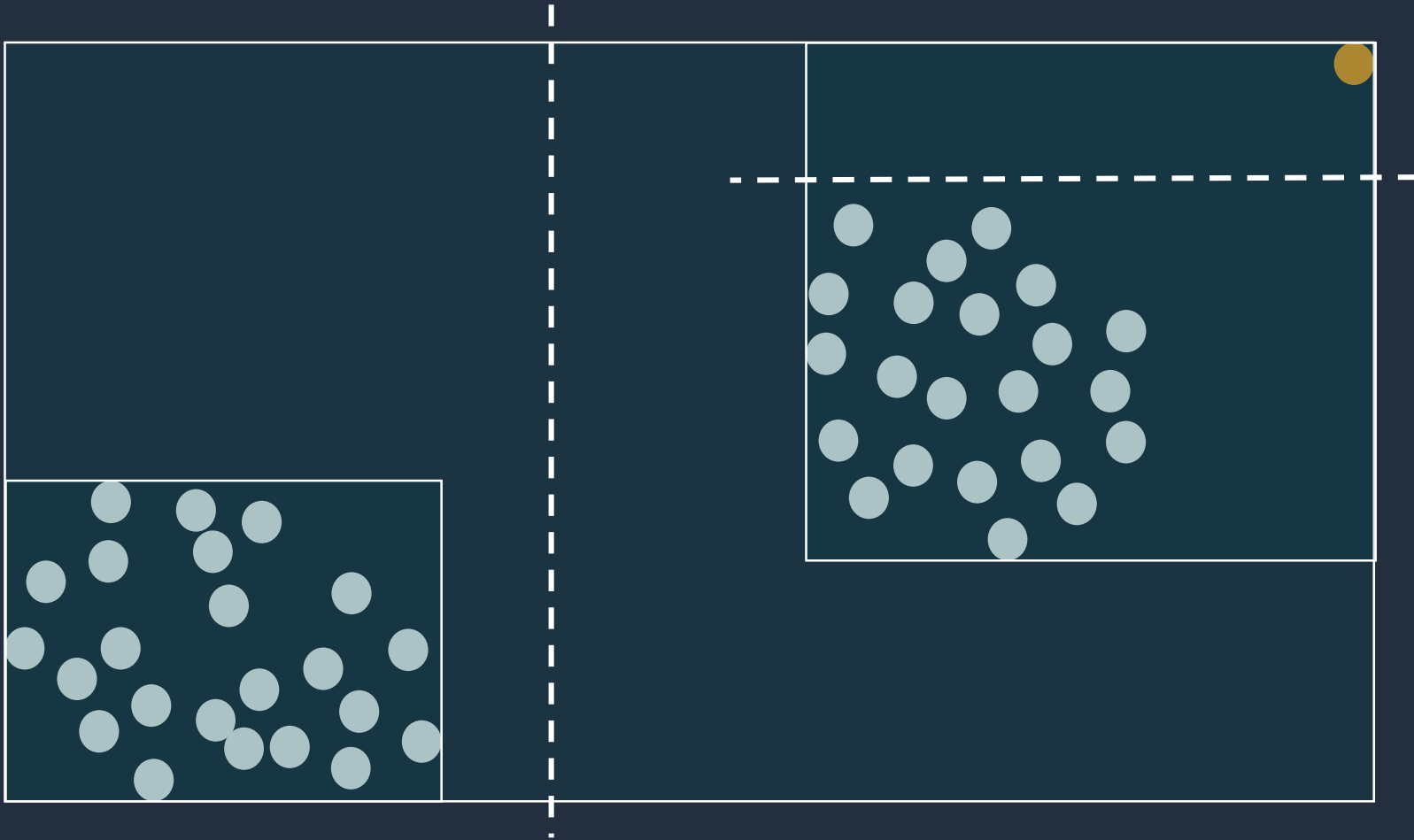
Random Cut Forest Algorithm: How Does It Work?



Range-biased Cut



Random Cut Forest Algorithm: How Does It Work?



RCF Research Paper

"Robust random cut forest based anomaly detection on streams."

By: Sudipto Guha, Nina Mishra, Gourav Roy, and Okke Schrijvers

Demo

Summary



Business outcome



Cost Effective



Deliver Result

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