**Player Churn Prediction and Retention**

Use machine learning to predict player churn and trigger retention actions

Use Amazon SageMaker to build, train, and deploy a churn prediction model for batch or real-time inference.

1. The mobile client sends player events via the Game Analytics Pipeline to an Amazon Simple Storage Service (Amazon S3) bucket.

2. AWS Glue transforms and marks players as ACTIVE, INACTIVE, or CHURN for data scientists.

3. Data scientists prepare player data, test algorithms, and build a model with 10% of the dataset.

4. Data scientists launch model training on 80% of the dataset and store the model in Amazon S3. The remaining 20% are used to test the model accuracy.

5. The mobile client asks which in-game player retention action should be triggered (display promotional offer, give coins, give items, and so on).

6a. Batch Inference:
A periodic AWS Glue job triggers a batch transformation job on the entire dataset, and copies the results in a player profile table in Amazon DynamoDB.

6b. Real-Time Inference:
The AWS Lambda function checks the player profile churn prediction and chooses the most appropriate retention action.

7. The AWS Lambda function checks the player profile, and evaluates churn probability on the fly from the Amazon SageMaker endpoint to choose the most appropriate retention action to display.