**Executive Summary**

In the past twenty years, global media consumption has been revolutionized. The proliferation of high-speed internet connectivity and accelerating pace of technological development in computing has shifted the landscape of media consumption from limited conent broadcast-based television and radio to on-demand streaming services that have access to an increasingly vast amount content. With this shift in media delivery can content availability, new players have arisen in the industry that are competing with traditional media delivery networks. In order to expand their market share, provide differentiation, and facilitate their end users’ ability to access these huge content catalogs, media streaming companies have increasingly focused on improving their end users’ experience. A key aspect of this focus is to facilitate their users’ ability to find relevant and interesting content and many have invested heavily on recommender systems in order to match users with relevant content. This project will explore the practical aspects of media recommender systems, provide a machine learning based prototype, and identify key aspects for future consideration of similar technologies.

**Solution & Approach**

Leveraging Amazon’s serverless solutions, the prototype recommender engine makes user-specific content recommendations based on genre, keyword, and purchase history. As depicted in the Architecture Diagram below, the recommender engine uses Lambda functions to parse recommendation requests from a web-based user interface and Amazon’s Machine Learning platform, SageMaker, to conduct statistical based Neural Topic Model (NTM) and index-based K-Nearest Neighbor (k-NN) algorithms, the recommendation engine enables connects users with relevant content from the associated content catalog. The sample data sets that are used to build, train, test, and deploy the prototype recommender system are publicly available at Kaggle.com and include metadata on more than 45,000 movies and 270,000 users.

**Architecture Diagram**

