Amazon Web Services (AWS) is a cloud computing service provider that offers scalable, reliable, and affordable services over the public internet.

Innovative Solutions, an Amazon Web Services (AWS) Premier Tier Services partner, specializes in leveraging cutting-edge AWS AI and machine learning (ML) services to enhance customer experience and operational efficiency across various industries.

Humach is a privately held complete CX solutions provider for companies seeking exceptional customer experiences. It uses a unique blend of humans and machines to deliver faster responses, consistency across digital and human interactions, infinite scale, and best-in-market customer experiences.

This case study explores the Large Language Model technology from AWS Bedrock utilized by Humach in an AWS hosted cloud architecture. This architecture started with a base Tailwinds framework created by AWS Premier Tier partner Innovative Solutions. Humach's vision of an AI enabled Live Agent Assist & Digital Voice Agent aimed at transforming customer experience (CX) operations through real-time AI insights and AI driven customer business knowledge. The Tailwinds AI frameworks helped to accelerate the development and implementation of their AI solutions.

Business Objectives
Humach aimed to achieve several key objectives through this partnership:
- Enhance the customer experience (CX) for digital and live interactions using existing client generated content.
- Select and utilize from a variety of Large Language Models (LLM) as needed for processing client content and custom prompts
- Empower all interactions, both Live and Digital, with Custom Language Models (CLM) trained on existing client content.
- Secure each customer CLM within an isolated environment with no external access to train with non-customer content virtually eliminating corruption and hallucinations.
- Implement these solutions within a short timeframe to quickly extend current operational processes, enhance customer satisfaction, improve agent efficiency, and maintain their lead of innovation in their space.

The Challenge
Humach was looking to extend and improve their CX operations, primarily by adding real-time insights of customer interactions, as well as enhancing their digital agent layer to handle repetitive customer requests and empower customer self-service, enabling Humach agents to handle more complex customer interactions leading to higher job satisfaction, longer agent tenure, and an overall better customer experience. Customer self-service in a time of a global services shortage were key challenges for Humach in their efforts to prevent undesirable call experiences and customer dissatisfaction.
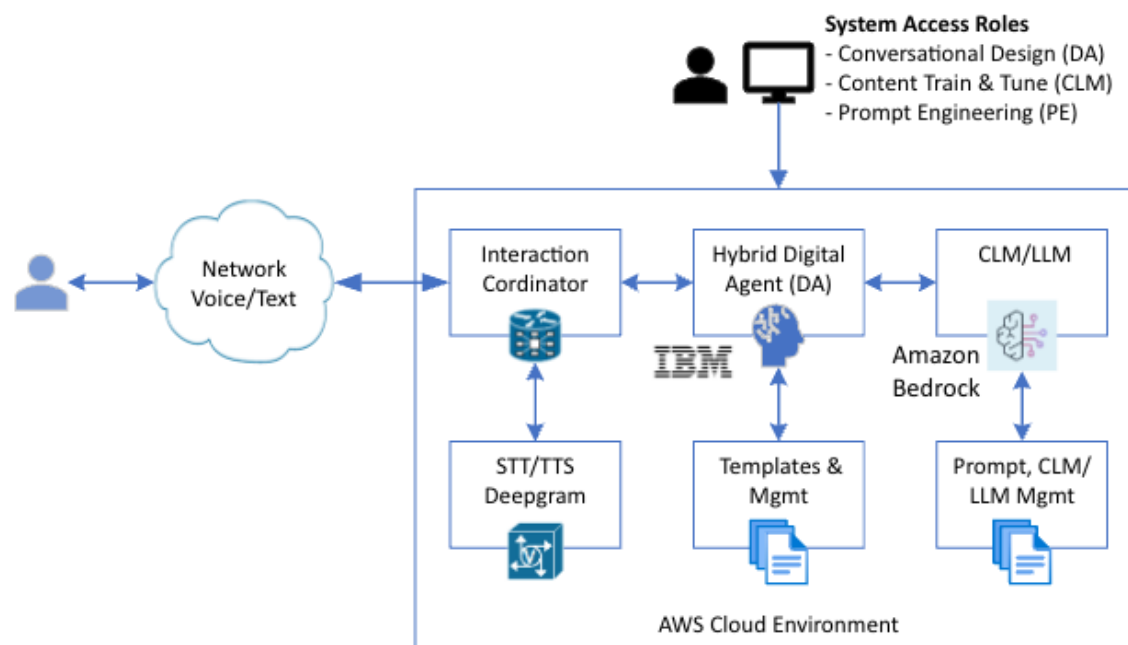
The Solution
Based on detailed requirements Humach and Innovative Solutions developed the Digital Voice Agent and custom CLM platform. These projects utilized AWS's Bedrock, a robust AI/ML and Generative AI service, providing access to a variety of LLMs for use with a Humach provided client CLM delivering

advanced capabilities to extend Humach's existing mAI Pilot platform.

CLMs for Live and Digital Agents

The project developed a CLM framework to facilitate Humach-specific and customer-specific interactions. This solution was implemented using watsonx Assistant on AWS with STT/TTS capabilities provided by Deepgram and hosted in AWS EC2 instances, ensuring additional security, low latency, and high scalability along with human sounding voices, meeting Humach's requirements. Client content which is ingested via Weaviate's indexing engine also hosted on AWS, allowed queries from both the digital voice agent or a live agent to provide a prompt driven response from the Large Language Model in AWS Bedrock. API based access to AWS Bedrock allowed for the flexibility to leverage any selected model needed to support Humach clients.

Figure 1. High Level Arch of Humach Solution

Transforming the Customer Experience

The completed solution utilizing AWS hosted cloud services and AWS Bedrock has elevated Humach's customer experience by:

- Enhancing the scalability and flexibility of CX operations to adapt to future needs.
- The creation of extensible AI CLMs and prompts to assist Live and Digital agents to enhance customer experiences. Reducing the time and resources needed to address customer issues, thereby improving overall operational efficiency and customer satisfaction.
- Ability to utilize the CLM capabilities in digital and live agent scenarios.

Key Results

By implementing these solutions, Humach has achieved:

- Enhanced customer satisfaction through expansive self-service knowledge
- Increased efficiency of 15-20% via optimization of customer language model responses
- Increased automation of ~20% of calls through customer adoption of automation
- Increased scalability and system efficiencies through technologies hosted in a single cloud
- Extensible platform and footprint to support future enhancements and global growth

Generative AI Is a Valuable Tool for Solving Operational Challenges

The partnership between AWS and Humach exemplifies how two innovative companies have come together to utilize Generative AI to enhance customer experience. For more information or to explore how GenAI solutions can be tailored to your specific business needs, contact Amazon Web Services (AWS). To explore how to enhance customer experience using AI and digital transformation for your business contact Humach.