AI and Machine Learning

**AI Building Blocks**

**AutoML**: AutoML is a machine learning product suite that enables developers with limited machine learning expertise to provide their data sets and obtain access to quality trained models produced by Google's transfer learning and Neural Architecture Search (Google's technology for finding, generating, evaluating, and training numerous neural architectures to automatically select a solution for the customer's application):

* **AutoML Natural Language**: AutoML Natural Language enables customers to categorize input text into their own custom defined labels (supervised classification). Users can customize models to their own domain or use case.
* **AutoML Tables**: AutoML Tables enables your entire team of data scientists, analysts, and developers to automatically build and deploy state-of-the-art machine learning models on structured data at increased speed and scale.
* **AutoML Translation**: AutoML Translation is a simple and scalable translation solution that allows businesses and developers with limited machine learning expertise to customize the Google Neural Machine Translation (GNMT) model for their own domain or use-case.
* **AutoML Video**: AutoML Video is a simple and flexible machine learning service that lets businesses and developers easily train custom and scalable video models for their own domain or use cases.
* **AutoML Vision**: AutoML Vision is a simple and flexible machine learning service that lets businesses and developers with limited machine learning expertise train custom and scalable vision models for their own use cases.

**Cloud Natural Language API**: Cloud Natural Language API provides powerful natural language understanding as an easy to use API. This API enables application developers to answer the following questions: 1) What are the entities referred to in the block of text?; 2) What is the sentiment (positive or negative) for this block of text?; 3) What is the language of this block of text?; and 4) What is the syntax for this block of text (including parts of speech and dependency trees)? Users can call this API by passing in a block of text or by referring to a document in Cloud Storage.

**Cloud Translation (including Cloud Translation v2 or any subsequent general availability version/release)**: Cloud Translation is a RESTful API that automatically translates text from one language to another language (e.g. French to English). You can use the API to programmatically translate text in your webpages or apps.

**Cloud Vision**: Cloud Vision enables developers to understand the content of an image by encapsulating powerful machine learning models in an easy to use API. It quickly classifies images into thousands of categories (e.g., "sailboat", "lion", "Eiffel Tower"), detects individual objects and faces within images, and finds and reads printed words contained within images. You can build metadata on your image catalog, moderate offensive content, or enable new marketing scenarios through image sentiment analysis. You can also analyze images uploaded in the request and integrate with your image storage on Cloud Storage.

**Contact Center AI (CCAI)**: CCAI is a solution for improving the customer experience in your contact centers using AI. CCAI encompasses Dialogflow Essentials, Dialogflow Customer Experience Edition (CX), Speech-to-Text, and Text-to-Speech, and Speaker ID.

**Contact Center AI Insights:**Contact Center AIInsights helps customers extract value from their contact center data. It provides a console to explore the data, find relevant information and take action on the data. Customers can run advanced analysis within the platform to extract sentiment, topics and highlight key areas from their data.

**Dialogflow Essentials(ES):**Dialogflow is a development suite for voice and text conversational apps including chatbots and voicebots. Dialogflow is cross-platform and can connect to your own apps (on the web, Android, iOS, and IoT) or existing platforms (e.g., Telephony platforms like Genesys, Avaya, Cisco and digital platforms like Actions on Google, Facebook Messenger, Slack). Dialogflow Essentials Edition is a paid enterprise tier of Dialogflow provided under the Google Cloud Platform Terms of Service. (The free tier of Dialogflow (Dialogflow Trial Edition) is not offered via the Google Cloud Platform Terms of Service and is instead provided under the Dialogflow Trial Edition Terms of Service).

**Dialogflow Customer Experience Edition (CX)**: Dialogflow CX is an advanced development suite for creating conversational AI applications including chatbots and voicebots. It includes a visual bot building platform, collaboration and versioning tools, bot modularization tools, advanced IVR feature support (like DTMF, barge-in, etc.), and is optimized for enterprise scale and complexity. Dialogflow CX is cross-platform and can connect to your own apps (on the web, Android, iOS, and IoT) or existing platforms (e.g., telephony platforms like Genesys, Avaya, Cisco and digital platforms). Dialogflow CX is provided under the Google Cloud Platform Terms of Service.

**Document AI**: Document AI classifies and extracts structured data from documents to help discover insights and automate business processes.

* **Human-in-the-Loop AI**: Human-in-the-Loop AI provides a user interface and workflow tools for human verification of data extracted from documents using Document AI.

**Media Translation API**: Media Translation API is a gRPC API that automatically translates audio from one language to another language (e.g., French to English) and supports streaming real time. You can use the API to programmatically translate audio in your apps.

**Speaker ID**: Speaker ID allows customers to enroll user voice prints and later verify users against a previously enrolled voice print.

**Speech-to-Text**: Speech-to-Text allows developers to convert audio to text by applying powerful neural network models in an easy to use API.

**Text-to-Speech**: Text-to-Speech synthesizes human-like speech based on input text in a variety of voices and languages.

**Video Intelligence API**: Video Intelligence API makes videos searchable, and discoverable, by extracting metadata with an easy to use REST API. It quickly annotates videos stored in Cloud Storage, and helps you identify key noun entities of your video and when they occur within the video.

Vertex AI, AI Platform, and Accelerators

**AI Platform Data Labeling**: AI Platform Data Labeling is a service that helps developers obtain high quality data to train and evaluate their machine learning models. It supports labeling for image, video, text, and audio as well as management of all of your labeled data in one place.

**AI Platform Deep Learning Container**: AI Platform Deep Learning Container is a Docker image with the most popular AI frameworks. Machine learning developers and data scientists can customize AI Platform Deep Learning Container and use it with Notebooks, Google Kubernetes Engine (GKE), Vertex AI, Cloud Run, Compute Engine, Kubernetes, and Docker Swarm.

**AI Platform Neural Architecture Search (NAS)**: NAS is a managed service leveraging Google's neural architecture search technology to generate, evaluate, and train numerous model architectures for a customer's application. NAS training services facilitate management of large-scale experiments.

**AI Platform Training and Prediction**: AI Platform Training and Prediction is a managed service that enables you to easily build and use machine learning models. It provides scalable training and prediction services that work on large scale datasets.

**Notebooks**: Notebooks is a managed service that offers an integrated JupyterLab environment in which machine learning developers and data scientists can create instances running JupyterLab that come pre-installed with the latest data science and machine learning frameworks in a single click.

**Vertex AI**: Vertex AI is a service for managing the entire lifecycle of AI and machine learning development. With Vertex AI, you can (i) manage image, video, text, and tabular datasets and associated labels; (ii) build machine learning pipelines to train and evaluate models using Google Cloud algorithms or custom training code; (iii) deploy models for online or batch use cases all on scalable managed infrastructure (including additional discovery points and API endpoints for functionality replacing the legacy services of AI Platform Data Labeling, AI Platform Training and Prediction, AI Platform Neutral Architecture Search (NAS), AutoML Natural Language, AutoML Video, AutoML Vision, and AutoML Tables); (iv) manage your entire data science workflow using Vertex AI Workbench; and (v) create realistic plans to optimize your business with Optimization AI and related functionality.