Fujitsu Data Intelligence Basic
Functional Description

Version 4.0
October 2024
Fujitsu Limited

Preface

Purpose

This document describes the functions provided by Fujitsu Data Intelligence Basic.

Readers

This document explains what Fujitsu Data Intelligence Basic can do for customers who are considering Fujitsu Data Intelligence Basic.

Structure

This document is organized as follows.

Chapter	Contents
Chapter 1 Function Overview	Provides a function overview of Fujitsu Data Intelligence Basic.
Chapter 2 Function Details	Provides function details for Fujitsu Data Intelligence Basic.
Chapter 3 System Requirements	Provides system requirements for using Fujitsu Data Intelligence Basic.

How to read

Refer to Chapter 1 for an overview of Fujitsu Data Intelligence Basic, Chapter 2 for function details, and Chapter 3 for system requirements.

Revision history

Version number	Date	Content
Version 1.0	Sep. 29th, 2023	New (Only Japanese)
Version 2.0	Feb. 29th, 2024	Add new features
Version 3.0	Apr. 26th, 2024	Add new features
Version 4.0	Oct. 31st, 2024	Add new features

Contents

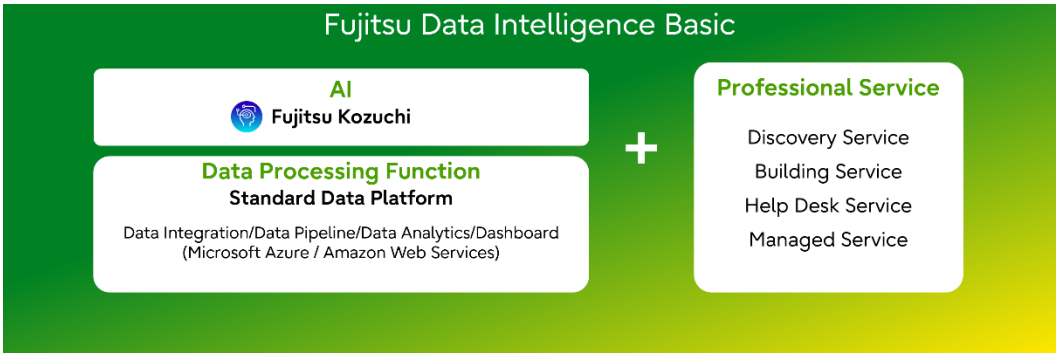
Chapter 1 Feature Overview

This chapter provides a feature overview of Fujitsu Data Intelligence Basic.

1.1 Introduction to Fujitsu Data Intelligence Basic

Fujitsu Data Intelligence Basic provides customers with features as a platform to accelerate data-driven businesses.
This service provides the infrastructure and features necessary for data analytics, enabling customers to make advanced decisions and be data-driven to support business model transformation.

Figure 1.1 Overview of Fujitsu Data Intelligence Basic



1.2 Feature Overview for Fujitsu Data Intelligence Basic

Describes the features provided by Fujitsu Data Intelligence Basic.

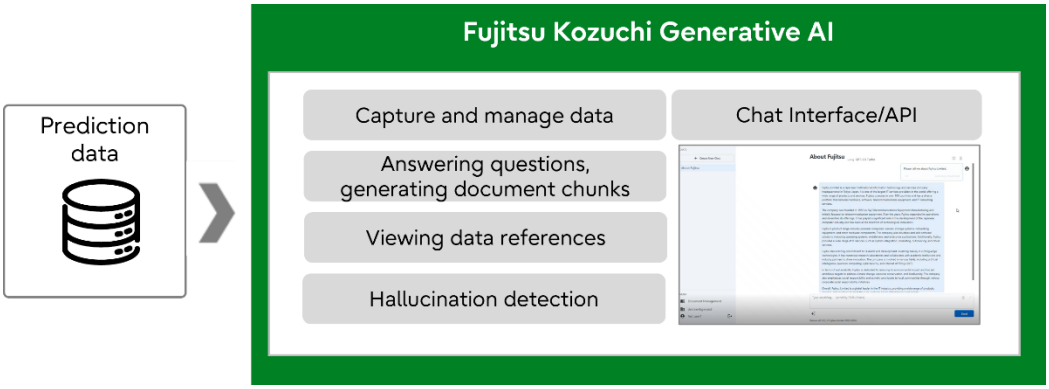
Table 1.1 Features of Fujitsu Data Intelligence Basic

No.	Features	Overview	Providing pattern	
1	Fujitsu Kozuchi Generative AI	It provides the unique conversational generative AI function by using business data. And it make AI answers be stable by checking hallucination. Please refer to 1.2.1 about the provided function.	Environment *Select one	・Microsoft Azure ・REST API
			Connection network *Select one	・Internet ・Internet VPN
			Data Visualization Tools *Select one	・Dedicated Chat Web Application ・None
			Options	-
2	Fujitsu Kozuchi Generative AI (Orchestrator)	It provides Fujitsu Kozuchi Generative AI with orchestrator functions that coordinate Fujitsu Kozuchi Auto ML (No.3) and XAI (Wide Learning) including Causal Inference (No.7). Orchestrated Fujitsu Kozuchi makes answers from prompts through the Chat Interface. Please refer to 1.2.2 about the provided function.	Environment	・Microsoft Azure
			Connection network *Select one	・Internet ・Internet VPN
			Data Visualization Tools	・Dedicated Chat Web Application
			Options	-
3	Fujitsu Kozuchi AutoML	It provides highly accurate AI models that can generates trial-and-error execution programs in a short time by our company's proprietary AutoML technology. Please refer to 1.2.3 about the provided function.	Environment	・REST API
			Connection network	・Virtual Network Connections
			Data Visualization Tools	・None
			Options	-
4	Fujitsu Kozuchi Predictive Analytics (Demand Forecast)	It provides demand forecast and visualization (dashboard) function for SCM. Please refer to 1.2.4 about the provided function.	Environment	・Microsoft Azure
			Connection network	・Internet VPN
			Data Visualization Tools	・Dedicated Web Application
			Options	-
5	Fujitsu Kozuchi Predictive Analytics (IoT)	It provides functions for processing sensor data of IoT devices into a format suitable for analysis and visualization. Please refer to 1.2.5 about the provided function.	Environment	・Microsoft Azure
			Connection network *Select one	・Internet ・Internet VPN
			Data Visualization Tools *Select one	・Microsoft Power BI ・None
			Options	・Time Series Search
6	Fujitsu Kozuchi for Vision	It provides AI-based video analytics for digitalizing human behavior, attribute information and vehicle information. Please refer to 1.2.6 about the provided function.	Environment	・Microsoft Azure
			Connection network *Select one	・Internet ・Internet VPN
			Data Visualization Tools *Select one	・Microsoft Power BI ・None
			Options	-
7	Fujitsu Kozuchi XAI (Wide Learning)	It provides Explainable AI capabilities to logically and objectively understand the calculation process along the way and the basis for the decision. Please refer to 1.2.7 about the provided function.	Environment	・REST API
			Connection network	・Virtual Network Connections
			Data Visualization Tools	・None
			Options	・Causal Inference
8	Standard Data Platform for Microsoft Azure	Standard Data Platform functions on Microsoft Azure. Please refer to 1.2.8 about the provided function.	providing environment	・Amazon Web Services
			Connection network *Select one	・Internet ・Internet VPN
			Data Visualization Tools *Select one	・Microsoft Power BI ・None
			Options	・Time Series Search ・Causal inference ・Multi-tenant
9	Standard Data Platform for Amazon Web Services	Standard Data Platform functions on Amazon Web Services. Please refer to 1.2.8 about the provided function.	Environment	・Amazon Web Services
			Connection network *Select one	・Internet ・Internet VPN
			Data Visualization Tools *Select one	・Tableau Server ・None
			Options	-

1.2.1 Fujitsu Kozuchi Generative AI

It provides the typical Conversational Generative AI capabilities represented by the generic Large Language Model (LLM) and leverage customer data.

Figure 1.2 Overview of Fujitsu Kozuchi Generative AI



■Function List

Fujitsu Kozuchi Generative AI provides the following functions.

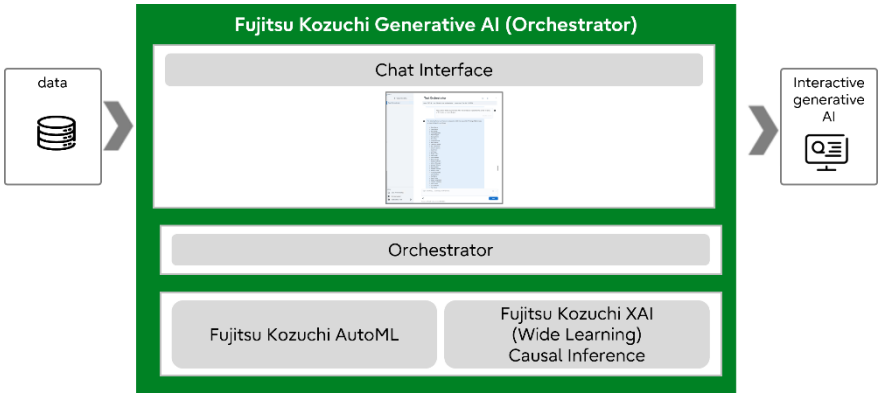
Table 1.2 Functions of Fujitsu Kozuchi Generative AI

No.	Functions	Summary
1	Chat Interface	It provides a web application that links chat history and multiple chats from a conversational interface.
2	API (input)	Setting parameters to run the Generative AI.
3	API (output)	As the response of the API, the Generative AI make the answer.
4	Capture and manage data	You can retrieve and delete data from web applications, link site data by specifying URLs, and group conversation content.
5	Answering questions, generating document chunks	Browse to the content specified by the data retrieval feature and answer questions about the data. Generates document chunks on response.
6	Viewing data references	Displays whether the vectorized data was referenced as intended.
7	Hallucination detection	Detects “plausible errors” in generated AI responses that are not based on data.

1.2.2 Fujitsu Kozuchi Generative AI (Orchestrator)

It provides Fujitsu Kozuchi Generative AI with orchestrator functions that coordinate Fujitsu Kozuchi Auto ML and XAI (Wide Learning) which includes Causal Inference. Orchestrated Fujitsu Kozuchi makes answers from prompts through the Chat Interface.

Figure 1.3 Overview of Fujitsu Kozuchi Generative AI (Orchestrator)



■Function List

Fujitsu Kozuchi Generative AI (Orchestrator) provides the following functions.

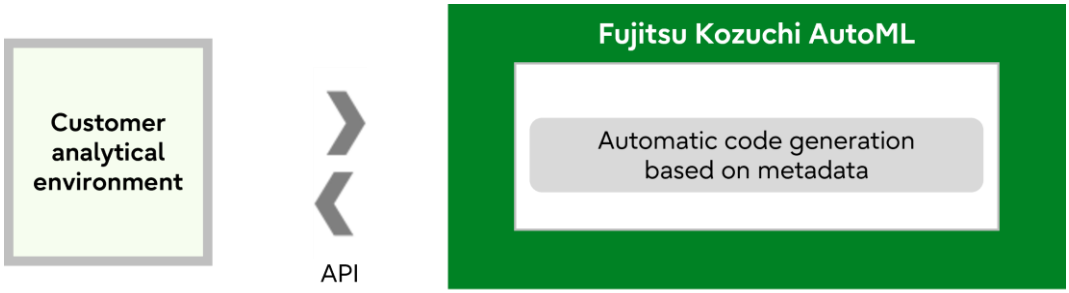
Table 1.3 Functions of Fujitsu Kozuchi Generative AI (Orchestrator)

No.	Functions	Summary
1	Chat Interface	It provides a web application that links chat history and multiple chats from a conversational interface.
2	Orchestrator	It provides Fujitsu Kozuchi Generative AI with orchestrator functions that coordinate Fujitsu Kozuchi Auto ML and XAI (Wide Learning) which includes Causal Inference. Orchestrated Fujitsu Kozuchi makes answers from prompts through the Chat Interface.
3	Fujitsu Kozuchi AutoML	Refer to “1.2.3 Fujitsu Kozuchi AutoML”. * The following functions listed in "Table 1.4 Fujitsu Kozuchi AutoML Function List" are not available. ・ API (input) ・ API (output)
4	Fujitsu Kozuchi XAI (Wide Learning)	Refer to “1.2.7 Fujitsu Kozuchi XAI (Wide Learning)” and “Causal Inference”. * The following functions listed in "Table 1.8 Fujitsu Kozuchi XAI (Wide Learning) Function List" are not available. ・ API (input) ・ API (output)

1.2.3 Fujitsu Kozuchi AutoML

It provides the optimal machine learning algorithms and generate source code for learning and prediction using various structural data in the business scene.

Figure 1.4 Overview of Fujitsu Kozuchi AutoML



■Function List

Fujitsu Kozuchi AutoML provides the following functions.

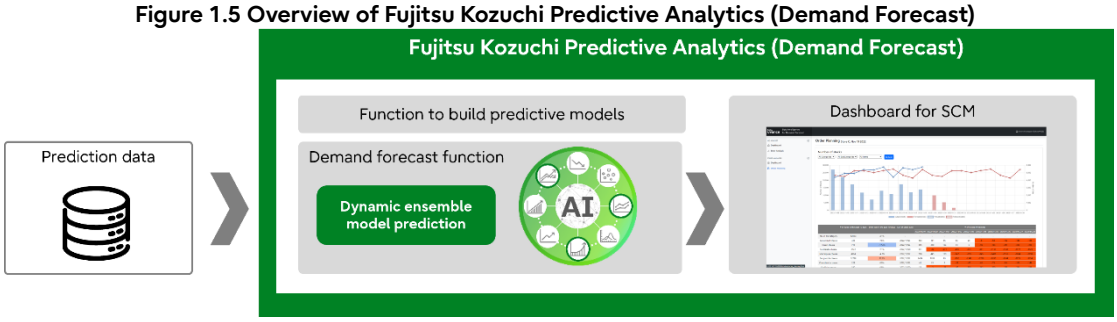
Table 1.4 Functions of Fujitsu Kozuchi AutoML

No.	Functions	Summary
1	API (input)	Set metadata linkage and various parameters.
2	Automatic code generation based on metadata	Search for the best algorithm from linkage information and generate source code for machine learning.
3	API (output)	Outputs the generated source as a response to the API.

1.2.4 Fujitsu Kozuchi Predictive Analytics (Demand Forecast)

It provides the demand forecasting function based on our company's proprietary Dynamic Ensemble Model.

Figure 1.5 Overview of Fujitsu Kozuchi Predictive Analytics (Demand Forecast)



■Function List

Fujitsu Kozuchi Predictive Analytics (Demand Forecast) provides the following functions.

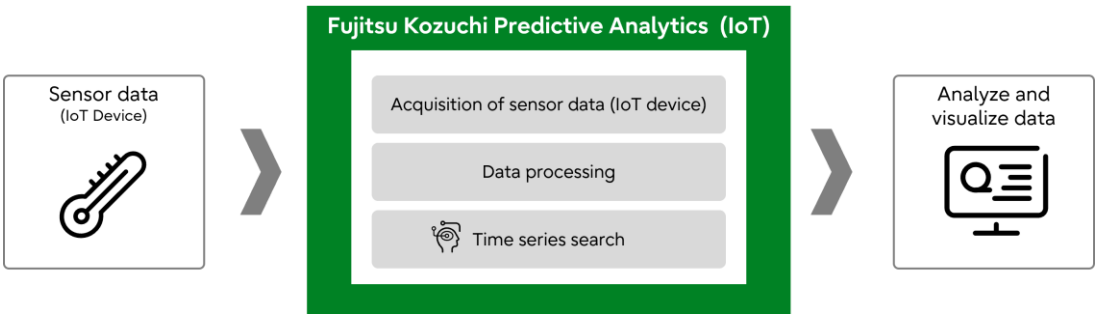
Table 1.5 Functions of Fujitsu Kozuchi Predictive Analytics (Demand Forecast)

No.	Functions	Summary
1	Building predictive models	Create forecast processing logic and set forecast processing parameters.
2	Demand forecast	Learn and predict with Dynamic Ensemble Models.
3	Dashboard for SCM	Visualize the results of the forecast for SCM on the dashboard.

1.2.5 Fujitsu Kozuchi Predictive Analytics(IoT)

It processes sensor data from IoT devices into a format suitable for analysis and visualization.

Figure 1.6 Overview of Fujitsu Kozuchi Predictive Analytics (IoT)



■Function List

Fujitsu Kozuchi Predictive Analytics (IoT) provides the following functions.

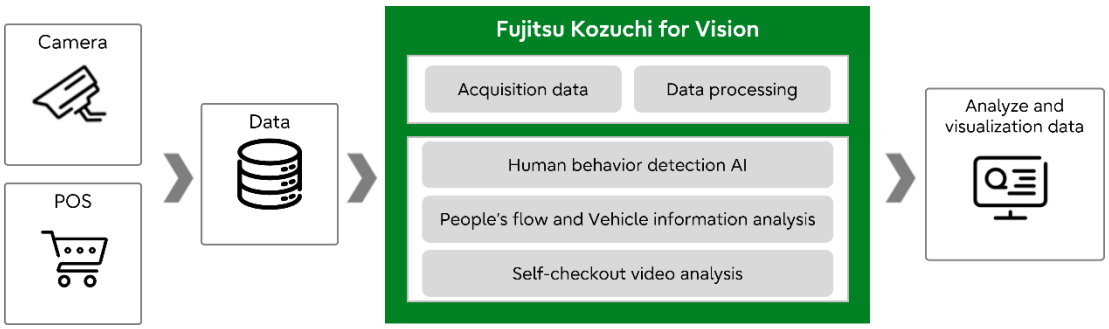
Table 1.6 Functions of Fujitsu Kozuchi Predictive Analytics (IoT)

No.	Functions	Summary
1	Acquisition of sensor data (IoT device)	Provides an interface for capturing sensor data obtained from IoT devices into a cloud environment.
2	Data processing	Cleanse sensor data from IoT devices and process it into a format suitable for analysis and visualization.
3	Linking data to BI tools	Links the result of data processing to BI tools (Microsoft Power BI).
4	Time series search	It learns ordered data and predicts and visualizes unknown data. * This function is optional.

1.2.6 Fujitsu Kozuchi for Vision

It processes statistical data captured and analyzed by using a camera and visualize human behavior, people's flow and vehicle information.

Figure 1.7 Overview of Fujitsu Kozuchi for Vision



■Function List

Fujitsu Kozuchi for Vision provides the following functions.

Table 1.7 Functions of Fujitsu Kozuchi for Vision

No.	Functions	Summary
1	Acquisition data	Provides an interface to bring data output into a cloud environment.
2	Data processing	Cleanse data and process it into a format suitable for analysis and visualization.
3	Linking data to BI tools	Links the result of data processing to BI tools (Microsoft Power BI).
4	Human behavior detection AI	Detects and analyzes human behavior from video data.
5	People's flow and Vehicle information analysis	Analyzes people's flow, attribute information of people, and vehicle information from video data.
6	Self-checkout video analysis	Analyzes camera images installed at the self-checkout and compares camera images with POS data to detect missed scans at the self-checkout.

1.2.7 Fujitsu Kozuchi XAI (Wide Learning)

It provides learning/prediction functions as Explainable AI (XAI) for the black-box results, which is a problem in conventional machine learning.

Figure 1.8 Overview of Fujitsu Kozuchi XAI (Wide Learning)

■Function List

Fujitsu Kozuchi XAI (Wide Learning) provides the following functions.

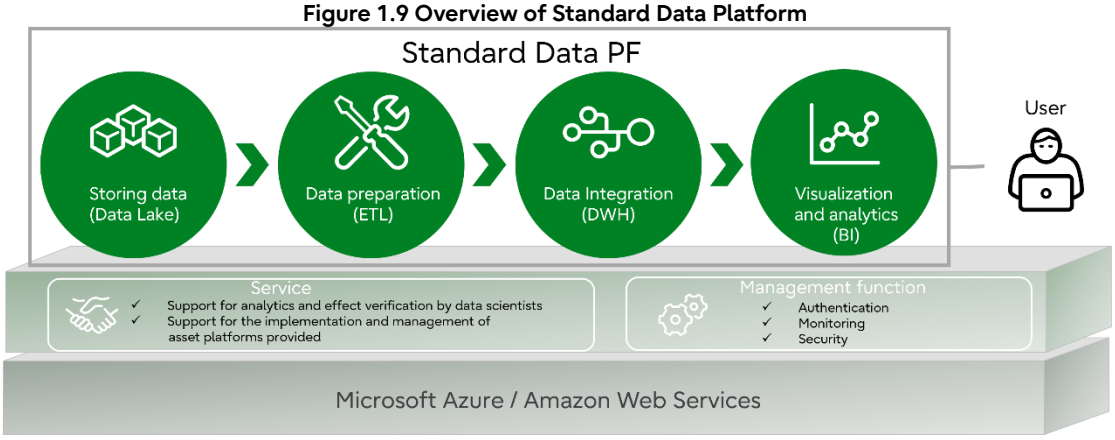
Table 1.8 Functions of Fujitsu Kozuchi XAI (Wide Learning)

No.	Functions	Summary
1	API (input)	Link learning and prediction data and set various parameters.
2	Interpreting predictive basis with knowledge chunks	Analyze the content of the data and create knowledge chunks and learning models. Generates the structure of a knowledge chunk as a Relationship Graph. Manage learned and predicted models.
3	API (output)	Output prediction results and Relationship Graph as API responses.
4	Causal Interface	Causal inference estimates the characteristic causality of each piece of data. * This function is optional.

1.2.8 Standard Data Platform

It provides functions from data processing to visualization and analysis. Provide data processing results from the platform in accordance with customer instructions.

Figure 1.9 Overview of Standard Data Platform



■Function List

Standard Data Platform provides the following functions.

Table 1.9 Functions of Standard Data Platform

No.	Functions	Summary
1	Storing data	It links data to operational data stores (ODS), data lakes, and DBs on the data utilization standard platform through APIs and screen processing. You can choose between batch data linkage and streaming linkage.
2	Data preparation	After the data is stored, pipeline processing defined as a job performs data cleansing and integration/editing (ETL/ELT).
3	Data integration	Stores data processing results in Data Warehouse (DWH)/Data Mart. Use Delta Lake on Databricks.
4	Visualization and Analytics	Visualize and analyze data stored through data integration with BI tools (Microsoft Power BI or Tableau Server).
5	Management function	Provides the necessary authentication, network, and security settings.

Chapter 2 Feature Details

This chapter provides feature details for Fujitsu Data Intelligence Basic.

2.1 Feature Details of Fujitsu Kozuchi Generative AI

Figure 2.1 Feature Details of Fujitsu Kozuchi Generative AI

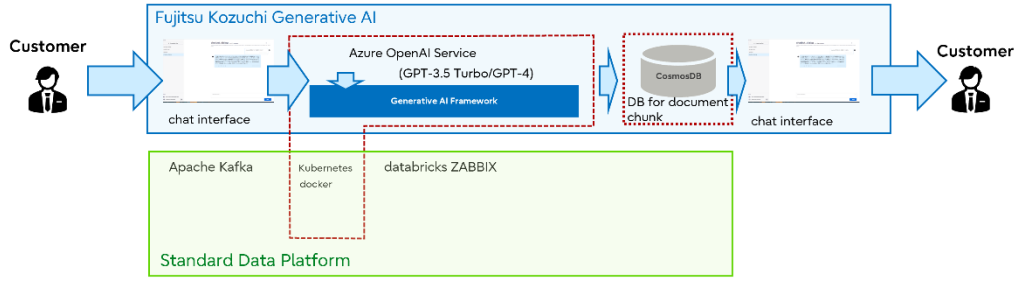
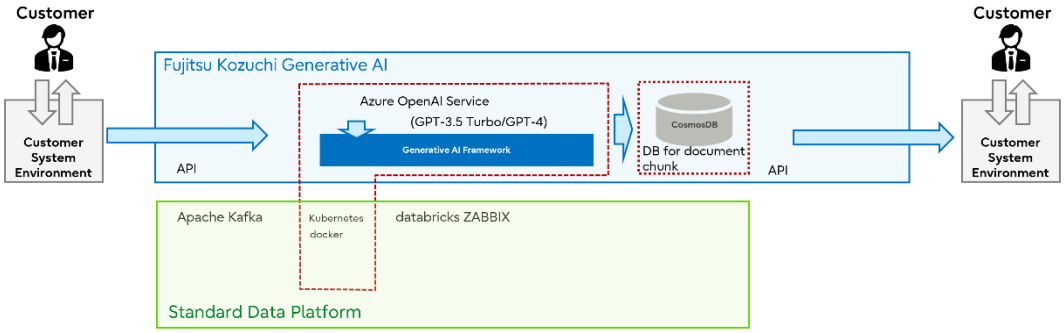


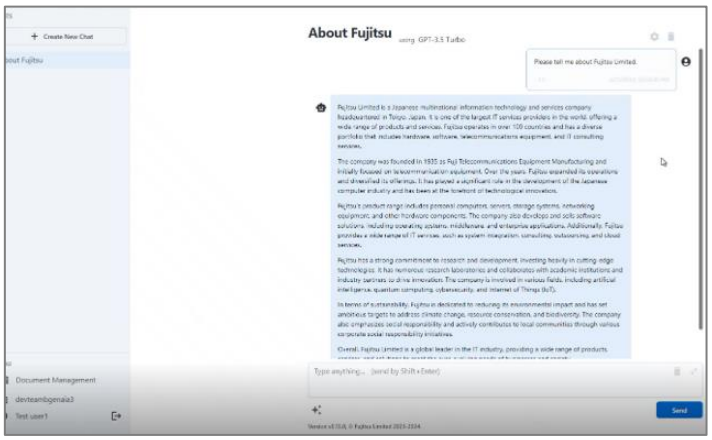
Figure 2.2 Feature Details of Fujitsu Kozuchi Generative AI (API)



2.1.1 Chat Interface

Provides a web application as a chat interface using conversational generative AI. You can upload files to be included in the AI as customer data, set URLs to be used as references, and select whether or not to prevent hallucination.

Figure 2.3 Chat Interface



2.1.2 API (input)

Set parameters to run the Generative AI.

2.1.3 API (output)

As the response of the API, the Generative AI make the answer.

2.1.4 Capture and manage data

Gets data from the chat interface and links it with site data specified by the URL.
You can group your conversations.

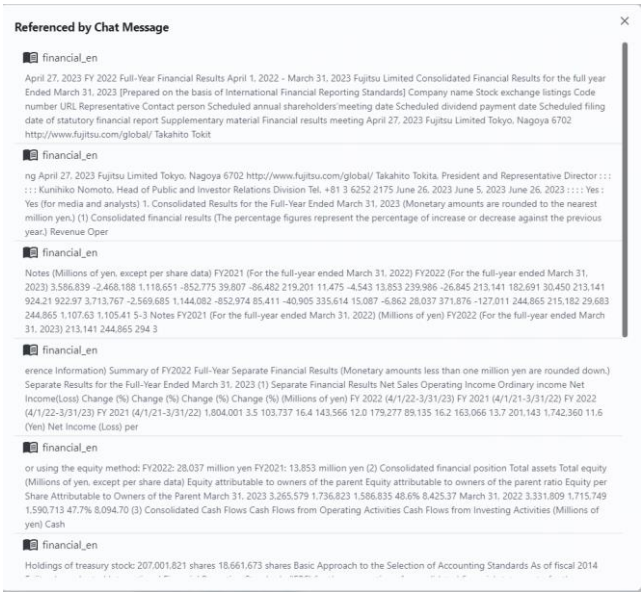
2.1.5 Answering questions, generating document chunks

Analyze the data of various files and URL references linked by the data acquisition/management function, and answer questions about the data.
It generates document chunks when you answer.
Information about the generated document chunks is managed in the database or storage area of the Customer Usage Environment.
Because document chunks are not integrated into regular LLM, they are available without mixing with other customers' search results.

2.1.6 Viewing data references

To evaluate where the information chunked into documents in the Answer Questions, generating document chunks feature refers to the actual prompt, perform visualization of where it relates to the document.

Figure 2.4 Viewing data references

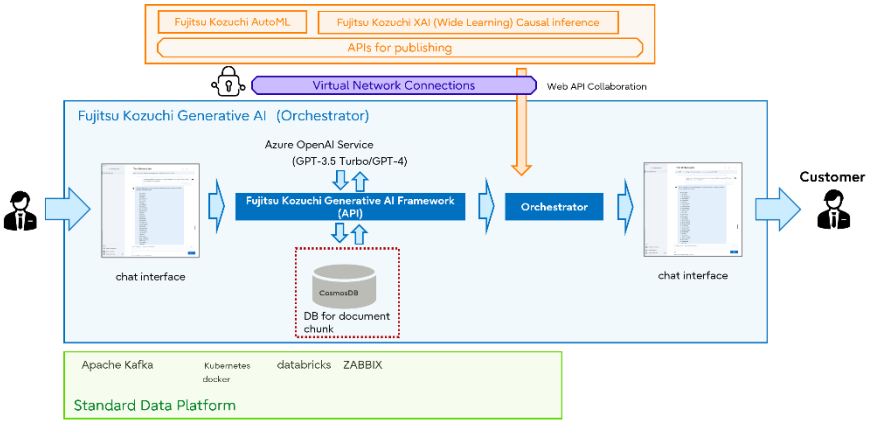


2.1.7 Hallucination detection

Detects "plausible errors" in generated AI responses that are not based on data.

2.2 Feature Details of Fujitsu Kozuchi Generative AI (Orchestrator)

Figure 2.5 Feature Details of Fujitsu Kozuchi Generative AI (Orchestrator)



2.2.1 Chat Interface

Provides a web application as a chat interface using conversational generative AI. You can upload files to be included in the AI as customer data, set URLs to be used as references.

2.2.2 Orchestrator

Provides Fujitsu Kozuchi Generative AI with an orchestrator that coordinate Fujitsu Kozuchi Auto ML and Fujitsu Kozuchi XAI (Wide Learning) which includes Causal Inference. Orchestrated Fujitsu Kozuchi makes answers from prompts through the Chat Interface.

2.2.3 Fujitsu Kozuchi AutoML

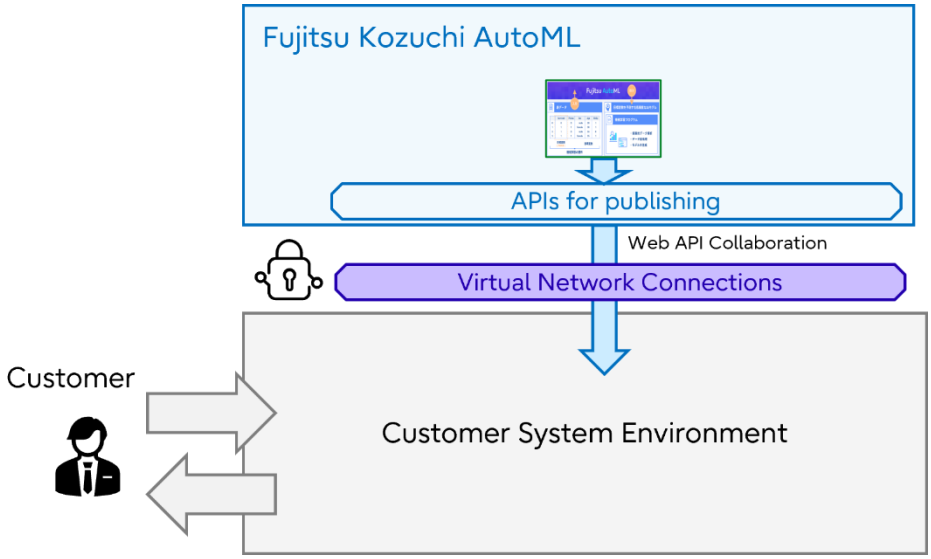
Refer to “2.3 Fujitsu Kozuchi AutoML” about the provided function.
* The functions "2.3.1 API (input)" and "2.3.3 API (output)" are not available.

2.2.4 Fujitsu Kozuchi XAI (Wide Learning)

Refer to “2.7 Fujitsu Kozuchi XAI (Wide Learning)” and “2.7.4 Causal inference”.
* The functions "2.7.1 API (input)" and "2.7.3 API (output)" are not available.

2.3 Feature Details of Fujitsu Kozuchi AutoML

Figure 2.6 Feature Details of Fujitsu Kozuchi AutoML



Fujitsu Kozuchi AutoML has two control schemes.

- Pipelines Method:
  By linking metadata, the AutoML engine returns the best machine learning source (without learning/predicting)
- Train-Prediction Method:.
  Collaborate with actual learning and prediction data to enable the AutoML engine to learn and predict the best solution and manage the model.

2.3.1 API (input)

[Pipeline Method]
Linkage with meta information in learning data.
[Train-Prediction Method]
Linkage with learning or predictive data.

2.3.2 Automatic code generation based on metadata

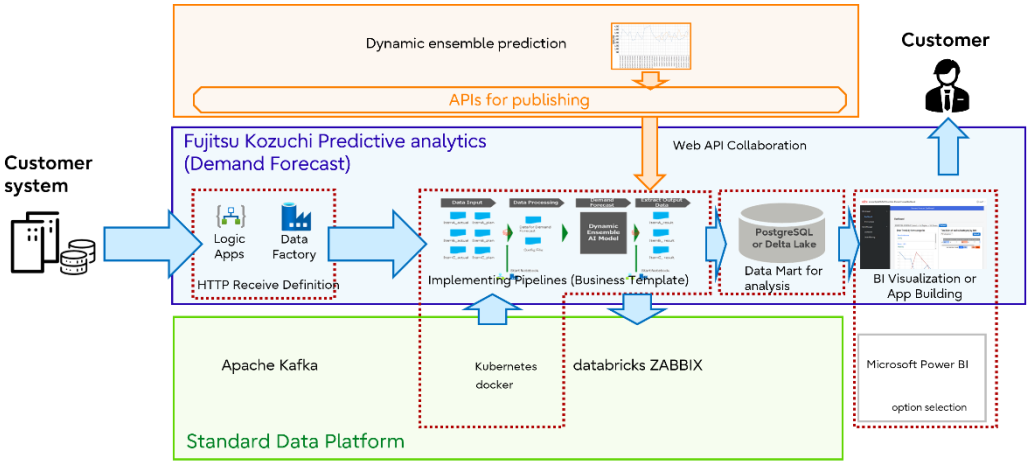
[Pipeline Method]
Analyzes the meta information, and extracts and evaluates the best algorithm processing, and generates the resulting program sources with descriptions.
[Train-Prediction Method]
Analyzes the meta information, extracts and evaluates the best algorithm processing, generates the resulting program source, and manages the model after the learning process is performed.
When the API for prediction processing is used, it performs predictions using the managed model.

2.3.3 API (output)

[Pipeline Method]
This method returns the result (program source) created by automatic code generation.
[Train-Prediction Method]
Returns the result (prediction result) created by automatic code generation.

2.4 Feature Details of Fujitsu Kozuchi Predictive Analytics (Demand Forecast)

Figure 2.7 Feature Details of Fujitsu Kozuchi Predictive Analytics (Demand Forecast)



2.4.1 Building predictive models

In addition to creating predictive processing logic that combines data preprocessing, postprocessing, and execution control for various processes, you can set predictive processing parameters such as learning data and the period to be predicted for multiple models with different characteristics.

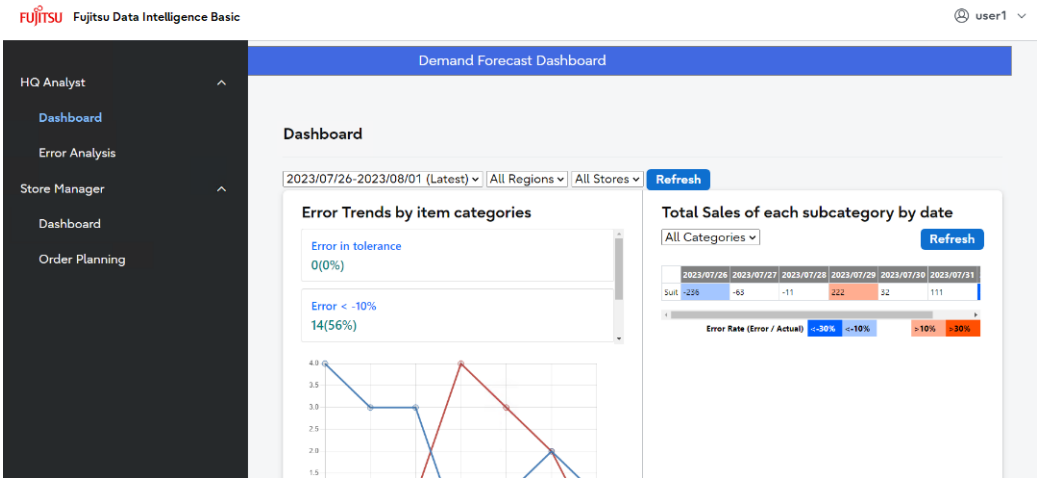
2.4.2 Demand forecast

Integrates forecast results from multiple models with Dynamic Ensemble Model and forecasts demand.

2.4.3 Dashboard for SCM

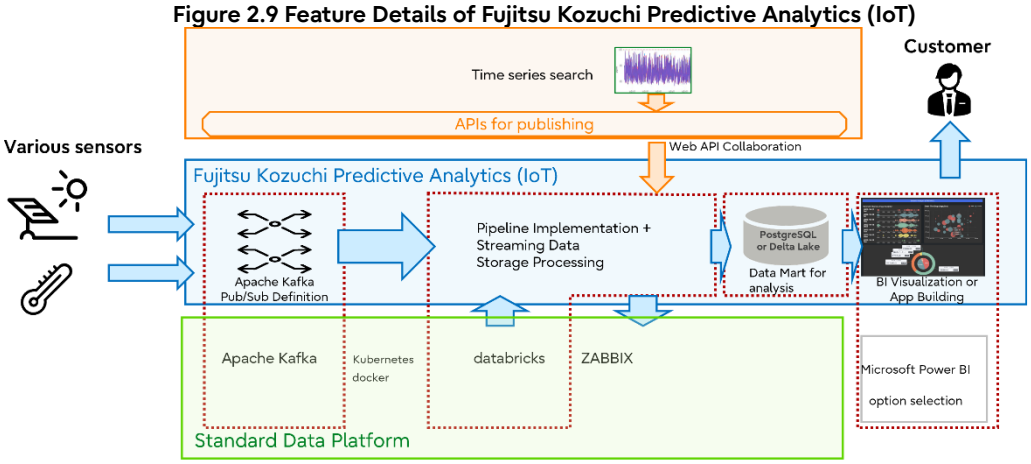
Visualize data based on forecast and actual values for product sales and inventory.
You can also visualize data by category or product.

Figure 2.8 Dashboard for SCM



2.5 Feature Details of Fujitsu Kozuchi Predictive Analytics (IoT)

Figure 2.9 Feature Details of Fujitsu Kozuchi Predictive Analytics (IoT)



2.5.1 Acquisition of sensor data (IoT device)

Provides an interface for capturing sensor data from IoT devices into a cloud environment.

2.5.2 Data processing

Cleansing sensor data from IoT devices and processing data for analysis and visualization are performed by batch processing. Time-Series Search is available as an option.

2.5.3 Linking data to BI tools

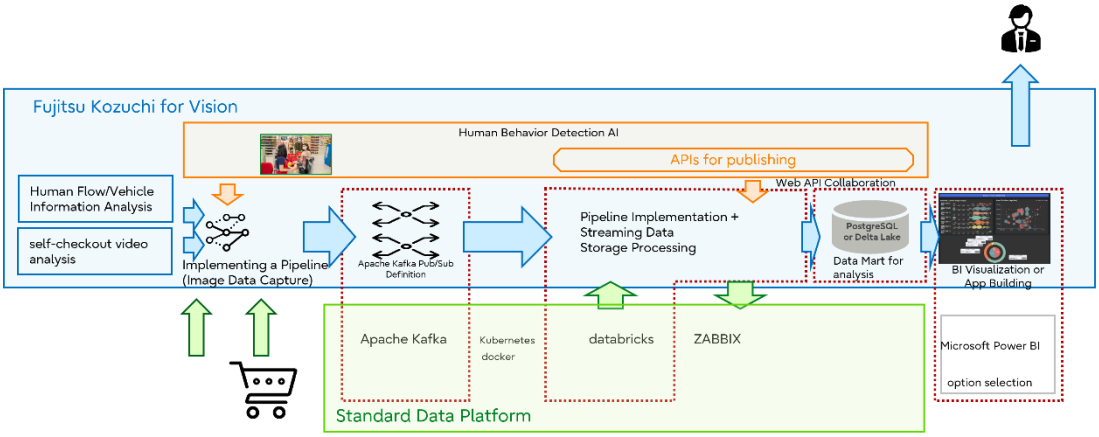
Links the result of data processing to BI tools (Microsoft Power BI).

2.5.4 Time series search

It learns ordered data and predicts and visualizes unknown data.
* This function is optional.

2.6 Feature Details of Fujitsu Kozuchi for Vision

Figure 2.10 Feature Details of Fujitsu Kozuchi for Vision



2.6.1 Acquisition of data

Provides an interface for capturing video data captured by a camera to a cloud environment.
Data is periodically ingested and accumulated by DataBricks.

2.6.2 Data processing

Cleansing data is performed by streaming processing and processing data for analysis and visualization is performed by batch processing.
Stream the acquired data up to cleansing and process the data for analysis and visualization in batch processing.

2.6.3 Linking data to BI tools

Links the result of data processing to BI tools (Microsoft Power BI).

2.6.4 Human behavior detection AI

Detects and analyzes human behavior from video data.

2.6.5 People's flow and Vehicle information analysis

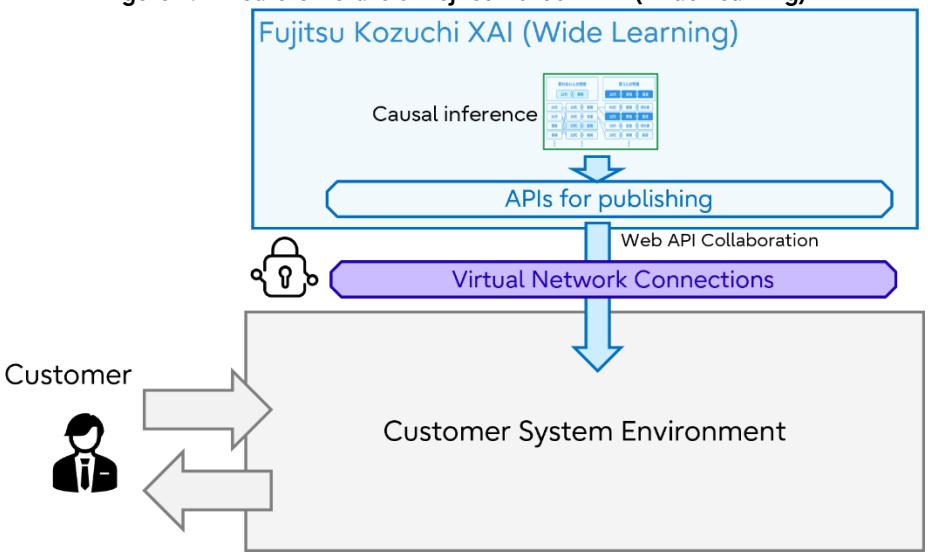
Analyzes the people's flow, attribute information of people, and vehicle information from video data.

2.6.6 Self-checkout video analysis

Analyzes camera images installed at the self-checkout, and compares camera images with POS data to detect missed scans at the self-checkout.

2.7 Feature Details of Fujitsu Kozuchi XAI (Wide Learning)

Figure 2.11 Feature Details of Fujitsu Kozuchi XAI (Wide Learning)



2.7.1 API (input)

Works with learning or prediction data.

2.7.2 Interpreting predictive basis with knowledge chunks

Analyze the data content, create knowledge chunks and learning models, and manage the models after the learning process takes place. The structure of the knowledge chunk is generated as a Relationship Graph in HTML.
When the API for prediction processing is used, it performs predictions using the managed model.
Feature analysis uses causal inference (Bayesian Network).

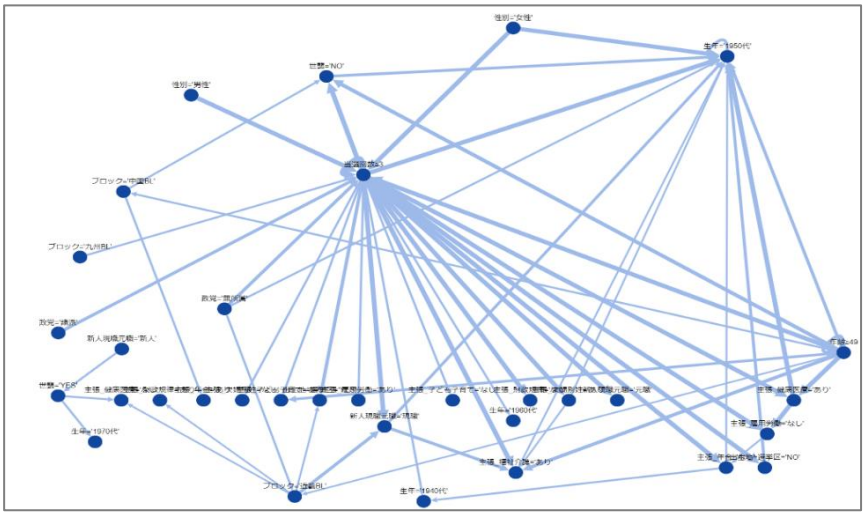
2.7.3 API (output)

This method returns the created result (prediction result).
The output includes the DataFrame format (Pandas) and HTML in JSON.

2.7.4 Causal inference

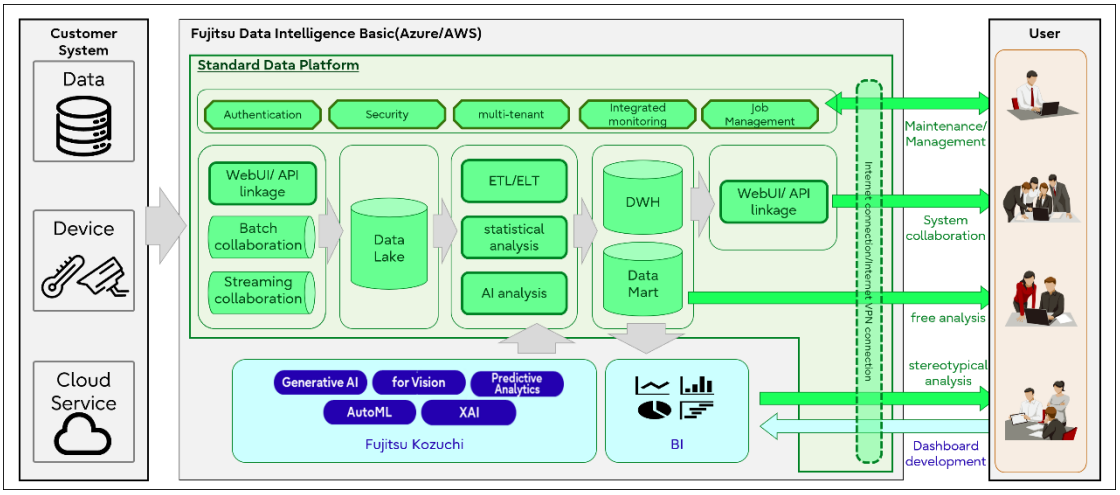
Causal inference estimates the characteristic causality of each piece of data.
* This function is optional.

Figure 2.12 Fujitsu Kozuchi XAI (Wide Learning) Knowledge Chunk Relationship Graph Output



2.8 Feature Details of Standard Data Platform

Figure 2.13 Feature Details of Standard Data Platform



2.8.1 Storing data

Store data from external systems using APIs, web application interfaces, and streaming integration (Apache Kafka).
Data is stored in a data lake (Data Lake Storage Gen2) and works with Databricks (Delta Lake).
Access to the environment is through an Internet connection or an Internet VPN connection.

2.8.2 Data preparation

Runs a pipeline internally defined as a job on a trigger that contains data. The pipeline performs a series of ETL/ELT operations: data preparation (preprocessing/cleansing), data consolidation, and provide AI Feature Value.
In the Data Exploitation Standards platform, job (pipeline) definitions leverage Databricks.

2.8.3 Data Integration

Data processing results are integrated into DWH and data marts to make the structure easy for users.

2.8.4 Visualization and Analytics

Use BI tools (Microsoft Power BI or Tableau Server) to visualize and analyze data stored for different purposes through data integration.

2.8.5 Management function

Set security settings and parameters for using the service.
Provides the necessary authentication, network, and security settings. If you choose Microsoft Azure for your analytics environment, you can also choose a multi-tenant environment.

Chapter 3 System Requirements

This chapter provides system requirements for Fujitsu Data Intelligence Basic.

3.1 System Requirements for Fujitsu Data Intelligence Basic

This section provides the user environment for using Fujitsu Data Intelligence Basic.

3.1.1 Internet connection

This section provides the user environment for using services over an Internet connection.

■Client PC

You need a PC terminal that can use the following software.

Table 3.1 Software for Internet Connection

Category	Software	Version
Web Browser	Microsoft Edge	Latest version
	Google Chrome	Latest version

3.1.2 Internet VPN connection

This section provides the user environment for using services over an Internet VPN connection.

■Client PC

You need a PC terminal that can use the following software.

Table 3.2 Software for Internet VPN Connections

Category	Software	Version
VPN Client	Azure VPN Client (Used when selecting Microsoft Azure)	Latest version
	OpenVPN Client (Used when selecting Amazon Web Services)	Latest version
Web Browser	Microsoft Edge	Latest version
	Google Chrome	Latest version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