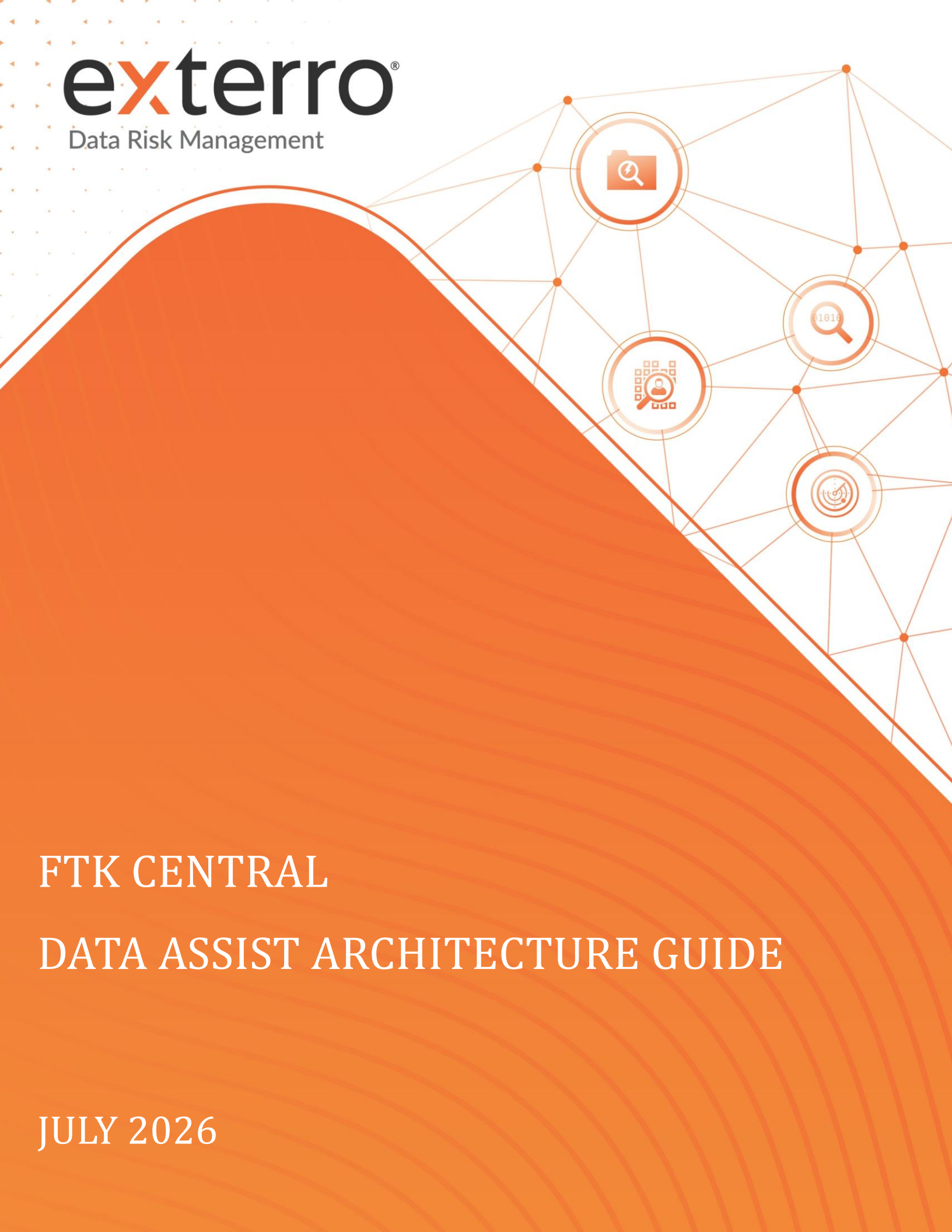




# FTK CENTRAL DATA ASSIST ARCHITECTURE GUIDE

JULY 2026

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## About Exterro

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Exterro was founded with the simple vision that applying the concepts of process optimization and data science to how companies manage digital information and respond to litigation would drive more successful outcomes at a lower cost. We remain committed to this vision today. We deliver a fully integrated Data Risk Management platform that enables our clients to address their privacy, regulatory, compliance, digital forensics, and litigation risks more effectively and at lower costs. We provide software solutions that help some of the world's largest organizations, law enforcement and government agencies work smarter, more efficiently, and support the Rule of Law.

## Purpose of the Document

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This document provides a technical overview of the architecture, setup configurations, and underlying data workflows for **FTKC Data Assist**. It is designed to help IT administrators, system architects, and stakeholders understand how data is processed, managed, and secured within the system.

# 1 FTKC Data Assist: Architecture & Data Flow Guide

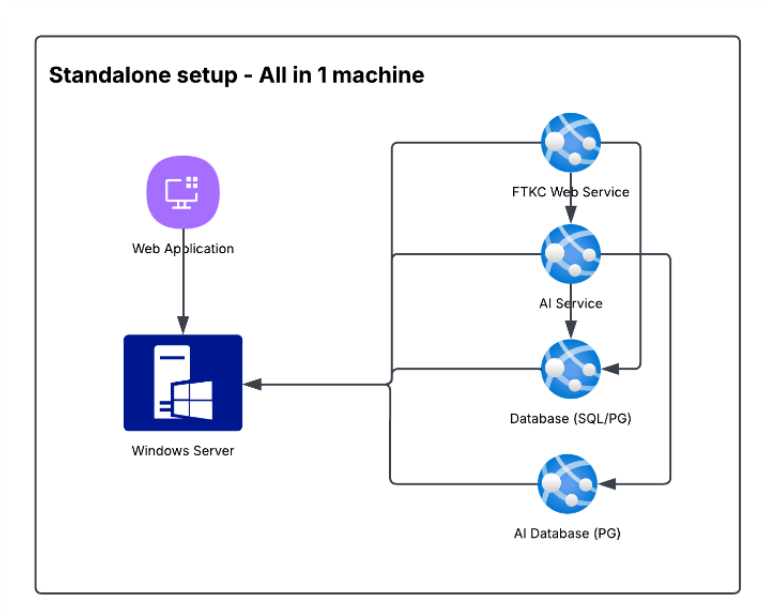
## 1.1 Deployment & Setup Workflows

FTKC Data Assist offers flexible deployment models to accommodate different organizational scales, hardware capacities, and performance requirements.

### Option A: Standalone Setup (All-in-One)

The **Standalone Setup** is optimized for smaller deployments, evaluation environments, or proof-of-concept validations.

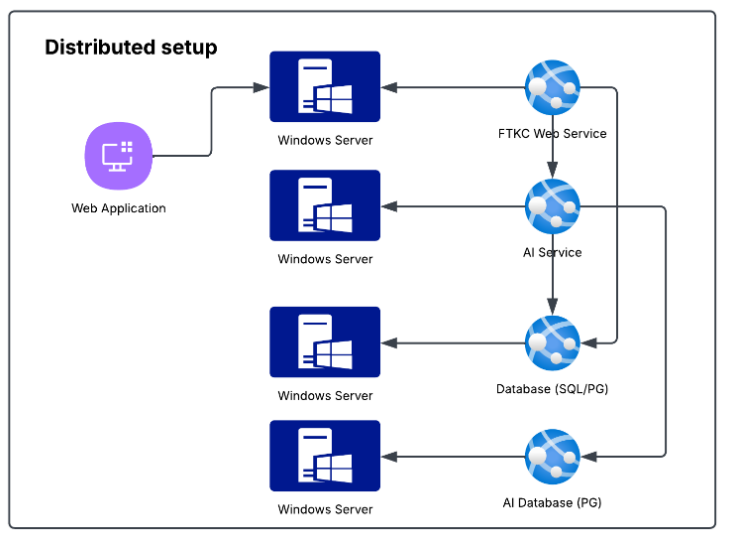
- **Infrastructure:** All core services and databases run on a single dedicated **Windows Server**.
- **Components Included:** Web Application, FTKC Web Service, AI Service, Database (SQL/PG), and the AI Database (PG).



## Option B: Distributed Setup

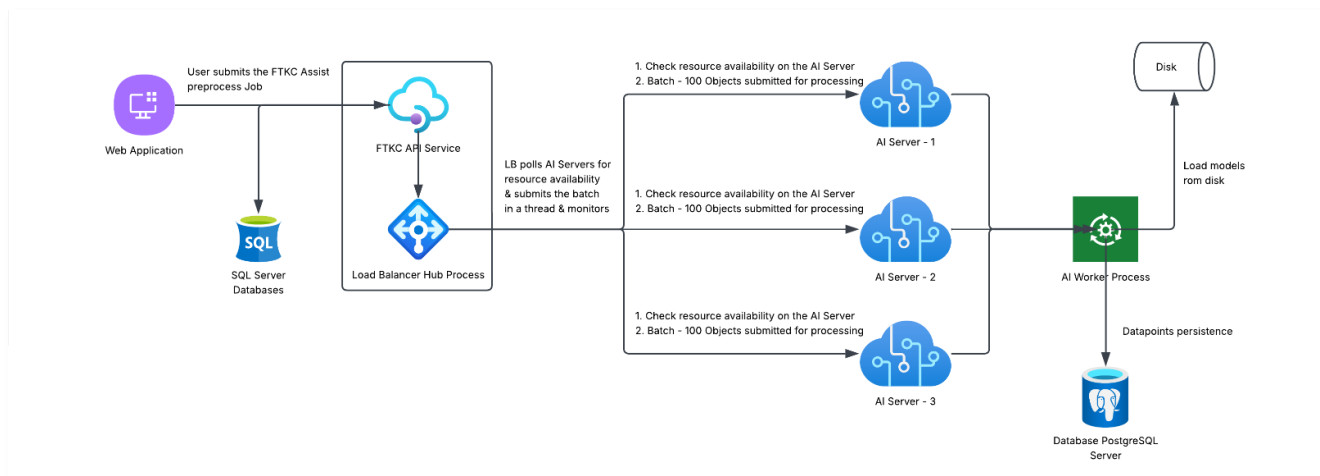
The **Distributed Setup** is designed for high-availability enterprise environments requiring scalability and high performance.

- **Infrastructure:** Services are decoupled and distributed across multiple dedicated **Windows Servers**.
- **Components Included:** The Web Application, FTKC Web Service, AI Service, Database (SQL/PG), and AI Database (PG) each reside on their own infrastructure to optimize compute and resource isolation.



## 1.2 Preprocessing Data Workflow

Before users can interact with the AI assistant, the system must ingest, process, and index data. The diagram below outlines the automated preprocessing workflow:



### Steps in the Preprocessing Cycle:

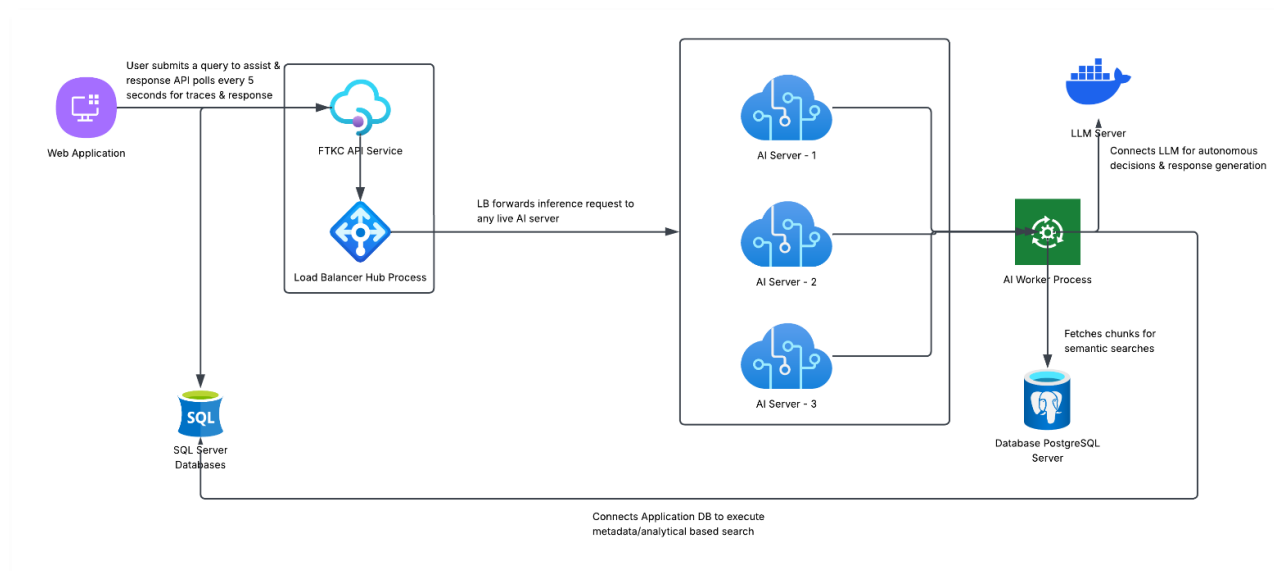
- Job Submission:** A user submits an FTKC Assist preprocess job via the **Web Application**, which logs the request in the core **SQL Server Databases** and routes it to the **FTKC API Service**.
- Load Balancing & Batching:** The **Load Balancer Hub Process** polls all available AI Servers for resource availability. It automatically groups the filtered data into **batches of 100 objects** and submits them using an asynchronous tracking thread.
- Dedicated Monitoring:** A dedicated polling thread monitors each batch. Once a batch succeeds or fails, the next batch of 100 objects is immediately queued and pushed.
- AI Worker Ingestion:** For every object within a batch, the **AI Worker Process** performs the following pipeline:
  - Loads the necessary machine learning models from local **Disk** storage.
  - Extracts and preprocesses raw textual content.
  - Generates optimized content chunks.
  - Generates high-dimensional vector embeddings for those chunks.

5. **Data Persistence:** The extracted metadata, content chunks, and vector embeddings are stored in the **Database PostgreSQL Server** for long-term semantic access.

**Network Note:** The FTKC Web Service communicates seamlessly with the AI servers over secure HTTP protocol via **Port 5000**.

### 1.3 Inference Data Workflow (Real-Time Search)

Once preprocessing is finished, users can query their data using natural language through the **FTKC Assist** tab. The runtime inference interaction operates as follows:



### Steps in the Inference Cycle:

1. **Query Submission:** The user inputs a query into the **Web Application**.
2. **Routing:** The **FTKC API Service** forwards the request to the **Load Balancer Hub Process**, which dynamically routes the inference request to the healthiest live AI Server.
3. **Session Handshake:** The selected AI server immediately acknowledges the request and returns a unique **Response ID** alongside a new or existing **Conversation ID**.
4. **UI Polling:** To deliver a responsive experience without freezing the interface, the **Web Application** polls the API **every 5 seconds** using the Response ID to fetch execution traces and final answers.
5. **Hybrid Retrieval Processing:** The **AI Worker Process** simultaneously queries multiple backend data points to formulate an answer:
  - Connects to the **Database PostgreSQL Server** to fetch semantic text chunks.
  - Connects to the application **SQL Server Databases** to execute structural metadata and analytical searches.
  - Streams data to the **LLM Server** to orchestrate autonomous decisions and generate natural language responses.



## 1.4 Session Management & Retention

To provide continuity and transparent auditing, user interactions are heavily structured around strict retention constraints:

### Stored Artifacts:

The following data points are automatically persisted in the secure **PostgreSQL Database** to power session history:

- Full conversation sessions
- Individual messages (prompts)
- Detailed internal execution traces
- Final AI-generated responses
- Document citation details (ensuring auditability and validation)

### Retention Controls:

- **User Isolation:** All conversation data is explicitly tied to a user's authenticated **User ID**. Users cannot see or access session historical data belonging to others.
- **Session Caps:** To maintain peak database performance, a maximum of **50 conversation sessions** are retained per individual user. Older sessions are systematically rolled off as new sessions are created.

## Contact Exterro

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If you have any questions, please refer to this document, or any other related materials provided to you by Exterro. For usage questions, please check with your organization's internal application administrator. Alternatively, you may contact your Exterro Training Manager or other Exterro account contact directly.

For technical difficulties, support is available through [support@exterro.com](mailto:support@exterro.com).

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