

LLMs and RAG Explained

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AI is More Than Large Language Models



AI Agents



Cyber Security



LLMs



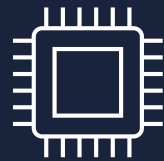
AI Inferencing



Virtual Test



Cloud Compute



GPU & NPU



System
Synchronization



High Speed
Networking



Big Data

How Does a Large Language Model (LLM) Work?



Training Data

The LLM is trained on a large amount of text data (e.g., books, websites, etc.)



Pattern Recognition

The LLM learns to recognize patterns in that data



Generating Text

The LLM takes input text and generates new text, one word at a time

The cat sat

Predicting Words

The LLM predicts the most likely next word based on context

Key Takeaways



The LLM doesn't learn by memorizing facts, it learns statistical relationships. With enough data and computation, the patterns can look intelligent.



The value of an LLM is within the extensive amounts of data that it has access to and can synthesize for us.

Engaging with an LLM: Prompting



Improving Results from LLMs

Prompt Engineering

RAG

Model-Tuning

A Test Engineer's Guide to Prompting



1. Persona

Who is type of expert
you need



2. Task

What you need to do



3. Context

What is additional
information for your request



4. Format

How you want to receive
the information



You are an expert test engineer.

Compare instruments that can take a ripple measurement on a buck converter.

I need instruments that work with this PXI chassis.

Show your answers in a table.

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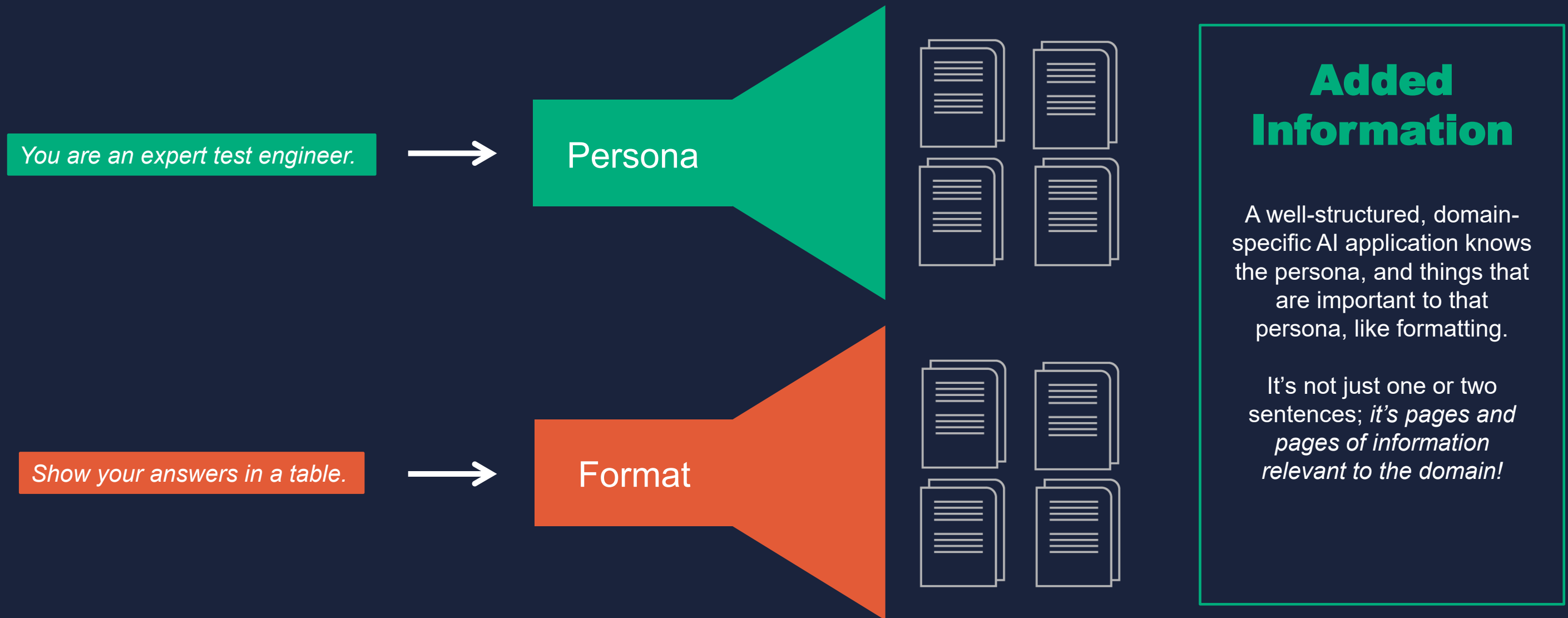
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There's more behind the scenes...



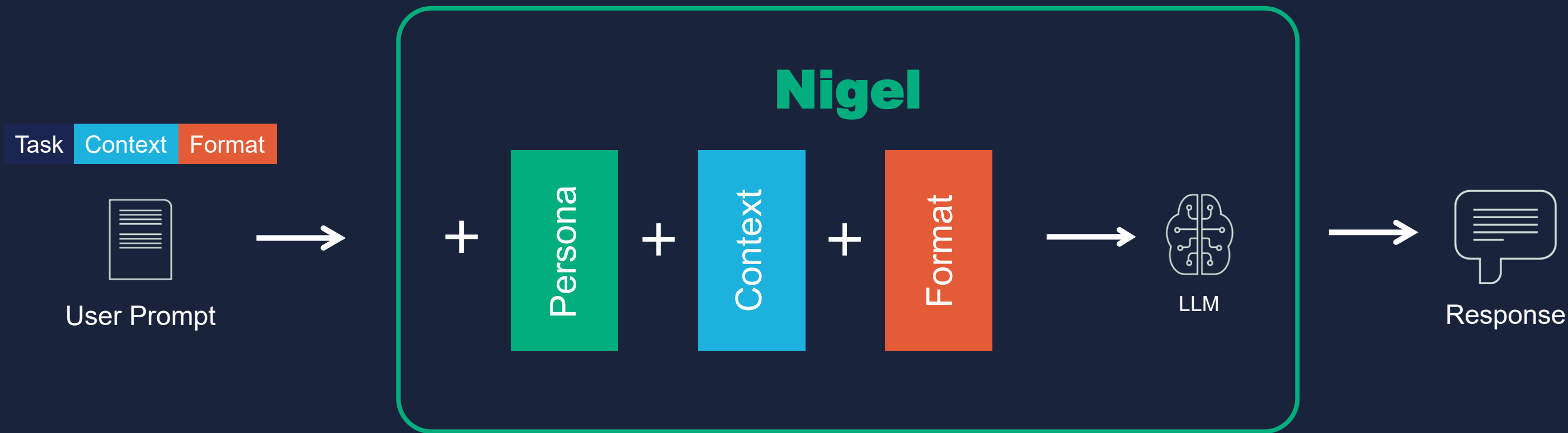
AI Application Architecture



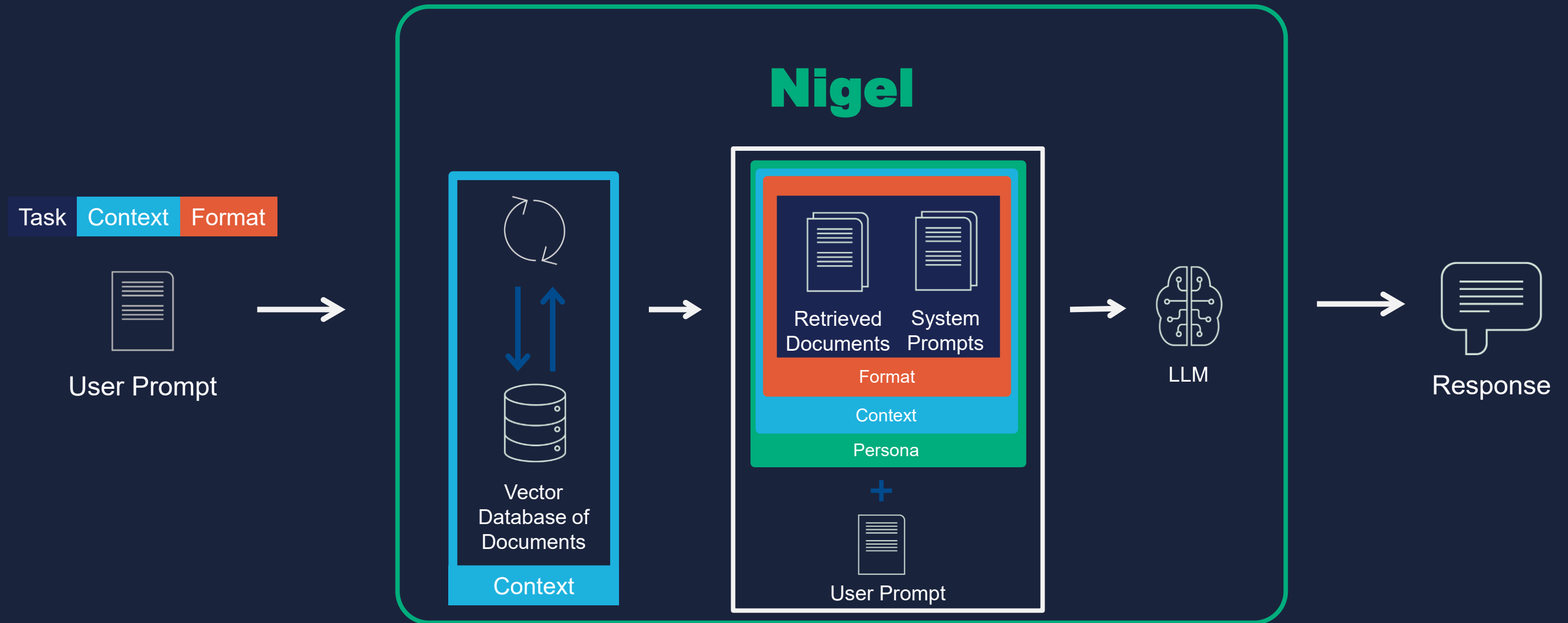
AI Application Architecture



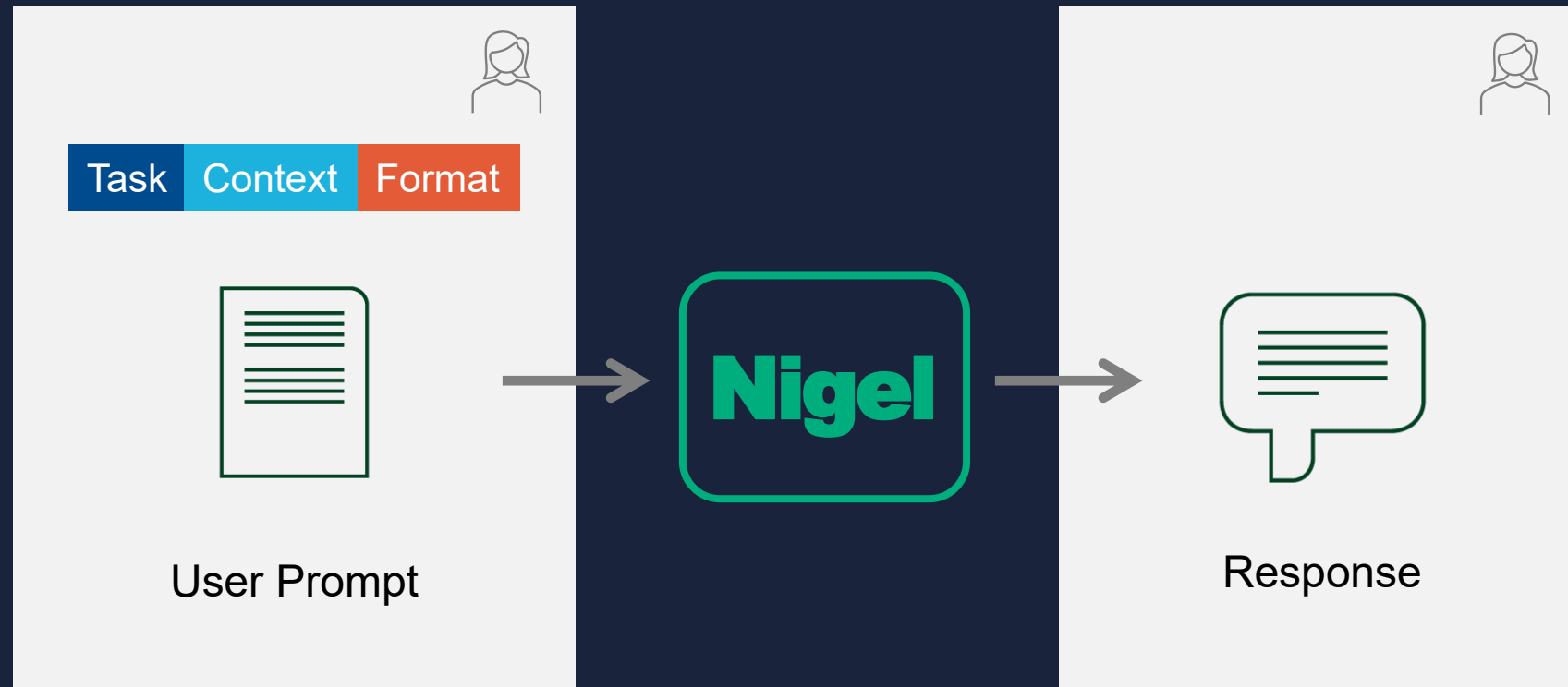
AI Application Architecture



Retrieval-Augmented Generation (RAG)



From Prompt to Results, AI Needs You

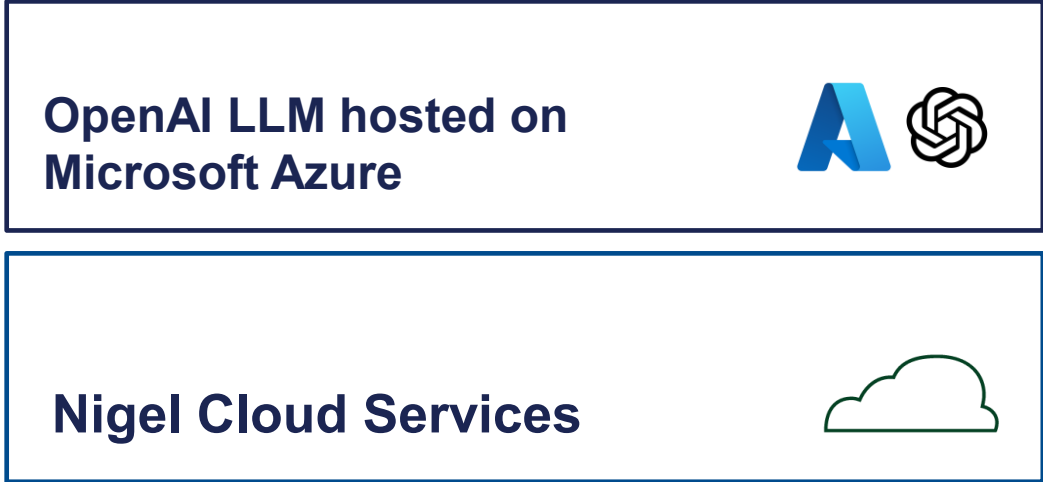


Your test knowledge is essential to getting meaningful results from AI:

1. Defining the problem
2. Understanding the product and system
3. Guiding the exploration
4. Validating results
5. Acting upon what you learn

Architected for Security At Every Level

Cloud

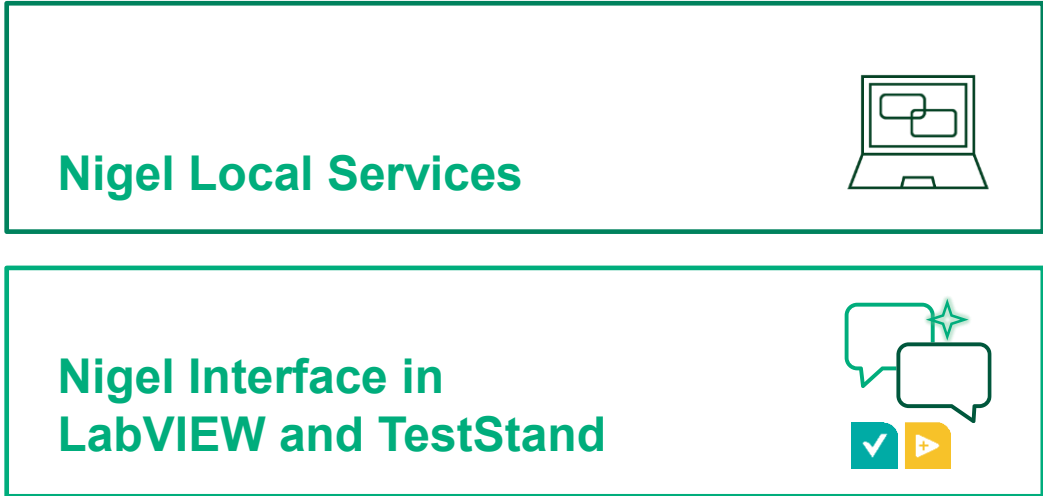


- Industry-leading OpenAI Models
- Enterprise reliability and security with Microsoft Azure

----- Encrypted TLS -----

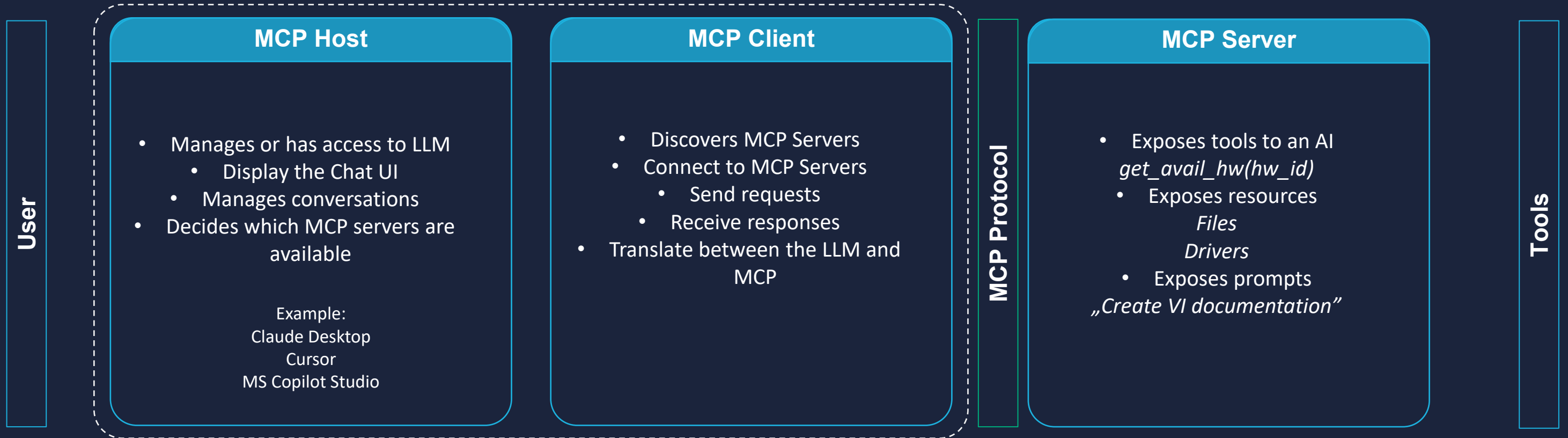
- Encrypted communication (TLS)

Local

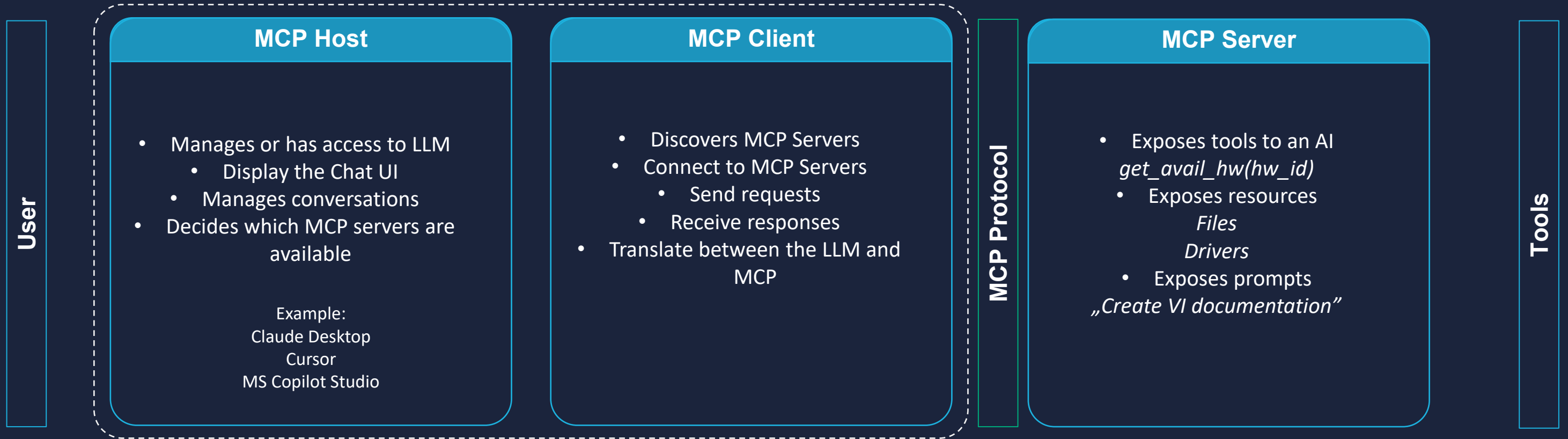


- Nigel stores only prompt data locally
- Nigel does not store customer data or train models on data

The AI Toolchain

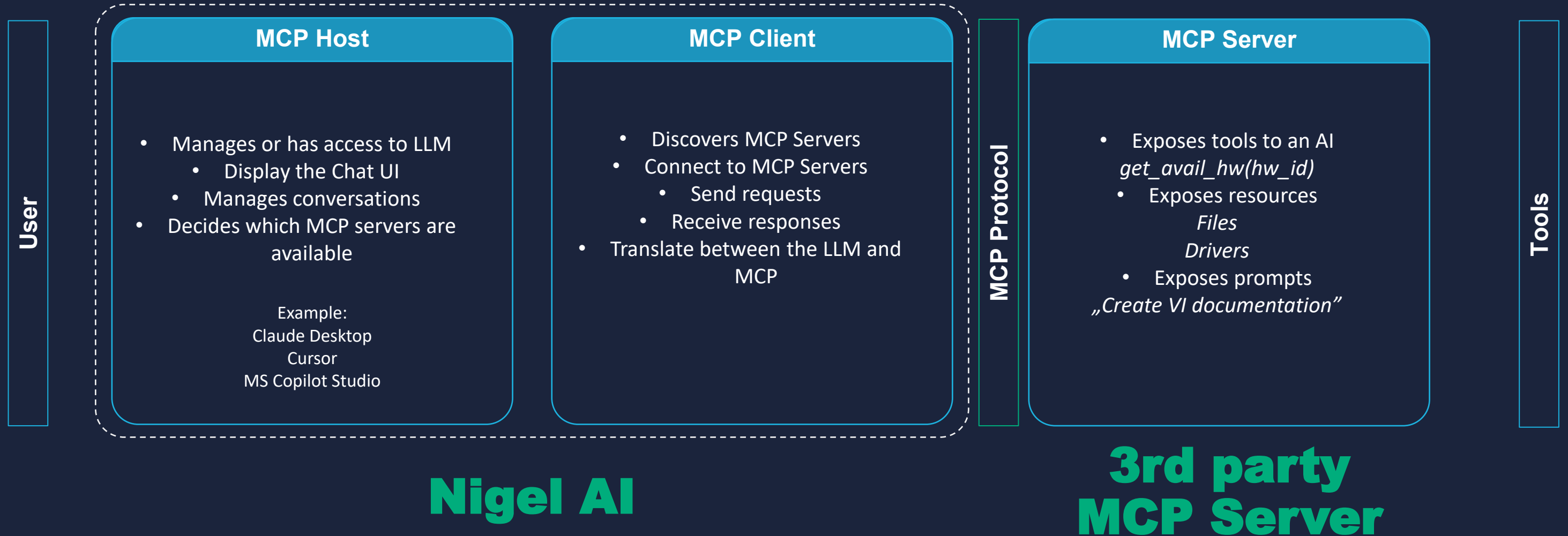


The AI Toolchain



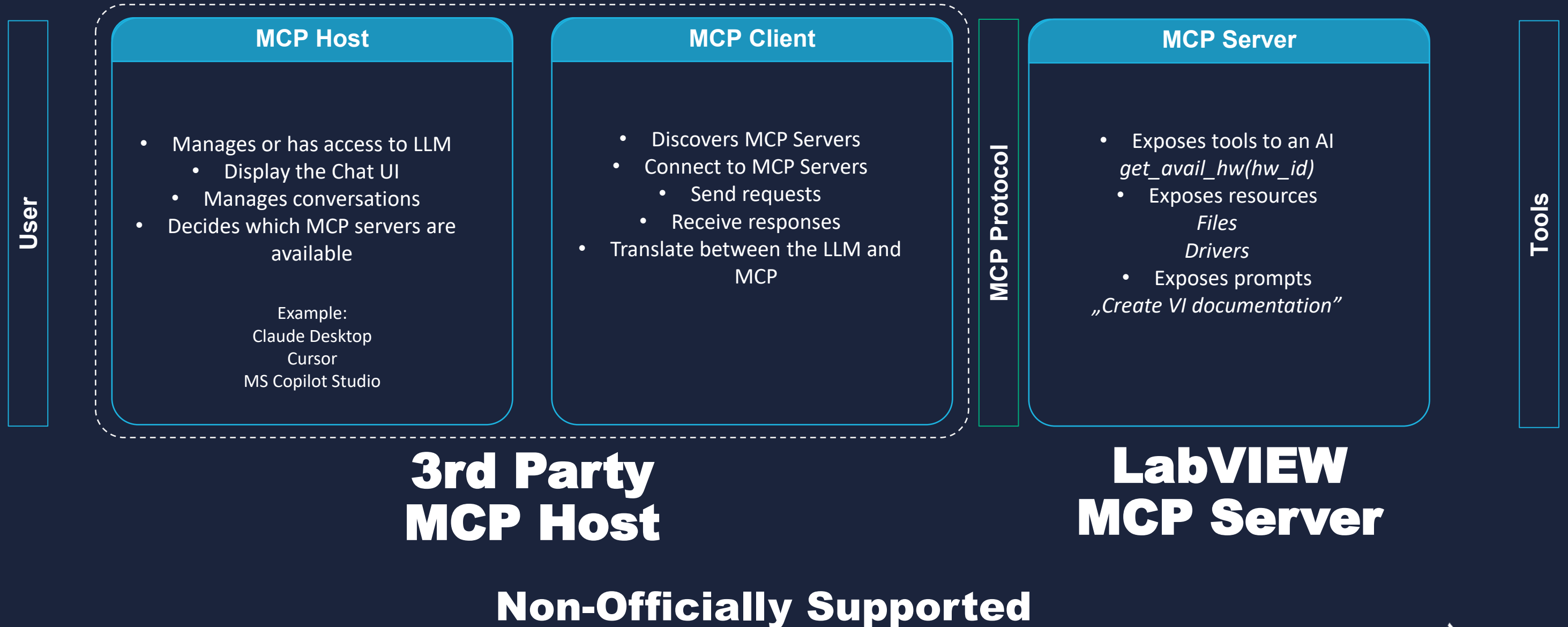
Nigel AI

The AI Toolchain



Officially Supported

The AI Toolchain



Questions?