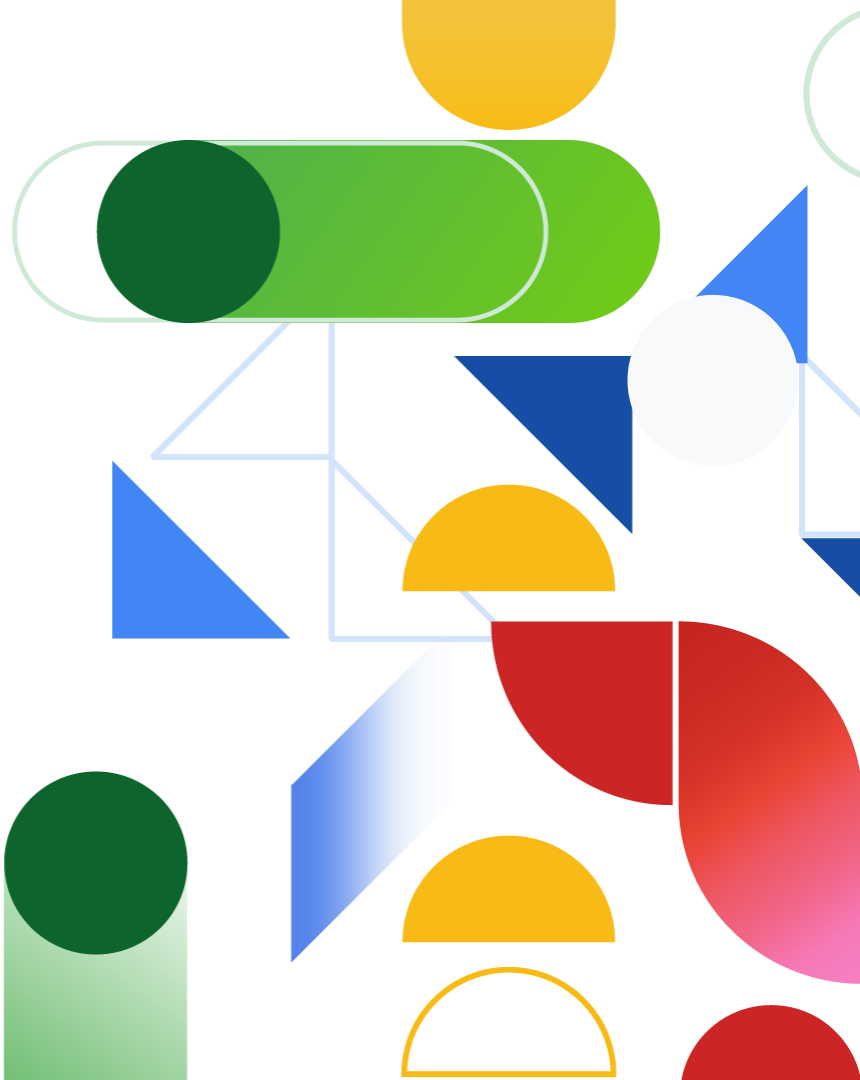
Google Cloud

Cloud Day

Lisbon

The Connected Agent:

Mastering ADK for Advanced A2A Collaboration



CELFOCUS

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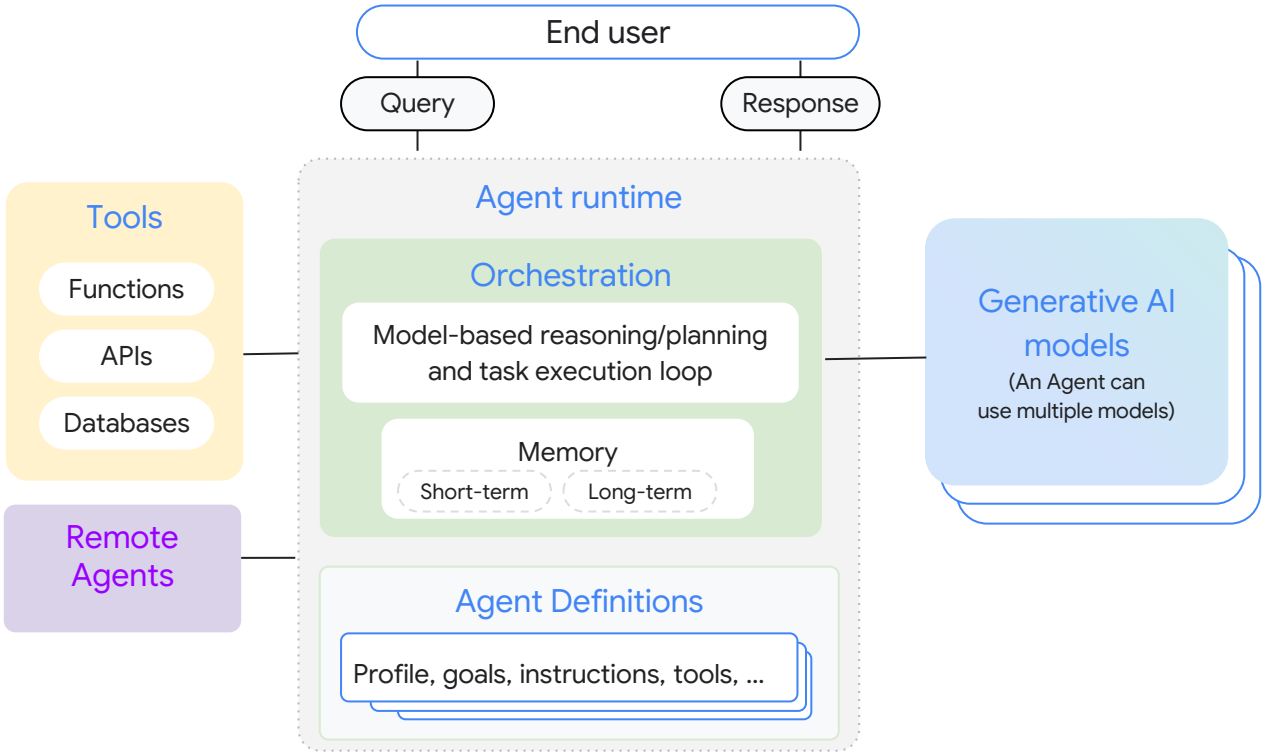
01

Google Tech Stack for a Connected Agent

What is an AI Agent?

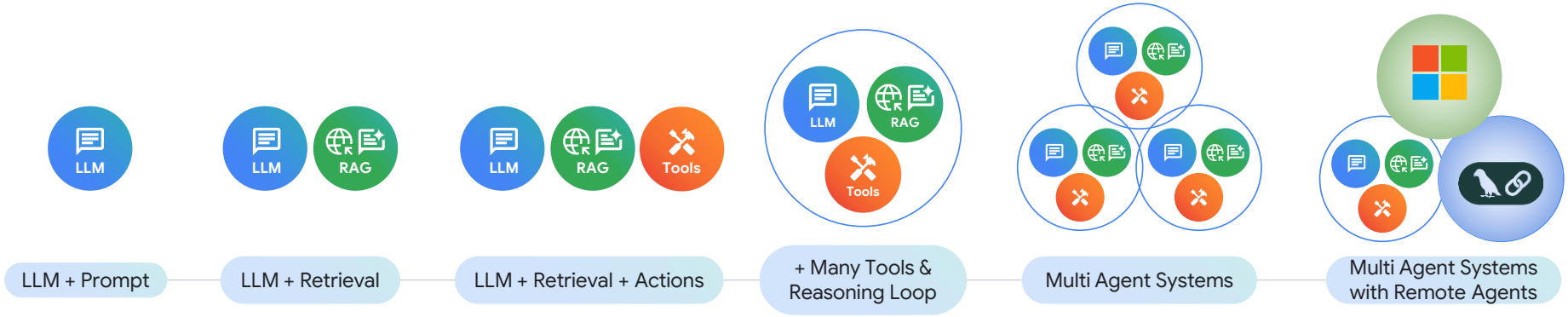
Proprietary

AI Agents reason, plan, and execute tasks for users



Proprietary

An Evolution
AI Agents



What is next?

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ADK

Agent Development Kit

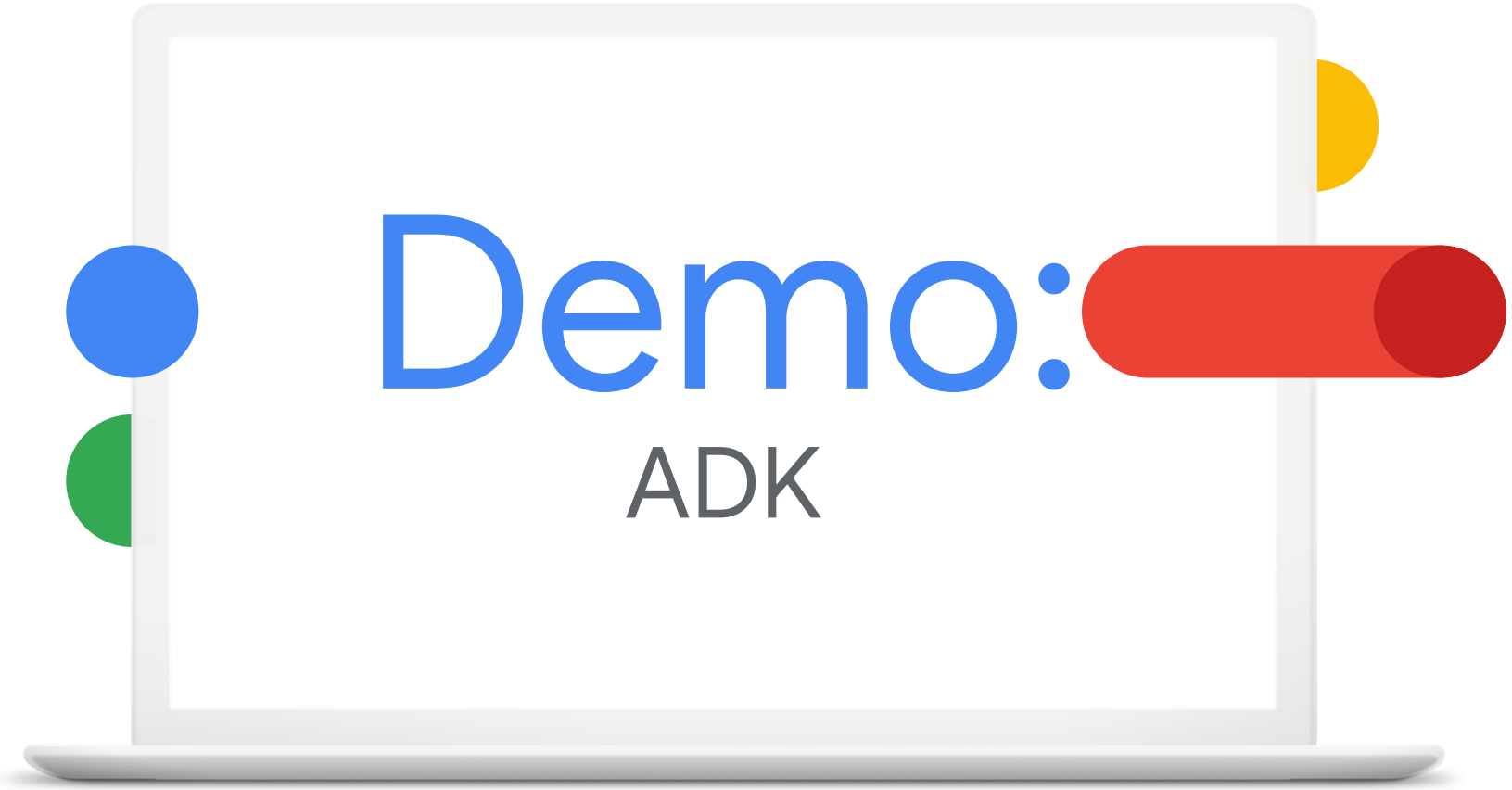
Google Cloud

Agent Development Kit

Framework and SDK to build multi-agent solutions

- Define multi-agent applications orchestrating actions across many agents and tools
- Intuitive local dev UI for fast iteration; visualize agent topology and trace agent's actions
- Interleave deterministic logic with actions driven by gen AI reasoning for effortless, ***hybrid*** agents
- Built-in support for long-running sync tools / human-in-the-loop
- Gemini is the default, but any generative AI model is supported, including fine-tuned models
- Support to call remote agents and thousands of existing tools via MCP
- Python and Java SDKs

Proprietary


Demo:
ADK

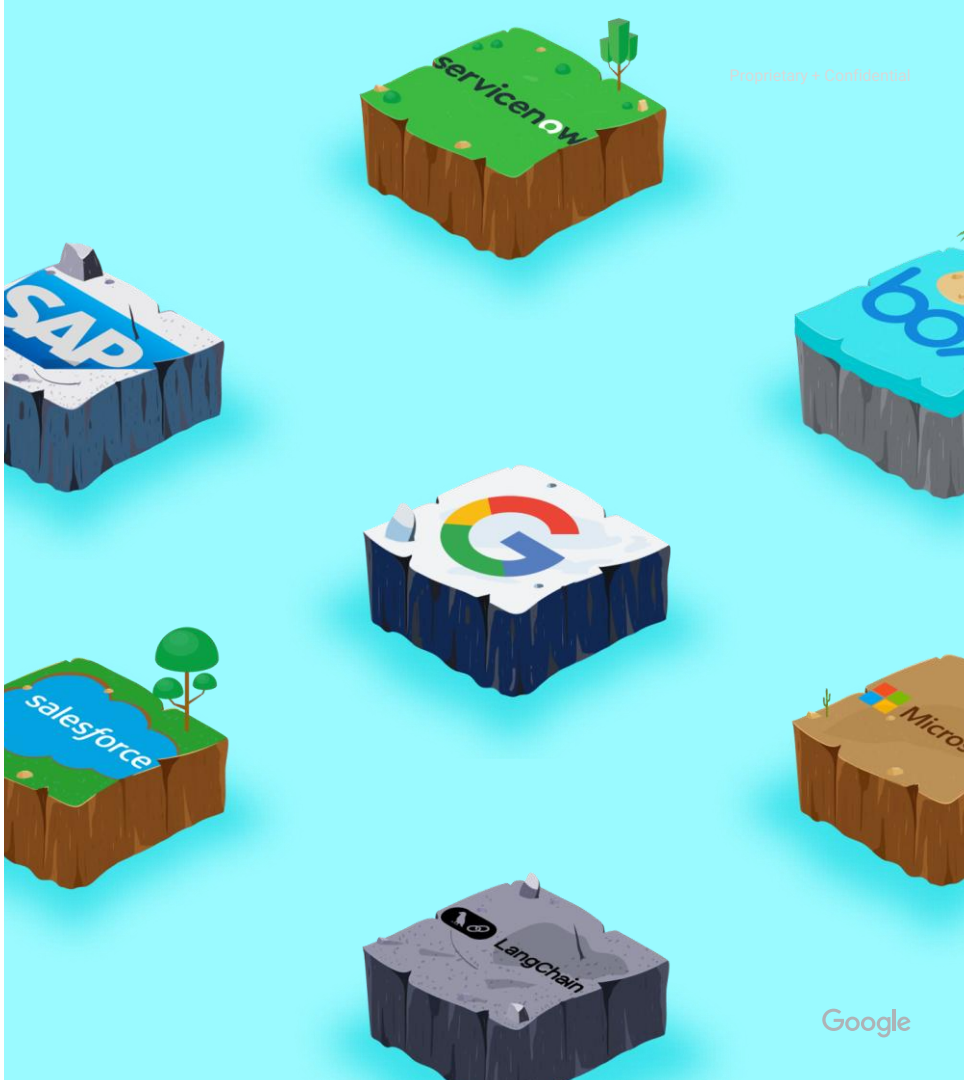
A2A

Agent to Agent

Proprietary + Confidential

We are entering a multi-agent world

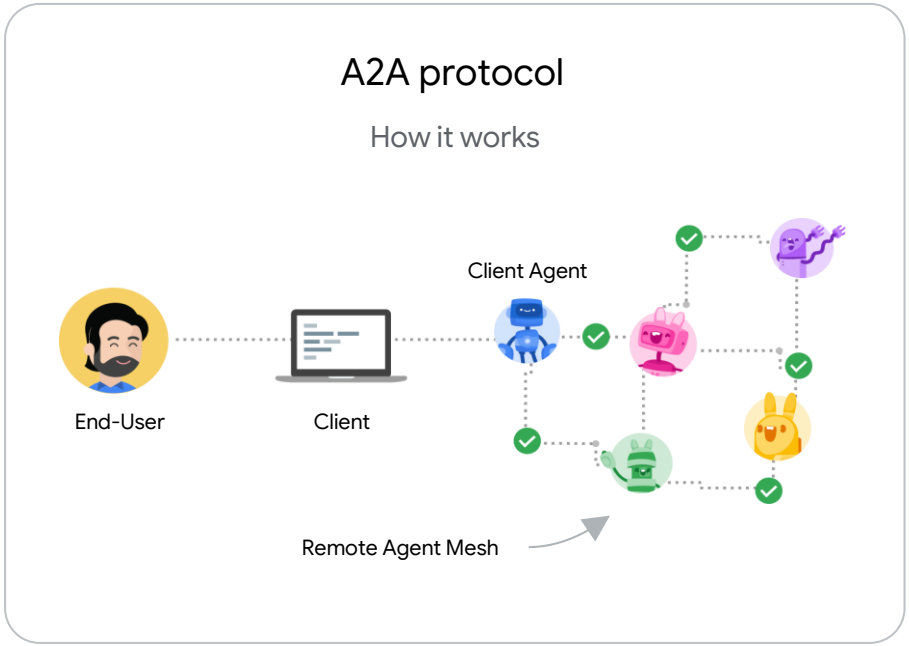
- Multiple frameworks and unique deep agents from vendors
- Blackbox Agents across boundaries cannot share tools, memory, plans, thoughts, etc.
- Difficult to represent “agent as a tool” given multimodal, unstructured, dynamic interaction with users. (OpenAPI specs or MCP not sufficient)



A new standard for Agent-to-Agent collaboration is needed

Introducing A2A (Agent2Agent) protocol

- Open protocol designed specifically to handle the dynamic and long-running nature of agent collaboration
- Enables agent discovery using Agent Card
- Designed with enterprise-use in mind for a secure and governed experience.
- Built on top of existing, popular standards including HTTP, SSE, JSON-RPC



A2A compliments MCP

Connect Agents to Tools and Other Agents using MCP and A2A

MCP (Model Context Protocol)

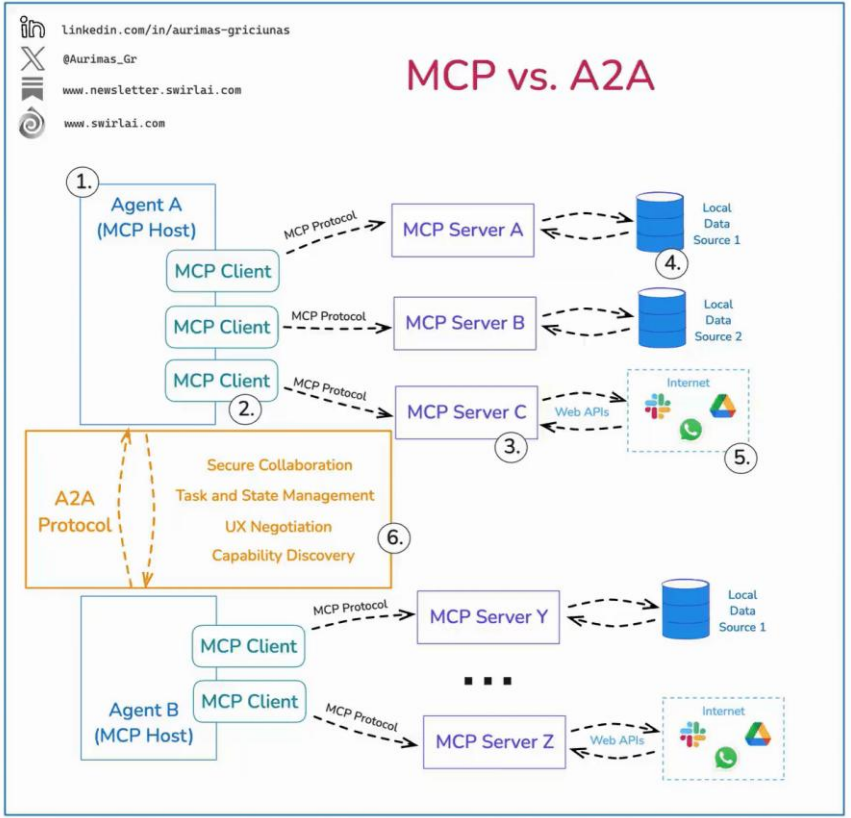
for tools and resources

- Connect agents to tools, APIs, and resources with structured inputs/outputs.
- ADK supports MCP tools.

A2A (Agent2Agent Protocol)

for agent-agent collaboration

- Dynamic, multimodal communication between different agents without sharing memory, resources, and tools
- Open standard driven by community.

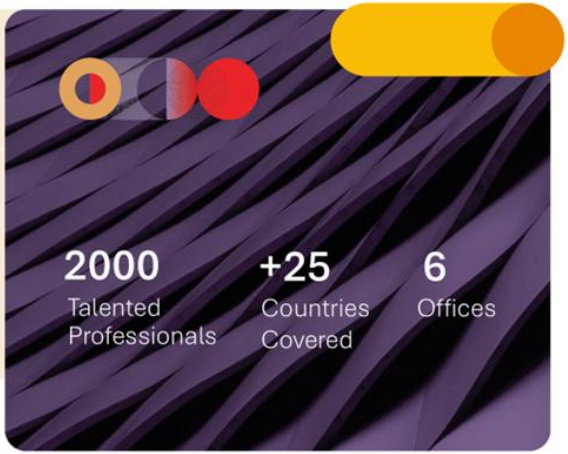


02

Agentic AI from slides to Business case

Making Data Actionable

As a highly specialised technology company, we help clients undergo their innovation path to become AI-driven, providing professional services focused on creating business value through Analytics and Cognitive solutions.



2023 Gartner
REGIONAL TELECOM IT SERVICE PROVIDERS Europe

2024 Gartner
TIER 1 CSP PARTNER for Generative AI

FUTURENET
2024 AWARDS
Winner - Operator Award

dtw ignite
FINALIST EXCELLENCE in autonoumous network

open innovation catalyst
4 AWARDS WINNER 2024
- Innovative & Futuristic
- Application of AI & Automation
- Beyond Telco
- Tech for Good

total telecom
TOP 20 -TELCO AI CHAMPIONS

The journey begins with the vision but Agentic AI is the enabler to achieve it

Customer Service

From reactive tickets to intelligent resolution

Resolve faster with agents that understand intent, customer history, and real-time data.

"How can I navigate real-time data and resolve issues without switching tools?"

Operational Efficiency

From manual workflows to smart coordination

Use agents to automate repetitive tasks, reduce tool overload, and empower teams without retraining.

"How can I automate more without rebuilding everything?"

Supply Chain

From slow decisions to fast data-driven decisions

Agents detect, diagnose, and dispatch actions using real-time insights and multimodal AI.

"How do I reduce truck rolls and improve my inventory visibility?"

Operational Efficiency:
Automating with Intent, Not Scripts

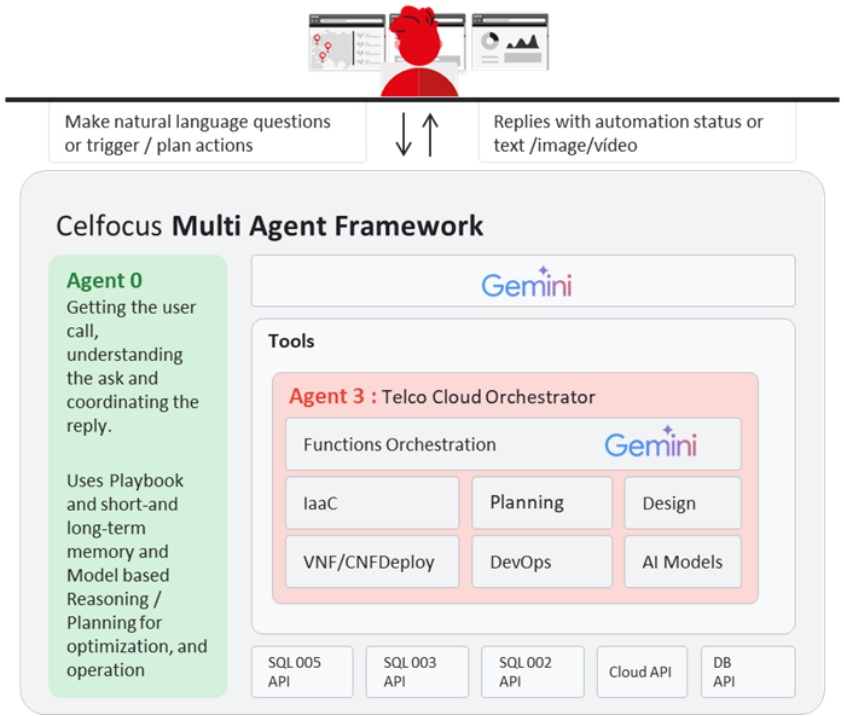
Agentic AI replaces static workflows with goal-driven orchestration.

No predefined flows. No RPAs.
All actions are triggered by user intent.

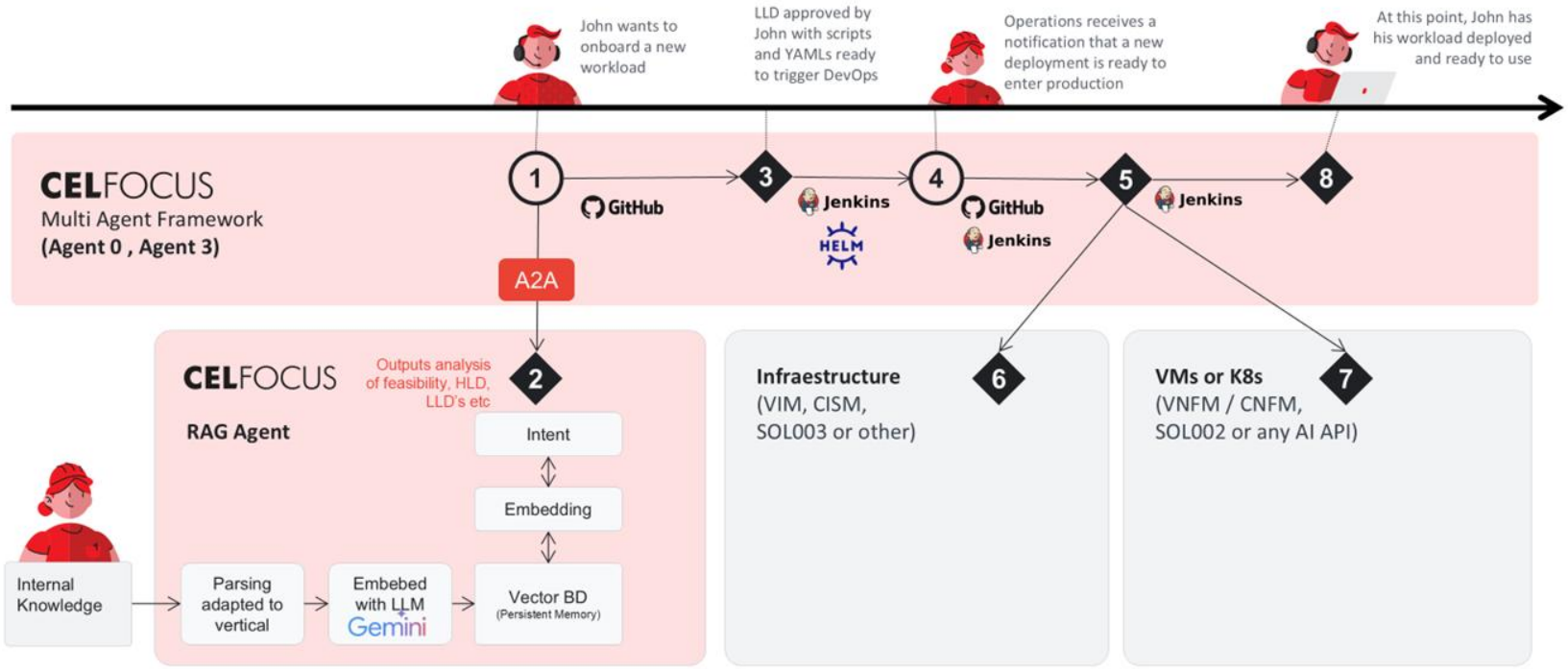
Agent 0
Interprets the request and uses Chain of Thought reasoning to route it to the most appropriate agent.

Agent 3
Executes actions across its domain, using declarative tools and AI-based planning.

This model elevates human operators, turning them into supervisors of intelligent systems instead of executors of repetitive logic.



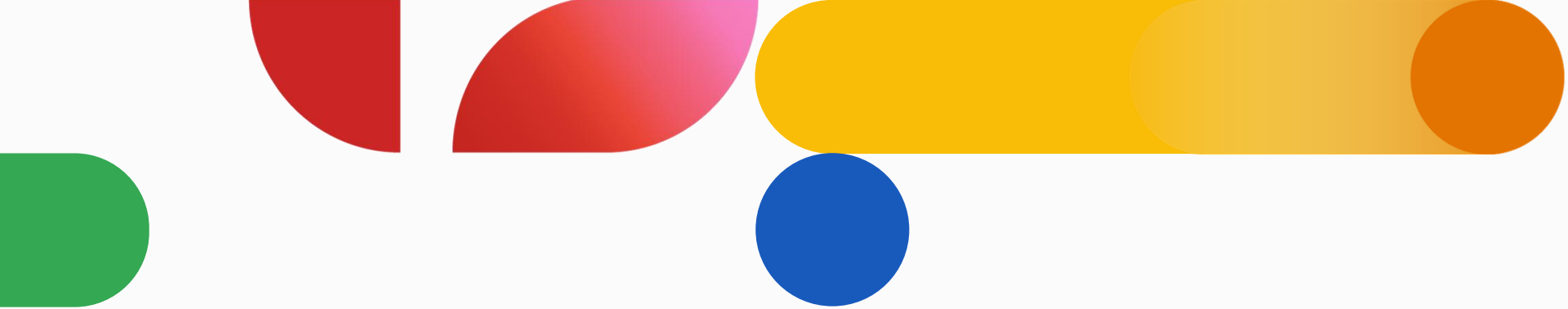
The use case: 10 days SLA to 30 min



Legend: ◆ Celfocus Multi Agent Framework ○ Manual Step A2A Agents can "talk" each other using A2A protocol

The change in the operating model

Dimension	Today	Agentic AI Operating Model
Decision Execution	Engineers need to know multiple tools and take decisions	Agents act based on delegated intent and engineers became approvers.
Knowledge Sharing	Siloed, static documentation	RAG-based memory graph, shared context. Everyone contributes to the knowledge to grow across the company and the Agentic AI is just the bridge between teams.
Automation	RPA islands, hard-coded flows	CoT agents coordinating dynamic actions. Intent based. Validated by engineers, made by Agentic AI.
Personalization and scalability	Limited by product vendors	Limited by engineers' imagination.



03

What is Next?

AE

Agent Engine

System Architecture of Agents in Google Cloud

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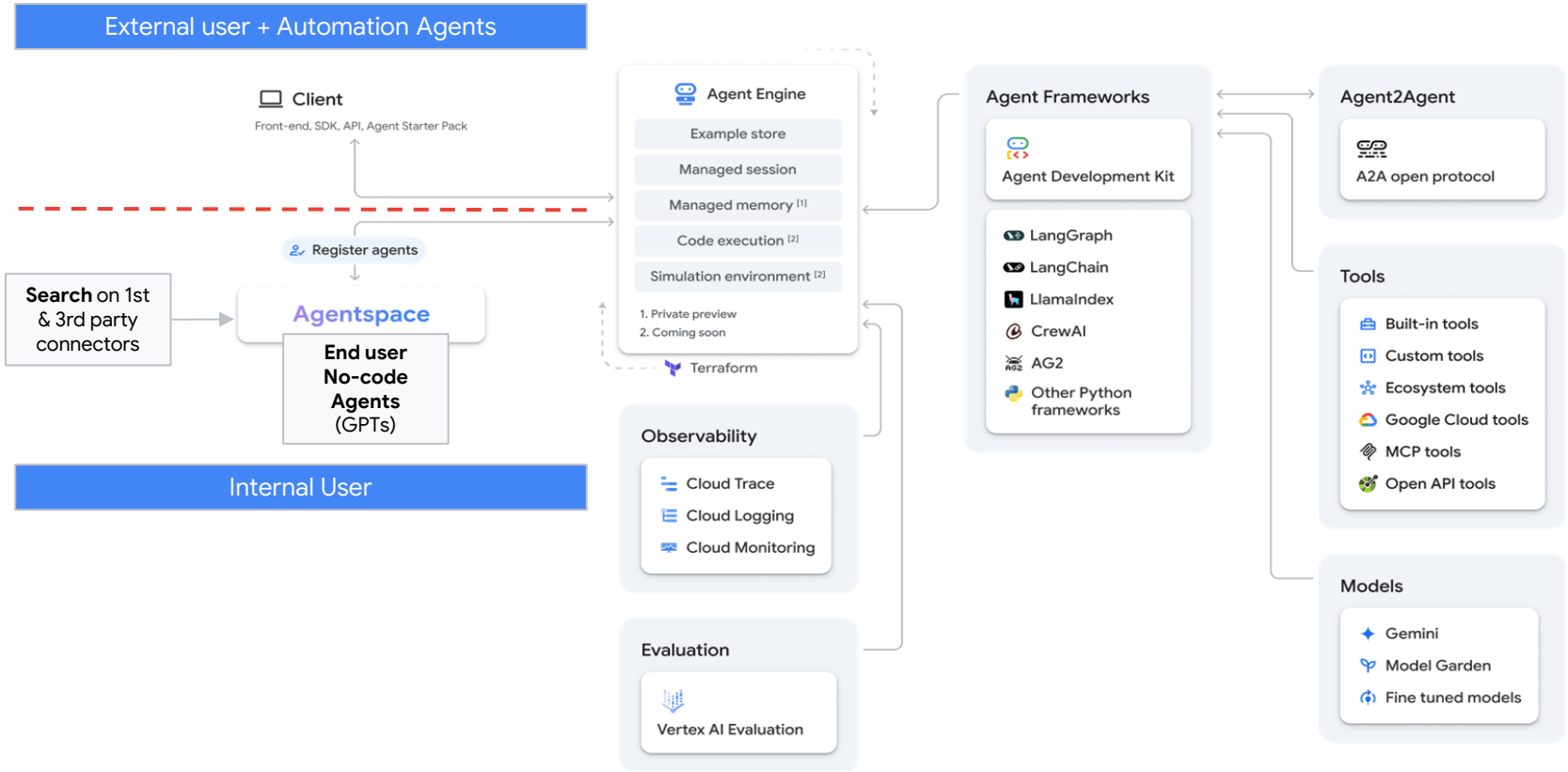

Vertex AI Agent Engine

Integrated (and independent) features to deploy and manage agents in production

Runtime

- Fully managed **runtime** with CRUD access to agents
- **Scale** up and down based on your needs
- **Security** and **auth**entication
- **Framework** agnostic: ADK, LangGraph, CrewAI, LlamaIndex, LangChain, AG2, custom

Context Management

- **Sessions** to manage short term memory in a conversation
- **Memory Bank** to store and retrieve info from sessions to personalize agent interactions

Quality

- Measure quality with the **Vertex AI Evaluation service**
- Improve agent performance with the **Example Store**
- Optimized with **Gemini model** training runs

Monitoring

Understand agent behavior with open telemetry integration with

- **Google Cloud Trace**, Monitoring, and Logging
- **3Ps**** like LangSmith, Arize, and Weights & Biases

Advanced Tools

- **Code execution** sandbox** to run agent code
- **Computer** use sandbox** for agents
- **Agent simulation**** to proxy user traffic to enable agent evaluation and monitoring

** private preview*
*** coming soon*

Proprietary

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Beyond context windows, bringing memory to agents

A more strategic approach to managing past interactions by storing and retrieving relevant information as needed.

Public Preview

Agent Engine Sessions

Store, manage, and retrieve the ongoing conversation history (state) within a single session as **short**-term memory

Public Preview

Agent Engine Memory Bank

Store, transform, and retrieve memories (state), particularly across multiple sessions as **long**-term memories

Sessions help developers manage the *state* required to maintain conversational flow

Memory Bank enables personalized LLM agents that can remember and utilize past interactions without the overhead and performance limitations of constantly feeding entire conversation histories into the context window.

Agent Engine Memory Bank in action

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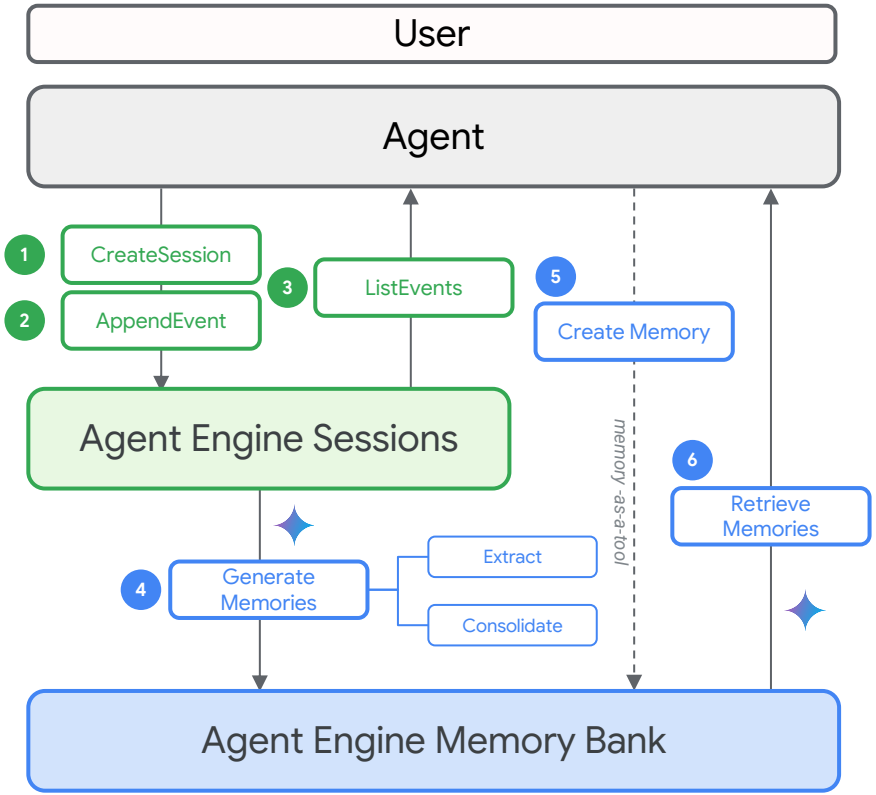

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Thank You