

The Internet of Agents

Building an Open and Interoperable Agentic AI Ecosystem

Guillaume de Saint Marc

VP Engineering - Outshift by Cisco, @gdsm

cisco Live !

Cisco Webex App

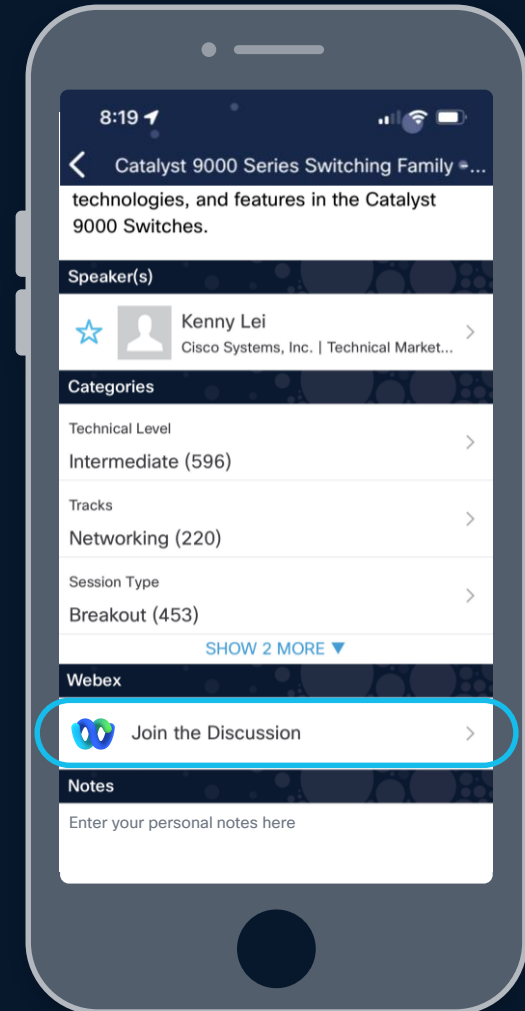
Questions?

Use Cisco Webex App to chat with the speaker after the session

How

- 1 Find this session in the Cisco Live Mobile App
- 2 Click “Join the Discussion”
- 3 Install the Webex App or go directly to the Webex space
- 4 Enter messages/questions in the Webex space

Webex spaces will be moderated by the speaker until June 13, 2025.





Outshift by Cisco is the **incubation** engine delivering what's next and new for Cisco: **emerging** technologies that target **adjacent** markets and **personas** to build **meaningful** businesses and achieve innovative results.

Agenda

- 01 A New Computing Era
- 02 The Agentic Stack
- 03 Discover & Identify
- 04 Compose & Connect
- 05 Observe & Evaluate
- 06 MAS Examples
- 07 Conclusion: What Next?

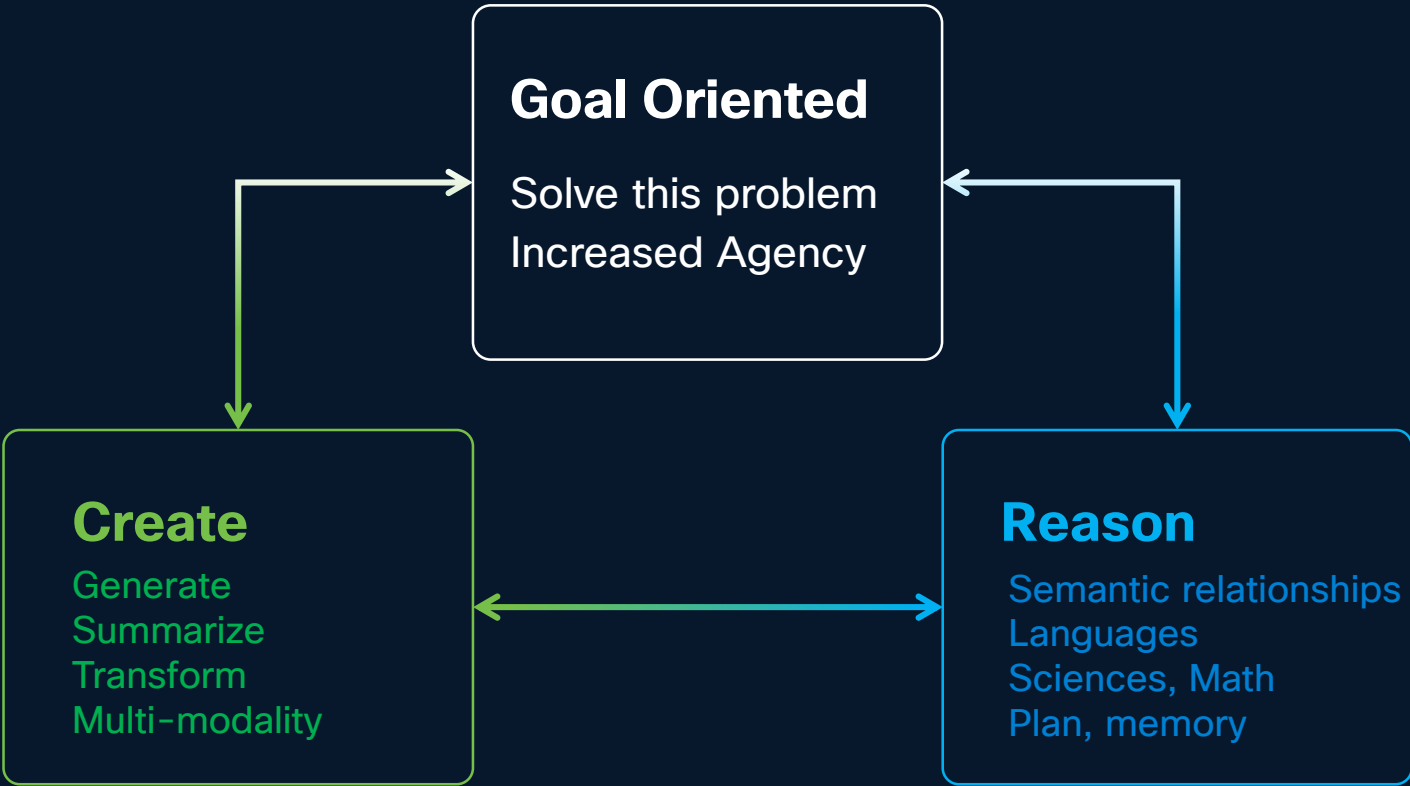
A New Computing Era

A paradigm shift in **computing** is underway

Deterministic → Probabilistic

[cloud computing → agentic computing]

What's different



Deterministic + Probabilistic Computing

What is an agent?

Agents are systems that independently accomplish tasks on your behalf

Open AI

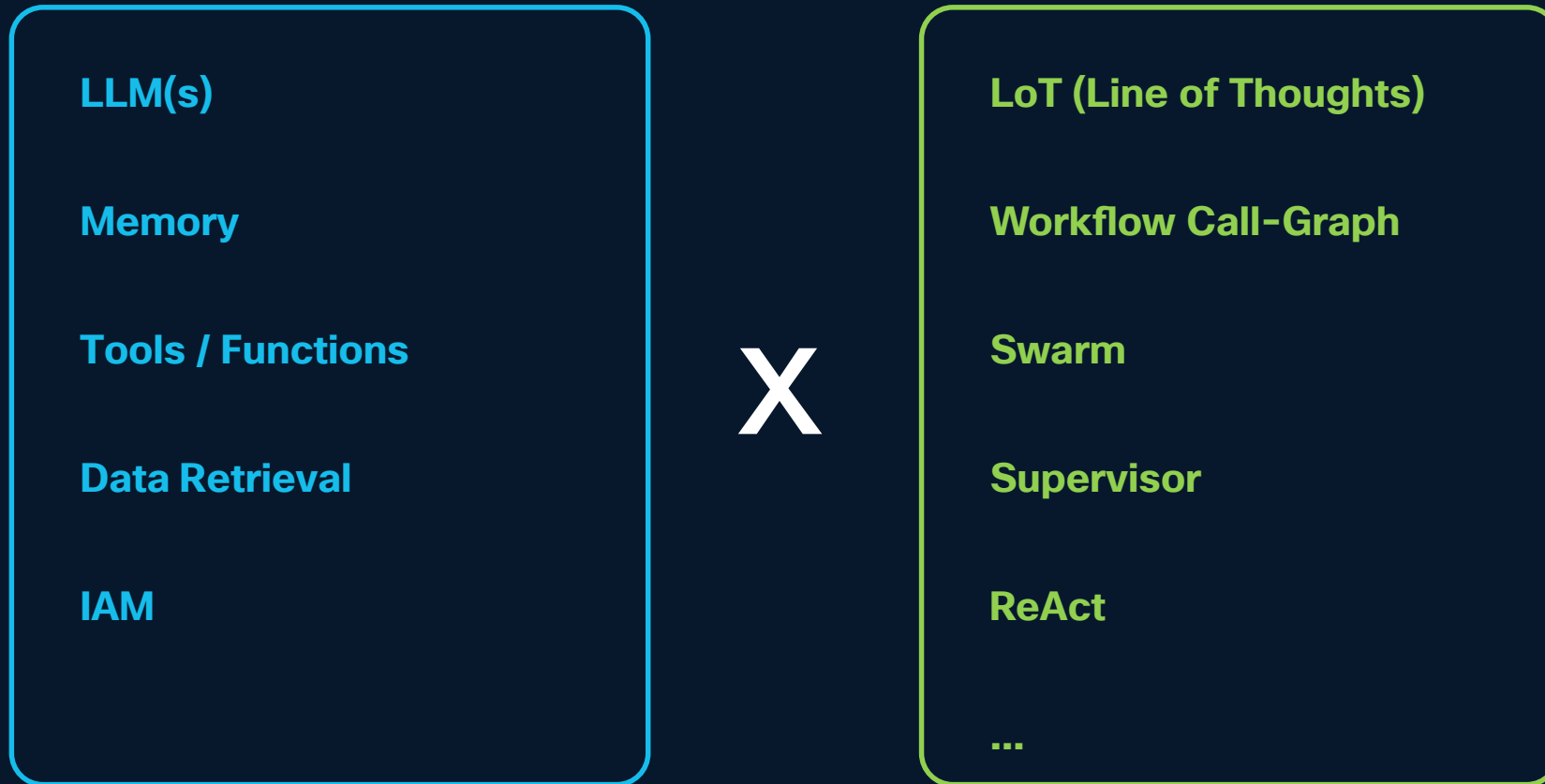
"Agent" can be defined in several ways. Some customers define agents as fully autonomous systems that operate independently over extended periods, using various tools to accomplish complex tasks. Others use the term to describe more prescriptive implementations that follow predefined workflows. At Anthropic, we categorize all these variations as agentic systems, but draw an important architectural distinction between workflows and agents:

Workflows are systems where LLMs and tools are orchestrated through predefined code paths

Agents, on the other hand, are systems where LLMs dynamically direct their own processes and tool usage, maintaining control over how they accomplish tasks

Anthropic

Ingredients and recipes to build an Agent



Agentic computing needs a collaboration framework

Agents

come from different **vendors**

use different development **frameworks**

running on different **clouds**

have different **access** controls

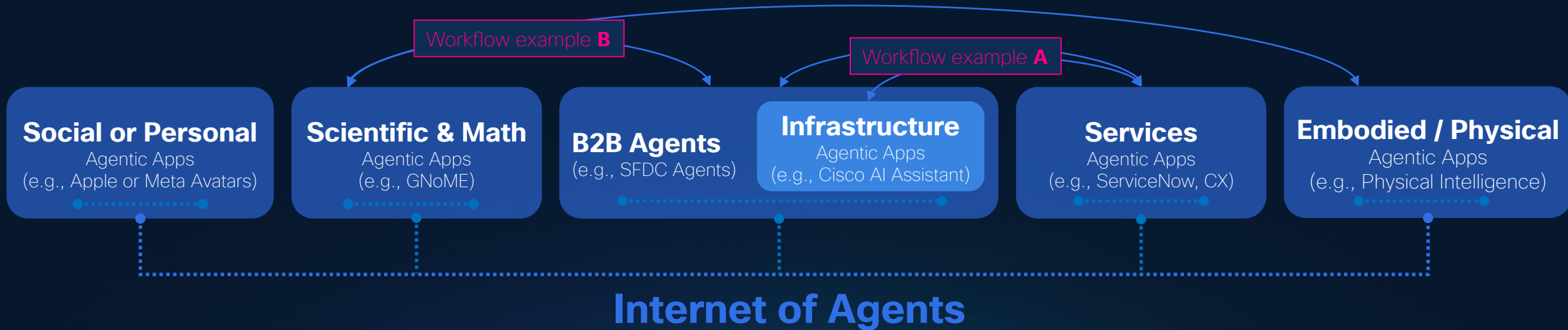
belong to different **organizations**

take on different **profiles** and **personas**

Agents **must** collaborate to solve problems

Like a **team** of subject matter experts

Ensembles of Agents need a secure collaboration layer



Internet of Agents

A: IT App Deployment & Management
(biz logic description) : (service-ticket generation) : (service-graph generation): (scale-checker) : (security-checker) : (cost-manager)

Ex. Vendors: Open AI, ServiceNow, Salesforce, Microsoft, Cisco, ...

B: Drug discovery, Materials Discovery:
(protein-modeling) : (cost-modeling) : (protein-modify) :
(efficacy-vector-search) : (safety-check) : (reaction-check)

Ex. Vendors: Anthropic, Evolutionary Scale, Physical Intelligence, ...



Self-Similarity / Recursive Composability



Focused on driving the **Internet of Agents** revolution

The Internet of Agents is an open¹, interoperable, internet for

quantum-safe

agent-agent collaboration

[¹] An open, interoperable Internet of Agents will drive maximum value for all players: infra builders, operators, app developers, consumers

Why do we need a new internet

Agents have **human-like attributes** and communication needs but at machine **speeds** and **scale**

1 discover and identify

- find agents for specific tasks? are they reputable?
- identify them, give access on my behalf?

2 securely connect

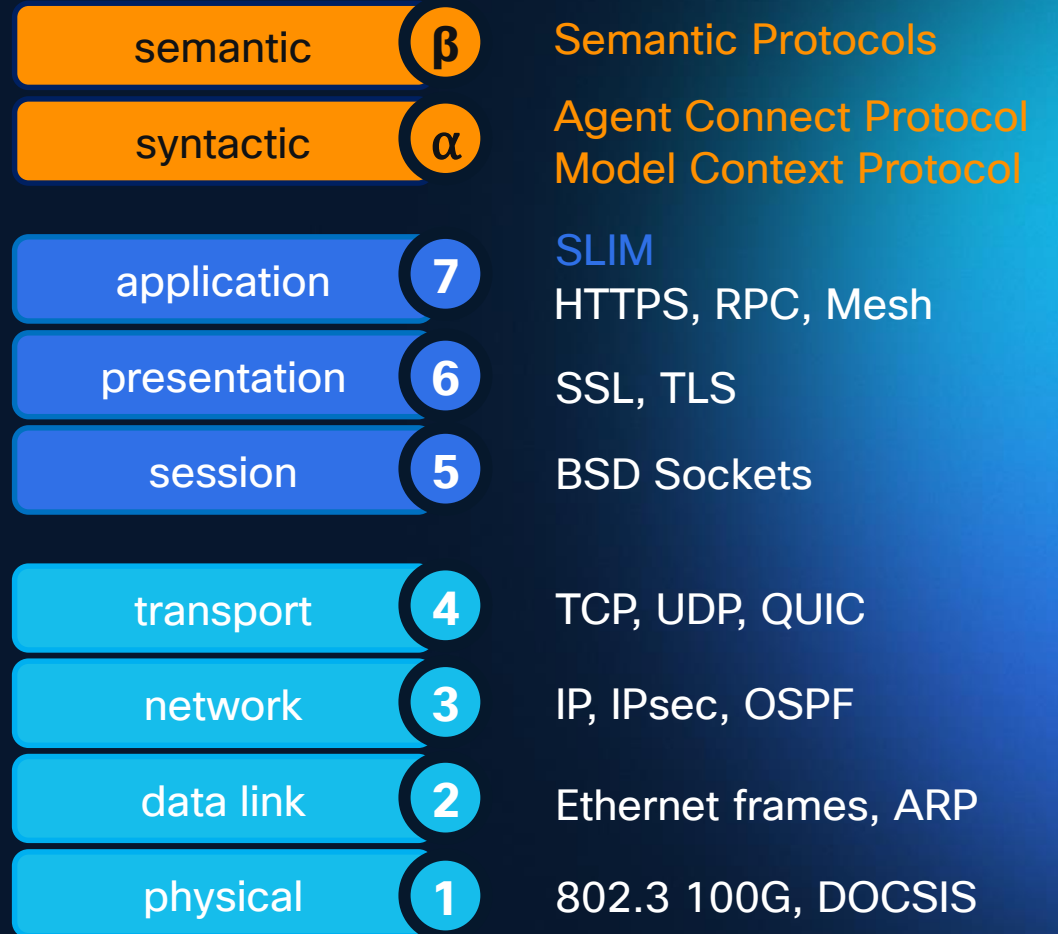
- assemble them to collaborate on the job to be done?
- interpret probabilistic / natural language inputs and outcomes?
- efficiently & securely transfer text-video-image-audio state?

3 observe and evaluate

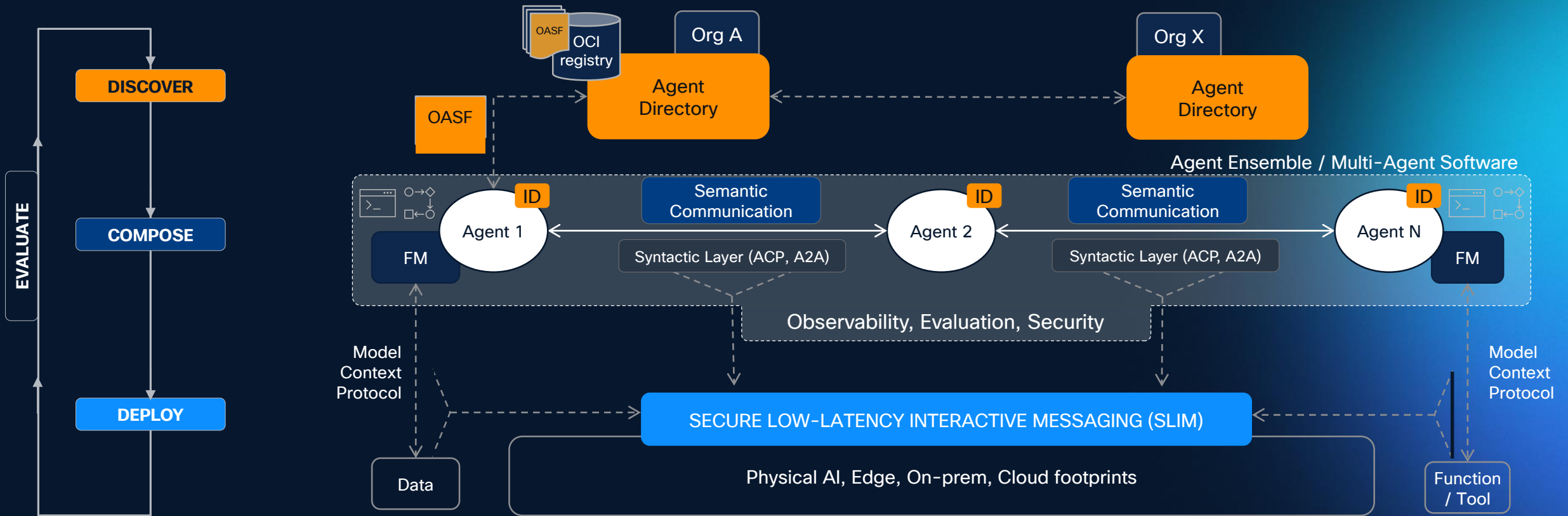
- doing what they are supposed to do?
- getting into conflicts, loops



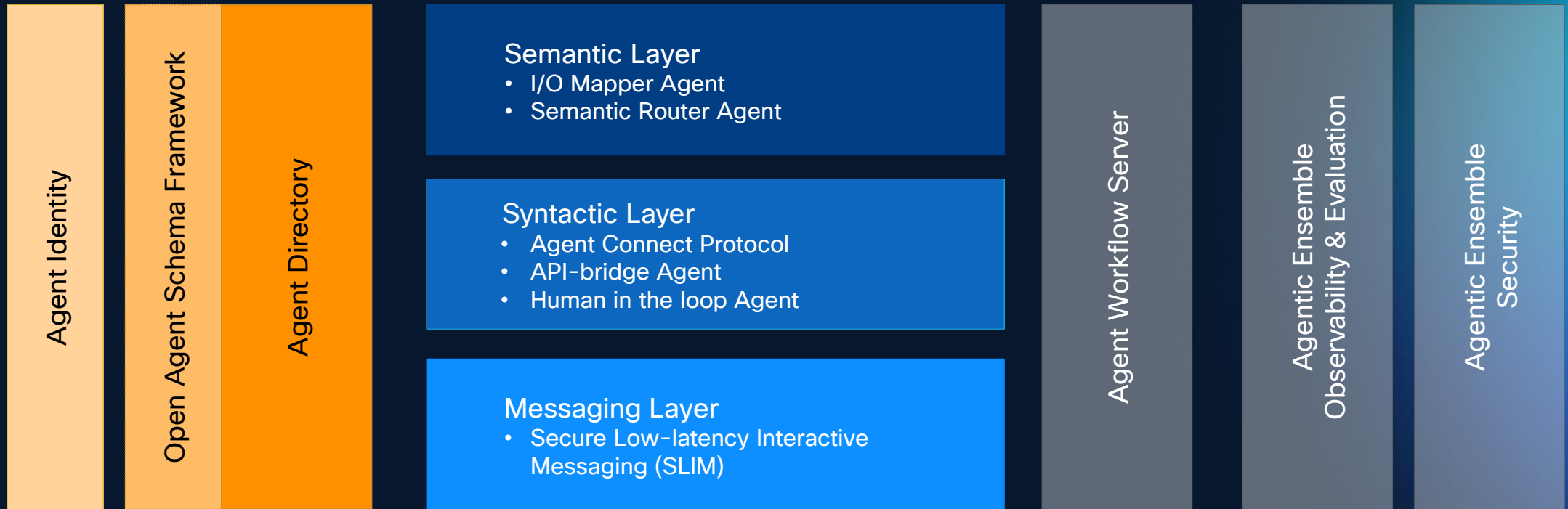
Rethinking the OSI model



Internet of Agents architecture



Internet of Agents stack



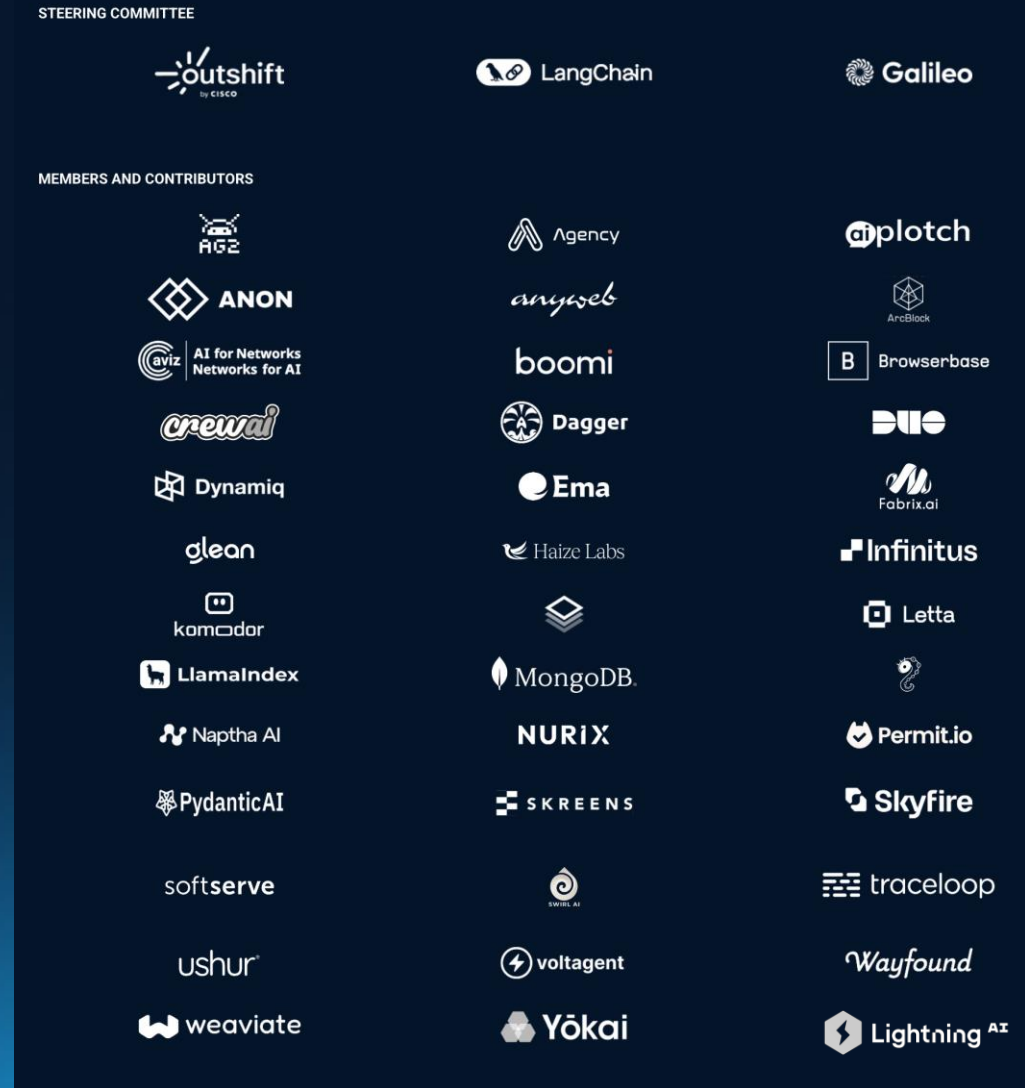
Driving open standards and open source code



An open source collective for inter-agent collaboration

The AGNTCY is where we are building the Internet of Agents to be: A diverse, collaborative space to innovate, develop, and maintain software components and services for agentic workflows and multi-agent software.

50+ collaborating organizations, growing...



Discover & Identify

OASF

Open Agentic Schema Framework

OASF allows to describe the attributes of any agent in a great level of details and using various file format (typically JSON or YAML).



The screenshots show the OASF web application interface. The top screenshot displays the 'Agent object' section, which defines a schema for AI agent content representation. The middle screenshot shows the 'Skills' section, providing a structured view of distinct abilities. The bottom screenshot shows the 'Domains' section, which is a comprehensive table of distinct fields of application and knowledge areas.

Technology (1)	Finance and Business (2)	Life Science (3)	Trust and Safety (4)	Human Resources (5)	Education (6)	Industrial/Manufacturing (7)	Transportation (8)	Healthcare (9)
Internet of Things (07) (101)	Banking (201)	Biotechnology (301)	Online Safety (401)	Recruitment (501)	E-Learning (601)	Automation (701)	Logistics (801)	Medical Technology (901)
Software Engineering (102)	Finance (202)	Pharmaceutical Research (302)	Content Moderation (402)	Employee Relations (502)	Curriculum Design (602)	Robotics (702)	Automotive (802)	Telemedicine (902)
Networking (103)	Investment Services (203)	Genomics (303)	Fraud Prevention (403)	Training and Development (503)	Learning Management Systems (603)	Supply Chain Management (703)	Public Transit (803)	Healthcare Informatics (903)
Network Operations (104)	Consumer Goods (204)	Bioinformatics (304)	Data Privacy (404)	Compensation and Benefits (504)	Educational Technology (604)	Lean Manufacturing (704)	Supply Chain (804)	Patient Management Systems (904)
Network Management (105)	Retail (205)	Molecular Biology (305)	Risk Management (405)	HR Analytics (505)	Pedagogy (605)	Process Engineering (705)	Freight (805)	Health Information Systems (905)
Information Technology (106)							Autonomous Vehicles (806)	
Security (107)								
Communication Systems (108)								

Agent Directory

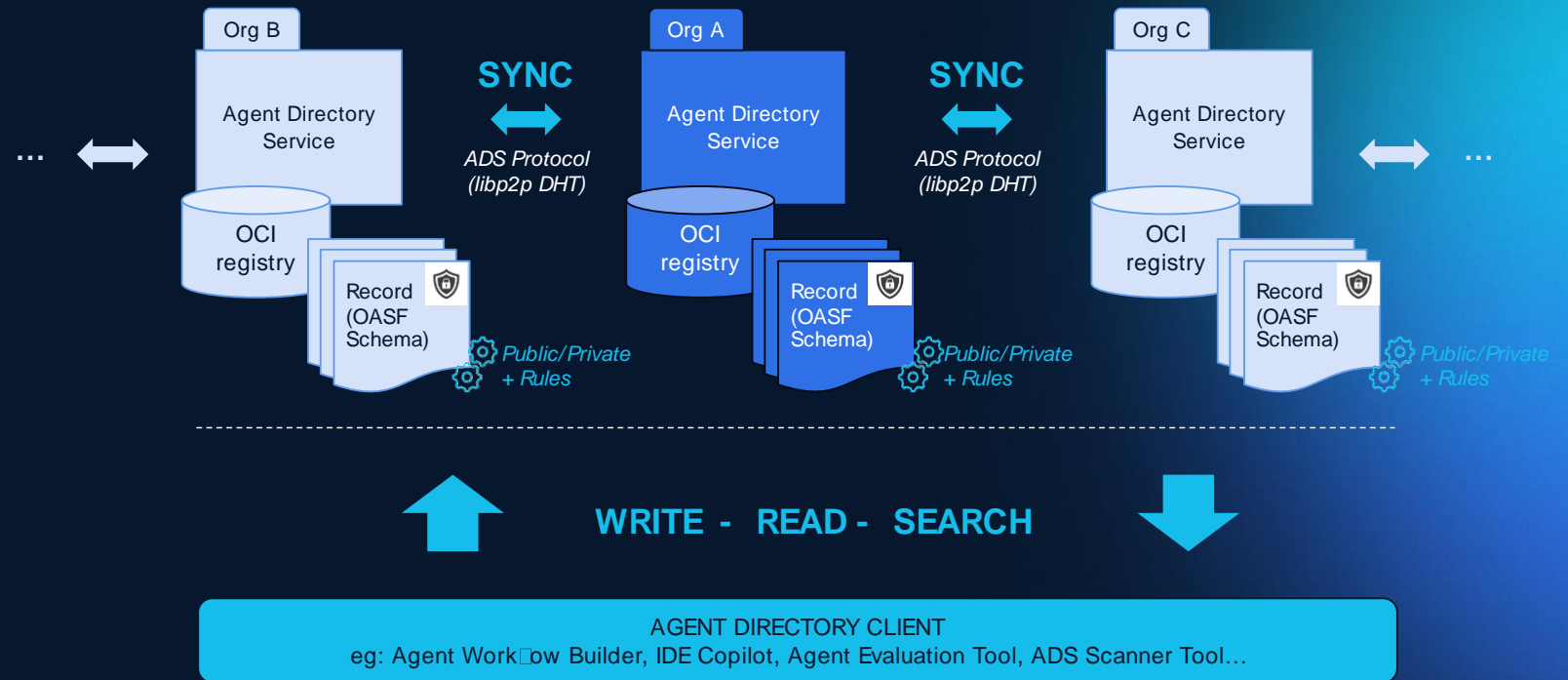
A secure, scalable, decentralized service that holds agent and MCP server records

Publish and discover agent records across the network of decentralized directories

Provides a cryptographic trust model that ensures authenticity and provenance of each record

Leverages the Open Agentic Schema Framework (OASF) to describe agents

Available as open-source software, or try out the hosted SaaS (<https://hub.agntcy.org>)



AGNTCY Agent Directory (Free SaaS)



AGNTCY Agent Directory Guillaume Sauvage De Saint Marc Admin

gsm_agentic_org

Explore
Agent Directory
Settings

Explore Agents

Search our global directory of qualified agents.

Search by agent name Agent skills Sort by: Most recent

Agents

Contextual Comprehension +5 outshift-puccini-org/mailcomposer Jun 6, 2025 15:19 Composes email based on user prompt	Contextual Comprehension +5 aduminuc/mailcomposer Jun 6, 2025 14:27 An agent able to compose emails based on user prompt.	coffeagntcy/buyer Jun 5, 2025 23:05 This agent acts as a supervisor, routing user prompts about coffee flavor, taste, or sensory profile to the Sommelier(or Farm) agent. It serve...	coffeagntcy/colombia Jun 5, 2025 23:05 This agent operates as an A2A server agent, it returns the yield of coffee beans in pounds for the Colombia farm.
coffeagntcy/brazil Jun 5, 2025 23:04 This agent operates as an A2A server agent, it returns the yield of coffee beans in pounds for the Brazil farm.	coffeagntcy/sommelier Jun 5, 2025 23:03 This agent operates as an A2A server agent, providing backend services to process user inputs and generate coffee flavor profiles and make a...	coffeagntcy/vietnam Jun 5, 2025 23:03 This agent operates as an A2A server agent, it returns the yield of coffee beans in pounds for the Vietnam farm.	Text Completion cnoe-io/agent-pagerduty Jun 5, 2025 06:51 Pagerduty MCP Agent powered by LangGraph and LangChain MCP Adapters and exposed using ACP or A2A
Text Completion cnoe-io/agent-argocd Jun 4, 2025 18:39 ArgoCD AI Agent powered by 1st Party MCP Server using OpenAPI Codegen, LangGraph and LangChain MCP Adapters. Agent is exposed on...	Text Completion cnoe-io/agent-backstage Jun 2, 2025 15:14 Backstage MCP Agent powered by LangGraph and LangChain MCP Adapters and exposed using ACP or A2A.	Text Completion cnoe-io/agent-github Jun 2, 2025 15:11 Github MCP Agent powered by LangGraph and LangChain MCP Adapters and exposed using ACP or A2A. This agent uses official MCP server	Text Completion cnoe-io/agent-atlassian May 26, 2025 10:54 Atlassian (Jira/Confluence) Agent powered by LangGraph and LangChain MCP Adapters exposed via multiple protocols (AGNTCY ACP,...
Contextual Comprehension +5 agntcy/api_bridge_agent_demos May 21, 2025 16:37 Demo application of MCP and API Bridge Agent. Analyzes a Github repository and searches for	Contextual Comprehension +3 agntcy/remote_agent_agp May 21, 2025 16:34 A demonstration application using AGP to connect a client, a gateway, and a remote agent to	Text Completion +5 agntcy/marketing-campaign May 21, 2025 16:23 A multi-agent application to compose, review, and send marketing campaign emails.	Contextual Comprehension +5 agntcy/email_reviewer May 21, 2025 16:22 Agent in charge of reviewing and correcting emails addressed to a specific audience.

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Agent Identity

An identity framework that assigns, verifies, and manages credentials for AI agents

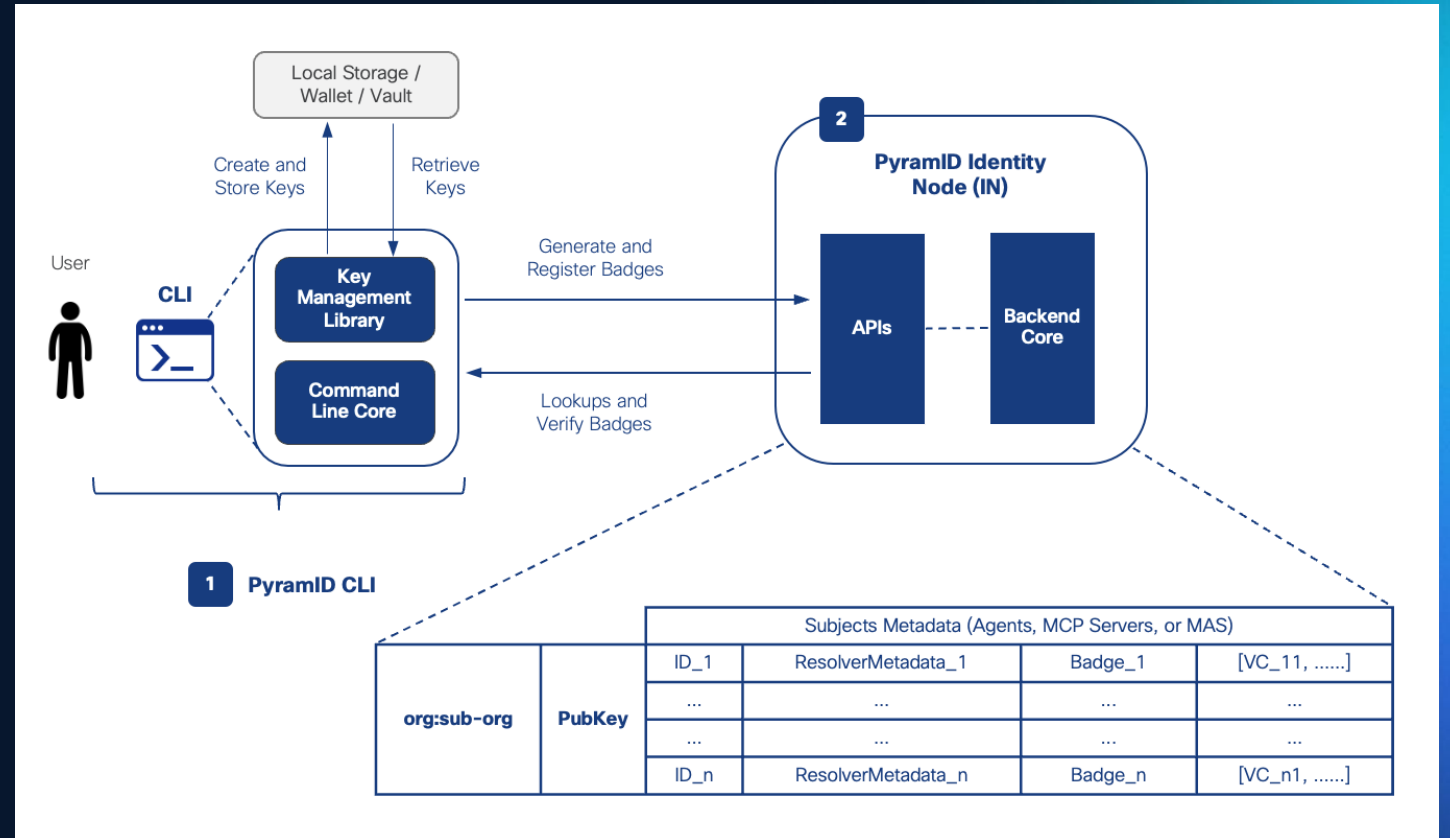
Assign **cryptographically verifiable identities** as part of **agent** and **MCP server** onboarding and registration

Apply asymmetric keys to **signed ID badges**

Use **credentials** that are anchored in a secure, tamper-proof trusted identity node

Enjoy **fast identity resolution** across APIs, clouds and organizations

Support heterogeneous identity types including those issued by common identity providers (e.g. Cisco Duo, Okta, Microsoft AD, Auth0)



Securely Compose and Connect

SLIM: Secure Low-latency Interactive Messaging

A messaging service enabling real-time, multi-modal state exchange between agents, models and tools

Extends gRPC to support **pub/sub** interactions in addition to **request/reply**, **streaming**, **fire & forget**, ...

Employs authentication, authorization and end-to-end encryption to **protect data privacy and integrity** (TLS, MLS)

Enables agent group-based collaboration, human-in-the-loop interactions and **large state exchange** through low latency communication patterns

Supports **MCP** and **A2A** protocols

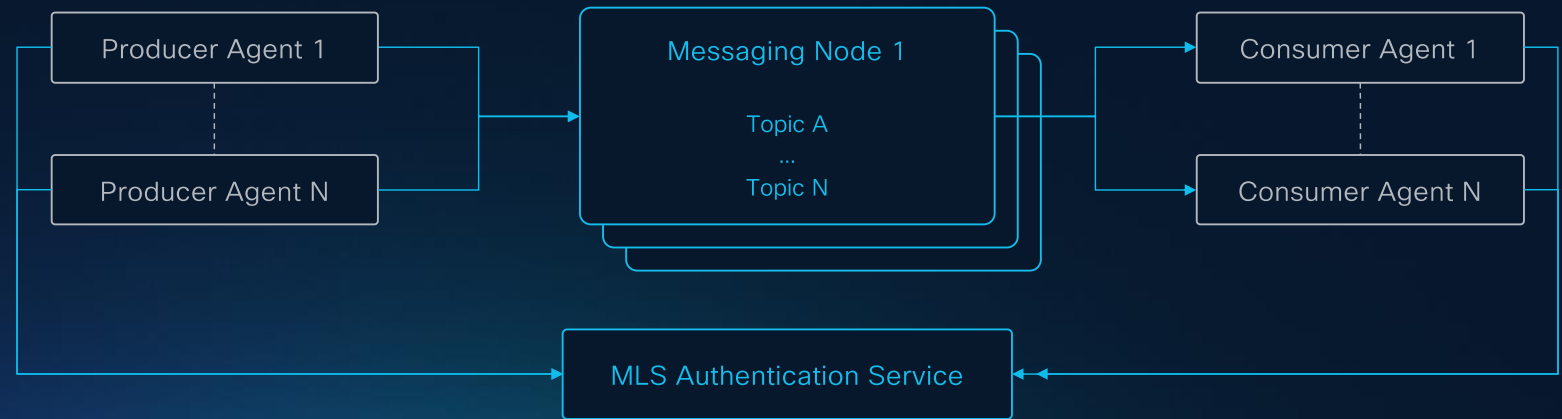
Provides **decentralized**, **secure** and **scalable** routing for distributed systems (Agents, MCP servers, models)

Producers publish messages to Topics

Messages are encrypted via Topic-specific MLS

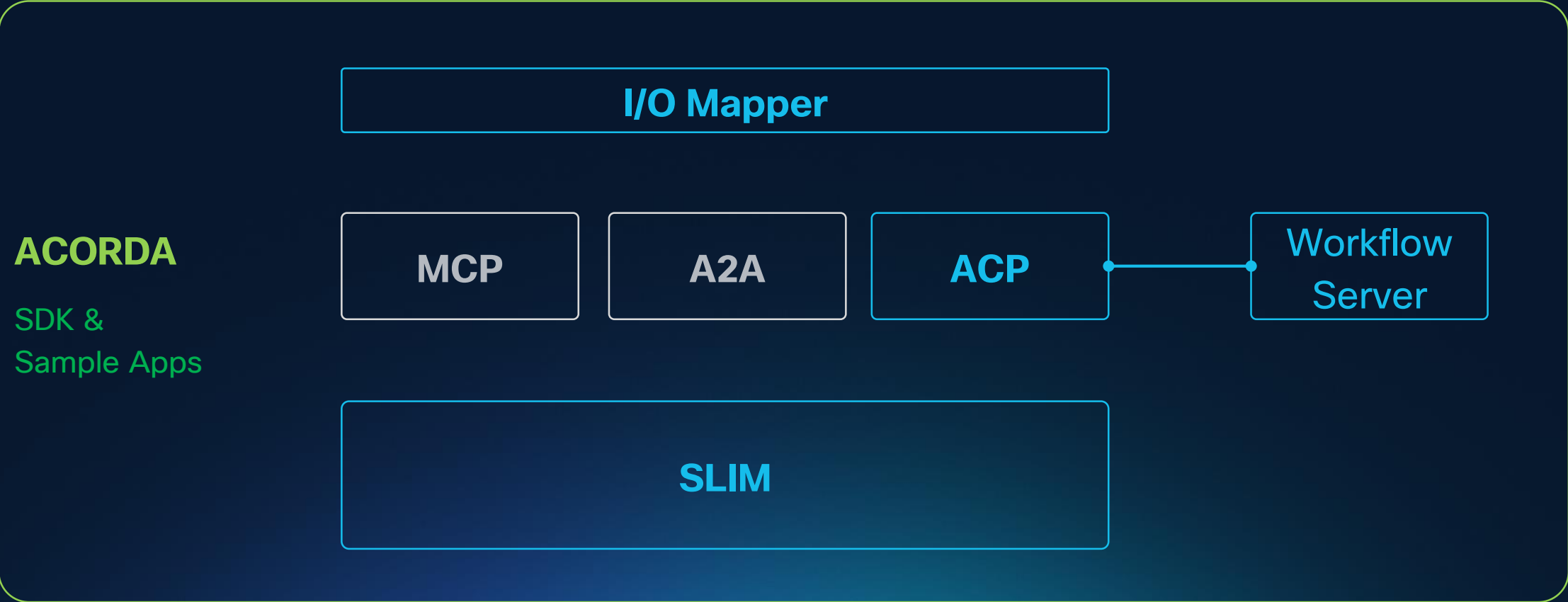
Consumers subscribe to Topics

Message Nodes forward encrypted messages

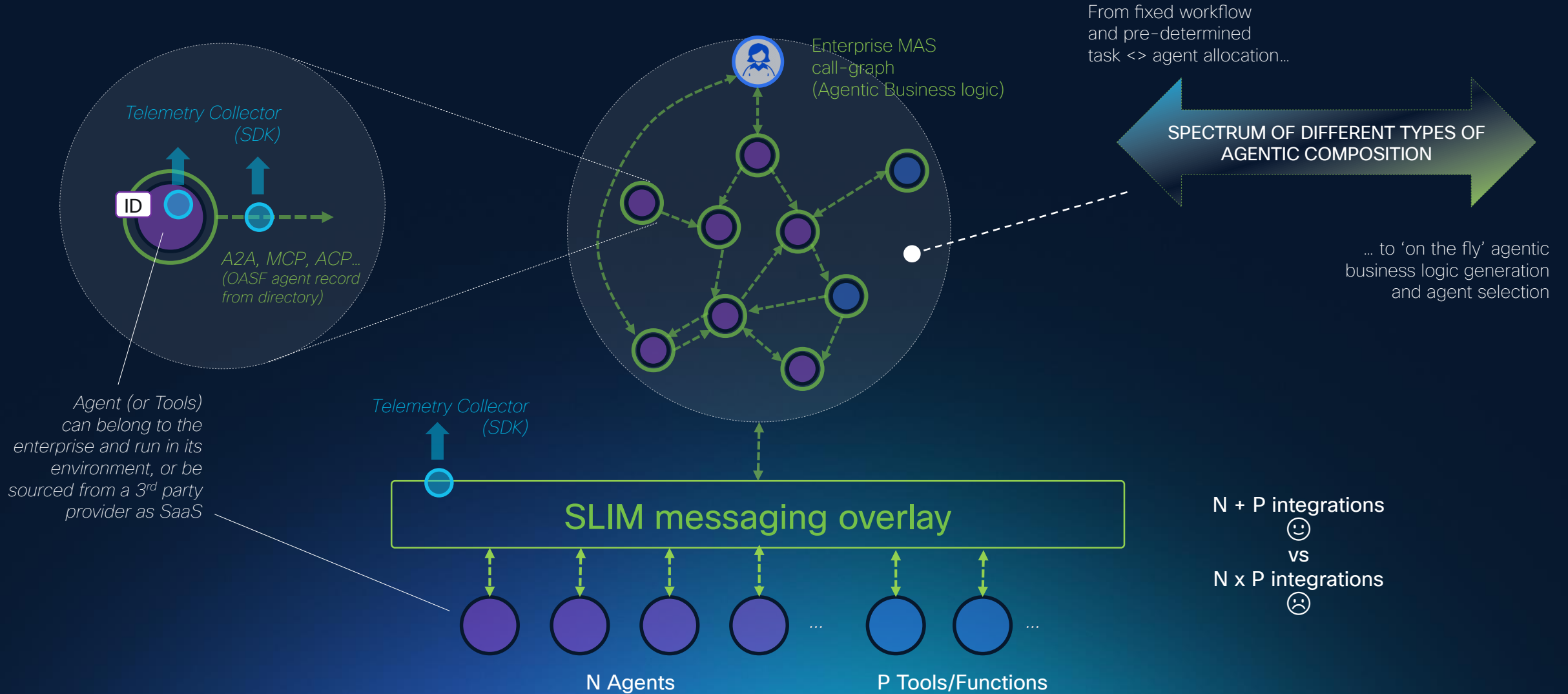


Producers and consumers authenticate & obtain keys using the MLS Authentication Service

Agntcy Components for composition



MAS (Multi-Agent System) Composition



AGNTCY



Protocols

MCP

A2A

...

ACP

SLIM

Observe & Eval

Agent Observability & Evaluation

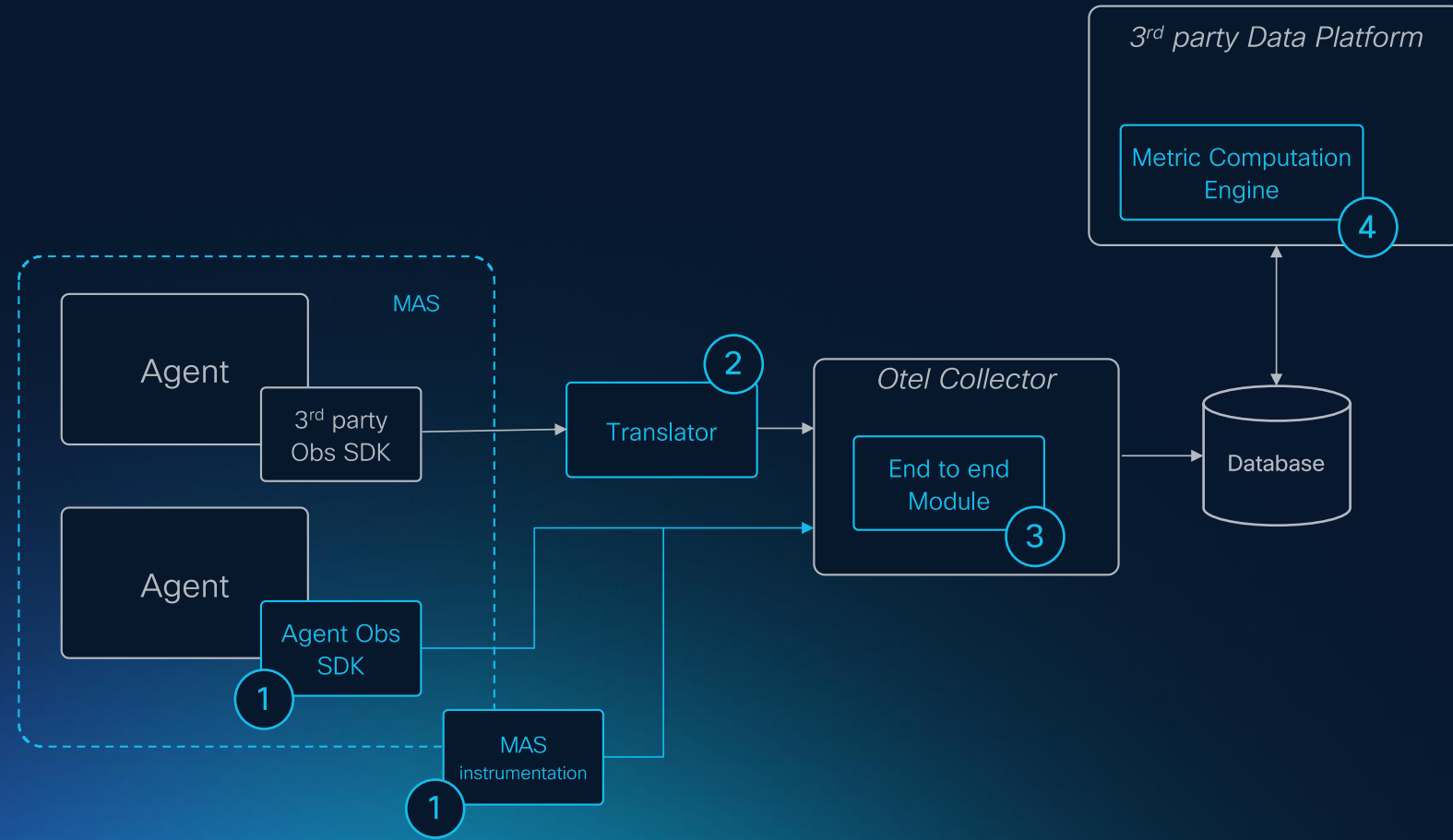
A framework that monitors and assesses multi-agent software performance

Captures traces, metrics and events from multi-agent software and exports data to an Otel collector endpoint

Supports agents from various frameworks by mapping and translating third-party schemas

Provides end-to-end visibility into multi-agent software by aggregating telemetry data across agents and components

Supports derived evaluation and observability metrics



MAS examples

Acorda: AGNTCY's reference application

An OSS application and SDK to jumpstart multi-agent software development



coffeeAGNTCY

A fictional global coffee enterprise adopting AGNTCY to coordinate sourcing, logistics, and all operations



corto

A simple two agent system communicating



lungo

A full multiagent simulation with different patterns of communication

jparella >

Explore

Agent Directory

Settings

Explore Agents

Search our global directory of qualified agents.

Search by agent name

Agent skills

Sort by: Most recent

Agents

Contextual Comprehension

marinesky/awesome_gpt_super_p...

Jun 6, 2025 17:37

ChatGPT Jailbreaks, GPT Assistants Prompt Leaks, GPTs Prompt Injection, LLM Prompt Security, Super Prompts, Prompt Hack,...



Contextual Comprehension

marinesky/optillm

Jun 6, 2025 17:37

Optimizing inference proxy for LLMs



Contextual Comprehension

marinesky/omagent

Jun 6, 2025 17:36

Build multimodal language agents for fast prototype and production



Contextual Comprehension

marinesky/awesome_chatgpt_rep...

Jun 6, 2025 17:35

A curated list of resources dedicated to open source GitHub repositories related to ChatGPT and OpenAI API



Contextual Comprehension

marinesky/maibot

Jun 6, 2025 17:34

bot



Contextual Comprehension

marinesky/aide

Jun 6, 2025 17:33

Conquer Any Code in VSCode: One-Click Comments, Conversions, UI-to-Code, and AI Batch Processing of Files! VSCode UI AI



Contextual Comprehension

marinesky/genaiscript

Jun 6, 2025 17:32

Automatable GenAI Scripting



Contextual Comprehension

marinesky/xianyuautoagent

Jun 6, 2025 17:32

AI724



Contextual Comprehension

marinesky/llamaindexs

Jun 6, 2025 17:31

Data framework for your LLM applications. Focus on server side solution



Contextual Comprehension

marinesky/evadb

Jun 6, 2025 17:30

Database system for AI-powered apps



Contextual Comprehension

marinesky/casibase

Jun 6, 2025 17:29

AI Cloud OS: Open-source enterprise-level AI knowledge base and MCP (model-context-protocol)/A2A (agent-to-agent) managemen...



Contextual Comprehension

marinesky/core

Jun 6, 2025 17:29

AI agent microservice



Contextual Comprehension

Contextual Comprehension

Contextual Comprehension

Contextual Comprehension

JARVIS

A multi-agent SRE with serious agency



20+ AGENT ENSEMBLE

- Support desk: 3 engineers → JARVIS
- Query responses: Hours → seconds
- 30% tasks: One day → minutes



JARVIS ON CNOE GIT HUB

50+ TOOL & DATA CALLING

RAG: Platform docs

Live Tool Calling: K8sGPT, PagerDuty +

Graph RAG: AWS, Backstage, STO +

5+ USER INTERFACES

Webex chat, Backstage, VS Code,
Jira, CLI +

10+ WORKFLOWS

Interact with JIRA

Many self-service functions

Deep Dive Sessions on Agentic



Giovanna Carofiglio

Cisco Distinguished Engineer
Outshift

*Agentic AI and NetDevOps:
Enabling a New Era of Network
Change Validation*

BRKNWT-2502 Thu at 01:00 PM



Frank Brockners

Cisco Distinguished Engineer
Outshift

*A New Era of Cross-domain
Diagnostics with AI and Agentic
Systems*

BRKETI-2172 Tue at 10:30 AM



John Parello

Engineering Director, Outshift
Cody Hartsook
Software Engineer, Outshift

*Inside DevNet: See How We Built
AI Agents So You Can Do It Too*

DEVNET-2322 Tue at 4:30 PM

Wrap-up: What Next?

A shift toward **agentic computing** is happening in the industry.

We all have to embrace it and get familiar with building, operating and using **MAS** (Multi Agent Software)



[Agntcy.org](https://agntcy.org) is an active open source collective supporting the [Internet of Agents](#) vision

Cisco is an active contributor and maintainer of Agntcy

Agntcy is **agentic framework agnostic** and
vendor neutral

>> Explore the GitHub and get familiar with the stack,
components and example apps

Connectivity, Observability and Security are core to the Internet of Agents and to Cisco solutions

We'll continue to work on Open Source and Enterprise-grade products to empower our customers and partners on their journey to adopting Agentic Computing.

Stay tuned!

Want to learn more?

- Visit the Outshift Internet of Agents and AGNTCY websites

<https://outshift.cisco.com/the-internet-of-agents>

<https://agntcy.org/>

- Check out the AGNTCY open-source collective on GitHub

<https://github.com/agntcy>

- Attend AGNTCY working group office hours

<https://github.com/agntcy/governance/blob/main/working-groups/WORKING-GROUPS.md>

- More questions? Reach out to us!

hello@agntcy.org

ADOPT



Review the Getting Started readme on github.com/agntcy

Attend office hours

SUPPORT & PROMOTE



List your company on agntcy.org/supporters

Create co-marketing plan

JOIN A WORKING GROUP



Core, Observability & Evaluation, Identity ... option to create your own

CONTRIBUTE



Focus on use cases

Collaboration via Slack and Working Group meetings

Complete your session evaluations



Complete a minimum of 4 session surveys and the Overall Event Survey to be entered in a drawing to win 1 of 5 full conference passes to Cisco Live 2026.



Earn 100 points per survey completed and compete on the Cisco Live Challenge leaderboard.



Level up and earn exclusive prizes!



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Visit the Cisco Showcase for related demos



Book your one-on-one Meet the Engineer meeting



Attend the interactive education with DevNet, Capture the Flag, and Walk-in Labs



Visit the On-Demand Library for more sessions at www.CiscoLive.com/on-demand

Contact me at: g2stmarc@cisco.com

Thank you

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