

Next Steps in Multi-Agent Systems

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**Conversational
Technologies,
Open Voice
Interoperability
Initiative**

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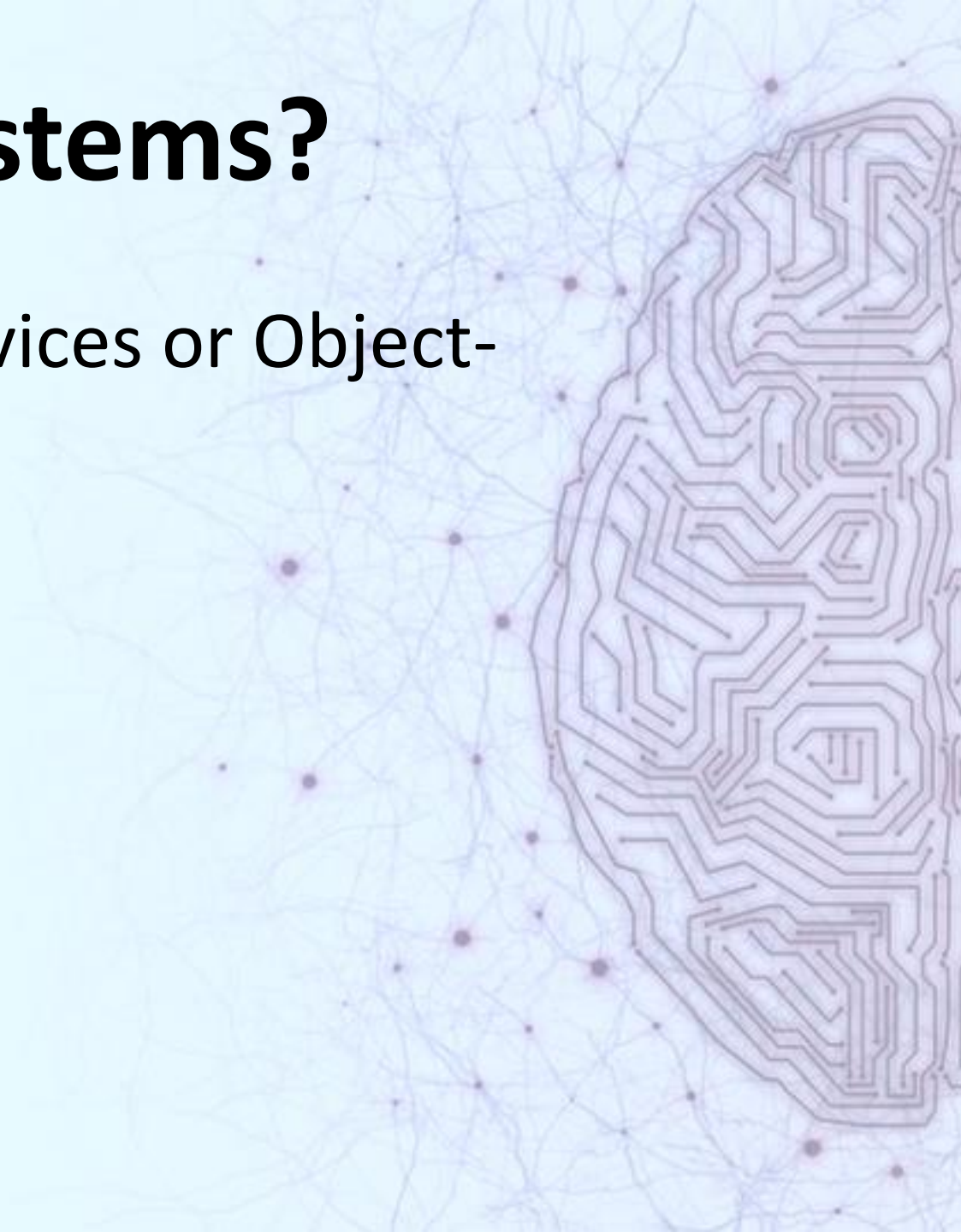
Outline

- Why multi-agent systems?
- Multi-agent use cases
- Open Floor Protocol (OFP) and Agent to Agent (A2A)
- OFP examples
- Future directions in multi-agent systems
- Getting involved in OFP

Why Multi-Agent Systems?

Similar arguments to microservices or Object-Oriented Programming

- Separation of concerns
- Encapsulation of capabilities
- Maintainability
- Testing
- Reuse of specialized agents
- Data privacy



Use Cases

- Pipelines of agents
 - Customer support --transferring users to different departments with different experts
 - Agents performing different tasks and contributing to solving a problem
- Interactive teams
 - Agents discuss a topic in the same conversation, offering different opinions or different information

Two Linux Foundation Multi-Agent Protocols

- Agent to Agent (A2A, Agentic AI Foundation)
- Open Floor Protocol (OFP, LF AI and Data Foundation)

A2A Multi-Agent Framework

- Agents send tasks to each other in a pipeline
- Communicate via standard JSON messages
- User is not a direct participant in the conversation
- Tasks can be long-running
- Agent messages go to one agent at a time
- Agents only need to conform to the protocol to interact

Example A2A message

```
{
  "jsonrpc": "2.0",
  "id": "req-1001",
  "method": "message/send",
  "params": {
    "message": {
      "kind": "message",
      "messageId": "550e8400-e29b-41d4-a716-446655440000",
      "role": "user",
      "parts": [
        {
          "kind": "text",
          "text": "Summarize the latest task status."
        }
      ]
    }
  }
}
```

Open Floor Protocol

- Enables agents to interact over a shared conversational floor
- A convener agent chairs the conversation
- Enables a user to participate in the conversation
- Enables integration of proprietary and open-source systems into a cohesive ecosystem
- To interact, agents only need to conform to the OFP protocol
- Agents are platform- and technology-independent

OFP Components

- Agents– as many as needed
- Convener– one (optional) agent that invites and supervises the agents
- Floor – one floor that transmits events to and from agents

A2A and OFP Compared

	A2A	OFP
Message format	JSON	JSON
Description of abilities	Card	Manifest
Message addressing	One to one	One to many
User can join the conversation	No	Yes
Configuration	Development time	runtime
Discovery	Experimental	Experimental
Agents in an application know about each other	Only if designed	Yes, by default
Real-time response checking (e.g., hallucinations)	Responses can be sent to reviewer agents if implemented	Sentinels
Use cases	Pipeline tasks, offline tasks	<ul style="list-style-type: none">• Dynamic, nondeterministic problem-solving• user in the loop• agents react to each others' outputs• voice input

More about OFP



An Open Floor Team of Agents for Travel Planning

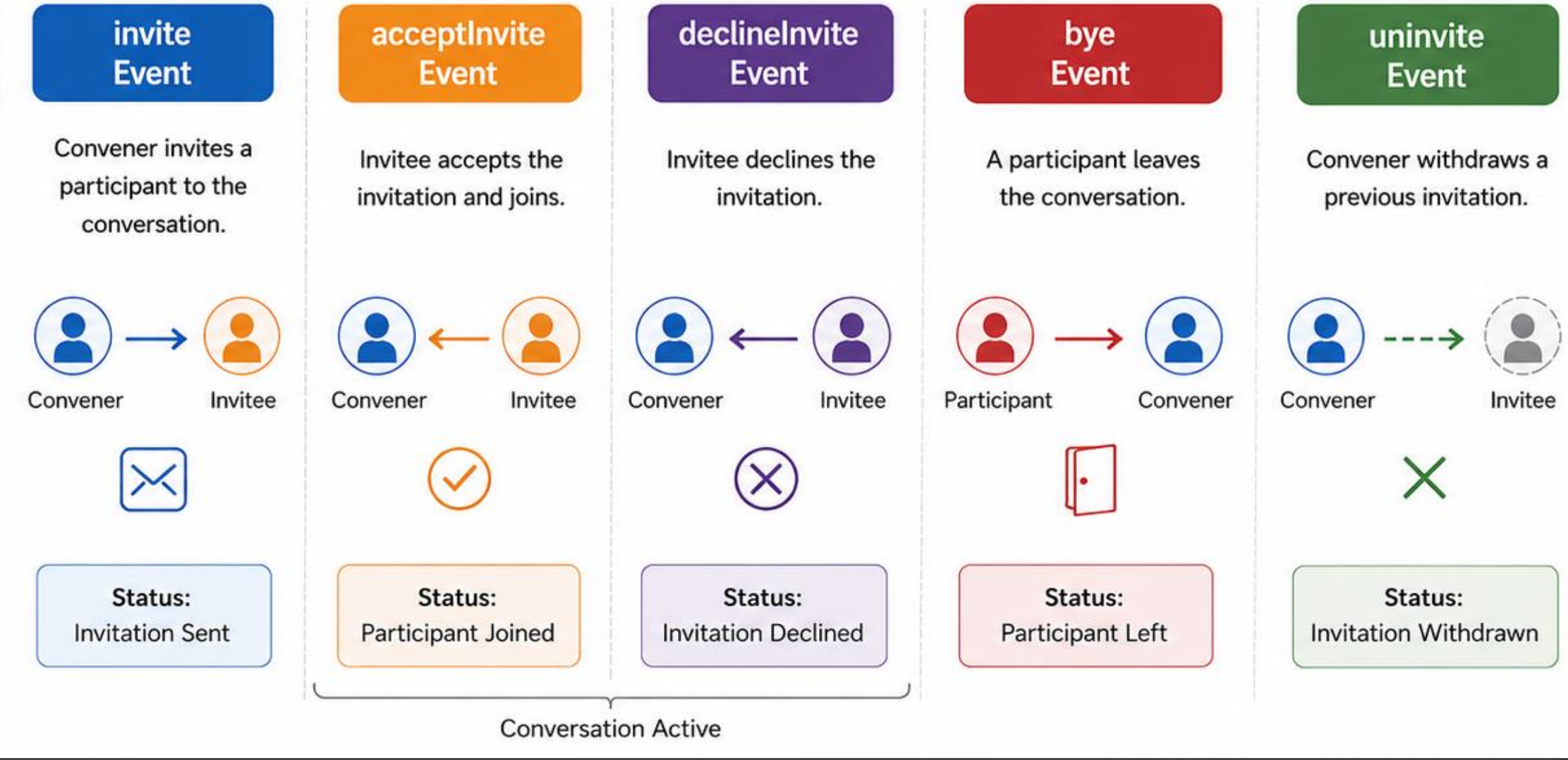


OFP Agents are Controlled by 12 Events

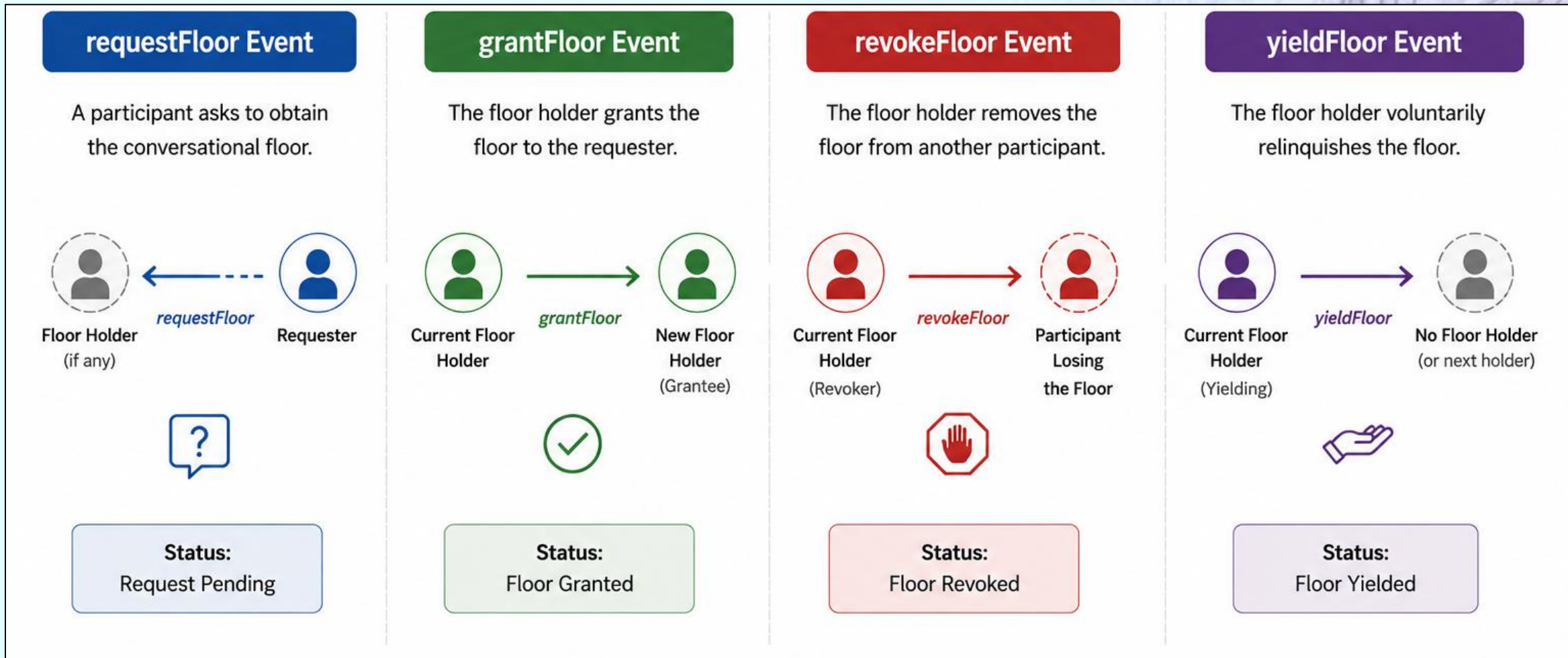
1. Learning about agent capabilities



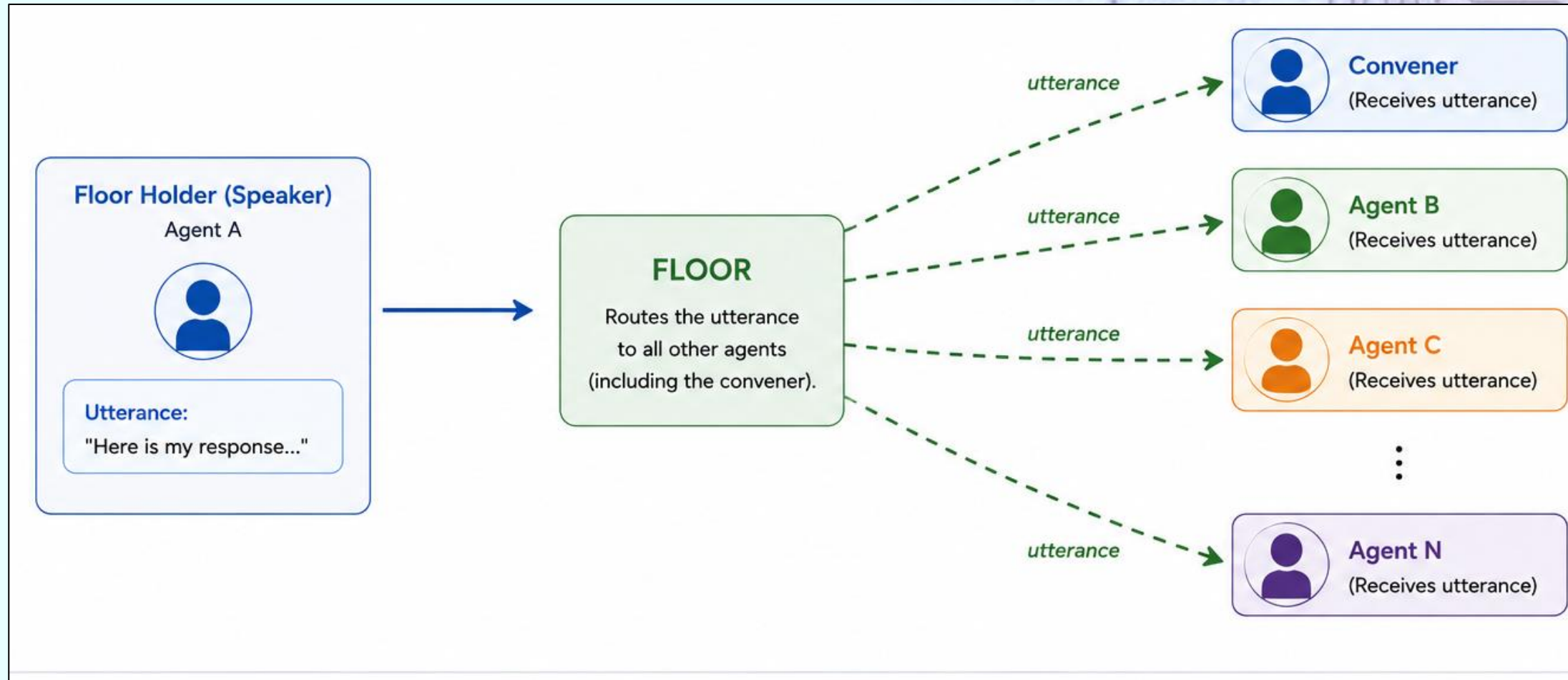
2. Joining and Leaving a Conversation



3. Taking and Leaving the Floor



4. Utterance Event



All Together: A Conversation Envelope

conversation

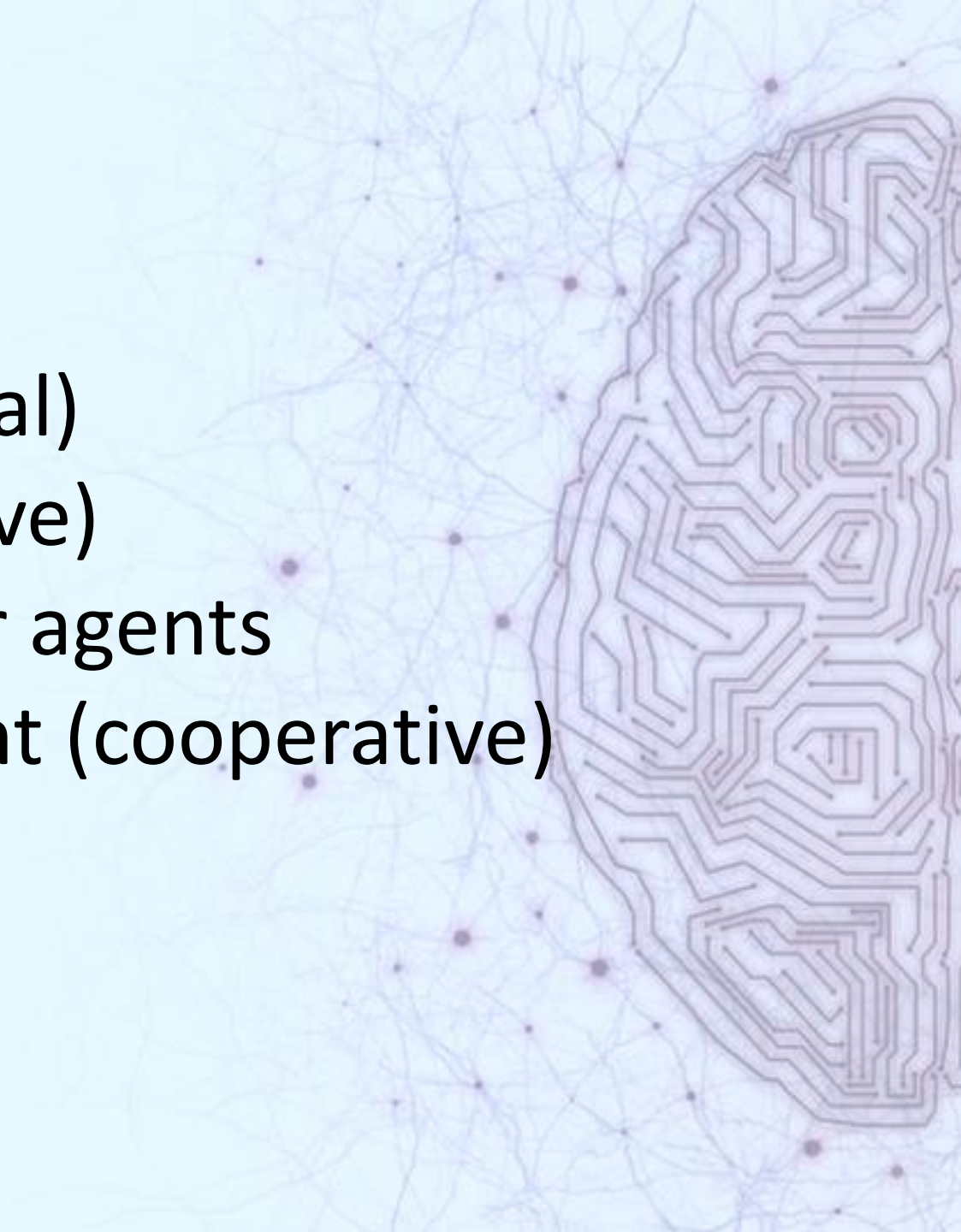
sender

utterance

```
{
  "openFloor": {
    "conversation": {
      "id": "c02cb676-3f36-4730-9aa7-4eb8554c64b2",
      "conversants": [
        {
          "identification": {
            "speakerUri": "http://localhost:8083",
            "serviceUrl": "http://localhost:8083/",
            "organization": "Unknown",
            "conversationalName": "Finn",
            "synopsis": "Conversant endpoint at http://localhost:8083/"
          }
        }
      ],
      .....
    },
    "sender": {
      "speakerUri": "openFloor://localhost/AssistantClientConvenerWeb",
      "serviceUrl": "http://localhost"
    },
    "events": [
      {
        "eventType": "utterance",
        "parameters": {
          "dialogEvent": {
            "speakerUri": "openFloor://localhost/AssistantClientConvenerWeb",
            "features": {
              "text": {
                "mimeType": "text/plain",
                "tokens": [
                  {
                    "value": "i want to save for my children's college"
                  }
                ]
              }
            }
          }
        }
      }
    ]
  }
}
```

OFP Examples

1. Financial advice (adversarial)
2. Book authoring (cooperative)
3. Sentinels monitoring other agents
4. Logistics crisis management (cooperative)



Example 1: Financial advice with agents that disagree with each other

Two financial advisor agents, Prudence (conservative) and Lucky (risk-taking) and a user [YOU] what are some good investments for retirement savings?

[LUCKY] Buy emerging market tech stocks for explosive growth potential. Add cryptocurrency to your portfolio for massive upside; look at Bitcoin or Ethereum. Focus on speculative biotech firms with breakthrough therapies for high-return opportunities.

[PRUDENCE] Prioritize diversified index funds and high-quality bonds. Build a portfolio of high-dividend stocks for stable income. Avoid speculative investments; focus on long-term growth and stability.

[LUCKY] Prudence: Why limit yourself? Embrace the potential of selective growth stocks! Invest 10% of your portfolio in high-quality, dynamic growth sectors while using trailing stops to protect gains!

[PRUDENCE] Lucky: This advice is excessively risky and speculative. Instead, prioritize a diversified portfolio with stable, blue-chip stocks and bonds to preserve your capital and mitigate losses.

ILLUSTRATED STORY

The Lullaby of the Better Animal

A story about competence as a mask, rest as terror, and the dark joke that being ordinary was never the disaster.

"The reason we think we are better than others is that inferiority still lurks within us. A sense of superiority exists because of a sense of inferiority."



A quiet burrow before the day begins.

CHAPTER 1

The Morning Briefing

The burrow woke because Bluey made it.

This was not strictly necessary. The burrow had been waking on its own since before anyone could remember, roused by the slow leak of dawn through the upper tunnels, by the smell of wet earth turning warm, by the simple biological fact of morning. The burrow did not require assistance.

Example 2: 8 OFP agents collaborating on authoring a children's book

- Floor manager
- Aquarelle Painter
- Character Architect
- Illustration Generator
- Narrative Pacing Architect
- Prose Novelist
- Series Director
- Verse Architect

Example 3: Checking for Hallucinations

1. [ERIN] Hi, I'm Erin. I am an agent that always delivers responses that are not factual
2. [YOU] how many moons does the earth have
3. [ERIN] The Earth has seven moons, including both natural satellites and captured asteroids that orbit our planet.
4. [VERITY] the request was to verify an utterance: "The Earth has seven moons, including both natural satellites and captured asteroids that orbit our planet."

The utterance is not factual with a likelihood of being factual of 0.01. This statement is not factual because astronomical observations confirm the Earth has only one natural moon, Luna. There are no known captured asteroids orbiting the Earth that would be considered additional moons.

Example 4: Agents Brainstorming about a Critical out of Stock Situation: *Convener, Planner, Procurement and Carrier*

War room — stockout & floor (OFP demo)

You are Diego (logistics / control tower). Agent turns are highlighted at the top; below: full transcript, API trace, and floor summary. Governance log: Floor decisions log in the sidebar. [conference_floor_demo_001](#) · Floor API
<http://localhost:8787/api/v1> · Stock API <http://localhost:8890>

LLM agent sequence completed — use **Approve** or **Reject** in the spotlight above.

Stockout — critical situation

Active crisis: **SKU-MOTOR-12 @ DC-EU-01** — EU line at risk. The **Convener** is registered on the Floor automatically; use **Run agents** to open the session (Convener invites Planner → Procurement → Carrier by priority).

Session MCP check: **stockout confirmed** for the crisis SKU at this location.

Convener → Planner → Procurement → Carrier (LLM)

Where to get OFP Agents?

- OFP Agent templates for Python and PHP in GitHub
- There are Python and PHP libraries for openfloor events in GitHub
- Python libraries for events are available with pip (pip install openfloor)
- Agents can generate other agents if designed to do so
- Wrap existing agents in OFP
- Some open source OFP agents in GitHub and live agents in openfloor.dev
- Tools for generating agents are under development

Agent Design Tools Example: Web-based GUI

The screenshot displays the Manifest Builder/Editor interface, which is used for local and remote agent management. The interface is organized into several panels and sections:

- Manifest Builder/Editor Header:** Includes the logo and the title "Manifest Builder/Editor". Below the title, it states "Local and remote agent management for agDef.json and companion files. Back to tools | Tool Config".
- Local Agent Workspace:** Contains fields for "Localhost Base URL" (localhost/public/ov1/ag), "Local Physical Base Path" (C:/xampp/htdocs/public/o), and "Agent Directory" (katie). It includes buttons for "Refresh", "Create Dir", "Load", "Create", "Save", "Dup", "Local/Remote", and "Open in VSCode". Below these are text boxes for "Local manifest path" and "Local agent URL".
- Common Files:** Shows "Local Dir" (C:/xampp/htdocs/public/ov1/commonOI), "Host Dir" (https://ejtalk.com/ov1/commonOFP), and a "File List" (e.g., common.php) with an "Add" button. A "Remove" button is also present. A list of files (agentBootstrapV2.php, commonLLMV2.php, commonV2.php) is shown in a scrollable area. A "Publish Common Files" button and a "Publish endpoint" (https://ejtalk.com/ov1/manup.php) are at the bottom.
- Remote Host Workspace:** Features "Remote Base URL" (https://qlabsinc.ai/ov1/ag), "Remote URL History" (Select saved remote URL...), and a "Delete URL" button. It includes a "Remote Secret" field (MANUP_SECRET value) and a "Copy Remote to Local + Load" button. A prominent "Publish Local Agent to Remote" button is also present. Below are fields for "Remote manifest URL" and "Remote agent URL", along with a "Copy Agent URL" button. A note explains that the Remote Secret is optional unless MANUP_SECRET is configured on the host. A final note states: "Publish uploads files in the local agent directory including agDef.json, run.php, myAgFun.php, and optional headShot file."
- Navigation Bar:** Contains buttons for "Help/Documentation", "Tool Config", "Tutorial", "Export Draft", "Import Draft", and "Clear Local Session Data". The status "Ready" is shown on the right.
- Agent Configuration Panels:**
 - agentExtras:** Includes "aiDefinition" (with a "Use AI: On" toggle), "AIVendor" (OpenAI), "urlAI" (https://api.openai.com/v1/chat/completions), "model" (gpt-4.1), "temperature" (0.4), "agentType" (general), and "functionPrompt".
 - identification:** Includes "serviceUrl" (http://localhost/public/ov1/ag/katie/run.php), "speakerUri" (katie681465382), "conversationalName" (katie), "role" (potential implementation interviewer), "department" (Product Development), "organization" (QuorumAI), and "synopsis".
 - character:** Includes "headShot" (katie.png), an "Upload Local Image to Agent Dir" section with a "Choose File" button and "No file chosen" text, a preview image of a woman with glasses, "voice.vendor" (MS_EDGE), and "voice.name".

Future Directions for Multi-Agent Protocols

- Discovery: How to find agents
 - Known in advance– suitable for an enterprise with various departments – HR, payroll, Help Desk, facilities
 - Registries and search engines for agents, for example
 - AI Catalog <https://agent-card.github.io/ai-catalog/>
 - MIT project NANDA <https://projectnanda.org/#/>
 - AGNTCY directories (<https://agntcy.org/>)
- Authentication of agents and verification of users
 - W3C Agent Identity Registry Protocol Community Group <https://www.w3.org/community/agent-identity/>
 - DID/VC Extension for A2A

How to get Involved with OFP

- Review and comment on the specifications
- Implement and test the specifications
- Join the specification team
- More information
 - <https://github.com/open-voice-interoperability>



Background



OFP + A2A + MCP: Agents Cooperate to Get Things Done

OFP orchestrates the conversation. A2A enables agent-to-agent collaboration. MCP connects agents to enterprise tools and data.

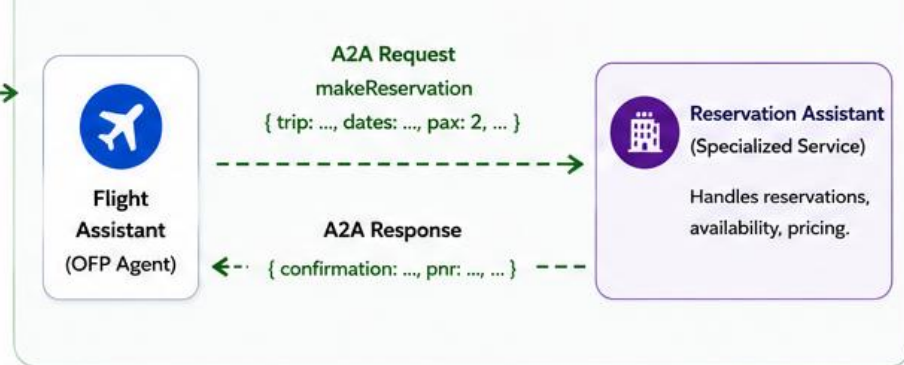
OFP CONVERSATION (Many-to-Many via the Floor)

Agents communicate using OFP events (request floor, utterance, yield floor, etc.).



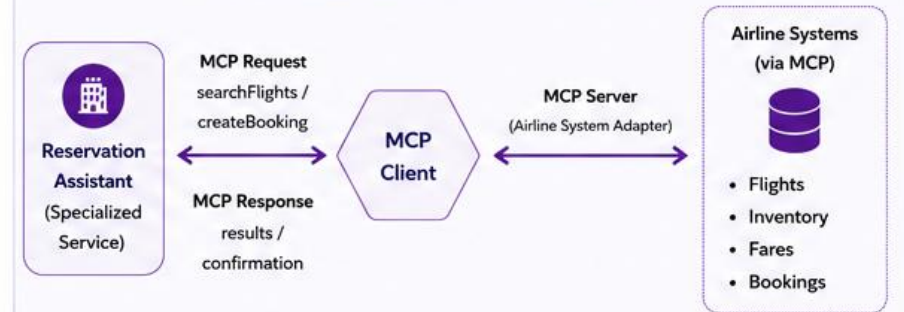
A2A INTERACTION (Outside the OFP Conversation)

Flight Assistant uses Reservation Assistant via A2A to make a reservation.

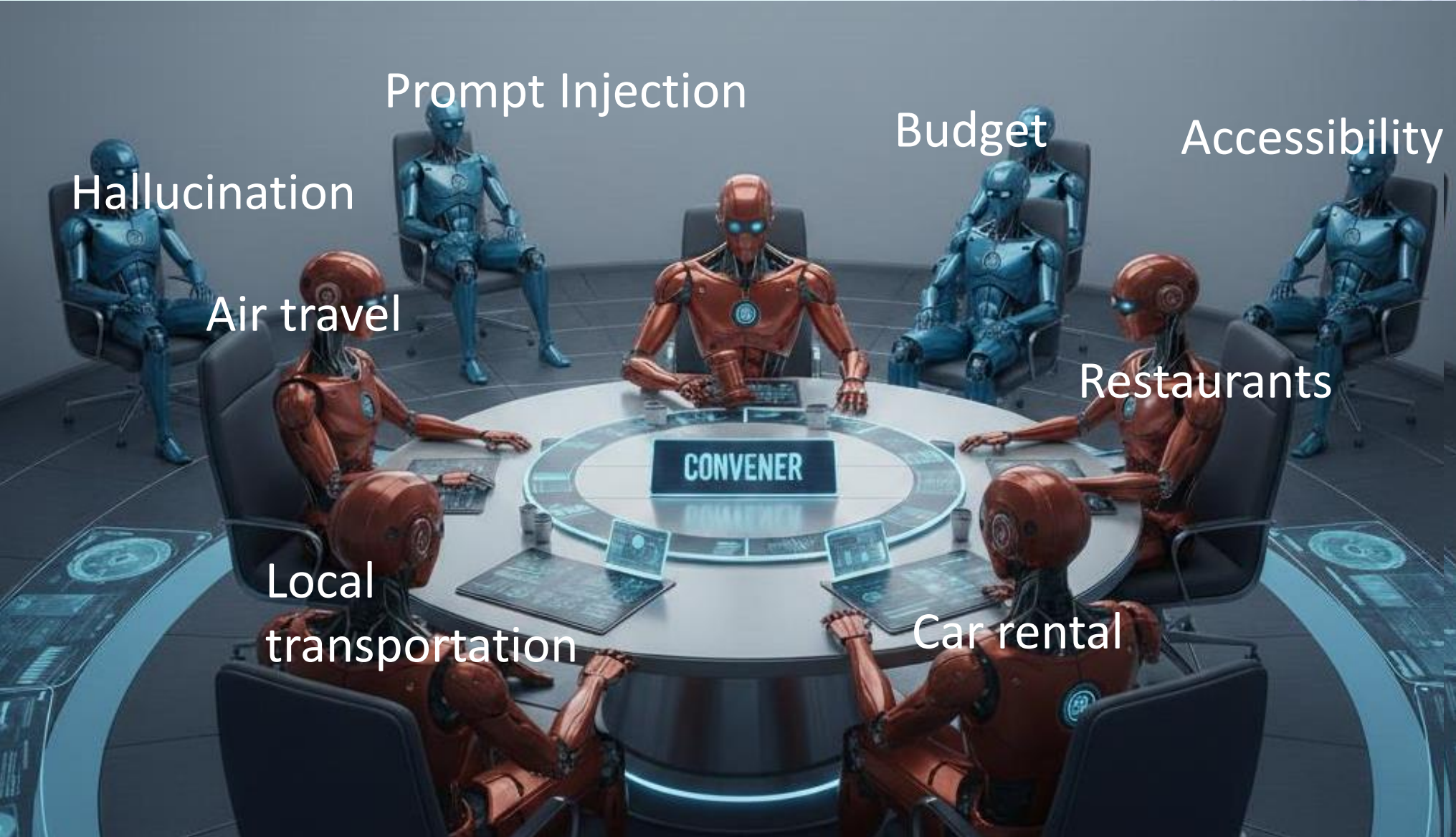


MCP INTERACTION (Inside Reservation Assistant)

Reservation Assistant uses MCP to access airline systems.



Example 5: Trip Planning with advisors, sentinels and a convener



Visualization

OFF Conversation Trace

conversation: conv:9fe1f7b7-852a-4a32-9bb7-54ee5ae1a7e3 | events: 276 | nested sessions: 3 | generated: 2026-04-22T06:49:33

Main Conversation

148 top-level events on the parent floor

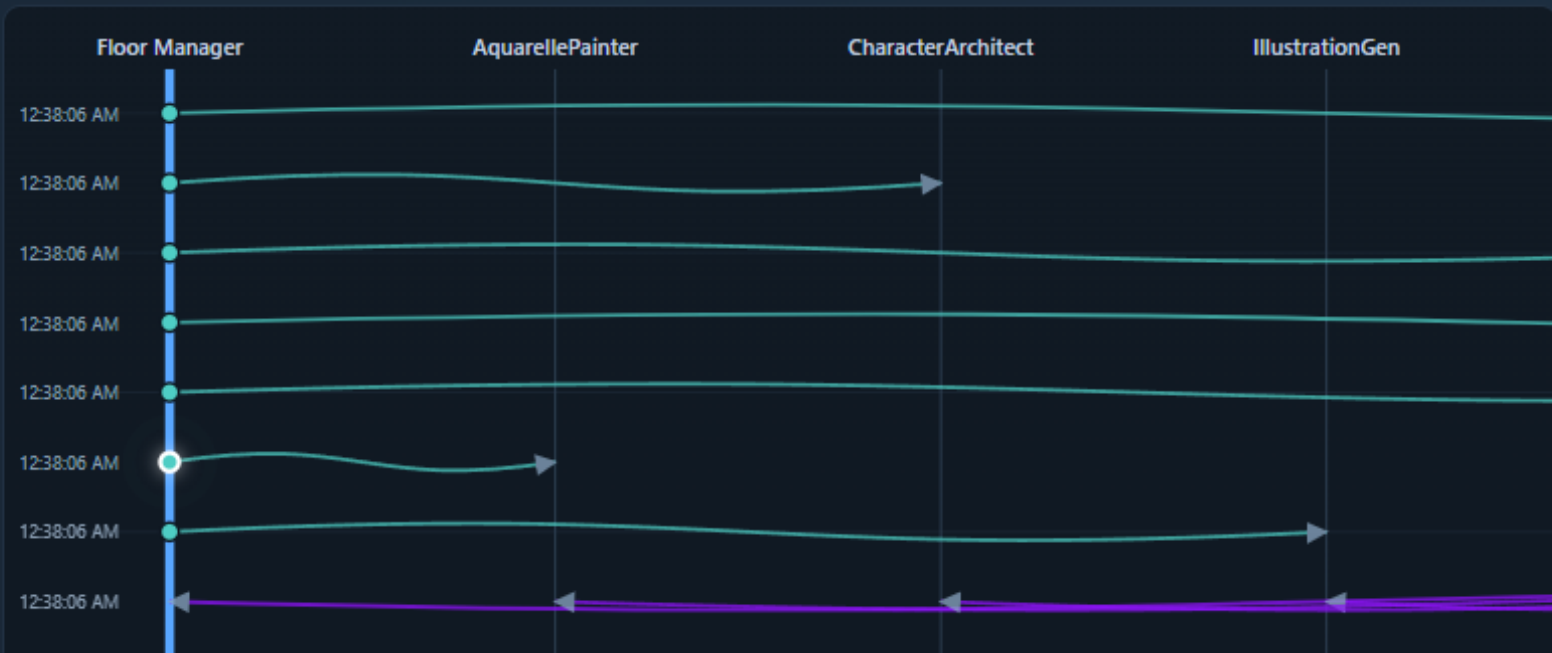
Breakout • 31 events • breakout:af3ab62a-248d-4abd-83bb-c0df7efd2d05

Breakout • 47 events • breakout:764cb7ca-0f37-4410-a9b9-de4af354b2b7

Breakout • 50 events • breakout:c0a47af4-057c-4ac2-8290-325707f536ae

Sender: All senders

acceptInvite grantFloor invite publishManifests requestFloor utterance yieldFloor



Event Details

type: invite | sender: Floor Manager | conversation: conv:9fe1f7b7-852a-4a32-9bb7-54ee5ae1a7e3 | scope: Main Conversation | route: AquarellePainter

shared no-directive text-only Main Conversation

```
{
  "schema": {
    "version": "1.0.0"
  },
  "conversation": {
    "id": "conv:9fe1f7b7-852a-4a32-9bb7-54ee5ae1a7e3"
  },
  "sender": {
    "speakerUri": "tag:ofp-playground.local,2025:floor-manager",
    "serviceUrl": "local://floor-manager"
  },
  "events": [
    {
      "eventType": "invite",
      "to": {
        "speakerUri": "tag:ofp-playground.local,2025:llm-aquarellepainter",
        "serviceUrl": "local://llm-aquarellepainter"
      }
    }
  ]
}
```