



# DAIL AI Agent

JUNE 2025

# Before we start:

- **Raise your hand and ask questions if you have any**
- **It is better to ask questions when you have**
- **Also, type them in chat**
- **We will need DIAL API key for this session**

# Agenda:

- **Presentation:**
  - **About Choice, State, Stage and Attachments**
  - **Agent design**
- **Practice, 2 options:**
  - **Implement main task ~ 2 hours**
  - **Implements full task 4+ hours. You will create almost from scratch agent that is similar to ChatHub**

# About Choice, State, Stage and Attachments

# Choice:

According to DIAL Specification all DIAL application must implement */chat/completion* endpoint

In DIAL SDK you can extend *ChatCompletion* class and implement the *chat\_completion* method

Then we need to create *DIALApp*, it extends the *FastAPI* class that is the main entry point. In *DIALApp* we need to register our *ChatCompletion* implementation

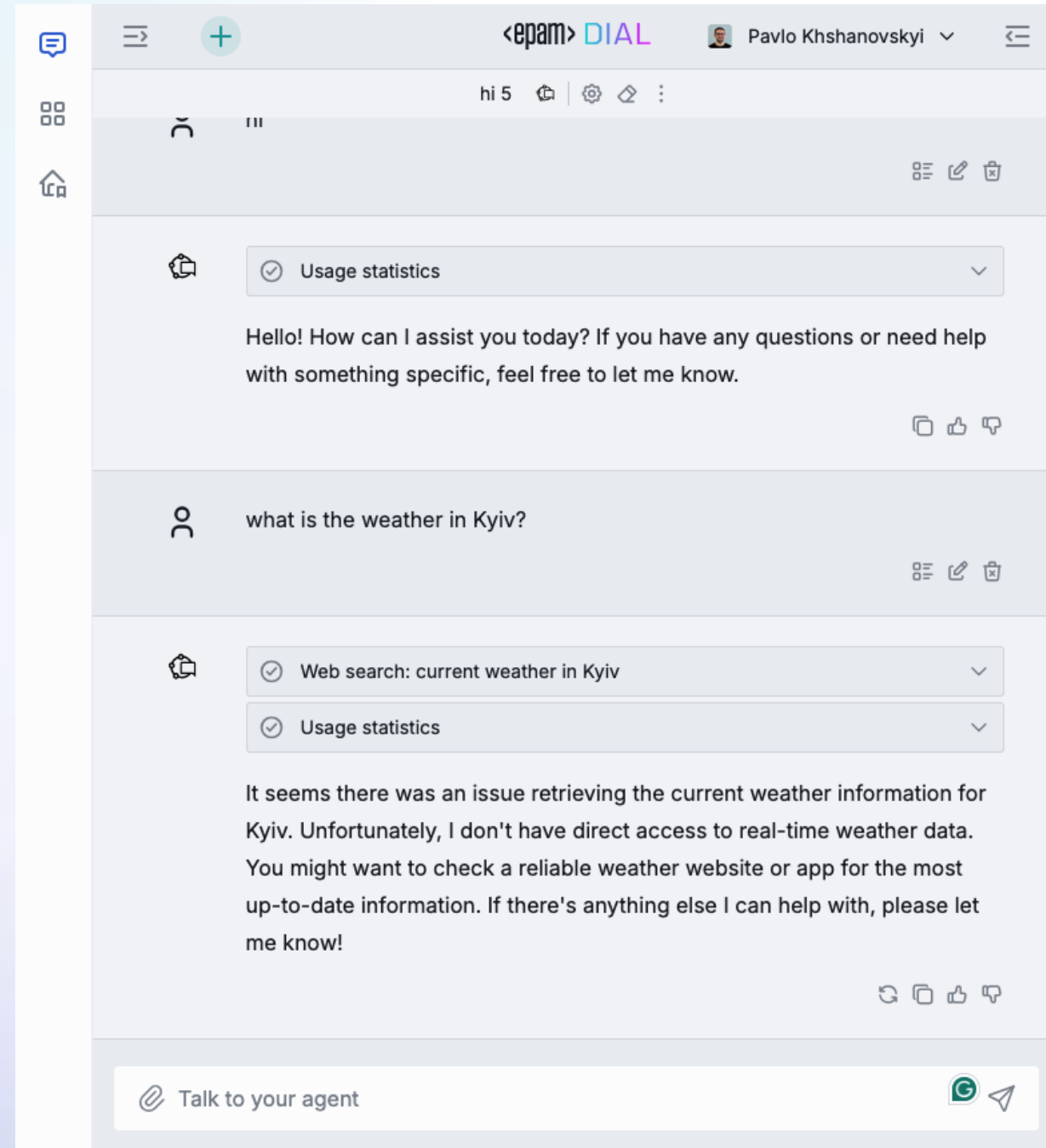
Since we are working with */chat/completion* you should remember that when we call any model or application in DIAL Core, it returns response with such structure: *choice -> message*

So, we as chat completion app need to return as well response with choice and in choice will be presented assistant message. With DIAL SDK it is to perform, just simply create choice from response: *response.create\_single\_choice()*

# State:

**In Chat we see only user and assistant messages.  
Where the tool call history is persists?**

**We persist it in special object that is named `State`. State is a part of the CustomContent.  
So, the whole tool call history persist in the assistant message (that will be shown to user) in State.**





# State sample:

```
"custom_content": {  
  "state": {  
    "tool_call_history": [  
      {  
        "role": "assistant",  
        "content": "",  
        "tool_calls": [  
          {  
            "index": 0,  
            "id": "call_r4pBolSgE6wU1V7Cop4mFuao",  
            "type": "function",  
            "function": {  
              "name": "image_generation_tool",  
              "arguments": "{\"prompt\":\"a friendly and cute cat with a big smile, sitting in a cheerful environment\", \"size\":\"1024x1024\", \"style\":\"natural\", \"quality\":\"standard\"}"  
            }  
          }  
        ]  
      },  
      {  
        "role": "tool",  
        "content": "The image has been successfully generated according to request and shown to user!",  
        "tool_call_id": "call_r4pBolSgE6wU1V7Cop4mFuao"  
      }  
    ]  
  }  
}
```

# Stage:

Stages are intermediate steps an agent or application went through to generate the response.

Today, in our practice, we will stream content while tool execution to the Stage

Stage is a part of CustomContent as well as attachments and state.

The screenshot displays the <epam> DIAL interface. At the top, the header shows the application name, a user profile for Pavlo Khshanovskyi, and navigation icons. The main chat area contains three messages. The first message is a system greeting: "Hello! How can I assist you today? If you have any questions or need help with something specific, feel free to let me know." The second message is a user query: "what is the weather in Kyiv?". The third message is a system response: "It seems there was an issue retrieving the current weather information for Kyiv. Unfortunately, I don't have direct access to real-time weather data. You might want to check a reliable weather website or app for the most up-to-date information. If there's anything else I can help with, please let me know!". Above the third message, two tool execution stages are visible, each enclosed in a red box. The first stage is labeled "Usage statistics" and the second stage is labeled "Web search: current weather in Kyiv". Both stages include a checkmark icon and a dropdown arrow. At the bottom of the interface, there is a text input field with the placeholder "Talk to your agent" and a green circular icon with a white 'G'.



# Stage sample:

```
"custom_content": {  
  "stages": [  
    {  
      "index": 0,  
      "name": "Stage name",  
      "status": "completed",  
      "content": "Some content that will be shown in stage",  
      "attachments": [  
        {  
          "index": 0,  
          "title": "Revised prompt",  
          "data": "A friendly and cute cat with a ..."  
        },  
        {  
          "index": 1,  
          "type": "image/png",  
          "title": "Image",  
          "url": "files/Dp..Ln/.../img_1.png"  
        }  
      ]  
    }  
  ]  
}
```

# Attachments:

DIAL applications can support attaching files, links or folders to a conversation and generate responses considering the attached resources.

```
"message": {
  "custom_content": {
    "attachments": [
      {
        "index": 0,
        "type": "text/markdown",
        "title": "[0] 'my_test_folder/test.docx'",
        "data": "This is a test document",
        "reference_url": "files/2fd..2sf1/test.docx"
      }
    ]
  }
}
```

The screenshot shows a chat interface with a user message "sup\_ what it the weather in Kyiv?" and a system response. The response includes current weather details and a forecast for the next few days. Below the text, there is a red-bordered box containing a list of attachments. Each attachment is represented by a document icon, a truncated title "Weather infor...", and a dropdown arrow. The fourth attachment is expanded, showing the text "Weather information for locality: Kyiv" and "Temperatures between 60°F (16°C) and 70°F (21°C)." with a "Reference..." link. At the bottom of the chat, there is a text input field with the placeholder "Talk to your agent" and a "Send" button.

sup\_ what it the weather in Kyiv?

**Response:**

The current weather in Kyiv, Ukraine is partly cloudy with a temperature of 78°F (26°C), but it feels like 80°F (26°C). The humidity is around 48%. There is a 0% chance of rain currently.

The forecast for the next few days is:

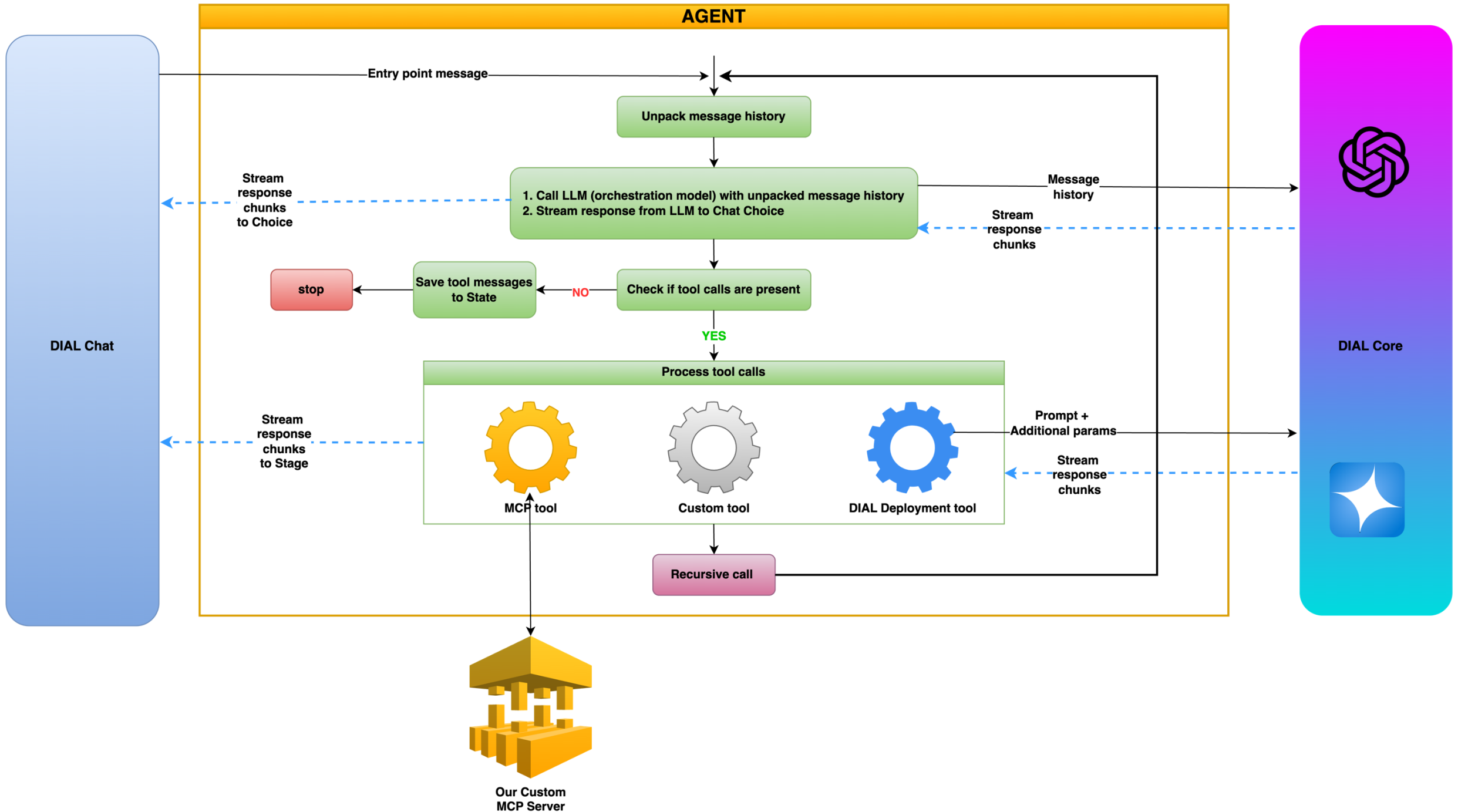
- **Wednesday:** Cloudy during the day and light rain at night (25% chance of rain during the day, 40% at night). Temperatures between 63°F (17°C) and 82°F (28°C).
- **Thursday:** Rain during the day and cloudy at night (55% chance of rain during the day, 20% at night). Temperatures between 64°F (18°C) and 76°F (24°C).
- **Friday:** Light rain during the day and partly cloudy at night (45% chance of rain during the day, 35% at night). Temperatures between 60°F (16°C) and 70°F (21°C).

Weather infor...  
Weather infor...  
Weather infor...  
Weather infor...  
Weather infor...  
Weather information for locality: Kyiv  
Temperatures between 60°F (16°C) and 70°F (21°C).  
[Reference...](#)

Currently, the weather in Kyiv is partly cloudy with a temperature of 78°F (26°C), but it feels like 80°F (26°C). The humidity is around 48% and there is a 0% chance of rain currently.

Talk to your agent

# Agent design





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Thank you!