

FLUE X CLOUDFLARE

Build durable AI agents with Flue on Cloudflare

Start with one function. Leave with an agent that can...

REMEMBER

ACT

DELEGATE

RECOVER



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THE DESTINATION

In one hour, one agent crosses four thresholds.

01 / IDENTITY

It remembers

One durable conversation, with typed state your code can use.

02 / AGENCY

It acts

Validated tools reach live data and controlled systems.

03 / LEVERAGE

It delegates

A focused scout explores without bloating the parent context.

04 / TRUST

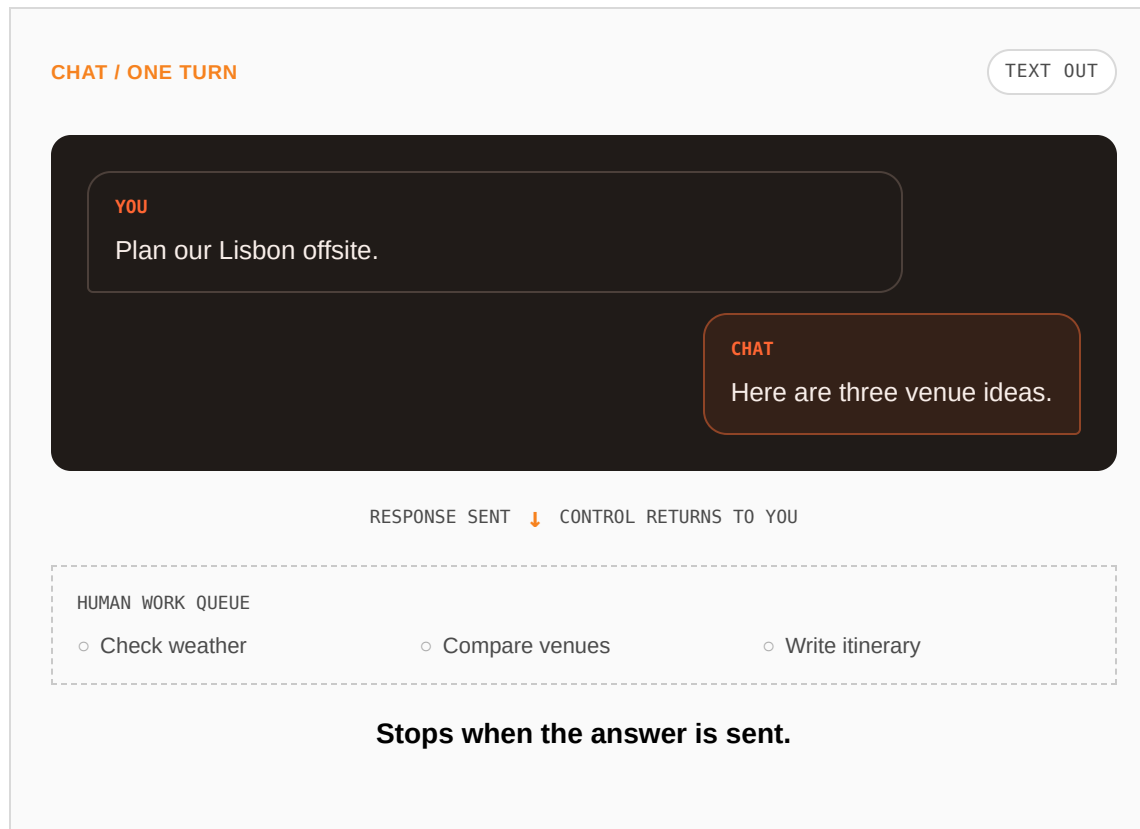
It recovers

Durable steps resume work without repeating side effects.

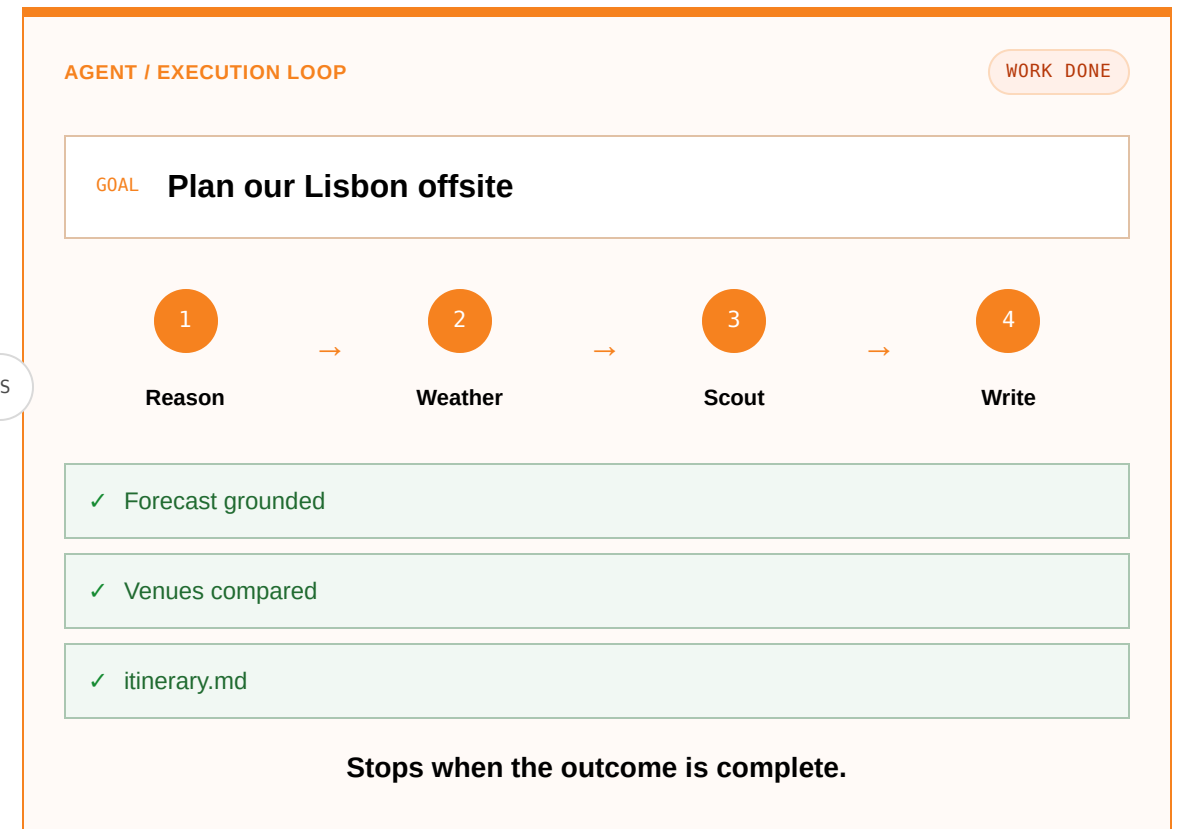
5 min shared model | 50 min build together | 5 min connect the system

FIRST PRINCIPLE

Chat returns control. Agents keep working.



VS



THE ENGINEERING GAP

The loop is simple. Production is not.

A useful agent needs more than a model and a while-loop.

01 / THINK

Intelligence

Reason about the goal and choose the next action.

Models
AI Gateway

02 / REMEMBER

State

Keep identity, history, and structured facts together.

Durable Objects
SQLite

03 / ACT

Tools

Cross trust boundaries through validated interfaces.

Bindings, APIs
MCP

04 / WORK

Workspace

Create files and run shell-expressible work.

Cloudflare Sandbox
Containers

05 / OBSERVE

Visibility

Explain multi-step work after it runs.

Workers Logs
Workers Traces

ENTER FLUE

One function. Add capabilities with hooks.

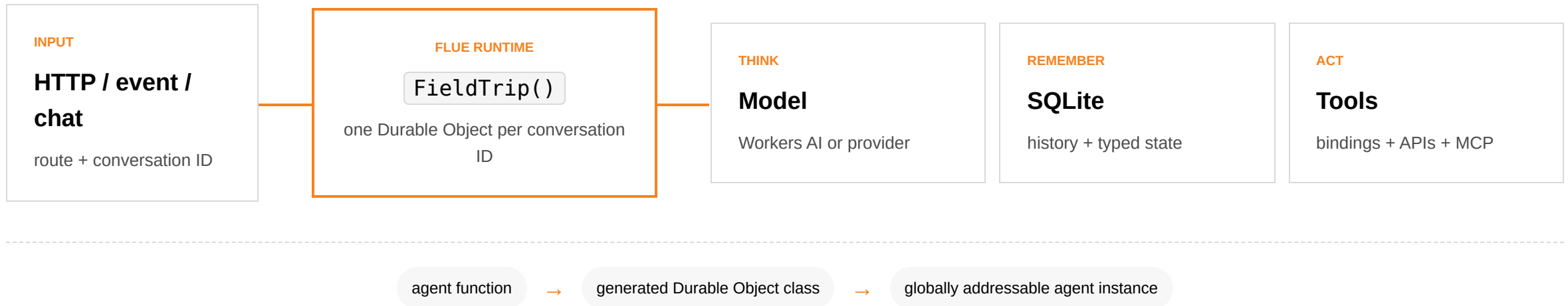
FILE src/agents/field-trip.ts		LOCAL npm run dev		HTTP POST /agents/field-trip/:id	
<pre>'use agent'; export function FieldTrip({ id }) { useModel('cloudflare/@cf/google/gemma-4-26b-a4b-it'); // model const [brief] = usePersistentState('brief', null); // memory useTool(getForecast); // action useSubagent(venueScout); // delegation useSandbox(cloudflareSandbox(getSandbox(env.Sandbox, id))); // Linux workspace return `Plan a grounded offsite. Saved brief: \${JSON.stringify(brief)}`; }</pre>					
MODEL	MEMORY	ACTION	DELEGATE	WORKSPACE	
useModel	usePersistentState	useTool	useSubagent	Cloudflare Sandbox	

Render loop: before every model call, Flue runs this function again. Hooks compose the harness; the returned string becomes the current system instructions.

FLUE ON CLOUDFLARE

Cloudflare makes the function durable.

The function is the definition. A Durable Object becomes the running agent.



ONE FUNCTION, A WHOLE PLATFORM

Express intent in Flue. Run it on Cloudflare.

THINK	<code>useModel</code>	Workers AI + AI Gateway	Select a model and observe every turn.
REMEMBER	<code>usePersistentState</code>	Durable Object SQLite	Keep typed facts beside conversation history.
ACT	<code>useTool</code> + <code>useSubagent</code>	Bindings, APIs, MCP	Give each boundary the smallest useful interface.
WORK	<code>getSandbox</code>	Cloudflare Sandbox + Containers	Run shell work in one Linux container per conversation.
TRACE	session replay + spans	Cloudflare Agents	Follow model, tool, and subagent work.

TODAY'S MISSION

Build a durable field-day planning agent.

Give it a brief: group size, interests, dates, budget, and destination.

The outcome

FieldTrip remembers the constraints, scouts live conditions, delegates venue research, writes an itinerary, and **shows how the work ran**.

from vague request



to grounded plan



to observable result

THE BUILD PATH

The agent grows one capability at a time.

IDENTITY

01

Hello, durable agent

Deploy one live conversation.

MEMORY

02

Typed trip brief

Persist facts your code can use.

TOOLS

03

Live forecast

Reach the world through schemas.

DELEGATION

04

Venue scout

Send a focused, complete brief.

WORKSPACE

05

Sandbox artifact

Build an itinerary in a Linux container.

TRACING

06

Execution story

Replay turns and inspect their span tree.

HANDS ON

Let's build the loop.

Scan to open the guide



flue.builtforthis.dev

Recommended timings

50 min hands-on

CHECKPOINT	TIMEBOX	ELAPSED
01 First agent & deploy	9 min	0–9 min
02 Persistent state	6 min	9–15 min
03 Open-Meteo API tools	9 min	15–24 min
04 Venue-scout subagent	8 min	24–32 min
05 Cloudflare Sandbox	8 min	32–40 min
06 Agent tracing	7 min	40–47 min
Final verification	3 min	47–50 min

Elapsed time starts when hands-on begins.

If time expires: stash your edits → switch to the room checkpoint → keep building

UNDER THE HOOD

Every conversation is one durable execution boundary.



Identity, ordering, and state live together. That is what turns a loop into a durable agent.

REVIEW

You did not just add AI. You built an agent.

01 / LIVE

Durable identity

A deployed conversation with ordered history and isolation.

02 / MEMORY

Structured state

Critical facts that code can inspect without guessing from prose.

03 / ACTION

Grounded tools

Validated boundaries to weather and research systems.

04 / LEVERAGE

Focused delegation

A specialist with a fresh context and explicit task brief.

05 / WORKSPACE

Linux artifacts

Cloudflare Sandbox turns research into a file the agent can inspect.

06 / TRUST

Visible work

Correlated events explain the complete path and final outcome.

Keep building...

Start with an outcome. Add only the memory, tools, delegation, execution, and observability that outcome needs.

[Workshop guide](#)[Lab repository](#)

ONE LAST THING

Your feedback is important.

Please complete the session survey in the Cloudflare Events app.

- 01 Open the app
- 02 Click the bell
- 03 Tap “Survey”

