The Scientific Method for Resilience

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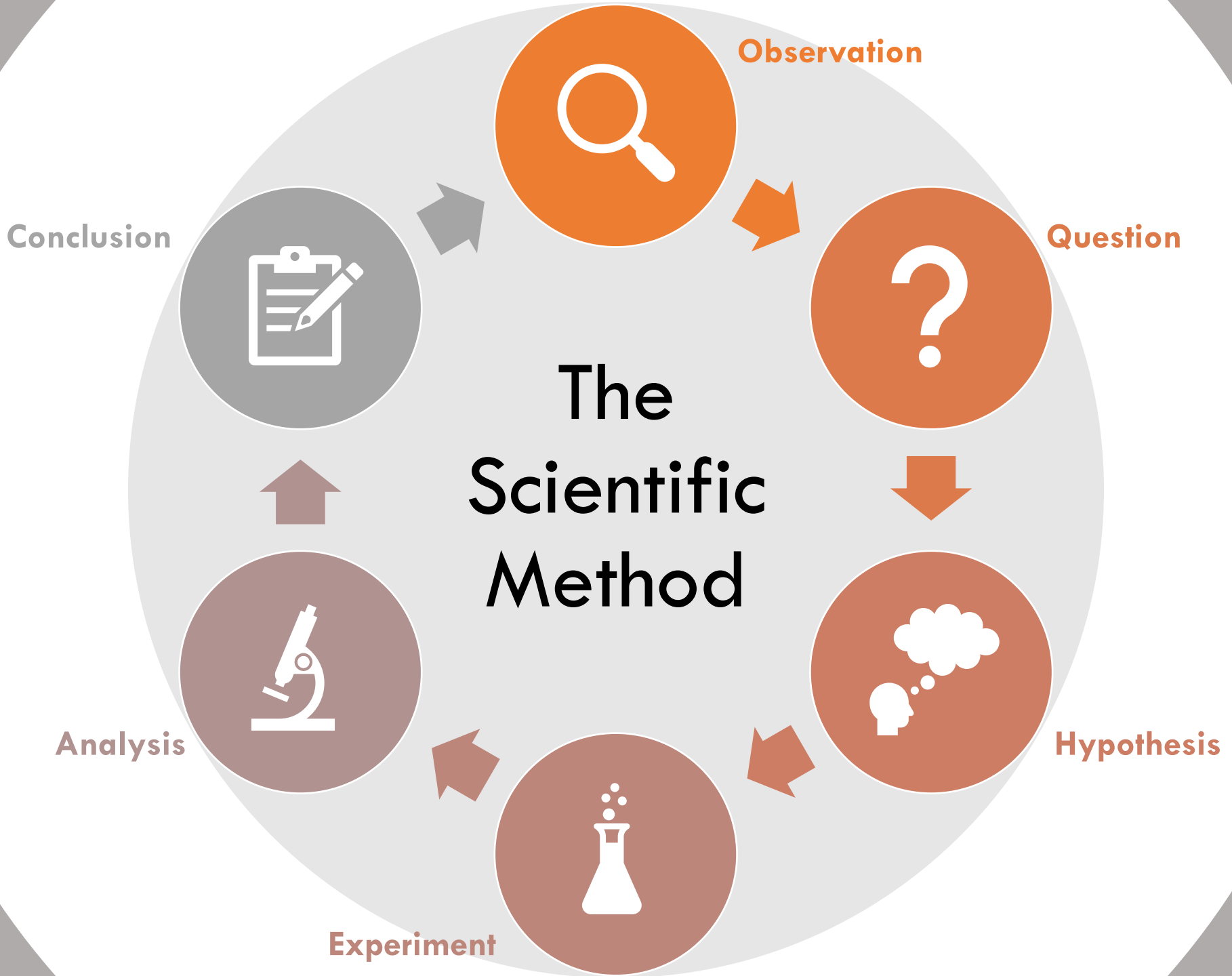
The Scientific Method

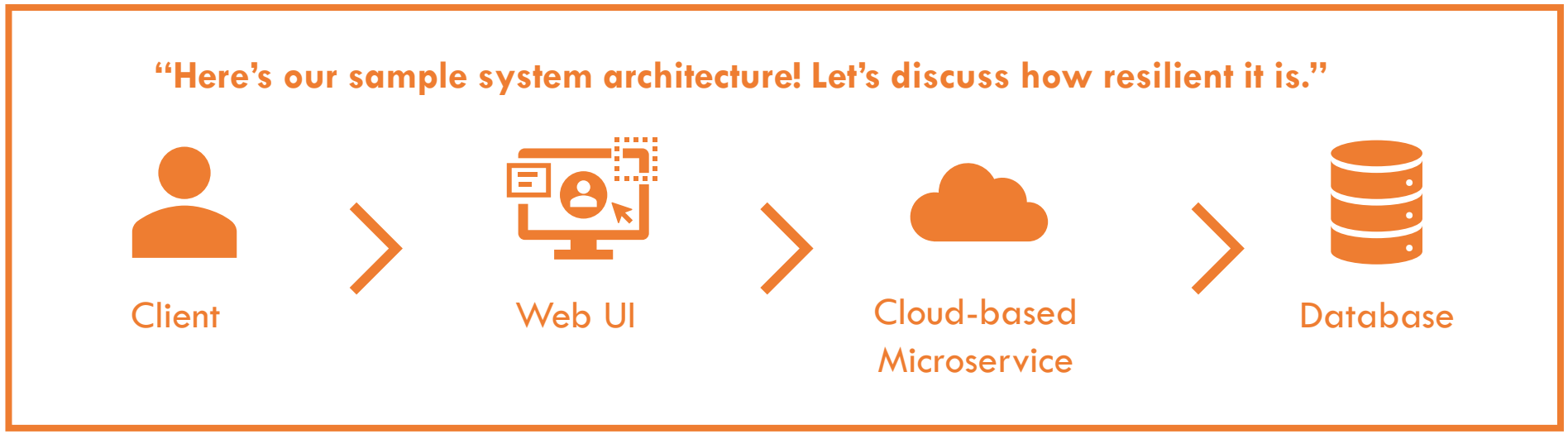


How does this apply to **resilience**?

1. Failure Modes and Effects Analysis
2. Chaos Engineering
3. Documentation & Planning

Step 1: Observation

- Reference an architecture diagram
- Identify critical components
- Consider the business process flow



Step 2: Question

- Discuss how each might component fail
- What would the effect be in each of the failure scenarios?

"What do you think would happen if our database became unavailable?"

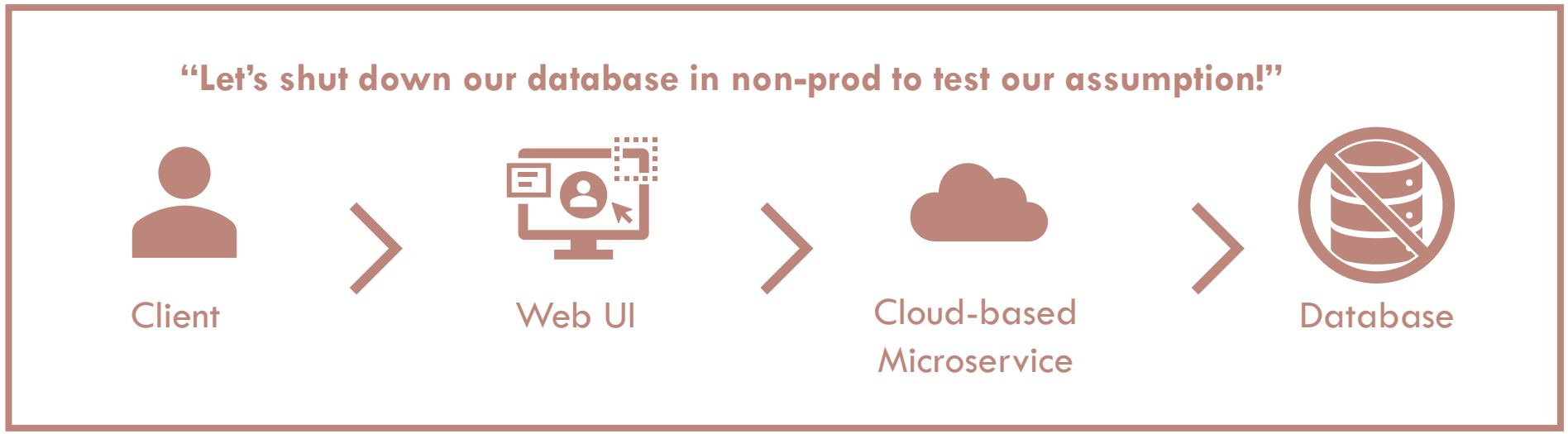
Step 3: Hypothesis

- Based on what the team knows about the system, discuss the answers to these questions
- Develop a hypothesis based on the group consensus
- People may not always agree!

"If our database became unavailable, writes would fail, but reads would be served from our microservice's in-memory cache."

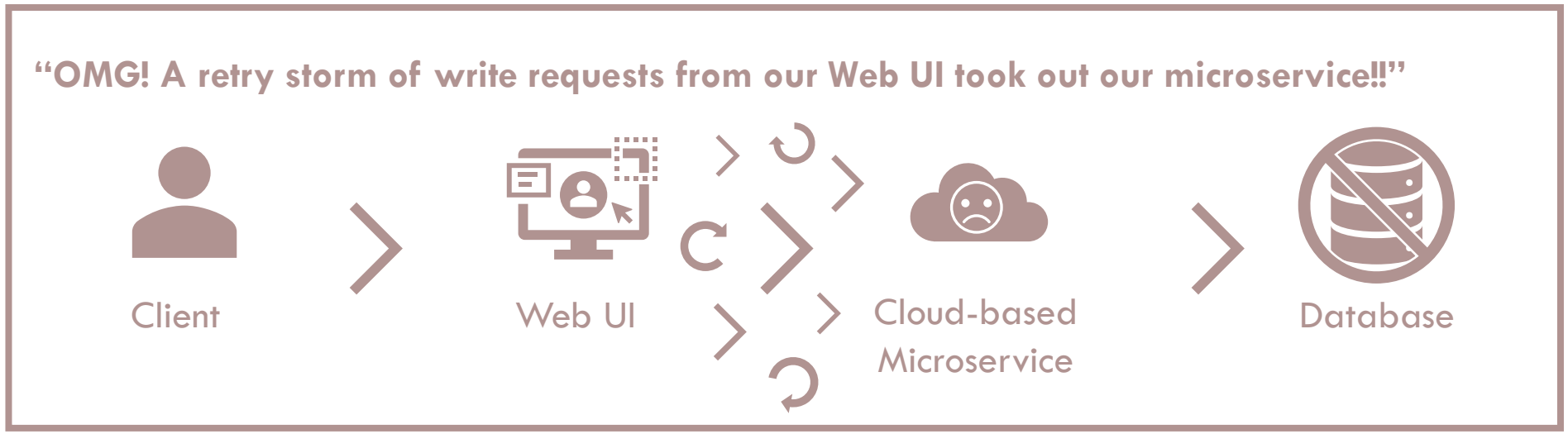
Step 4: Experiment

- Run a test! Whether you're using a vendor tool, an open source library, homegrown automation, or manual steps – inject the failure mode into the system.



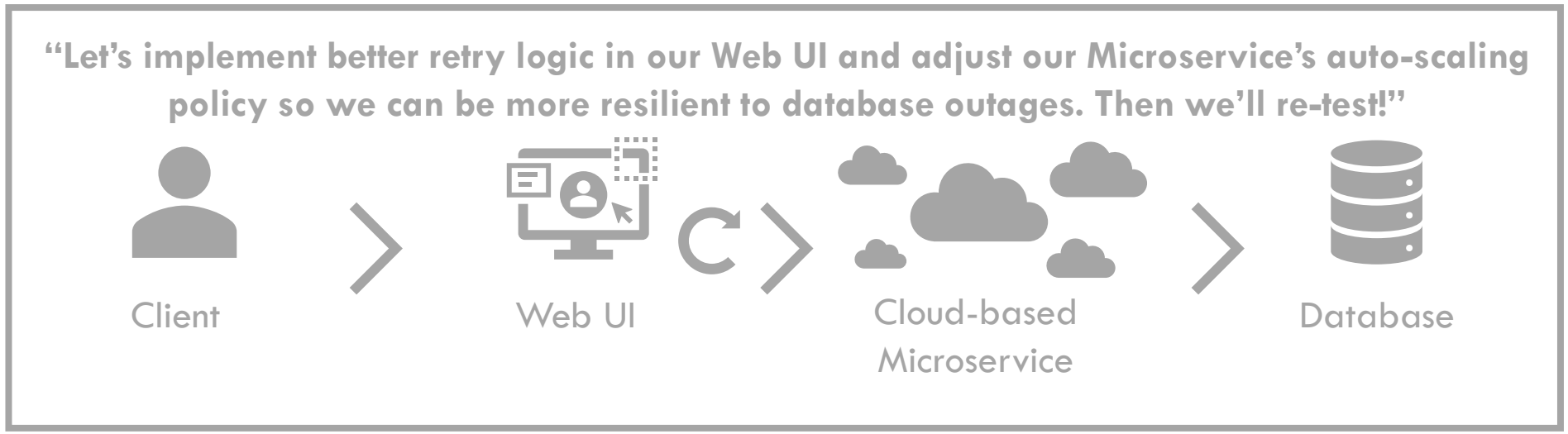
Step 5: Analysis

- Use the available Telemetry/Observability to see the effects of the injected fault
- Compare these observations to the hypotheses. Were the team's expectations met?



Step 6: Conclusion

- Document your work! Make sure all of the steps are written down and observations have been captured
- Spend some time action planning
- Modify “variables” (make system changes) and repeat!



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Cloudy with a Chance of Chaos
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