Building AI Agents That Work

Lessons Learnt

Google Cloud Next 25

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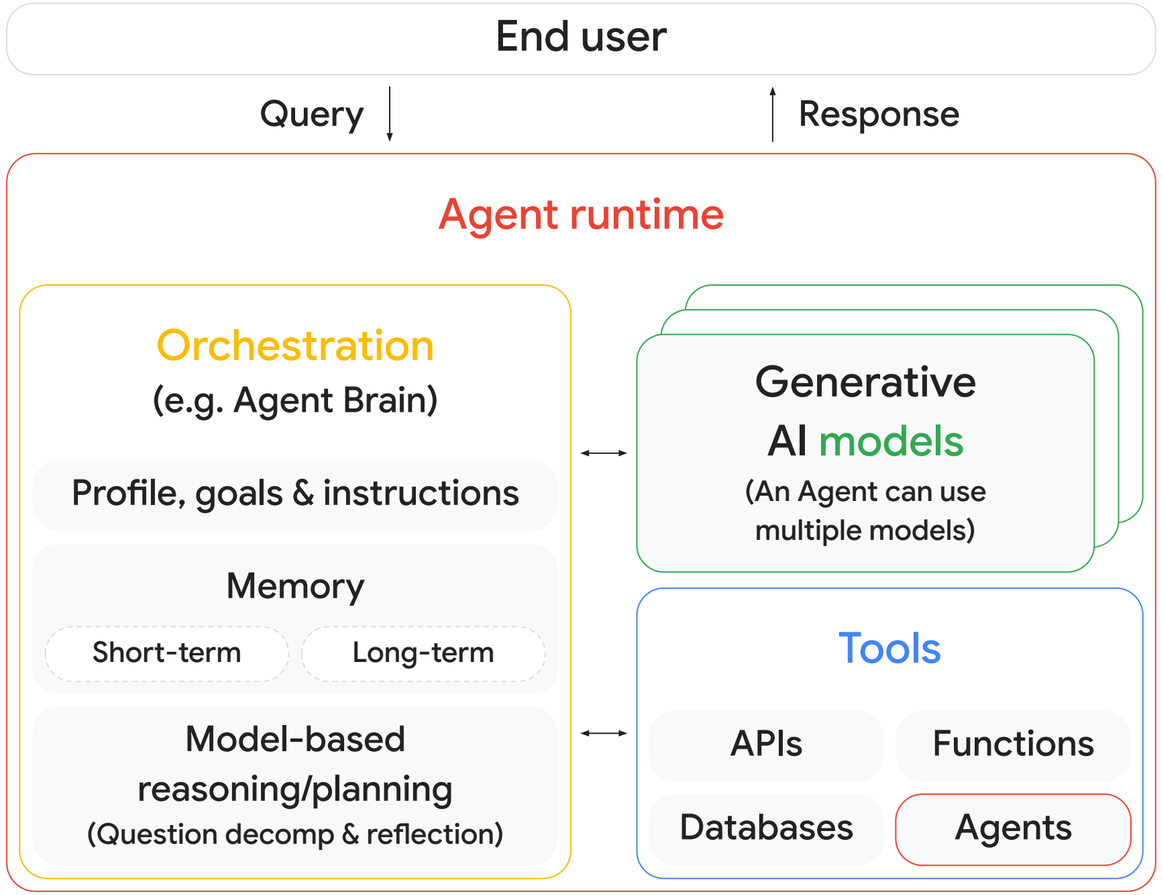
What is an Agent?



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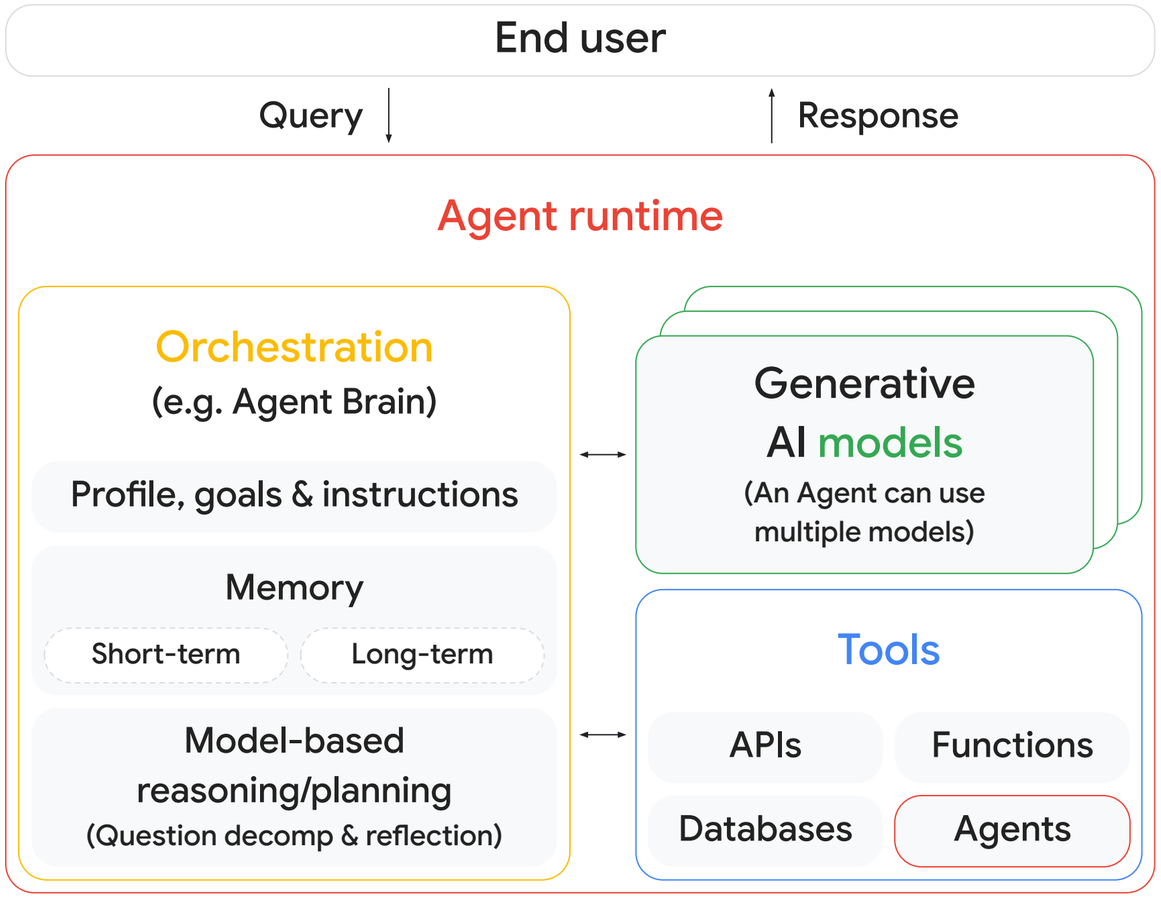

An agent is an AI-driven application that uses a model or LLM, guided by instructions that shape its behavior. It also has access to additional tools that enhance its capabilities, all running within a dynamic runtime environment.

Lessons

01 Don’t use Agents!

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Ask yourself...

Predictability	How predictable is your task structure?

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Predictability	How predictable is your task structure?
Control	How critical is consistency and control in your application?
Boundaries & Complexity	How clearly defined are your boundaries?
Latency & cost	What's your tolerance for latency and cost?

Agents vs. Workflows

End user

Query

Response

Agent runtime

Orchestration
(e.g. Agent Brain)

Profile, goals & instructions

Memory

Short-term

Long-term

Model-based reasoning/planning
(Question decomp & reflection)

Generative AI models
(An Agent can use multiple models)

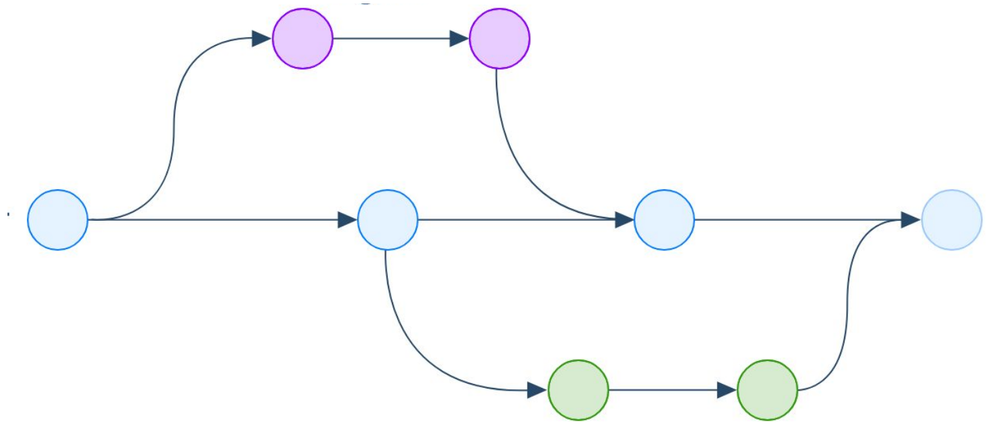
Tools

APIs

Functions

Databases

Agents



LLM + Instructions + Tools

Lessons

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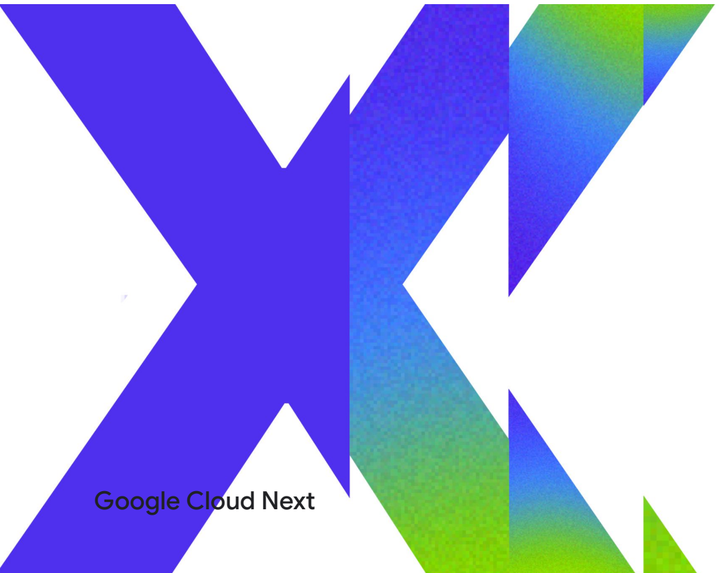
Frameworks & Abstractions

Quick PoC

They enable rapid prototyping, a great start but only for the proof of concept



Frameworks & Abstractions

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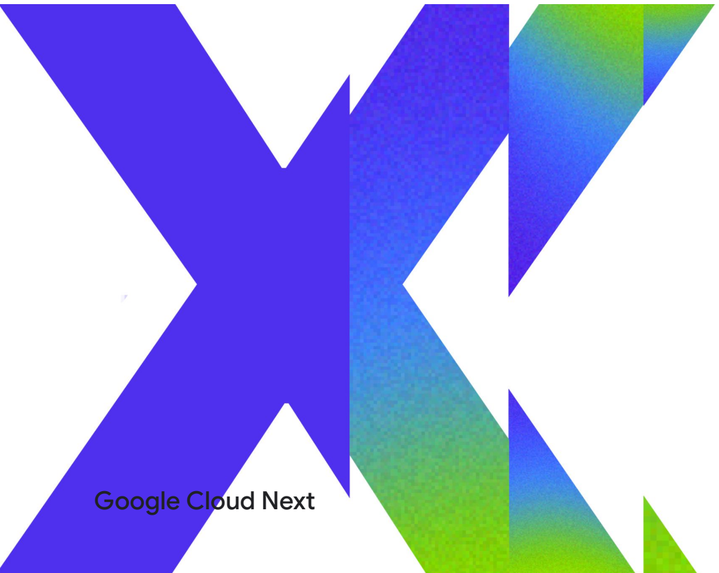

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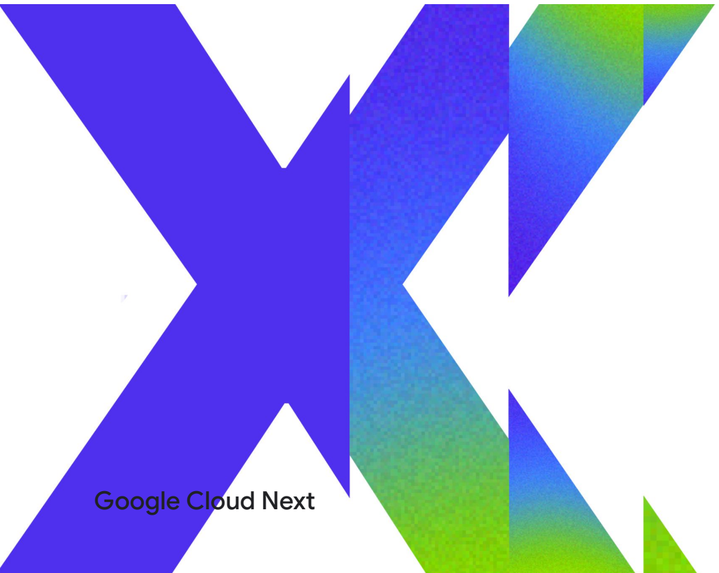

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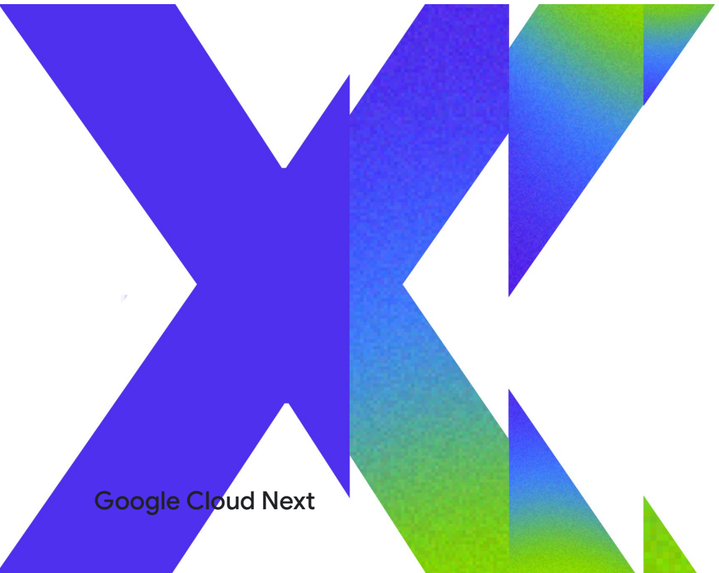
Defer Decisions	Frameworks force design choices before you have identified your specific limitations and goals of system.
Suboptimal Systems	May lead to sub-optimal performance



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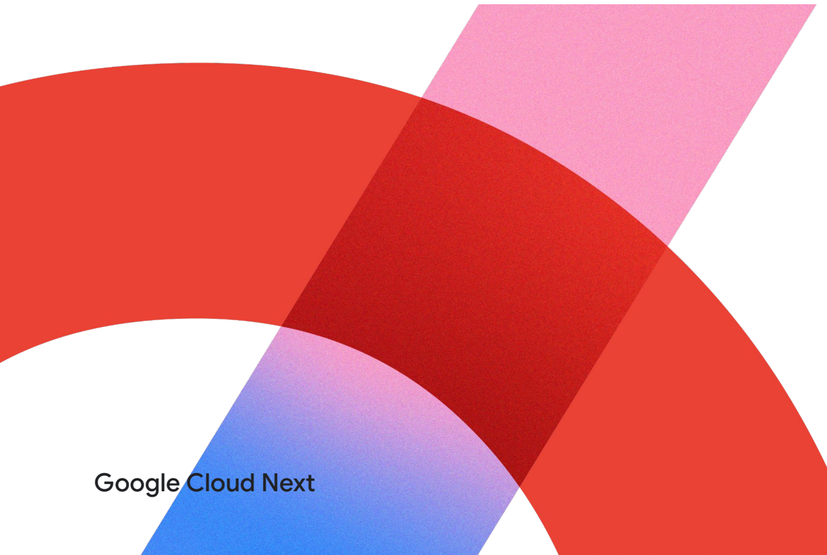
Start Simple!

Single Agent first	Build a focused agent for one specific task



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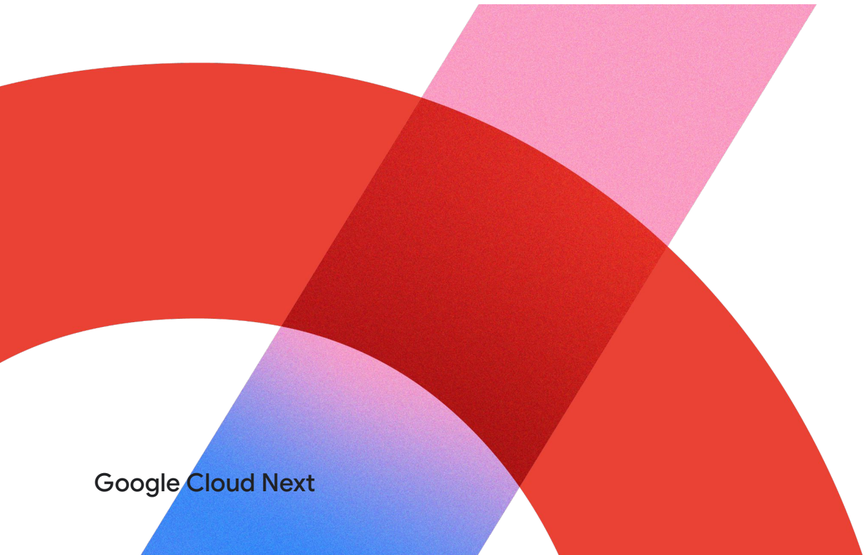
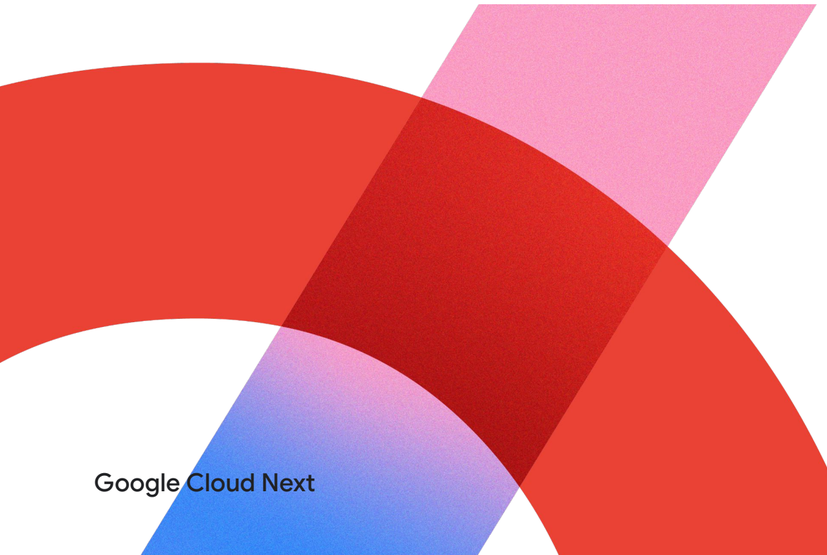
Observe	Learn from real usage to see which functionalities work and which don’t!



Start Simple!

Single Agent first	Build a focused agent for one specific task
Observe	Learn from real usage to see which functionalities work and which don’t!
Prefer functionality	Functionality over complexity. Develop a working system, prioritize usefulness, not over-engineering



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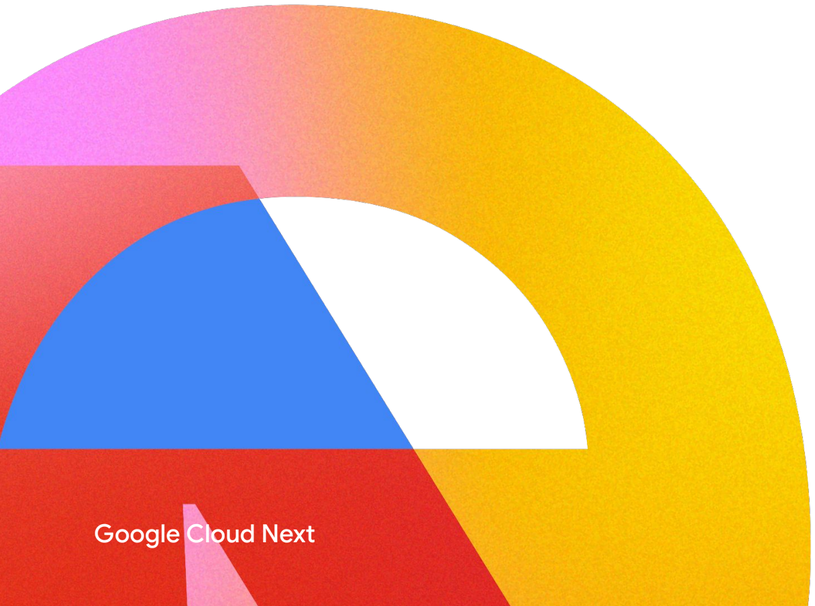
Prompts...

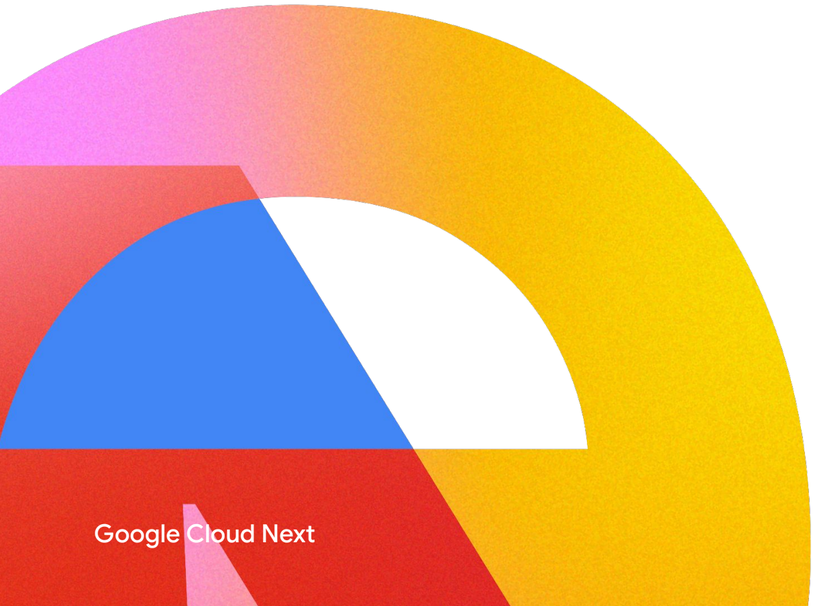
Clarity in Prompts

Prioritize clarity in prompts that the model can understand.



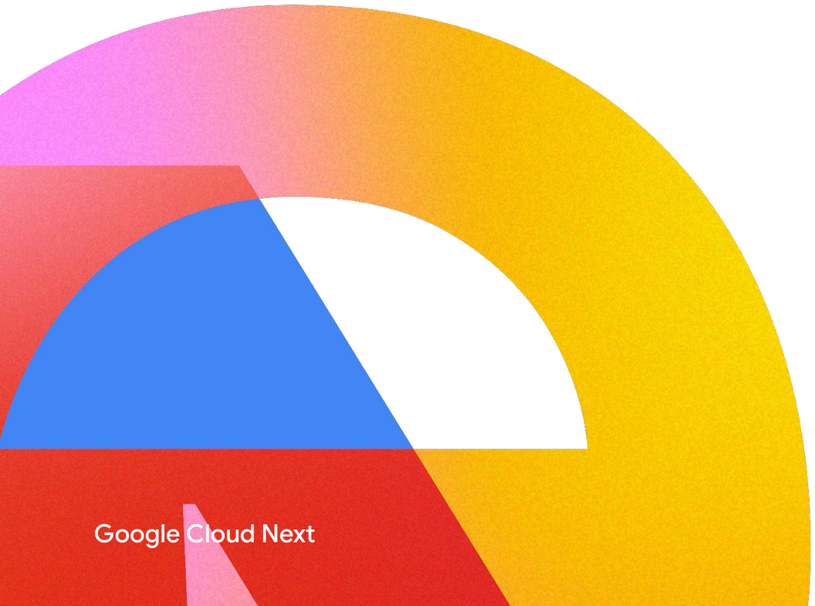
Prompts...

Clarity in Prompts	Prioritize clarity in prompts that the model can understand.
Don’t forget tools	Writing a good tool description impacts the overall performance of the agent.



Prompts...

Clarity in Prompts	Prioritize clarity in prompts that the model can understand.
Don’t forget tools	Writing a good tool description impacts the overall performance of the agent.
Iterative Refinement	Just as in software development, testing and feedback are crucial.



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Thank you!

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