Design, Develop, and Deploy Multi-Agent Systems with CrewAI

Applying AI Agents in Business

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Applications Across Industries

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The Genie is Not Getting Back Into the Bottle!

Types of Applications

End to End

Workflows with a large scope, multiple stakeholders, long horizons, ...

Day to Day

Workflows with a small scope, individual contributors, short horizons, ...

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Workflows with a small scope, individual contributors, short horizons, ...

Internal Automations

Operations Automations

Decision Making

Application Domains

Agentic Process Automation
Replacing RPA, Extending RPA, New Processes

Agentic ETL
Smart Pipes, AI Integration, Smart APIs

Agentic Native Features
Feature Updates, Premium Features, New Frontier

Top Verticals

Financial Services
Market Reports, Tech Automation, Compliance

Health & Life Sciences
Drug Discovery, Compliance, Sales & Marketing

Insurance & Casualty
Policy Management, Incident Mgmt, Customer Support

High Technology
Dev Productivity, New Features, Sales & Marketing

Media & Entertainment
AI Content, Streaming, Programmatic Ads

Customer Service
Call Centers, Data Integration, Agentic Support

Consumer Packaged Goods
Market Mgmt, Pricing Optimization, RPA 2.0

Consulting & BPO
New Offerings, RPA 2.0, Sales & Marketing

Cable & Telecom
Customer Support, Sales & Marketing, RPA 2.0

Top Functional Areas

Sales & Marketing Automation
Data Management, Pipeline Management, Life Cycle Comms

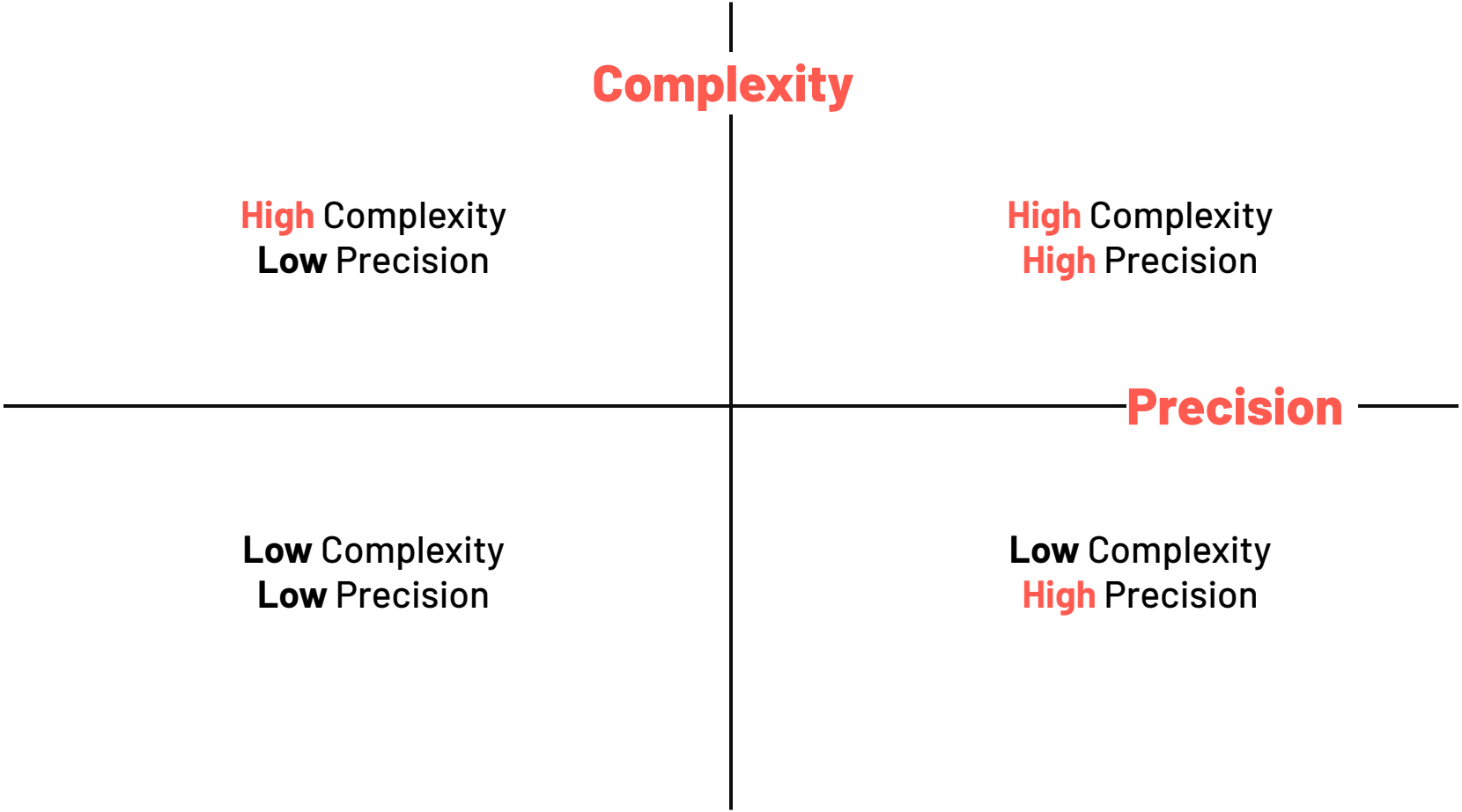
Developer Automation
Code Generation, Legacy Code, Documentation

Cybersecurity & Dev Ops
Threat Detection, Infra Mgmt, Ticket Routing

Supply Chain & Dev Ops
Route Optimization, Smart Inventory, Digital Twinning

Pricing & Coupons
Market Research, Smart Processing, AI CRM

People Management
Training w/ AI, Policy Management, Performance Mgmt


Complexity
High Complexity
Low Precision
High Complexity
High Precision
Precision
Low Complexity
Low Precision
Low Complexity
High Precision

Let’s Review Cases Studies!

Global 500

Financial Institution

Automated report is more accurate than manual draft

Parts of the process takes 15 to 30 minutes against 1 week of work

4X reduction in time to perform overall onboarding KYC (Know Your Customer) due diligence

F500

CPG Company

Reduced the time to process refund requests

Replaced a highly manual process involving multiple teams

from **3 days** down to just **10 Minutes**

Global 1000
Telecom

Analysis of customer behavior live across many patterns

Start a new line of business, offering money lending

easier access to money in
2 Days from the request

Adoption Lifecycle

Phase I
AI chatbots

→ Single agent
→ General purpose
→ Common knowledge
→ Interactive
→ Individual productivity

Phase II
AI assistants & copilots

→ Single agent (with delegation)
→ Domain and company specific
→ Proprietary knowledge (RAG)
→ Interactive
→ Individual productivity

Phase III
Agentic workflows

→ Collaborative agents
→ Process or task specific
→ Tool use and memory
→ Automated or triggered
→ Business productivity

Adoption Lifecycle

Easy
to build and run

→ Visual editor
→ Integrated tools & triggers
→ Developer APIs

Trusted
results you can rely on

→ Workflow tracing
→ Agent training and guardrails
→ LLM testing

Scalable
across the entire org

→ Deployment management
→ Monitoring and dashboards
→ Roles and permissions

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Finding Applications of AI Agents

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Common Success Patterns

- High Frequency
- Consensus on Evaluation Criteria
- Reasonable Fallback Paths
- Measurable Outcomes

80% to 90%+ Efficiency Gains

Understand What You Are Optimizing For

Case Study

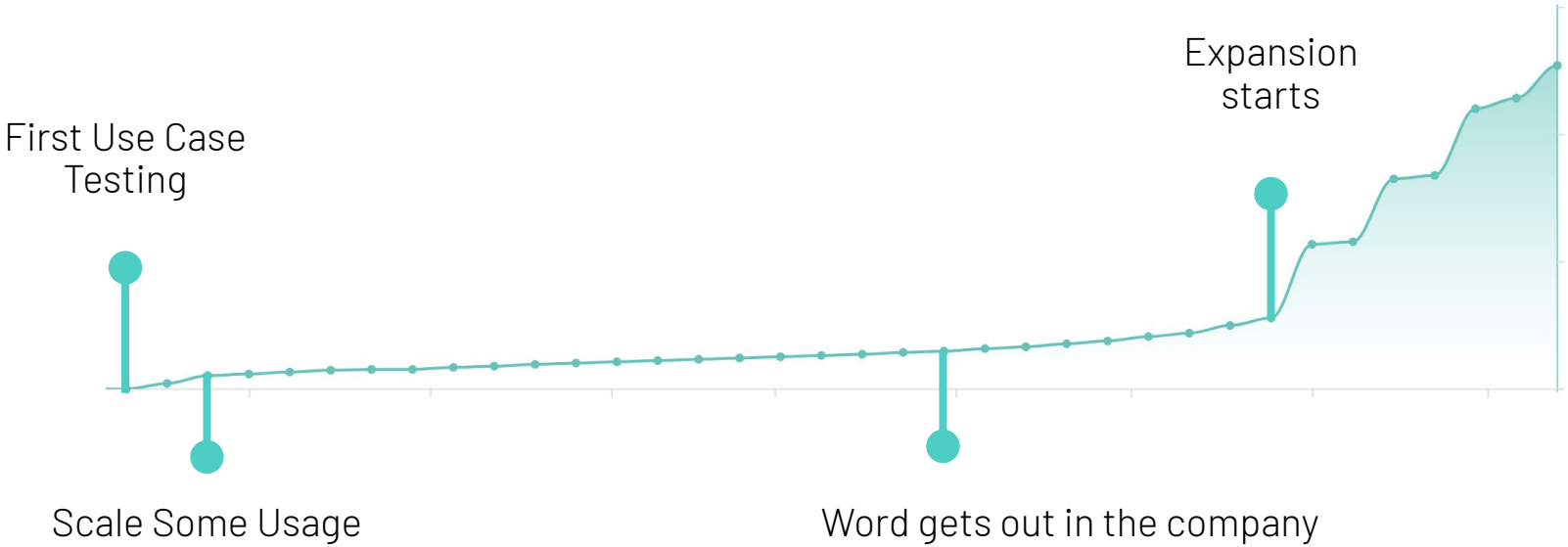
- Initially partnered with us
- First application live within weeks
- Expanded to 3 more use-cases
- Co-developed roadmap for adoption in other business units
- 5 additional use cases in a month
- Expanded across regions

Price Operations use-case for determining discounts and coupons

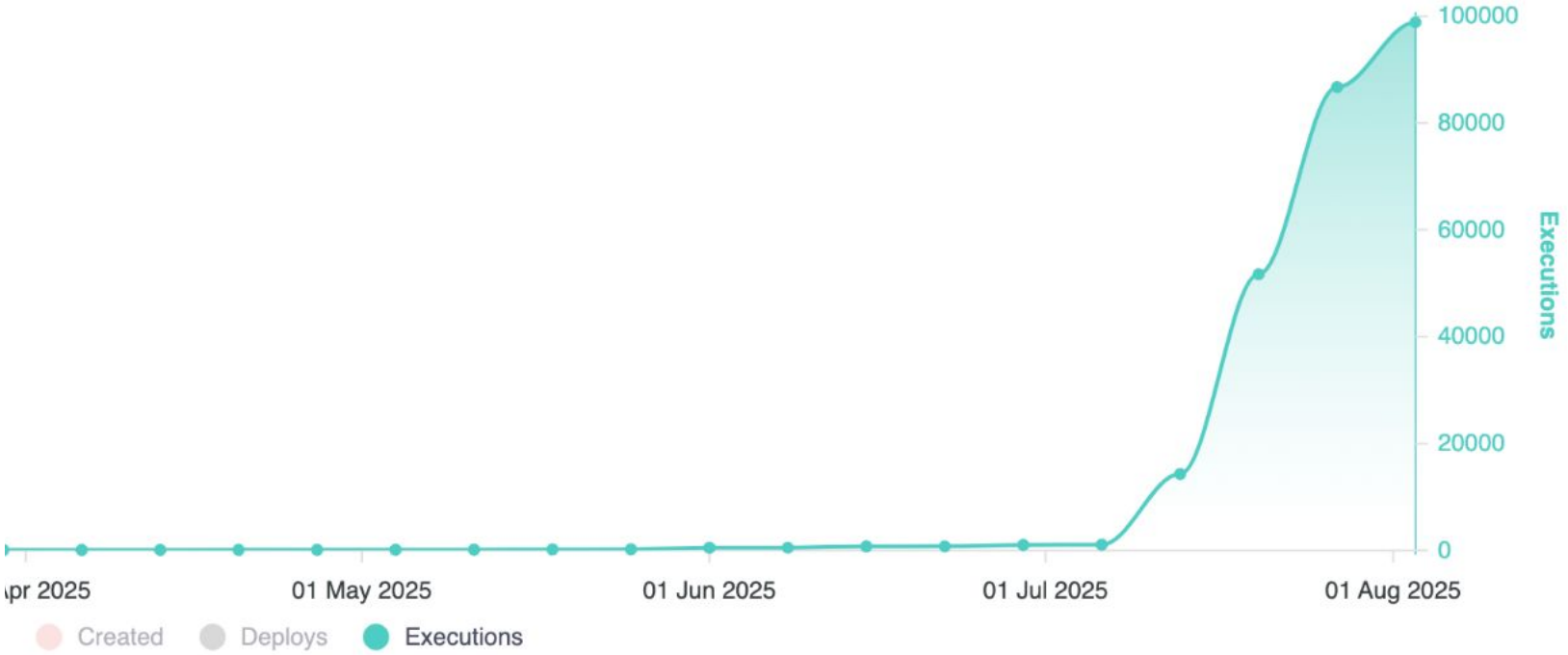
94%
Efficiency Gains

97%
Accuracy

Adoption Lifecycle



Adoption Lifecycle



Adoption Lifecycle

LEVEL 1
Agent Curious

No agents in prototypes or production

Some exploration of LLM's

Common Failure Modes

- Ill-defined goals
- Lack of observability
- No clarity on evaluation criteria
- No way of tracking proper ROI
- No owner for iteration or QA

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Conversations with Practitioners

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Link to Q&A!

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Exa

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Case Study: Internet Technology

- Search engine built specifically for agentic systems
- Provides official CrewAI integration through EXASearchTool
- Enables agents to access real-time web information with semantic search

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Snyk

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Case Study: Software Security

- Provides software security platforms that serve the developer community
- Uses CrewAI to help automate security operations in organizations worldwide
- Leading the application of agentic systems for vulnerability tracking, access controls, and incident response

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Weaviate

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Case Study: Database Technology

- Provides open-source vector databases for AI applications
- Offers CrewAI integration through WeaviateVectorSearchTool
- Allows for storage of both vectors and objects to enable searching and ranking over multi-modal data

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AB InBev

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Case Study: Consumer Packaged Goods

- The world's largest beverage company with production, distribution, and marketing across the globe
- Early adopter of AI with agentic systems improving products, streamlining operations, and connecting to customers

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Future of AI Agents

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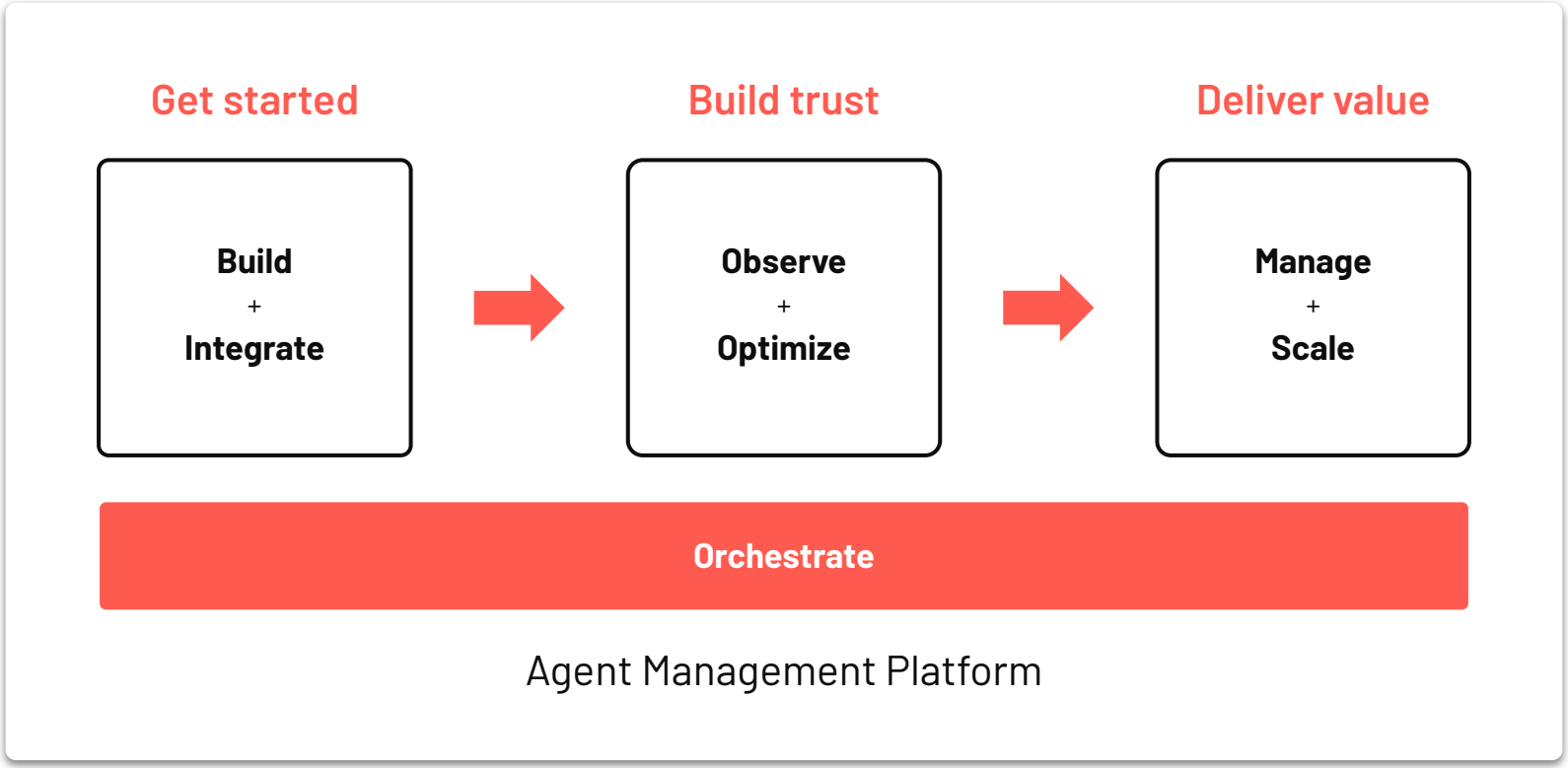
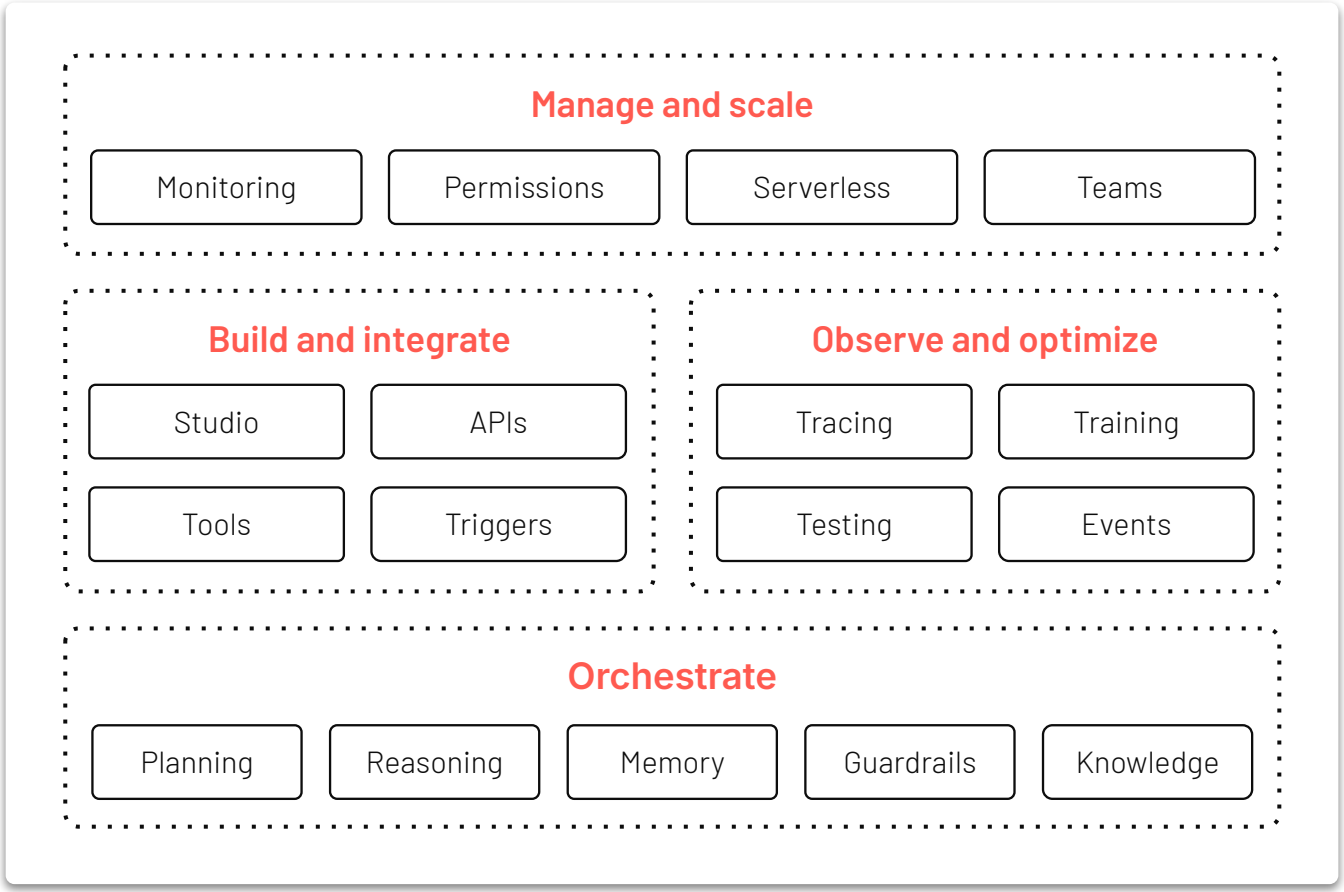
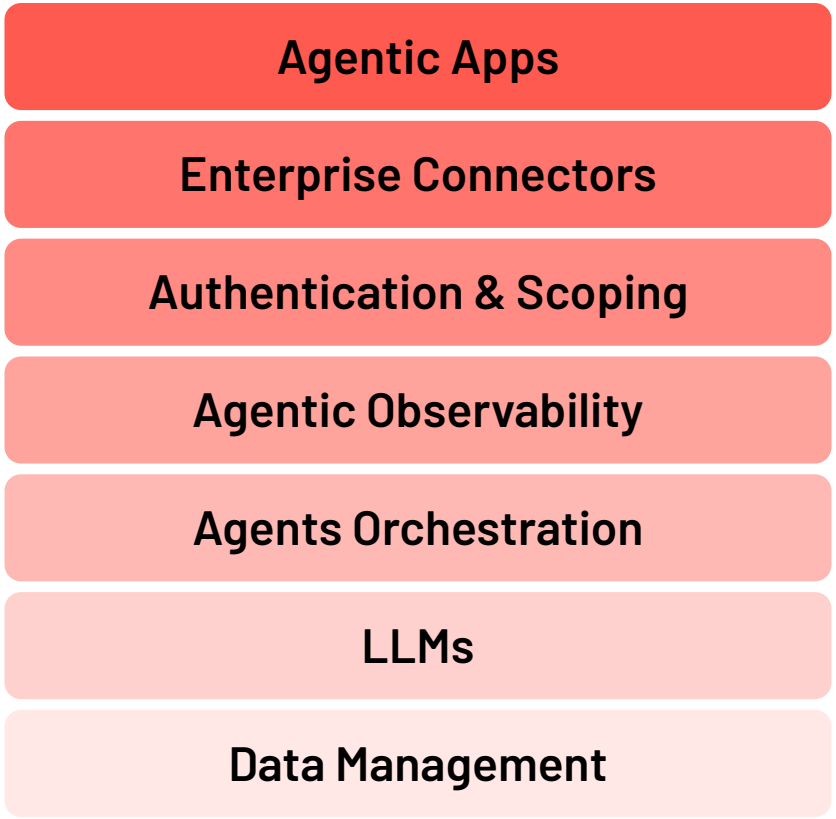

Get started
Build trust
Deliver value
Build
+
Integrate
Observe
+
Optimize
Manage
+
Scale
Orchestrate
Agent Management Platform


Manage and scale
Monitoring
Permissions
Serverless
Teams
Build and integrate
Studio
APIs
Tools
Triggers
Observe and optimize
Tracing
Training
Testing
Events
Orchestrate
Planning
Reasoning
Memory
Guardrails
Knowledge


Agentic Apps
Enterprise Connectors
Authentication & Scoping
Agentic Observability
Agents Orchestration
LLMs
Data Management

Selecting Large Language Models

- Experiment with different LLMs to promote **interoperability** in your agentic systems
- Think ahead to **maintaining and extending** your projects in the future

Vendor Lock-In

Open Source vs Closed Source

Open Models

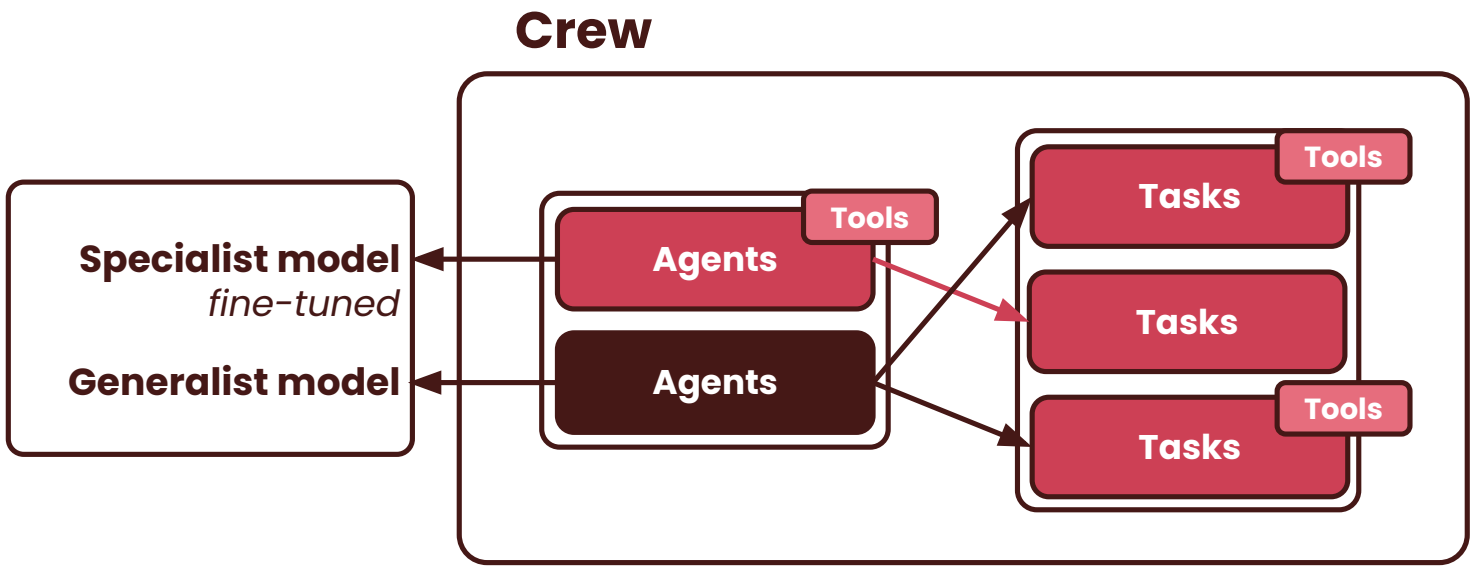
- can be fine-tuned for specific application domains
- can be run locally for privacy protected workflows
- can reduce usage costs and avoid rate limits

Open Source vs Closed Source

- offer advanced reasoning models for complex tasks
- provide safety and robustness features for predictable behavior
- allow for easy integration through managed services

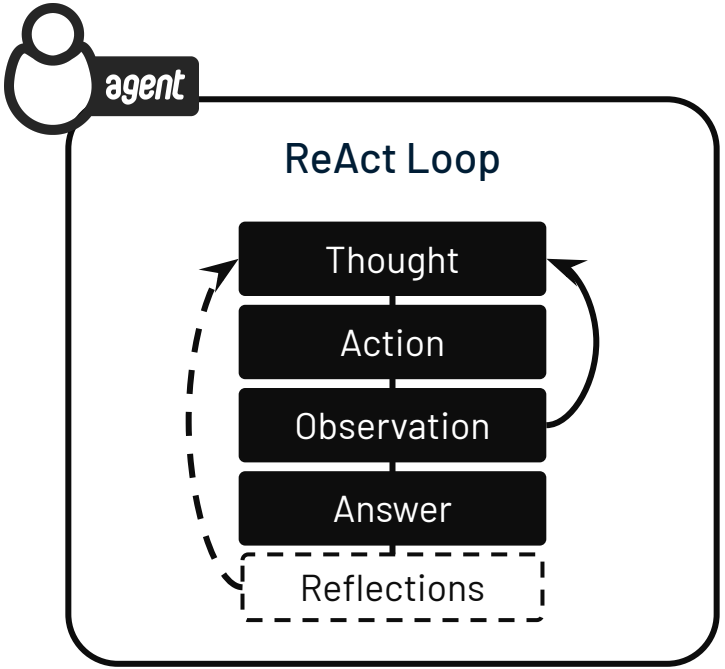
Closed Models

Fine Tuning


Crew
Specialist model
fine-tuned
Generalist model
Agents
Tools
Agents
Tasks
Tools
Tasks
Tasks
Tools

Background Agents

How can agents handle long horizon tasks by self-improving over time?



Background Agents

How can agents handle long horizon tasks by self-improving over time?

Yesterday's Agents

- Wait idly for instructions
- Execute short horizon tasks for a few minutes
- Forget about their tasks after execution

Tomorrow's Agents

- Autonomously triggered by events
- Execute long horizon tasks for a few hours
- Store insights from runtime in memory to self-improve performance through reflection

Don’t chase automation
Build reliability

Ease of Use

Repeatable Outcomes

Scalable Solutions

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Conclusion

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