

Generative AI Hackathon with IBM Granite

TheProviders

# Multi-Agent AI-Driven Troubleshooting for Clusters

Automated Troubleshooting  
Less Human Interaction

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# The Challenge: Complex Server Cluster Management

## Growing Complexity

Server clusters are becoming increasingly large and complex, presenting challenges for maintaining them.

## High Downtime Costs

Downtime can be incredibly expensive, costing a lot for businesses

## Limitations of Manual Approach

Traditional troubleshooting struggles to keep up with the scale and speed required for modern clusters. AI can help boost troubleshooting and solve low-hanging fruits 🍏



# Multi-agent AI Systems: Our Design



## Distributed Agents

Collaborating in a network



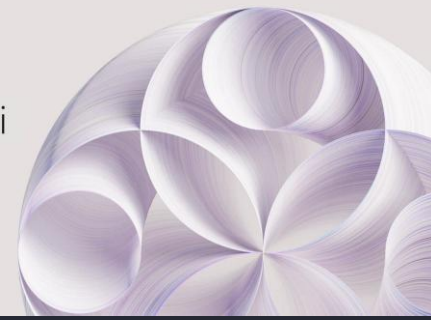
## One-to-Many Approach

Controller Agent plans all actions



## IBM Granite

IBM Granite Models are used in Watsonx Platform for demo



# Implementation and Results

Question: I have a problem in a server with an agent named agent\_worker. Server can't ping google.com

Agent: Hi, I am a troubleshooting agent. Send me logs or tell me errors you encounter.

```
{"plan": ["Ping the server from the client machine", "Ping google.com from the server"]}
```

Question: worker\_get\_plan

Worker Agent: Hi, I am a troubleshooting agent. Send me logs or tell me errors you encounter.

The plan from the Controller agent is:

1. Check the server's network connectivity.
2. Ping google.com to verify internet access.
3. If the ping is successful, check the server's firewall settings.

Question: what is the schrödinger equation?

Agent: Hi, I am a troubleshooting agent. Send me logs or tell me errors you encounter.

I'm sorry, but I can only assist with server problems and troubleshooting servers/networks. I cannot answer questions unrelated to these topics. Please ask a question related to server issues.





# Future Developments and Roadmap

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1

## Real-time Monitoring

The system will be constantly fed with data from servers and predict and prevent issues before they arise.

2

## More Tools for Better Troubleshooting

More tools will be added to increase worker agent capabilities.

3

## Expanded Cross-platform Compatibility

Agents' tools will be compatible with a wider range of operating systems and platforms.

4

## AI-driven Capacity Planning

The system will use AI to optimize capacity planning and scaling for dynamic workloads.





# Conclusion: Transforming Cluster Management

Multi-agent AI systems can transform how server clusters are managed, leading to significant improvements in efficiency and less downtime.

This proactive approach empowers IT professionals to focus on bigger problems in their infrastructure and reduce downtime.