COLLABORATIVE DISCUSSION 1: AGENT BASED SYSTEMS

Initial Post

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INITIAL POST

The rise of agent-based systems is directly tied to the convergence of three key technological trends: ubiquity, interconnection, and intelligence. As computing devices have become more affordable and widespread (ubiquity), and connectivity has grown through advancements like 5G (interconnection), organisations are increasingly turning to intelligent systems that can act autonomously on their behalf (delegation and intelligence). This environment has become ideal for the development and deployment of agent-based systems.

Agent-based systems offer several advantages for organisations.

- First, they help with distributed problem-solving, meaning that separate agents can work independently to attain the same goals (Wooldridge, 2009). This is especially useful in complex or dynamic domains. For instance, in a smart grid, agents can automatically control how energy is distributed from different sources and reroute power to avoid localised blackouts while maximising overall efficiency.
- Second, agents demonstrate autonomy by making their own decisions, meaning humans do not have to be involved in everyday or high-volume jobs as much (Jennings & Wooldridge, 1998). A stock trading bot that can analyse market data and execute trades in real time without any help from a person is a good example.
- Lastly, these systems can evolve in response to changing organisational demands, eliminating the need for complete system redesigns (Russell & Norvig, 2021). This is evident in e-commerce platforms where new agents can be added to handle new product lines or customer service requests without needing to re-engineer the core system.

As systems become more connected and making choices becomes harder, agent-based systems are a natural choice since they behave like people working together in software. They are a vital feature of today's intelligent systems. As our digital environment gets more complicated, their capacity to work independently and adapt will be critical for delivering intelligent, autonomous, and resilient solutions.

References:

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