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A Framework for Enterprise Agentic AI: Multi-Agent Architectures and ROI-Driven Adoption

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Abstract

The rapid advancement of agentic artificial intelligence (AI) is transforming how intelligent systems are designed, deployed, and monetized across research and enterprise environments. Unlike traditional generative AI or rule-based automation, AI agents introduce autonomous, goal-driven capabilities that can reason, plan, collaborate, and execute actions across complex workflows. This session presents a focused examination of the latest trends, enabling protocols, and measurable return on investment (ROI) driving the adoption of AI agents.

The talk highlights key developments such as multi-agent architectures, tool-augmented reasoning, retrieval-augmented generation (RAG), and scalable agent orchestration frameworks that enable coordinated intelligence. It further explores emerging protocols and standards, including model context exchange, agent communication schemas, and governance mechanisms essential for interoperability, security, and compliance.

A central emphasis is placed on the economic and operational impact of AI agents. Drawing from real-world enterprise implementations, the session demonstrates how organizations achieve measurable ROI through productivity gains, cost optimization, cycle-time reduction, and revenue enablement. The presentation concludes with a pragmatic roadmap for responsibly scaling agent-based systems from experimentation to sustainable value creation.