Paper Title: Special issue: Distributed and real-time

simulation of next-generation complex

systems

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1. Summary: The SIMULATION special issue titled "Distributed and Real-Time Simulation of Next-Generation Complex Systems" explores innovative methodologies that will revolutionize how we model, understand, and optimize complex systems prevalent across diverse domains. The issue includes five research papers that showcase the latest techniques and applications in distributed and real-time simulation.

2. Motivation: The complexities of modern complex systems have surpassed the capabilities of conventional simulation approaches. Traditional simulation methods struggle to capture the adaptive, nonlinear, and emergent nature of these systems. Therefore, there is a pressing need for more effective tools to model, analyze, and optimize complex systems.

3. Contribution: The special issue aims to offer valuable insights into the potential and diversity of distributed and real-time simulation for next-generation complex systems. The papers serve as a window into the evolving landscape of simulation methodologies, providing insights into how these approaches can model, analyze, and optimize complex systems that transcend multiple domains, scales, and levels of abstraction.

4. Methodology: The special issue includes five research papers that explore different methodologies for distributed and real-time simulation. The papers address various challenges in simulating complex systems, such as simulating agent-based models in continuous time, estimating network performance for multimedia traffic, modeling the spread of disease using geographical models, improving navigation accuracy in urban environments, and assessing communication protocols for distributed road traffic simulation.

5. Conclusion: The special issue emphasizes both the current accomplishments and the room for further growth in distributed and real-time simulation. It encourages exploration and innovation to refine these methodologies and address the complexities of modern complex systems more effectively.

6. Limitations: The special issue does not cover all possible methodologies for distributed and real-time simulation. It also does not provide a comprehensive overview of all complex systems that can benefit from these simulation approaches.

7. Synthesis: The SIMULATION special issue on Distributed and Real-Time Simulation of Next-Generation Complex Systems showcases the latest techniques and applications in distributed and real-time simulation. The papers provide valuable insights into how these approaches can model, analyze, and optimize complex systems that transcend multiple domains, scales, and levels of abstraction. The special issue encourages exploration and innovation to refine these methodologies and address the complexities of modern complex systems more effectively.