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(51) International classification	:H04L0047110000, H04L0045302000, H04L0047120000, H04L0047100000, H04L0043087600	(71) <b>Name of Applicant :</b> <b>1)NOIDA INSTITUTE OF ENGINEERING &amp; TECHNOLOGY</b> Address of Applicant :19, Knowledge Park-II, Institutional Area, Greater Noida – 201306, Uttar Pradesh, India. Uttar Pradesh India
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(57) Abstract :

The invention discloses an AI-based system (101) for automated network traffic load balancing. The system includes a traffic analyzer module (102), predictive model engine (103), anomaly detection unit (104), adaptive routing controller (105), and monitoring dashboard (106). Together, these modules ensure dynamic traffic distribution, congestion avoidance, predictive resource allocation, and anomaly handling. The reinforcement learning-enabled routing controller (105) continuously adapts to changing conditions, providing a scalable, fault-tolerant solution. Experimental validation confirms improved throughput, reduced latency, and enhanced resilience across distributed computing environments.

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