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REVIEWER'S REPORT

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Date: 28-05-2025

Title: **ENHANCEMENT OF FOG CACHING USING NATURE INSPIRATION OPTIMIZATION TECHNIQUE BASED ON CLOUD COMPUTING**

Recommendation:
Accept as it is……………….YES………….
Accept after minor revision………………
Accept after major revision ………………
Do not accept (*Reasons below*) ………

Rating	Excel.	Good	Fair	Poor
Originality		√		
Techn. Quality		√		
Clarity			√	
Significance			√	

Reviewer's Name: Mr Bilal Mir

Reviewer's Decision about Paper: **Recommended for Publication.**

Comments (*Use additional pages, if required*)
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Reviewer's Comment / Report

Abstract Review:
The abstract introduces fog computing as an extension of cloud computing that operates closer to the network edge. It clearly identifies caching as a central challenge within this paradigm and outlines its importance for improving latency, bandwidth usage, and application responsiveness. The problem statement is articulated in a concise manner, and the need for optimization in fog node management is highlighted. The abstract appropriately aligns with the keywords provided, giving an overview of the technological focus areas such as caching, cloud-fog integration, and nature-inspired optimization techniques.

Keywords Review:
The keywords listed are relevant, specific, and representative of the scope of the study. They provide a clear indication of the core technical themes, including Fog Computing, NIOT (Nature-Inspired Optimization Techniques), and Edge Computing, alongside the foundational concepts such as Genetic Algorithms and Cache Management.

Introduction Review:
The introduction offers a well-structured exposition of fog computing and its growing significance due to the proliferation of IoT devices and the need for real-time data processing. It effectively explains the

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decentralized nature of fog computing and contextualizes it within current computing trends. The section presents the core issues associated with fog environments, particularly with caching and resource management. The heterogeneity of fog nodes and the dynamic network conditions are rightly emphasized as key challenges. Furthermore, the role of caching in reducing latency and enhancing user experience is articulated with clarity and supported by relevant literature references.

Technical Relevance and Contextual Placement:
The study's technical context is well-grounded in the emerging needs of real-time data systems, edge intelligence, and adaptive caching. It identifies current limitations in fog computing and aligns them with the need for optimization-based approaches, which is highly relevant in the field of distributed systems and intelligent networking.

Clarity and Organization:
The language is clear and technical terminology is appropriately used. The flow of ideas is logical, progressing from a broad discussion of fog computing to specific challenges in caching and resource management. The tone remains formal and academic, suitable for a technical paper.

Overall Assessment:
The document presents a promising and timely exploration of optimization-driven caching strategies in fog computing environments. The introduction successfully frames the research within broader technological and infrastructural trends. The abstract and introduction are well-coordinated, collectively setting up a strong foundation for the subsequent methodological and analytical sections.