Report on Expert Lecture

"Innovative DNS Approaches for Modern Computer Networks: Performance Optimization and Secure Scalability"

Submitted To: SSIP Cell, BBIT
Submitted By: Pinkal Mahant, Program Coordinator
Department: Electronics & Communication Engineering
Class: 6th Semester EC Engineering
Venue: EC Department Seminar hall, BBIT
Date: 13/02/2026

1. Introduction

I am pleased to submit the report on the successful organization of an expert lecture on *"Innovative DNS Approaches for Modern Computer Networks: Performance Optimization and Secure Scalability"* for the 6th semester EC Engineering students. The session was organized with the objective of enhancing students' understanding of modern networking technologies and emerging innovations in DNS infrastructure.

The program was successfully conducted under the support of the **SSIP Cell, BBIT**.

2. Objectives of the Program

The primary objectives of the expert lecture were:

- To provide in-depth knowledge of the Domain Name System (DNS).
- To understand performance optimization techniques in modern networks.
- To introduce secure DNS mechanisms and cybersecurity challenges.
- To bridge the gap between academic curriculum and industry practices.

3. Session Highlights and Student Participation

The expert delivered a comprehensive session covering both fundamental and advanced aspects of DNS.

The lecture began with an explanation of DNS architecture, including root servers, TLD servers, authoritative servers, and recursive resolvers, followed by a step-by-step explanation of the domain name resolution process.

The speaker discussed limitations of traditional DNS such as latency, server overload, scalability issues, and vulnerability to attacks.

Innovative approaches for performance optimization were explained, including:

- Anycast routing for reduced latency and improved reliability
- Load balancing techniques
- Cloud-based DNS infrastructure for scalable operations

The session was interactive, and students actively participated by asking questions related to real-world DNS security threats and implementation practices. Their engagement reflected strong interest in networking and cybersecurity domains.

4. Learning Outcomes

After attending the session, students were able to:

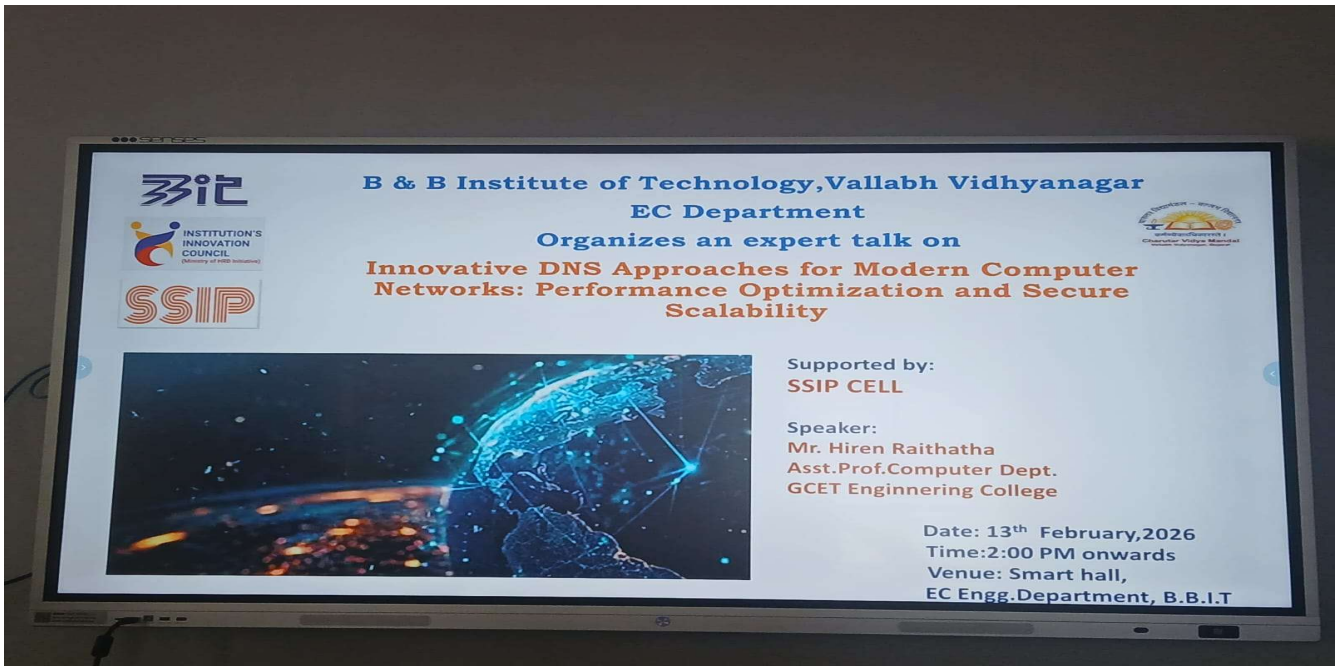
- Explain the traditional DNS working model.
- Identify performance bottlenecks in DNS systems.
- Understand innovative DNS optimization techniques.
- Recognize common DNS-based cyber attacks.
- Appreciate the importance of scalable DNS architecture in cloud and telecom networks.

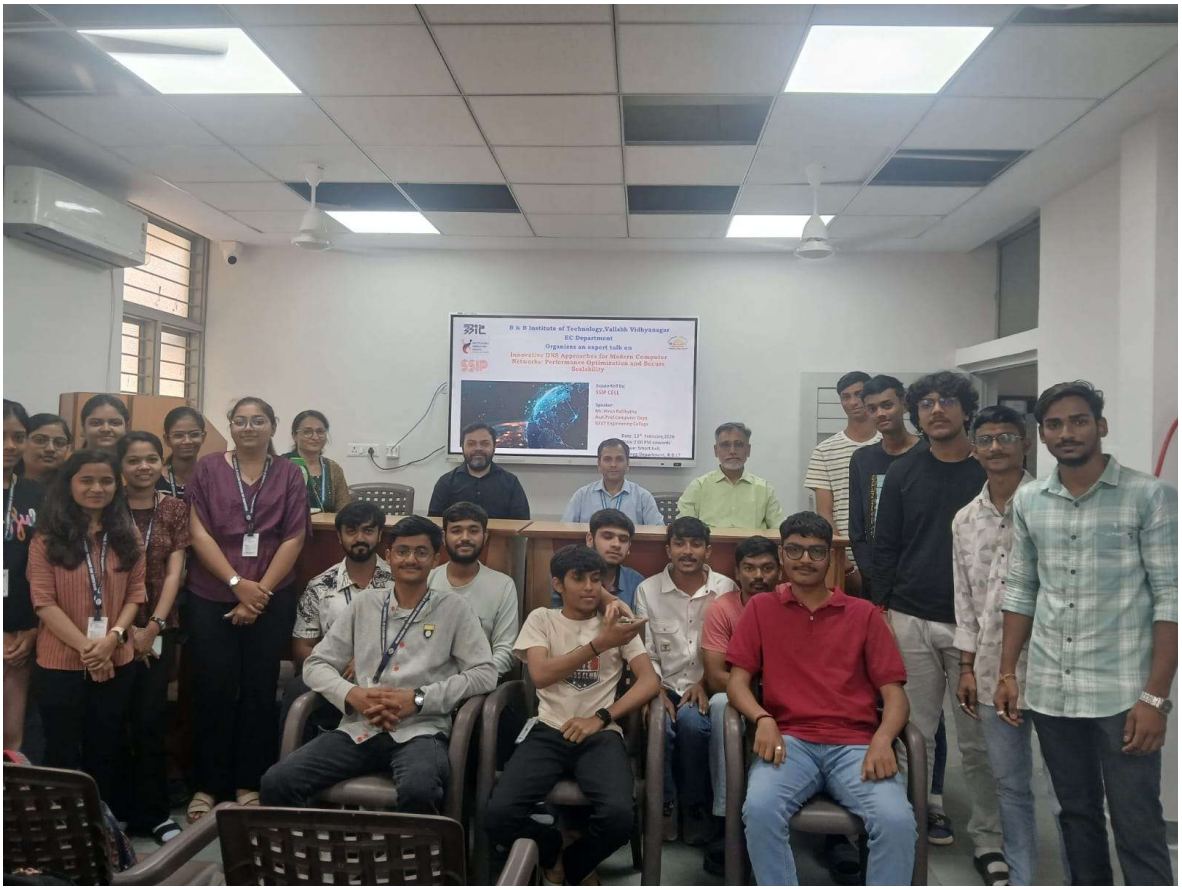
The session significantly enhanced students' technical understanding beyond syllabus-level knowledge.

5. Conclusion

The expert lecture on *"Innovative DNS Approaches for Modern Computer Networks: Performance Optimization and Secure Scalability"* was successfully organized and achieved its intended objectives. The session provided valuable insights into modern DNS technologies, security mechanisms, and scalable networking solutions.

On behalf of the EC Department, I sincerely express gratitude to the **SSIP Cell, BBIT** for supporting this technical initiative. Their encouragement plays a vital role in promoting innovation and technical excellence among students.

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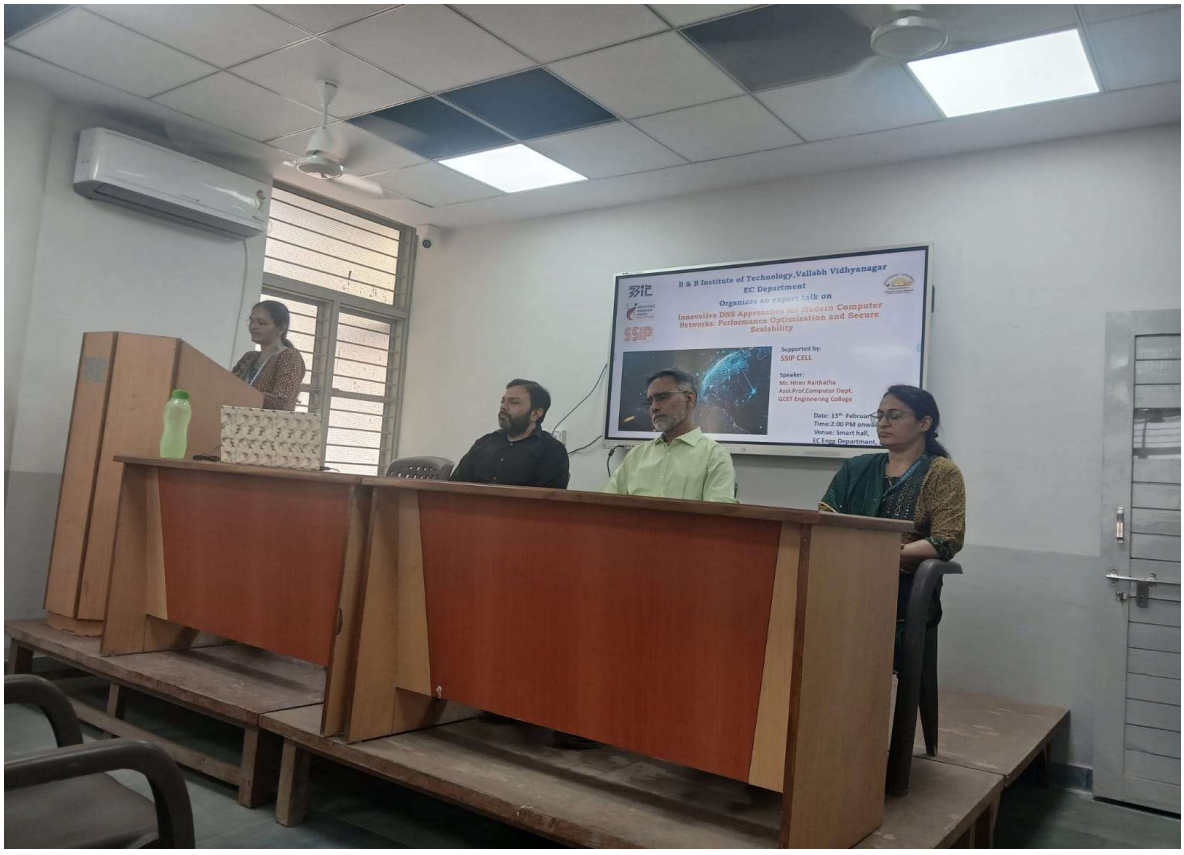
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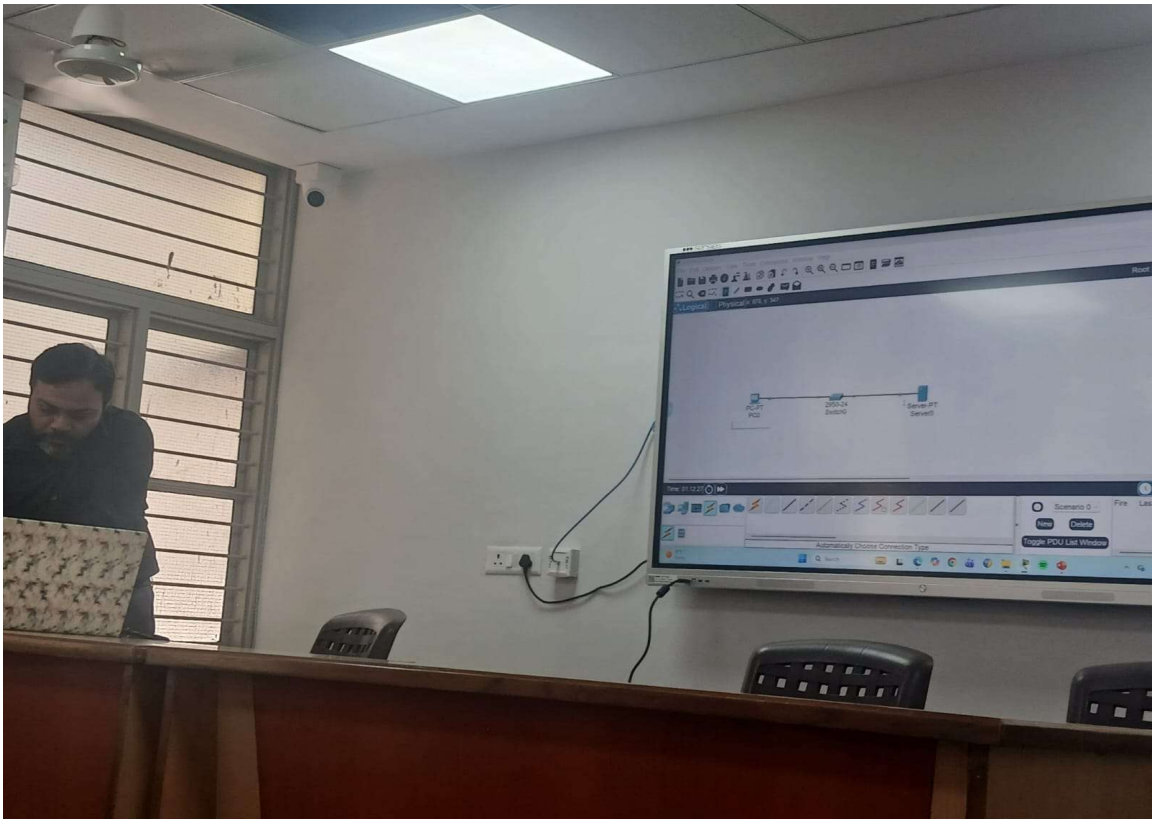
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