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Encrypted Identity Routing Protocol (EIRP): A Blockchain-Orchestrated Identity-Based Routing Architecture
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Abstract

This document proposes the Encrypted Identity Routing Protocol (EIRP), a conceptual redesign of Internet routing where public IP addresses are replaced by encrypted identities authenticated through blockchain consensus.

Status of This Memo

This Internet-Draft is submitted in full conformance with the provisions of BCP 78 and BCP 79.

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This Internet-Draft will expire on 4 December 2026.

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1. Introduction

The Internet's foundational addressing system relies on globally visible IP addresses. EIRP introduces a paradigm shift by replacing routable IP addresses with encrypted identities authenticated through blockchain authorization.

2. EIRP Architecture

EIRP consists of four conceptual components: the Blockchain Identity Ledger (BIL), Encrypted Routing Tokens (ERT), Secure Routing Overlay (SRO), and Access-Controlled Address Resolution (ACAR).

3. Security Considerations

EIRP prevents scanning, spoofing, and unsolicited traffic by ensuring that only authorized peers may resolve routing metadata. Further analysis is required regarding blockchain consensus latency and potential side-channel attacks on identity resolution.

4. IANA Considerations

This document has no IANA actions.

5. Informative References

[IETF-Process]
IETF, "IETF New Work Process", 2026,
<https://www.ietf.org/process/new-work/>.

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