Flux

The Decentralized Computational Network

Blockchain-As-A-Service solutions built on the blockchain

Progressive Node Rewards

Written and maintained by The InFlux Development Team
Author- Daniel Keller, Valter Silva

FluxCloud Progressive Node Rewards

Introduction

As Flux continues to evolve, implementing a dynamic and adaptable Progressive Node Rewards (PNR) system is essential to ensure scalability and efficiency. This document outlines the principles of the FluxCloud PNR framework, emphasizing sustainable growth, network decentralization, and fair compensation for node operators contributing to the network's stability and expansion.

Objectives of the PNR System

1. Scalability: The system must scale dynamically to accommodate network demand, efficiently allocating computational resources.
2. Incentivization: Node operators should be rewarded to reflect their contribution to the network, encouraging consistent participation.
3. Decentralization: Encourage a broad distribution of nodes globally to prevent centralization risks and enhance network resilience.
4. Resource Optimization: Align rewards with network demand and node availability to ensure optimal utilization of computational resources.

Proposed Enhancements to the PNR Model

1. Adaptive Reward Structure
- Implement a flexible reward mechanism that adjusts based on network congestion, demand, and resource utilization.
- Introduce tiered incentives based on node performance, uptime, and contribution to processing power.
- Adjust rewards dynamically based on regional demand to encourage node deployment in underrepresented areas.

2. Performance-Based Compensation
- Utilize real-time performance metrics (uptime, latency, computational output) to assess reward eligibility.
- Implement a system where nodes exceeding minimum performance thresholds receive incremental bonuses.
- Penalize non-performing nodes to maintain network integrity.

3. Geographical Reward Balancing
- Establish reward differentials to encourage nodes in geographically underutilized regions.
- Introduce incentives for node operators willing to deploy in regions with limited network coverage.

4. Automated Scaling Incentives
- Reward early adopters in high-demand periods to prevent bottlenecks.
- Implement temporary reward boosts during periods of rapid growth to attract additional node operators.
- Utilize AI-driven predictive analytics to forecast demand spikes and adjust rewards accordingly.

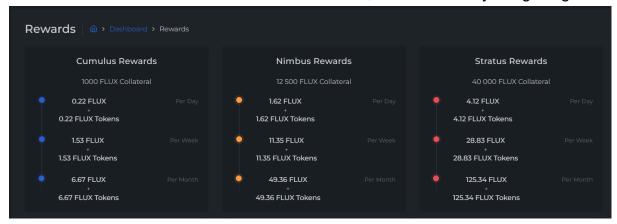## 5. Sustainability and Long-Term Viability
- Introduce a reward-halving mechanism to ensure long-term economic sustainability.
- Establish a treasury fund for future infrastructure development, funded by a small percentage of node rewards.
- Implement governance mechanisms allowing the community to propose and vote on reward structure adjustments.

Current Node Rewards

Currently, node rewards are based on blockchain emission: PoUW receives 50%, and Nodes receive 50%; from those, 50%, 7.5% Cumulus, 12.5% Nimbus, and 30% to Stratus. So, each block generates 37.50 Flux; Cumulus receives 2.8125, Nimbus 4.687,5, and Stratus 11.25 Flux.

How much does each node earn per month?
Based on the current number of nodes on each tier, this is what they are getting:

Will the block rewards nodes always be the same?

No, the Flux blockchain emission rate happens every 2.5 years.

By August 2025, the block rewards will be adjusted to half.

Do Nodes get extra rewards from the apps they are running?

As described above, node operators only get rewards from the flux blockchain. No extra rewards are received.

Proposal

1. Share application payments
Start sharing a percentage of the incoming traffic generated by apps on the network with the node operators. Start at 25% and increase by 2% annually until 50% is reached.
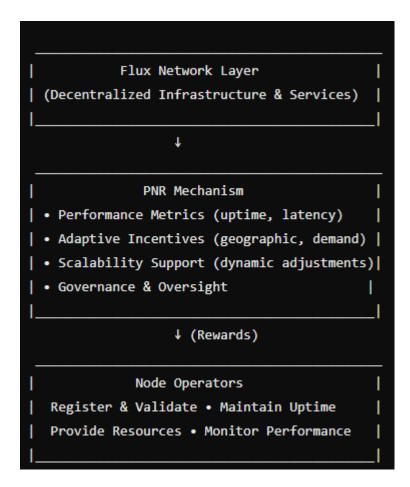
2. Distribution of new rewards
We would sum all the apps' payments and divide them into two categories:
-   Online Nodes - get 80% that are shared with all node operators;
-   Nodes Running Apps - gets 20% and is only distributed to nodes that are running apps

3. Additional rewards on demand
If we need extra nodes or new nodes in a specific geolocation because of a client request/need, we will announce the need and what extra distribution will be made if the target is accomplished.

```
 _____
|                                    |
|         Flux Network Layer         |
|  (Decentralized Infrastructure & Services)  |
|_____|
                  ↓

 _____
|                                    |
|            PNR Mechanism           |
| • Performance Metrics (uptime, latency)     |
| • Adaptive Incentives (geographic, demand)  |
| • Scalability Support (dynamic adjustments) |
| • Governance & Oversight                    |
|_____|
              ↓ (Rewards)

 _____
|                                    |
|           Node Operators           |
|  Register & Validate • Maintain Uptime      |
|  Provide Resources • Monitor Performance    |
|_____|
```

Explanation of Each Section

1. **Flux Network Layer**
   - Represents the core blockchain infrastructure, including consensus mechanisms and transaction validation.
   - Provides the foundational rules and environment where nodes operate.
2. **PNR Mechanism**
   - **Performance Metrics**: Tracks each node's uptime, latency, and resource availability.
   - **Adaptive Incentives**: Adjusts rewards to meet network demands, factoring in geographic distribution and usage spikes.
   - **Scalability Support**: Ensures that as the network grows, PNR adapts to attract more nodes and maintain balance.
   - **Governance & Oversight**: The Flux community can vote on updates to keep the system fair and efficient.
3. **Node Operators**
   - Individuals or organizations provide computing power at endpoints, validate transactions, and maintain service availability.
   - They receive rewards based on their performance and contributions as recorded by the PNR mechanism.

4. **Rewards (Token Distribution)**
   ○ Reflects how tokens (or other forms of compensation) flow back to the node operators.
   ○ Dynamically adjusted based on data from performance metrics and network conditions.

How will the distribution of the new rewards work?

The distribution will be collected and sent by a Flux Service. For Online Nodes, the distribution would be:
- Stratus would get 42%;
- Nimbus would get 33%;
- Cumulus would get 25%

For nodes running, apps would be equally divided.

Criteria

- Only nodes confirmed over 21600 blocks (1 month) are eligible.
- The same applies to apps. You are eligible only if the app has been running on your node for over a month.
- Nodes need to be online and reachable by the service that collects the data when the information is collected.

Example

Let's assume that 50,000 USD was paid to applications on the Flux Cloud last month. With Flux at 0.25 USD, that means 200,000 Flux, 25% of which would be distributed, so 50,000 Flux.
40,000 Flux would be distributed for the node's online category and 10,000 for the Nodes Running Apps.
For Nodes Online, the distribution would be:
- 16,800 Flux for the Stratus (42%);
- 13,200 Flux for the Nimbus (33%);
- 10,000 Flux for the Cumulus (25%);

Assuming the Nodes online would be the same as now: 12185, 1818 stratus, 2055 nimbus, 8312 cumulus, and all would pass the criteria, each node would receive:
  - Cumulus - 1.20 Flux
  - Nimbus - 6.42 Flux
  - Stratus - 9.24 Flux

For Nodes Running apps, the distribution would be as if we had 5000 nodes running apps:
  - Each Node running an app would receive an extra 2 Flux

When would we start?
Q3 2025.

Conclusion

The enhanced FluxCloud Progressive Node Rewards system ensures long-term scalability while fairly compensating node operators. By dynamically adjusting incentives based on performance, demand, and geographical factors, the system will promote a more decentralized, efficient, and resilient network. Continuous evaluation and community feedback will be crucial in refining and optimizing the system.