Indexer Scoring Methodology – The Graph Network

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Accessing the Dashboard

To explore live data, track indexer performance, and view scores in real-time, access the Index Score Dashboard at the following URL:

`https://indexerscore.com`

Thresholds Used

This section outlines the criteria used to categorize indexers into small, medium, and large based on the amount of GRT they have allocated. It also defines the minimum number of subgraphs an indexer must support to be considered actively contributing to the network.

- Small Indexer Threshold: Less than 1,000,000 GRT allocated
- Medium Indexer Threshold: Between 1,000,000 and 20,000,000 GRT allocated
- Large Indexer Threshold: 20,000,000 GRT or more allocated
- Underserving Subgraphs Threshold: 10 subgraphs

How the Indexer Score is Calculated

This document introduces the core scoring mechanism used to evaluate indexers. It explains how two performance indicators, Allocation Efficiency Ratio (AER) and Query Fee Ratio (QFR) are weighted and combined to produce a final score that reflects overall indexer effectiveness.

The **Indexer Score** is a weighted combination of two critical performance metrics:

- **AER (Allocation Efficiency Ratio)**: Reflects how efficiently an indexer spreads its GRT across subgraphs. Weight: 70%
- **QFR (Query Fee Ratio)**: Indicates how efficiently an indexer generates query fees relative to its allocated GRT. Weight: 30%

$$Indexer\ Score\ =\ AER\ (weight\ 70\%)\ +\ QFR\ (weight\ 30\%)$$

How Allocation Efficiency Ratio (AER) is Calculated

This section explains how AER is derived by analyzing how an indexer allocates its GRT across subgraphs. It includes the formula and rationale for assessing whether an indexer's allocations are balanced or overly concentrated.

Formula:

$$AER = \frac{Total\ GRT\ Allocated}{Number\ of\ Allocations\ x\ Average\ GRT\ per\ allocation}$$

> *A lower AER reflects more efficient allocation.*

Average allocations are based on indexer size:

- Small Indexers: 5,000 GRT per subgraph
- Medium Indexers: 10,000 GRT per subgraph
- Large Indexers: 20,000 GRT per subgraph

How AER is Normalized

This section details the normalization process used to convert raw AER values into a standardized score from 1 (best) to 10 (worst), enabling comparison across indexers regardless of their size or behavior.

Formula:

$$Normalized\ AER = 1 + 9 \times (min(AER, 500) \div 500)$$

> **Why we cap AER at 500?**
>
> To avoid skewed results caused by outlier behavior, AER values are capped at 500. This prevents extremely high AER values — typically caused by indexers allocating a large amount of GRT to very few subgraphs — from disproportionately influencing the scoring scale. Once an AER reaches 500, it is considered sufficiently inefficient to warrant the lowest normalized score (10). Any value beyond 500 is treated the same, ensuring fairness and comparability across all indexers.

Interpretation:

- AER = 0 → Normalized = 1 (most efficient)
- AER ≥ 500 → Normalized = 10 (least efficient)
- Example: AER = 23.788 → Normalized ≈ 1.43

How Query Fee Ratio (QFR) is Calculated

This section introduces the QFR metric, which measures how efficiently an indexer generates query fees based on its allocated GRT. A higher QFR indicates stronger performance in terms of economic contribution.

Formula:

$$QFR = \frac{Query\ Fees\ Generated}{Total\ GRT\ Allocated}$$

> *A higher QFR indicates better performance.*

How QFR is Normalized

This section explains the transformation of raw QFR values into a normalized scale that aligns with the AER score. It ensures that indexers with high query fee efficiency are appropriately rewarded in the scoring model.

Formula:

$$Normalized\ QFR = 10 - 9 \times \left(\frac{\min(QFR, 1.0)}{1.0}\right)$$

> **Why we cap QFR at 1.0?**
>
> QFR is capped at 1.0 to avoid distortion caused by extreme values. A QFR of 1.0 represents a theoretical maximum where query fees equal the GRT allocated — an exceptional but rare case. Any value above that is treated as 1.0 to maintain fairness.
>
> Linear Scaling: After capping, the QFR is scaled linearly between 0 and 1.0, then mapped onto a score from 10 (best) to 1 (worst) — the inverse direction of AER, which ranges from 1 (best) to 10 (worst). This inversion is intentional and later adjusted during the final score calculation to ensure both metrics align in meaning.

Interpretation:

- QFR ≥ 1 → Normalized = 10 (most efficient)
- QFR = 0 → Normalized = 1 (least efficient)
- Example: QFR = 0.002856 → Normalized ≈ 9.97

How the Final Indexer Score is Calculated

This section outlines how the normalized AER and normalized QFR are combined into a single score that ranks indexers from 1 (**best performance**) to 10 (**worst performance**). The scoring model balances allocation efficiency and query fee generation, using a weighted formula that prioritizes AER while still rewarding strong QFR.

> *These weights reflect the importance of GRT allocation behavior in sustaining a healthy and efficient network, while still valuing economic contribution through query fee generation.*

The final **Indexer Score** combines AER (70%) and QFR (30%) into a unified 1–10 scale.

- Normalized AER scores increase with worse performance (1 = best, 10 = worst)
- Normalized QFR scores decrease with worse performance (10 = best, 1 = worst)

To make them comparable and combine them fairly in a single formula, we invert the QFR scale so that higher values once again represent worse performance:

$$QFR\ Adjusted\ =\ 11\ -\ Normalized\ QFR$$

> *This transforms QFR range from 10 → 1 (best → worst) into 1 → 10 (best → worst), aligning with AER direction.*

Formula:

$$Final\ Score\ =\ (Normalized\ AER\ \times\ 0.7)\ +\ ((11\ -\ Normalized\ QFR)\ \times\ 0.3)$$

> *This weighted average ensures that indexers with efficient allocation (low AER) and high query fee generation (high QFR) score closer to 1, while those with inefficiencies in either area score closer to 10.*

Examples:

- Best Case: Final = (1 × 0.7) + (1 × 0.3) = 1.0
- Worst Case: Final = (10 × 0.7) + (10 × 0.3) = 10.0
- Mixed Case: Final = (1.43 × 0.7) + (1.03 × 0.3) ≈ 1.31

Underserving Penalty

This section describes the penalty applied to indexers that serve fewer than 10 subgraphs. The purpose of this penalty is to incentivize indexers to support a wider range of subgraphs, promoting network health, fairness, and decentralization. Indexers who limit their service to only a few subgraphs may still earn rewards, but their contribution to the broader ecosystem is considered limited — and this is reflected in their final score.

Formula:

$$Penalty \; = \; 2.0 \; \times \frac{\left(10 \; - \; number_{of_{subgraphs}}\right)}{10}$$

This formula imposes a linear penalty based on how far an indexer falls below the subgraph threshold (valued at 10). The maximum penalty is 2.0, applied to indexers that serve only 1 subgraph. The penalty decreases as the number of subgraphs increases, becoming zero once the indexer serves 10 or more subgraphs. The penalty is added to the final indexer score after AER and QFR are combined.

Examples:

- 1 subgraph → Penalty = 1.8
- 5 subgraphs → Penalty = 1.0

Performance Flags

This section defines the performance categories — Excellent, Fair, and Poor — based on final indexer scores. These flags offer a quick, visual way to assess how well an indexer is performing within the network:

- Excellent (1.00 – 1.25): Top-tier efficiency and query fee generation
- Fair (1.26 – 2.50): Average performance with room for improvement
- Poor (2.51 – 10.00): Inefficient allocation or low query fees; needs attention