🍹 Poolside

The DeFi prediction protocol

https://poolside.finance

Whitepaper authors:
James Levy | james@poolside.finance

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Overview

Poolside is a protocol that transforms decentralized finance activity into predictions and recommendations.

While the Graph protocol is designed for curating and indexing blockchain data, Poolside is designed for producing useful predictions from this data. Just as all major cloud computing platforms now offer prediction API products to augment their hosted graph database products and the two types of products achieve operational efficiency through a shared backend, Indexers providing services in the Graph network can adopt Poolside to add a prediction API product to their own suite of product offerings, achieving operational efficiency through a shared backend. The indexing infrastructure they are already operating for the Graph becomes an underutilized fixed asset that is repurposed to provide additional value and generate additional revenue in an emergent cloud computing ecosystem built around decentralized finance.

The core of Poolside is the PoolRank system for generating numerical and categorical predictions. Google's PageRank was a system for predicting the relevance of webpages created at a time when the web was evolving too quickly to organize manually, and PoolRank is a system for determining the relevance of DeFi entities, created at a time when DeFi is starting to evolve too quickly to continue organizing manually.

Poolside is using an open approach, allowing each service provider on the network to use their own choice of PoolRank implementation and by governing the protocol itself through a decentralized autonomous organization.

System Architecture

The Poolside network ecosystem consists of Indexers, Consumers and Delegators. The PLSD token is used for economic interactions between these three groups of users, and is also used for participation in Poolside DAO governance.

Indexers

Indexers provide Poolside API services to consumers. The PoolRank software used to generate token rankings will generally involve querying various Graph protocol subgraphs. Because of this, most Poolside Indexers are likely to also be Graph Indexers. Their indexing infrastructure for being a service provider on the Graph is reused with minimal additional overhead to generate a new revenue stream through Poolside. Alternatively, some Poolside Indexers may opt to not run their own indexing infrastructure, instead choosing to pay third-party graph indexers in GRT for subgraph queries or using a PoolRank implementation that does not rely on querying subgraphs.

Consumers

Consumers pay Indexers for their API service. For each request made, consumers must pay a Indexer-specified fee of PLSD for each of the PoolRank scores they are requesting.

Delegators

PLSD holders will be able to delegate to Indexers, and earn a commission amount specified by Indexers. A bonding curve mechanism will be used to assign each Delegator a stake in their delegated Indexer. This will reward delegators who are early to identify Indexers with highly effective PoolRank implementations or other valuable attributes. High delegation amounts may help Consumers identify high quality Indexers.

Token Ranking API

The first API offered by Poolside Indexers will be the Token Ranking API, which uses regression analysis or other techniques to rank the predicted relevancy of tokens to a DeFi user.

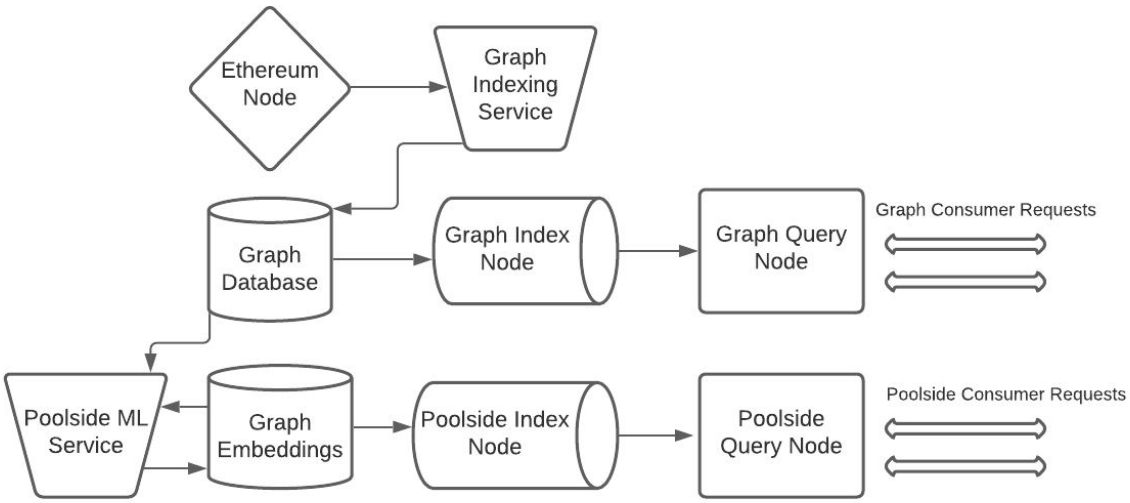
The Token Ranking API takes as input a list of addresses. For each of these specified addresses, the API returns a ranking of tokens by their predicted relevancy, with a predicted relevancy score provided for each of the ranked tokens. If no additional arguments are provided, the top rankings for each input address is returned. If an optional list of tokens to rank is provided, the score for each of the specified tokens is returned. Indexers charge a customizable fee, where each PoolRank score returned requires a specified payment of PLSD.

PoolRank

PoolRank is the system used by Indexers to generate predictions. Indexers can utilize and customize official PoolRank configurations, and will be able to choose to use their own proprietary configurations. PoolRank may encompass both classification (categorical) and regression (numerical) predictions.

PoolRank configurations will generally make use of the Graph protocol, which transforms raw blockchain transactions into easily queryable data. A very simple configuration for the Token Ranking API may utilize queries of subgraphs, and additional supplementary sources of data.

PoolRank will evolve increasingly toward algorithmic and machine learning based approaches, which may be as simple as a k-nearest neighbor graph more sophisticated approaches like deep graph learning. The exact implementation of models and parameters these approaches require will form the basis for Indexers competing to develop proprietary PoolRank configurations that produce the highest quality predictions.



The diagram above shows a high-level overview of an example workflow from Graph protocol indexing of Ethereum node events, to a Poolside analysis service forming graph embeddings, a fixed length vector representation of the Graph database, to be used in generating predictions at runtime.

Poolside News

The first consumer of Poolside will be Poolside News - a product developed by the Poolside DAO that will generate personalized DeFi updates powered by PoolRank recommendations. To get started using Poolside News, a new user simply needs to provide their preferred mode of contact (email, Telegram, Discord, etc.) and can sign in with their wallet at poolside.finance so that their activity history can be used to generate recommended content.

New items will be derived from several sources, including Twitter, RSS/ATOM feeds from relevant news sources, and updates may be derived directly from queries of certain DeFi subgraphs.

Each news item is tagged with tokens or apps it is referencing. This topic classification will initially be implemented using simple techniques such as matching on relevant substrings such as the name or ticker symbol of a DeFi token found in the title or body of a news feed item, and may later incorporate more sophisticated topic classification techniques. News items will be filtered based upon the calculated PoolRank of matched topics for each subscribed user.

In addition to Poolside News demonstrating the capabilities of Poolside, and bootstrapping usage of the network, it will also be possible to monetize Poolside News and subsidize its operational cost through promoted content added to its news digests, and potentially through subscription fees.

Roadmap

PoolRank Enhancements

PoolRank recommendations could expand to better be able to predict the relevancy of various types of non-fungible tokens, as well as generating predictions more oriented around trading use-cases, such as taking into account price trends, exchange volume, and other factors useful for trading applications.

Payment Escrow and Indexer Staking

A simple escrow system will be introduced that will confirm that an Indexer has returned the correct number of properly formatted scores before releasing payment for a request.

The evolution of this escrow would be to transition our delegation feature into a staking mechanism that may actively penalize Indexers for downtime, returning improperly formatted responses or the incorrect number of scores in a response,

There may be a way to incorporate into a staking system a checksum attestation or other means to verify the integrity of Indexer responses created with official PoolRank configurations.

Attribution Modeling

Within the context of advertising or recommendation systems, attribution for a user action, either directly after an impression (direct conversion), or within a window of time (view-through conversion) is used to assign credit to the advertisement or recommendation. The modeling of attribution can be incorporated into the economics of an advertising system via cost per conversion metrics, and can also be used to provide training data to machine learning models that are generating

the predictions of what recommendations or advertisements will result in conversion. An attribution modeling mechanism could help Poolside Indexers and Consumers better understand how effective generated predictions and recommendations are.

Poolside for Apps

Initial tooling for apps will include Poolside.js, a javascript library that makes it easy to incorporate Poolside recommendations into an app. It would also be possible to develop tools that utilize Poolside-generated insights for product intelligence and developing campaigns for customer retention and acquisition, especially if Poolside incorporates attribution modeling. These acquisition and retention campaigns may utilize messages and offers sent to Poolside News subscribers who have opted into these types of updates.

Thanks

A thank-you section will be added here for people who have contributed feedback or have otherwise been helpful.