

Proposal: High Performance Public Infrastructure (Q2 2023)

Proponent: ELkVhHcvaP9L43RK9SP6Wn3FBfusEN5EJe2gH7aA2ETiufP

Date: 18th July 2023

Requested: KSM 2,534.3895 (USD \$62,110.28)

Short description: Ongoing costs for the running of high performance, scalable, and reliable public infrastructure for Kusama and Statemine.

Raw Data:  Kusama Data Q2 2023

Original Motivation

Over the last 3 months (April, May and June 2023) we've provided a scalable free public API service so that everyone can access public pools of managed Kusama and Statemine nodes. This provides the following three outcomes:

- Grow the ecosystem by reducing the barriers to entry to access a high performance nodes
- Help scale existing projects in the ecosystem by providing infrastructure services that can be depended on
- Assist with the testing of all networks by providing valuable data back to the community on how validator nodes are running and scaling as the network traffic increases (we've made Github issues based on behaviour we've observed)

Background on our RPC Service

Since inception in November 2020 we have made a large number of improvements to our Ultimate API service focussing on three key areas; performance/reliability, providing more value from our Ultimate API service, and cost optimisation.

Performance/Reliability

OnFinality is operationally striving for a minimum of 99.99% reliability, which means less than an hour of downtime each year. We proudly display and share our 90 day uptime statistics for each network publicly [here](#).

We have invested hugely into a team dedicated to optimising our application gateway and caching layer to ensure that we provide the fastest possible service for our customers. We run clusters in 5

different regions (North Virginia, Frankfurt, Tokyo, Singapore, and Australia) and across 3 different cloud providers (AWS, GCP, Alicloud) to ensure that we are fault tolerant to any single region or cloud provider ceasing service.

Providing more value from our Ultimate API service

For customers that do sign up for paid API keys, we've been adding more and more features to provide a better experience. [Geolocation insights](#) provide statistics about where in the world communities are to help influence decisions around where to expand infrastructure and to view the effectiveness of regional BD initiatives. We can also now [automatically upsize the storage on nodes](#) to prevent the risk of any downtime.

Finally, in Q2 of 2023 OnFinality [launched Trace API](#) support which was a huge enhancement allowing unprecedented visibility for dApp builders. Trace API captures and records vital information otherwise not available through regular RPC methods and extrinsics (such as complete XCM transfer records and complete list of balance changes). These APIs are essential in order for [developers like Polkaholic](#) to parse and understand XCM transactions.

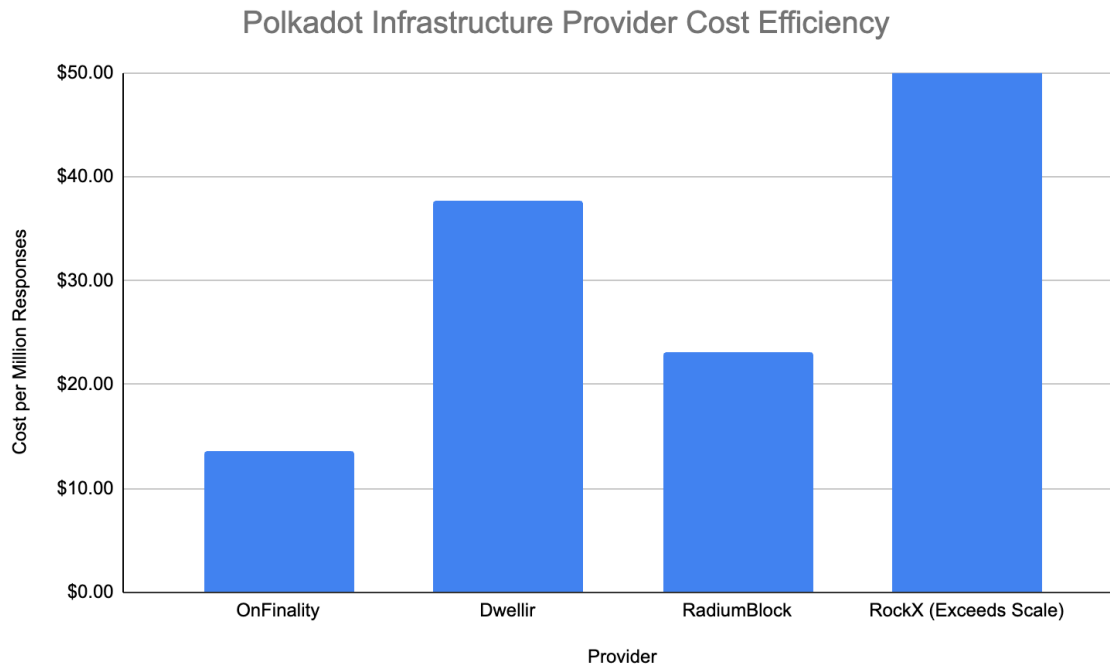
Cost Optimisation

OnFinality is very conscious about providing a strong level of support for Polkadot/Kusama at an extremely competitive price. Cost saving measurement has been a significant focus on behalf of our customers, with advanced rate limiting controls implemented. We can, for example, rate limit each client on a burst and sustained basis and based on the request methods that they are calling (e.g. each `state_traceBlock` request is rate limited 45x more than `chain_getBlock`), [read more about these advanced rate limiting tools that we've developed here](#).

Meaning that we can continue to provide generous public API endpoints for over 40 different networks for common-good applications, but restrict access to high volume users that abuse this free service. We've been able to manage our costs significantly on behalf of our customers as a result.

We've [developed and shared our approach towards service sustainability](#), with the introduction of a 'Paid API Revenue Share Discount' scheme. In this scheme OnFinality pools the revenue from customers that pay for higher API pricing plans and distributes this revenue pool to partners that currently pay for and own each API endpoint proportionally based on the number of paid API requests that go to that API endpoint. The scheme was introduced in Q1 of 2023 and resulted in a discount to [Kusama's Q1 treasury proposal](#) of \$281.90.

Our cost optimisation efforts were validated in Q1 as we had the **lowest cost per million responses** across all of the major RPC providers that lodged a proposal to the Polkadot treasury. You can see how our costs compared to other RPC providers in the ecosystem during Q1 [here](#).



Service Details

During Q2 of 2023, we've made a number of new improvements to our Ultimate API service that address performance/reliability, features, and costs.

Additionally, we are proud to have delivered some key service enhancements that benefit the Polkadot ecosystem in the last quarter. This includes:

- [Launched Trace API](#) allowing unprecedented visibility for dApp builders. Trace API captures and records vital information otherwise not available through regular RPC methods and extrinsics (such as complete XCM transfer records and complete list of balance changes). These APIs are essential in order for [developers like Polkaholic](#) to parse and understand XCM transactions.
- [Geographical Insights](#) - API key owners can view statistics about where in the world your community are to help influence decisions around where to expand infrastructure and to view the effectiveness of regional BD initiatives
- [Clarify our IP address handling](#) - OnFinality does not, and will never, correlate or link specific wallet addresses to the IP address or request origin making the RPC request
- Added support for a number of new networks, including Anmol, HydraDX, Equilibrium, as well as Osmosis, Evmos, Harmony, Arbitrum, Optimism, Fuse, DFK Chain, Celo, and Klaytn from outside the ecosystem. OnFinality is a new one stop shop for all of your RPC needs from multiple ecosystems.

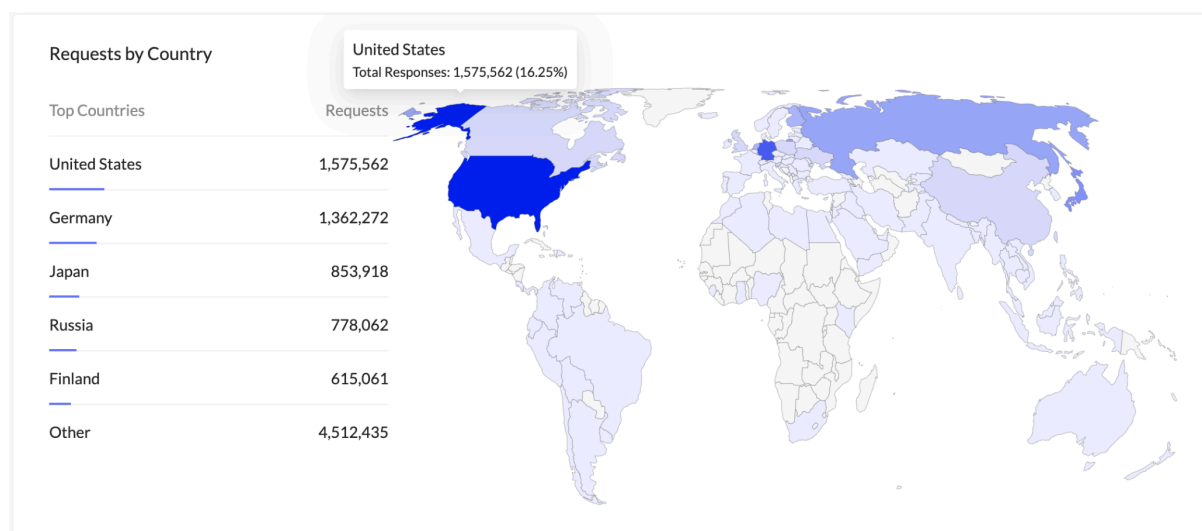
- A variety of improvements to our health metric collection tools and automated recovery scripts to ensure our 99.9% SLA is exceeded.
- Scale improvements to our team, processes, and systems to allow us to provide this same service to any substrate team

Our customers are building cross-chain wallets, running some of the largest block explorers, and are indexing multiple networks - they've all benefited from these API access restrictions, improved monitoring, and the larger number of supported Polkadot chains. You can always see live data on our API service on our public [status page](#).

Between 2023-04-01 and 2023-06-30 our Kusama API service has:

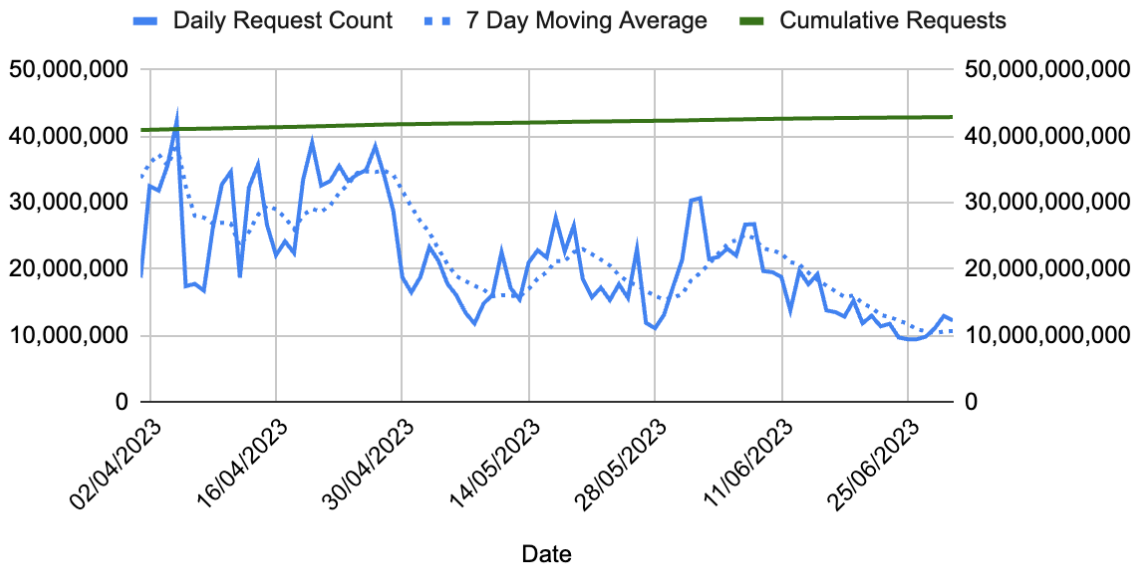
- Served almost 2 billion (1,962,258,944) responses
- Accumulated over 31,000 GB of data egress
- The highest daily total was over 42 million responses in a single 24 hour period for Kusama alone
- Our rolling 7 day average at the end of this period was over 10 million responses each day
- Statemine had over 130 million (132,310,628) API responses in the period
- All time totals for Kusama is 42,881,996,808 (over 42 billion) since November, 2020
- At the end of this period the 90 day uptime on Kusama and Statemine was 99.93% and 100% respectively

Kusama June Requests by Country



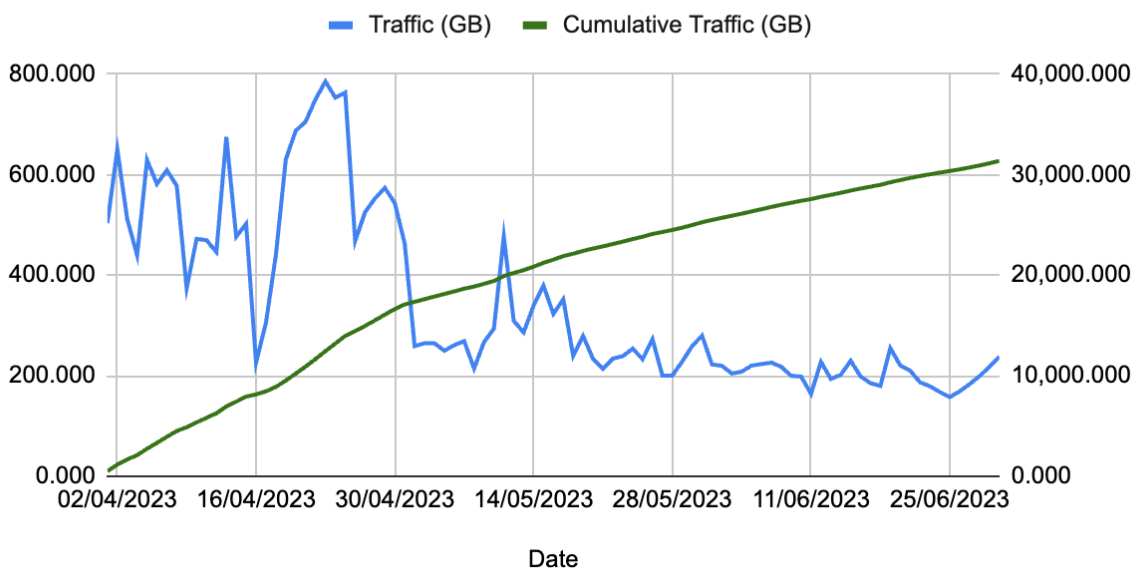
Kusama Q2 2023 Requests

Powered by OnFinality - Polkadot's Infrastructure Provider

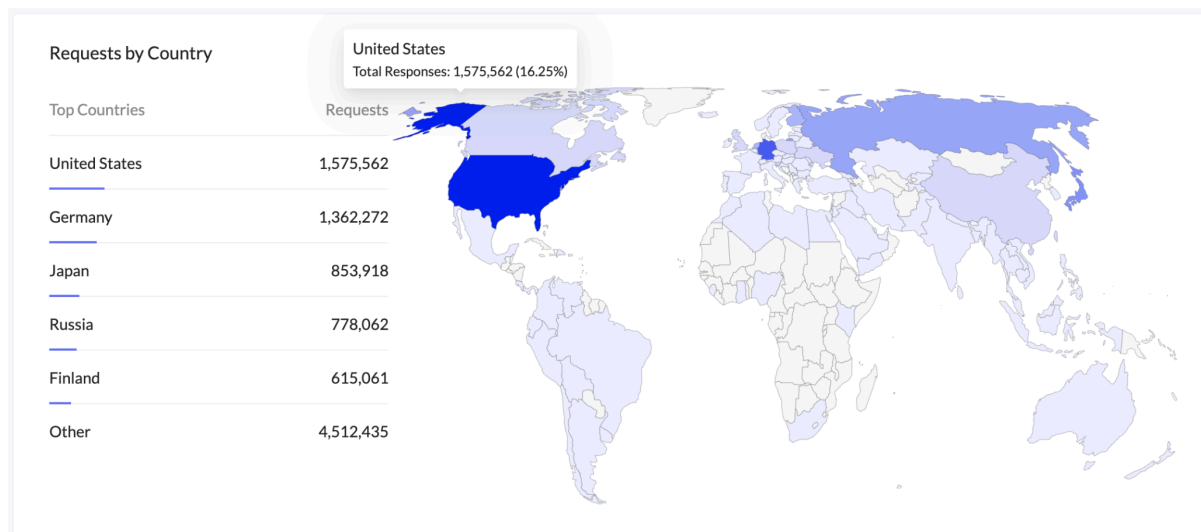


Kusama Q2 2022 Data Traffic

Powered by OnFinality - Polkadot's Infrastructure Provider

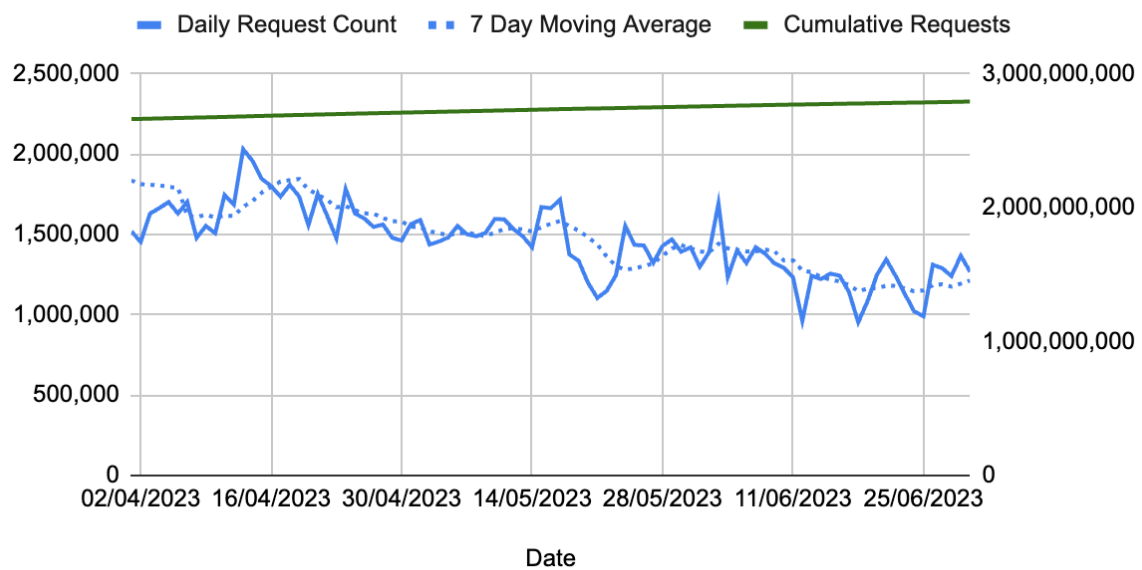


Statemine June Requests by Country



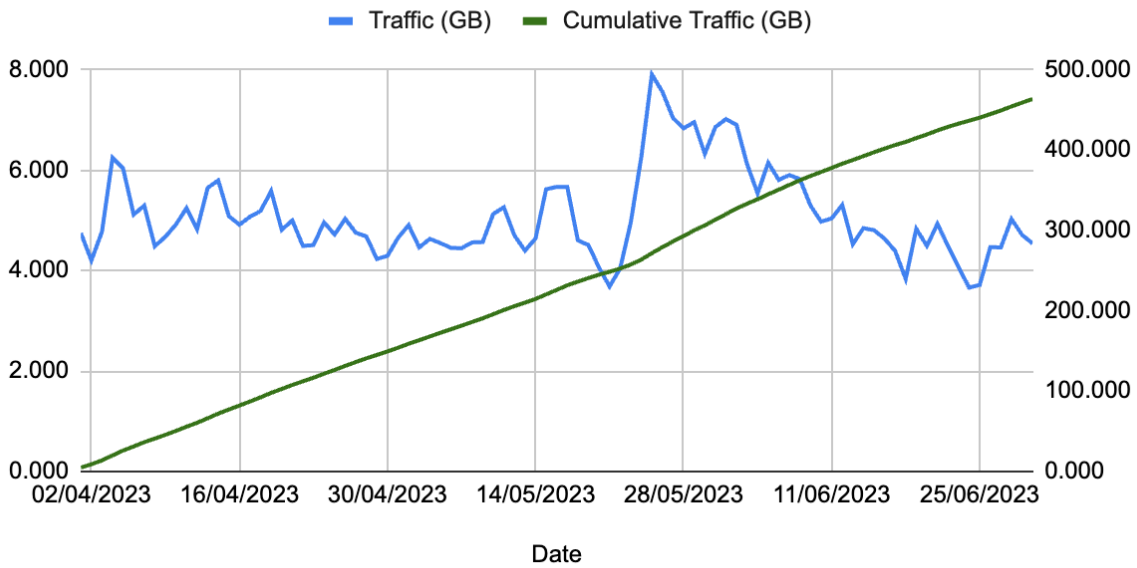
Statemine Q2 2023 Requests

Powered by OnFinality - Polkadot's Infrastructure Provider



Statemine Q2 2023 Data Traffic

Powered by OnFinality - Polkadot's Infrastructure Provider



Costings

This proposal includes combined running costs for our infrastructure for Kusama and Statemine. The total combined running cost is USD \$62,110.28 - [raw data is here](#).

Network	Type	Price (USD)	Billable Units	Cost
Kusama	Compute	\$0.085 / Compute Unit / hr	354,386.4	\$30,122.84
Kusama	Storage	\$0.0004 / GB / hr	46,398,364.6	\$18,559.35
Kusama	Backup	\$0.0004 / GB / hr	12,643,490.5	\$5,057.40
Kusama	Data	\$0.15 / GB	29,205.8	\$4,380.86
			Subtotal	\$58,120.45
Statemine	Compute	\$0.085 / Compute Unit / hr	39,442.5	\$3,352.61
Statemine	Storage	\$0.0004 / GB / hr	2,879,386.0	\$1,151.75
Statemine	Backup	\$0.0004 / GB / hr	843,798.5	\$337.52
Statemine	Data	\$0.15 / GB	431.7	\$64.75
			Subtotal	\$4,906.64
			Total	\$63,027.08
			Less API Revenue Share Discount	\$916.80
			Grand Total (USD)	\$62,110.28
			KSM Rate	24.507

			KSM Total	KSM 2,534.3895
--	--	--	-----------	----------------

KSM amount calculated using EMA7 rate [here](#) on 2023-07-18

About OnFinality

[OnFinality](#) is a SaaS platform providing infrastructure services for the Polkadot/Substrate community. Our mission is to support all blockchain developers in the world by providing core infrastructure so they can focus on building the next dApp.

We continue to reaffirm our dedication to providing free support of 500,000 responses to our API service each day for users around the world. You can access our public API service by connecting to it using [Polkadot.js](#) or via the endpoints listed below. You can also [create your own free API key in our application](#) and track metrics and statistics.

- <https://kusama.api.onfinality.io/public>
- <wss://kusama.api.onfinality.io/public-ws>
- <https://statemine.api.onfinality.io/public>
- <wss://statemine.api.onfinality.io/public-ws>

Thanks to the funding of our original treasury proposals back in 2020, OnFinality has run over 50 API service endpoints for many different teams around the growing Polkadot ecosystem. We've been able to take the tools and infrastructure that we've built and help other teams scale while providing superior experiences to their communities. We are dedicated to helping the Polkadot ecosystem through this next phase of parachain growth.

Our mission remains the same, to support all blockchain and dApp developers by providing core infrastructure and developer tools that save them hours.

Payment Conditions

The total ongoing running costs for high performance, scalable, and reliable public infrastructure for Kusama and Statemine.

- Amount in USD: \$62,110.28
- KSM Rate: (EMA7 rate [here](#) taken on date of proposal being lodged on chain)
- Amount in KSM: To be determined on day of lodging on-chain
- Beneficiary address: ELkVhHcvaP9L43RK9SP6Wn3FBfusEN5EJe2gH7aA2ETiufP
- Beneficiary contact: Brittany Seales - OnFinality (brittany.seales@onfinality.io)