EOS Network Foundation

On behalf of the EOSIO+ Coalition

P2P Improvements

RESPONSES TO THIS REQUEST FOR PROPOSAL ARE

DUE BY OR BEFORE

1 AUG 2022

1.0 RFP GENERAL INFORMATION

The EOS Network Foundation ("ENF"), on behalf of the EOSIO+ Coalition, is conducting this Request for Proposal ("RFP") to implement improvements to peer node discovery and synchronization processes within the peer-to-peer (P2P) protocol of the nodeos service. A primary objective of the EOSIO+ Coalition is to improve user activation, which includes the process of spinning up a node and getting it in sync with the network as a casual user, app developer, API provider, block producer, or exchange.

This RFP is being issued to a select group of companies and/or individuals, which are hereafter referred to as "Respondent".

This RFP specifies requirements from the EOSIO+ Coalition and invites proposals from Respondents for the provision of services defined within it. The EOSIO+ Coalition reserves the right to award contracts in any manner including but not limited to a single Respondent for all or some of the requirements, and multiple Respondents for components of the requirements.

1.1 CONFIDENTIALITY

This RFP is confidential to the EOSIO+ Coalition. Persons or groups submitting proposals ("Respondents") must not, and agree they will not, distribute this document or the information contained within it to any third party, including the wider EOSIO community, without the written agreement of the EOSIO+ Coalition.

1.2 RFP DOCUMENTS

The EOSIO+ Coalition reserves the right to modify the requirements of this RFP as well as the process utilized by this RFP at any time.

No Reimbursement for Costs. Respondent will incur all costs associated with creating a response to this RFP, no matter the expense. This includes any costs incurred due to delays by the EOSIO+ Coalition in responding or in making a decision.

Authority. By submitting a response for your company, you attest that you have full power to enter into the submission of this RFP response on behalf of your company.

1.3 RESERVATIONS FOR AWARD AND REJECTION OF PROPOSALS

This RFP is not an offer to contract. Even if the Respondent provides a solution that meets all requirements, the EOSIO+ Coalition is not obligated to enter an agreement. The EOSIO+ Coalition reserves the right to make no selection or may choose any Respondent at its sole

discretion. The EOSIO+ Coalition is not obligated to explain its decision making process to any external parties, including the Respondents.

After evaluating the proposals, the EOSIO+ Coalition will make a determination of which solution provides the highest value to EOSIO+ Coalition. The selected Respondent may be provided additional proposed conditions for entering into a contract with the EOSIO+ Coalition.

1. The EOSIO+ Coalition reserves the right to request additional information from any or all Respondents to evaluate any or all proposals.
2. Before awarding a contract, the EOSIO+ Coalition may request evidence of qualifications, insurance, or other information deemed necessary.
3. The EOSIO+ Coalition may choose to modify the requirements within this RFP when negotiating a contract with the selected Respondent.
4. The EOSIO+ Coalition reserves the right to amend the schedule published within this RFP.
5. The EOSIO+ Coalition may disqualify a proposal if the deadlines stated within this RFP are not met.

1.4 FORMAT REQUIRED FOR RFP RESPONSES

This section describes the format and content required for responses. **Failure to conform to these guidelines may result in disqualification of the response.**

1. Any information provided above what has been specifically requested may be submitted as a separate document only if it adds value specifically to deliberations about this RFP.
2. For each question in Exhibit B, a simple affirmation that the requirement is met will not be considered complete. Each question requires a short, concise explanation as to how the requirement will be met.
3. Occasionally, the Respondent may offer an explanation that explains how more than one requirement will be met. Is it acceptable to copy / paste the same answer for multiple requirements. However, questions should not be grouped together.
4. Pricing not included in this response will not be considered valid cost elements if the Respondent is selected.
5. The Exhibits should be submitted in a Microsoft Word document, Google Doc, or PDF. The pricing spreadsheet may be submitted in a Microsoft Excel document, Google Sheets document, or PDF.

2.0 INTRODUCTION

2.1 FOUNDATION OVERVIEW

The EOS Network Foundation exists to contract the development of world-class corporate identity and branding elements of the organization with a mission to do the following:
- Convey unity amongst participating stakeholders;
- Emote technical excellence and promise of a better future; and
- Express the cohesive vision of improving the world and lives of every individual through new efficient and equitable ways for individuals to empower themselves through fair dealings with other individuals.

2.2 REQUEST FOR PROPOSAL QUESTIONS

After reading this RFP, is it expected that Respondents will need clarification on a variety of points. Respondents must submit questions by the scheduled deadline listed below. The EOSIO+ Coalition will consolidate questions from all Respondents into a single document but remove any reference to which Respondent asked a particular question. The consolidated answers will be distributed to all Respondents per the schedule below.

Submit any questions regarding this RFP to:

operations@eosnetwork.com

2.3 RFP SCHEDULE

The following schedule will be followed to complete the selection of a Respondent to this RFP. Respondents must adhere to this schedule or risk disqualification.

Activity	Deadline
RFP released to Respondents	25 JUL 2022
Respondents submit Intent to Bid	1 AUG 2022
Questions about the RFP by Respondents submitted back to the EOSIO+ Coalition	8 AUG 2022
Answers to Respondent questions published to all Respondents	12 AUG 2022
RFP responses (Exhibits A & B) to be submitted to the EOSIO+ Coalition	26 AUG 2022
Business awarded	2 SEP 2022

3.0 PROJECT INFORMATION

3.1 GLOSSARY

Term	Definition
P2P Protocol	Peer-to-peer protocol. A portion of the nodeos service responsible for peer node intercommunication to enable peer node state syncing.
Catch-Up Mode	A series of processes to sync with a peer node's last irreversible block and head block.
Automated Peer Discovery	The process of bootstrapping a node in an EOSIO-based network and automatically retrieving a list of public nodes to connect to after selecting the network to join.
Swarm Download	The process of downloading a large body of data from multiple sources simultaneously by way of requesting different pieces of data from each respective peer and assembling that data locally.
Automated Snapshot Download	The ability to start a new node on an EOSIO-based network automatically via snapshot download without locating a download source manually.

3.2 PROJECT SCOPE

3.2.1 BUSINESS REQUIREMENTS

ID	Requirement
General	
BR01	The solution will be backwards compatible with the existing P2P protocol.
BR02	The solution will reduce the number of manual steps required to achieve an in-sync node.
BR03	The solution will improve the performance of the syncing process by reducing average time to achieve an in-sync node and reducing the failure rate transitioning between Catch-Up Mode statuses.
BR04	The solution will optionally automate the peer discovery process.
BR05	The solution will automate the management of peers with known issues including unreliable connections, persistent send of invalid transactions, persistent desynchronization, not honoring the "no transactions" flag.

BR06	The solution will improve known issue areas for managing forks including microfork awareness and fork cache size.
BR07	The solution will improve support for nodes speculatively executing transactions to reduce bandwidth usage.
BR08	The solution will increase the number of configurable parameters of syncing processes including bandwidth usage, disk usage, and peer connection count.
BR09	The solution will allow the activation and deactivation of new P2P features.
BR10	The solution will provide a user-friendly method to perform a health check on incoming and outgoing P2P connections.

3.2.2 TECHNICAL REQUIREMENTS

ID	Requirement
General	
TR01	The solution will be delivered as a series of PRs to the nodeos GitHub repository.
Automated Peer Discovery and Management	
TR02	The solution will automatically retrieve a list of peer nodes once the network has been selected.
TR03	The solution will automatically request a new list of peers if none from a previous list are available.
TR04	The solution will set all new nodes as publicly discoverable peers by default.
TR05	The solution will allow nodes to opt out of being discoverable.
TR06	The solution will allow nodes to manually configure a list of peer nodes in addition to or to override automated peer discovery.
TR07	The solution will maintain a configurable minimum number of connected peer nodes.
TR08	The solution will automatically remove unreachable peers from the list used by an individual node.
TR09	The solution will disconnect from persistently desynchronized peers.
TR10	The solution will disconnect from peers that persistently send unlinkable blocks.
TR11	The solution will disconnect from peers that do not honor the "no transactions" flag.
TR12	The solution will disconnect from peers that have unreliable connections.

TR13	The solution will disconnect from peers that persistently send invalid transactions.
TR14	The solution will manage peer connection count within the limits of available bandwidth by default.
TR15	The solution will allow individual nodes to configure a connection count limit.
TR16	The solution will allow individual nodes to configure a bandwidth usage limit.
TR17	The solution will gracefully handle scenarios where a node operator has set their bandwidth limit higher than the natural limit of their connection.
Swarm Download of Block Logs	
TR18	The solution will allow the selection of a starting block number to download and begin syncing from.
TR19	The solution will allow the option to start from a recent snapshot and backfill the block log over time.
TR20	The solution will allow individual nodes to configure a bandwidth usage limit.
TR21	The solution will allow individual nodes to configure a disk usage limit.
Optimized Transaction Propagation	
TR22	The solution will allow a node in the network to follow the head block and speculatively execute transactions propagated through the network. To reduce the user's bandwidth usage, the network will begin propagating blocks as header-only.
TR23	The solution will enable nodes operating in the mode mentioned in TR22 to request any detected missed transactions from the network without re-downloading transaction data the node already possesses.
TR24	The solution will allow a node in the network to follow the last irreversible block or head block while only exchanging full blocks and not speculatively executing transactions.
Net Plugin Stability and Other User Experience Improvements	
TR25	The solution will introduce an explicit state machine with additional states to support aforementioned requirements and create more deliberate transitions between synchronization modes.
TR26	The solution will prevent re-requesting of blocks from peer nodes when microforks are occurring.
TR27	The solution will limit the size of the fork cache.
Automated Tests	
TR28	The solution will have adequate automated integration tests.

TR29	The solution will have adequate automated unit tests.

3.2.3 PERFORMANCE AND EXTENSIBILITY REQUIREMENTS

ID	Requirement
General	
PER01	The solution will reduce the average time to achieve an in-sync node.
PER02	The solution will decrease the failure rate transitioning between LIB Catch-Up Mode, Head Catch-Up Mode, and In-Sync statuses.
PER03	The solution will increase the average time nodes are in the in-sync state and reduce the average time nodes are in Catch-Up Mode.

3.2.4 DEPLOYMENT AND MAINTENANCE REQUIREMENTS

ID	Requirement
General	
DMR01	Respondent will provide necessary support to deploy the solution to testnets.
DMR02	Respondent will provide necessary support to deploy the solution to mainnet.
DMR03	Respondent will provide maintenance support and bug fixes for the solution for three months following the release to mainnet.

4.0 RFP RESPONSE GUIDELINES

4.1 SUBMISSION AND RECEIPT OF PROPOSAL RESPONSES

For consideration, proposals must be received ahead of the scheduled deadline stated within this RFP. Any proposals submitted after the deadline or deemed incomplete **WILL BE REJECTED** unless a specific exemption is granted by the EOSIO+ Coalition at its sole discretion.

Proposals must be submitted electronically. Submit the proposal and/or any questions related to this RFP to:

<div align="center">

operations@eosnetwork.com

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4.2 STRUCTURE OF RFP RESPONSE

Respondents should structure their proposals with the two sections listed in the Exhibits:

Exhibit A: Certificate of Authority

Exhibit B: RFP Questionnaire

Additional information (marketing materials, case studies, etc) may be submitted in a separate document.

EXHIBIT A - CERTIFICATE OF AUTHORITY

The undersigned certifies that he/she has the complete authority to contractually bind the proposing company and to submit a response to this RFP on the company's behalf. The undersigned has read all components of this proposal, including any exhibits and attachments. By submitting this signed proposal, the undersigned acknowledges an intent to accept a contract if this proposal is selected by the EOSIO+ Coalition.

Signed Name (printed)	
Title	
Legal Name of Respondent Submitting	
Address One	
Address Two	
City / State / Postal Code	
Email Address	
Phone	
Telegram Handle (if applicable)	
Company URL	
Authorized Signature	
Date Proposal Submitted	

EXHIBIT B - QUESTIONS

Respond to all questions within a copy of this document and return your response as either a Google Doc or a Microsoft Word document.

RESPONDENT COMPANY OVERVIEW

1. State the full name, address, and other contact information of your company. Indicate what legal entity type your company operates as (e.g. individual, partnership, corporation, etc) and in which country and state / province / territory is it registered.
2. Indicate if you will be using subcontractors. If so, provide the information in item #1 for each subcontractor and indicate which areas of this project the subcontractors will complete.
3. Provide a brief summary of your company including history, operating model, and growth trajectory of the previous five years. Include sufficient information to demonstrate your capability to manage a project of this size and scope.
4. Provide evidence of your financial strength / stability.
5. Has your company ever been party to any litigation concerning the government entities you listed as your registration in item #1. Is there any pending litigation against your company?

KEY PERSONNEL AND SUBCONTRACTORS

6. For key positions on the project, such as technical architect, project manager, delivery manager, etc, describe the individual's role on the project, their position within your organization, where they will physically work during the project, and decision making authority they will have on the project. Specify the individual's professional background only as it applies to their ability to deliver this project.
7. If the project will use subcontractors, include a full list of subcontractors and a description of those individuals' roles on the project along with an overview of their professional background as it applies to their role on the project. Respondents will be responsible for the performance of any subcontractors included within the project team.

TECHNICAL QUALIFICATIONS

8. Include a description of how each requirement (in Section 3) will be met.

9. If your company's solution will not meet every requirement defined in Section 3, please identify which requirements will not be met.

10. Provide examples of similar projects that your company has successfully delivered.

APPROACH AND METHODOLOGY

11. Detail your project management methodology and collaboration methodology.

12. Describe your approach to changes to the project scope.

13. Describe your approach to post-implementation support and transferring approach knowledge to the EOSIO+ Coalition staff.

14. Would you project and service level guarantees in our agreement?

REFERENCES

15. Supply three references of customers to whom you provided similar solutions.

SOLUTION COST AND SCHEDULE

16. Provide a spreadsheet identifying the total costs of the solution outlined in Section 3. Identify as applicable: labor, software licensing, maintenance / support fees, hardware, and other expenses.

17. Detail the payment schedule and include any milestones that may trigger a payment

18. Provide a rough estimate of the project schedule.