

REQUEST FOR PROPOSAL STUDY ON THE INTERNET'S TECHNICAL SUCCESS FACTORS

From: Asia Pacific Network Information Centre (APNIC), and
Registro de Direcciones de Internet para América Latina y Caribe (LACNIC)

Date: 4 March 2021 (Current Version)

Re: Study on the Internet's Technical Success Factors

Joint collaborators APNIC and LACNIC invite proposals by individual consultants or a consortium of consultants to study the Internet's Technical Success Factors. The following RFP includes backgrounds of our organisations and describes the desired purpose and specific requests relating to the proposal.

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1. Guide to this RFP

1.1 We expect this document to convey our vision for the new study. It suggests an outline for organising the study content, and desired outcomes. The ideal and preferred consultant/s will bring an inter-disciplinary approach based on industry expertise, technical capability, and stakeholder relations.

1.2 Please feel free to email internetstudy [a] apnic.net with questions or comments.

2. Project Overview and Background

2.1 The Internet has continuously evolved with new protocols and technologies such as HTTPS, DNSSEC, IPv6, and others in the last 50 years. Many of these new standards have contributed to the Internet's successful mass adoption.

2.2 Alongside this success, questions have been raised throughout the Internet's history by various Internet stakeholders (users, vendors, standards bodies, governments, and others) about whether the current Internet standards and protocols are fit for purpose, or able to scale or adapt sufficiently to satisfy future demands.

2.3 Critiques of the Internet have often been made to justify proposals for new standards or networking features that are positioned as upgrades or replacements of existing Internet standards and protocols.

2.4 An initial list of proposals to upgrade or replace existing Internet standards and protocols includes:

- New IP (Future Vertical Communications Network)
- Digital Object Architecture (DOA)
- Blockchain in name and/or number registries
- Alternatives to Resource Public Key Infrastructure (RPKI)
- Alternative DNS root server systems
- IPv9 / IPv10
- 5G developments
- Next-generation network (NGN)
- Others

2.5 The arguments for and against new Internet technologies have been mostly around idealised concepts and expectations of the Internet, rather than objective assessments of its technical features or weaknesses.

2.6 A study of technical success factors of the current Internet standards and protocols should further elaborate on previous studies, such as “The Internet Way of Networking” by the Internet Society, which defines critical properties of the Internet. The study that we are commissioning should focus on an objective description of the Internet as it is.

2.7 APNIC and LACNIC are the Regional Internet Registries (RIRs) for the Asia Pacific as well as Latin American and Caribbean regions respectively. RIRs provide number resource allocation and registration services that support the global operation of the Internet. Additional information on APNIC and LACNIC can be found at **ANNEX**.

2.8 As custodians of the Internet’s numerical addressing system, serving tens of thousands of different networks across the Latin American, Caribbean and Asia-Pacific regions, we see the need to describe the success factors of the Internet by focusing less on ideal principles and more on technical factors to better describe the variety of networking implementations in our regions.

3. **Project Goals and Desired Outcomes**

3.1 Given the above, APNIC and LACNIC are jointly commissioning a study to objectively identify and explore the key success measures of the Internet based on real-world operational realities. The study should connect success factors and measures by describing the Internet as it functions today, rather than in an idealised or conceptual form.

3.2 The commissioned study should include the following:

- Abstract
- Executive Summary

- Methodology that is replicable
- Conclusion and Recommendations

3.3 The study should accomplish the following:

- identify the key technical factors that have contributed to a successful competitive environment where growth and evolution of the Internet have occurred in the past 50 years,
- describe the actual state of the Internet according to its technical implementation in different geographies and socioeconomic contexts,
- assess the evolution of Internet standards and protocols, as well as its architecture-design and system structures, in relation to its success,
- provide an innovative and inter-disciplinary interpretation of existing statistical analysis, technical measurements and data, describing the Internet of today (i.e., ITHI, routing data, IPv6 deployment, etc.),
- analyse to what degree such technical factors are still present (or absent) in the Internet of today,
- develop a prospective outlook of those technical factors that have proven successful over the years, and risks affecting their continuity or threats to their stability.

3.4. It is important to note that:

- This study will **not** describe what are the “core principles” of the Internet or what – in theory or idealistically – it is. In other words, this study is not about the “ideal” Internet.
- The scope of the study is to connect success factors by describing the Internet as it is today. It is about its actual implementation by choice of industry players, and other actors.
- All effort should be made to disentangle the geopolitics of Internet governance from the technical analyses in the study. We do not require, nor expect any analysis of the fora in which the new Internet proposals are being introduced. We also do not require a direct rebuttal or critique of proposed new Internet standards. This study should focus on analysing the Internet’s success using technical measures rather than subjective arguments or opinions regarding the Internet’s functioning.

4. **Scope of Work**

4.1 The hired consultant/s are expected to provide the following services:

- Project management
- Research strategy, methodology and approach
- Coordination between consultants (if consortium is established)
- Technical analysis
- Copywriting
- Any others as required

5. Additional Requirements

5.1 Although not compulsory, we would also appreciate any recommendations to address misconceptions of how the Internet works and/or the viability of the current network architecture and design for future use.

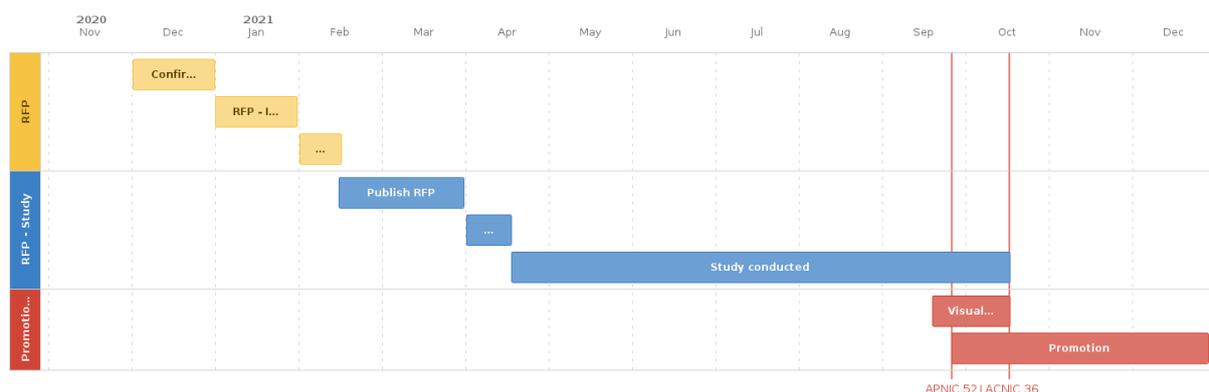
5.2 While the study is envisioned to be a technical product, it should be written in clear, plain English suitable for a non-technical audience. Technical terms should be accompanied by simple explanations. Real world examples should be used wherever possible.

6. Budget

6.1 Interested participants should provide a detailed estimate of the costs to produce this study.

6.2 We expect the study to involve approximately 700 hours of consultancy work.

7. Project Timeline



7.1 The RFP will close on 31 March 2021. All submissions must be received by this deadline and should include a timeline for conducting the study.

7.2 Proposals will be evaluated over a period of 2 weeks to be concluded by mid-April. Results will be announced at that time.

7.3 The study will take place over 6 months and ideally completed in October 2021.

7.4 Subsequent evaluation and promotion of the study in collaboration with the consultant/s will take place from September to December 2021.

8. Criteria for Selection

8.1 We will consider the following factors for suitable candidates including, but not limited to:

- Technical background and expertise
- Methodology
- Diversity of backgrounds and expertise if a consortium is established
- Previous research and/or implementation work with examples
- Client references if any
- Project timeline with major tasks and milestones
- Cost
- Flexibility to adapt when needed to unforeseen project changes
- Vision for meeting project targets and enriching the project beyond what is presented initially by providing ideas based on expertise in the field

9. **Specific Requests**

9.1 Proposals should be sent in MS Word/PDF format.

9.2 Freelancers or sub-contractors are welcome to contribute to the study.

9.3 All proposals must be submitted to internetstudy [at] apnic.net by 31 March 2021, 23:59 UTC.

Additional Background Information

About APNIC

APNIC is the Asia Pacific Regional Internet Registry (RIR), responsible for distributing Internet Protocol (IP) addresses - IPv4 and IPv6 - and Autonomous System (AS) Numbers.

APNIC is one of five RIRs operating in the world today and was established in 1993. Over the last 20 years, it has grown into a predictable, stable, and mature organization, with more than 4,000 Members.

The APNIC community is open to anyone with an interest in Internet number resources, including ISPs, content providers, government agencies and regulators, and other commercial organizations.

APNIC Members are from 56 economies in the region. APNIC is a membership-based service organization, primarily responsible for the active management of Internet resources through a community driven policy development process.

About LACNIC

LACNIC, the Internet Address Registry for Latin America and the Caribbean, manages IPv4 / IPv6 addresses and ASNs using the policy development process defined by the Internet community.

The Internet Addresses Registry for Latin America and the Caribbean is an international, non-governmental organization established in Uruguay in 2002. It is responsible for assigning and managing Internet number resources (IPv4, IPv6), Autonomous System Numbers, and Reverse Resolution for the region.

LACNIC contributes to regional Internet development through an active cooperation policy. It promotes and defends the interests of the regional community and helps create conditions for the Internet to function as an effective instrument for social inclusion and economic development in Latin American and the Caribbean.

It is managed and run by a board of seven directors elected by LACNIC members. This group of members comprises more than 10,000 network operators who provide services in 33 Latin American and Caribbean territories.