

eBPF-based MAC for IoT Devices

MSc Research Project
Cloud Computing

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National College of Ireland
Project Submission Sheet
School of Computing



| | |
|-----------------------------|--------------------------------|
| Student Name: | Alexander Mamani |
| Student ID: | 23329823 |
| Programme: | Cloud Computing |
| Year: | 2025 |
| Module: | MSc Research Project |
| Supervisor: | Vikas Sahni |
| Submission Due Date: | 20/08/2025 |
| Project Title: | eBPF-based MAC for IoT Devices |
| Word Count: | XXX |
| Page Count: | 3 |

I hereby certify that the information contained in this (my submission) is information pertaining to research I conducted for this project. All information other than my own contribution will be fully referenced and listed in the relevant bibliography section at the rear of the project.

ALL internet material must be referenced in the bibliography section. Students are required to use the Referencing Standard specified in the report template. To use other author's written or electronic work is illegal (plagiarism) and may result in disciplinary action.

| | |
|-------------------|------------------|
| Signature: | Alexander Mamani |
| Date: | 9th June 2025 |

PLEASE READ THE FOLLOWING INSTRUCTIONS AND CHECKLIST:

| | |
|--|--------------------------|
| Attach a completed copy of this sheet to each project (including multiple copies). | <input type="checkbox"/> |
| Attach a Moodle submission receipt of the online project submission , to each project (including multiple copies). | <input type="checkbox"/> |
| You must ensure that you retain a HARD COPY of the project , both for your own reference and in case a project is lost or mislaid. It is not sufficient to keep a copy on computer. | <input type="checkbox"/> |

Assignments that are submitted to the Programme Coordinator office must be placed into the assignment box located outside the office.

| Office Use Only | |
|----------------------------------|--|
| Signature: | |
| Date: | |
| Penalty Applied (if applicable): | |

eBPF-based MAC for IoT Devices

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Abstract

Abstract goes here. You should provide a high-level (approx. 150 – 250 words) overview of your paper, its motivation, and the core findings. This is the teaser of your work – it'll probably be best to write it last. asdasd as dsa d asd

1 Introduction

In this section you introduce the topic of the paper, motivate why it needs to be studied (appropriate citations are best for this), presents the research question(s) and research objectives, and/or hypothesis or hypotheses. Briefly summarise the contribution to the scientific literature your work entails. Finish this section by outlining the structure of the report.

This is a nice little introduction with some figure in Figure 1



Figure 1: This is a caption

2 Related Work

In this section you need to situate your work in the academic literature; this entails a critical (positive, negative, helpful) review of similar work. If you can't find similar work, you haven't looked hard enough. Ideally, you want to be reading around 50 papers; of which at least 25 should appear in the paper itself. Note that urls are not references, they are footnotes.¹

You are expected to provide a critical/analytic overview of the significant literature published on your topic. Comment on the strength and weakness/limitation of work in each reviewed paper.

The literature review should end in a paragraph that summarises the findings from the state of the art, why the previous solution are not adequate and justifies the need for your research question.

¹Like this one: <http://www.ncirl.ie>

The content sections of your report should of course be structured into subsections. Note that here there are 2 subsections subsection 2.1 and subsection 2.2.

2.1 Subsection 1

Lorem ipsum dolor sit amet, ut veri deleniti eloquentiam sea (Feng and Buyya; 2016). Ea commodo aperiam complectitur pri, usu et case dolore. Kune et al. (2016) ad quidam regione percipitur, est ut possit bonorum persecuti. Quis utinam offendit eu usu, eu accumsan disputando per, id cibo reprehendunt sit (Beloglazov and Buyya; 2015; Gomes et al.; 2015). In melius legendos corrumpit pro. Eos dico dignissim voluptatibus et, duo nisl cibo ut. Diceret periculis posidonium cum eu. Gomes et al. (2015) regione nam ex. Vix id viris phaedrum. Pri augue cetero probatus ut.

A nice little way of leaving yourself notes and reminders:

(Write Lit Review in English)

ToDo

2.2 Subsection 2

In Table 1 an example table is provided.

Table 1: A table caption.

| Animal | Description | Price (\$) |
|-----------|-------------|------------|
| Gnat | per gram | 13.65 |
| | each | 0.01 |
| Gnu | stuffed | 92.50 |
| Emu | stuffed | 33.33 |
| Armadillo | frozen | 8.99 |

3 Conclusion and Future Work

Restate your research question, your objectives and the work done. State how successful you have been in answering the research question and achieving the objectives. Restate the key findings. Discuss the implications of your research, talk about the efficacy of your research, and discuss its limitations.

Describe any proposals for future work or potential for commercialisation. Present MEANINGFUL future work. Sweeping more parameters in your simulation / model / platform is probably not meaningful. More discuss what could a follow up research project do, to better / differently approach / extend etc. your work.

References

- Beloglazov, A. and Buyya, R. (2015). Openstack neat: a framework for dynamic and energy-efficient consolidation of virtual machines in openstack clouds, *Concurrency and Computation: Practice and Experience* **27**(5): 1310–1333.
- Feng, G. and Buyya, R. (2016). Maximum revenue-oriented resource allocation in cloud, *IJGUC* **7**(1): 12–21.

- Gomes, D. G., Calheiros, R. N. and Tolosana-Calasan, R. (2015). Introduction to the special issue on cloud computing: Recent developments and challenging issues, *Computers & Electrical Engineering* **42**: 31–32.
- Kune, R., Konugurthi, P., Agarwal, A., Rao, C. R. and Buyya, R. (2016). The anatomy of big data computing, *Softw., Pract. Exper.* **46**(1): 79–105.