Effectiveness of Flow Migration Strategies in an SD-WAN Environment

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Opposition for group: Group 2

1 Review questions and your answers

Address each of the review questions (RQs) below:

RQ. 1 Critique the organization, structure, and layout of the report

> The report is very well-organized, following a clear and logical structure that guides the reader from the introduction to the conclusion. The sections are coherent and consistent, with appropriate and informative headings and subheadings. The report puts acronyms and abbreviations at the end, which is helpful for the reader.
>
> The report has a standard structure for a research report, with an introduction, literature study, research question and hypothesis, research methods, results and analysis, and discussion.
>
> The sections are well-balanced in terms of length and depth, with sufficient details and explanations. There are also formulas, figures, and tables to illustrate and support the findings, which are properly labeled and referenced in the text.
>
> There is a clear and professional layout, with appropriate margins, fonts, spacing, and alignment. The report also follows a consistent citation and referencing style, using numbered references in brackets.
>
> However, the report could benefit from a conclusion section in the end, with the most important takeaways for readers.

RQ. 2 Critique the abstract

> The abstract provides a clear overview of the research topic, problem, methods, and findings. It is well-written and concise, following the standard structure of an abstract.
>
> It could be more specific about the heuristic and AI-enabled approaches that are compared, as well as the discrete-time simulation framework that is used. This would give more details about the novelty and contribution of the paper. For example, instead of saying "Through discrete-time simulations, we compare heuristic and AI-enabled approaches", the abstract could say "Using a SimPy-based discrete-time simulation model, we compare two main strategies (ECMP and Top-K paths) for path placement and migration.

RQ. 3 Critique the literature study

> The report provides a comprehensive and relevant literature study, covering the main concepts and methods related to SDN, SD-WAN, path placement and migration, and load balancing. The structure of the literature review is well-organized according to different concepts.

RQ. 4 Critique the method (or methods) used

> The simulation methods are well-explained and justified. The strategy assessment metrics are relevant and appropriate for measuring the performance of the network strategies.
> However, the methodology could benefit from more references, for example, add a reference for for "Garr2011" topology. Some metrics such as path efficiency and saturation could also be linked to some authority books or papers where they are systematically introduced in depth.

Do the authors refer to a source for the method(s), such as [**?**]?

No.

RQ. 5 Critique the results and analysis

> The results and analysis are quite sufficient and meaningful. The section compares the two strategies in terms of their performance and trade-offs. The comparison is fair and balanced, but it could use some more explanation and interpretation of the results. For example, in figure 1, why does Top-K have a lower path efficiency than ECMP? Why does the standard deviation only exist for Top-K?

RQ. 6 Critique the discussion

> The discussion is well-structured and covers the main points of the results, their implications, and their limitations. The insights into Top-K and ECMP are interesting, as well as the potential of machine learning methods for network management.
> The discussion could be improved by providing more details on how the simulation models are validated against known benchmarks and published results, as well as how the data and simulation code are made available for review.

RQ. 7 Critique the conclusions: Are they relevant, meaningful, and follow from the discussion? Who should act based upon these conclusions, and what should they do?

> Not applicable.

RQ. 8 Critique the planned future work (if any)

> Not applicable.

RQ. 9 Are the references appropriate, complete, and used correctly? Are there any missing references?

> The references are complete and citations are proper.

RQ. 10 Now is the time to identify anything false, incorrect, misleading, or unclear. What issues did you find?

> In the Research Question and Hypothesis, it is mentioned that the authors want to compare heuristic and AI-enabled solutions, and hypothesize that "Machine Learning (ML) methods may excel in specific tasks, they may not generalize well enough to adapt to changing network conditions". However, in the Methods, two tested strategies that are compared and presented seem to be both heuristic, hence the results cannot be used to test the hypothesis. This inconsistency needs to be addressed.
> Moreover, there is a typo on page 8, 'Figire 1'.