We appreciate the careful review and comment by the EiC.

***Responses to EiC***

***Comment #1:*** *We have received the reviewers' comment on your manuscript. Based on the Associate Editor's technical judgement and taking into account the reviewers' suggestions, we believe that the manuscript is not suitable for publication in its present form. However, we think that MAJOR REVISIONS which fully address all technical concerns raised in the reviews below can make the paper acceptable for publication in the Journal of Lightwave Technology. Please note that the Journal of Lightwave Technology generally permits only a single round of MAJOR REVISIONS, after which the paper may be rejected if it is still deemed in need for further major improvements.*

***Response:*** We appreciate the Editor’s careful handling of the manuscript. In this revision, we have carefully addressed all the comments from the reviewers, revised the paper accordingly, and provided the following point-to-point responses to them.

We appreciate the careful review and comments by Reviewer #1.

## Responses to Reviewer #1:

***Comment #1:*** *This paper proposes a knowledge defined networking based system for resource orchestration of hybrid optical electrical DCN systems. The proposed system has an AI component that extracts low level knowledge from the underlying infrastructure, and then extracts useful compressed models using LSTM models, and then applies deep RL algorithms to decide optimal actions to manage the system. The authors built a testbed and tested Hadoop workloads to show the benefits of their proposed architecture. Overall the technical contributions of this paper are high and the paper is very well written. I only have minor comments about related systems and workloads and choice of algorithms.*

***Response:*** We appreciate the careful review and helpful comments from the reviewer.

***Comment #2:*** *As a workload the authors chose Hadoop. While it is still a dominant workload in data centers, nowadays there are more machine learning workloads such as Spark, tensorflow. It would be good to at-least qualitatively understand how the system would perform for workloads other than Hadoop.*

***Response:*** We appreciate the nice suggestions from the reviewer. In this revision, we follow the suggestions to …

***Comment #3:*** *Many of the system components closely match components in service orchestration architectures such as ONAP. I would like to see how the proposed system architecture compares to ONAP components for resource orchestration.*

***Response:*** We appreciate the nice suggestions from the reviewer. In this revision, we follow the suggestions to …

***Comment #4:*** *For DRL, the authors choose policy gradient algorithm with actor-critique variations. The choice was not well motivated. It would be better to understand what was the rational for choosing this class of algorithms.*

***Response:*** We appreciate the nice suggestions from the reviewer. In this revision, we follow the suggestions to …

***Comment #5:*** *I would like to see some more details of how the authors trained the LSTM and deep RL algorithms, and what were the challenges to apply such machine learning algorithms to this domain.*

***Response:*** We appreciate the nice suggestions from the reviewer. In this revision, we follow the suggestions to …

We appreciate the careful review and comments by Reviewer #2.

## Responses to Reviewer #2:

***Comment #1***: *The reviewer think that datacenter network performance improvement is quite important. However, it is necessary to emphasize the original point of the paper.*

***Response:*** We appreciate the careful review and helpful comments from the reviewer. In this revision, we follow the reviewer’s suggestions carefully to revise the paper accordingly.

***Comment #2***: *(1) Hybrid network is common. There are many papers describe hybrid network having electrical packet and optical circuit to increase performance or to reduce energy.*

***Response:*** We agree with the reviewer on that ….

***Comment #3***: *(2) To apply AI functions to server and IO workload and solve VM placement and optical/electrical path assignment is new. This paper proposed orchestration technique for server and network performances. The proposed system is based on optical/electrical hybrid datacenter network. AI function based on TensorFlow had been used. To evaluate performance of the proposed orchestration, datacenter network opendata by google was adapted. To show the effectiveness, using real data or model is important. Ref [34] is not right reference and the paper must describe which data or modified data or models from where. In addition, 3 racks with 9VMs small testbed with Hadoop and opto-electrical network had been constructed. The evaluation results show about 25% task period can be reduced.*

***Response:*** We agree with the reviewer on that …

***Comment #4***: *(2-2) For AI, only one case study to monitor traffic in 2 min and change configuration. Data center network is more dynamic and very bursty network. There are two types of flows, elephant and mice flow are created. Some of jobs may be finished in 2min. The reviewer thinks that there are some optimized parameters for monitoring time which is not fixed value of 2min.*

***Response:*** The reviewer has raised a very interesting question to explore …

***Comment #5***: *(3) Test bed is too small. Because only 3 rack and 9VMs. There are very limited choices to set VM in the system.*

***Response:*** We appreciate the comments from the reviewer and agree with the reviewer on that …

***Comment #6***: *The reviewer thinks above improvement make the paper the paper more attractive. So, reviewer recommend that paper must be improved and resubmit to JLT.*

***Response:***