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Geoscientific Model Development Discussions

Interactive comment on "Performance evaluation of ROMS v3.6 on a commercial cloud system" *by* Kwangwoog Jung et al.

Anonymous Referee #2

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Review of "Performance evaluation of ROMS v3.6 on a commercial cloud system" by Kwangwoog Jung et al.

1 General Comments

This paper presents how to run the Regional Ocean Modelling System (ROMS) and the High Performance Linpack (HPL) on Amazon Web Services (AWS) and makes a comparison with an in-house solution (a classical HPC infrastructure)

I think the paper is a very interesting work that could have a good impact on the area of knowledge but, it needs a revision and multiple improvements before publishing can

be recommended:

- English is correct, but I would suggest reviewing all the document to get some word redundancies removed (this will improve general readability), like in P3 l19-20 for the word "computing": *"Cloud computing is a computing resource utilisation method in which IT infrastructure resources are provided through the internet, with fees paid according to computing amount and time of usage."*
- I think a cost comparison can add more information and value to the paper. On P5 l28 it is said: *"We were able to simulate ROMS for 30 days using eight nodes (c4.8xlarge) for only approximately US$13."*, please elaborate this more and compare it with your in-house system (maybe a table could be interesting).
- Was there any kind of data validation of the outputs from AWS vs local HPC cluster? If so, could you please add them to the paper?
- I suggest adding a section on the paper about pros and cons of running ROMS on the cloud vs running it locally.
- Can you please indicate if ROMS is more CPU or memory or network intensive/bound? Can you please relate this to the type of infrastructure and its impact on any possible bottlenecks?
- Can this work be reproduced with other versions of ROMS? If so, please indicate it.

2 Specific comments:

- P3, l19: *"Cloud computing provides virtual computer resources in resource pools through the internet with rental fees flexibly charged by usage time and re-*

sources.”. This is not exact, it is true that Cloud is usually accessed via the Internet, I suggest a more formal definition like “. . . through Broad Network access (like the Internet) . . . ” (e.g. “The NIST Definition of Cloud Computing”, http://nvlpubs.nist.gov/nistpubs/Legacy/SP/nistspecialpublication800-145.pdf).

- P4, l18: It should be: *“Cloud computing provides virtual computing resources . . . ”*
- P4, l23: I think mentioning Google on this list of public providers. Also, I recommend making a reference, for instance, to Gartner’s magic quadrant for cloud infrastructure providers for 2017.
- P4, l26-35: Please make a reference on how Amazon has been using Xen and relate it to this paragraph.
- P5, l6: You say: *“The most popular public cloud computing service in the market is Amazon’s AWS”*, please put a reference to refute this.
- P5, l20: Please define “spot-instance”.
- P5, l25: *“. . . and low N/W latency”*. Please add values on what is understood as low network latency.
- P7, l1: Please add CPU specific model, not only in here but

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