

Using MOOCs as a global testbed for network measurements

Ravi Bhorkar
University of Washington
bhorka@uw.edu

ABSTRACT

A major challenge in building global scale networked systems is evaluating them. However, internet scale measurement is deceptively hard [3], and most researchers do not have resources to have vantage points across a country, let alone across the globe. PlanetLab [2] tries to tackle this problem through a global research network working on reciprocity. They have nodes at 548 sites spread over 30 countries.

Enter Massively Online Open Courses (MOOCs): they are a recent development in the field of distance education. Their key features are that they are open access, and large scale. For example, the *Introduction to Computer Networks* course [1], that we were involved with, had more than 58000 students, from across 177 different countries.

We designed homework assignments for students of our course to try out and learn about practical networking tools — in particular, traceroute and web proxies. The evaluation of these assignments provided interesting data about network routing, and content distribution by large websites (such as Google) on a global scale. As such ethics of conducting such measurements should be handled with care. In our case, the assignments were optional (did not affect grades), and the measurements being conducted were clearly explained in the description. Therefore, students were allowed to opt-out on a per-assignment basis.

We present this work as a proof of concept for a new measurement technique, as well as a possible monetization/incentive strategy for teaching MOOCs, from the universities' point of view — something that is unclear under status quo.

BODY

Researchers gain insights on global scale internet by using #MOOC students as vantage points. Students learn from the assignments. Win win.

REFERENCES

- [1] Introduction to Computer Networks, Coursera.
<https://class.coursera.org/comnetworks-2012-001/>, 2013.
- [2] B. Chun, D. Culler, T. Roscoe, A. Bavier, L. Peterson, M. Wawrzoniak, and M. Bowman. Planetlab: an overlay testbed for broad-coverage services. *SIGCOMM Comput. Commun. Rev.*, 33(3):3–12, July 2003.
- [3] V. Paxson. Strategies for sound internet measurement. In *Proceedings of the 4th ACM SIGCOMM conference on Internet measurement*, IMC '04, pages 263–271, New York, NY, USA, 2004. ACM.

Volume 2 of Tiny Transactions on Computer Science

This content is released under the Creative Commons Attribution-NonCommercial ShareAlike License. Permission to make digital or hard copies of all or part of this work is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page.
CC BY-NC-SA 3.0: <http://creativecommons.org/licenses/by-nc-sa/3.0/>.