Distributed Software-Defined Networking: ACM PODC 2014 Workshop

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Abstract

The first workshop on Distributed Software-Defined Networking took place in Paris, France, on the 15th of July, just before the 33rd ACM Symposium on Principles of Distributed Computing. The workshop intended to be a forum to discuss new algorithmic and distributed computing challenges offered by the emerging field of Software Defined Networking (SDN). SDN abstracts the cumbersome task of computer network management to a distinct control plane with a standard programming interface. In th worshop, we invited invited researchers in the fields of distributed computing and networking in order to understand whether distributed implementations of the SDN control plane give rise to new and interesting research questions, where the PODC community may use its expertise.

1 Distributed SDNs: New? Interesting?

The emerging paradigm of Software-Defined Networking (SDN) promises to simplify network management and enable building networks that meet specific, end-to-end requirements. In SDN, the *control plane* (a collection of network-attached servers) maintains control over the so-called *data plane* (the packet-forwarding functionality implemented on switching hardware). Control applications operate on a global, logically-centralized network view, which introduces opportunities for network-wide management and optimization. This view enables simplified programming models to define a high-level network policy that the data plane must respect.

There is no doubt that implementing a "logically centralized" SDN control on a single centralized controller is an overkill in terms of availability, responsiveness and throughput. As a recent survey on advances in SDN research [1] puts it: "As the initial concerns with SDN scalability were addressed ... in particular the myth that logical centralization implied a physically centralized controller, ... SDN ideas have matured and evolved from an academic exercise to a commercial success."

But does the perspective of distributed SDN evoke new and interesting research questions for the distributed computing community? Or the SDN arhitects can simply resort to existing solutions designed for other types of systems?

In the first edition of the workshop devoted to *distributed* aspects of software-defined networking (affiliated with PODC 2014), we tried to address this question.

2 Program

3 Summary

References

[1] D. Kreutz, F. M. V. Ramos, P. Verssimo, C. E. Rothenberg, S. Azodolmolky, and S. Uhlig. Software-defined networking: A comprehensive survey. 2014.