

Wireless Networking Testbed

Motivation

We develop a Network Coding [1] implementation — namely MOEP 802.11 [2]. The research in this field requires a reliable testbed, that allows to validate and evaluate the current implementation. Comparison with other implementations [3,4] is very difficult as the evaluation of those implementations was often done in environments that are not reproducible, even worse most of them are not even well documented.

Tasks of the testbed are: Validating daily snapshots of the current implementation; Evaluating other implementations; Comparing different implementations in a comparable and reproducible environment. The testbed should contain a continuous-deployment mechanism that automatically builds daily snapshots of the MOEP 802.11 implementation and validates and evaluates them overnight. Testbed setups that are able to run other network coding implementations should also be provided.



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Your Task

- Deploying a testbed infrastructure
- Implementing a continuous-deployment mechanism
- Deploying various Network-Coding implementations
- Evaluating and comparing the different implementations

Prerequisites

- C and Python/Bash programming skills
- Firm Linux knowledge

References

- [1] Ahlswede et al. "Network information flow". IEEE Transactions on Information Theory 46.4 (July 2000)
- [2] <http://moep80211.net>
- [3] Katti et al. "XORs in the Air: Practical Wireless Network Coding". SIGCOMM '06.
- [4] Chachulski et al. "Trading Structure for Randomness in Wireless Opportunistic Routing". SIGCOMM '07.

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