



AI4P: TOWARDS AN EXPERIMENTAL NFV PLATFORM FOR AI-ASSISTED PERFORMANCE TESTS

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TeCIP Institute - Blue Room – 14.30 p.m.
12th March 2019

Abstract:

Recent advances in the state-of-the-art of software packet processing, along with the incarnation of NFV in networking, brings the utility of software switches and routers in production to a high level. Performance analysis and monitoring of such networks can be easily done in software. On the one hand, this may provide new collectible data at very fine grain, thus bringing the opportunity for network managers to get a deeper understanding of the underlying network state and performance. On the other hand, this massive data availability comes at a cost: software measurements can highly affect the measured values, thus biasing the collected data. The availability of fine-grained data offers new opportunities to apply machine learning techniques to infer changes in the network state, to forecast the evolution of some performance metrics or to automatically respond to event triggers without the human intervention. Our long-run objective is a full framework, with the acronym AI4P, for performing automated test on software routing platforms. In this talk I will discuss about the components of our platform and I will focus on few key points that are prerequisite for our approach: (i) reproducible performance evaluation of NFV routers (ii) measuring the impact of collecting the desired data within a Virtual Network Function (iii) inferring simple analytical models for any generic NFV router. I will conclude the talk with some details on the on-going work about the application of neural networks to our platform.

Short bio:

Leonardo is currently a post-doctoral researcher at Telecom PairsTech (France) working in a collaboration with Cisco named "NewNet@Paris". He is also co-leader of a project named "AI4P" (Artificial Intelligence for Performance) which consists in a joint collaboration between TPT and TUM (Munich, Germany) that has been funded for the academical year 2018/2019. Leonardo's main research interests include high-speed networking, future network architectures (NFV, SDN), performance evaluation and modeling.