

MLDS:Machine Learning Based SYN Flooding Defense Scheme in SDN

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Abstract—DDoS attack has brought significant damage to the current network in recent years, and the SYN flooding attack is deeply appreciated by attackers for the reason of its indistinguishable packets. With the development of SDN and machine learning technology, this paper aims at mitigating the attack by the combination of them. We proposed using SDN controller to collect global network state information of legitimate traffic and calculating the feature vector, and utilizing the random forest algorithm for model training. The well trained model can be used to monitor the network status and will extract the characteristics of illegitimate packets if abnormal traffic appeared. The former extracted characteristics are significant for the discarding of attack traffic by utilizing the global controllability of SDN controller. The experiments showed that this approach can discard most of the attack traffic and works well for the defending of SYN flooding attack. The network environment will be more secure and stable when this method is widely used.

Index Terms—Machine Learning, Random Forest, SYN Flooding Defense, Load Balance, SDN.

I. INTRODUCTION

本文是虚构的，包括期刊和作者名以及作者的归属信息，还有其他所有内容都是虚构的，因为我并没有idea。作者名字都是来自一个我很喜欢的一个动漫：Rick and Morty。Morty 是孙子，Rick 是爷爷，妈妈叫Beth，爸爸叫Jerry，Summer 是姐姐。讲的是一个爷爷带着孙子经历各种宇宙奇幻冒险的故事。这里将Morty, Jerry, Beth 的affiliation改为了哈佛大学。希望有朝一日能真的和那个学校的人合作！

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