

Characterization of the Imaged R/S Pox Diagram for Low-rate DoS Attack

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A low-rate denial of service (LDoS) attack can degrade the quality of TCP communication with fewer attack traffic. The LDoS attack transmits such network traffic that conforms to the minimum value of TCP retransmission timeout. This provides periodic features to the traffic concerned. We consider the application of an R/S Pox Diagram characteristic which can represent the LDoS attack periodicity. An R/S Pox Diagram shows a characteristic plot shape against the periodicity of the LDoS attack. The distinct shape of the plot is quantified as shape features of the two-dimensionally imaged R/S Pox Diagram. Our proposal in this paper is to positively make use of the shape features of the two-dimensionally imaged R/S Pox Diagram. We show the effectiveness of the shape features utilization by showing their detection performance to pieces of simulating LDoS attack.

Keywords : Low-rate DoS Attack, Imaged R/S Pox Diagram, plot shapes