

To assess the proposed intrusion detection system several experiments were performed on the CIDDs-001 dataset. It is worth noting that the proposed IDS outperforms the standard Random Forest tested directly on the CIDDs-001 dataset which achieved an accuracy of 85% with a high FPR of 0.43%. The results in table 2 represent the average accuracy and the average false positive rates of the proposed IDS to detect the four types of attack classes contained in the dataset used in this paper which are DoS, PortScan, PingScan and BruteForce. The results represent the ROC curves and the AUC scores of the anomaly detection module at each router side of the Cloud platform. Accuracy =  $100 \times \frac{\text{correctly classified records}}{\text{total records}}$  (2) False Positive Rate (FPR): Percentage of the normal records which are classified as attack records.

### 6.6.2