

## Lampiran 1. Kode Program – Deteksi dan Mitigasi DoS

```
var user = 'username';
var password = 'password';
var onos = 'ip_controller';
var controls = {};

setFlow('udp_reflection',
  {keys:'ipdestination,udpsourceport',value:'frames'});
setThreshold('udp_reflection_attack',
  {metric:'udp_reflection',value:100,byFlow:true,timeout:2});

setEventHandler(function(evt) {
  // don't consider inter-switch links
  var link = topologyInterfaceToLink(evt.agent,evt.dataSource);
  if(link) return;

  // get port information
  var port = topologyInterfaceToPort(evt.agent,evt.dataSource);
  if(!port) return;

  // need OpenFlow info to create ONOS filtering rule
  if(!port.dpid || !port.ofport) return;

  // we already have a control for this flow
  if(controls[evt.flowKey]) return;

  var [ipdestination,udpsourceport] = evt.flowKey.split(',');
  var msg = {
    flows: [
      {
        priority:4000,
        timeout:0,
        isPermanent:true,
        deviceId:'of:'+port.dpid,
        treatment:[],
        selector: {
          criteria: [
            {type:'IN_PORT',port:port.ofport},
            {type:'ETH_TYPE',ethType:'0x800'},
            {type:'IPV4_DST',ip:ipdestination+'/32'},
            {type:'IP_PROTO',protocol:'17'},
            {type:'UDP_SRC',udpPort:udpsourceport}
          ]
        }
      }
    ]
  }
}
```

```

]
};

var resp = http2({
  url:'http://'+onos+'8181/onos/v1/flows?appId=ddos',
  headers: {'Content-Type':'application/json','Accept':'application/json'},
  operation:'post',
  user:user,
  password:password,
  body: JSON.stringify(msg)
});

var {deviceId,flowId} = JSON.parse(resp.body).flows[0];
controls[evt.flowKey] = {
  time:Date.now(),
  threshold:evt.thresholdID,
  agent:evt.agent,
  metric:evt.dataSource+'!'+evt.metric,
  deviceId:deviceId,
  flowId:flowId
};

logInfo("blocking " + evt.flowKey);
},['udp_reflection_attack']);

setIntervalHandler(function() {
  var now = Date.now();
  for(var key in controls) {
    let rec = controls[key];

    // keep control for at least 10 seconds
    if(now - rec.time < 10000) continue;
    // keep control if threshold still triggered
    if(thresholdTriggered(rec.threshold,rec.agent,rec.metric,key)) continue;

    var resp = http2({
      url:'http://'+onos+'8181/onos/v1/flows/'
+encodeURIComponent(rec.deviceId)+'/'+encodeURIComponent(rec.flowId),
      headers: {'Accept':'application/json'},
      operation:'delete',
      user:user,
      password:password
    });

    delete controls[key];
  }
});

```

```
logInfo("unlocking " + key);  
}  
});
```

## **Lampiran 2. Daftar Riwayat Hidup**

### **DATA PRIBADI**

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### **PENDIDIKAN FORMAL**

2018 – 2021 : Universitas Esa Unggul (Transfer)

2013 – 2018 : STMIK Widuri

2013 – 2010 : SMK N 1 Purwodadi (Teknik Komputer dan Jaringan)

2007 – 2010 : SMP N 2 Toroh

2001 – 2007 : SD N 5 Tambirejo

### **RIWAYAT PEKERJAAN**

2015 – 2021 (saat ini) : PT. Sisindokom Lintasbuana (Network Engineer)

2014 – 2015 : PT. Noosc Global (Information Security Analyst)