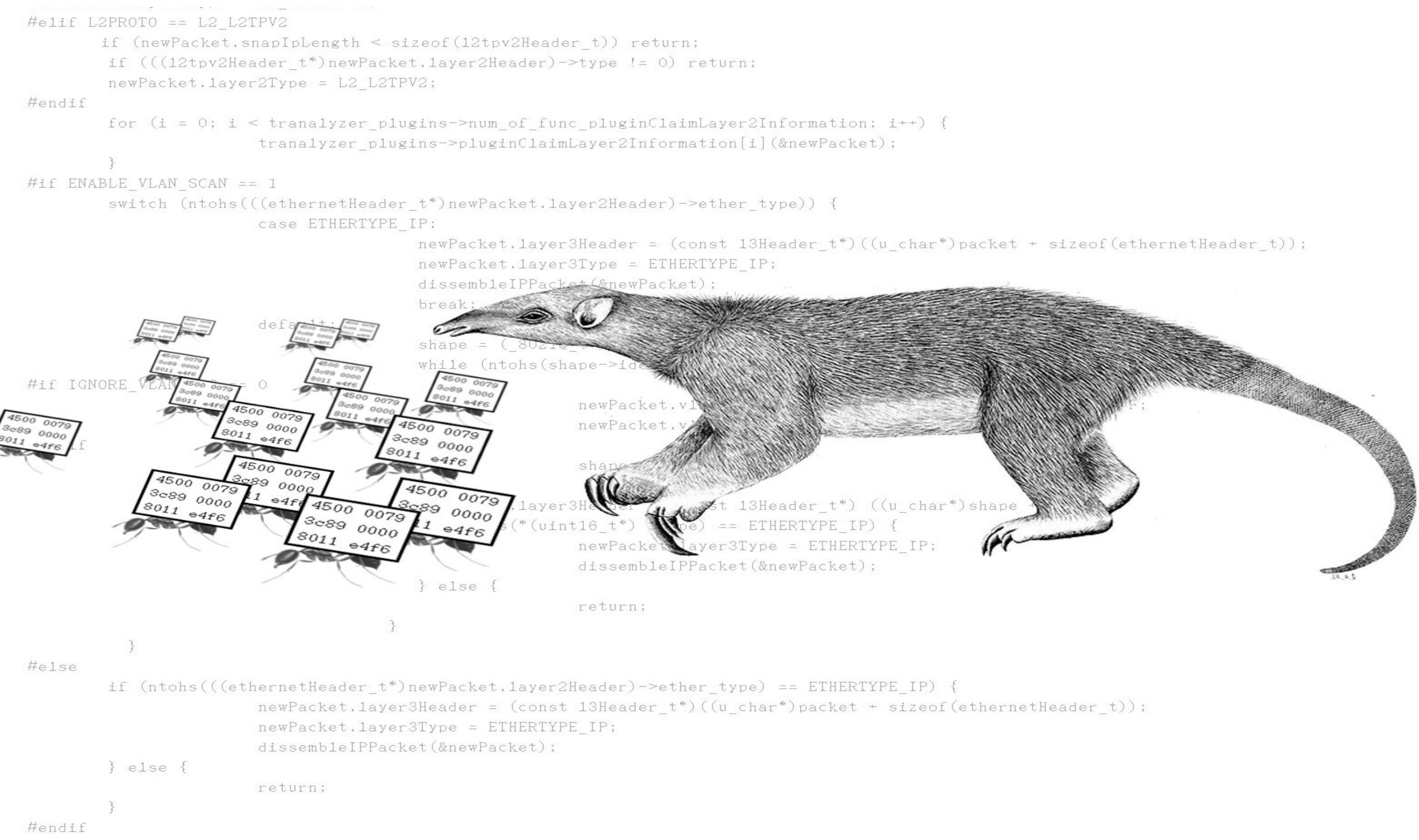
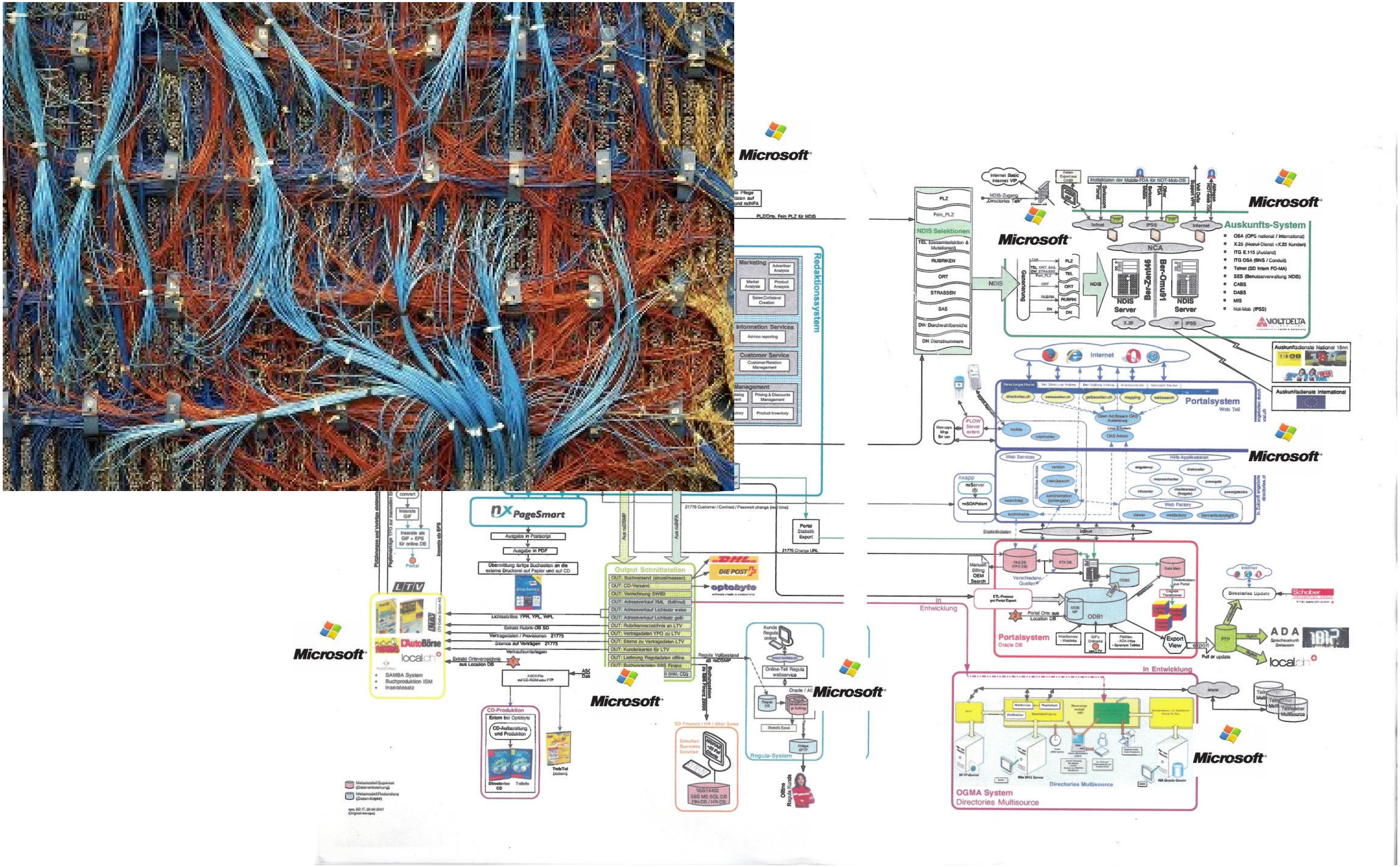
Tranalyzer – Netflow extension



```
#elif L2PROTO == L2_L2TPV2
        if (newPacket.snapIpLength < sizeof(l2tpv2Header_t)) return;
        if (((l2tpv2Header_t*)newPacket.layer2Header)->type != 0) return;
        newPacket.layer2Type = L2_L2TPV2;
#endif
        for (i = 0; i < tranalyzer_plugins->num_of_func_pluginClaimLayer2Information; i++) {
                tranalyzer_plugins->pluginClaimLayer2Information[i](&newPacket);
        }
#if ENABLE_VLAN_SCAN == 1
        switch (ntohs(((ethernetHeader_t*)newPacket.layer2Header)->ether_type)) {
                case ETHERTYPE_IP:
                        newPacket.layer3Header = (const l3Header_t*)((u_char*)packet + sizeof(ethernetHeader_t));
                        newPacket.layer3Type = ETHERTYPE_IP;
                        dissembleIPPacket(&newPacket);
                        break;
                defa
                        shape = (_8021Q_
                        while (ntohs(shape->ide
#if IGNORE_VLAN     == 0
                                newPacket.vl                                        F;
                                newPacket.v
    f
                                shap

                        .layer3He                 st l3Header_t*) ((u_char*)shape +
                               s(*(uint16_t*)      pe) == ETHERTYPE_IP) {
                                newPacke   ayer3Type = ETHERTYPE_IP;
                                dissembleIPPacket(&newPacket);
                        } else {
                                return;
                        }
                }
         }
#else
        if (ntohs(((ethernetHeader_t*)newPacket.layer2Header)->ether_type) == ETHERTYPE_IP) {
                newPacket.layer3Header = (const l3Header_t*)((u_char*)packet + sizeof(ethernetHeader_t));
                newPacket.layer3Type = ETHERTYPE_IP;
                dissembleIPPacket(&newPacket);
        } else {
                return;
        }
#endif
```

“It's the network – go fix it!”



Features

- Command-line based → GUI: Traviz
- Extendable by plugins
- Fast and simple
- Practitioners: Anomaly and security related flags
- Researchers: Full Statistical and Packet Signal Analysis support
- Interfaces: Matlab, GnuPlot, SPSS, Excel etc.

For the Practitioners

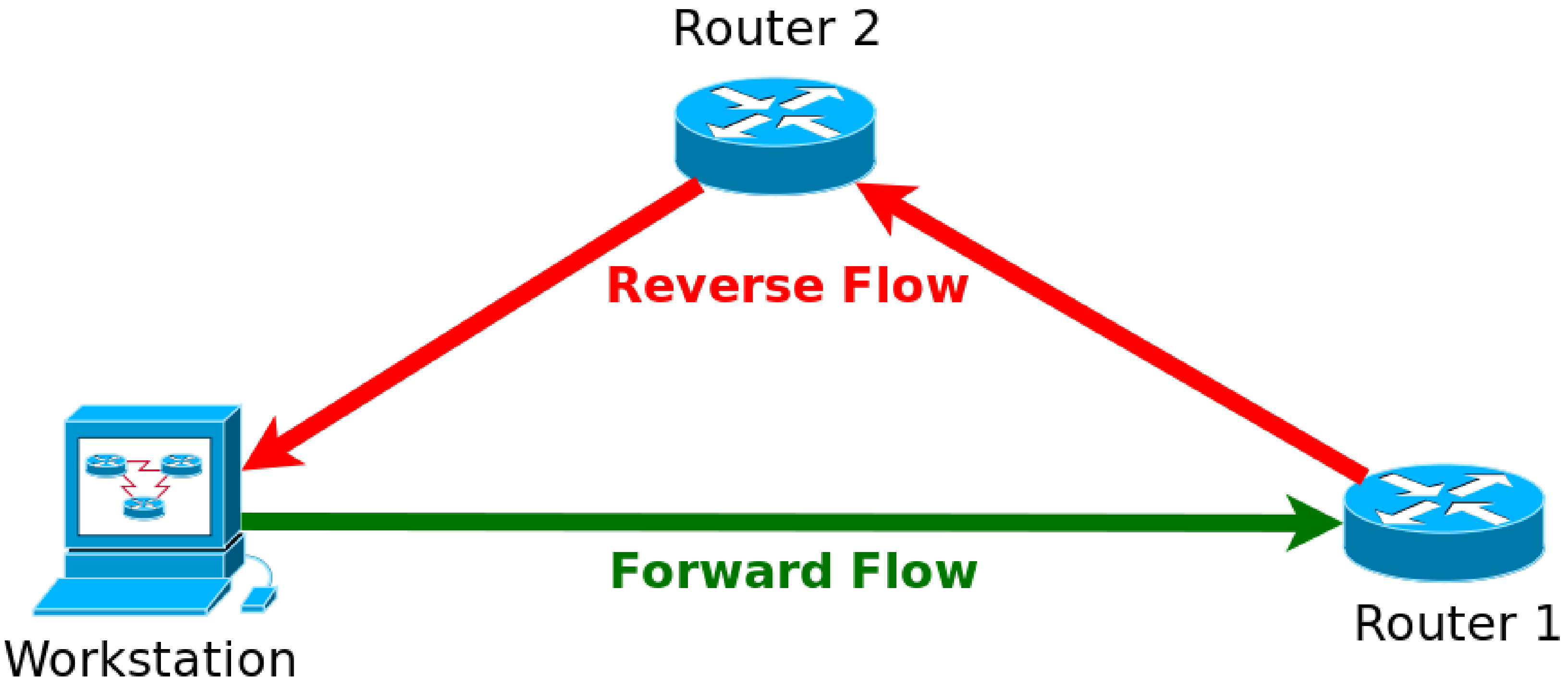
- Known Netflow information (L2/L3/L4 information + VLAN, direction, time, number of packets or bytes, etc.)
- Min/max statistics of L3 and L4, packet and byte stream asymmetry
- Full TCP state-machine including malicious packet detection and flag aggregation with anomaly support
- ICMP aggregated type and code bitfields
- Number of distinct connections to neighbors
- Number of traffic channels between two hosts

Applications for practitioners

- Machine load indication by IPID differences
- Flow quality: via TCP window size signal behavior
- IP and TCP aggregated option information
- Routing anomalies: via TTL
- Transmitted/Received bytes via TCP sequence and acknowledge number differences

Applications for practitioners

- Detect bottlenecks by finding top talkers
  - Helping to improve load balancing
- Detect packet flow asymmetries (Traffic loops)
- Detect network misconfiguration, such as packet filtering

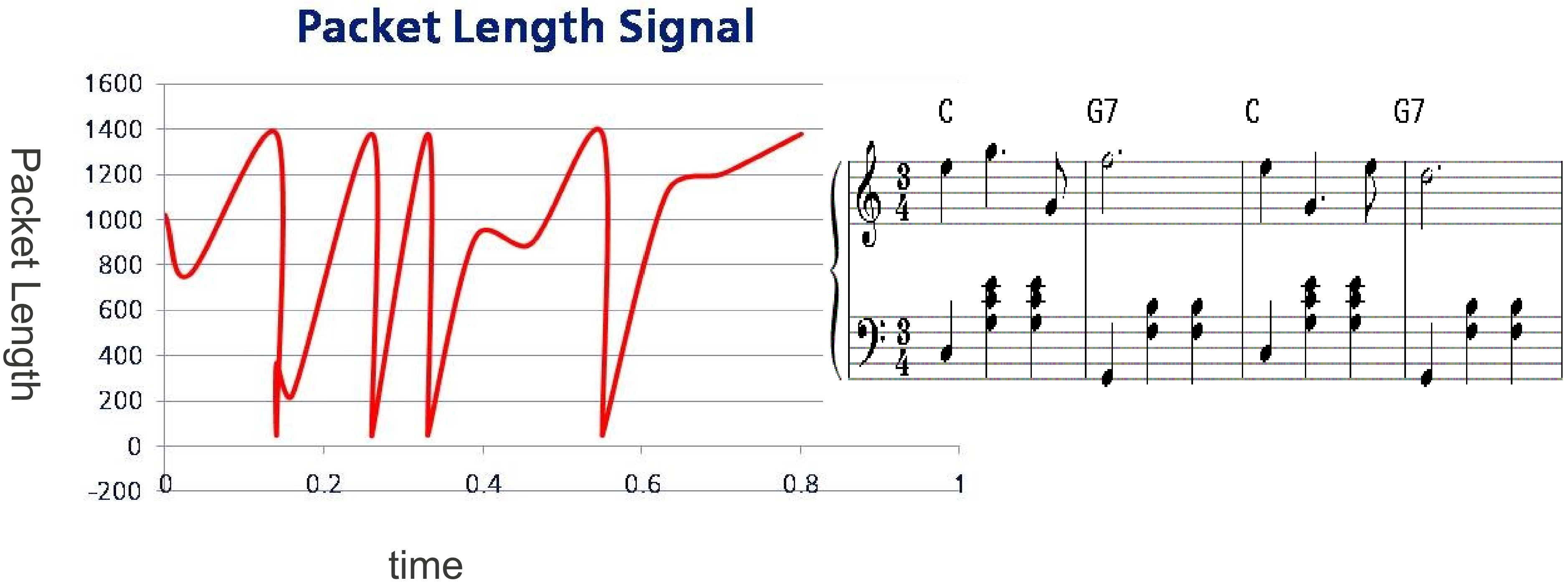


For the Researchers

- Min/Max packet length, Mean packet length
- Lower quartile/Median/Upper quartile of packet lengths
- Inter quartile distance
- Packet length standard deviation/Robust standard deviation
- Packet length skewness and excess
- Min/Max/Mean inter arrival times
- Inter arrival times standard deviation/Robust standard deviation
- **N-first packet statistics**
- **Packet size inter arrival time two-dimensional statistics**

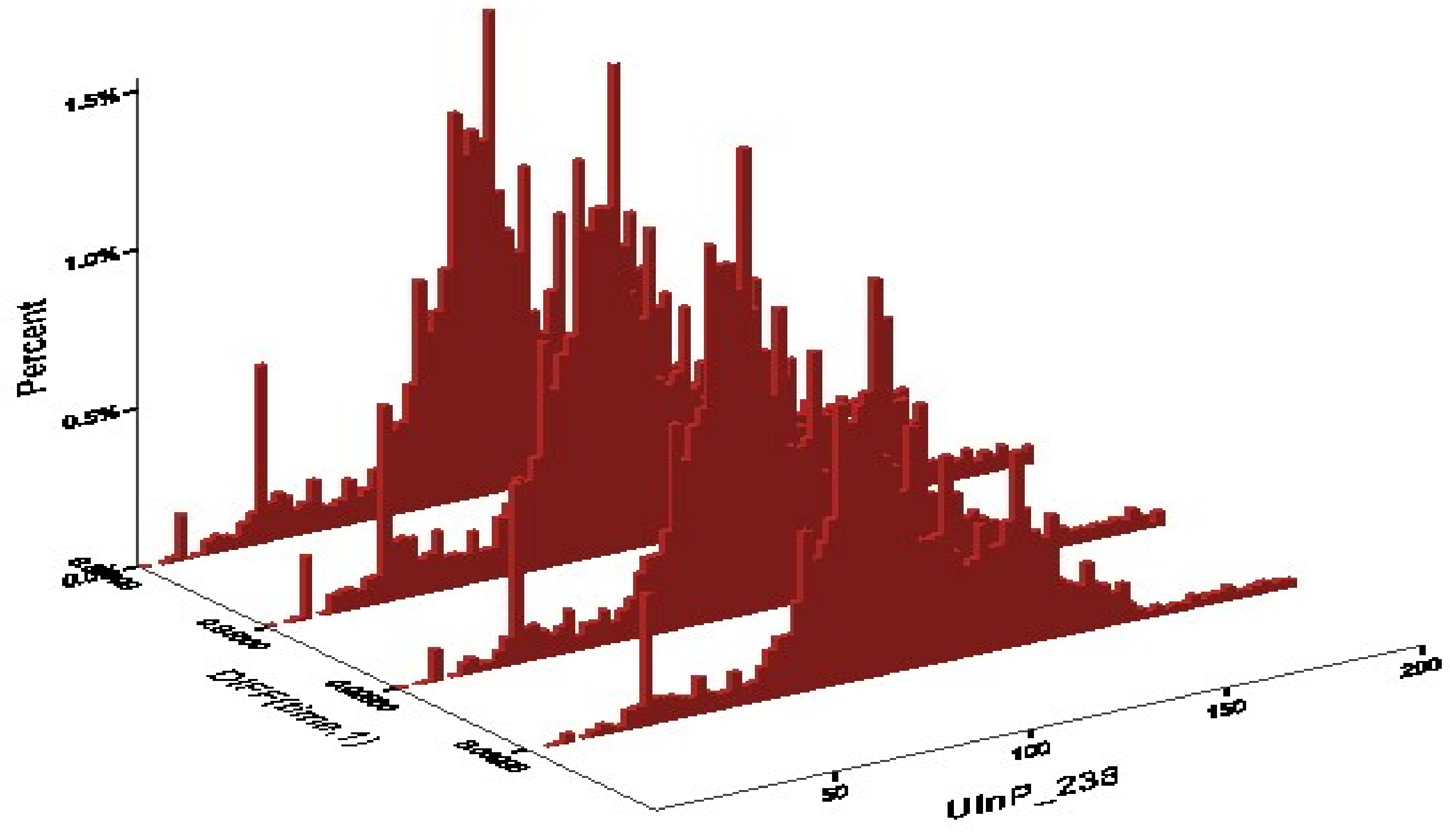
Applications for Researchers

- n-first packet byte length signal:
  - Quick application profiling
  - State machine reverse engineering



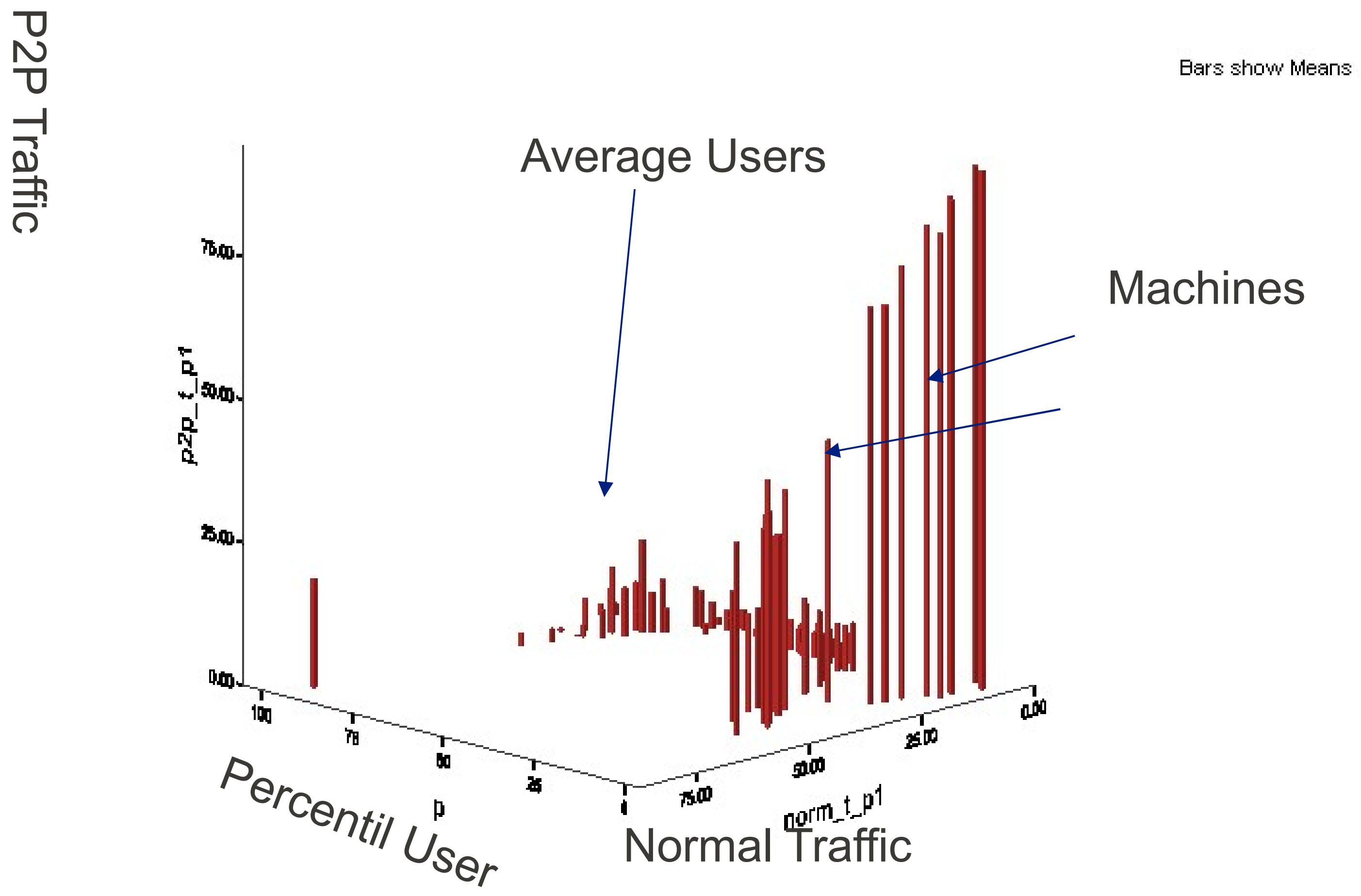
Packet size inter arrival time two-dimensional statistics

TCP P2P Skype VOIP and File transfer via proxy



User profiling

- Identify abnormal User: Warez (0.8% of users, 42% Traffic)



P2P Traffic

Average Users

Machines

Percentil User

Normal Traffic

Questions?

Want to contribute?

http://tranalyzer.sourceforge.net

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