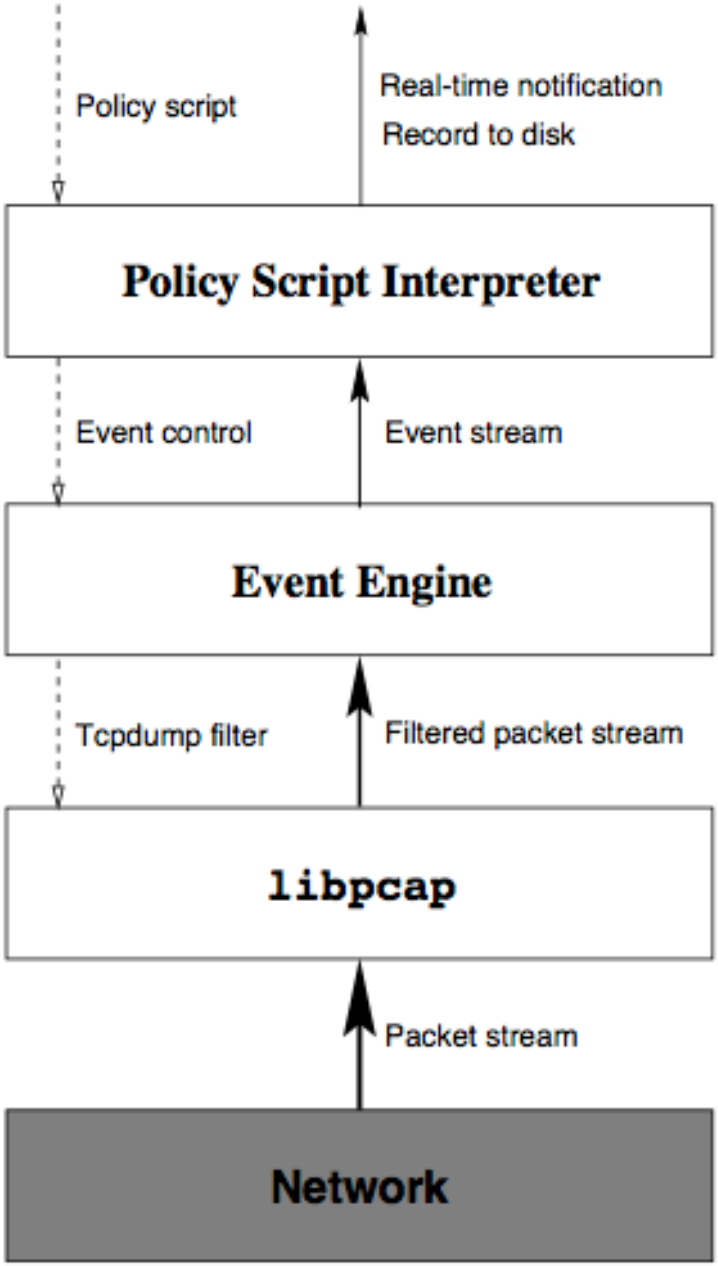
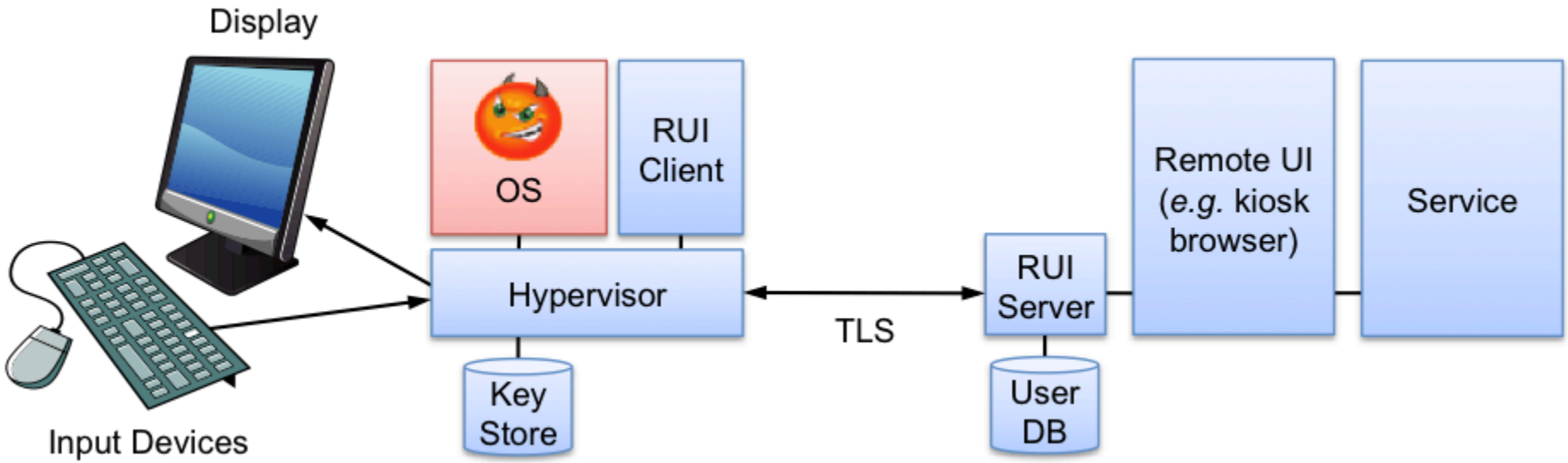
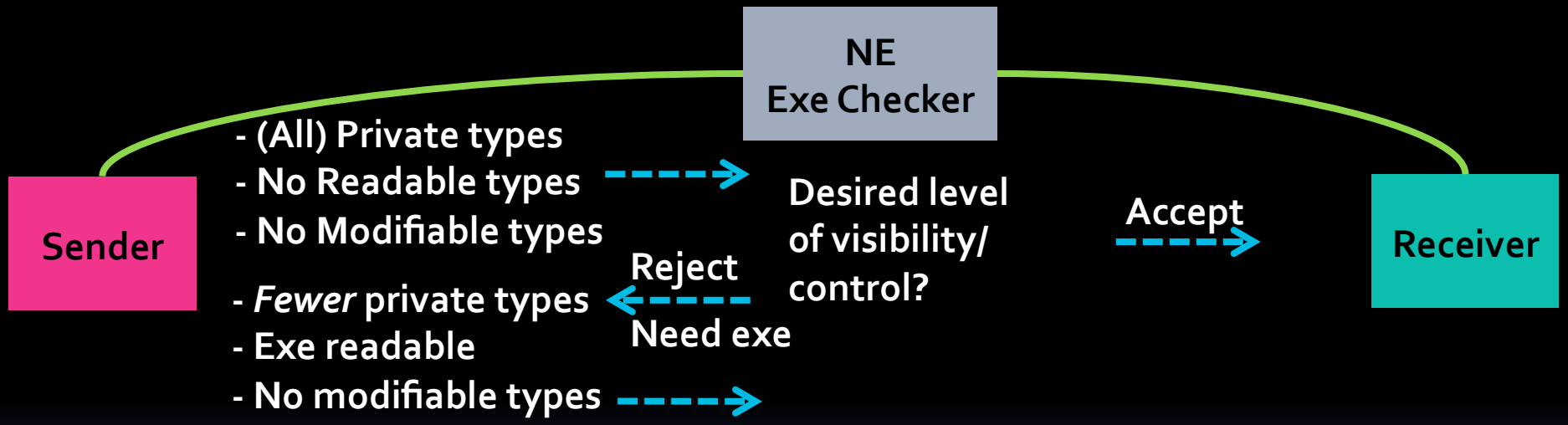


Figure 1: Structure of the Bro system


Display
OS
RUI Client
Hypervisor
Key Store
Input Devices
TLS
RUI Server
User DB
Remote UI (e.g. kiosk browser)
Service

Dialog

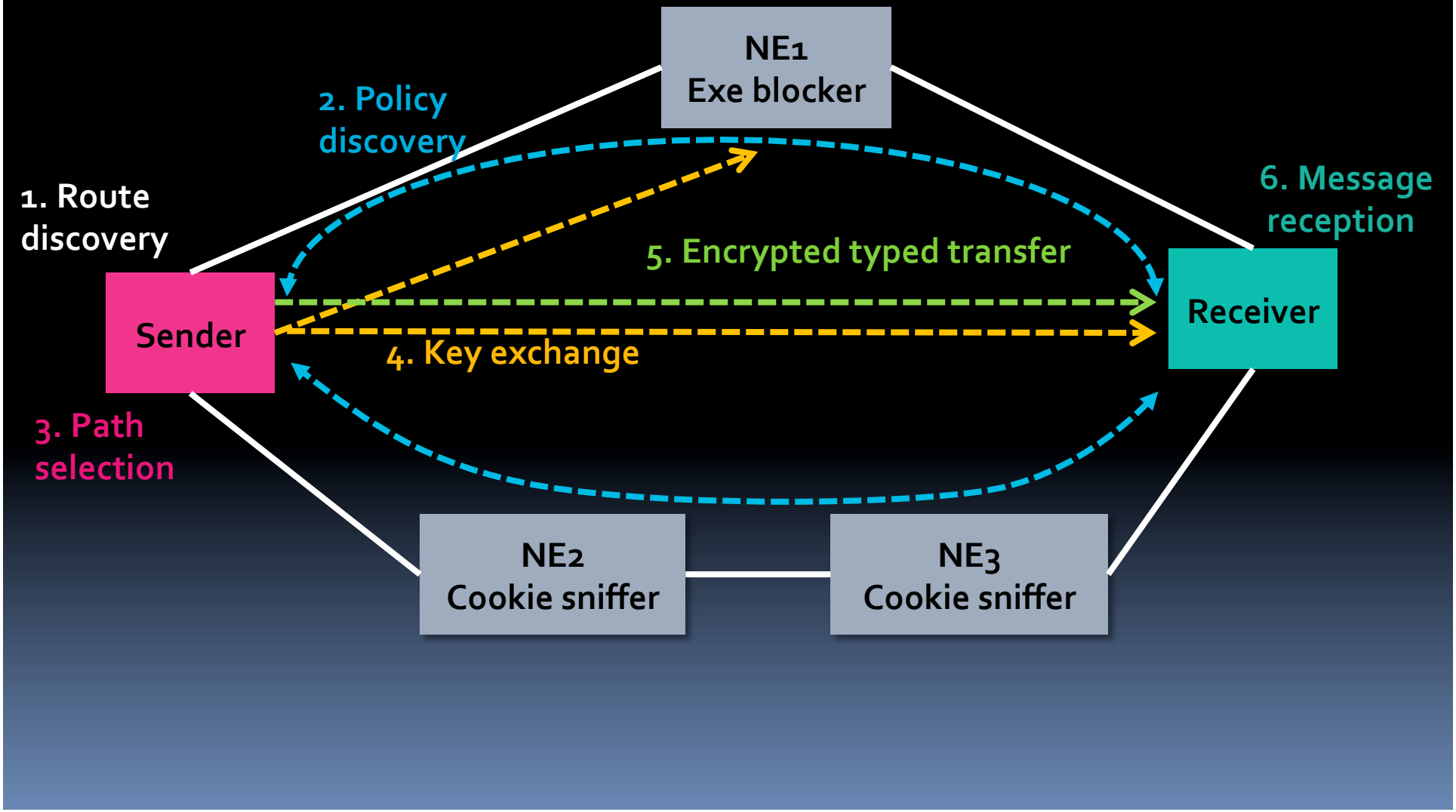
Typing paves way for *dialog* to negotiate communication properties



Sender may choose an alternate path.
Fail if no such path → *reason in full view*

Network has upper hand, but visibility limits collateral damage

Progression of Communication



It is also worth noting that the flow table can be several orders-of-magnitude smaller than the forwarding table in an equivalent Ethernet switch. In an Ethernet switch, the table is sized to minimize broadcast traffic: as switches flood during learning, this can swamp links and makes the network less secure.[5] As a result, an Ethernet switch needs to remember all the addresses it's likely to encounter; even small wiring closet switches typically contain a million entries. Ethane Switches, on the other hand, can have much smaller

two-way hashing scheme [9]. A typical commercial enterprise Ethernet switch today holds 1 million Ethernet addresses (6MB, but larger if hashing is used), 1 million IP addresses (4MB of TCAM),

Table 1. Scalability Table

Name	WS-SUP720-3B	WS-SUP720-3BXL	VS-S720-10G-3C *	VS-S720-10G-3CXL*
MAC Entries	64,000	64,000	96,000	96,000
Routes	256,000 (IPv4); 128,000 (IPv6)	1,000,000 (IPv4); 500,000 (IPv6)	256,000 (IPv4); 128,000 (IPv6)	1,000,000 (IPv4); 500,000 (IPv6)

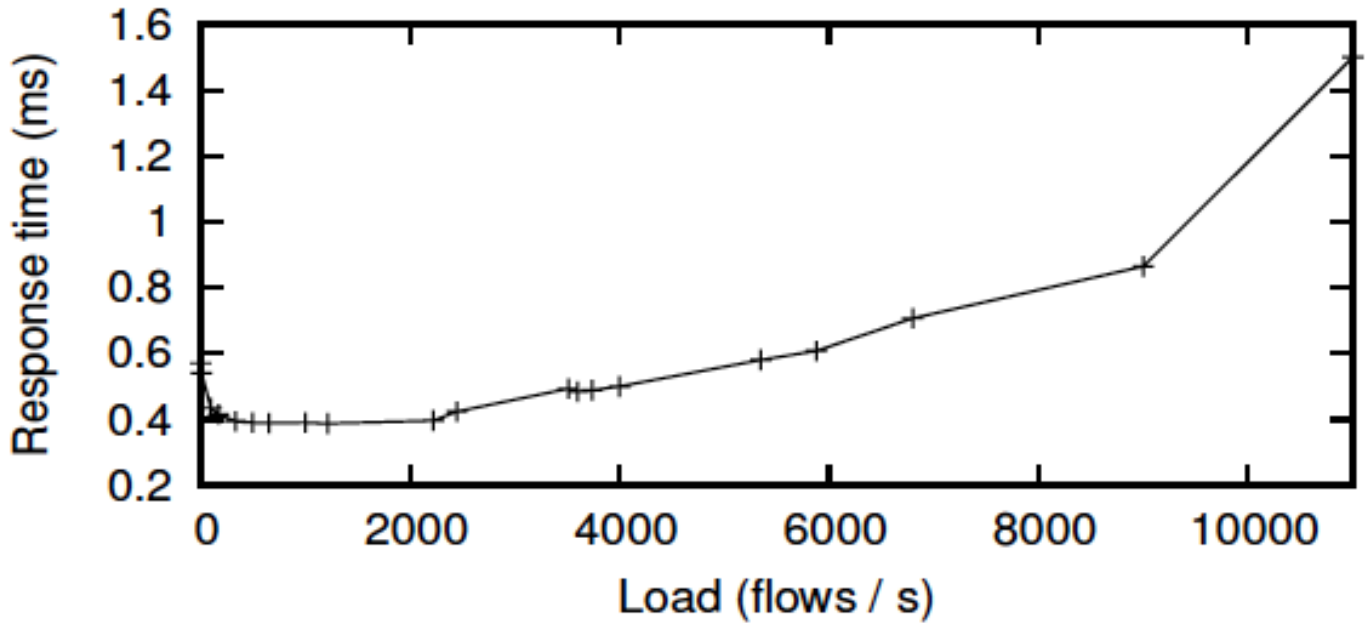


Figure 6: Flow-setup times as a function of Controller load. Packet sizes were 64B, 128B and 256B, evenly distributed.

heads. The Controller was configured with a policy file of 50 rules and 100 registered principles; routes were precalculated and cached. Under these conditions, the system could handle 650,845 bind events per second and 16,972,600 permission checks per second. The

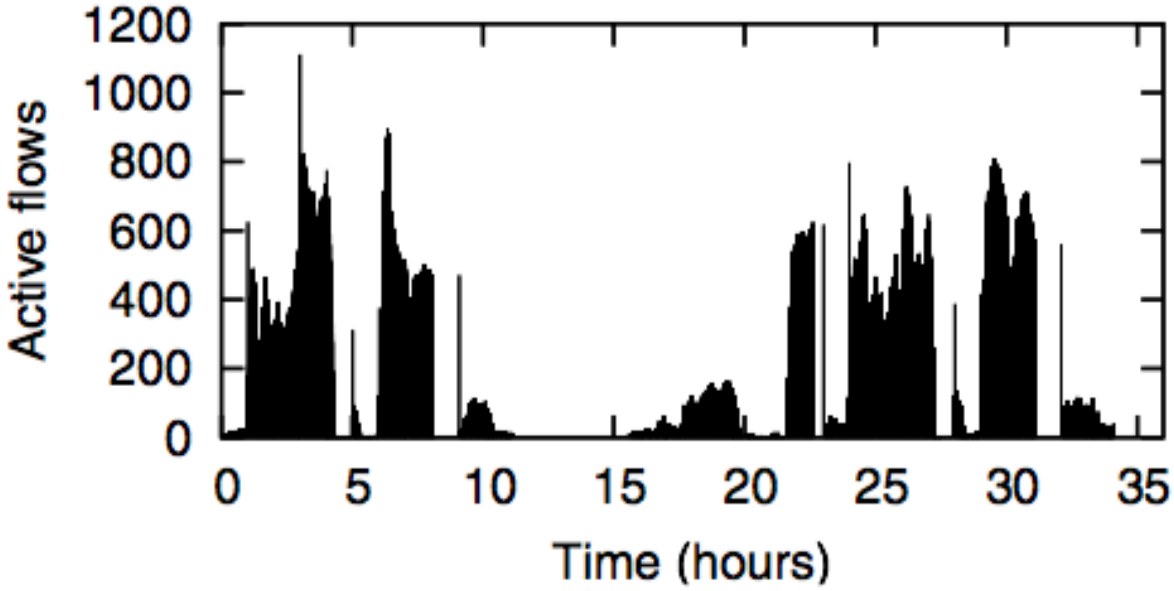


Figure 7: Active flows for LBL network [19].

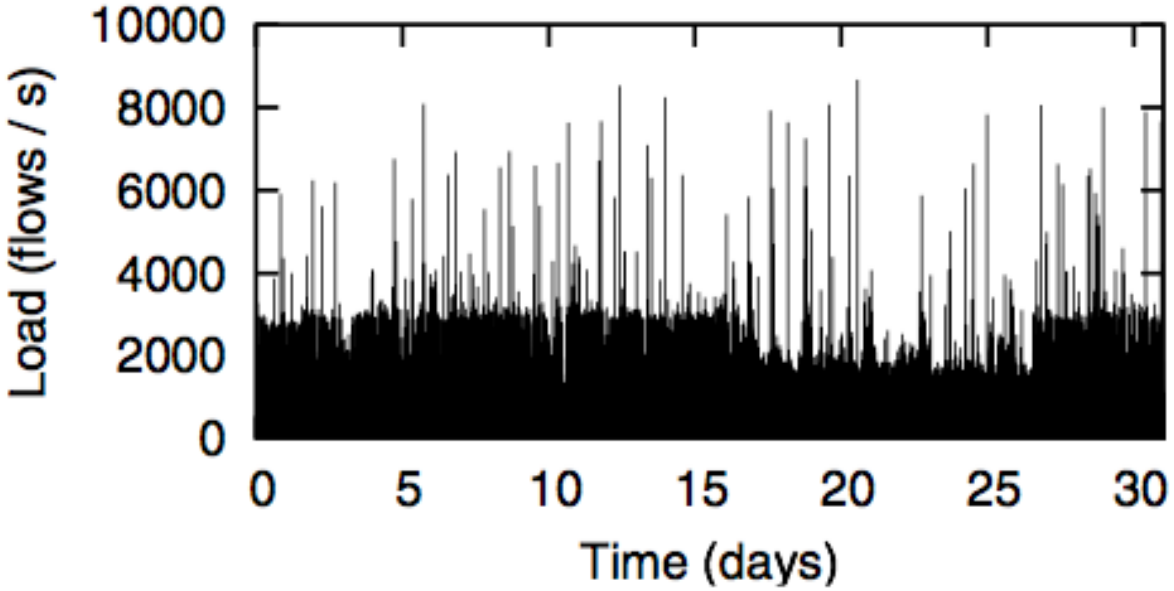


Figure 8: Flow-request rate for Stanford network.