

Building Internet and University Network Gateway with Open Source Software

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Gateway Routers for INHERENT

- INHERENT
(Indonesian Higher Education Network)
- Open Source PC router as an alternative to proprietary designs
- Access from wireless hotspots with captive portal

PC router

- As low as a Pentium III PC with 512MB of RAM
- 2 to 4 network cards
- an Open Source operating system
- an Open Source routing software
- a PC router should also include:
 - bandwidth management (HTB or CBQ)
 - firewall functions (iptables)



Quagga - routing software

- capable of running RIP, OSPF and BGP
- IPv4 and IPv6

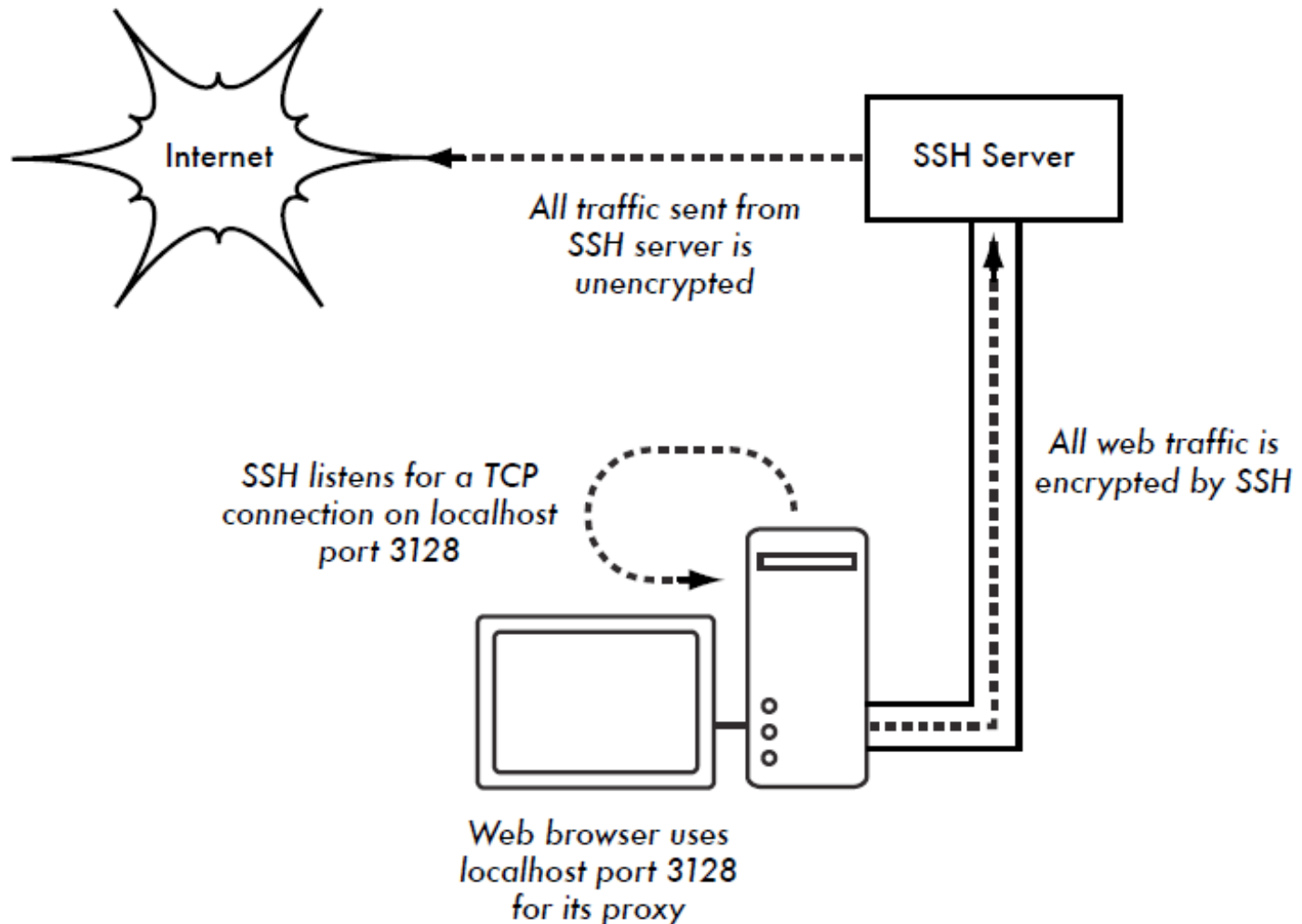
Proxy

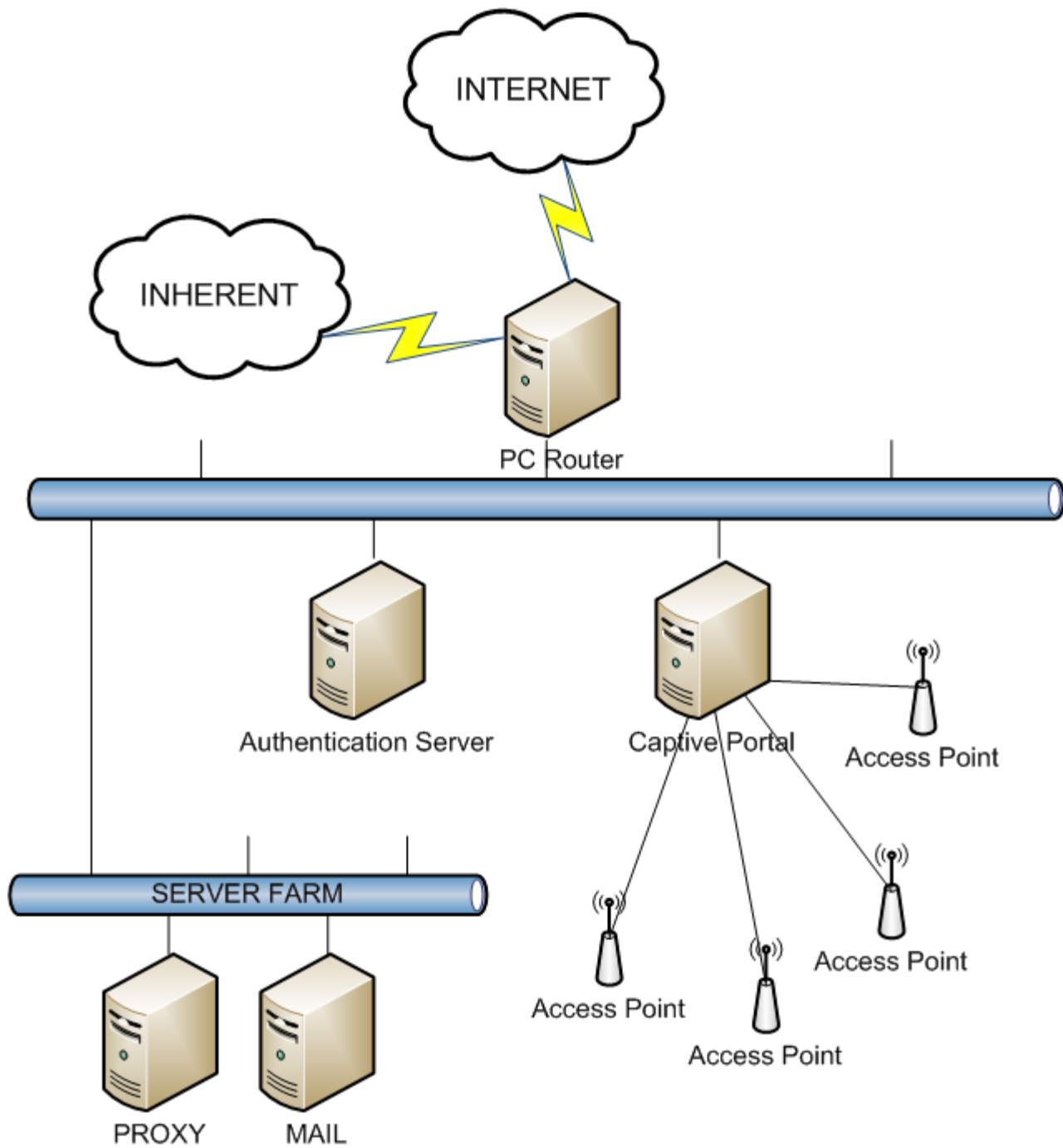
- Squid - open source proxy server
- can be configured as transparent combined with the PC router
- separate from the router in a single PC for large number of users

Wireless captive portal

- authenticate wireless users
 - IMAP, POP3, RADIUS, LDAP
- same credentials for all access (e-mail, captive portal, intranet applications)

Alternative way for authentication

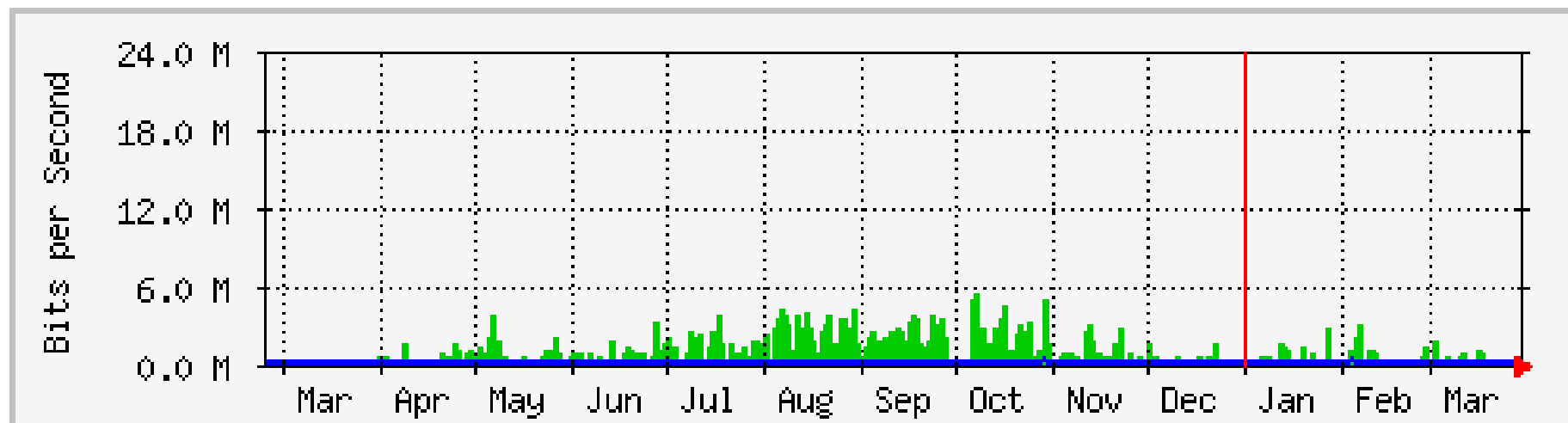




Performance test

- a PC router with Core2Duo 2.4GHz, 1GB RAM
- Debian Linux stable version
- Quagga for multihoming BGP (Internet)
- Quagga for OSPF (INHERENT)
- Forwarding between interfaces below 1ms
- Throughput tests pass the bandwidth requirement

INHERENT yearly graph



	Max	Average	Current
In	5327.9 kb/s (22.2%)	853.0 kb/s (3.6%)	1024.0 b/s (0.0%)
Out	271.8 kb/s (1.1%)	53.8 kb/s (0.2%)	23.7 kb/s (0.1%)