

EoIP: bridge LANs over the Internet

Easy solution for connect LAN between Work and Home.

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EoIP

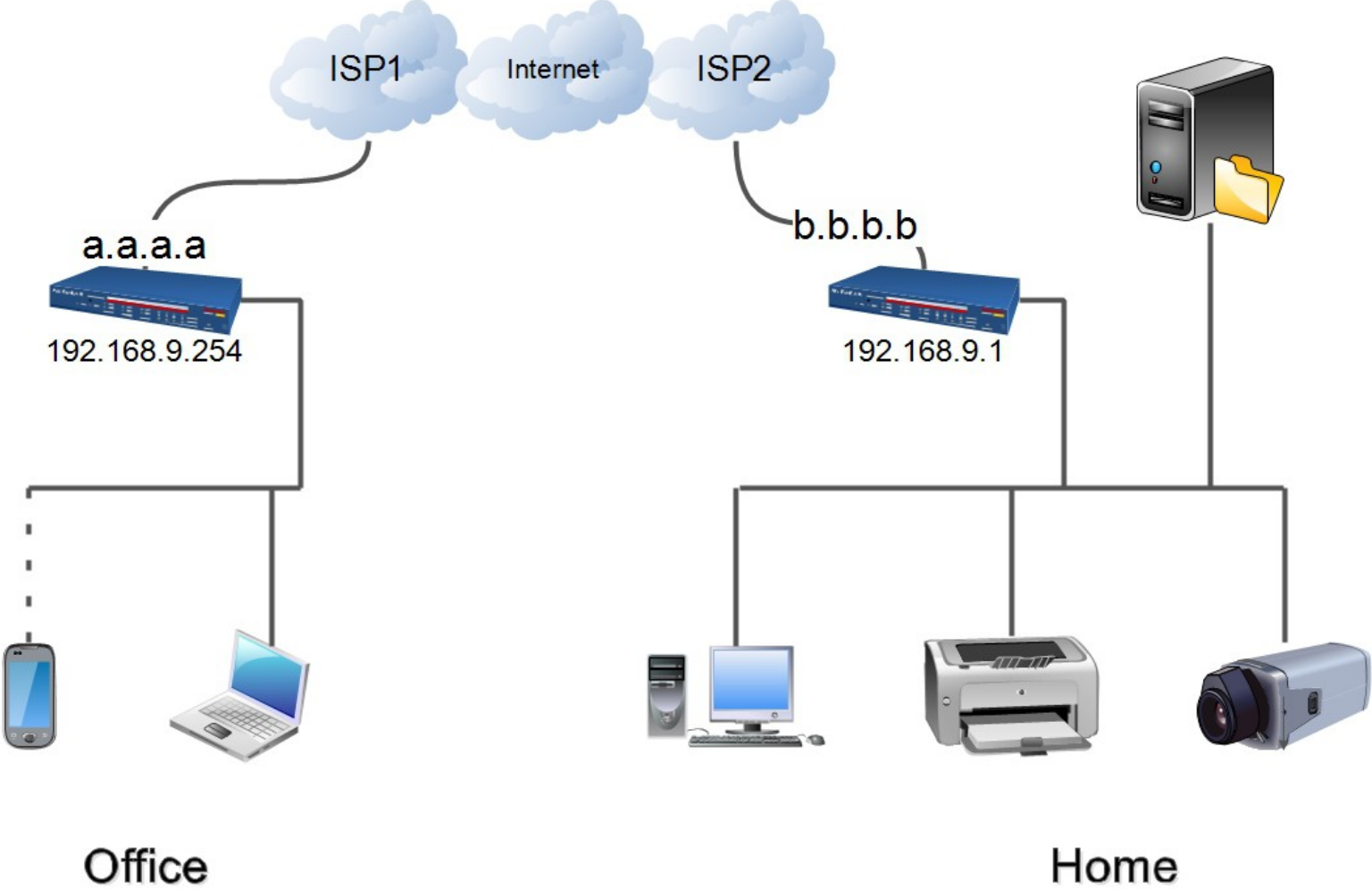
Ethernet over IP (EoIP) Tunneling is a **MikroTik RouterOS protocol** that creates an **Ethernet tunnel** between two routers on top of an IP connection. The EoIP tunnel may run over IPIP tunnel, PPTP tunnel or any other connection capable of transporting IP.

When the bridging function of the router is enabled, all Ethernet traffic (all Ethernet protocols) will be bridged just as if there were a physical Ethernet interface and cable between the two routers (with bridging enabled). This protocol makes multiple network schemes possible.

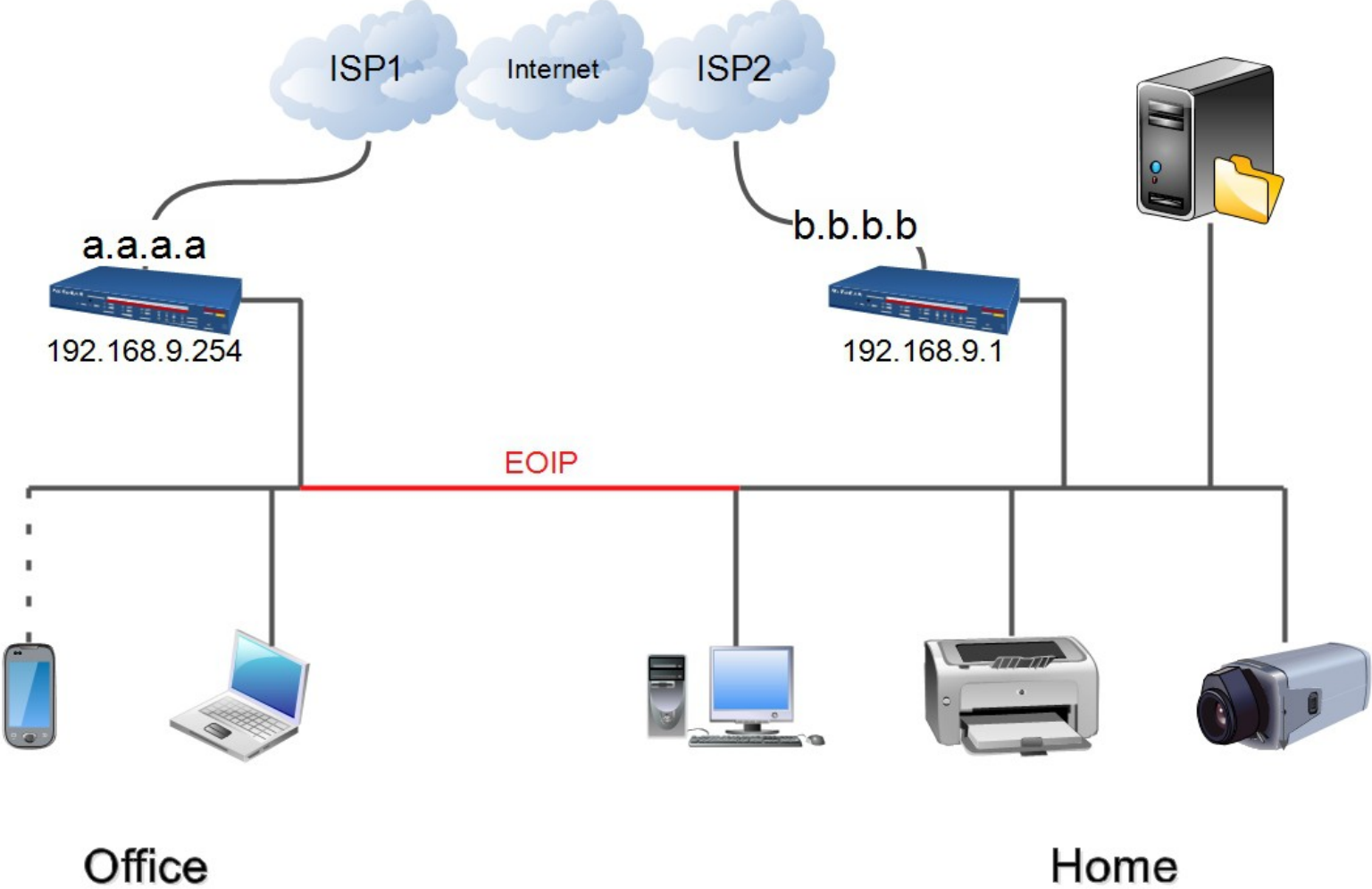
Network setups with EoIP interfaces

- Possibility to bridge LANs over the Internet
- Possibility to bridge LANs over encrypted tunnels
- Possibility to bridge LANs over 802.11b 'ad-hoc' wireless networks

Example



Example



Application

- Access Home resource from work
 - NAS
 - Printer / Scanner
 - IP camera
 - Remote desktop
 - Internet
 - Other

Advantages and Disadvantages

Advantages

- Easy to setup
 - Port forwarding
 - Access lists
- Portability
- Security

Disadvantages

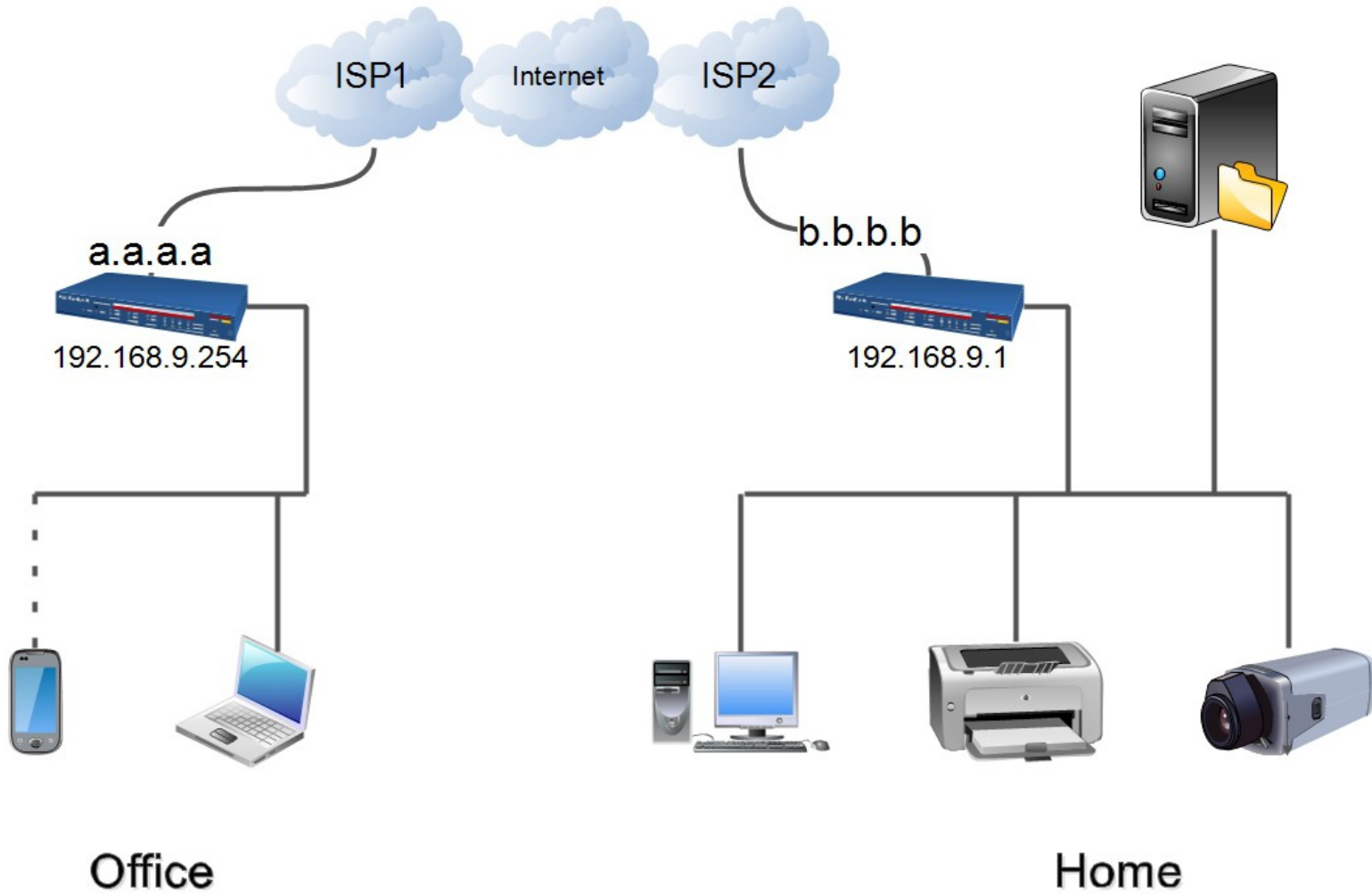
- RouterOS only



Setup step

- Create EoIP tunnel
- Bridge local interfaces with EoIP tunnel
- Filter DHCP requests over EoIP

Configuration



Create EoIP tunnel

Interface <eoip-tunnel1>

General Traffic

Name: eoip-tunnel1

Type: EoIP Tunnel

MTU: 1500

L2 MTU: 65535

MAC Address: 00:00:5E:80:00:FE

ARP: enabled

Local Address:

Remote Address: b.b.b.b

Tunnel ID: 9

Keepalive Interval:

OK
Cancel
Apply
Disable
Comment
Copy
Remove
Torch

enabled running slave

Office

Interface <eoip-tunnel1>

General Traffic

Name: eoip-tunnel1

Type: EoIP Tunnel

MTU: 1500

L2 MTU: 65535

MAC Address: 00:00:5E:80:00:01

ARP: enabled

Local Address:

Remote Address: a.a.a.a

Tunnel ID: 9

Keepalive Interval:

OK
Cancel
Apply
Disable
Comment
Copy
Remove
Torch

enabled running slave

Home

MAC Address: 00:00:5E:80:00:00 - 00:00:5E:FF:FF:FF

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Create EoIP tunnel

- Office

```
/interface eoip  
  add mac-address=00:00:5E:80:00:FE name=eoip-tunnel1\  
  remote-address=b.b.b.b tunnel-id=9
```

- Home

```
/interface eoip  
  add mac-address=00:00:5E:80:00:01 name=eoip-tunnel1\  
  remote-address=a.a.a.a tunnel-id=9
```

Bridge local interfaces with EoIP tunnel

Bridge Port <eoip-tunnel1>

General Status

Interface: eoip-tunnel1

Bridge: bridge-local

Priority: 80 hex

Path Cost: 10

Horizon:

Edge: auto

Point To Point: auto

External FDB: auto

OK

Cancel

Apply

Disable

Comment

Copy

Remove

enabled inactive

```
/interface bridge port  
add bridge=bridge-\  
local interface=eoip-\  
tunnel1
```

Filter DHCP request over EoIP

Bridge Filter Rule <>

General | Advanced | ARP | STP | Action | ...

Chain: forward

Interfaces

In. Interface:

Out. Interface:

Bridges

In. Bridge:

Out. Bridge:

Src. MAC Address

Dst. MAC Address

MAC Protocol

MAC Protocol-Num: 800 (p) hex

IP

Src. Address:

Src. Port:

Dst. Address:

Dst. Port: 67

Protocol: 17 (udp)

Packet Mark

Ingress Priority

enabled

OK
Cancel
Apply
Disable
Comment
Copy
Remove
Reset Counters
Reset All Counters

Bridge Filter Rule <>

Advanced | ARP | STP | Action | Statistics | ...

Action: drop

enabled

OK
Cancel
Apply
Disable
Comment
Copy
Remove
Reset Counters
Reset All Counters

Filter DHCP requests over EoIP

```
/interface bridge filter
  add action=drop chain=forward comment=\
  "Drop all DHCP requests over EoIP bridge" \
  dst-port=67 ip-protocol=udp \
  mac-protocol=ip
```


Things to Consider



- IP address management
 - Static leases for DHCP
 - Separate range for DHCP pool
- Firewall



Thank You

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