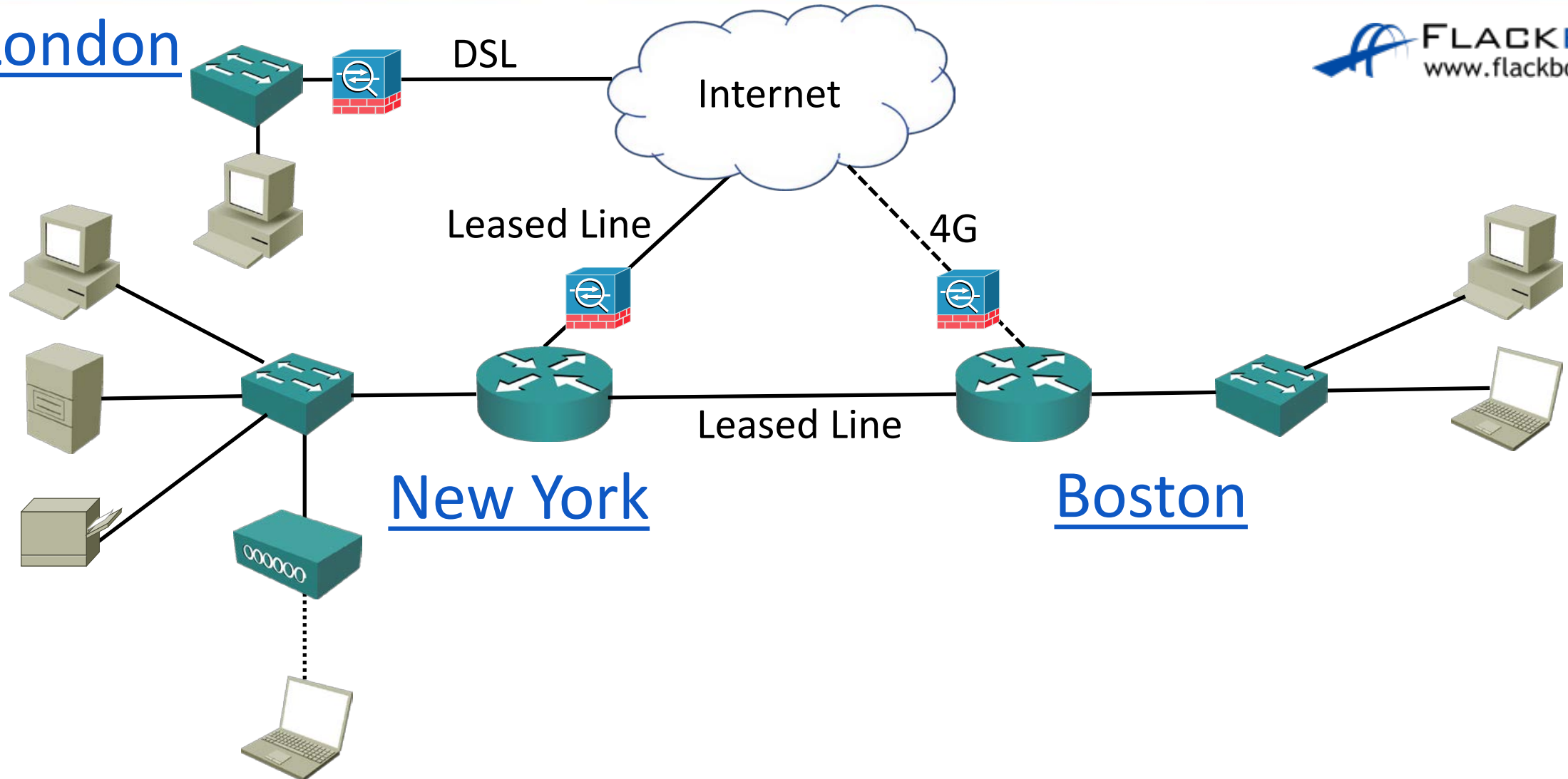


# WAN Backup and Small Office Solutions

- Less expensive options often aimed at home user Internet access are often used as Internet VPN WAN backup options in corporate environments
- These can also be used as the primary WAN connection method to the corporate network from smaller offices and for home users
  - DSL Digital Subscriber Line
  - Cable
  - Wireless eg 4G
- There will typically be no corporate level SLA with these services

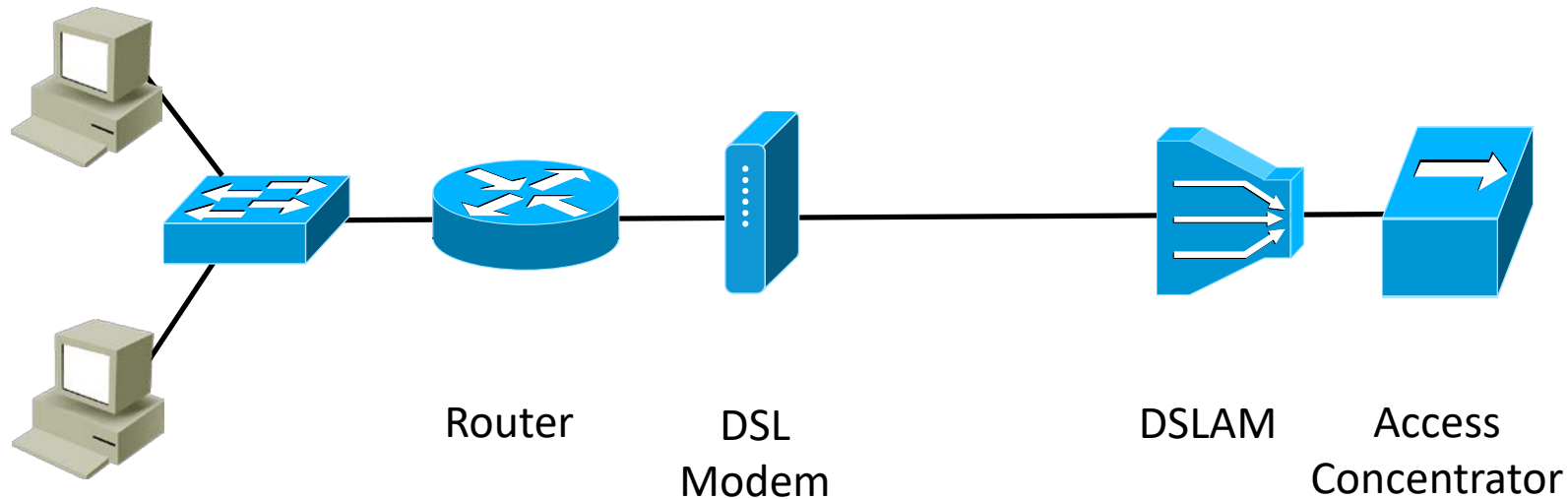
# WAN Backup and Small Office Solutions

London

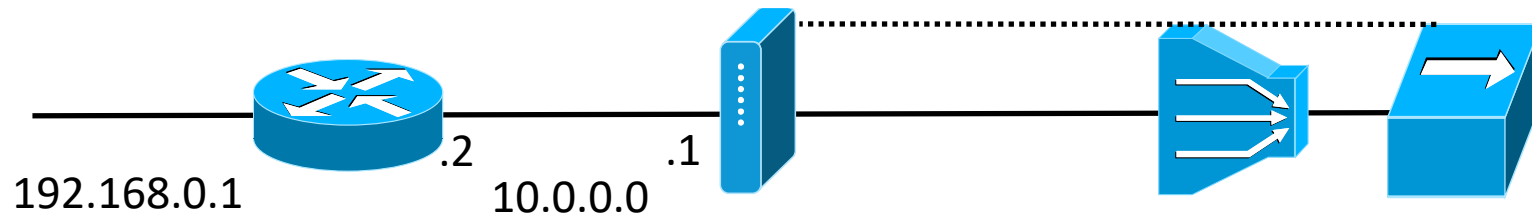


# PPPoE

- PPPoE (PPP over Ethernet) is commonly used in DSL (Digital Subscriber Line) deployments
- PPPoE can be configured on either the DSL modem or the router



# PPPoE on Modem – Router Configuration



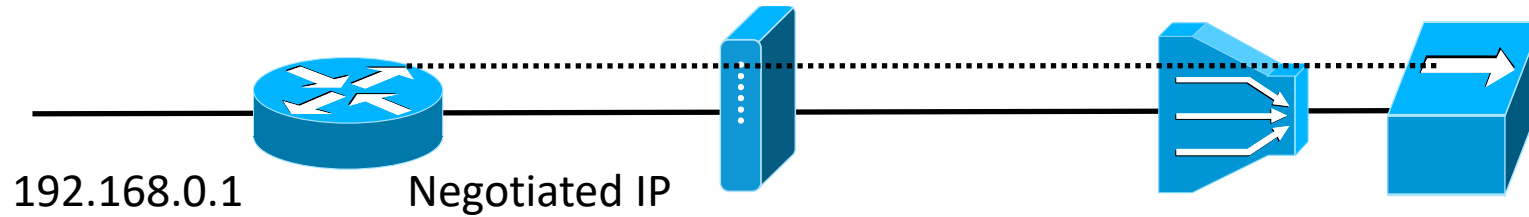
```
R1(config)#int f0/0
R1(config-if)#ip address 10.0.0.2 255.255.255.0
R1(config)#int f0/1
R1(config-if)#ip address 192.168.0.1 255.255.255.0
R1(config)#ip route 0.0.0.0 0.0.0.0 10.0.0.1
! Dynamic PAT from 192.168.0.0/24 to 10.0.0.2
```

# Dialer Interface



- When configured on the router, PPPoE uses a logical ‘interface dialer’ and ‘interface virtual-access’
- Interface level configuration such as IP address, bandwidth and authentication should be applied to the **dialer** interface, not to the underlying physical ports

# PPPoE on Router



```
NY-CPE2(config)#interface dialer1
NY-CPE2(config-if)#dialer pool 1
NY-CPE2(config-if)#encapsulation ppp
NY-CPE2(config-if)#ip address negotiated
```

```
NY-CPE2(config)#interface f0/0
NY-CPE2(config-if)#no ip address
NY-CPE2(config-if)#pppoe-client dial-pool-number 1
NY-CPE2(config-if)#no shutdown
```

# PPPoE Verification – show ip interface brief

```
NY-CPE2#show ip interface brief
```

Interface	IP-Address	OK?	Method	Status	Protocol
FastEthernet0/0	unassigned	YES	NVRAM	up	up
FastEthernet1/0	192.168.0.1	YES	NVRAM	up	up
FastEthernet2/0	unassigned	YES	NVRAM	administratively down	down
FastEthernet3/0	unassigned	YES	NVRAM	administratively down	down
<b>Dialer1</b>	<b>203.0.113.6</b>	<b>YES</b>	<b>IPCP</b>	<b>up</b>	<b>up</b>
<b>Virtual-Access1</b>	<b>unassigned</b>	<b>YES</b>	<b>unset</b>	<b>up</b>	<b>up</b>

# PPPoE Verification – show pppoe session

```
NY-CPE2#show pppoe session
1 client session
```

Uniq ID	PPPoE SID	RemMAC LocMAC	Port	VT	VA VA-st Vi1	State Type
N/A	10	ca04.4318.0000 ca03.19d8.0000	Fa0/0	Di1	<b>UP</b>	<b>UP</b>



# Lab

