SPARK NET

**-Single hot spot-**

**-Multi operator environment –**

**- SparkNet SOHO / OpenSpark –**

**- centralized management and monitoring -**

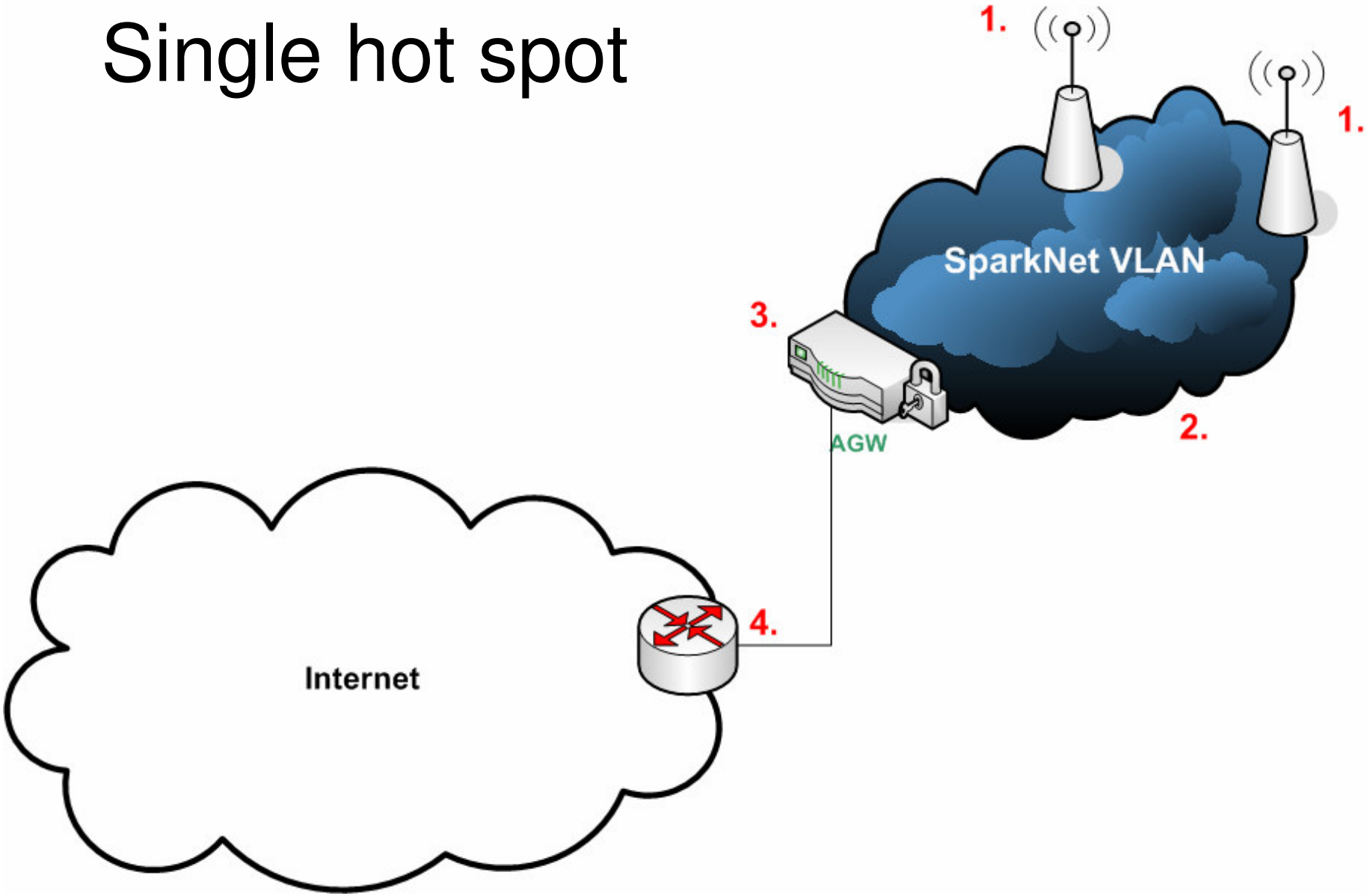
# Single hot spot

## -SparkNet Enterprise –

## - SparkNet Business Solution –

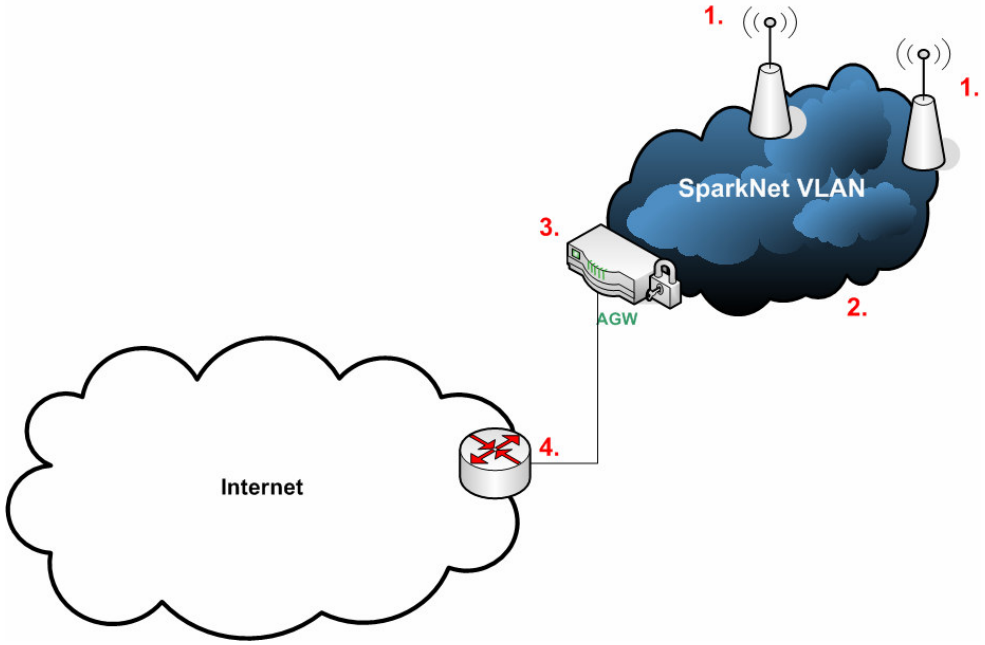
## - SparkNet Business Center -

# Single hot spot



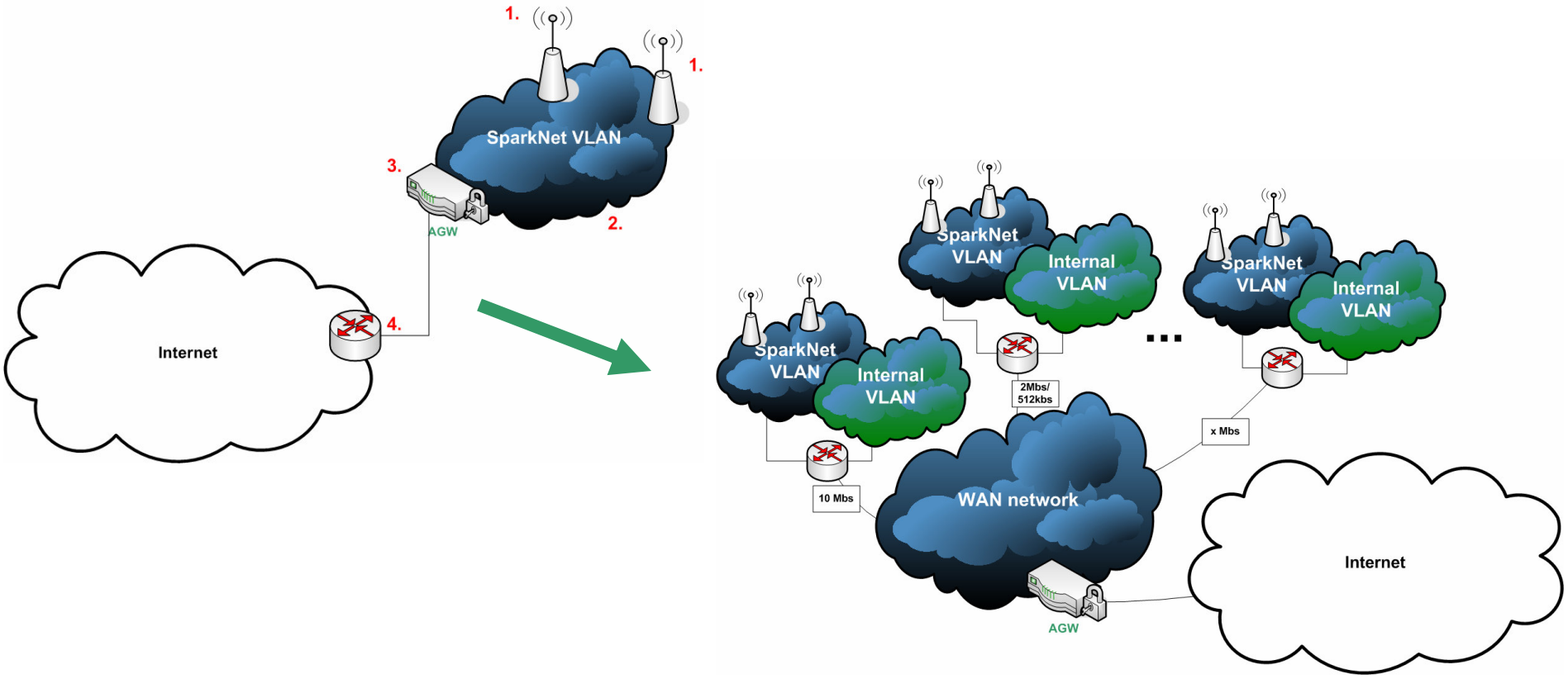
# 1. Base stations

- 802.11b and 802.11g compliant base stations
- Radio network is open; there is no access control



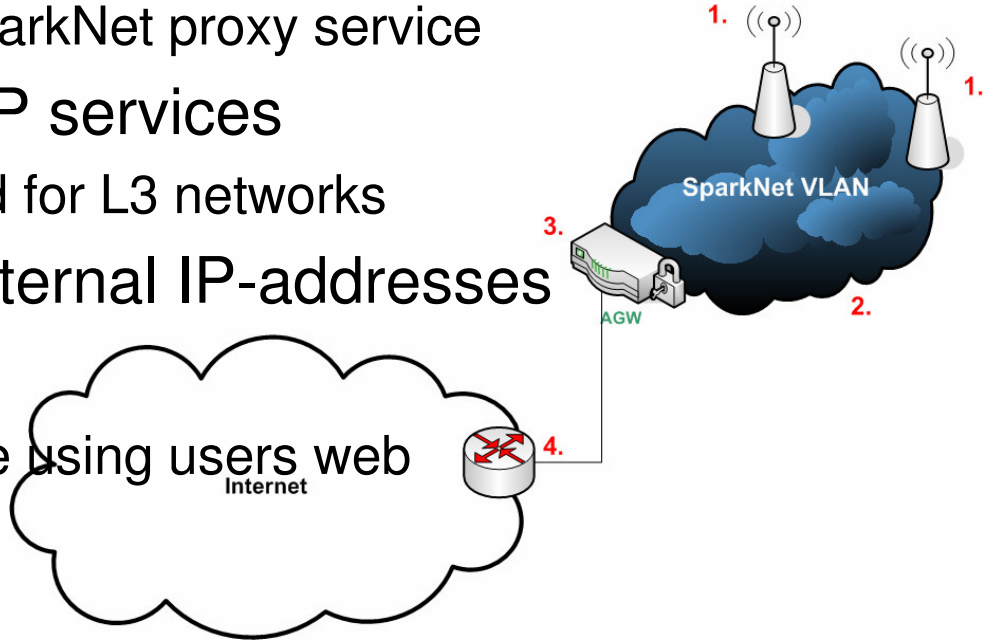
# 2.SparkNet VLAN's

- SparkNet uses always either physically or logically separated LAN as it's backbone
- Scales to WAN and L3 routed environment



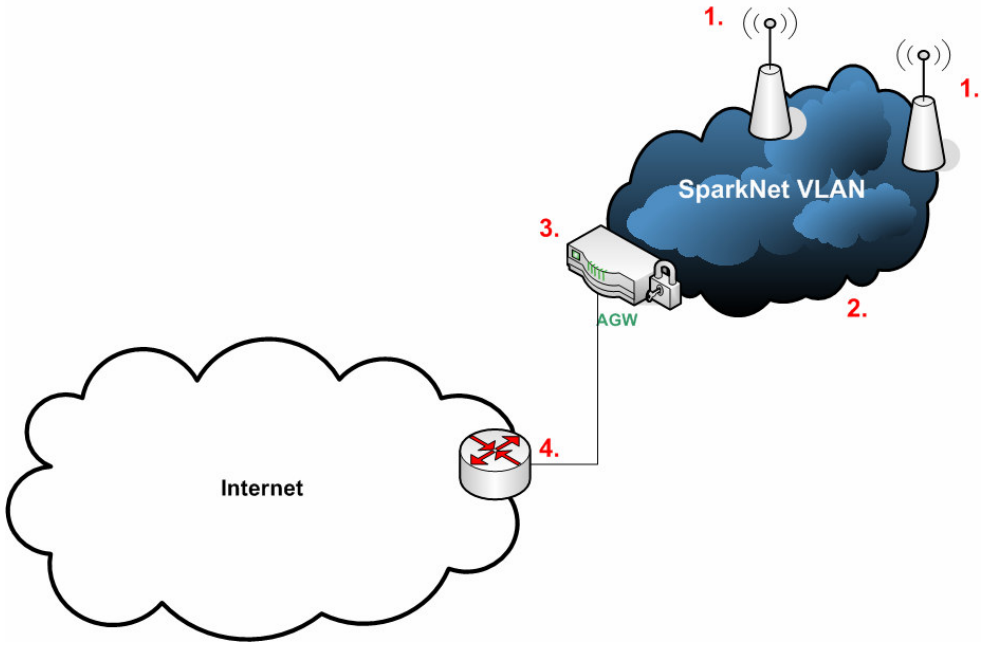
# 3. Authentication gateway

- Authentication gateway
  - Autenticates users
    - Authentication is done either locally or using RADIUS service. RADIUS service is centraliced using SparkNet proxy service
  - Provides local DHCP services
    - relay service needed for L3 networks
  - Performs NAT for internal IP-addresses
  - HTTP server:
    - Autentication is done using users web browser



# 4. Internet connection

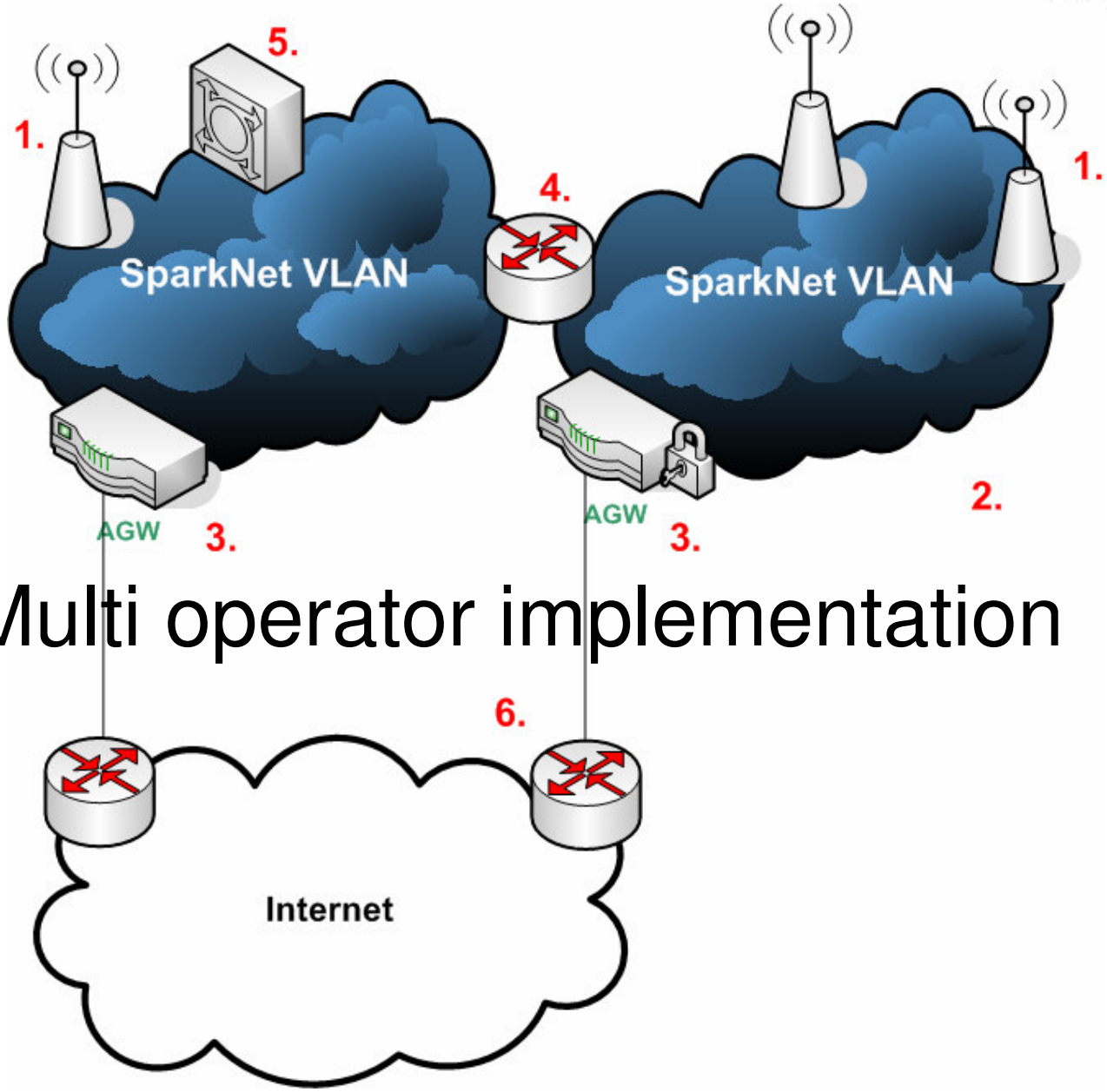
- Requirements
  - One Internet IP address for AGW use
  - Non limited IP traffic



# Multioperator environment

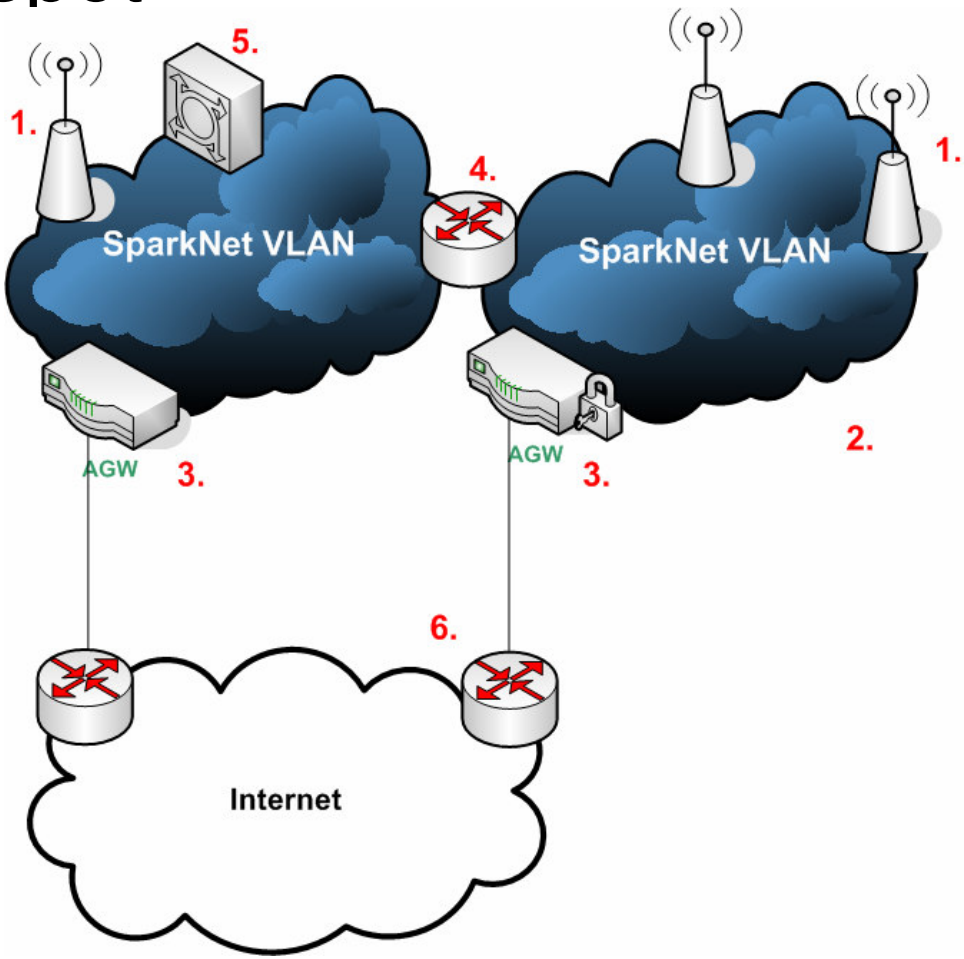
## - SparkNet city -

# Multi operator implementation



# 1, 2 and 3 …

- As with single hot spot implementation



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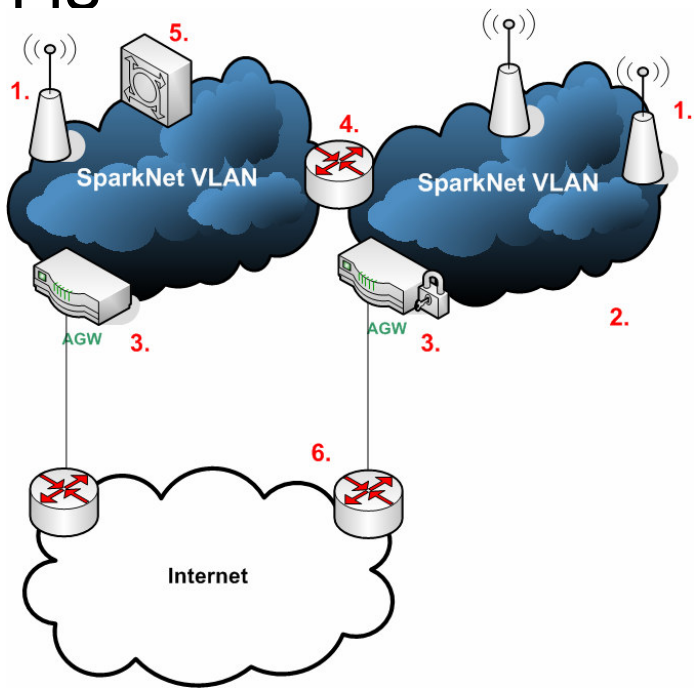
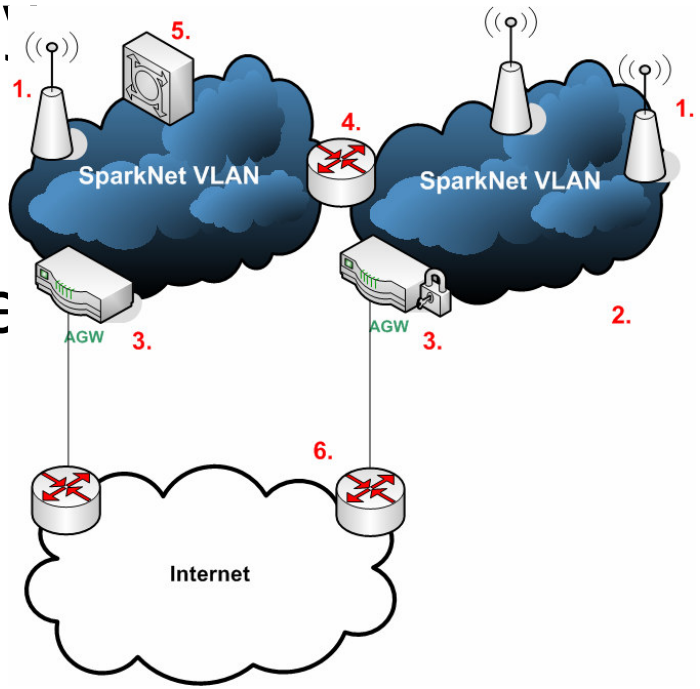
# 4. Dedicated routers

- Separated layer 2 segments are joined using dedicated routers
- Multi operator environment in Turku uses Linux boxes which is not actual requirement
- Requirements for routers:
  - Policy routing
  - DHCP relay service

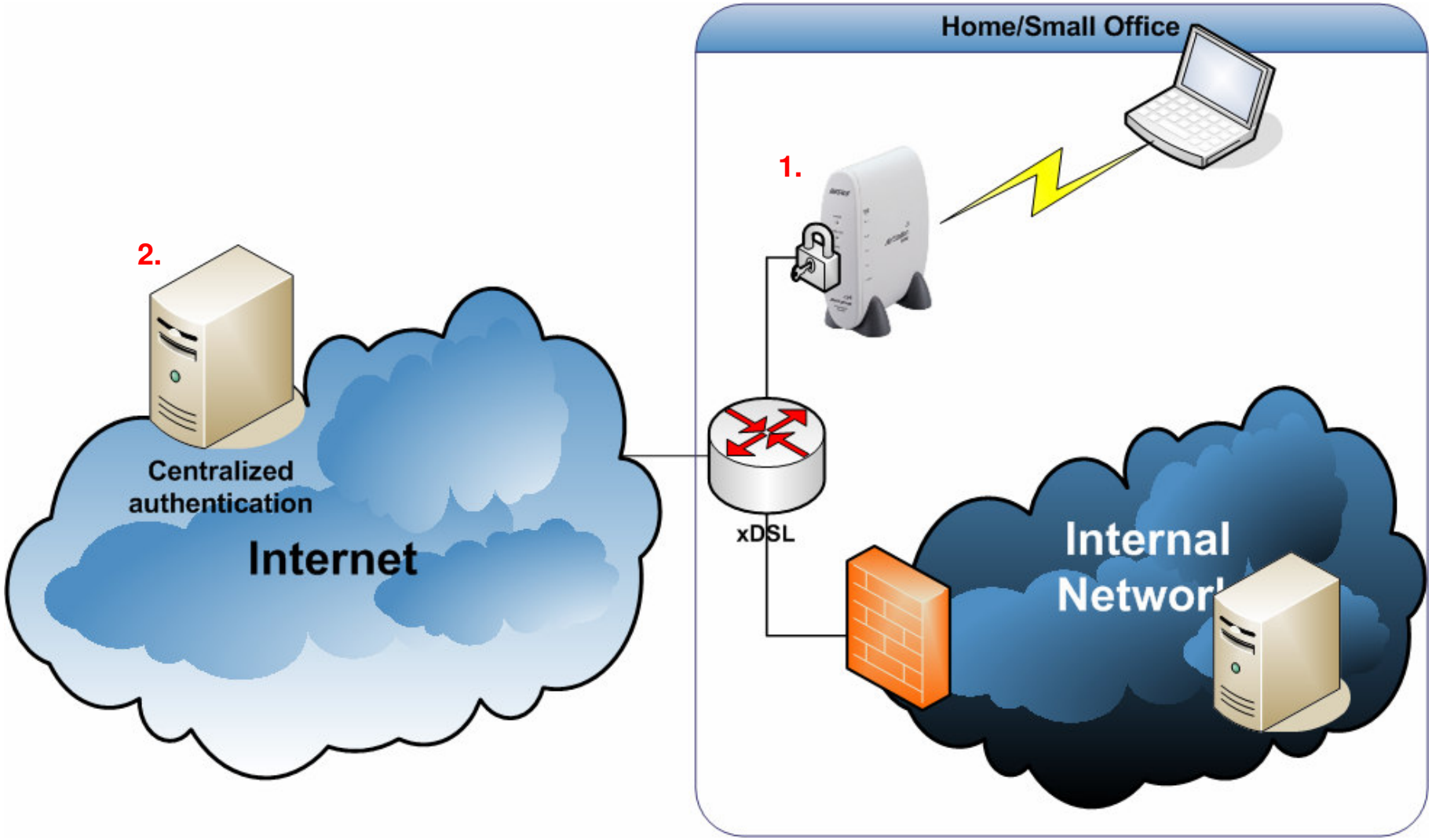


# 5. Operator selection services

- Network card MAC addresses are bound to operator
  - This binding is used to rela DHCP request to users operator
  - Selection is done using use web browser

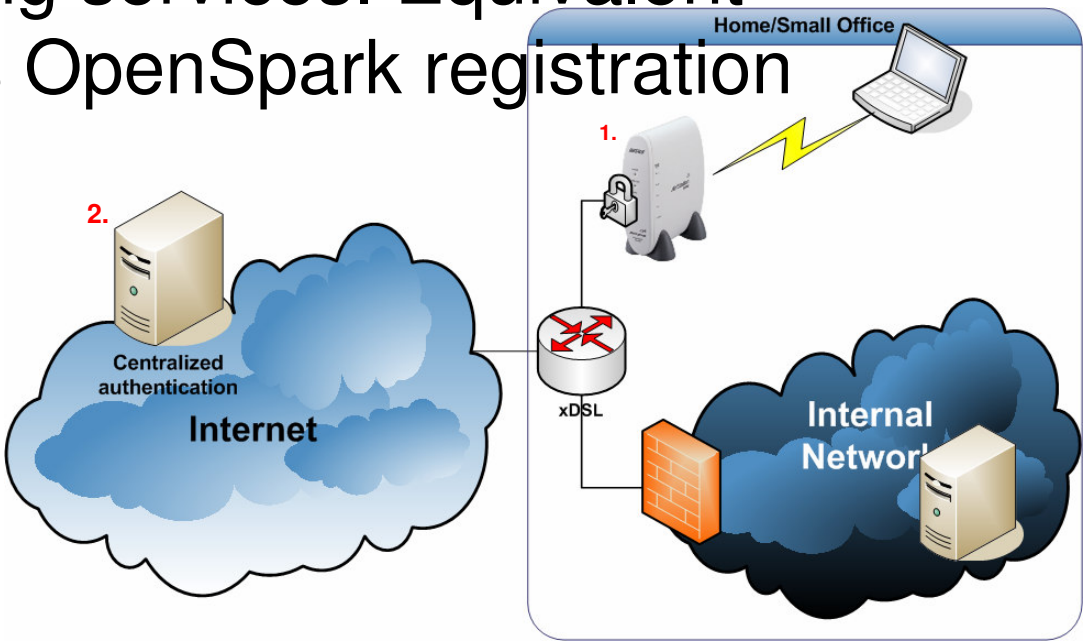


# SOHO and OpenSpark


Home/Small Office
1.
2.
Centralized
authentication
Internet
xDSL
Internal
Networ

# Embedded AGW

1. Authentication gateway functionality is embedded in WLAN base station
2. Centralized authentication system is used for providing roaming services. Equivalent system provides OpenSpark registration services.



# OpenWRT based firmware

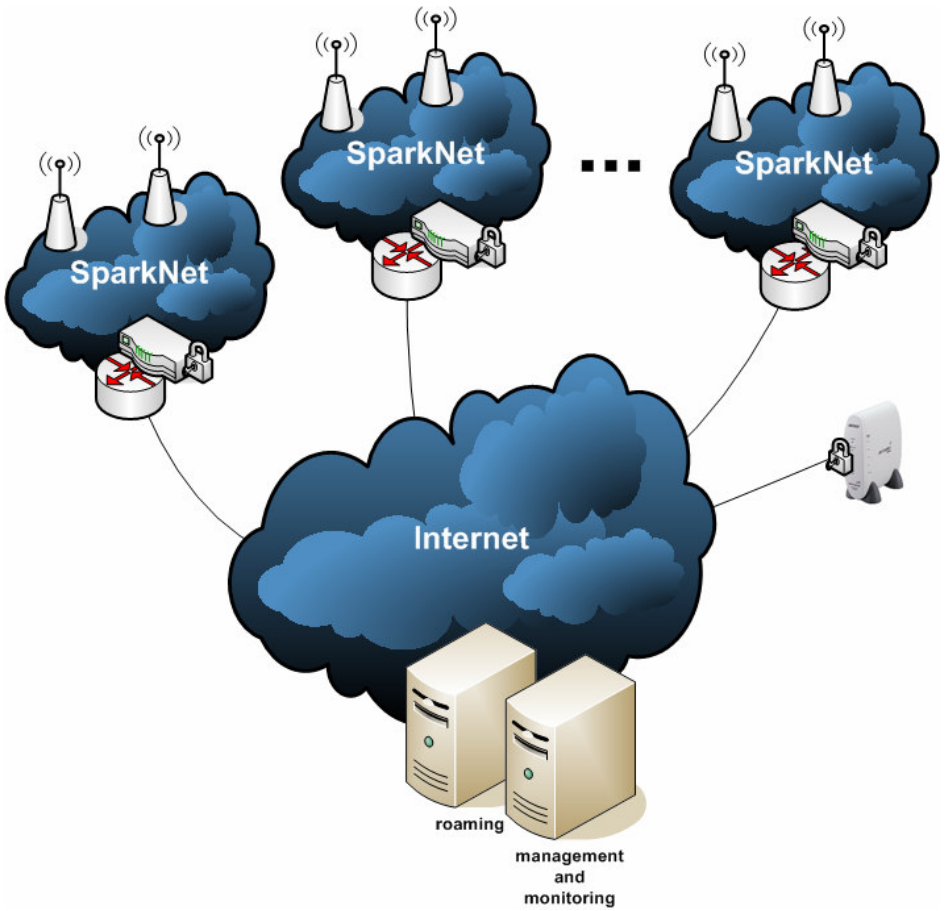
# OpenWRT based firmware

- for efficient and secure management
  - ssh
- Standard bridging functionality used in SparkNet environment
- Some functional improvements compared to standard access points
  - Application level filtering for rogue DHCP servers on wireless network where normal access list control is not adequate
    - Windows XP ICS

# centralized management and monitoring

## Roaming

- Centralized authentication services
  - RADIUS
- Enables roaming
- Accounting and auditing

## Management and monitoring

- Management connection to all SparkNet access points
- Monitoring
  - Real time monitoring for AGWs and individual access points
  - e-mail alarms
    - …which may in turn trigger for example SMS alert
    - E-mail addresses customizable per organization