Access Point Redundancy

by Lorenzo Busatti

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About me

Lorenzo Busatti

Grifonline S.r.l., Grosseto – ITALY

ISP for more 15 years, WISP for more 6 years

MikroTik Certified Trainer / Consultant

- For all courses: MTCNA, MTCWE, MTCRE, MTCTCE, MTCUME, MTCINE
- Specialization: Wireless, Routing

Presentation Objectives

- Raise awareness on the issue of redundancy of access points used in base stations
- Provide a starting point for a setup

Uptime!

- The Uptime of a wireless service should be 100%.
- The more is closer to 100% the more the users will be happy

The commons operations in a Wireless Network

Power Supply

- It’s easy to double the power supplies, UPS, large batteries, for having "power" up to a week.

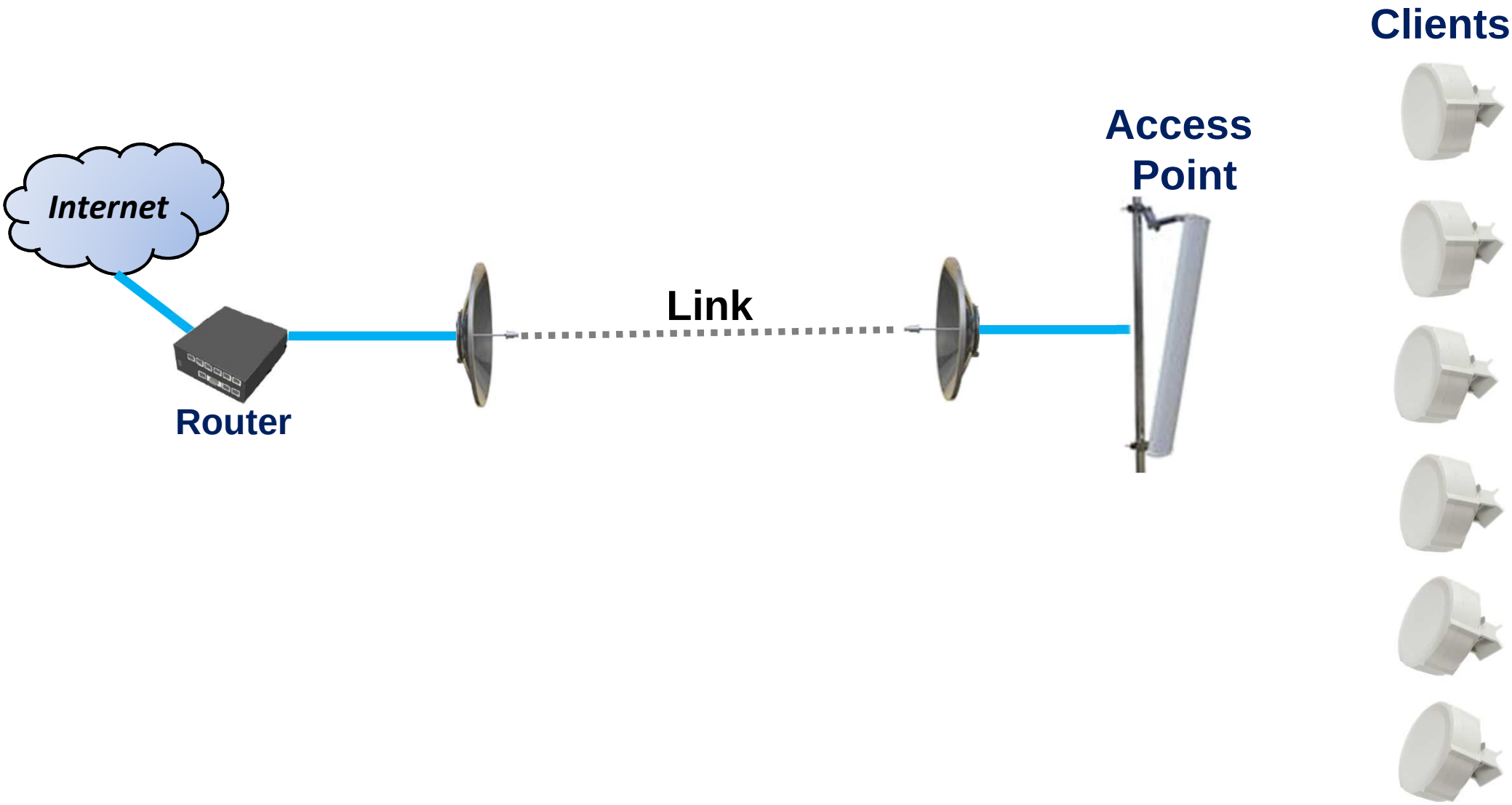
Links Redundancy

- Thanks to RSTP or OSPF or MPLS (for the masses thanks to MikroTik ☺) your network is not a “tree” anymore. All links are now “doubled” and the network is more reliable.

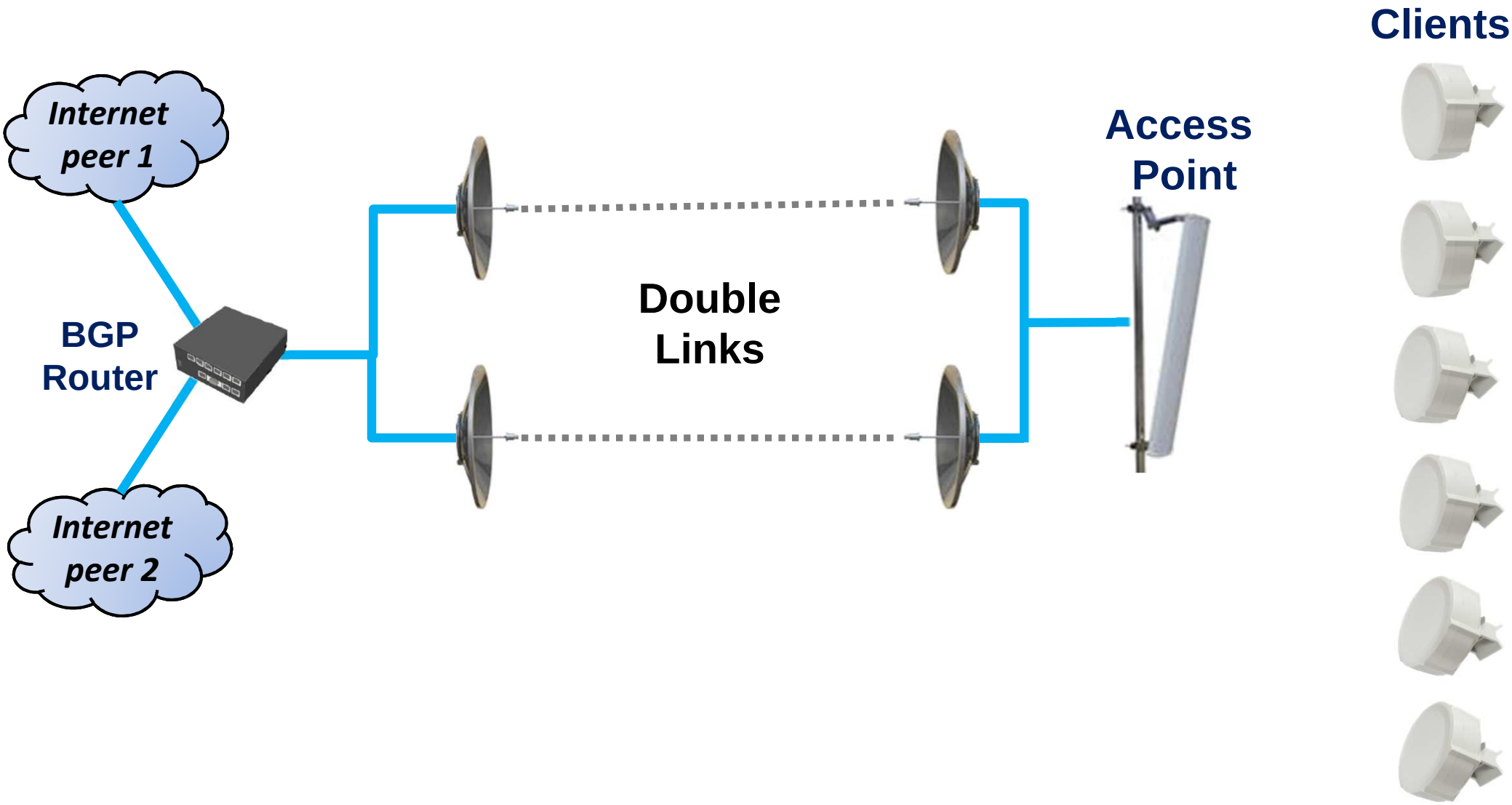
Internet Backbone

- With BGP it’s easy to setup more than one Internet upstream
- If one of the peers goes down there is another one(s).

Basic Network Example



Advanced Network Example



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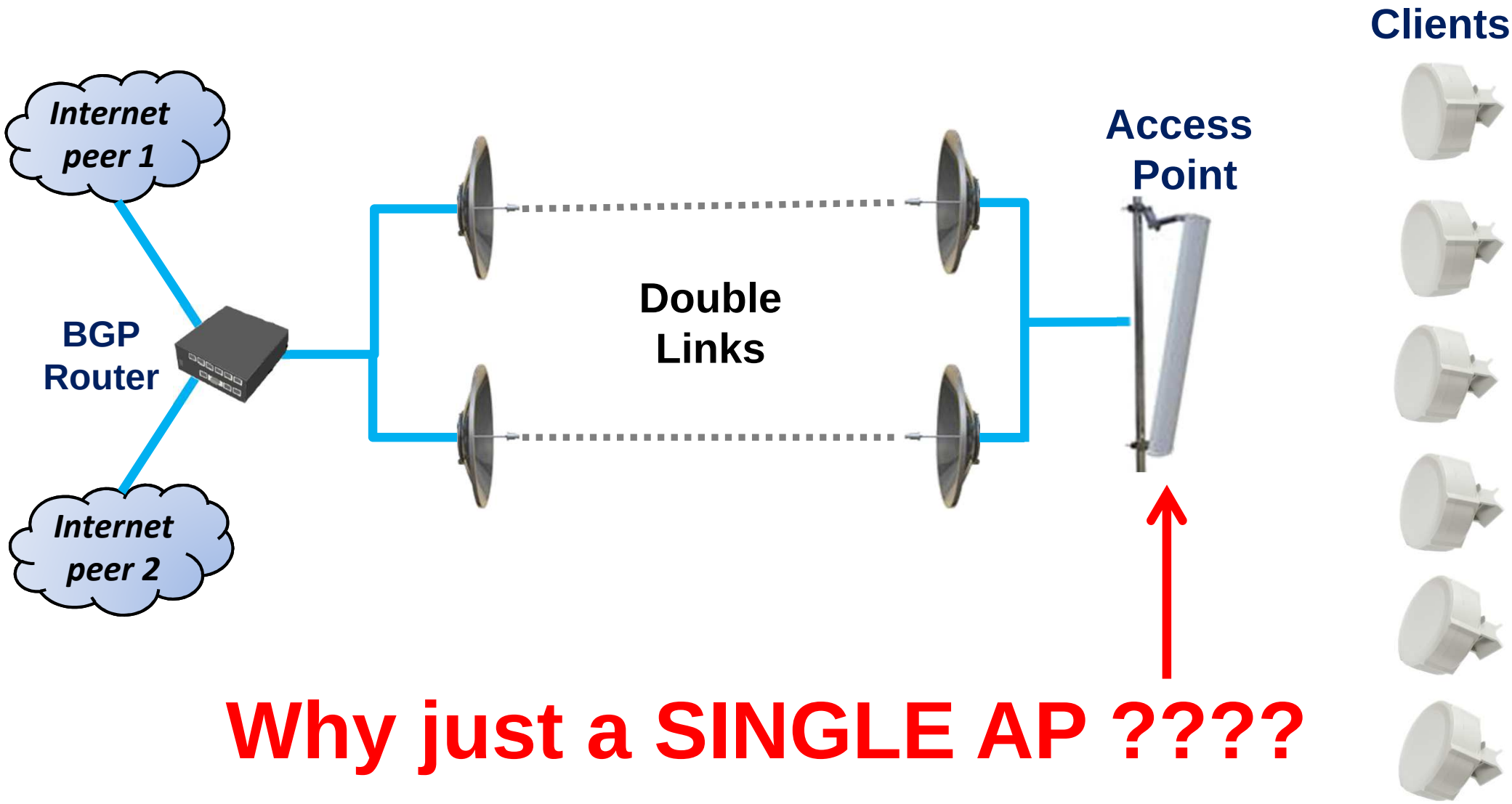
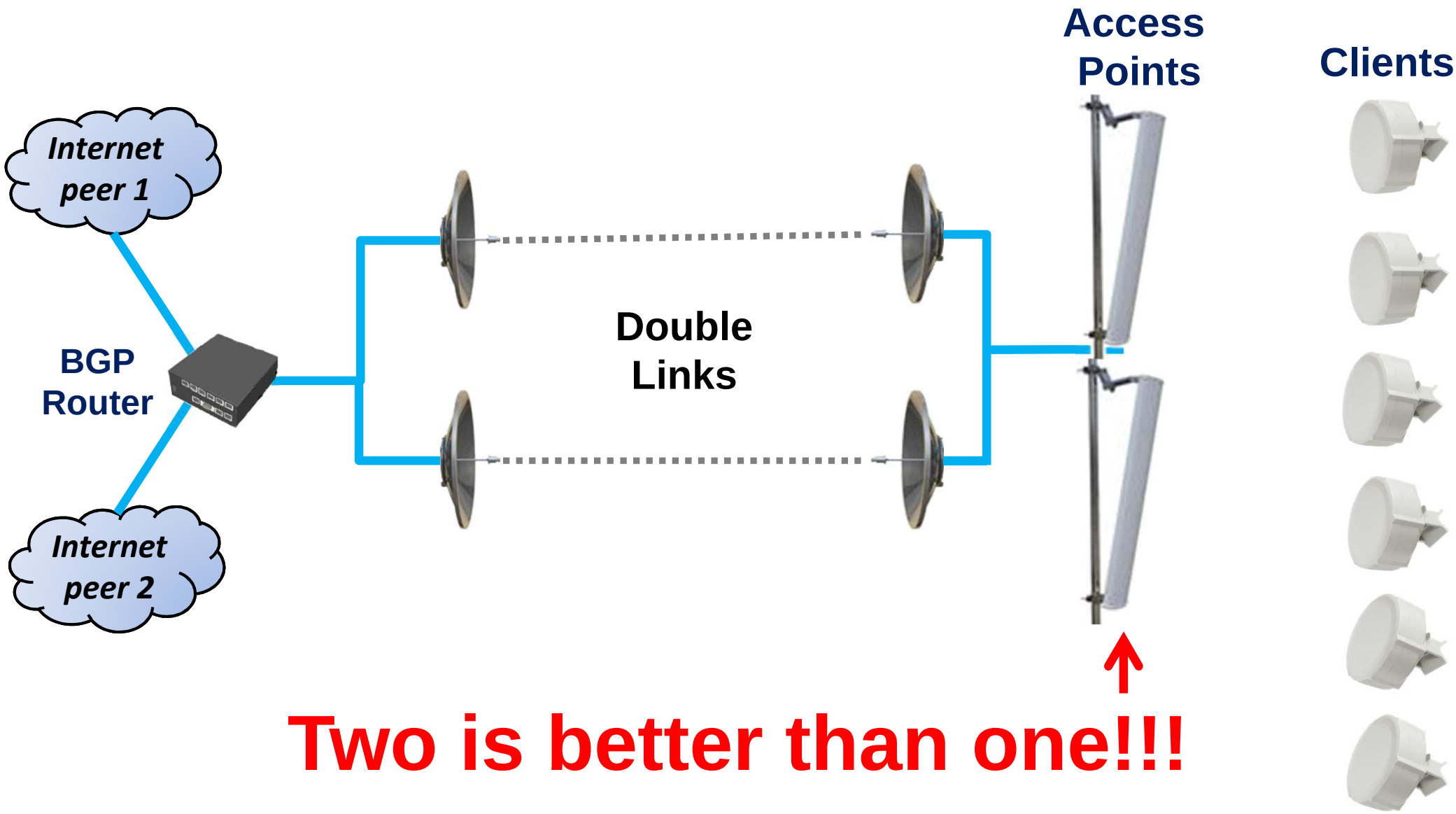


Advanced Network Example



How to manage double APs (Failover)

RouterOS HowTo

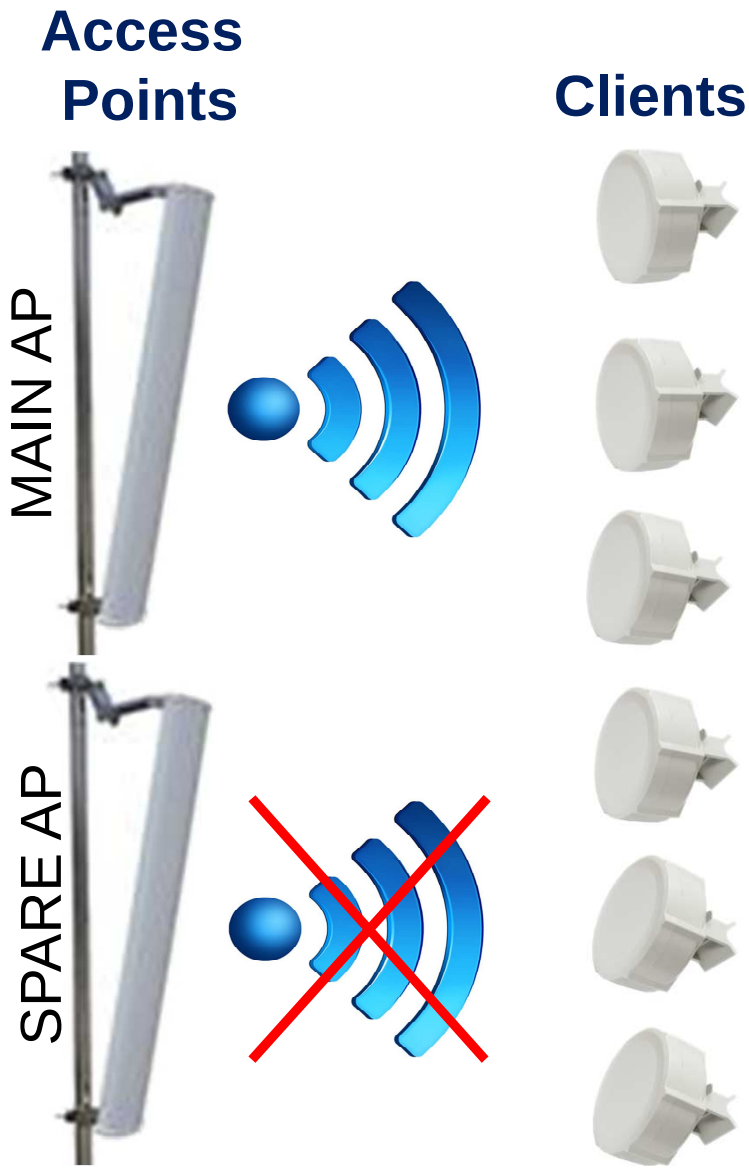
- Thanks to RouterOS's features it is possible to have “hot spare” APs in few easy steps.
- And thanks to his flexibility there are “lot” of ways to do this.

Planning the behavior

- How do you want your “spare” AP will react?
- Don’t exist exact rules, with RouterOS you are free to decide.
- I will show you just one example, a starting point.

Behavior Example

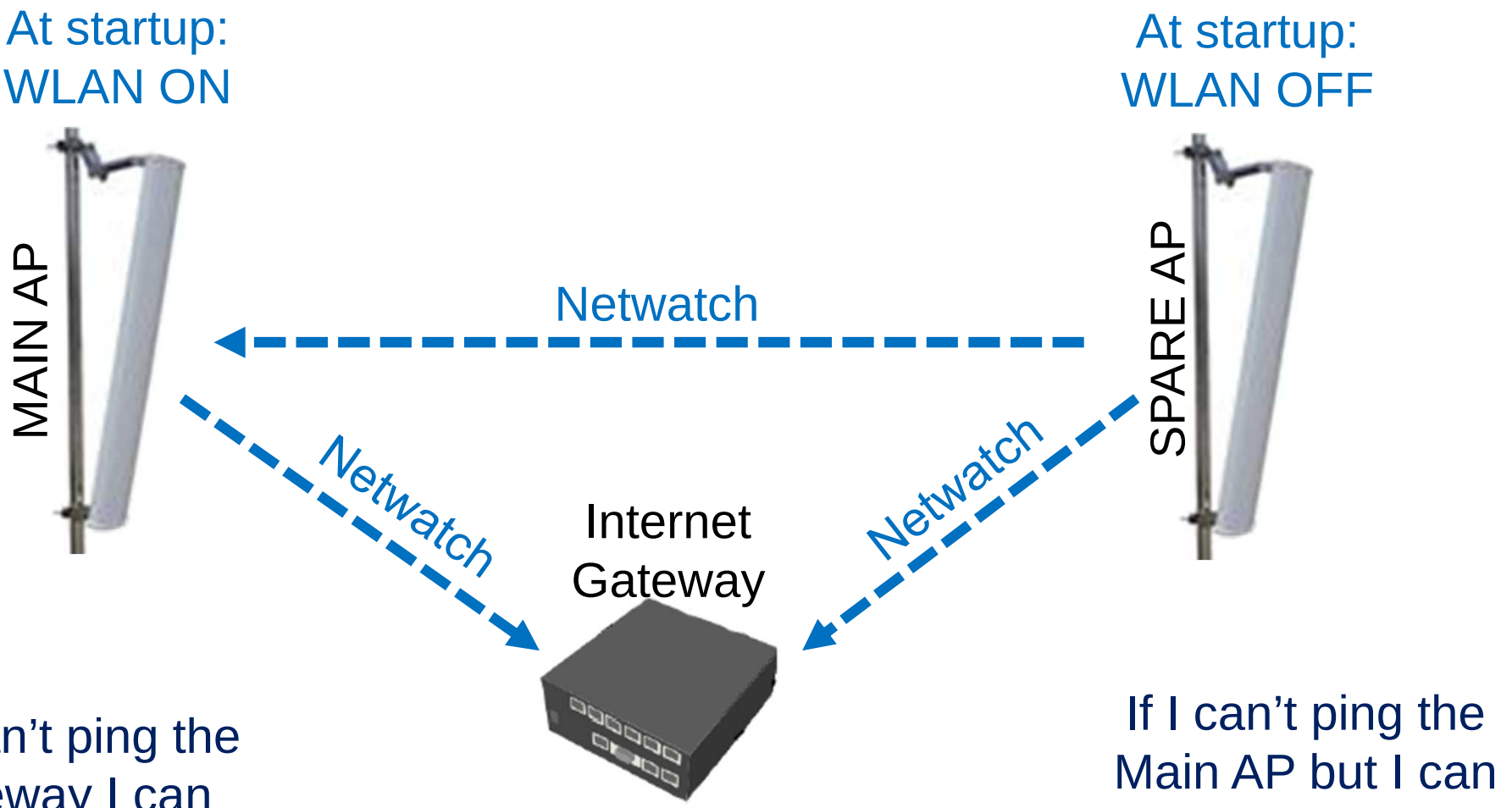
- We want the “spare” AP will have the wireless OFF when the main AP is working.
- We don’t want both APs with wireless cards ON at the same time.
- We want a “protection” from ethernet disconnections or failures, when the routers are powered ON



Behavior Example

- For this behavior example we need a “reference” (or fixed) point in the network.
- We can choose the internet gateway.
- If the internet gateway will fail nobody can use the network.
- We will use just some simple “Ping” and scripts for doing all the job.

Behavior Example



The RouterOS Setup (MAIN AP)

```
/tool netwatch
add comment="Ping the Gateway" \
host=192.168.1.1 interval=2s timeout=1s \
down-script="interface wireless disable 0" \
up-script="interface wireless enable 0"

/system script
add name=enablewlan source="/interface wireless enable wlan1"

/system scheduler
add name=enablewlan on-event=enablewlan start-time=startup
```

The RouterOS Setup (SPARE AP)

```
/tool netwatch
add comment="Ping the Gateway" host=192.168.1.1 interval=2s timeout=1s \
down-script="interface wireless disable 0"

add comment="Ping Master AP" host=192.168.1.2 interval=2s timeout=1s \
up-script="interface wireless disable 0"

/system script
add name=disablewlan source="/interface wireless disable wlan1"
add name=checkAP source="\
:if (([/tool netwatch get 1 status ] = "down") && ([/tool netwatch get 0 status ]
= "up")) do={ \
    :if ([/interface wireless get 0 disabled ] = true ) do={ \
          [/interface wireless enable 0] } \
}"

/system scheduler
add name=disablewlan start-time=startup on-event=disablewlan
add name=checkAP start-time=startup interval=3s on-event=checkAP
```

End of the Settings!

- Yes, we're done all the settings for this basic example (as a starting point!).

Live Demo

LAB

The “Main” AP
192.168.1.2/24

The “Gateway”
192.168.1.1/24

A Wireless “Client”
192.168.1.5/24

The “Spare” AP
192.168.1.3/24

My Laptop
192.168.1.4/24

In the Real Environments

Thankyou!

Q & A

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