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🛠Deploying MikroTik RB4011 for ISP Traffic Separation & Bandwidth Optimization

The **MikroTik RB4011iGS+RM** is a powerful router designed for ISPs who need to **deliver reliable internet to SMEs and apartment complexes** without investing in overly expensive enterprise gear. With its **10 Gigabit ports, 10G SFP+ uplink, and advanced RouterOS features**, it's ideal for **traffic separation, bandwidth control, and per-user limits**.

1️⃣ Why the RB4011 is Ideal for SME Packages & Apartments

- **High Capacity –** Handles hundreds of active connections simultaneously thanks to its **quad-core CPU and 1GB RAM**.
- **Cost-Effective Scaling –** Affordable compared to Cisco/Juniper, but still powerful enough for small ISP backbones.
- **Multi-Segment Support –** Easily separates **SME clients, home users, and shared WiFi users** into different VLANs or subnets.
- **Advanced QoS –** Ensures fair usage, preventing one heavy user from consuming all the bandwidth.

2 Traffic Separation with VLANs

For an ISP, traffic separation ensures **clean management and security.** The RB4011 makes this simple:

- **Create VLANs per client group**: e.g., *SMEs (VLAN10), Apartments (VLAN20), ISP internal (VLAN99).*
- **Map each VLAN to a physical or virtual interface** for easy monitoring.
- **Use firewall rules** to control what traffic is allowed between VLANs.

This way, your SME clients are isolated from residential users, and each segment can be monitored separately.

3 Optimized Bandwidth Allocation

To prevent network congestion:

- Configure **Queues (HTB Hierarchical Token Bucket)** in MikroTik to assign dedicated bandwidth to each VLAN.
- Example:
    - SMEs (VLAN10) → Guaranteed 200Mbps
    - Apartments (VLAN20) → Guaranteed 300Mbps shared
    - ISP Internal Ops (VLAN99) → 50Mbps reserved

This ensures SMEs always have stable performance, while residential users fairly share the pool.

4 Per-User Bandwidth Limits

Apartment users or SME staff can be limited individually using:

- **Simple Queues or PCQ (Per Connection Queueing)** to automatically assign per-user limits.

- Example:
    - Each apartment user → Max 10Mbps down / 3Mbps up
    - Each SME staff account → Max 20Mbps down / 5Mbps up

This prevents a single user from hogging all the bandwidth while ensuring **fair distribution across the network.**

5️⃣ Why Kenyan ISPs Prefer the RB4011

- **Handles PPPoE servers** for easy per-user authentication & billing.
- **Delivers enterprise-level bandwidth control at a fraction of the cost.**
- **Perfect for SME packages & apartment ISPs** looking to offer **affordable yet reliable internet** with **predictable service quality.**

📲 **Switch to the RB4011 today and transform your ISP network into a high-performance, fair-use system that scales!**

👉 Buy now at **InstantDevice.co.ke** – with **delivery across Kenya.**

🛠️ Step-by-Step Guide: Deploying MikroTik RB4011 for ISPs

1️⃣ Initial Setup

1. Reset the RB4011 to factory defaults.
2. Connect via **WinBox (MAC address login)** or WebFig.

Upgrade RouterOS and firmware:

Code:

```
/system package update check-for-updates
/system package update download-install
```

```
/system routerboard upgrade
```

2 VLAN Configuration (Traffic Separation)

How to separate **SME clients, Apartments, and ISP Internal**.

Code:
```
/interface vlan
add interface=ether1 name=VLAN10-SME vlan-id=10
add interface=ether2 name=VLAN20-APARTMENT vlan-id=20
add interface=ether3 name=VLAN99-ISP vlan-id=99
```

Assign IPs:

Code:
```
/ip address
add address=192.168.10.1/24 interface=VLAN10-SME
add address=192.168.20.1/24 interface=VLAN20-APARTMENT
add address=192.168.99.1/24 interface=VLAN99-ISP
```

This ensures **each client group is isolated.**

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3 Bandwidth Allocation with Queues

Allocating bandwidth per VLAN (SMEs guaranteed 200Mbps, Apartments 300Mbps, ISP Internal 50Mbps).

Code:
```
/queue simple
add name="SME-Bandwidth" target=192.168.10.0/24 max-limit=200M/200M
add name="Apartment-Bandwidth" target=192.168.20.0/24
max-limit=300M/300M
add name="ISP-Internal" target=192.168.99.0/24 max-limit=50M/50M
```

This ensures **fair allocation between segments.**

4️⃣ Per-User Bandwidth Limits (Apartments & SMEs)

Use **PCQ (Per Connection Queueing)** so every user gets fair speeds.

Create PCQ queue types:

Code:

```
/queue type
add kind=pcq name=pcq-download pcq-classifier=dst-address pcq-rate=10M
add kind=pcq name=pcq-upload pcq-classifier=src-address pcq-rate=3M
```

Apply per-user queues:

Code:

```
/queue simple
add name="Apartment-Users" target=192.168.20.0/24 \
    queue=pcq-upload/pcq-download max-limit=300M/300M

add name="SME-Users" target=192.168.10.0/24 \
    queue=pcq-upload/pcq-download max-limit=200M/200M
```

➡️ Each apartment user automatically gets **10Mbps/3Mbps**, while SMEs enjoy **higher priority allocation.**

5️⃣ Optional – PPPoE for Authentication & Billing

Many ISPs in Kenya use PPPoE for per-user tracking.

Here's the Code:

```
/interface pppoe-server server
add service-name=ISP-PPPoE interface=VLAN20-APARTMENT disabled=no

/ppp profile
add name=Apartment-Profile local-address=192.168.20.1
remote-address=POOL20 rate-limit=10M/3M
```

```
/ppp secret
add name=user1 password=1234 profile=Apartment-Profile
```

This gives you **per-user control with authentication**.

6 Firewall & Security

Block traffic between VLANs (except ISP Internal).

Code:

```
/ip firewall filter
add chain=forward action=drop src-address=192.168.20.0/24
dst-address=192.168.10.0/24
add chain=forward action=drop src-address=192.168.10.0/24
dst-address=192.168.20.0/24
```

7 Why This Setup is Perfect for Kenyan ISPs

✅ **Scalable** – supports SMEs and hundreds of apartment users.
✅ **Fair usage** – no single user can hog bandwidth.
✅ **Cost-efficient** – enterprise-grade control at a fraction of Cisco/Juniper pricing.
✅ **Ideal for SME internet packages & apartment ISPs** – predictable, reliable performance.

Ready to upgrade your ISP network?
👉 Buy the **MikroTik RB4011iGS+RM** today at **InstantDevice.co.ke** for the best price in Kenya.
🚚 Fast delivery to Nairobi, Mombasa, Kisumu & across Kenya.
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