



Mikrotik USER MANAGER

Used in praxis

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About a problem

- As a Mikrotik Dealer we set up our goals
 - Help our customers – providers to:
 - Have their networks up to date
 - Use all advantage of Mikrotik
 - Have a serious SUPPORT in time of need
 - Make a god SALES
- Actual Network growing rate for a average provider is about a 100% per year in count of customers

- There are many problem's with:
 - Network design
 - Computing power
 - Adding new segments
 - In-coming / Out-coming throughput
 - Customer Security
 - Network Security

- And this is the Time for us to HELP

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- We are helping to find solutions for all Internet / Network providers

- Starting with a provider with a couple of Access Point's and ending

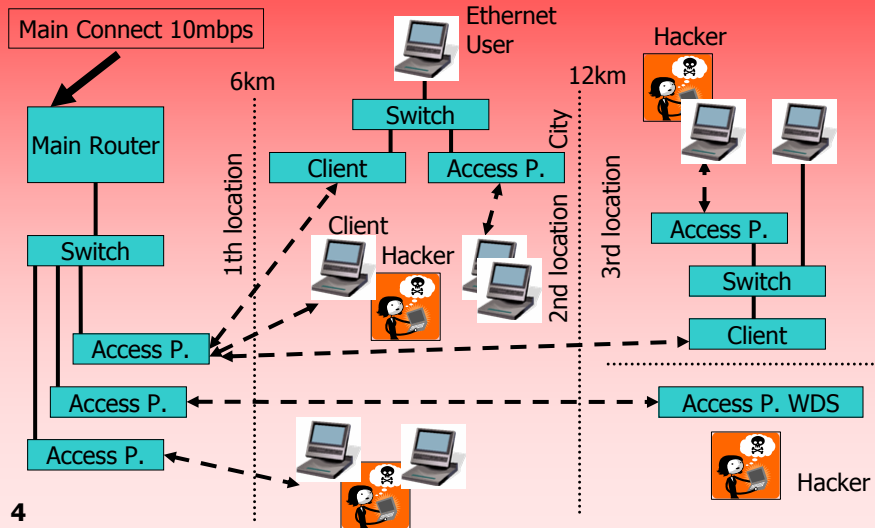
- In next frames we will show how to analyze and implement higher security in a low cost (provider) environment

- With a great success!

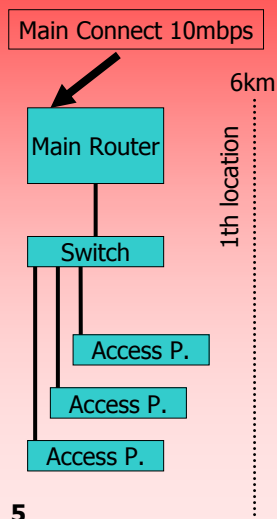
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Topology before - 80 users

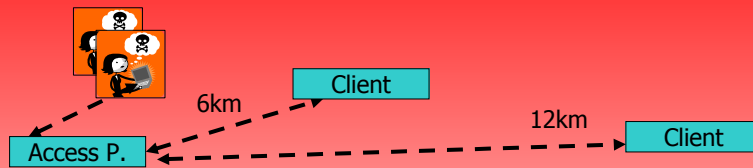


Analyzing problem



Cisco main router with bandwidth management set up equally to each customer to 256kbps

Causes that, Main connect is not used in 70% of time and in busy hour is overloaded
 Bridged network is overloaded because of internal traffic



- Too long 2.4GHz connections stopped work when interference reached high point
- Combination of Long Uplink's and Client stations is causing "lagging" – high response time

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- WDS network causes very high bandwidth demand and high response time



- Security breach on all levels, MAC logging,
- WEP sniffing, IP packet sniffing etc..

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HARDWARE - SOLUTION

- Rebuild network hardware topology
- Change Main router to Mikrotik router
- Change Main site to center of network
- Change to Routed network
- Change wireless security to WPA2
- Upgrade 2.4GHz technology to 5GHz

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HARDWARE - SOLUTION

- Replace switches with RB44 cards
- Redundancy – Ring connection
- Backup Line –automatic selection
- Main router Backup
- HTTP and POP3 Proxy
- Fiber Optic Backbone
- Managed Switches

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SOFTWARE - SOLUTION

- **AAA** is a protocol for applications such as network access or IP mobility. It is intended to work in both local and roaming situations so we used

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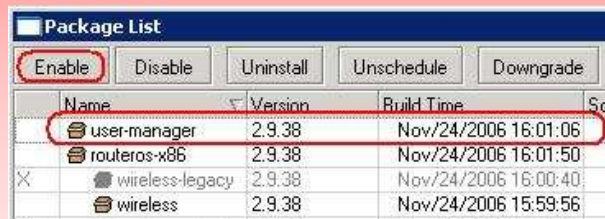
- **Authentication** to devices attached to a LAN port,
- If accepted, the server will then **Authorize** access and give out IP address
- **Accounting** data can be used in any application

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USER MANAGER

- Mikrotik Main Router with User Manager package is a separate package and they MUST have same version.



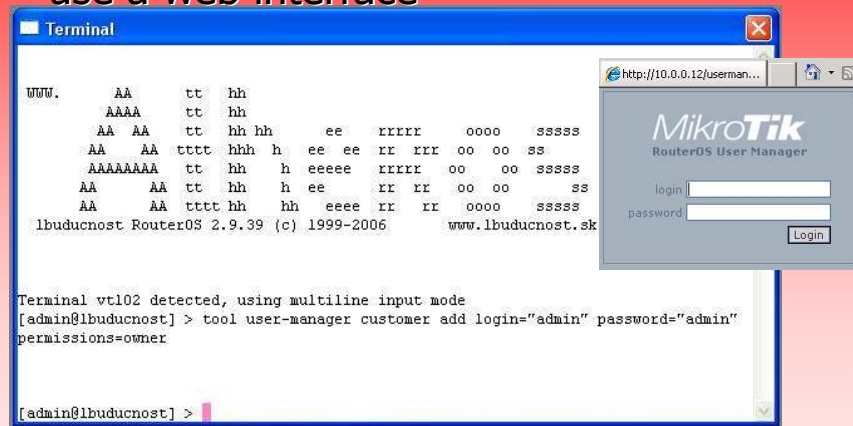
The screenshot shows a window titled "Package List" with several buttons at the top: "Enable", "Disable", "Uninstall", "Unschedule", and "Downgrade". Below the buttons is a table with columns for "Name", "Version", "Build Time", and "Src". The "user-manager" package is highlighted with a red box, showing a version of 2.9.38 and a build time of Nov/24/2006 16:01:06. Other packages listed include "routeros-x86", "wireless-legacy", and "wireless", all with version 2.9.38.

| Name | Version | Build Time | Src |
|-----------------|---------|----------------------|-----|
| user-manager | 2.9.38 | Nov/24/2006 16:01:06 | |
| routeros-x86 | 2.9.38 | Nov/24/2006 16:01:50 | |
| wireless-legacy | 2.9.38 | Nov/24/2006 16:00:40 | |
| wireless | 2.9.38 | Nov/24/2006 15:59:56 | |

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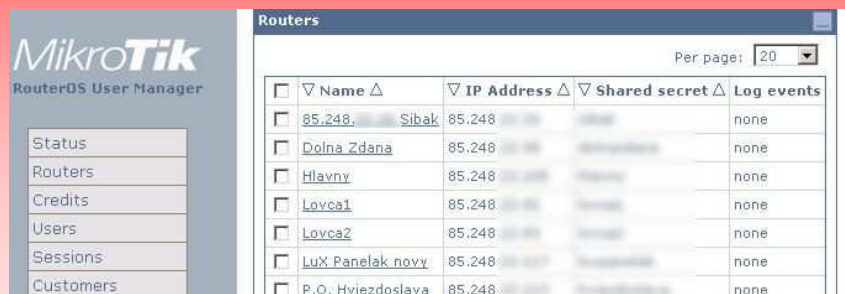
- Standard create first SUPERVISOR of your AAA server, and then you will be able to use a web interface



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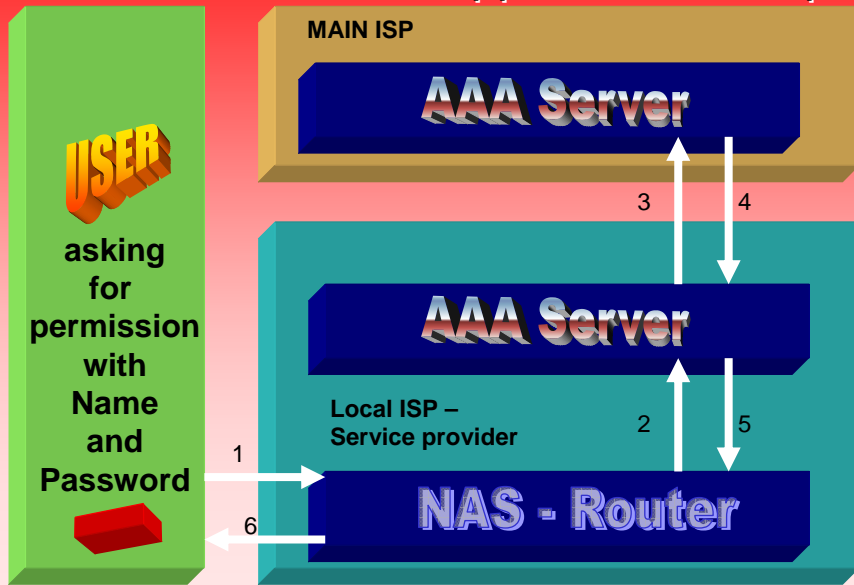
- User Manager or any AAA Server need to create list of authorized routers. Any other request WILL be ignored.



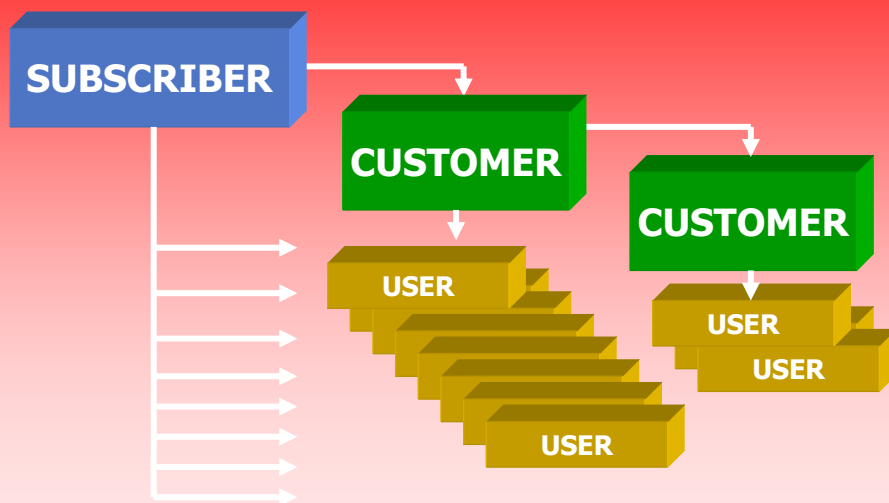
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AAA Authorization Application Example



- SUPERVISOR - MANAGER - USER



Create USER

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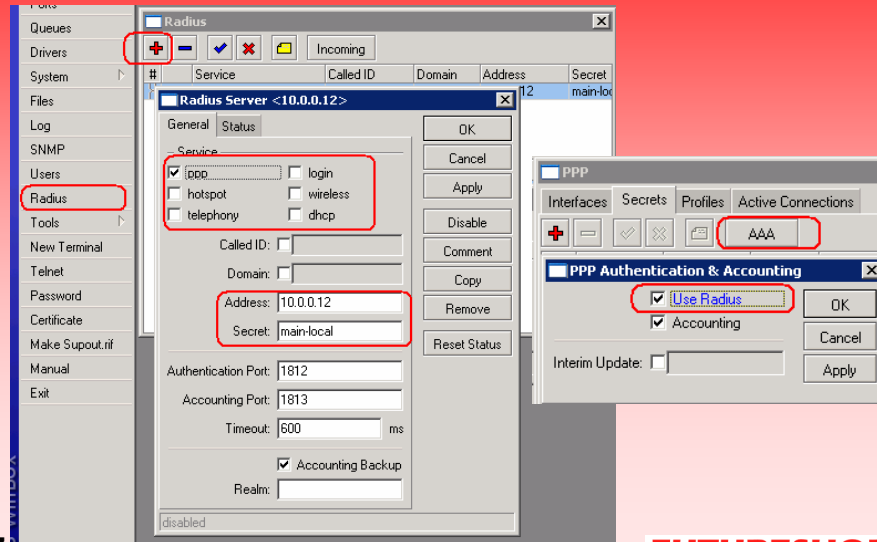
- User Manager standard configured.

USERS

CUSTOMER

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- Setup connection to User Manager through Radius and enable AAA radius support.



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MIKROTIK ROUTER SETUP

- Security on wireless WPA2 with AES
- Active scripting for Firewall building to prevent Hacker attacks, do not close ports 1700, 1813 and 1812 for AAA
- For bandwidth combination of HTB – tree queue and PCQ scheduler for P2P users.

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- For connection security PPPoE MSCHAP2

The screenshot displays the RouterOS WinBox interface. On the left sidebar, the 'PPP' menu is highlighted. The main window shows the 'PPP' configuration page with the 'Active Connections' tab selected. Below this, the 'PPPoE Server List' table is visible, listing four services (service1 to service4) on interfaces ether1 to ether4. A 'New PPPoE Service' dialog box is open, showing the configuration for 'service5' on the 'wlan1' interface. The 'Authentication' section is highlighted with a red box, showing 'mschap1' and 'mschap2' selected.

| Service | Interface | Max MTU | Max MRU |
|----------|-----------|---------|---------|
| service1 | ether1 | 1488 | 1488 |
| service2 | ether2 | 1488 | 1488 |
| service3 | ether3 | 1488 | 1488 |
| service4 | ether4 | 1488 | 1488 |

Implementing

- Project of Routed network's Topology
- To replace, or change technology like this takes approximately about 3 months
- Running two installations/configurations at the same time old one and new one

- Migrating customers change to PPPoE needs a personal visit of a technician which can be used to a regular maintenance
- Equipment exchange on MAIN Site can take only 5 minutes to Router adjustment
- Tools for troubleshooting LOG separate for UM and Mikrotik OS

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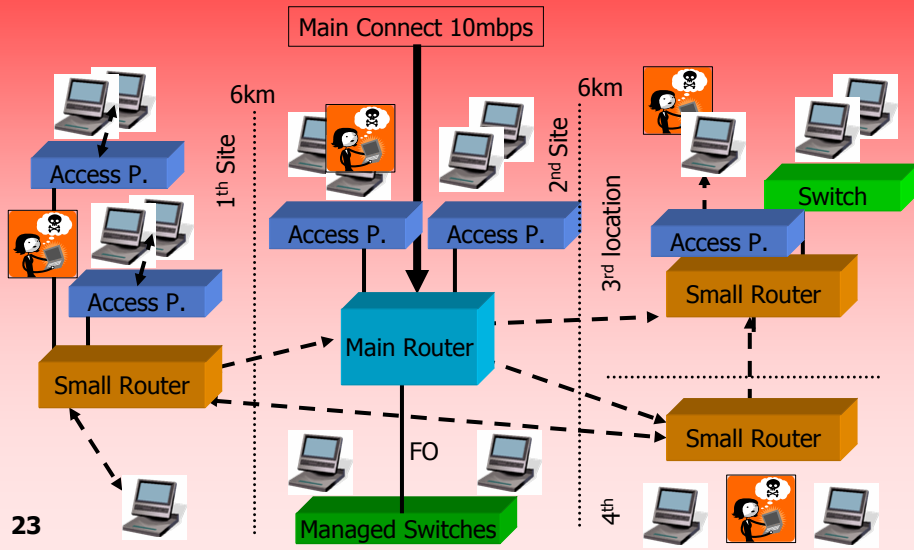
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- Mikrotik UserManager Log can be used for EUROPEAN Law – to store user electronic communication. In some countries can be different, check with your **local legal authority**.
- Use backup tool to prevent possible data lost, in case of problem.
 - /system backup save name=xxxxxx
- export USER Manager separately
 - /tools user-manager export file=xxxxx

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Topology after - 390 users



Customer's benefit



- More secured E-MAIL
- Less SPAM



- Better network performance
- Higher QOS

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Customer's benefit



- User Mobility - AAA
- Anywhere in network



- Added new features
- IP Telephone priority HIGH

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Customer's benefit



- Better Customer Support
- Lower Service respond time

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Conclusion and QUESTIONS

- Goal reached – helped provider to:
 - Rise site efficiency
 - Have happy customers
 - Make sales
- QUESTIONS ?



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Thank you !



**Any other comment?
Write to Us.**

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