

Some Advanced Mikrotik Ideas

Butch Evans Consulting

Overview

- Full Duplex wireless link with redundancy
- Making money with VPN
- Hotspot solutions
- Mobile networking ideas

Full Duplex Wireless Link

- FDX Operation can be done with NStreme Dual

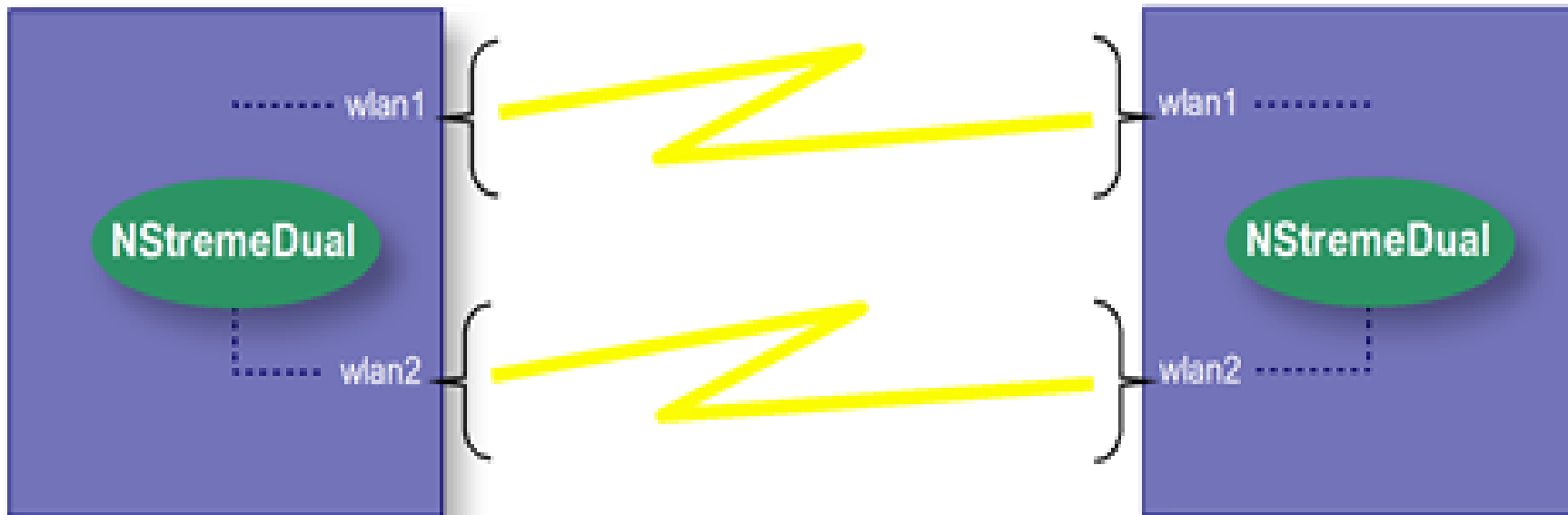
- BENEFITS

- True FDX link
- Packet aggregation
- Frequency Independant/Length Independant
- Uncomplicated to bridge (ether to ether)
- Well documented

- DRAWBACKS

- If one radio is down, the whole link is down
- Requires Atheros Chipset to work (not really a “bad” thing)
- CPU “cost” can be high

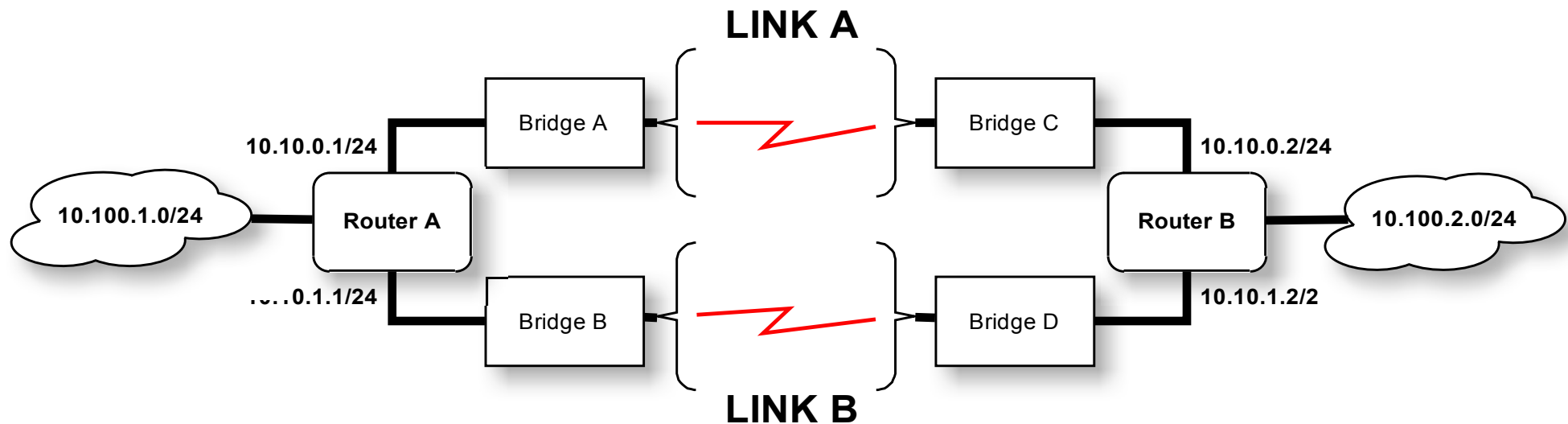
Network Diagram – NStreme Dual



Full Duplex Wireless Link

- Using OSPF to add redundancy
 - BENEFITS
 - Low CPU requirements
 - Can use prism card if desired, or even a separate “box” for the link – Redline, Orthagon, Alvarion, etc.
 - Frequency independant
 - Drawbacks
 - A bit more complicated than NStreme Dual
 - Bridging (ether to ether) is pretty complicated, though possible
 - Not much else

Network Diagram – OSPF FDX



- By adding “cost” to one link (on each end), we can provide a “simulated” FDX operation and have the benefit of redundancy to boot

Making Money with VPN

- Easy “upsell” for business customers
 - Allow home office (tax deductible)
- Drives access sales
 - Business owners have a home
 - Home owners have a business
- NO COST TO YOU
 - Built into the Mikrotik and easy to configure
 - I charge a “maintenance fee”

More Money Making with VPN

- Security sensitive businesses will pay a bit more for the added security for their connection
 - Better than “WEP” (Wasted Effort Protocol)
- Gets your “foot in the door” for other services
 - YOU are the expert
 - Service revenue or continuing services (or both)
- Often, VPN does not “sell itself”
 - This will take some focus on your part
- Raise the ARPU significantly
 - \$50 business account can easily become \$80-100/month (or MORE)

Hotspot Solutions

- Definition of a hotspot
 - Captive portal system where a forced browser redirect happens
 - Authentication mechanism that allows only authorized access to network resources
- Mikrotik's hotspot is very stable and easy to use
 - Built in captive portal with customizable splash screens
 - Multiple login methods with RADIUS support or local database

Mikrotik Hotspot Setup

- Run the “setup wizard”
- Configure your user database (local or RADIUS)
- Customize the login page
- Collect the \$\$

If it were only that easy!

Some things to think about

- Which merchant service is supported
 - Paypal, Authorize.net, others...
- Accounting data
 - How easy is it to tell if a particular hotspot is making money?
 - Usage patterns – which SSIDs work best
- Flexibility in configuring the signup pages
- It's all about LOCATION, LOCATION, LOCATION

Some Hotspot Backend Solutions

- Mikrotik's User Manager
 - Requires Level 6 license (for more than 10 connections)
 - Authorize.net and Paypal payment gateways supported (does not use the IPN for Paypal)
- My Own Hosted Solution
 - Support for Authorize.net, PayFlow Pro and Paradata
 - Flat Fee or Revenue Share model
 - Completely automated signup for FREE or FEE based access
 - <http://www.wisphotspot.com/>

More Backend Solutions

- WISP-Router's Gatespot
 - Linux based (PHP/MySQL) system
 - Installed on your own server
 - Support for Authorize.net, Paradata and Payflow Pro
 - Active development
- ProvisionISP
 - Hosted solution
 - Complete ISP provisioning system or just hotspot
 - Very low initial cost
 - Authorize.net support
 - Active development

Mobile Networking Intro

- Who can use it
 - Police/Fire/EMS
 - Municipalities
 - Other businesses with “roaming” users
- How you benefit
 - Access sales
 - Municipalities help build an infrastructure
 - Installation and equipment sales

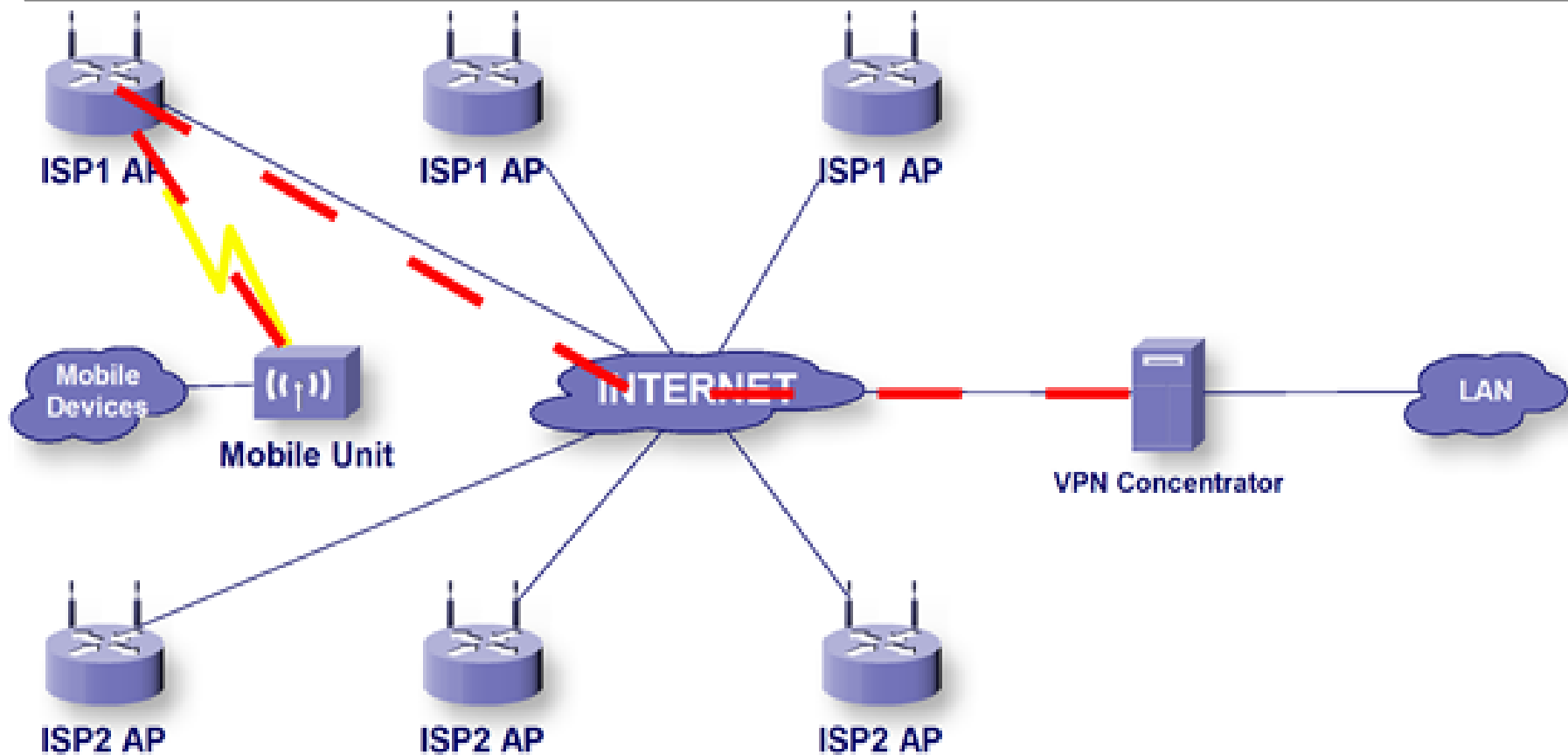
Mobile Networking with Mikrotik

- How it works
 - Any access point we can connect to with MT
 - Can work with multiple ISPs
 - Mikrotik RB in the car is the “brains” of the system
 - Multiple bands (900MHz/2.4GHz/4.9GHz/5.8GHz)
- Services
 - Streaming video
 - VoIP
 - Internet access right from the car
 - PDA access

Mobile Networking – Basics

- Overview of the configuration
 - Add the “legal” SSIDs in the “connect-list”
 - Create the script that will “test” connectivity
 - If we are below a specific signal level we will search for a better connection
 - Include network configuration for EACH unique SSID
 - DHCP, Static IP, PPPoE
 - Insure the “tunnel” (PPTP, IPSEC or L2TP) is operational

Network Diagram – Mobile Mikrotik



Mobile Networking in Use

- Currently 3 active deployments
 - Fire department
 - Communications infrastructure
 - Police Dept
 - Using PDA to take reports
 - Video stored on a car mounted “server”
 - Video can be viewed by dispatch at any time
 - GPS location (IP backend)
 - VoIP communications – saving HUNDREDS of \$\$ per month on Cell Phones

Mobile Networking in Use (cont)

- City Officials
 - VoIP communications infrastructure
 - Water department and Electric Utility
 - Street Department
- EMS
 - Communicate vital information to the ER enroute
 - Internet Access for information

Summary

- Mikrotik as part of your infrastructure allows you to add functionality to your network at low cost
- Mikrotik at the CPE adds MANY opportunities for upselling services
- Using Mikrotik as a “basic” AP or CPE is possible (and a good idea), but the power of Mikrotik is in its other functionality

About Me

Butch Evans

Mikrotik Certified Trainer/Consultant

butche@butchevans.com

573-276-2879

<http://www.butchevans.com/>

<http://www.wisphotspot.com/>