

RouterOS, in a Distributed Internet Services Delivery Environment

**Mike Everest,
DuxTel Pty Ltd**



about Mike Everest



Technology Field ~30 yr, IT ~25 yr, ISP ~20 yr

Started first dial-up ISP in Geelong, Australia, 1994

Established DuxTel 2003, ISP Software & Consulting

about DuxTel

- Draw on software experience from Dial-up-ISP
- Delivering a combined platform,
RADIUS, email, web, ftp, billing, payments
- Emerging Wireless ISP (WISP) industry
- Many new ISPs, mostly wireless



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about DuxTel

- Initially supported multiple platforms, proprietary and open:
Cisco, Skypilot, Netgear, Dlink, Linux, OpenWRT
- No hardware recommendations – vendor agnostic
- Different platforms, different strengths, different weaknesses
- Difficult to support multiple systems



enter...

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why we love MikroTik



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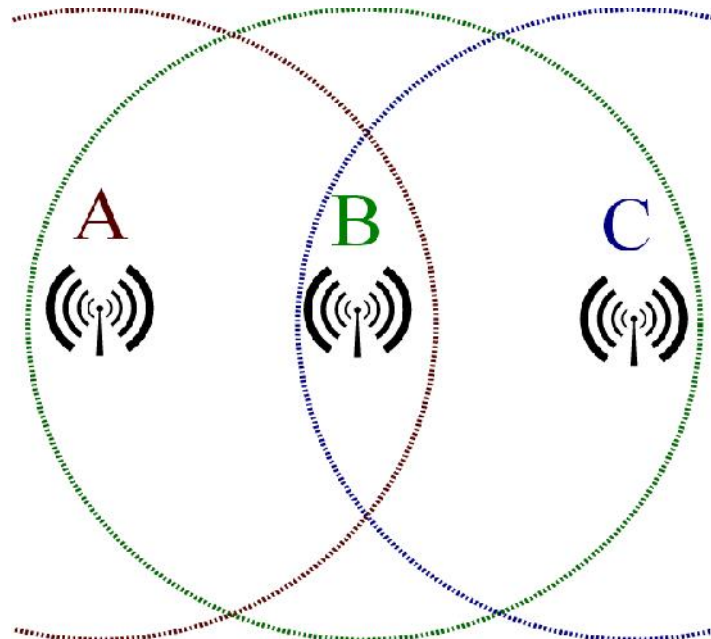
1. Advanced Wireless

- Proprietary TDMA protocol to combat hidden node (nstreme/nv2)
- Advanced path optimized WDS mesh (HWMP+)
- Proprietary station bridging mechanism
- Virtual SSID feature



1. Advanced Wireless

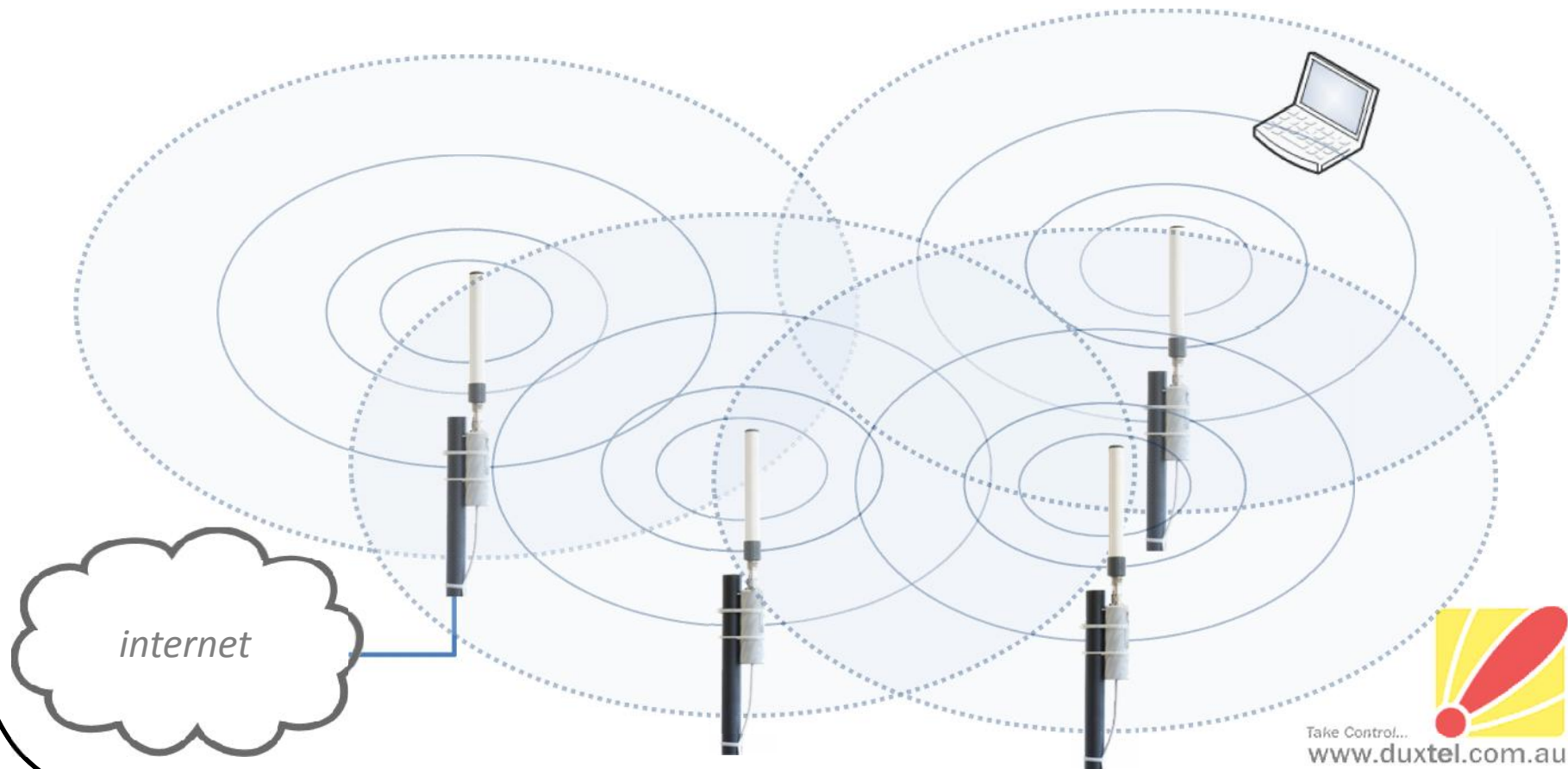
- No more hidden node!



source http://en.wikipedia.org/wiki/File:Wifi_hidden_station_problem.svg

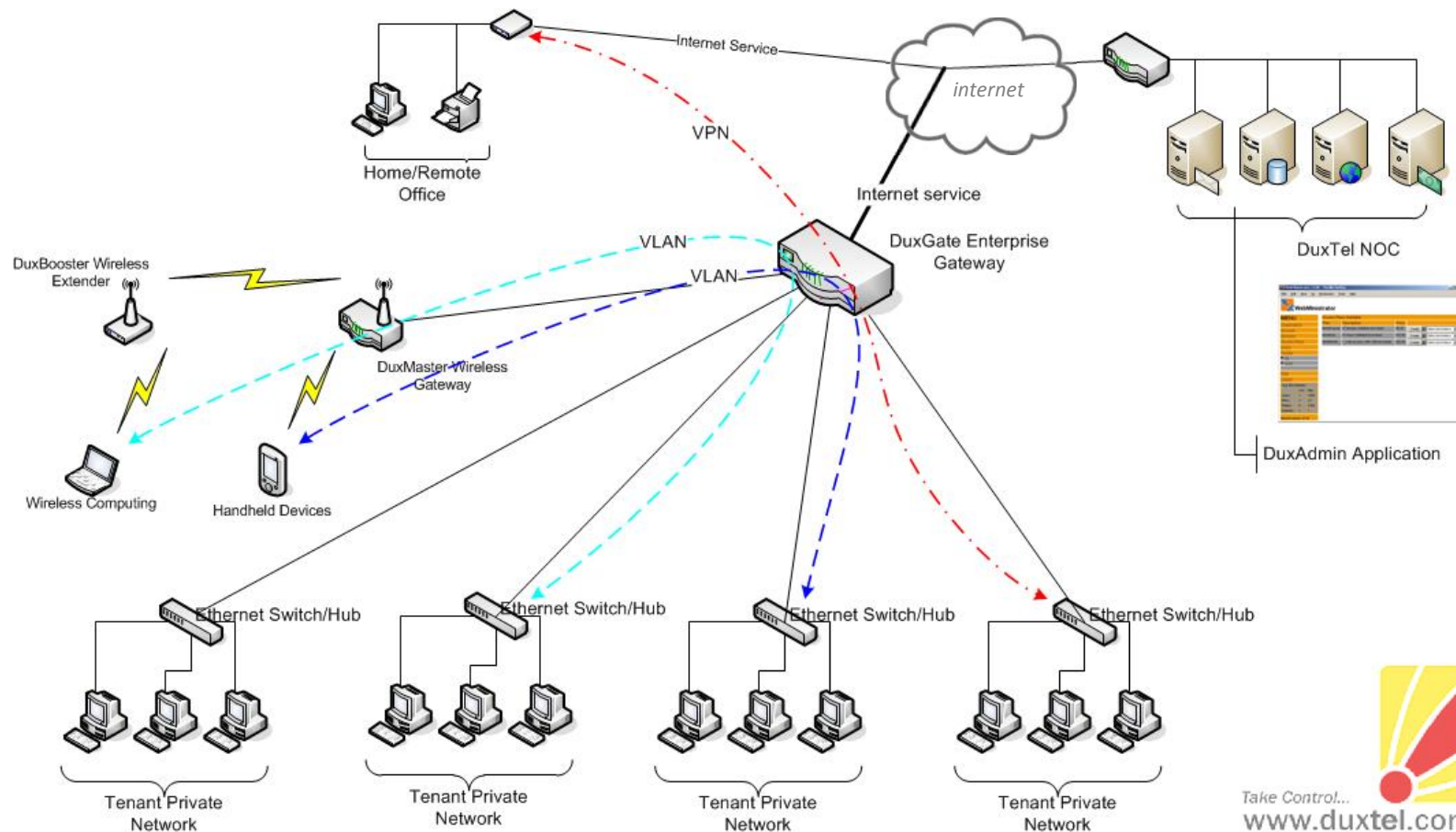
1. Advanced Wireless

- Simple ad-hoc deployment of mesh networks



1. Advanced Wireless

- Perfect for shared environment (e.g. serviced office)



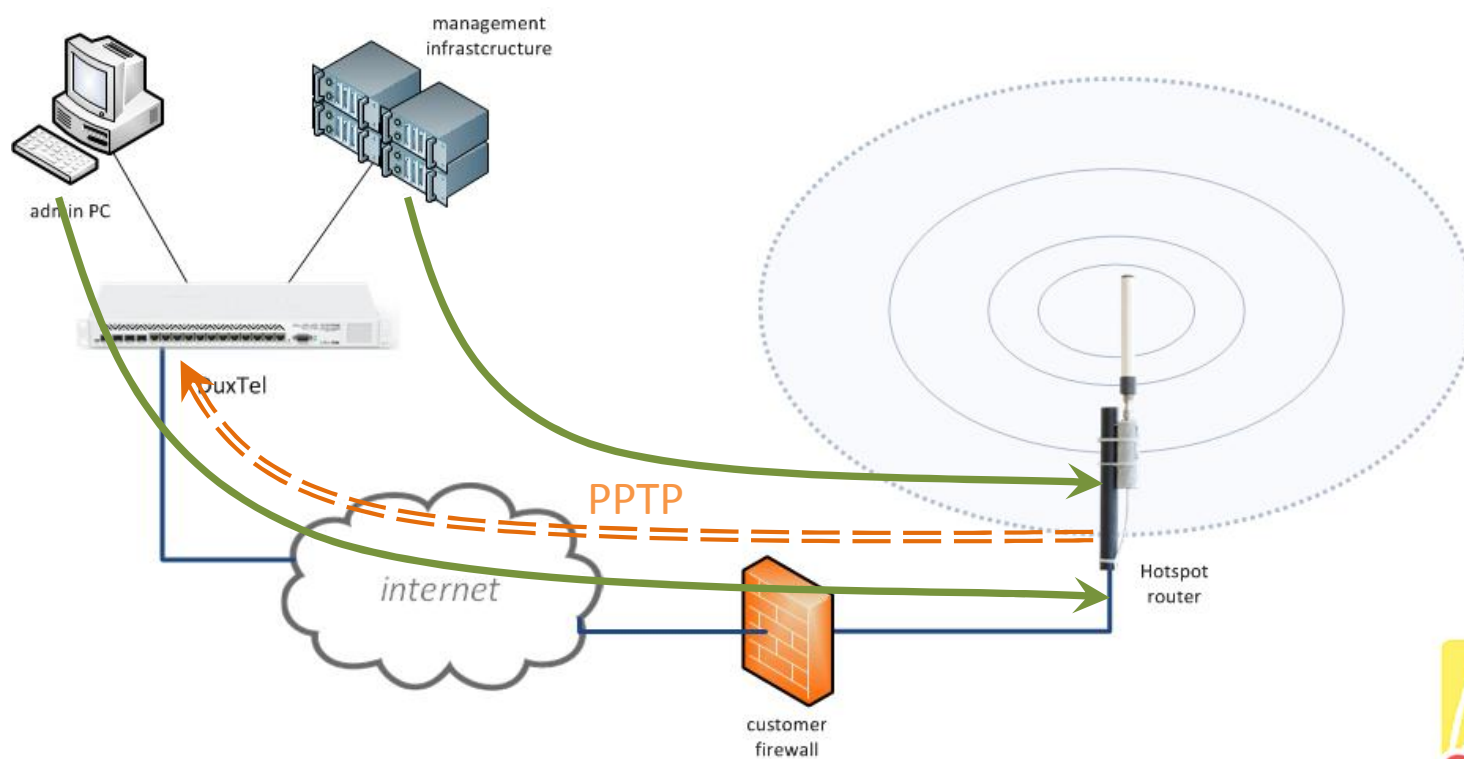
2. VPN Support

- all common VPNs supported for interoperability
- EoIP: a priceless feature!
- Advanced models have encryption hardware



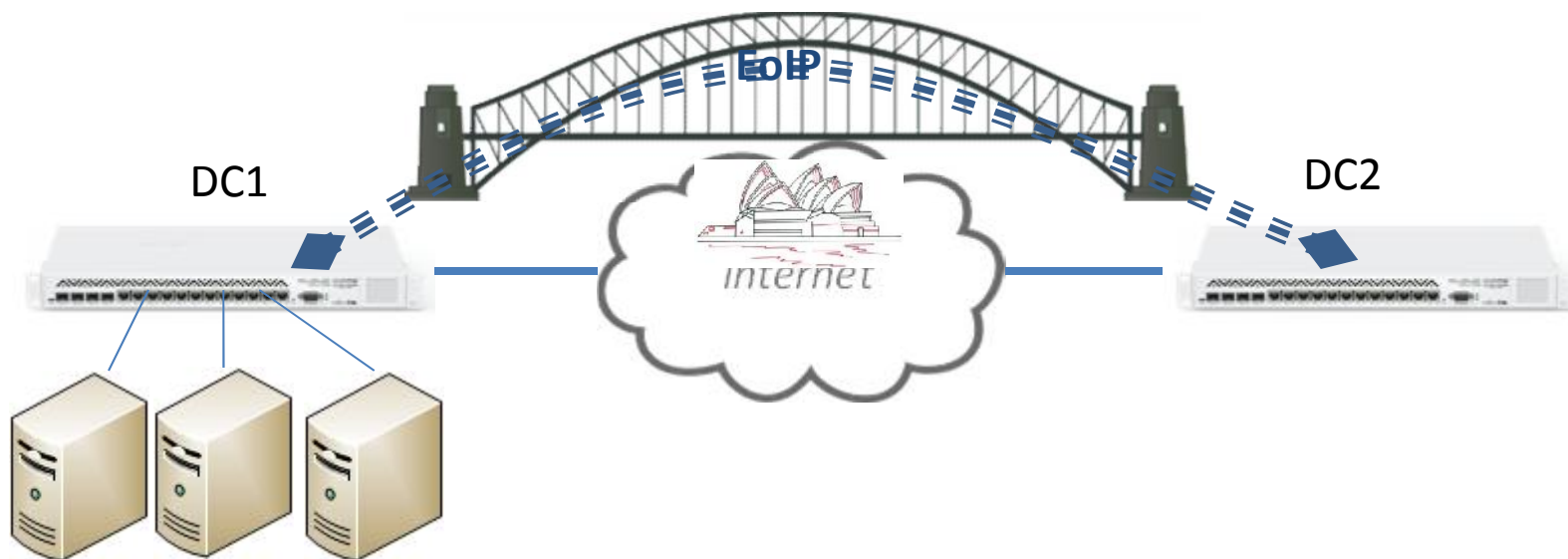
2. VPN Support

- we can access/manage devices behind corporate firewalls



2. VPN Support

- Eoip tunnels to bridge remote networks



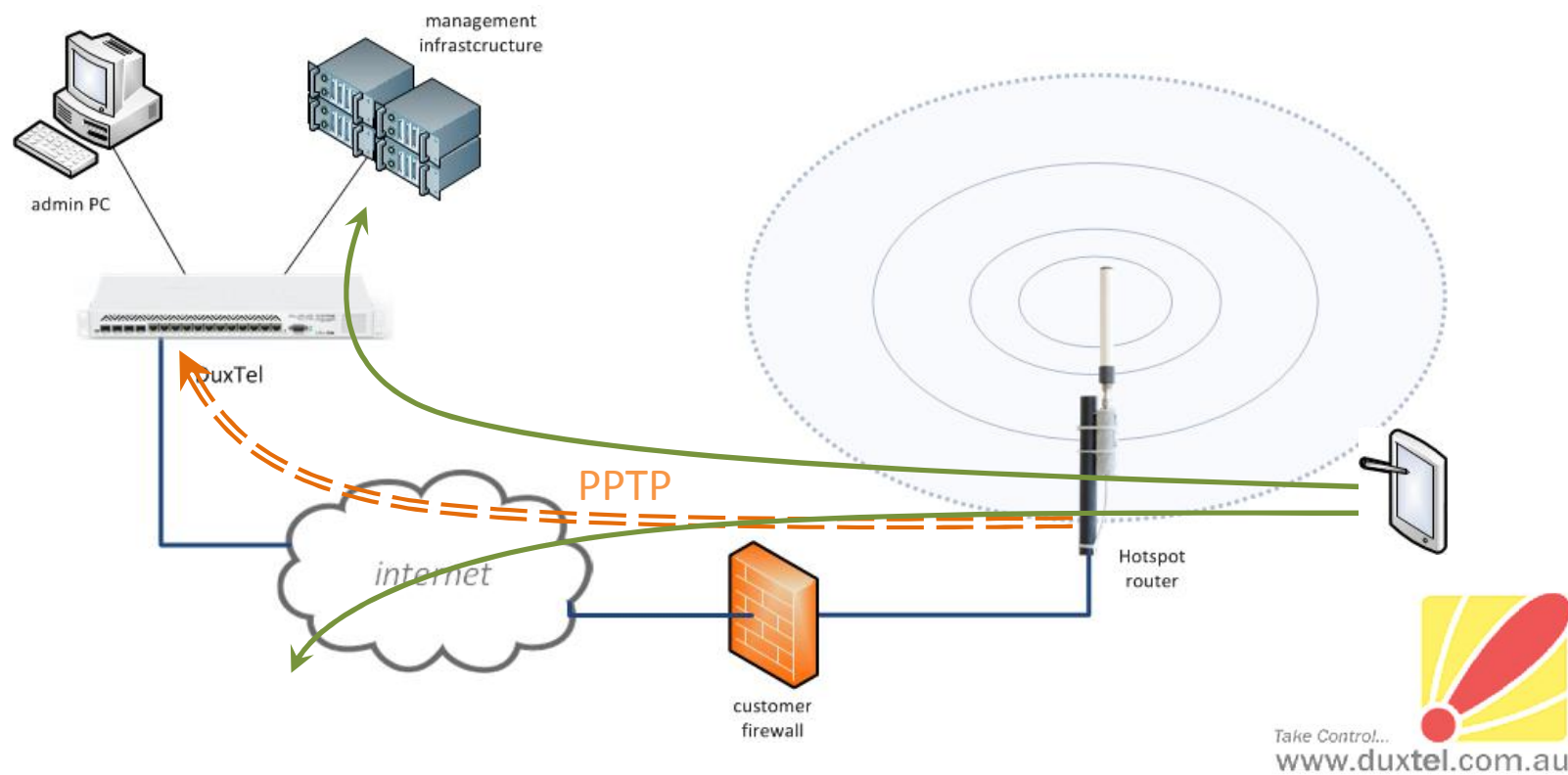
3. Dynamic Routing

- Full routing protocol functionality for even the entry level!
 - Routes based on dynamic and policy schemes
 - Load balancing and aggregation
-
- Fail over to backup services
 - Automatically switch between mobile/wifi/ethernet
 - Aggregate multiple low bandwidth links using eoip



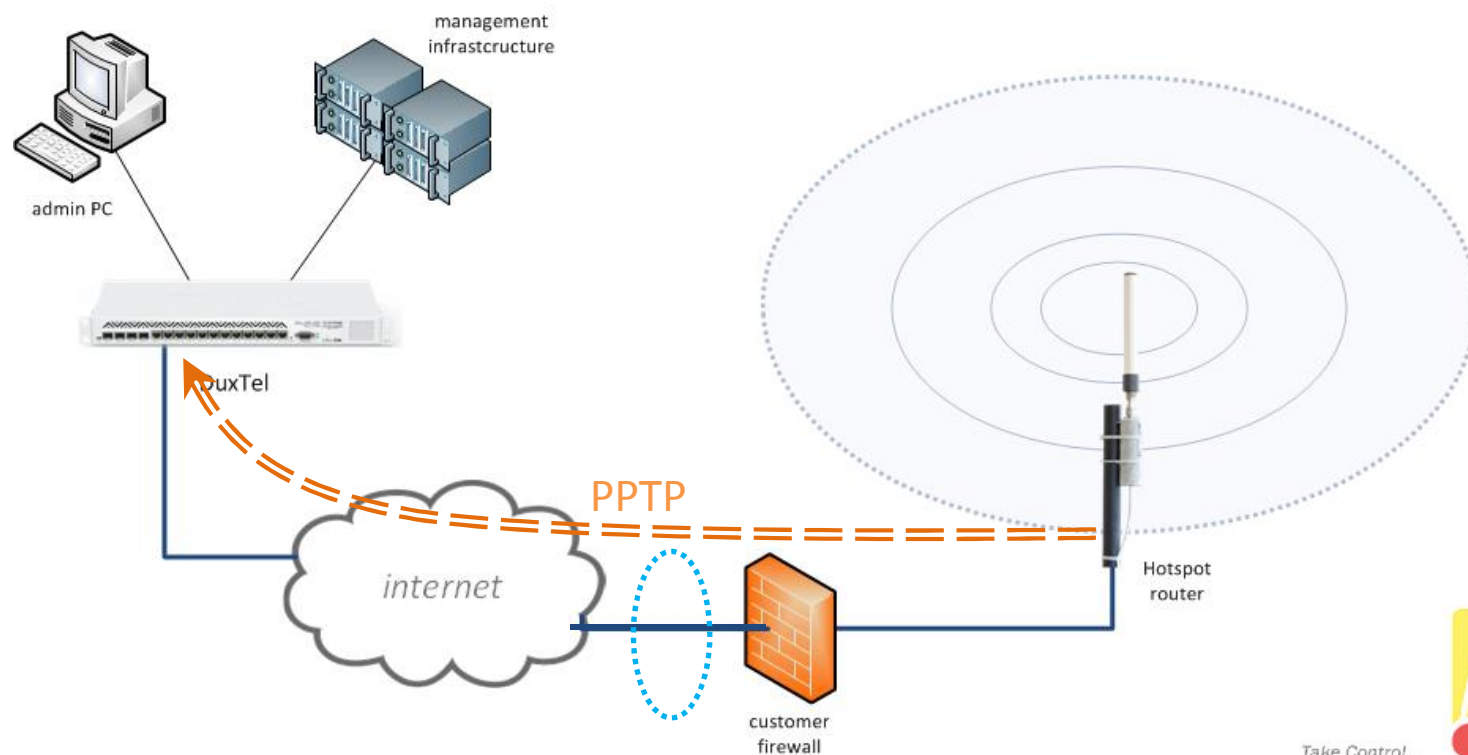
3. Dynamic Routing

- Deliver services over VPN, access via internet



3. Dynamic Routing

- Multiple uplink, load balance, fail-over

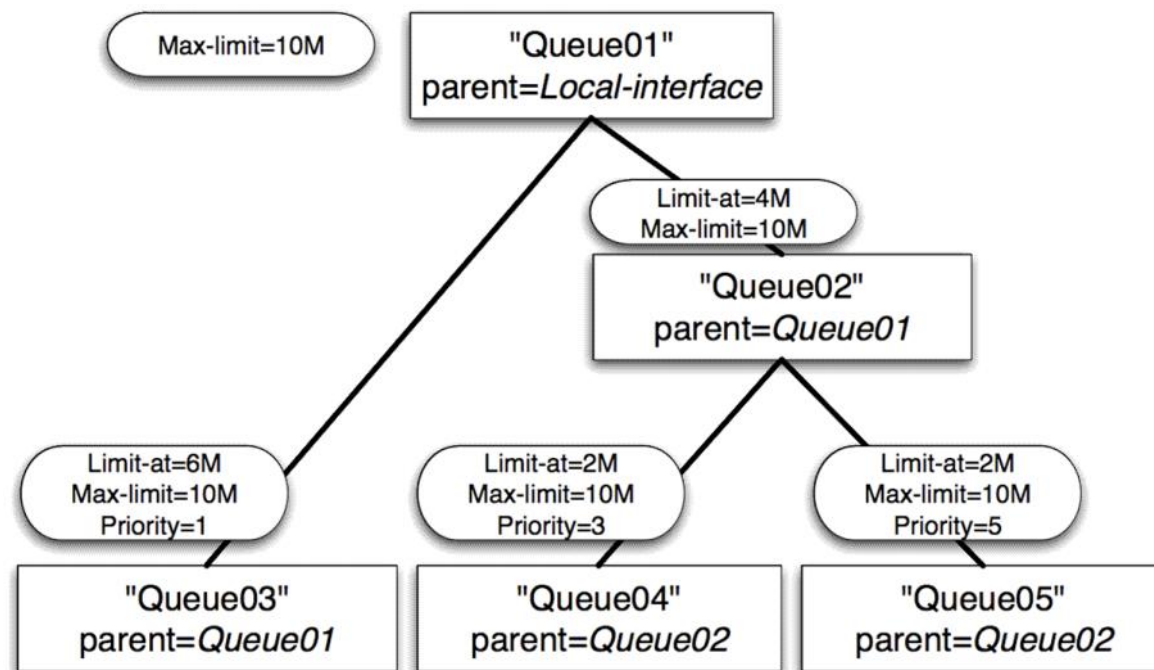


4. QoS

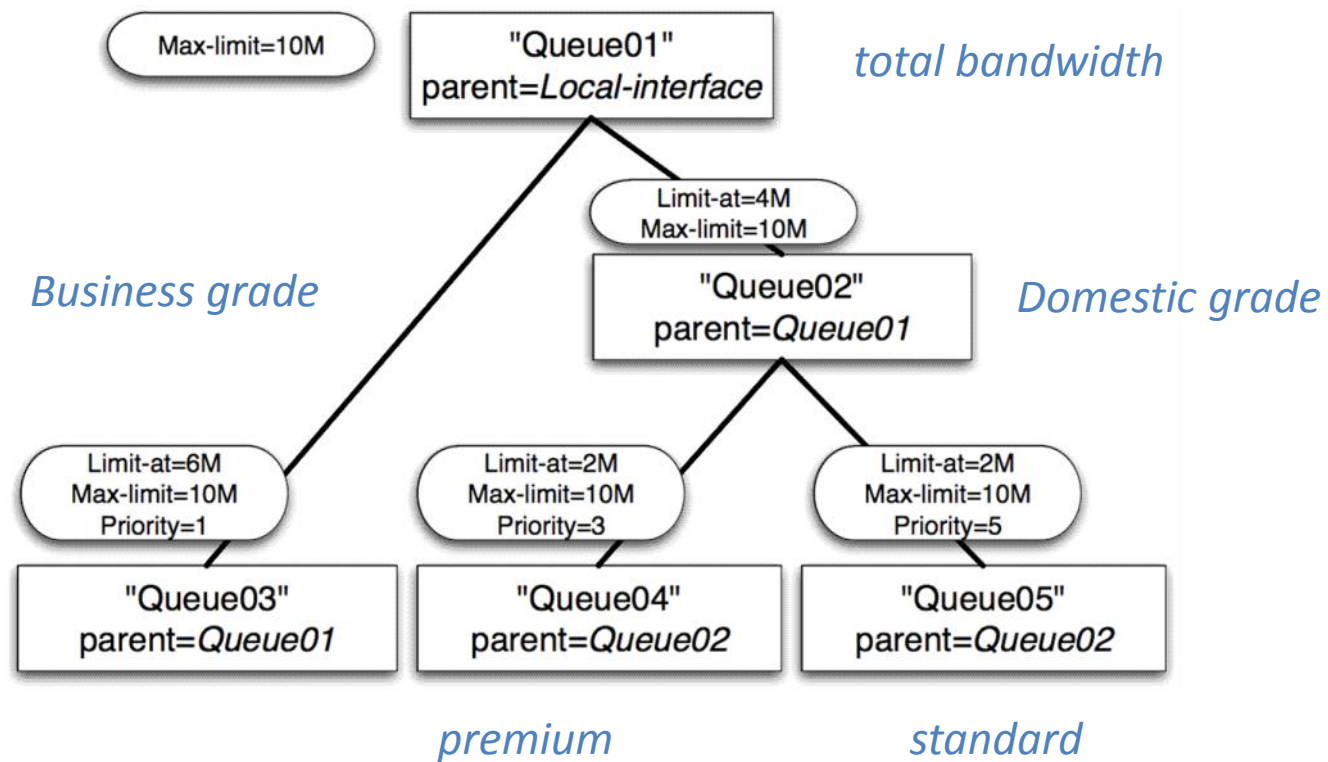
- Flexible heirarchical bandwidth allocation (Queue Tree)
- Ability to use ToS/DSCP to develop a consistent scheme across the network (and potentially beyond)
- Rate limits (even burst) can be set using RADIUS



4. QoS



4. QoS



5. RADIUS Flexibility

- Hotspot
- PPP (including PPPoE)
- Wireless EAP/TLS
- DHCP – (including Option 82 support!)
- Admin user login



5. RADIUS Flexibility

- Use the same system for all services: WISP, DSL, FTTH, Ethernet, DSL, more
- Flexible Access plan definitions: Rate limit, Burst Limit, time/upload/download/total limit

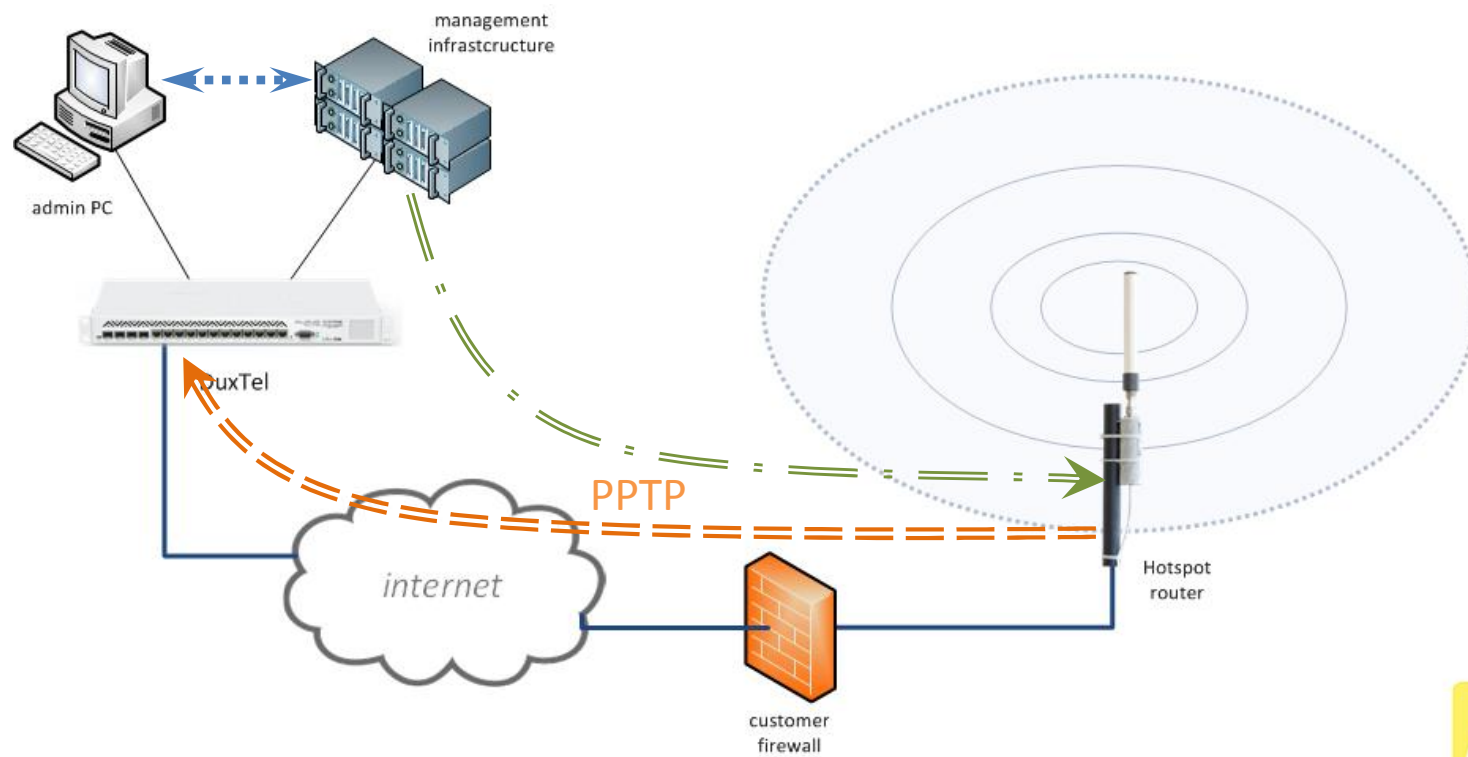


6. API

- Advanced API allowing remote configuration of many functions including
 - Interface state (wireless On/Off)
 - Wireless SSID and WPA keys
 - Walled Garden Entry
 - Session state and properties (rates, addressing, etc)



6. API



7. Advanced Tools and diagnostics

- Wireless tools (scan, snoop, frequency usage)
- Wireless monitor (signal strengths, s/n levels, and more)
- Torch: real time monitor of traffic on interfaces
- Sniffer: pcap logging for wireshark or built-in analyser
- Rogue DHCP detection!



7. Advanced Tools and diagnostics

- Less time to diagnose problems
- Capacity for proactive action
- Better result to customers
- End user graphing visibility



8. MAC Server

- Access devices even when there is no IP configured
- No PC configurations for new devices
- Provisioning of devices when no skills at site
- Backup path with firewall/addressing/routing mistakes!



9. Advanced Scripting

- Script supports every single routerOS command
- Executed ad-hoc or by schedule
- Run scripts as scheduled time of day or month/week/year
- Export as a duplication script
- Import as a custom configuration template



9. Advanced Scripting

- Easy to deploy standard config (e.g. prior to shipping!)
- Detect and act on fault conditions (loss of internet etc, cpu load, traffic peak, etc)
- Build a configuration library

(free configuration templates - <http://shop.duxtel.com.au>)

DuxTel Today

ISP, WISP, Hotspot Providers (HSP) throughout Australia, NZ,
PNG, Pacific Islands

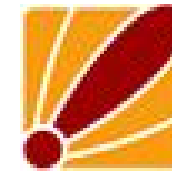
Public Access (FreeNet/InfoNet) parks, gardens, sporting &
tourism, shopping malls (RT/RW Networks)

Student Accomodation, Apartment Buildings, Aged Care, Gated
Communities

Schools, universities and Serviced Offices

more info

Mike Everest
mike@duxtel.com
www.duxtel.com



Herry Darmawan
herry@duxtel.com
www.duxtel.com



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