VLAN configuration in a wireless environment

RoamingWire Inc.

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www.roamingwire.com

About Us

- RoamingWire Inc.
  - Helps organizations maximize network ROI
  - Government and business clients
  - Full service shop (hardware/software/consulting)
  - Multiple countries and languages
  - Compliance testing, design, and deployment
- Mason Ham
  - Founder/Client Project Manager
- Paul Eriksson
  - Founder/Chief Network Architect

Agenda

- Why VLANS
- WDS vs. Routing
- Core setup
- Single Hotspot Model
- NetInstall
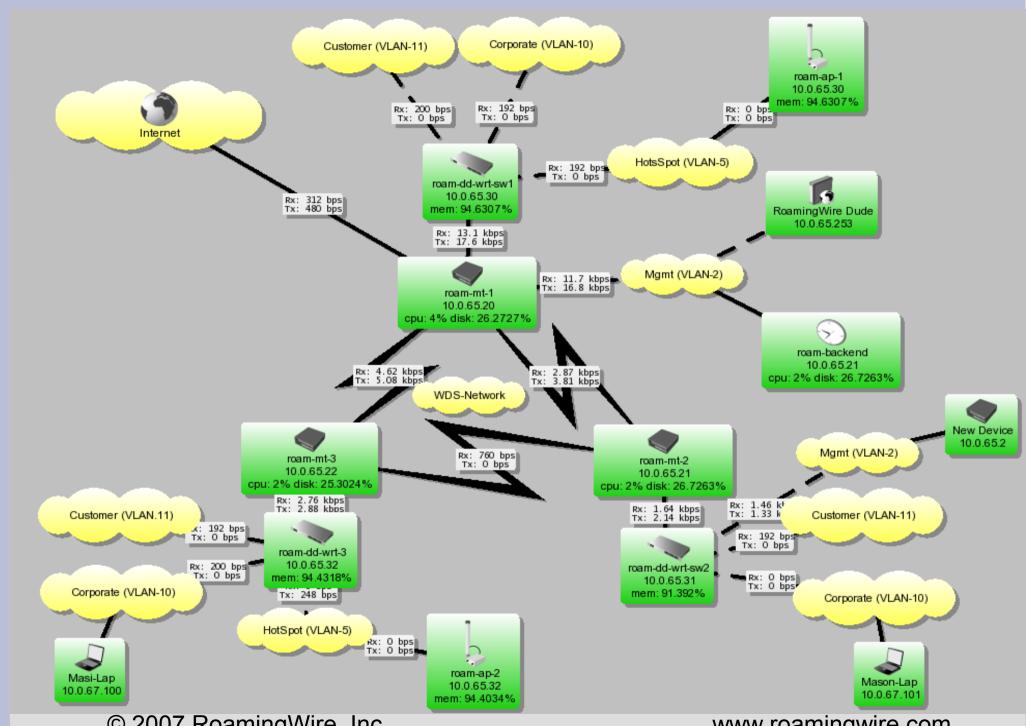- Demo system

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Why VLANS?

- Segment traffic
- Join remote networks securely and simply
- Provide for unique traffic shaping opportunities (firewalls, QoS, etc)
- Simplified remote maintenance

WDS vs. Routing

- WDS (Wireless Distribution System) provides for wireless "switch" type setup. Each node can communicate with every other node as though they where a port in a single switch.
- WDS runs at the OSI layer 2.
- WDS is transparent to VLAN tags
- Routing runs at the OSI layer 3.

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Hardware

- MT for backbone, hotspot, and user management
- LinkSys cost effective managed layer 2 switch with small form factor
- HP laptops ... just cause

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Customer (VLAN-11)

Corporate (VLAN-10)

roam-ap-1
10.0.65.30
mem: 94.6307%

Internet

Rx: 200 bps
Tx: 0 bps

Rx: 192 bps
Tx: 0 bps

Rx: 0 bps
Tx: 0 bps

Rx: 192 bps
Tx: 0 bps

HotsSpot (VLAN-5)

roam-dd-wrt-sw1
10.0.65.30
mem: 94.6307%

RoamingWire Dude
10.0.65.253

Rx: 312 bps
Tx: 480 bps

Rx: 13.1 kbps
Tx: 17.6 kbps

Rx: 11.7 kbps
Tx: 16.8 kbps

Mgmt (VLAN-2)

roam-mt-1
10.0.65.20
cpu: 4% disk: 26.2727%

roam-backend
10.0.65.21
cpu: 2% disk: 26.7263%

Rx: 4.62 kbps
Tx: 5.08 kbps

Rx: 2.87 kbps
Tx: 3.81 kbps

WDS-Network

Rx: 760 bps
Tx: 0 bps

Mgmt (VLAN-2)

New Device
10.0.65.2

roam-mt-3
10.0.65.22
cpu: 2% disk: 25.3024%

roam-mt-2
10.0.65.21
cpu: 2% disk: 26.7263%

Rx: 2.76 kbps
Tx: 2.88 kbps

Rx: 1.64 kbps
Tx: 2.14 kbps

Rx: 1.46 kbps
Tx: 1.33 kbps

Customer (VLAN-11)

Customer (VLAN.11)

Rx: 192 bps
Tx: 0 bps

Rx: 200 bps
Tx: 0 bps

roam-dd-wrt-3
10.0.65.32
mem: 94.4318%

Rx: 192 bps
Tx: 0 bps

Corporate (VLAN-10)

Tx: 248 bps

roam-dd-wrt-sw2
10.0.65.31
mem: 91.392%

Rx: 0 bps
Tx: 0 bps

Corporate (VLAN-10)

Masi-Lap
10.0.67.100

HotSpot (VLAN-5)

Rx: 0 bps
Tx: 0 bps

roam-ap-2
10.0.65.32
mem: 94.4034%

Mason-Lap
10.0.67.101

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Core Setup

- WDS with WPA2-EAP
- VLANs
  - Management(2)
    - SNMP
    - Network supervision (Dude, Nagios, etc)
  - Hotspot(5)
    - Ad hoc client access
  - Customer(10)
    - Single point connection for a known customer
  - Corporate(11)
    - Owners network

Single Hotspot Model

- Single point of failure reduction
- Complexity reduction
- Single Hotspot is easier to protect
- Single Hotspot multiple access points is easier to maintain
- More control of network ingress and egress
- Single place to put filters and other scare or expensive resources

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Questions?

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