

Automatech™

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Redundancy and VLAN's

Networking Basics

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AutomaTech Solution Brief

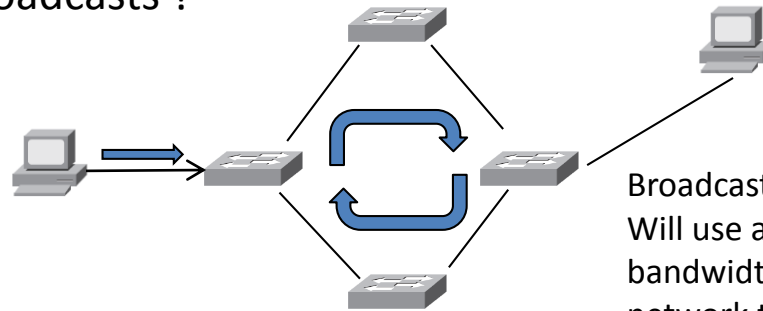
Basic Networking

Redundancy



Multiple connections

- We can make a network more robust by adding additional links between switches
- But this can create problems....
 - Which path to take ?
 - What about broadcasts ?

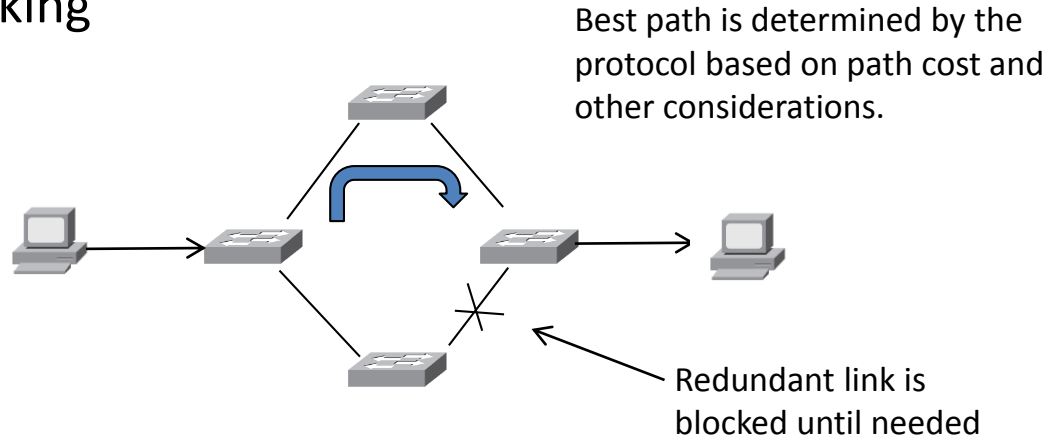


Broadcast storm !
Will use all available network
bandwidth and bring
network to its knees



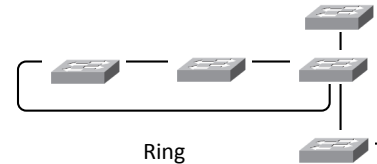
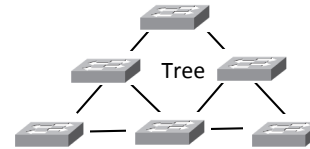
Network Redundancy Solutions

- Spanning Tree Protocol STP & RSTP
- Turbo Ring (Moxa)
- Turbo Chain (Moxa)
- Trunking



Redundancy Considerations

- Convergence time!
 - How quickly can my network fail over ?
 - Choice of protocol can make a big difference.
- Common convergence times
 - STP <50s
 - RSTP <5s
 - TurboRing/chain <20ms
- Network Architecture
 - Tree- STP/RSTP
 - Ring- Turbo ring



AutomaTech Solution Brief

Basic Networking

Vlans

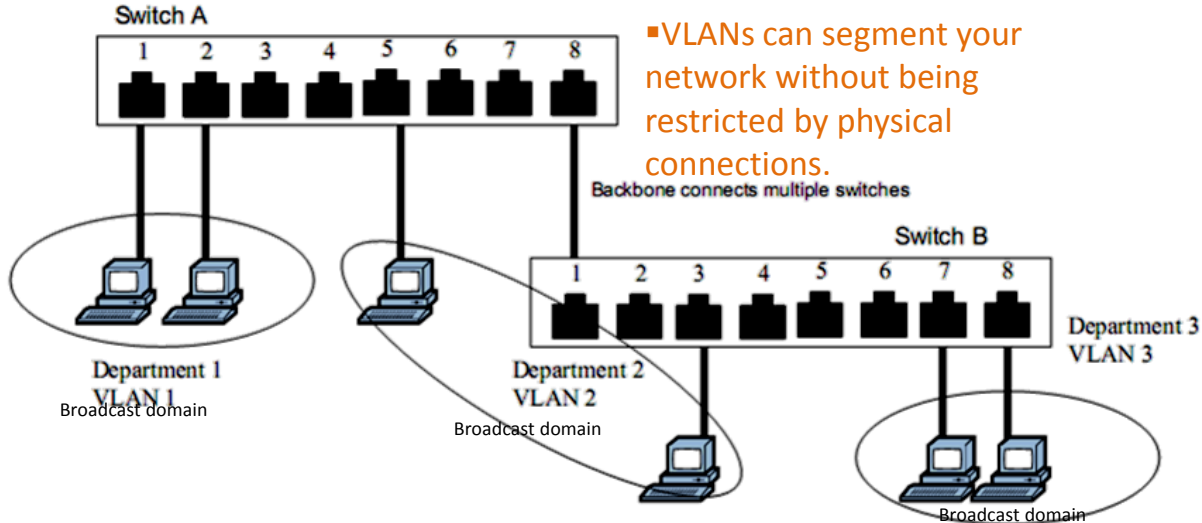


VLAN Concept

- What is a VLAN?

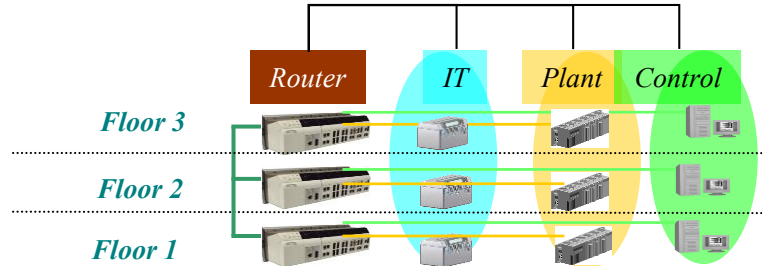
▪ A VLAN is a group of devices that can be located anywhere on a network but which communicate as if they are on the same physical segment.

▪ VLANs can segment your network without being restricted by physical connections.



Benefits of Establishing a VLAN

- VLANs allow for Easy Network Changes
- VLANs Enhance Network Security
 - Segregates sensitive traffic
- VLANs Help Control Traffic
 - Isolate broadcast/multicast applications



VLAN Benefits

- Enhance network security and management
- VLANs allow ports to be grouped by function
- Separates Broadcast / Multicast domains
- No geographic restriction
- Cross VLAN communication require Router or L3 Switch
- Port-based VLAN is good for single switch application
- 802.1Q VLAN is good to extend VLAN over switches



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