

COBRA SERIES MESH

Cobra 2202-P Dual Port, Dual Radio 54 mbps 802.3af Portal
Cobra 2202-N Dual Port, Dual Radio 54 mbps 802.3af Node

FEATURES

HWMP+ is a specific layer-2 routing protocol for wireless mesh networks. It is based on Hybrid Wireless Mesh Protocol (HWMP) from IEEE 802.11s draft standard. It can be used in place of (Rapid) Spanning Tree protocols in mesh setups to ensure loop-free optimal routing.

The HWMP+ protocol however is not compatible with HWMP from IEEE 802.11s draft standard.

Note that the distribution system used for the network does not need to be Wireless Distribution System (WDS). HWMP+ mesh routing supports not only WDS interfaces, but also Ethernet interfaces inside the mesh. So you can use simple Ethernet based distribution system or you can combine both WDS and Ethernet links.

Reactive Messaging Mode

In reactive mode HWMP+ is very much like AODV (Ad-hoc On-demand Distance Vector). All paths are discovered on demand, by flooding Path Request (PREQ) messages on the network.

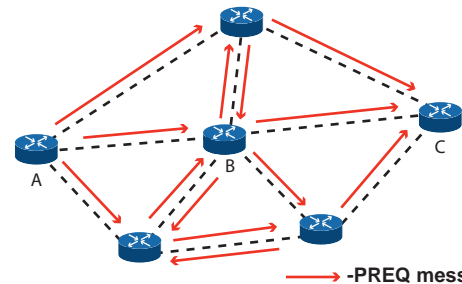
The destination node or some router that has a path to the destination will reply with a Path Response (PREP). If the destination address belongs to a client, the Portal this client is connected to will serve as proxy for the client device (i.e. reply to PREQs on behalf of the client).

Proactive Messaging Mode

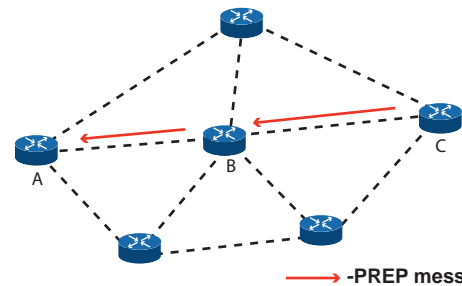
In proactive mode there are some Cobra devices configured as portals. In general, being a portal means that the device has interfaces to some other network, (i.e. it's entry/exit point to the mesh network).

The portals will announce their presence by flooding Root Announcement (RANN) message in the network. Internal nodes will reply with a Path Registration (PREG) message. The result of this process will be routing trees with roots in the portal.

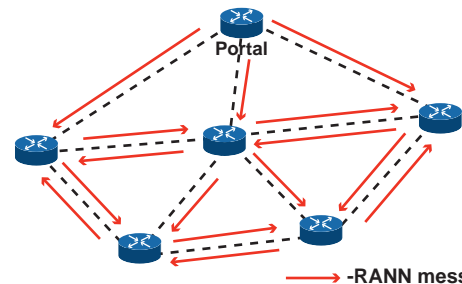
Portal nodes will act as default gateways for the mesh network. If an internal router does not know the path to a particular destination, it will forward all data to its closest portal. The portal(s) will then discover the best path on behalf of the member routers when needed. Once the best path is discovered, the closest portal will become the default gateways for the mesh node. Proactive mode is best suited when most of the traffic goes between internal mesh nodes and a few portal nodes.



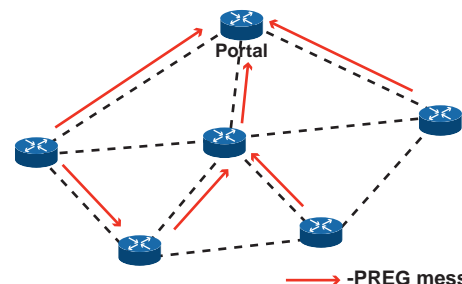
Device A Discovers the path to Device C by flooding wireless network with PREQ messages. (Path Request)



Device C sends a unicast response to Device A as a PREP message. (Path Response Message)



The portal (root) node announces itself by flooding root announcement messages on the network.



Internal nodes respond with Path Registration Messages. (PREG)

Cobra 2202-P

Can be powered from an 802.3af switch or a standard 48V injector kit on Ethernet 1.
Ethernet 2 is data only.

Cobra 2202-N

Acts as a PSE device that will provide power when needed on Ethernet 2 for 802.3af IP devices.



The Cobra Series MESH device is built on the robust Linux™ platform and a field proven single board computer. In today's wireless surveillance market uptime is critical and throughput is paramount to almost any installation. The Cobra MESH device is the answer to both of these industry wide concerns, all the while maintaining a very competitive price point. Utilizing an improved version of the popular HWMP MESH protocol the Cobra Series MESH units can be rapidly deployed in almost any RF environment. By combining the HWMP+ protocol with the N-Streme & N-Streme Dual protocols we can create a very dynamic and resilient wireless network that will handle even the most resource demanding tasks.



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Wireless Interface				
Radio Transceiver(s)	(Two) 65mw 5.8 GHz high performance radios			
Frequency	5.180 – 5.825 GHz (UNII / ISM)			
Protocol	802.11a standard compliant and/or proprietary N-Streme protocol			
Modulation	OFDM			
Transmit Power	.65mw maximum			
Receiver Sensitivity	-93 dBm minimum			
Data Rate vs Receive Level	Data Rate	Receive Level	Data Rate	Receive Level
	6 Mbps	-94 dBm +/- 2 dB	24 Mbps	-86 dBm +/- 2 dB
	9 Mbps	-93 dBm +/- 2 dB	36 Mbps	-83 dBm +/- 2 dB
	12 Mbps	-91 dBm +/- 2 dB	48 Mbps	-77 dBm +/- 2 dB
	18 Mbps	-90 dBm +/- 2 dB	54 Mbps	-74 dBm +/- 2 dB

Ethernet Interface	
Ports (Node)	(Two) Ethernet ports to provide power/data and data only to IP devices
Ports (Portal)	(Two) Ethernet ports to power the unit and provide data

Network Interface	
Authentication	RADIUS server MAC enabled
Security:	SSL based authentication
Remote Admin:	SSH, IP/MAC Telnet, Win GUI, HTTPS, FTP, Serial Console
Encryption:	AES 128/256, DES 1/3 with CBC-MAC, RADIUS, EAP
VPN	EoIP, VLAN, PPOE, PPTP, IP/IP, L2TP
Protocols	RTP/IP, UDP/IP, TCP/IP, HTTPS, VRRP, NTP, DNS, DHCP, ARP, WDS
GPS Support	Async NMEA 0183, NMEA/RTCM or simple text
Radio	2 mini PCI-based radios

Power Interface	
Input Power (Node)	48Vdc Ethernet Port
Input Power (Portal)	48Vdc Ethernet Port

Physical Interface	
Enclosure	NEMA 4/IP67
Size	10.5" x 10.5" x 2.75"
Weight	7 lbs.
Environment	-40°F to 149°F (-40°C to 65°C)
Humidity	100% (operates in severe rain)

Management	
Local/Remote Administration	SSH, MAC Telnet, Win GUI via HTTP, FTP
Monitoring and Accounting	IP traffic accounting, firewall actions logging, statistics graphs accessible via HTTP
Management and System Health	Total uptime, uptime of wireless connections, free memory, total memory, CPU freq, CPU load, free HDD space, total HDD space, core temp, voltage, sector writes, monitoring of all local and remote interfaces, watchdog monitor, network monitor and status reporting by time or controlled events
Netwatch and Scripting	Netwatch is a tool used to monitor the wireless and Ethernet interfaces. A series of executable code (scripts) can be configured to report network problems. Such as send an email, reboot, or create daily backups and FTP the file to a remote server.
Router OS Upgrade	FTP flash memory upgrade via a network connection
BIOS Upgrade	XModem protocol using DHCP/BOOTP and TFTP protocols through the Ethernet network
Diagnostics	Bandwidth test, Ping, Frequency scan, Trace route, Packet sniffer, Bandwidth estimation, Torch