# PTP820S/C in-band Management with LAG

Overview

When deploying all-outdoor based PTP820 solutions such as PTP820S or PTP820C, many customers would want to use Inband management to reduce the number of cable runs. This would be no problem most of the time if it is just normal 820S 1+0/1+1, or 820C 2+0. But there would be an issue with management if PTP820S is used in 2+0 or PTP820C used in 4+0 with external LAG (Link Aggregation Group) or LACP (Link Aggregation Control Protocol), due to the LACP/LAG hashing mechanism, management traffic could be hashed to the wrong radio and special care should be used to prevent that from happening.

LAG/LACP Hashing problem

The following is a network diagram showing a PTP820S 2+0 with LACP to achieve double the capacity while using inband management.
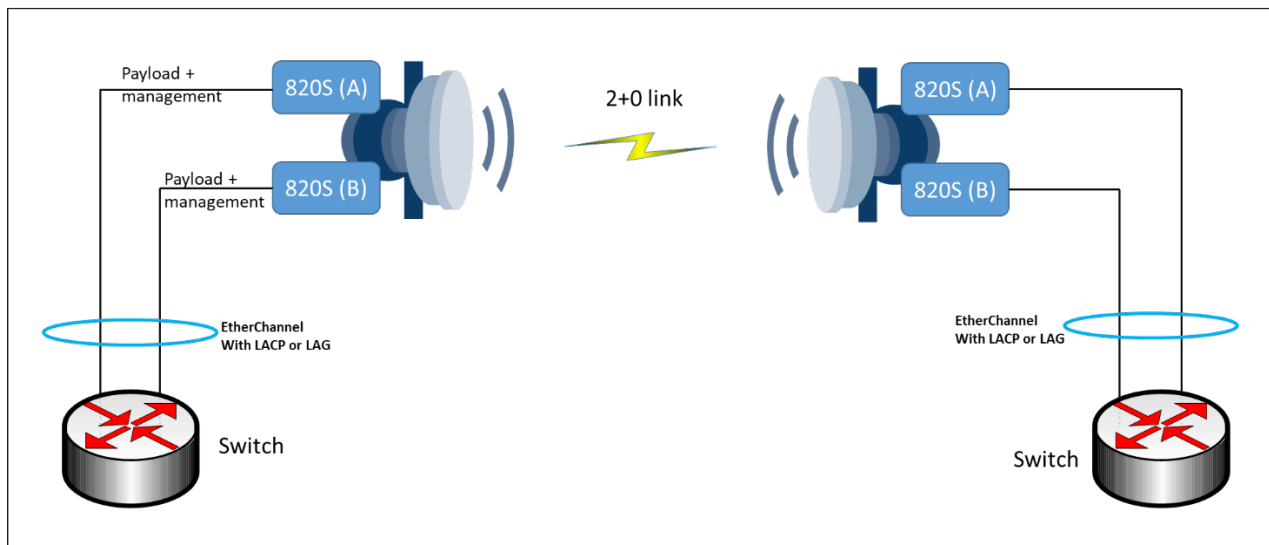
In this setup, the user configures one PIPE service on each 820S 1+0 link. The payload Ethernet port and radio port are also configured as a management service points to allow Inband management. The switch will run Etherchannel protocol (LACP/LAG) to aggregate the user traffic.

LAG/LACP relies on a certain hashing mechanism for traffic distribution and the user would normal have no control over which radio link the traffic will be sent to. For payload traffic, it doesn't matter at all. But for management traffic, you want the switch to send radio A if the user intends to manage radio A and radio B if the user intends to manage radio B. However, the switch would normally just forward the traffic to whichever port the hashing result tells it to. It is very possible that the switch would forward management traffic targeting radio A, to radio B, resulting in radio A not manageable. This happens many times in the customers' field deployment.

Some customer would configure the switch with ACL (Access Control Lists) to force management traffic to be forwarded to the desired port. But not all switch supports this kind of capabilities and even if the capability is available, the commands would not be straightforward.

Implementation

Fortunately, PTP820C/S provides a mechanism to mend the mis-forwarding problem caused by Etherchannel hashing. This is achieve by "Mate Management Access (IP Forwarding)".

The idea is that when radio A receives management targeting radio B, radio A would forward the traffic to radio B via management protection Ethernet port. This means that the user would need to cable the two radios up with management protection cable.
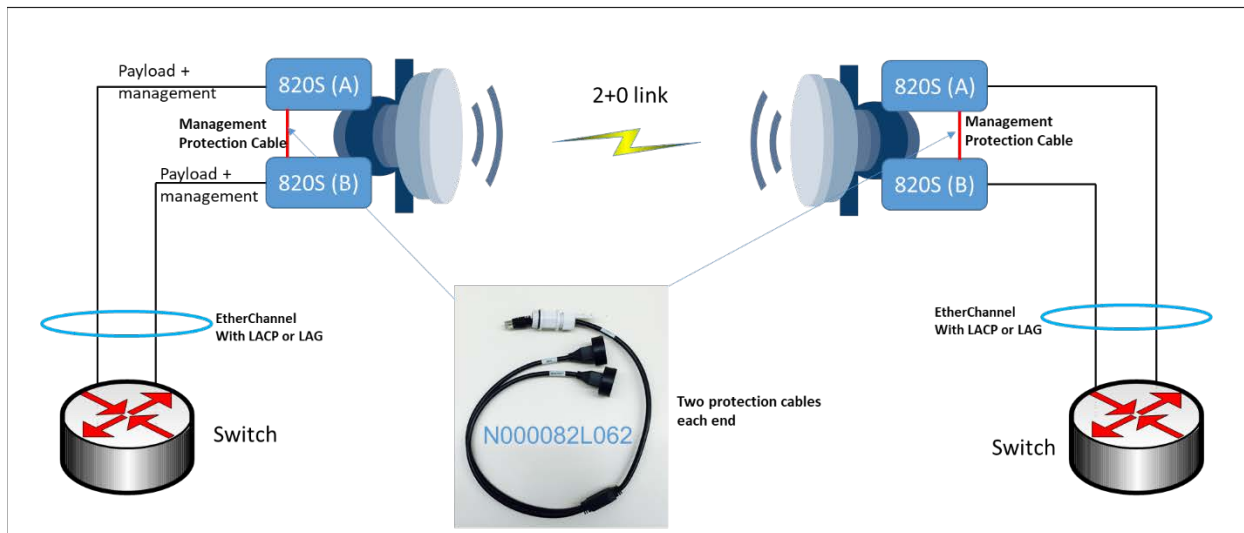
To enable "Mate Management Access", telnet to the radio's management interface. Run the following command (this will cause radio reset) on each radio,

 root> platform management mate-access admin enable

(Note: to disable mate management access, run "platform management mate-access admin disable")

Special Error Case Handling

In Etherchannel implementation with LACP, the switch would block the Ethernet port when control traffic (heartbeat) cannot pass through the link. This will make sure that payload traffic does not get sent to the link that is no longer working. Keep in mind that fast LACP heartbeat should be used for quick failover (with slow LACP, heartbeat is sent once every 30 seconds, with fast LACP, heartbeat is sent once every second). However, what if both radio links are down, so both the Ethernet ports to the radio are blocked by the switch? This would leave the operator no option to get into the radio management interface for troubleshooting purpose.

It is recommended, that in such a case, the operator temporary disable LACP on one of the Ethernet ports that are part of the Etherchannel so he/she can access management interface of the radio. If the operator is onsite, he/she can move one of the radio Ethernet cables to a preconfigure non-etherchannel port for temporary management access purpose. If the management interface is not configured with vlan tagging, the operator can directly connect one of the radio Ethernet cable to a PC for the same purpose as well.

The PTP820S/C userguide suggests turning on ASP (automatic state propagation) for LAG based configuration to allow the switch to detect failure and thus move the traffic to the working link. ASP will cause the radio Ethernet port to shut down in case of radio link failure. This will cause problem if both radio links are down because now the operator have no way to access the radio management unless he/she climb tower to connect directly to the management port. So ASP is NOT recommended in such an inband management setup.