Interpreting output for show port CLIs for LAG on ASR 5000 and ASR 5500

Contents

Overview

The implementation of Link Aggregation (LAG) changes the behavior of "show port npu counters" and "show port utilization table" commands. The port commands are important for troubleshooting port and throughput related issues and so it is important to be able to properly interpret their output, especially since it is unintuitive when compared to non-LAG ports. The bottom line is that port npu counters for LAG on an individual port basis are not available and are reported for the entire LAG group only up to at least StarOS v18 which is the time of this writing. This could change in future releases.

Explanation

Due to design/architectural limitations, reporting of port npu counters is limited to the conglomeration of all the ports in a LAG group and not at the individual port level. This does not apply to port datalink counters which continue to report as expected.

Because the implementation of LAG requires all the ports in the LAG to be active, "show port utilization table" reports utilization for all the LAG ports whether they are distributing (active) or agreed (standby) for both ASR 5000/5500. Sidenote: Normally agreed ports show no traffic, but there have been instances where the Rx and/or Tx direction of agreed ports are also carrying traffic (not the subject of this article but just pointing it out).

Meanwhile for non-LAG ports, there is a difference between what is reported for ASR 5000 vs. ASR 5500. ASR 5000 does not report utilization for standby ports, while ASR 5500 does report utilization for standby ports (even though those ports are operationally down)

Consistent with what has just been mentioned, "show port table" for LAG reports all the ports as operationally up, compared to non-LAG where only the active port of a port pair is operationally up.

For "show port npu counters", ALL LAG ports are listed, but the following is true:

- ASR 5000:
  - the counters under the primary (configured) port are a TOTAL count across all the currently ACTIVE ports

- the counters for ALL other ports (including the primary port's pair) are not relevant and should not be used
- ASR 5500:
  - the counters under the primary port and its standby are a TOTAL count across all the currently ACTIVE ports (they will both report a similar but slightly different value - use either one)
  - the counters for ALL other ports are 0s

For NON-LAG ports, only counters for active ports are reported. Standby ports are not even listed in the output at the NPU level (and never have been).

Example output

The output here is to support the previous explanations. It is based on hardware configurations as follows:

ASR 5000: LAG Ports 19/20, 23/26, 27/28, and non-LAG ports 21/37

ASR 5500: LAG Ports 5/ 10, 11, 15, 16; 6/ 10, 11, 15, 16, and non-LAG ports 5/28 & 6/28, 5/29 & 6/29

Reminder: Focus of this article are the counters for LAG ports.

ASR 5000

```
 ******** show port utilization *******
Wednesday May 28 12:28:04 UTC 2014
                                ------ Average Port Utilization (in mbps) ------
Port   Type                       Current           5min             15min
                                  Rx      Tx      Rx       Tx       Rx     Tx
----- ------------------------  ------- -------  ------- -------  ------- -------
19/1  10G Ethernet              514     572      503     534      490     517
20/1  10G Ethernet              0       0        0       0        0       0


21/1  1000 Ethernet             0       0        0       0        0       0


23/1  10G Ethernet              460     529      448     516      431     510
26/1  10G Ethernet              0       0        0       0        0       0
27/1  10G Ethernet              674     532      634     519      619     499
28/1  10G Ethernet              0       0        0       0        0       0


 ******** show port table all *******
Wednesday May 28 12:28:03 UTC 2014
Port  Role Type                      Admin    Oper Link State    Pair  Redundant
----- ---- ------------------------  -------- ---- ---- -------  ----- ---------
19/1  Srvc 10G Ethernet              Enabled  -    Up   -        None  LA+ 19/1
           Untagged                  Enabled  Up   -    Active   -     -
           Tagged VLAN  2423         Enabled  Up   -    Active   -     -
           Tagged VLAN  2424         Enabled  Up   -    Active   -     -
           Tagged VLAN  2401         Enabled  Up   -    Active   -     -
           Tagged VLAN  2009         Enabled  Up   -    Active   -     -
           Tagged VLAN  2010         Enabled  Up   -    Active   -     -
           Tagged VLAN  2007         Enabled  Up   -    Active   -     -
           Tagged VLAN  2498         Enabled  Up   -    Active   -     -
```

```
          Tagged VLAN  2499        Enabled  Up   -    Active   -     -
20/1  Srvc 10G Ethernet             Enabled  Up   Up   Active   None  LA~ 19/1

21/1  Srvc 1000 Ethernet            Enabled  -    Up   -        37/1  L2 Link
          Untagged                  Enabled  Down -    Active   -     -
          Tagged VLAN    30         Enabled  Up   -    Active   -     -

23/1  Srvc 10G Ethernet             Enabled  Up   Up   Active   None  LA+ 19/1
26/1  Srvc 10G Ethernet             Enabled  Up   Up   Active   None  LA~ 19/1

27/1  Srvc 10G Ethernet             Enabled  Up   Up   Active   None  LA+ 19/1
28/1  Srvc 10G Ethernet             Enabled  Up   Up   Active   None  LA~ 19/1

37/1  Srvc 1000 Ethernet            Enabled  -    Up   -        21/1  L2 Link
          Untagged                  Enabled  Down -    Standby  -     -
          Tagged VLAN    30         Enabled  Down -    Standby  -     -
```

```
 ******** show port npu counters *******

Counters for port 19/1
Counter                  Rx Frames       Rx Bytes      Tx Frames        Tx Bytes
-------------------- ------------ --------------- ------------ ---------------
Unicast              747839445462540867400665878 74 691514288000237832151787123 78

Counters for port 20/1
Counter                  Rx Frames       Rx Bytes      Tx Frames        Tx Bytes

Counters for port 23/1
Counter                  Rx Frames       Rx Bytes      Tx Frames        Tx Bytes

Counters for port 26/1
Counter                  Rx Frames       Rx Bytes      Tx Frames        Tx Bytes

Counters for port 27/1
Counter                  Rx Frames       Rx Bytes      Tx Frames        Tx Bytes

Counters for port 28/1
Counter                  Rx Frames       Rx Bytes      Tx Frames        Tx Bytes
```

while for NON-LAG, only the active ports are listed and those values ARE relevant:

```
Counters for port 21/1
Counter                  Rx Frames       Rx Bytes      Tx Frames        Tx Bytes
```

ASR 5500

```
[local]PGW> show port utilization table
Sunday June 01 03:57:59 UTC 2014
                              ------ Average Port Utilization (in mbps) ------
Port   Type                     Current           5min             15min
                               Rx      Tx      Rx       Tx       Rx      Tx
----- ----------------------  ------- -------  ------- -------  ------- -------

 5/10 10G Ethernet             1919    1973     1982    2066     2025    2094
 5/11 10G Ethernet             1911    1751     1976    1828     2023    1883
 5/15 10G Ethernet             1910    2064     1975    2064     2004    2130
```

```
 5/16 10G Ethernet              1933    1943     1987    2012     2014    2019

 5/28 10G Ethernet              9       69       9       70       9       71
 5/29 10G Ethernet              0       0        0       0        0       0

 6/10 10G Ethernet              0       0        0       0        0       0
 6/11 10G Ethernet              0       0        0       0        0       0
 6/15 10G Ethernet              0       0        0       0        0       0
 6/16 10G Ethernet              0       0        0       0        0       0

 6/28 10G Ethernet              0       0        0       0        0       0
 6/29 10G Ethernet              1       0        1       10       1       11


[local]PGW> show port table all
Sunday June 01 03:58:48 UTC 2014
Port  Role Type                       Admin    Oper Link State    Pair  Redundant
----- ---- ------------------------  -------- ---- ---- -------  ----- ---------
 5/10 Srvc 10G Ethernet              Enabled  -    Up   -         6/10 LA+  5/10
           Untagged                  Enabled  Up   -    Active   -     -
           Tagged VLAN  2011         Enabled  Up   -    Active   -     -
           Tagged VLAN  2405         Enabled  Up   -    Active   -     -
           Tagged VLAN  2015         Enabled  Up   -    Active   -     -
           Tagged VLAN  2427         Enabled  Up   -    Active   -     -
           Tagged VLAN  2407         Enabled  Up   -    Active   -     -
           Tagged VLAN  2455         Enabled  Up   -    Active   -     -
 5/11 Srvc 10G Ethernet              Enabled  Up   Up   Active    6/11 LA+  5/10
 5/15 Srvc 10G Ethernet              Enabled  Up   Up   Active    6/15 LA+  5/10
 5/16 Srvc 10G Ethernet              Enabled  Up   Up   Active    6/16 LA+  5/10

 5/28 Srvc 10G Ethernet              Enabled  -    Up   -         6/28 L2 Link
           Untagged                  Enabled  Up   -    Active   -     -
           Tagged VLAN  2400         Enabled  Up   -    Active   -     -
 5/29 Srvc 10G Ethernet              Enabled  -    Up   -         6/29 L2 Link
           Untagged                  Enabled  Down -    Standby  -     -
           Tagged VLAN    31         Enabled  Down -    Standby  -     -


 6/10 Srvc 10G Ethernet              Enabled  -    Up   -         5/10 LA~  5/10
           Untagged                  Enabled  Up   -    Active   -     -
           Tagged VLAN  2011         Enabled  Up   -    Active   -     -
           Tagged VLAN  2405         Enabled  Up   -    Active   -     -
           Tagged VLAN  2015         Enabled  Up   -    Active   -     -
           Tagged VLAN  2427         Enabled  Up   -    Active   -     -
           Tagged VLAN  2407         Enabled  Up   -    Active   -     -
           Tagged VLAN  2455         Enabled  Up   -    Active   -     -
 6/11 Srvc 10G Ethernet              Enabled  Up   Up   Active    5/11 LA~  5/10
 6/15 Srvc 10G Ethernet              Enabled  Up   Up   Active    5/15 LA~  5/10
 6/16 Srvc 10G Ethernet              Enabled  Up   Up   Active    5/16 LA~  5/10

 6/28 Srvc 10G Ethernet              Enabled  -    Up   -         5/28 L2 Link
           Untagged                  Enabled  Down -    Standby  -     -
           Tagged VLAN  2400         Enabled  Down -    Standby  -     -
 6/29 Srvc 10G Ethernet              Enabled  -    Up   -         5/29 L2 Link
           Untagged                  Enabled  Up   -    Active   -     -
           Tagged VLAN    31         Enabled  Up   -    Active   -     -


[local]PGW> show port npu counters
Counters for port 5/10
Counter                  Rx Frames       Rx Bytes      Tx Frames        Tx Bytes
-------------------- ------------ --------------- ------------ ---------------
Unicast               936150697918 636869996072149  936928268252105523098790596
```

```
Counters for port 5/11
Counter                  Rx Frames       Rx Bytes      Tx Frames        Tx Bytes

-------------------- ------------ -------------- ------------ ---------------
Unicast                          0              0            0               0

Counters for port 5/15
Counter                  Rx Frames       Rx Bytes      Tx Frames        Tx Bytes

Counters for port 5/16
Counter                  Rx Frames       Rx Bytes      Tx Frames        Tx Bytes


Counters for port 6/10
Counter                  Rx Frames       Rx Bytes      Tx Frames        Tx Bytes
-------------------- ------------ -------------- ------------ ---------------
Unicast               936156167721 636873912574349  936933671626105523710273704 6

Counters for port 6/11
Counter                  Rx Frames       Rx Bytes      Tx Frames        Tx Bytes

Counters for port 6/15
Counter                  Rx Frames       Rx Bytes      Tx Frames        Tx Bytes

Counters for port 6/16
Counter                  Rx Frames       Rx Bytes      Tx Frames        Tx Bytes
```

Again, only active ports are listed by this command:

```
Counters for port 5/28
Counter                  Rx Frames       Rx Bytes      Tx Frames        Tx Bytes

Counters for port 6/29
Counter                  Rx Frames       Rx Bytes      Tx Frames        Tx Bytes
```