RDP – Wrapped or Unwrapped???

Patty Driever - IBM

T11-2019-00098-v003

Today's RDP

- Today's Read Diagnostic Parameters command returns descriptors that contain counts of events detected at the port
  - Corrected and uncorrected blocks in the FEC Status Descriptor block
  - Number of times receive and transmit buffer-to-buffer credits reach 0
  - Number of times receive and transmit buffer-to-buffer credits remain at 0 for an entire delay interval
  - Number of times a frame has been discarded due to being unable to transmit
  - Number of times the interface has received or transmitted a Link Reset

The Problem

- These counters can be (are?) reset when the port transitions state (i.e. reset, light drops, transitions to Active state) or they can be administratively reset

- Knowing that a port transitioned state across polling intervals or an administrative reset of counters has occurred is a useful piece of information for the consumer of the RDP data to have

  - Can be used to determine how to interpret the newly reported values, especially in the case where the most recent value is lower than the previous value

    - Can the delta change between prior reported value and the newly reported value be done as a simple math calculation between the two, accounting for a possible wrap condition?

      - OR

    - Is the newly reported value a straight accumulation since the last port state transition or administrative counter reset?

Proposed Solution

- Addition of a token value (e.g. the equivalent of a random value...could be based on a timestamp) in the response data

- How does this work?

  - Token value is generated for first RDP response of a port

  - Token value changes only when any of the port counters are reset either due to a port state transition or administrative reset action

  - If token value has changed

    - Counters are interpreted from a basis of 0

  - If token value has not changed

    - Counters are interpreted as delta value from last sample value (accounting for wrap conditions)

Proposed Solution Details

▶ Create a new Counter Reset Token descriptor

Section 4.3.49.5.11 Counter Reset Token descriptor

The Counter Reset Token descriptor contains a value that can be used to aid in determining if continuously increasing counter values within RDP descriptors may have been reset or wrapped since the last time it was read

Table xxx

Bits Word	31............24	23............16	15............08	07............00
0	Counter Reset Token Descriptor tag = 0001 000Eh			
1	Counter Reset Token Descriptor Length (4 bytes)			
2	Counter Reset Token			

Counter Reset Token: The Counter Reset Token field contains a numeric value that is set to a different arbitrary (e.g. random or pseudo-random) value each time one or more of the continuously increasing counters returned in an RDP response (e.g. in the Port Congestion Descriptor (see 4.3.49.5.10)) has been reset for any reason (e.g. power cycle or administrative action).

Proposed Solution Details

■ Add to Table 6: Link Service TLV Descriptors

Tag Value	Descriptor	Reference
0001 000Eh	Counter Reset Token descriptor	4.3.49.5.11