

RADIUS Accounting Extensions on Traffic Statistics

draft-yeh-radext-ext-traffic-statistics-01 +

IETF 82 – Radext

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Requirements

- NAS must be able to report the separated IPv4 & IPv6 traffic statistics for the differential accounting and traffic recording in dual-stack (or other IPv6 transition) scenario.

More discussion on BBF TR-187 Section 9.4, which dedicates for PPPoE with IPv6-only and Dual-Stack scenarios?

- “The BNG might support a mix of IPv4 and IPv6 traffic in any single queue thus allowing for any existing QoS policy to be maintained irrespective of whether the customer is **support separate queues** for IPv4 and IPv6 traffic, as they may be used to offer IPv4 and IPv6 services with different policies.”
 - The BNG MUST support forwarding IPv6 and IPv4 traffic in common traffic classes.
 - The BNG MUST support forwarding IPv6 and IPv4 traffic **in separate traffic classes**.
 - The BNG MUST support input and output **octet counters** that are **separate** for both IPv6 and IPv4 traffic.
 - The BNG MUST support input and output **packet counters** that are **separate** for both IPv6 and IPv4 traffic.

Interests on the same topic of 'Traffic Statistics' shown in I.D.s written before

- [draft-maglione-radext-ipv6-acct-extensions-01] "RADIUS Accounting Extensions for IPv6", Mar. 2010
 - *Telecom Italia, Ericsson, Magyar Telecom & Huawei*
- [draft-hu-v6ops-radius-issues-ipv6-00], "RADIUS issues in IPv6 deployments", Feb. 2011
 - *China Telecom & ZTE*
- [draft-winter-radext-fancyaccounting-00], "RADIUS Accounting for traffic classes", Mar. 2011
 - *Stefan Winter*
- [draft-yeh-radext-dual-stack-access-02], "RADIUS Attributes for Dual Stack Access", Mar. 2011
 - *Leaf Yeh @ Huawei*

Network Scenario

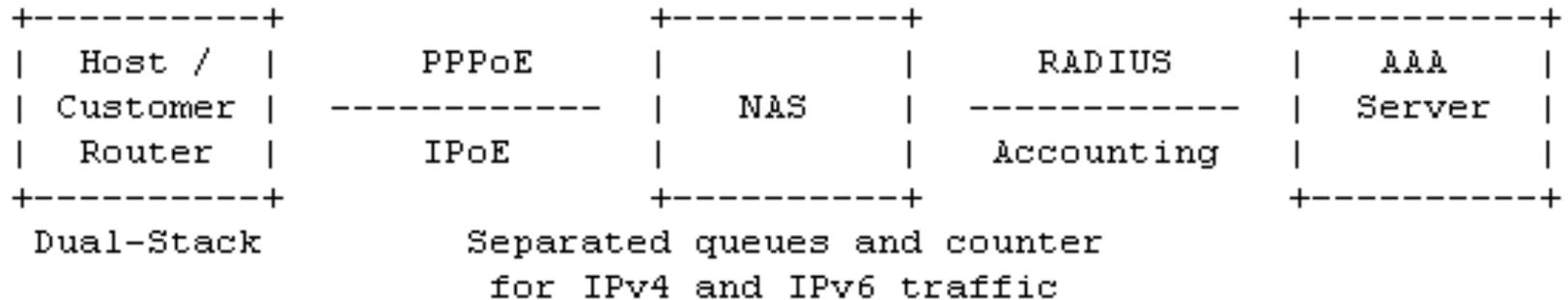
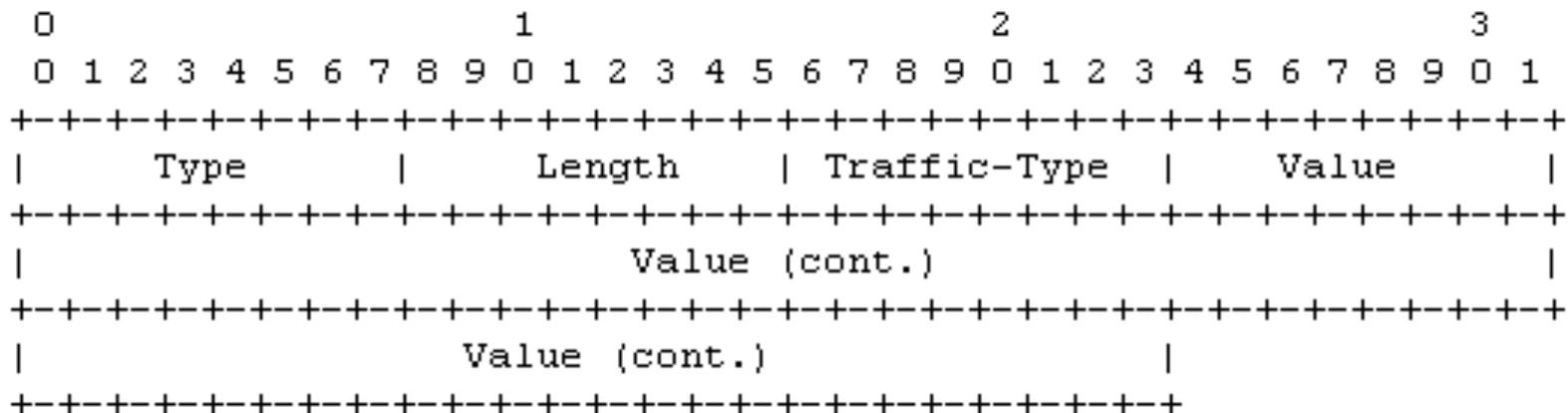


Figure 1: Traffic Statistics of Dual-Stack Users for RADIUS Accounting

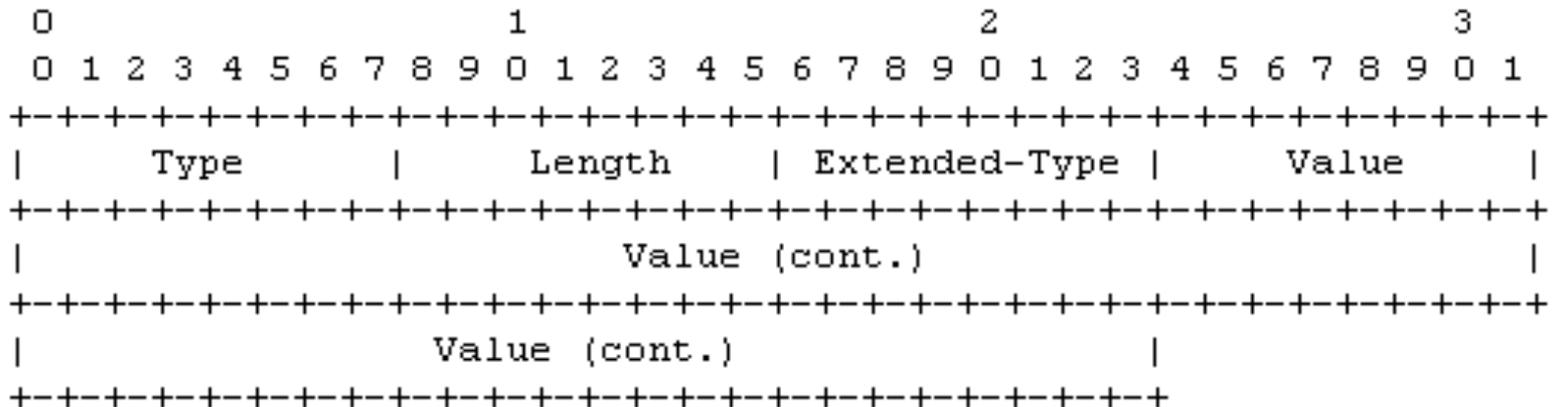
- Note that traffic statistics reporting might also be required in any IPv4-IPv6 transition cases including dual-stack, NAT444, 6rd, DS-lite, or 4rd, and etc.

Enhanced Design – 1+

- Still in the traditional unassigned type space
- But 4x new attributes in 'flat' mode : 2x 2
 - (Input/Output) * (Octets/Packets)
- Add one-octet field named 'Traffic-Type', which provide the extensible space for future usage
- Code of 'Traffic-Type' could be:
 - 0 for IPv4+IPv6
 - 1 for IPv4
 - 2 for IPv6
 - 3-10 for DSCP0-7 (TBD)
 - 11-255 Reserved
- 0+ in Accounting-Request message
- Format is shown as below:



- Define in the Extended-Type space per draft-ietf-radext-radius-extensions-02
 - 8x new attributes in ‘flat’ mode : 2x 2x 2
 - (IPv4/IP6) * (Input/Output) * (Octets/Packets)
 - Codes of new attribute
 - 241.x or 242.x
 - Data Type: Integer64
 - Format is shown as below:

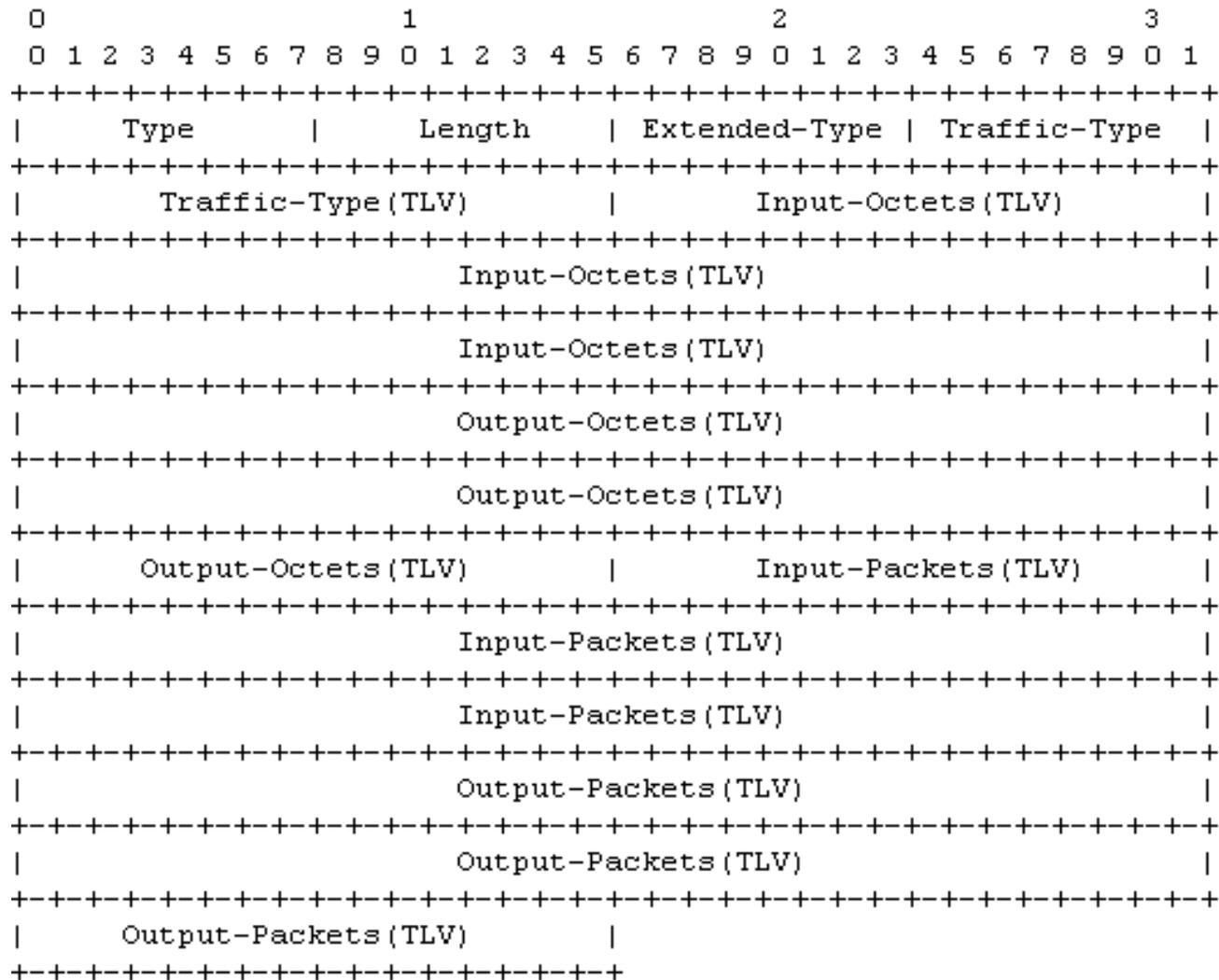


Design - 3

- Define in the Extended-Type space per draft-ietf-radext-radius-extensions-02
- TLV grouping in one Container attribute: Acct-traffic-statistics
- 4x sub-attribute are believed always to appear simultaneously in the accounting message, the format of the sub-attribute is almost the same as the one in Design 1 described above.
 - Input-Octets (10x octets, TLV)
 - Output-Octets (10x octets, TLV)
 - Input-Packets (10x octets, TLV)
 - Output-Packets (10x octets, TLV)
- 1x sub-attribute of 'Traffic-Type'
 - Traffic-Type (3x octets, TLV)
- Code for the attribute & sub-attributes might be:
 - Acct-traffic-statistics: 241.x
 - Traffic-Type: 241.x.1
 - Input-Octets: 241.x.2
 - Output-Octets: 241.x.3
 - Input-Packets: 241.x.4
 - Output-Packets: 241.x.5
- Code for the 'Value' of 'Traffic-Type' could be the same as Design-2+ described above.

Design – 3 (Cont.)

- 0+ in Accounting-Request message
- Format is shown as below: (46x Octets in total)

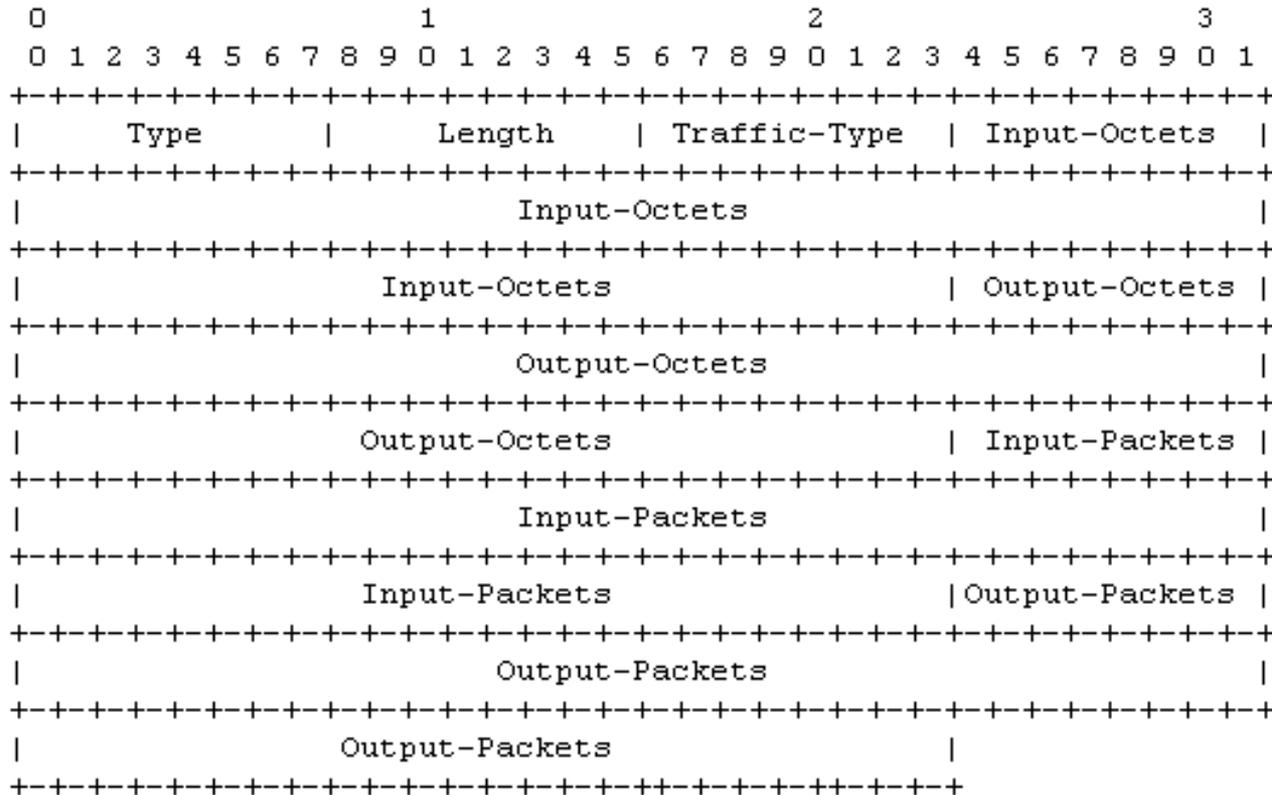


Enhanced Design – 4 (or 1++)

- Still in the traditional unassigned type space, but 1x new attributes in ‘flat’ mode, including 5x additional fields:
 - Traffic-Type (1x octet)
 - Input-Octets (8x octets)
 - Output-Octets (8x octets)
 - Input-Packets (8x octets)
 - Output-Packets (8x octets)
- Code of ‘Traffic-Type’ could be the same as Design-2+ described above.
- 0+ in Accounting-Request message
- Format is simplified.
- Same design can be adopted for the Extended-Type space if necessary.
 - + 1 Octet for the field of ‘Extended-Type’ in the format

Enhanced Design – 4 (Cont.)

- Format is shown as below: (35x Octets in total)



- Turn to be Design-3 described above.
- *Stefan Winter*
 - draft-winter-radext-fancyaccounting-00
 - container Attribute + TLV (sub-attributes)
 - 1-2 sub-attributes (Class-ID & Class-Name) for the traffic type

Proposal for Next Step

- Clear requirements from the industry
 - 4+ proposed attribute design
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- Thanks for the discussion in the mail-list before this presentation with:
 - *Alan DeKok*
 - *Stefan Winter*