RADIUS Accounting Assurance

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IETF 118 RADEXT
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Agenda

• Background of WBA RADIUS Accounting Assurance Project
  • Objectives
  • Who we are: Leadership Team, Contributors and Participants
• Issues in RADIUS Accounting
  • Grey Areas
  • Misreporting
• Actions Taken to Address Misreporting in RADIUS Accounting
Objective: Address Ambiguity in RADIUS Accounting

- Clarify & Understand RADIUS
  - Bring Attention to Grey Areas
  - Understand Vendor Implementations

- Establish Methods of Misreporting Detection
  - Define Session Flagging Conditions
  - Recommend Reporting and Billing Adjustments

- Engage Vendor
  - Track & Report Defects
  - Define Test Cases

Phase 1 (December 2023) | Phase 2 (TBD)
Leadership Team and Contributors

• Leadership Team
  • Ryan Blossom (Single Digits)
  • Tim Tweedle (AT&T)
• Contributors include individuals from:
  • Roaming Hubs
  • Wi-Fi Equipment Vendors
  • Identity Providers (IDPs)
  • Access Network Providers (ANPs)
Grey Areas in RADIUS Accounting

1. Uniqueness of Acct-Session-Id and Acct-Multi-Session-Id
   • Sometime Acct-Session-Id and/or Acct-Multi-Session-Id is not unique enough

2. Meaning of Acct-Multi-Session-Id
   • No standardized format, some vendors do not include it
   • RFC 3580 suggests its use in roaming scenarios and a possible format
   • Vendor survey also pointed out use of Acct-Multi-Session-Id as useful in roaming

3. Number of Class attributes supported in echo
   • Multiple RADIUS hops add Class in Access-Accept to aid in mediation
   • Unknown if there is an upper limit to how many Class attributes are echoed

4. Signaling internal issues/errors in AP/WLC
   • How should accounting messages be formulated by client when internal error is seen?
   • Common practice is to set Acct-Session-Time to 0, per vendor survey
RADIUS Accounting Filter Thresholds

**Velocity**
- Throughput (Mbps) > 2048

**Exact Gigaword**
- Acct-Input-Gigawords > 0 AND Acct-Input-Octets = 0
- Acct-Output-Gigawords > 0 AND Acct-Output-Octets = 0

**Packet Size**
- Total_Input_Bytes / Acct-Input-Packets > 9000
- Total_Output_Bytes / Acct-Output-Packets > 9000

**Session Duration**
- Acct-Session-Time = 0

**Packet Count**
- Acct-Input-Packets = 0 AND Total_Input_Bytes > 0
- Acct-Output-Packets = 0 AND Total_Output_Bytes > 0

- RADIUS attributes are show in red.
- Calculated attributes are shown in purple.
Flagged Accounting Sessions

- Significant amount of tonnage from small fraction of sessions
- Dataset:
  - Multiple Access Network Provider (i.e., hotspot operator) networks
  - Accounting Stop records from September 1st to September 14th, 2023

Flagged GBs

Flagged Sessions

- Packet Count: ~9M (<5%)
- Session Duration: ~9M (<5%)
- Velocity: ~15K (<0.01%)
- Packet Size: ~1K (<0.001%)
- Exact Gigaword: ~1K (<0.001%)