Advancing Metrics on the Standards Track

Problems and Possible Solutions

Al Morton    July 2009
Outline

- Issues with comparing implementations
- Definition-centric metric advancement
- Examples of the Definition-centric approach: brief test methods in the lab
Comparing Implementations as the focus of testing and analysis - Issues

- Implementation Variability
- Deciding Statistical Methods
- Assumption of non-interoperable implmmt.
- Determining whether Lab test can serve
- Achieving “Identical” Network Conditions
- IETF is not in the Certification Business
Definition-Centric Process

(Start)

Implementations

+-------+
| 1     |
+-------+

RFC

| Check for Equivalence under clause x |
| ' ' was RFC ' ' YES
| clear? ' '

Metric

| relevant | identical | network | conditions | Spec | DONE |
| 2 | | | | | |

...
What’s Different? (the sub-points)

- Start with an RFC
  - Focus on a specific clause
- Run test(s) with Implementations
  - Test plan is customized to a specific clause
- Evaluate Measurements & Compare
  - Clear expected measured results
  - Obvious place to take action if text is found to be ambiguous
Example 1 – Loss Threshold

- See Section 3.5 of [RFC2679], 3rd bullet point and also Section 3.8.2 of [RFC2679].
- 1. configure a path with 1 sec one-way constant delay
- 2. measure one-way delay with 2 or more implementations, using identical waiting time thresholds for loss set at 2 seconds
- 3. configure the path with 3 sec one-way delay
- 4. repeat measurements
- 5. observe that the increase measured in step 4 caused all packets to be declared lost, and that all packets that arrive successfully in step 2 are assigned a valid one-way delay.
Other Examples

- **One-way Delay, First-bit to Last bit, RFC 2679**
  - See Section 3.7.2 of [RFC2679], and Section 10.2 of [RFC2330].

- **One-way Delay, RFC 2679**
  - This test is intended to evaluate measurements in sections 3 and 4 of [RFC2679].

- **Error Calibration, RFC 2679**
  - This is a simple check to determine if an implementation reports the error calibration as required in Section 4.8 of [RFC2679].
We could ask about opinion/consensus

- if folks have read the draft or understood the talk…
- Does the Definition-Centric Approach appeal to the IPPM WG?
- Any other input to the Editorial Team?