

***(Long-Term) Reporting Metrics:  
Different Points of View***

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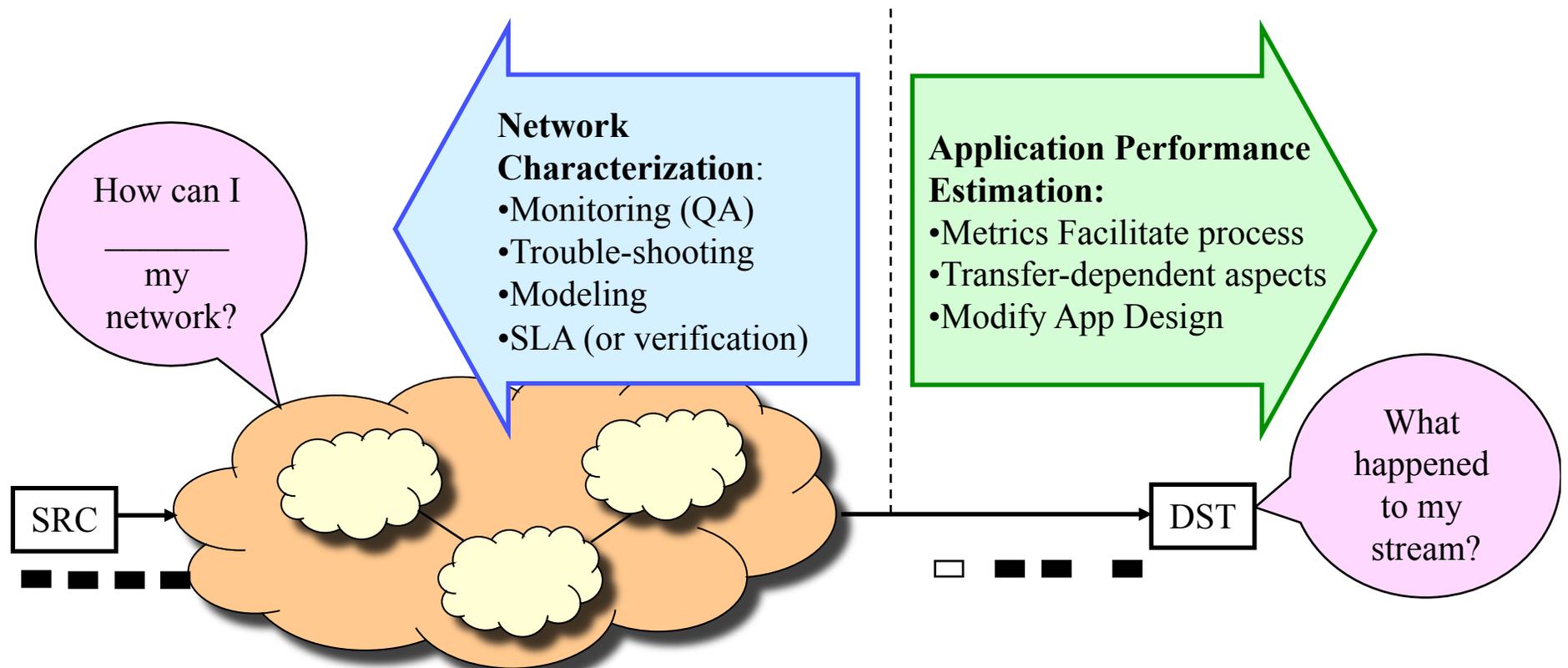
**draft-ietf-ippm-reporting-metrics-05**

## *Summary of Recommendations so far:*

- **Set a LONG Loss threshold**
  - Distinguish between Long Finite Delay and Loss
  - Avoid truncated distributions
- **Delay of Lost Packets is UNDEFINED**
  - Maintain orthogonality – avoid double-counting defects
  - Use conditional distributions and compute statistics
- **Report BOTH Loss and Delay**
- **Report BOTH the Sample Mean and Median.**
  - Comparison of the Mean and Median is informative
  - Means may be combined over time and space (when applicable)
  - Means come with a weighting function for each sample if needed, the sample Size, and Loss simply reduces the sample size
  - Means are more Robust to a single wonky measurement when the sample size is Large
- **Move the Industry Away from “Average Jitter”**
  - Use the 99.9%-ile minus minimum PDV
  - Portray this as a Delay Variation “Pseudo-Range”

## *Different Points of View (POV): 2 key ones*

- When designing IP measurements and reporting results, **MUST** know the Audience to be relevant
- Key question: “How will the results be used?”



## *Background on Capacity Discussion*

- **Section on Raw Capacity Reporting**
  - ➔ Utilization – Time scale of averaging conceals variability
  - ➔ Available Capacity – Many methods of Estimation
- **Section on Restricted Capacity Reporting**
  - ➔ Distinguished from Raw Capacity:
    - ✦ Requires Uniqueness of Data Delivered
    - ✦ Adds Flow Control, Congestion Awareness
    - ✦ Transport-layer bits, not IP header + Payload
  - ➔ New Type-C Concept
    - ✦ Similar to Type-P, but for TCP options & algorithms
- **BOTH emphasize Capturing Variability**

## *Now, for Raw and Restricted Capacity*

### **Two Discussion Questions:**

- **What ways can Utilization/BTC be measured and summarized to describe the potential variability in a useful way?**
- **How can the variability in Available Capacity/BTC estimates be reported, so that the confidence in the results is also conveyed?**

## *New Proposal in Version 05*

With a set of singleton Utilization or Available Capacity estimates, each representing a minimum time to ascertain the estimate, we propose to describe the variation over the set of singletons as though reporting summary statistics of a distribution. Four useful summary statistics are:

- ○ Minimum, Maximum, and the Range they define
- ○ Mode

For an on-going series of singleton estimates, propose a moving average of n estimates to provide a single value estimate to more easily distinguish substantial changes in performance over time. For example, in a window of n singletons observed in time interval, t, a percentage change of x% is declared to be a substantial change and reported as an exception.

## *What's Next?*

- **Finish the WG draft on Short-term reporting?**
- **Address Barry Constantine's comments on the list**
  - ➔ **Any specific points?**
- **Need Additional IPPM people to**
  - ➔ **Discuss the Raw and Restricted Capacity related Proposal now, in the halls, and on the list.**