

## **Instantaneous Packet Delay Variation Metric for IPPM** **<draft-ietf-ippm-ipdv-02.txt>**

Main changes in version 02:

- *3. Introduction.* a NOTE has been added drawing the attention on possible different definitions, each of them corresponding to a specific metric. - *However : lack of terminology.*
- *3.1 Definition.* Two definitions are given for a pair of packets and a stream of packets.
- *3.2 Motivation.* some addition to underline the precision of the metric.
- *6.1 “Discontinuous” definitions.* Two possible definitions are given, considered as not so much suitable (even if an application has been experimented that makes use of one of them - it works -).
- *7.3 Effects of synchronization errors.* This section has been re-edited since it contained some imprecision.
- *Addition of Appendix A.* The appendix contains some explanation on theory and some calculation.

## Appendix A

### <draft-ietf-ippm-ipdv-02.txt>

Errata:

often the word “reciprocal” is used instead of the correct one “relative”

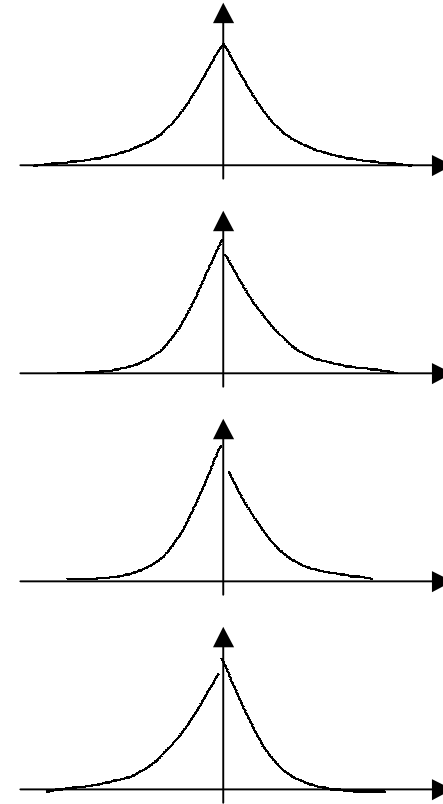
- It shows the meaning of the Mean IPDV value
- It calculates the precision of IPDV values
- It indicates a way to correct values in a not synchronized case
- It shows that in a synchronized case the error is of the same order of magnitude but it is not correctable.

**Section A.4** - How to deal with slow Delay Variations, as the ones produced by variations in traffic volume, and how to minimize the error on evaluation of relative skew and therefore to optimize the corrections. The advantage of bi-directional measurements allowing an evaluation of the required measurement duration is missing (*forgotten*).

**Section A.5** - Symmetry and intervals between packets. Short considerations on symmetry of the distribution. It depends on intervals between packets and is related to the type of delay variability. (next slide).

## Symmetry of an IPDV distribution

- Independent propagation of packets (large intervals) → Symmetry
- Intervals derived from poissonian arrival process (many short intervals) → Asymm. +
- The path tends to produce bursts (test packets concentrated between large packets) → Asymm ++
- Bandwidth limitation on path (short intervals are limited by the time for sending a packet through a bottleneck) → Asymm -



Asymmetry is not a distortion, but the measurement of a behavior. We are looking if something of interest can be derived (*some doubts about*). In case of nothing of interest, section A.5 will be deleted.