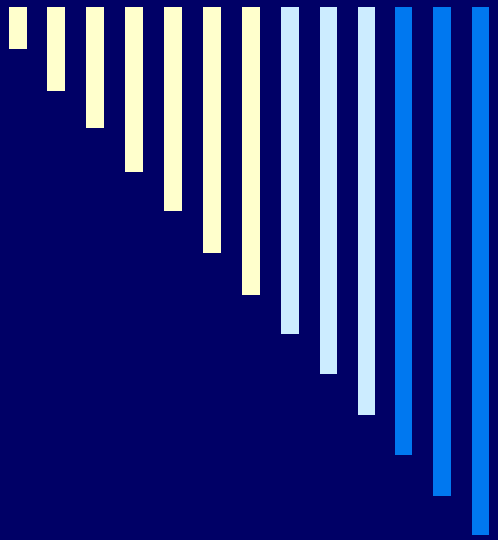

Composition of Metrics

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Outline

- Background
- Types of Composition
- Proposed Scope of Work, and
- Application Details
- Example Metric:

see draft-morton-composition-00.txt

Background

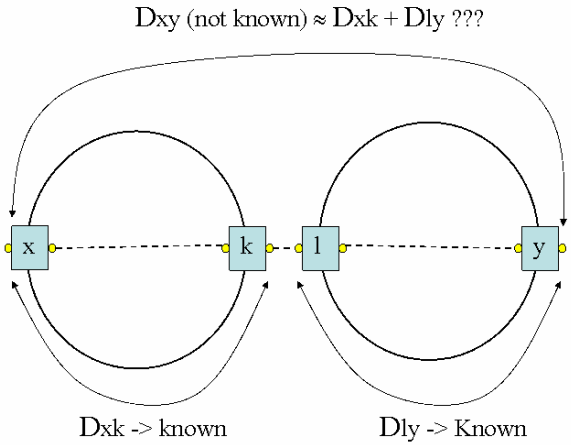
- RFC 2330 describes Spatial and Temporal Composition of Metrics
  - Spatial and Multiparty Metrics Draft addresses some aspects of the problem
  - Framework mentions that the A-frame would help to define useful relationships between complete path and sub-path metrics

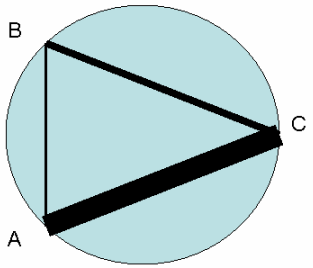
Background (2)

- SP's wishing to offer Inter-Domain QoS agreements (w/o direct measurement) are interested in these topics
- ITU-T looking at sub-path measurement accumulation rules to compose complete path
- GEANT2 project on Network Metric Definition includes the above, plus aggregation in time and space

Types of Composition

- Complete/Sub-Path (or Concatenation in Space)
- Aggregation in Time (12x5min stats ->1hr)
- Aggregat. in Space





	Delay	Load
A-B	24.5 ms	1 Gbit/s
B-C	7.8 ms	3 Gbit/s
A-C	4 ms	9 Gbit/s
Domain	1/13*24.5+3/13*7.8+9/13*4 = 6.4 ms	13 Gbit/s

Proposed Scope for IPPM

- Memo gives a set of complete path metrics that can be composed from
  - the same metric for each sub-path
  - multiple metrics for each sub-path
  - a single different metric for each sub-path

Proposed Scope for IPPM (2)

- Each metric will clearly state:
  - The definition (and statistic, where appropriate)
  - The composition relationship
  - The conjecture on which the relationship is based
  - A justification of practical utility or usefulness
  - One or more examples of how the conjecture could lead to inaccuracy

Metric Application Details

Whether the Metric Requires:

- The same test packets to traverse all sub-paths, or not
- Homogeneity of measurement methods
- Information only available within a domain, or domain is a black-box
- Synchronized measurement intervals
- Assumption of sub-path independence

Example Metric: Delay

- Finite one-way Delay Stream
  - Relationship: Sum of Mean Delays
- Other Metrics in Scope:
  - Loss
  - Delay Variation

- Following up from the list discussion:

Is there interest to take up as a work item?