Network Performance Metrics

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There are many metrics that are commonly used to characterize the performance of networks and parts of networks. We present the most important of these, explain what influences them, how they can be measured, how they influence end-to-end performance, and what can be done to improve them.

A framework for network performance metrics has been defined by the IETF's *IP Performance Metrics (IPPM)* Working Group in RFC 2330. The group also developed definitions for several specific performance metrics; those are referenced from the respective sub-topics.

- One-Way Delay (OWD)
- Round-Trip Time (RTT),bandwidth*delayproduct, Long Fat Networks (LFNs)
- Delay Varation or "Jitter"
- Packet Loss
- Packet Reordering
- Maximum Transmission Unit (MTU)
  - Path MTU

References

- IETF IPPM Working Group: official charter page - tools.ietf.org WG status page
- RFC 2330: Framework for IP Performance Metrics, V. Paxson, G. Almes, J. Mahdavi, M. Mathis, May 1998
- A Hierarchy of Network Performance Characteristics for Grid Applications and Services by the Global Grid Forum's Network Measurements Working Group (NMWG) - New version -04
- EGEE Network Performance Metrics document
- Public Netperf benchmark database

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