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Large-Scale Broadband Measurement Use Cases draft-linsner-lmap-use-cases-00

Abstract

Measuring broadband performance on a large scale is important for network diagnostics by providers and users, as well for as public policy. To conduct such measurements, user networks gather data, either on their own initiative or instructed by a measurement controller, and then upload the measurement results to a designated measurement server. Understanding the various scenarios and users of measuring broadband performance is essential to development of the system requirements. The details of the measurement metrics themselves are beyond the scope of this document.

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1 Introduction

Large-scale measurement efforts in [LMAP-REQ] describe three use cases to be considered in deriving the requirements to be used in developing the solution. This documents attempts to describe those use cases in further detail and include addtional use cases.

<u>1.1</u> Terminology

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in <u>RFC 2119</u> [<u>RFC2119</u>].

2. Use Cases

The first 3 use cases are copied directly from [<u>LMAP-REQ</u>], then changes made attempting to correlate with list discussions.

2.1 Access Network Provider

Internet service providers have an interest in knowing how well their networks are performing, as viewed from their customers' perspective. Such performance information allows them to identify bottlenecks and observe the impact of changes in user behavior, e.g., the emergence of new network applications or time-of-day patterns. Here, the provider is not interested in the performance of an individual edge network or device, but rather wants to get a statistically-valid sample of performance across their network. Service providers may be interested in both the end device performance, i.e., the performance as seen by edge devices in home and enterprise networks, as well as the edge performance, i.e., as seen by the network device directly attached to their network, such as a cable modem, DSL modem or enterprise edge router. To reduce the network load, providers are unlikely to gather measurements from all clients all the time, but rather sample randomly across both time and their user population.

2.2 End User Network Diagnostics

End users may want to determine whether their network is performing according to the specifications (e.g., service level agreements) offered by their Internet service provider, or they may want to diagnose whether components of their network path are impaired. End users may perform measurements on their own, using the measurement infrastructure they provide or infrastructure offered by a third party, or they may work directly with their network or application provider to diagnose a specific performance problem. Depending on the circumstances, measurements may occur at specific pre-defined Linsner

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intervals, or may be triggered manually. A system administrator may perform such measurements on behalf of the user.

2.3 Multi-provider Network Measurements

As an extension of the first use case, multiple network providers and third parties, such as a regulatory body, may collaborate to gather network performance data on a one-time or recurring basis, using a subset of customers of the service providers. The form of collaboration is beyond the scope of this paper, however it should be understood that a data collection platform must serve multiple stakeholder interests.

The main consumer of this use case is someone other than the 'last mile' provider.

2.4 Over the Top Providers

Possibly an extension to the Multi-Provider use case, OTT providers have an interest to ensure Quality of Experience (QOE) associated with content consumption. The uniqueness to this use case compared to those mentioned above is the feature that the measurement client will run on software based apps and embedded apps such as those found in set-top boxes or disc players. It is assumed that measurement tests run by OTT providers would only include the metrics associated with layer 3 and up.

The main consumer of this use case are content providers.

<u>3</u> Security Considerations

TBD

<u>4</u> IANA Considerations

TBD

5 References

<u>5.1</u> Normative References

- [RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", <u>BCP 14</u>, <u>RFC 2119</u>, March 1997.
- [LMAP-REQ] Schulzrinne, H., "Large-Scale Measurement of Broadband

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Performance: Use Cases, Architecture and Protocol Requirements", draft-schulzrinne-lmap-requirements, September, 2012

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