



Internet Traffic Monitoring Tools and Analysis Smart-2012-0046 **- Standardization -**

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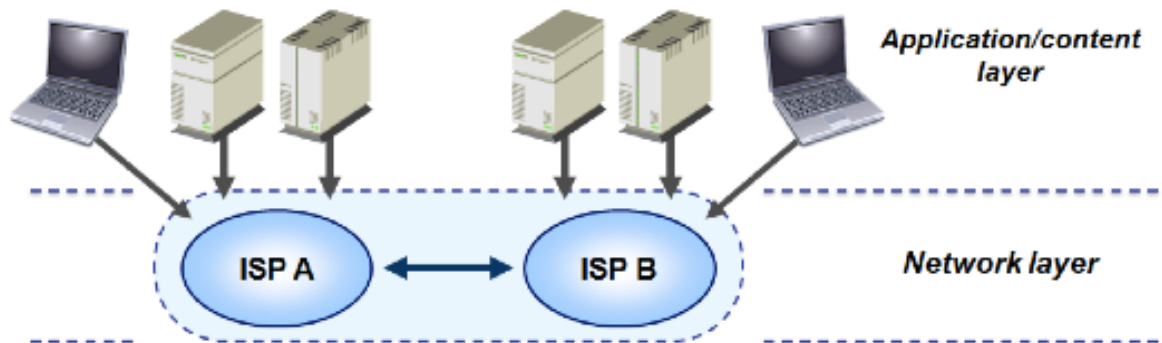
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3rd Workshop of Smart-2012-0046



Problem

- Standards have evolved in different directions for the different technologies
 - Difficult to extract and correlate the performance information between different systems and vendors.
- **ECC-REPORT195** (Minimum Set of QoS Parameters and Measurement Methods for Retail Internet Access Services, 04. 2013)
 - ISPs are measuring different sets of Quality of Service (QoS) parameters;
 - Non-harmonized definitions and methodologies applied for the measurement of the QoS parameters give non-comparable values among different ISPs even in case of similar QoS parameters
 - Consolidated information regarding QoS values from different ISPs is available in just a few countries across Europe.

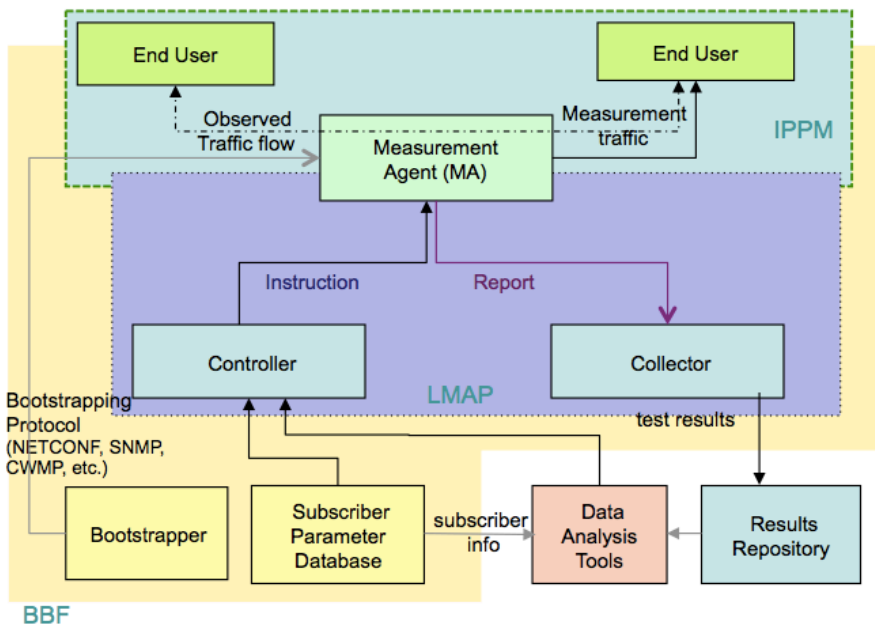


Source: A framework for Quality of Service in the scope of Net Neutrality by BEREC

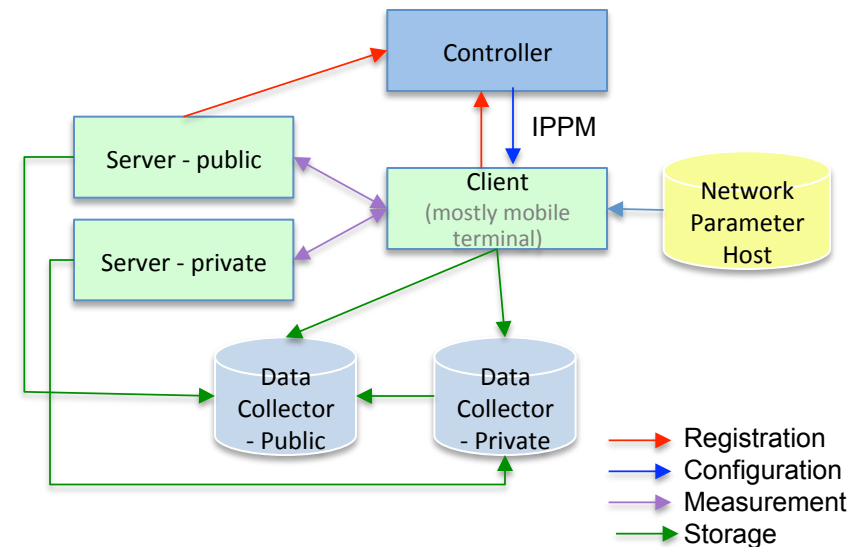


Interoperability

End-to-end telecommunication services require resource interconnection between operators and interoperability between multiple vendors.



IETF LMAP / BBF framework



IEEE P802.16.3 Architectural Reference Model For Mobile Broadband Network Performance Measurement

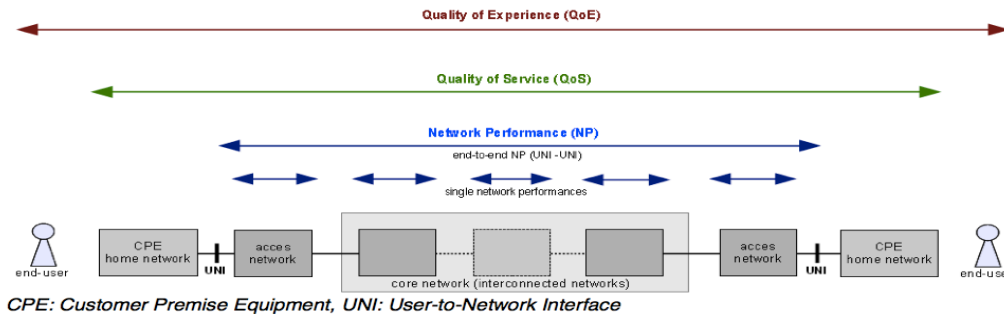
- Both groups have the focus on measuring the performance of broadband services with the end user perspective.
- The two frameworks have several commonalities (MA, controller, collector, IPPM metrics)



QoS / QoE

Quality of Service (QoS) parameters are a key factor in the roll-out of new technology

Regulators want better measurement of consumers' QoE.



COMMISSION DECISION of 11/XII/2006: (Official Journal EU L 86/11 of 27.03.2007) – Chapter VII

- ETSI EG 202 009 (User Group; Quality of telecom services) part 1
- ETSI EG 202 057-1 (Speech processing, Transmission and Quality Aspects (STQ); User related QoS parameter definitions and measurements)
- ITU-T G.1020 (Transmission Systems and Media; Digital Systems and Networks; Quality of Service and Performance; End-User Multimedia QoS Categories)
- ITU-T Y.1541 (Network performance objectives for IP-based services)

Parameter	Standard reference	Notes
Technical parameters		
Data transmission speed	ETSI EG 202 057-04	For upload and download
Mean Data Rate (FTP/HTTP/Email)	ETSI TS 102 250-2	Dedicated to mobile internet access services
Percent IP service unavailability (PIU)	ITU-T Rec. Y.1540	
Service availability	-	Taken from a national regulation
IP packet transfer delay (end-to-end) (IPTD)	ITU-T Rec. Y.1540	
Delay	-	Taken from a national regulation
Delay (one way transmission time)	ETSI EG 202 057-04	
Ping Round Trip Time	ETSI TS 102 250-2	dedicated to mobile Internet access services.
End-to-end 2-point IP packet delay variation	ITU-T Rec. Y.1540 and more details in ITU-T Rec. Y.1541 Annex II.	Network performance parameter
IP packet loss ratio (IPLR)	ITU-T Rec. Y.1540	
Unsuccessful data transmission ratio	ETSI EG 202 057-04	
Data Transfer Cut-off Ratio [%] (FTP/HTTP/E-mail)	ETSI TS 102 250-2	dedicated to mobile IAS
IP packet error ratio (IPER)	ITU-T Rec. Y.1540	
Login time	ETSI EG 202 057-4	
Successful log-in ratio	ETSI EG 202 057-4	
DNS host name resolution failure ratio	ETSI TS 102 250-2	
DNS host name resolution time	ETSI TS 102 250-2	
Parameters applicable for mobile Internet access services: Service non-accessibility, Setup time, IP-Service access failure ratio, IP-Service setup time, Session failure ratio (FTP/HTTP/E-mail)	ETSI TS 102 250-2	

Source: ECC-REPORT195



Summary

- **Interoperability**
 - IETF's LMAP is still on discussion. BBF is liable to IETF results.
 - Framework: IESG review (informational) / Informational model: on WG discussion / YANG data model: initial stage / Use cases: RFC-editors' queue (informational)
- **QoS/QoE**
 - New network services in conjunction with the use of smartphones/IoT devices require new QoS measurement methods, reference data and load profiles in order to guarantee the quality of new services.
 - ETSI (3GPP) & ITU-T are working on QoS for LTE, but yet it's limited to voice services, and need to be extended to diverse media types of services.
- **Interoperable Layer 2 measurement**
 - Works are focused on specific technologies, and no activities are observed in interoperable data link layer measurement
 - e.g., IETF RFC 7133, IPFIX WG, for VLAN / ITU-T Y.1563, for ethernet
 - It needs to define common data elements and format for interoperable L2 measurement.



What we need

- Guidance of common understanding on performance metrics and QoS parameters (including application-specific QoS measurement)
 - Definition of compatible reporting formats.
- ⇒ **Certified common registries for harmonized sets of performance metrics and QoS parameters**
- Recommendations from SDOs, plus Regulators' policy like EU L 86/11 of 27.03.2007
- ⇒ **Standardized reporting formats**

Vint Cerf: People often take the view that standardization is the enemy of creativity. But I think that standards help make creativity possible – by allowing for the establishment of an infrastructure, which then leads to enormous entrepreneurialism, creativity, and competitiveness.