



ITU workshop on telecommunications service quality

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Regulator's challenge to improve QoS/QoE in LATAM

Eng. Anabel Cisneros

acisneros@planetnetworkint.com

Planet Network International, France

KEY CHALLENGE FOR ICT REGULATORS

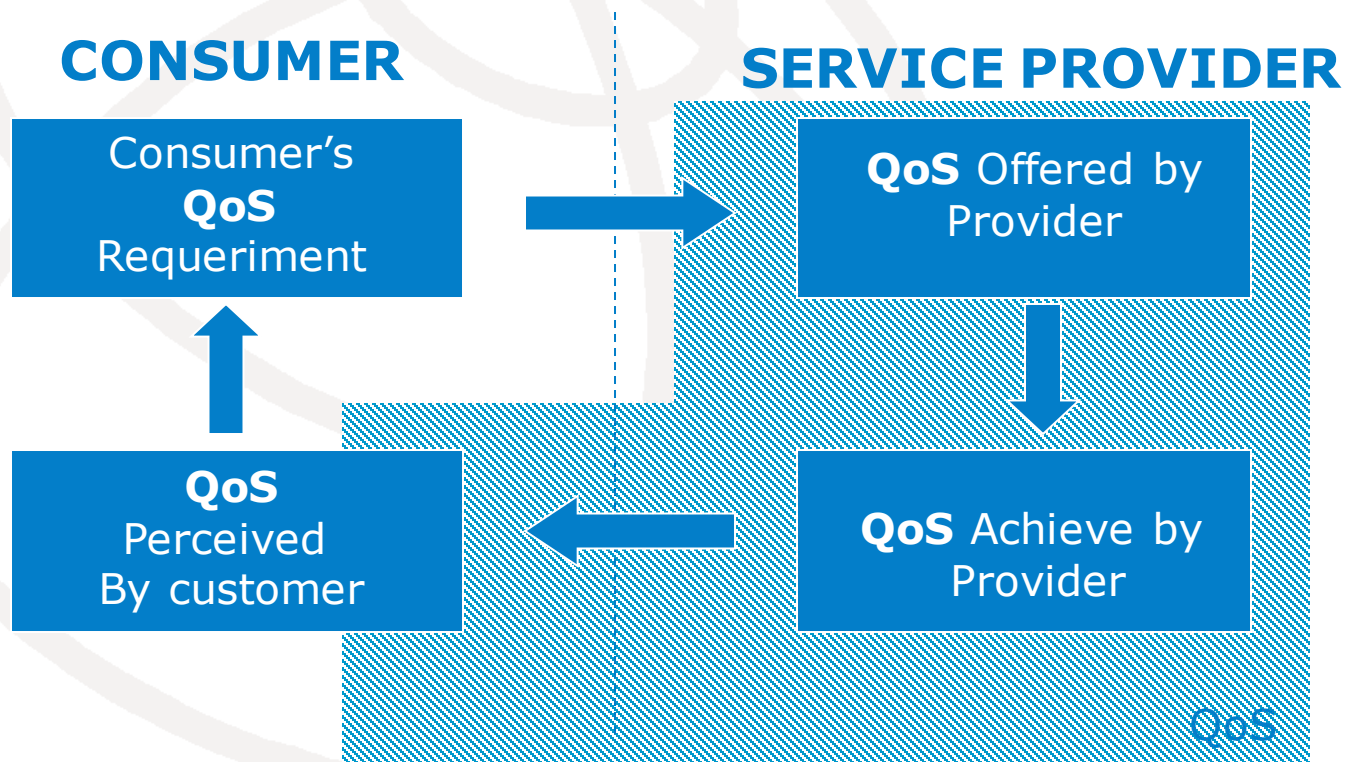
- REGULATION FOCUS IN QoS/QoE
- QoS POINTS OF VIEW
- KEY PERFORMANCE INDICATORS (KPIs)
- INCENTIVE METHOD vs PENALTIES
- BEST PRACTICES IN LATAM
- SYSTEMS AND MEASUREMENTS TO IMPLEMENT
- WHY QOS??

QoS DEFINITIONS

- Quality of service (QoS) is defined in [ITU-T E.800] as the **collective effect of performance which determines the degree of satisfaction of a user of the service.**
- a measure of performance of the network itself.
- QoS mechanisms includes mechanism that contributes to improvement of the overall performance of the system thus improving end user experience.
- defined in [ITU-T P.10/G.100] as the **overall acceptability of an application or service, as perceived subjectively by the end-user**
- Includes the complete end-to-end system effects (client, terminal, network, services infrastructure, etc)
- measured subjectively by the end user and may differ from one user to the other
- QoE is a **measure of end-to-end performance at the services level** from the **user perspective** and an indication of how well the system meets the user's needs.

QoS POINTS OF VIEW

■ UIT-T Rec. G.1000:



KEY PERFORMANCE INDICATORS

KPI

QoS is frequently confused with elements of network performance (NP) because (signalling) functions inside the networks are sometimes referred to as "services"

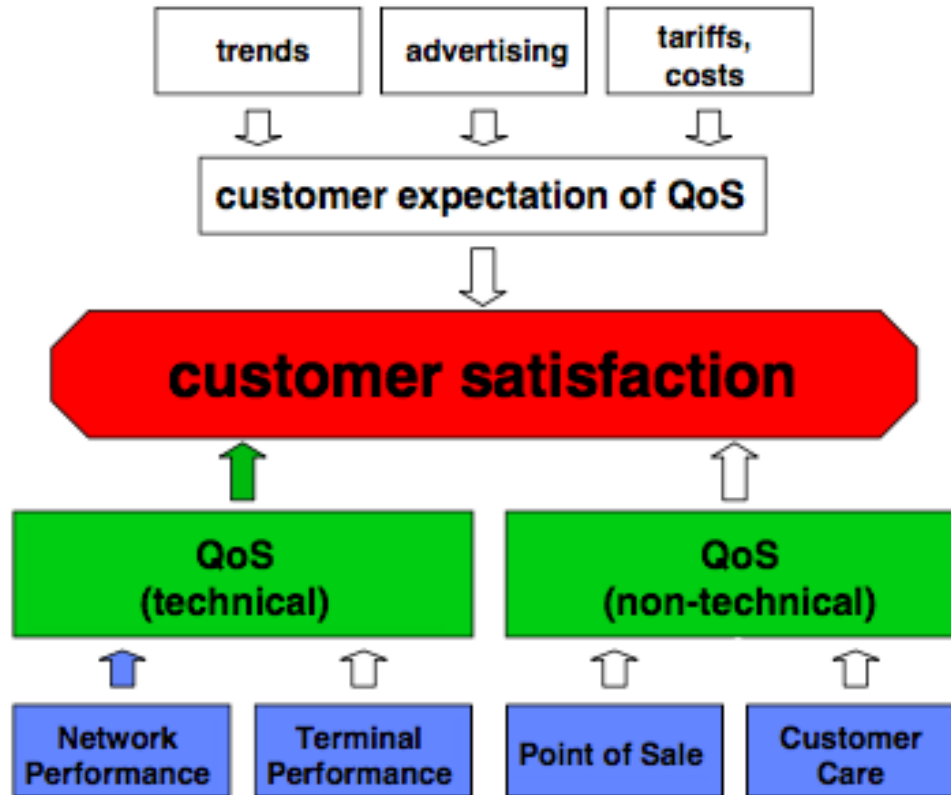
Main technical parameters to consider will be:

- speed (data throughput) of the access network
- congestion in the backbone
- end-to-end delay (latency)
- delay-variation (jitter)
- packet loss (loss of information).

KEY PERFORMANCE INDICATORS PROPOSED

Customer interface	Network infrastructure	Service functionality
1. Customer complaint submission rate	4. Coverage	8. Call set up ratio
2. Customer complaint resolution time	5. Service supply time	9. Call retention ratio
3. Customer service call answer ratio	6. Fault report submission rate	10. Listening voice quality
	7. Fault repair time	11. Value added service call answer ratio
		12. Message transmission ratio
		13. Packet transmission ratio
		14. Packet transmission rate
		15. Data transmission capacity

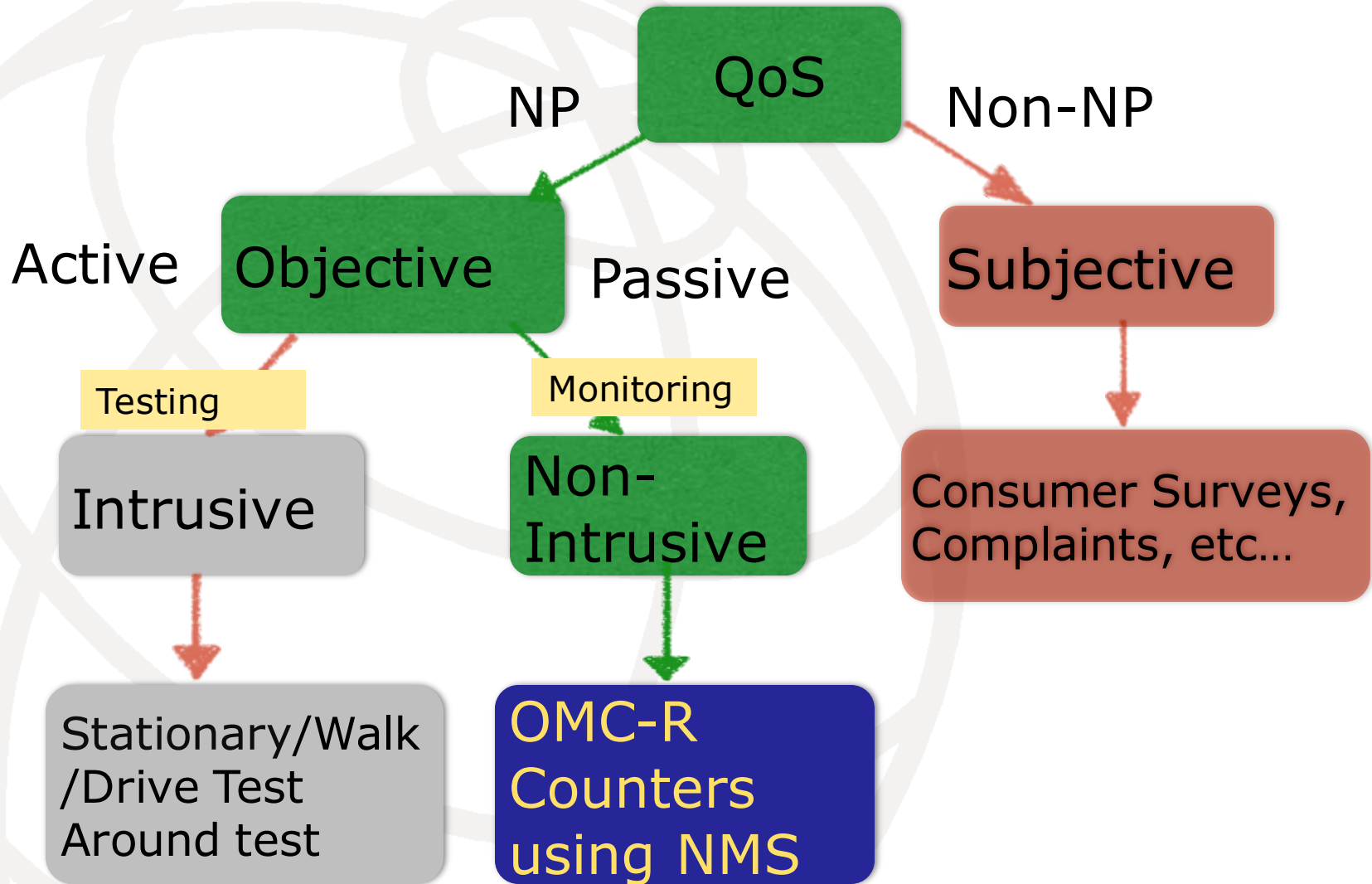
End to End QoS



Best Practices

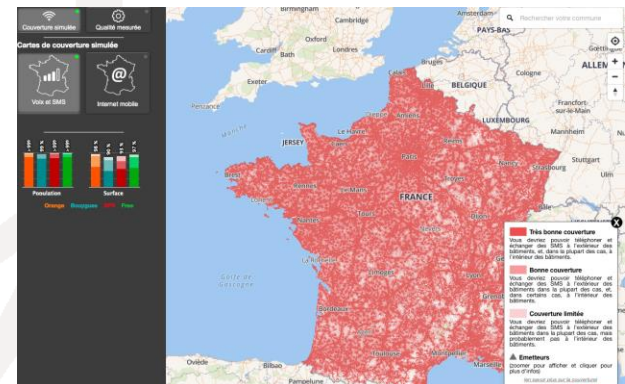
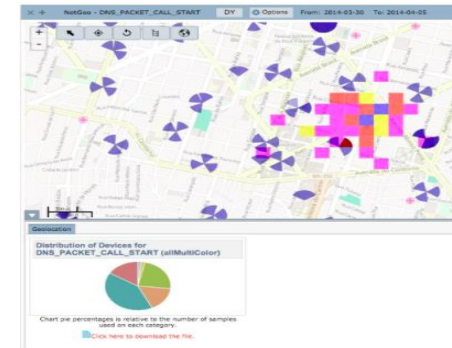
- ITU-T Supplement.9 (E. Series): “Guidelines on Regulatory Aspects of QoS” and some best practices worldwide.
- There are 4 elements in a regulator's approach to QoS:
- **Obtaining** appropriate information on the level of QoS and identifying the problem areas. This is essential since without the appropriate information the other elements cannot be undertaken;
- **Publishing** information on QoS performance so that customers can be better informed;
- **Imposing** regulations on performance such as required minimum levels and fines or compensation;
- **Undertaking** a constructive dialogue with the operator concerned to encourage and foster improvements.

QoS Measurement



SYSTEMS AND MEASUREMENTS TO IMPLEMENT

- Measuring with Drive Test
- Benchmarking systems
- Collaborative systems
- Coverage maps



Methodologies as advised by ETSI

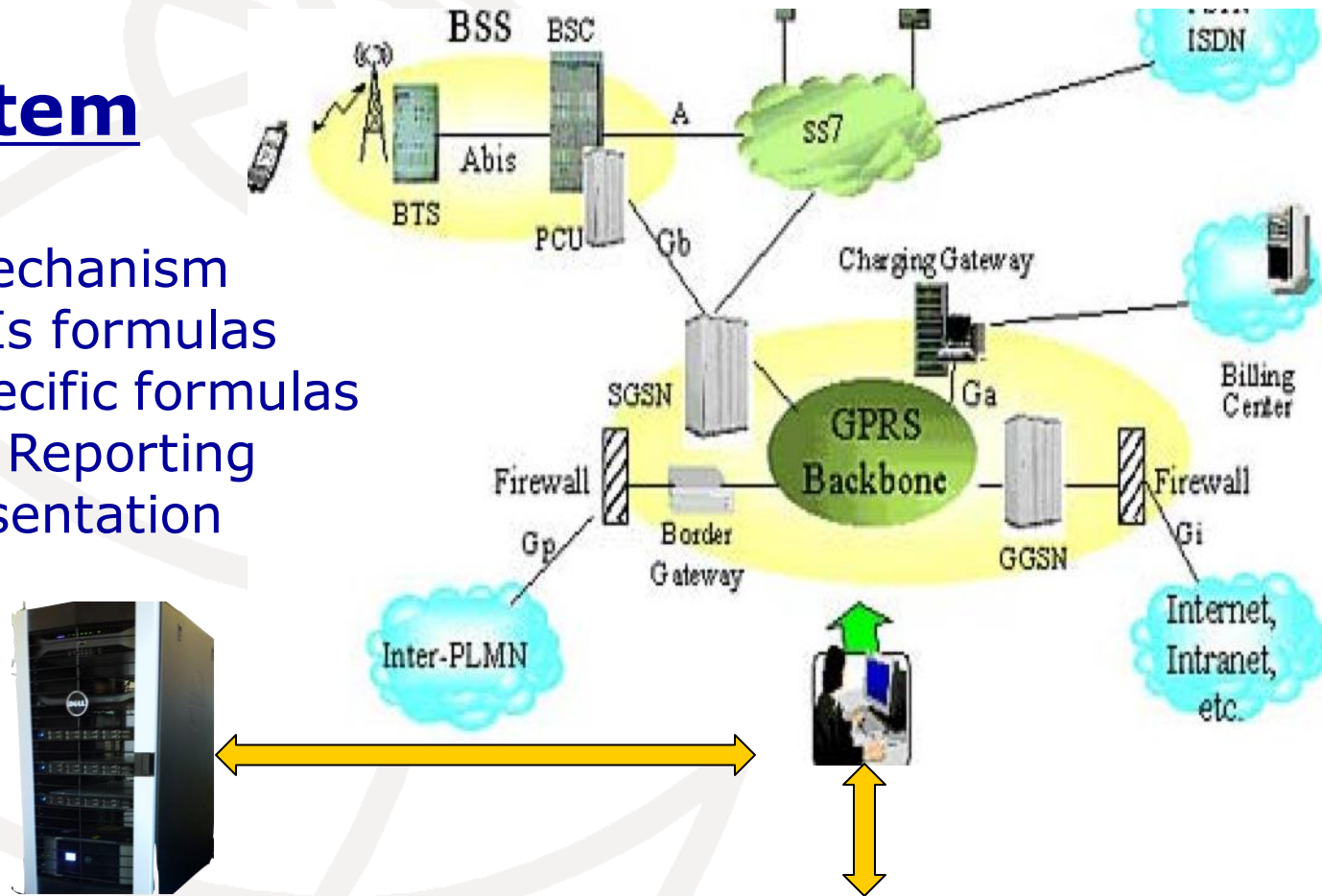
- **Different and Complementary Approaches to Mobile QoS**
 - Stationary/Walk/ Drive Test
 - OMC-R counter measurement using Network Management System (NMS)

QoS Assesment Target	Best Suitable QoS Approach(es)	Player concerned
One-time coverage snap shot	DT	OPERATOR/REGULATOR
Acceptance Procedure	DT or NMS	OPERATOR
Proactive Monitoring	NMS	OPERATOR/REGULATOR
Optimisation Cycle	DT + NMS	OPERATOR

Management systems integrated to the operator (NMS)

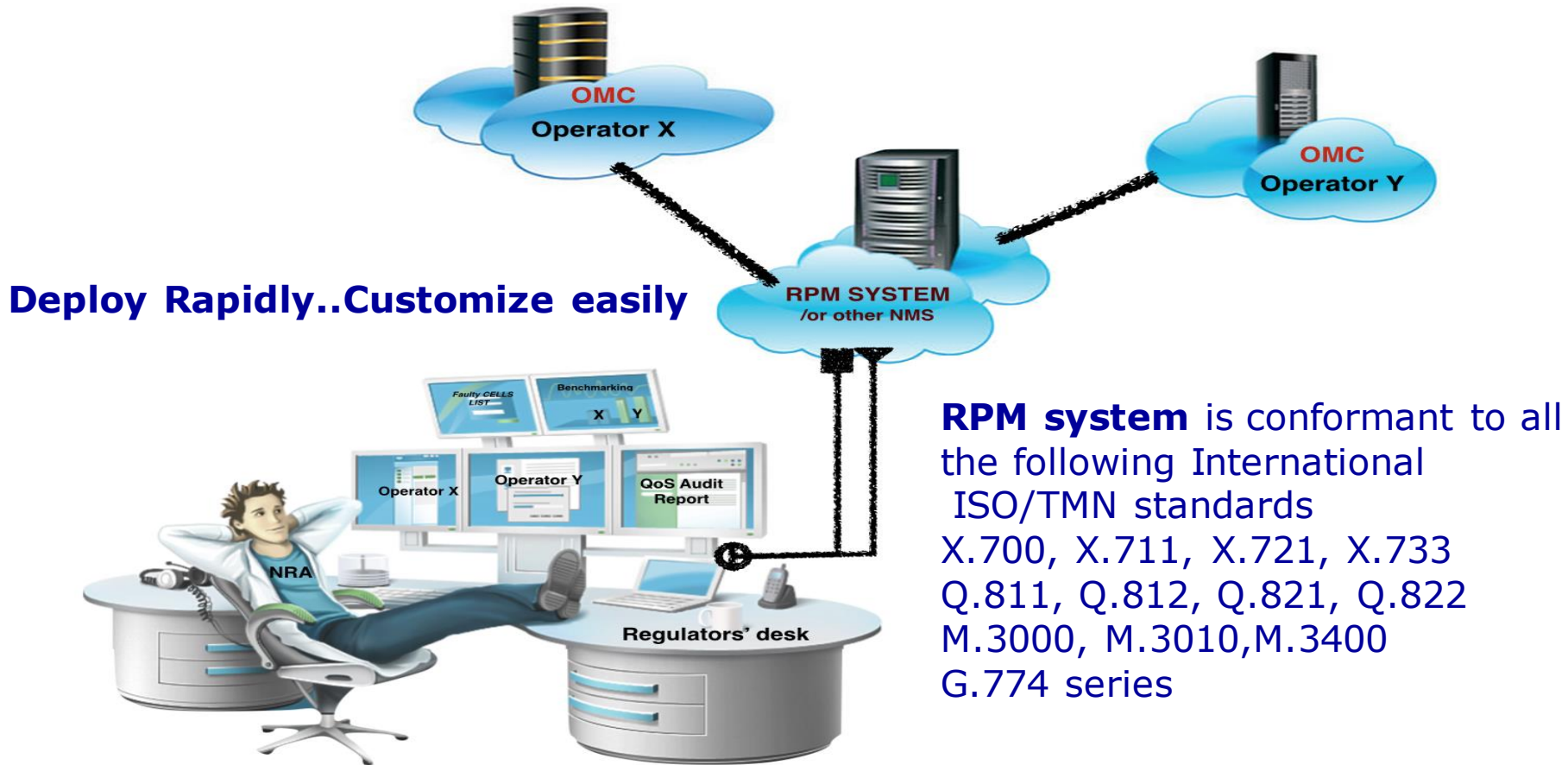
RPM system

- Penalty mechanism
- CO-OP KPIs formulas
- Vendor specific formulas
- Automatic Reporting
- GIS representation



PNI RMP SYSTEM or similar

EFFECTIVE QoS MONITORING IN PLACE



INCENTIVE METHOD OR PENALTIES

SYSTEM BASED IN INCENTIVE

- They are based on agreements between the regulator and service's operator to work together for the improvement of quality. These systems "reward" the achievement of targets by the operator.

PENALTIES SYSTEMS

- They are more rigid and according to administrative law that governs in each country.
- Operator incurred in economic penalties or depending on the case, the expiration of the license.

CONCLUSION

- Measuring and Improving QoS, though challenging, should be undertaken in order to assess the most accurate and complete vision of the value offered by the provider to end-users
- The assessment of the QoS/QoE is expected to be evaluated in checking criteria against reference values.
- Today, four out of five Regulators only employ Drive Test(intrusive) both for one-time snap shot, benchmarking and continuous QoS monitoring(reactive sense) versus the use of Network Management Systems (NMS) for proactive continuous QoS monitoring.

WHY QOS??

Justifications for quality of service regulation

Quality of service regulation aims at:

- helping customers to make informed choices;
- checking claims by operators;
- understanding the state of the market;
- maintaining or improving quality in the presence of competition;
- maintaining or improving quality in the absence of competition;
- helping operators to achieve fair competition;
- making interconnected networks work well together.

THANK YOU FOR YOUR ATTENTION

For more information on QoS
Tools:- RPM SYSTEM –

Feel free to contact **PNI**
www.planetworkint.com

