

BOCRA



Botswana
Communications
Regulatory Authority



Enhancing QoS/QoE Monitoring in Diverse Environments: A Regulatory Perspective

Introduction



- The presentation provides an overview of the challenges regulators face in diverse environments, the importance of near real-time monitoring tools, and successful collaboration with MNOs using the example of BOCRA's Regulatory Performance Monitoring (RPM) system.



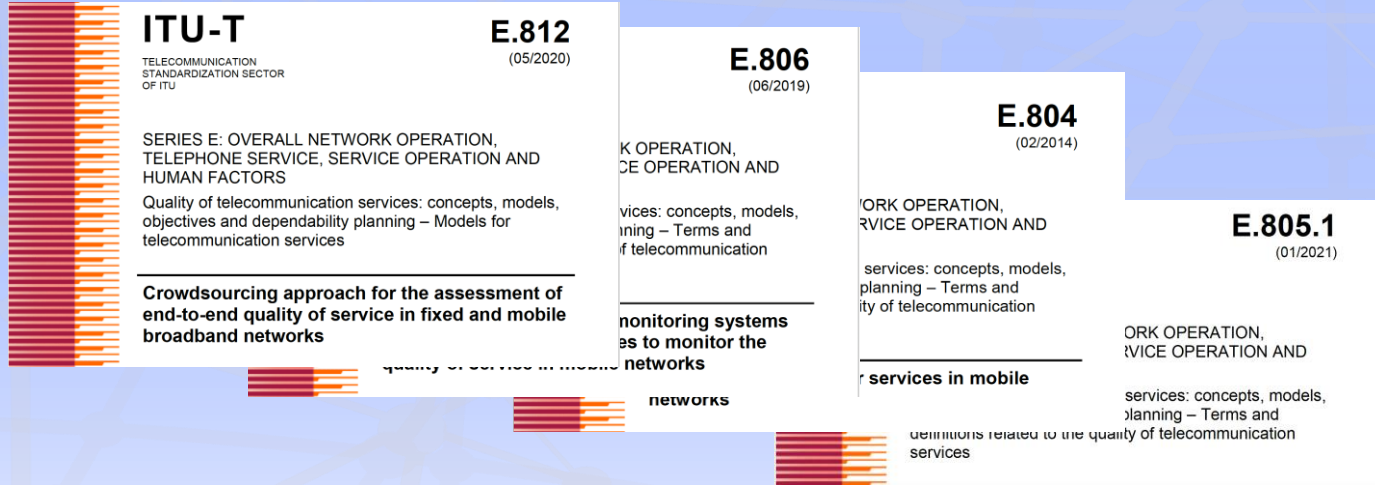
- Importance of QoS/QoE monitoring in ensuring reliable and quality network services.



- Challenges posed by global differences in economic and social environments.



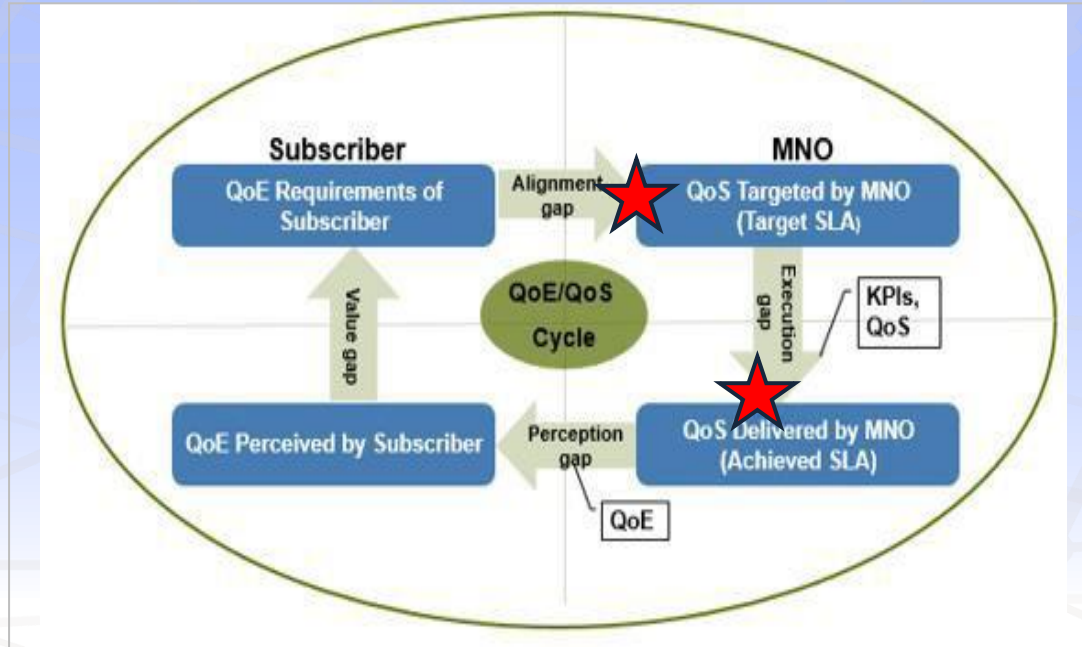
ITU Recommendations on QoS/QoE Monitoring



- A standardized framework for assessing network performance and ensuring a consistent quality of service.
- These guidelines offer a baseline for regulators to tailor their approaches while maintaining global best practices.
- Recognition of the need for tailored approaches based on regional challenges and experiences.

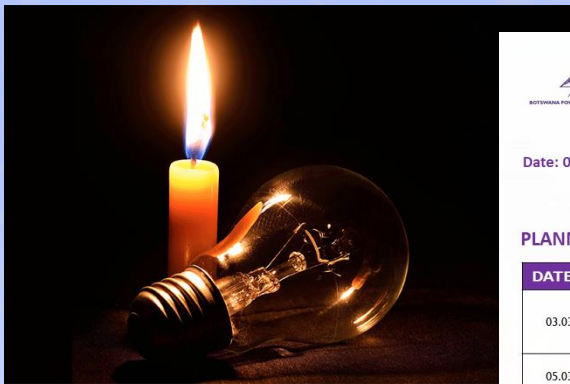
Ideal QoS Monitoring Environment

ITU-T G.1000 model of the four viewpoints of QoS



Challenges

Unique Challenges in Different Regions – Botswana



MADUO TWENTYSIX
BOTSWANA POWER CORPORATION

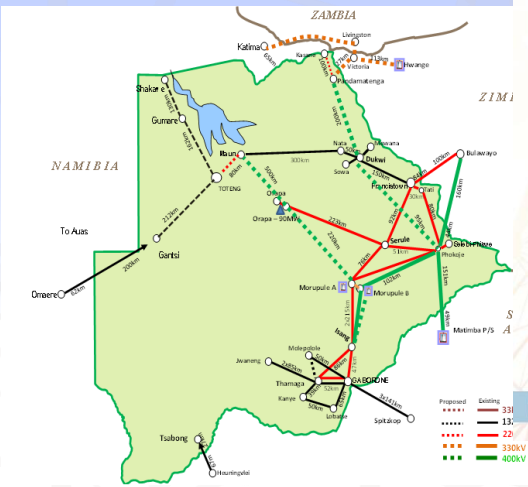
Date: 01st March 2024

PLANNED MAINTENANCE INTERRUPTION

DATE	TIME OFF	TIME ON	AFFECTED AREA
03.03.2024	0830hrs	1400hrs	GABORONE – PART OF INDUSTRIAL.
05.03.2024	0830hrs	1400hrs	DIKWIDIDI.
05.03.2024	0900hrs	1600hrs	MOSHUPA - MO NKAIKELA, MAOLOGA, MOSHUPA SUB LANDE DIBOTO, LEPAPA, MMA KGOPA, MATSILA.
05.03.2024	0830hrs	1400hrs	RAMOTSWA - MAGOPE LESETLHANA, KGOSING, RAC, KAGISO SENIOR, ALL CHOPPIES MALLS, KGOSING, SIGA, BORDER POST, BLH, GOO PHELEHU, TLOKWENG, GOO MATHLHA, MOTHUBAKWANE, GOO MOENG, MAGOPANE, PART OF LESETLHANA, SEPTSWANA WARDS.
06.03.2024	0800hrs	1500hrs	JWANENG, SESE, MOKHOMBA, SAMANE, BETESANKWE, DIPALANA FARMS, SENYAMADI.
07.03.2024	0830hrs	1330hrs	GABORONE – PART OF EXTENSION 10.

Botswana Power Corporation apologizes for the inconvenience caused by these interruptions.

Powering Botswana To Prosperity



Date

Near Real-time Monitoring and Collaboration with MNOs

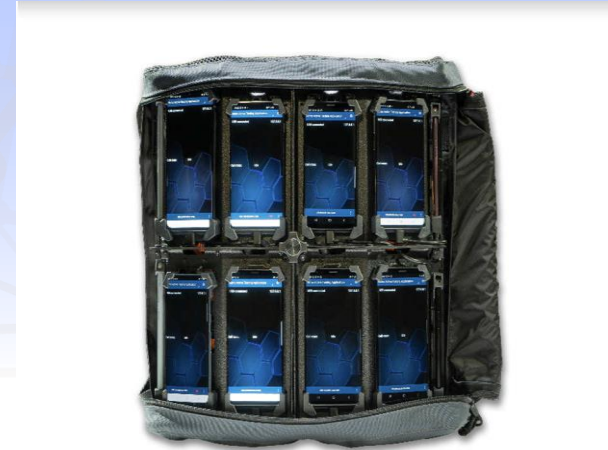
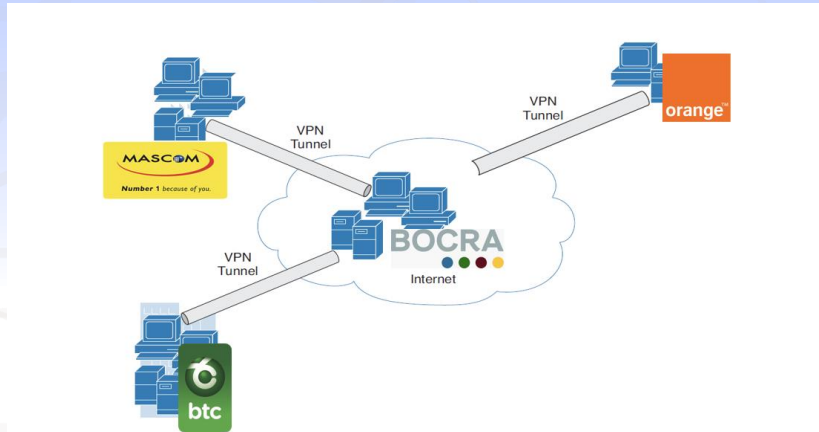


- Near-real-time QoS monitoring tools for regulators.
- Quick detection of service disruptions in affected areas.
- The need for collaboration with MNOs for timely response and issue resolution.
- Focus on reduced response time from MNOs as opposed to penalties for outages. MNOs benefit from a regulatory environment that supports rapid problem-solving, ultimately leading to enhanced service reliability for end-users.

QoS Monitoring – Botswana Case Study



- In March 2023, BOCRA acquired two QoS monitoring systems
- Consist of two (2) Parts
PART 1: Based on Network Elements Counter Method
PART 2: Based on Drive Test Method



Effective QoS Monitoring with RPM complemented by Drive Test System



BOCRA

TABS

- PM Data Availability
- Home**
- NMS
- NMS Benchmark

DATA MANAGEMENT

- Administrative Divisions

USERS MANAGEMENT

- Users
- Roles

HOME • 3G VOICE - QoS NA (2024-02-19) • Selected District : OKAVANGO [Clear Selection](#)

OKAVANGO 3G VOICE NA

100 %

OKAVANGO 3G VOICE NA

99.99 %

OKAVANGO 3G VOICE NA

100 %

3G Network Availability

Red	0 - 60 %
Orange	60 - 80 %
Yellow	80 - 95 %
Green	95 - 100 %

The dashboard displays three panels for different providers: BTC (100%), Orange (99.99%), and MASCOM (100%). Each panel features a gauge chart showing the percentage of 3G voice QoS and a map of South Africa with a legend for 3G network availability. The legend indicates four levels of availability: 0-60% (Red), 60-80% (Orange), 80-95% (Yellow), and 95-100% (Green). The maps show that the Okavango district is highlighted in green, indicating 95-100% availability.

Importance of Communication



- The role of effective communication between regulators and operators.
- Encouraging operators to promptly inform regulators of site outages and interruptions
- Focusing on addressing the challenges than penalties



Conclusion

- ITU recommendations allow for regional domestication
- Enhancing QoS/QoE Monitoring in Diverse Environments requires a better understanding of the regional challenges that may not be addressed by the ITU recommendations
- Near real - time QoS monitoring systems, coupled with collaboration and effective communication with MNO, may lead to improved QoS monitoring.
- Focus NOT on the penalties but on addressing the challenges





Thank You

Q&A

Date