Capacity limitation detection and its impact on QoS

Agenda

1. State of Mobile Data Capacity in Nigeria (Q1 2026)
2. How We Detect Network Congestion
3. Are the Networks Growing?
4. Performance vs. Network Size
5. Is Urban Congestion Growing Faster than the Network?
6. Geographic Distribution of Network Capacity

State of Mobile Data Capacity in Nigeria (Q1 2026)

Understanding how your network handles the digital demand.

- This report reveals the "hidden" side of your mobile experience: Network Capacity.
- We analyze whether networks have enough "room" to handle everyone using data at the same time, especially during peak hours.
- Most coverage and capacity are currently provided by MTN, Airtel, and Glo, as T2 remains limited to specific markets.

How We Detect Network Congestion

The "Night vs. Day" Test (Methodology)

- **Baseline (Night):** We measure speeds between 00:00 and 06:00 when the network is "resting".
- **Stress Test (Day):** We measure speeds between 06:00 and 23:59 during peak usage. The Constraint: A zone is "constrained" if day speed is less than 50% of the night speed.
- **Reliability**: To ensure accuracy, we only count areas with more than 10 measurements.
- **Data Gaps:** In some rural areas, a lack of tests means we cannot definitively confirm capacity issues.

Are the Networks Growing?*

Before judging performance, we must look at how much the operators have expanded their urban reach.

Operator	Urban Surface Sept 2025 (Km2)	Urban Surface Feb 2026 (Km2)	Growth (%)
MTN	15,936	23,376	+46.7%
Airtel	12,730	19,899	+56.3%
Glo	9,246	15,496	+67.6%
T2	953	1,951	+104.7%

** Based on executed tests*

Performance vs. Network Size

National Footprint vs. Limitations (Feb 2026)*

A larger urban network footprint, such as **MTN's** (23376 Km2), naturally encounters more potential congestion points as it serves a high density of users. Similarly, **Airtel** and **Glo** have seen significant urban expansion (reaching 19899 Km2 and 15496 Km2 respectively), with **Airtel** currently maintaining the lowest overall capacity restrictions despite its broad reach. While **Glo** has also expanded its urban presence by over 60% since last year, all major operators are seeing the most capacity pressure within these high-growth city environments.

Operator	Total Urban Surface (Km2)	Urban Area with Limitations (Km2)	Impacted Proportion
MTN	23,376	1,560	6.70%
Airtel	19,899	516	2.60%
Glo	15,496	426	2.80%
T2	1,951	0	0.00%

** Based on executed tests*

Is Urban Congestion Growing Faster than the Network?

- **Rapid Urbanization:** All major operators have significantly expanded their urban footprints since September 2025, with Glo leading in growth rate (+67.6%). However, the rise in capacity limitations suggests that user demand in these new and existing areas is growing even faster than the infrastructure can be optimized.

- **The "Asymmetric" Load:** Analysis shows that Download (DL) capacity is significantly more impacted than Upload (UL).MTN's urban DL constraints rose to 6.7%, while its UL constraints remain at a low 1.1%.This indicates that the congestion is primarily driven by "consumption-heavy" activities like high-definition video streaming and large file downloads rather than simple messaging or voice calls.

- **Operator Resilience:** Despite a 56.3% increase in its urban surface area, Airtel has managed the most stable transition, with its capacity limitations only increasing by 0.6 percentage points. This suggests a highly efficient allocation of resources during their expansion phase.

- **The T2 Factor:** While T2 doubled its urban footprint (+104.7%), it remains at 0% congestion. This is largely due to its smaller, more localized user base compared to the others, allowing it to maintain high performance in its specific markets.

Is Urban Congestion Growing Faster than the Network? (II)

Operator	Sept 2025 Urban Impact (%)	Feb 2026 Urban Impact (%)	Change
MTN	4.00%	6.70%	+2.7%
Airtel	2.00%	2.60%	+0.6%
Glo	1.30%	2.80%	+1.5%
T2	0.00%	0.00%	0.00%

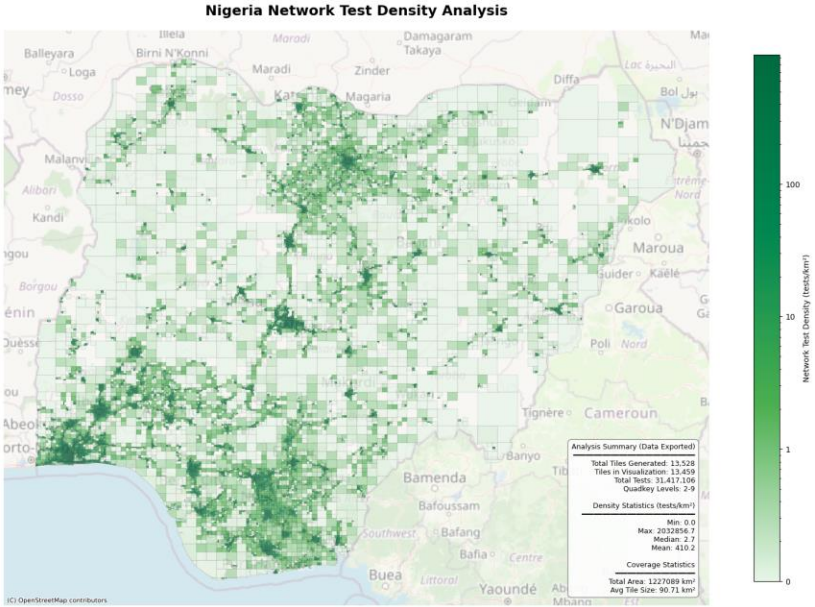
Geographic Distribution of Network Capacity

High-Density Hubs (Lagos & Abuja):

- Lagos: Capacity limitations are identified in dense areas like Ikeja and the central city corridor.
- Abuja: Constraints are visible in sectors such as Gwarinpa and the city center.

Surface Presence

- Urban: MTN (23376 km2), Airtel (19899 km2), Glo (15496 km2).
- Rural: MTN (72910 km2) and Airtel (71305 km2) maintain the largest footprints



Thank You