



## Middle East and Africa - 2021 Forecast Highlights

### IP Traffic

- In Middle East and Africa, IP traffic will grow 6-fold from 2016 to 2021, a compound annual growth rate of 42%.
- In Middle East and Africa, IP traffic will reach 15.5 Exabytes per month in 2021, up from 2.7 Exabytes per month in 2016.
- Middle East and Africa's IP networks will carry 509 Petabytes per day in 2021, up from 88 Petabytes per day in 2016.
- In Middle East and Africa, IP traffic will reach an annual run rate of 185.9 Exabytes in 2021, up from an annual run rate of 32.1 Exabytes in 2016.
- In Middle East and Africa, IP traffic will reach 9 Gigabytes per capita in 2021, up from 2 Gigabytes per capita in 2016.
- In Middle East and Africa, average IP traffic will reach 47 Tbps in 2021, and busy hour traffic will reach 229 Tbps.
- In 2021, the gigabyte equivalent of all movies ever made will cross Middle East and Africa's IP networks every 23 minutes.

### Internet Traffic

- In Middle East and Africa, Internet traffic will grow 6.2-fold from 2016 to 2021, a compound annual growth rate of 44%.
- In Middle East and Africa, busy hour Internet traffic will grow 8.8-fold from 2016 to 2021, a compound annual growth rate of 55%.

- In Middle East and Africa, Internet traffic will reach 15.0 Exabytes per month in 2021, up from 2.4 Exabytes per month in 2016.
- Middle East and Africa's Internet traffic will be 494 Petabytes per day in 2021, up from 80 Petabytes per day in 2016.
- Middle East and Africa's Internet traffic in 2021 will be equivalent to 45 billion DVDs per year, 4 billion DVDs per month, or 5 million DVDs per hour.
- In 2021, the gigabyte equivalent of all movies ever made will cross the Internet every 23 minutes.
- Middle Eastern and African Internet traffic in 2021 will be equivalent to 751x the volume of the entire Middle Eastern and African Internet in 2005.
- In Middle East and Africa, Internet traffic will reach 9 Gigabytes per capita in 2021, up from 2 Gigabytes per capita in 2016.
- In Middle East and Africa, average Internet traffic will increase 6.2-fold by 2021 and will reach 46 Tbps.
- In Middle East and Africa, busy hour Internet traffic will increase 8.8-fold by 2021 and will reach 222 Tbps.

### Wired Wi-Fi and Mobile Growth

- Middle East and Africa's Fixed/Wi-Fi was 53% of total IP traffic in 2016, and will be 44% of total IP traffic in 2021.
- Middle East and Africa's Fixed/Wired was 24% of total IP traffic in 2016, and will be 8% of total IP traffic in 2021.
- Middle East and Africa's Mobile was 23% of total IP traffic in 2016, and will be 48% of total IP traffic in 2021.
- Middle East and Africa's Fixed/Wi-Fi was 55.6% of total Internet traffic in 2016, and will be 44.8% of total Internet traffic in 2021.
- Middle East and Africa's Fixed/Wired was 19% of total Internet traffic in 2016, and will be 6% of total Internet traffic in 2021.
- Middle East and Africa's Mobile was 25.2% of total Internet traffic in 2016, and will be 49.5% of total Internet traffic in 2021.
- In Middle East and Africa, mobile data traffic will grow 12-fold from 2016 to 2021, a compound annual growth rate of 65%.
- In Middle East and Africa, mobile data traffic will reach 7.4 Exabytes per month in 2021, up from 612 Petabytes per month in 2016.
- Middle Eastern and African mobile data traffic will grow 2 times faster than Middle Eastern and African fixed IP traffic from 2016 to 2021.
- Middle East and Africa's Mobile was 23% of total IP traffic in 2016, and will be 48% of total IP traffic in 2021.
- In Middle East and Africa, mobile data traffic in 2021 will be equivalent to 360x the volume of the entire Middle Eastern and African Internet in 2005.

### IP Video

- In Middle East and Africa, IP video traffic will grow 8-fold from 2016 to 2021, a compound annual growth rate of 50%.
- In Middle East and Africa, IP video traffic will reach 12.6 Exabytes per month in 2021, up from 1.7 Exabytes per month in 2016.
- In Middle East and Africa, IP video will be 81% of all IP traffic in 2021, up from 62% in 2016.

- In Middle East and Africa, Ultra HD will be 2.9% of IP Video traffic in 2021, up from 0.1% in 2016 (189.3% CAGR).
- In Middle East and Africa, HD will be 32.4% of IP Video traffic in 2021, up from 12.5% in 2016 (81.2% CAGR).
- In Middle East and Africa, SD will be 64.7% of IP Video traffic in 2021, compared to 87.4% in 2016 (41.0% CAGR).
- In Middle East and Africa, consumer IP video traffic will be 83% of consumer IP traffic in 2021, up from 68% in 2016.
- In Middle East and Africa, business IP video traffic will be 71% of business IP traffic in 2021, up from 50% in 2016.

### Internet Video

- In Middle East and Africa, Internet video traffic will grow 8-fold from 2016 to 2021, a compound annual growth rate of 52%.
- In Middle East and Africa, Internet video traffic will reach 12.2 Exabytes per month in 2021, up from 1.5 Exabytes per month in 2016.
- In Middle East and Africa, total Internet video traffic (business and consumer, combined) will be 81% of all Internet traffic in 2021, up from 62% in 2016.
- In Middle East and Africa, Ultra HD will be 2.8% of Internet video traffic in 2021, up from 0.1% in 2016 (186.3% CAGR).
- In Middle East and Africa, HD will be 31.6% of Internet video traffic in 2021, up from 10.2% in 2016 (90.6% CAGR).
- In Middle East and Africa, SD will be 65.6% of Internet video traffic in 2021, compared to 89.7% in 2016 (42.6% CAGR).
- In Middle East and Africa, consumer Internet video traffic will be 82% of consumer Internet traffic in 2021, up from 66% in 2016.
- In Middle East and Africa, business Internet video traffic will be 72% of business Internet traffic in 2021, up from 52% in 2016.
- In Middle East and Africa, Internet-Video-to-TV traffic will be 8% of fixed consumer Internet video traffic in 2021, up from 12% in 2016.
- In Middle East and Africa, Internet-Video-to-TV traffic will increase 5-fold between 2016 and 2021 (35.4% CAGR).
- In Middle East and Africa, 178 billion minutes (338,392 years) of video content will cross the Internet each month in 2021. That's 67,678 minutes of video streamed or downloaded every second.
- In Middle East and Africa, 37% of all Internet video traffic will cross content delivery networks in 2021, up from 25% in 2016.
- In Middle East and Africa, 54.2% of all Internet video traffic will be long-form video (including live) in 2021, up from 55.1% in 2016.
- In Middle East and Africa, 9.7% of all Internet video traffic will be Live video in 2021, up from 2.8% in 2016.
- In Middle East and Africa, Live Internet video traffic will increase 28-fold between 2016 and 2021 (94.6% CAGR).

## IP VOD

- In Middle East and Africa, Ultra HD will be 11.2% of IP VOD traffic in 2021, up from 0.1% in 2016 (243.3% CAGR).
- In Middle East and Africa, HD will be 80.7% of IP VOD traffic in 2021, up from 59.5% in 2016 (31.9% CAGR).
- In Middle East and Africa, SD will be 8.2% of IP VOD traffic in 2021, compared to 40.4% in 2016 (-9.8% CAGR).

## Gaming

- In Middle East and Africa, gaming traffic will grow 5-fold from 2016 to 2021, a compound annual growth rate of 37%.
- In Middle East and Africa, gaming traffic will reach 146 Petabytes per month in 2021, up from 30 Petabytes per month in 2016.
- In Middle East and Africa, gaming traffic will be 1% of consumer Internet traffic in 2021, up from 2% in 2016.

## Devices

- In Middle East and Africa, there will be 2.4 billion networked devices in 2021, up from 1.7 billion in 2016.
- In Middle East and Africa, there will be 1.4 networked devices per capita in 2021, up from 1.1 per capita in 2016.
- In Middle East and Africa, 75% of all networked devices will be mobile-connected in 2021.
- In Middle East and Africa, M2M modules will account for 27% (662.4 million) of all networked devices in 2021, compared to 16% (257.6 million) in 2016, (20.8% CAGR).
- In Middle East and Africa, PCs will account for 3% (62.3 million) of all networked devices in 2021, compared to 5% (76.4 million) in 2016, (-4% CAGR).
- In Middle East and Africa, Tablets will account for 3% (73.0 million) of all networked devices in 2021, compared to 2% (30.9 million) in 2016, (18.8% CAGR).
- In Middle East and Africa, Smartphones will account for 47% (1.1 billion) of all networked devices in 2021, compared to 25% (408.8 million) in 2016, (22.6% CAGR).
- In Middle East and Africa, Connected TVs will account for 3% (82.3 million) of all networked devices in 2021, compared to 2% (38.8 million) in 2016, (16.2% CAGR).
- In Middle East and Africa, Non-Smartphones will account for 16.4% (395.4 million) of all networked devices in 2021, compared to 51% (842.1 million) in 2016, (-14% CAGR).
- In Middle East and Africa, Other Portables will account for % (10.9 million) of all networked devices in 2021, compared to % (5.7 million) in 2016, (14% CAGR).
- In Middle East and Africa, 4K TVs will account for 54% (26.5 million) of all flat panel TVs in 2021, compared to 11.5% (1.9 million) in 2016, (70.1% CAGR).
- Middle East and Africa's IP traffic from non-PC devices was 47% of total IP traffic in 2016, and will be 87% of total IP traffic in 2021.
- In Middle East and Africa, PCs accounted for 53% of IP traffic in 2016, and will be 13% of IP traffic in 2021.
- In Middle East and Africa, TVs accounted for 7% of IP traffic in 2016, and will be 4% of IP traffic in 2021.
- In Middle East and Africa, Smartphones accounted for 31% of IP traffic in 2016, and will be 71% of IP traffic in 2021.
- In Middle East and Africa, Tablets accounted for 6% of IP traffic in 2016, and will be 8% of IP traffic in 2021.
- In Middle East and Africa, M2M modules accounted for 2.3% of IP traffic in 2016, and will be 3.2% of IP traffic in 2021.

- In Middle East and Africa, PCs accounted for 41% of consumer Internet traffic in 2016, and will be 8% of consumer Internet traffic in 2021.
- In Middle East and Africa, TVs accounted for 5% of consumer Internet traffic in 2016, and will be 3% of consumer Internet traffic in 2021.
- In Middle East and Africa, TVs accounted for 4% of total Internet traffic in 2016, and will be 2% of total Internet traffic in 2021.

## Speed Evolution

- In Middle East and Africa, the average fixed broadband speed will grow 2.2-fold from 2016 to 2021, from 7.8 Mbps to 17.1 Mbps.
- In Middle East and Africa, 50% of fixed broadband connections will be faster than 5 Mbps in 2021, up from 35% today.
- In Middle East and Africa, 24% of fixed broadband connections will be faster than 10 Mbps in 2021, up from 17% today.
- In Middle East and Africa, 7.1% of fixed broadband connections will be faster than 25 Mbps in 2021, up from 6.6% today.
- In Middle East and Africa, 4.8% of fixed broadband connections will be faster than 50 Mbps in 2021, up from 2.8% today.
- In Middle East and Africa, the average Wi-Fi speeds from mobile devices will grow 1.8-fold from 2016 to 2021, from 4.9 Mbps to 9 Mbps.
- In Middle East and Africa, the average mobile connection speed will grow 3-fold from 2016 to 2021, reaching 11 Mbps in 2021.

## Traffic per User and Household

- In Middle East and Africa, the average Internet user will generate 30.4 Gigabytes of Internet traffic per month in 2021, up 321% from 7.2 Gigabytes per month in 2016, a CAGR of 33%.
- In Middle East and Africa, the average Internet household will generate 112.9 Gigabytes of Internet traffic per month in 2021, up 358% from 24.6 Gigabytes per month in 2016, a CAGR of 36%.
- In Middle East and Africa, the average FTTx Internet household will generate 267.1 Gigabytes of Internet traffic per month in 2021, 117.0% more than other broadband households.
- In Middle East and Africa, the average FTTx Internet household generated 70.2 Gigabytes of Internet traffic per month in 2016, 124.0% more than other broadband households.
- In Middle East and Africa, there will be 9 million Internet households (17.4% of all Internet households) generating more than 250 Gigabytes per month in 2021.
- In Middle East and Africa, there will be 3 million households (5.6% of all Internet households) generating more than 500 Gigabytes per month in 2021.
- In Middle East and Africa, there will be 805,212 households (1.5% of all Internet households) generating more than a terabyte per month in 2021.
- In Middle East and Africa, the average mobile connection will generate 4,408 Megabytes of mobile data traffic per month in 2021, up from 480 Megabytes in 2016.

### Traffic Topology and Traffic Patterns

- In Middle East and Africa, 12% of Internet traffic will be carried metro-to-metro in 2021, up from 5% in 2016.
- In Middle East and Africa, 8% of Internet traffic will be carried on regional backbones (without touching cross-country backbones) in 2021, compared to 4% in 2016.
- In Middle East and Africa, 81% of Internet traffic will traverse cross-country backbones in 2021, compared to 91% in 2016.
- In Middle East and Africa, 34% of all Internet traffic will cross content delivery networks in 2021, up from 18% in 2016.
- In Middle East and Africa, peak Internet traffic will grow at a compound annual growth rate of 55% from 2016 to 2021, compared to 44% for average Internet traffic.