TIM, Fastweb, Vodafone, and Wind:
Service Degradation in Italy

Can Italian networks cope with mobility restrictions and #stayathome measures? So far, yes!

- *Operators impacted: TIM, Fastweb, Vodafone, and Wind*
- *Date: Several days in March 2020*
- *Potential impact: Over 17 million fixed Internet lines (All, FTTH-VDSL-ADSL)*

MedUX is closely monitoring the effect of COVID-19 on the European Customer Experience and residential fixed broadband performance.

At MedUX, we are pleased with network resilience and telco operators' efforts to manage this unprecedented situation and make sure there is enough capacity deployed in networks and Internet exchanges. Operators all over Europe are taking reactive and proactive measures to maintain service quality and Internet usage experience. The risk of network congestion is increasing, but operators are working hard to mitigate the shock from the huge Internet usage increase and probably expanding capacity.

MedUX's data shows that Italian networks have been strained since the government imposed mobility restrictions, forcing people to stay at home. Degradation has been observed in basic parameters such as latency, packet loss, and contracted speed compliance, as well as in indicators related to web browsing, gaming, cloud storage, and streaming services. Indeed, internet connections in Italy seem to have slightly slowed down, but there do not seem to be service disruptions preventing users from connecting to the Internet.

How do we, MedUX, monitor network performance and whether the networks are ready for technological challenges and customers' needs? These are the main findings and other relevant aspects of our impact assessment in Italy:

1. All regions are affected in some way, but Piemonte, Lombardia, Toscana, Emilia-Romagna, Campania, and Sicilia have had a relatively more significant customer experience degradation.

2. The drop in compliance with contracted download speeds was on average at the national level 10% and 8% for FTTH and VDSL services during peak hours (around 20–21h) of week 11.

About MedUX

MedUX is the next generation specialist in customers' digital-experience measurement and improvement, providing cutting-edge tools and innovative solutions for telecom operators, governments and companies. The company is present in more than 15 countries, with a strong presence in Latin America and Europe. Today, MedUX has been deployed for clients such as Telefónica, AT&T, Claro Colombia (Grupo América Móvil), Vodafone and Orange.

Our innovative system for the measurement, prediction and analysis of fixed and mobile telecommunications lines obtains reliable, real-time data on operators' networks and the quality of service offered. This enables our clients to stand out from their competitors, reduce costs and enhance their value propositions, keeping their customers happy and satisfied by anticipating problems and avoiding complaints.

Go beyond measurements and analytics, discover MedUX!

Fly with Data!

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3. There was an up to 15% decrease in compliance with contracted download speeds for FTTH and VDSL during afternoon hours on the worst-performing days.

4. There was up to 0.8% and 1.2% total packet loss for FTTH and VDSL services during afternoon hours (incl. peak time) on the worst-performing days.

5. There was an up to 50% increase in latency for FTTH during morning hours and up to 150% increase during afternoon hours (incl. peak time) on the worst-performing days.

6. All operators have been affected by the degradation of web browsing, streaming, and gaming experiences, especially the latter because of latency, jitter, and packet loss worsening.

7. The worst-performing operators suffered a deterioration of streaming and web browsing experiences of up to 30% on certain days during afternoon hours.

8. There was an up to 15% increase in web loading time (TOP Alexa sites) during the afternoon hours on the worst-performing days.

9. There was up to a 10–15% increase in the start-up and loading time of videos (streaming) during afternoon hours (incl. peak time) on the worst-performing days.

As a reference, see below the impact on contracted download speed compliance for the week starting the 9th of March (W11) during peak time (20–21h), as the percentage of decrease against the week beginning the 17th of February (W8). All regions were affected in some way, but considering speed compliance as a reference, Piemonte, Toscana, Campania, and Sicilia had a relatively more severe degradation in FTTH and VDSL services.

Figure 1: Contracted download speed compliance decrease by region for FTTH/VDSL services during peak time (W11)

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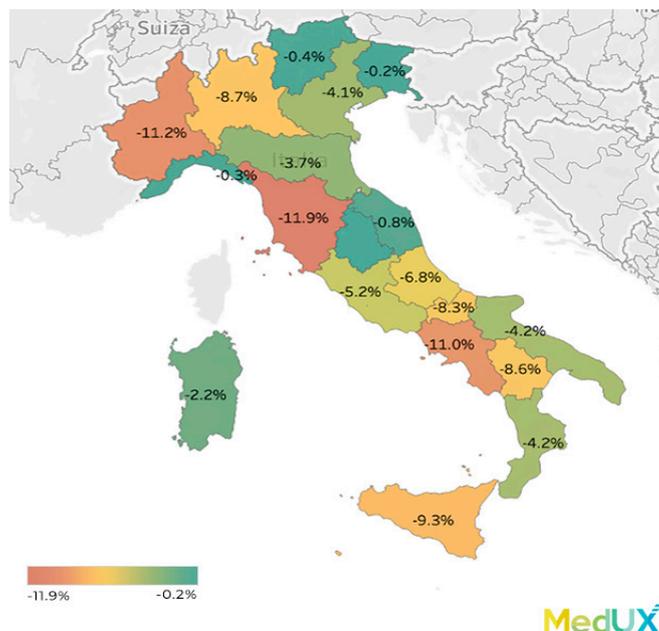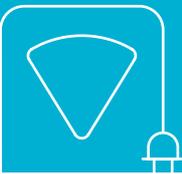
The critical issue during these extraordinary times is how networks will be able to cope with the additional traffic of millions of home workers and family members at home due to isolation measures.

Considering the latest traffic reports in Italy from one of the largest exchange points in the country, the Milan Internet Exchange, the overall peak trend remains stable but sustained since the maximum of the 10th of March (20–30% increase vs. previous maximum values pre-COVID-19 crisis). According to the reports from telco operators, they have observed a traffic increase between 50% and 70% in their fixed networks.

We believe that telco operators will play a fundamental role in supporting society during this particular period and turn risks into opportunities for the overall industry.

Discover MedUX impact assesment and solutions for monitoring, analysing, and troubleshooting network issues in real time by delivering end-to-end performance and Customer Experience insights based on objective network measurements. User reports and complaints, random performance tests, or simple high-level monitorization alone are not enough to resolve and prevent Customer Experience issues.

MedUX ecosystem helps our clients reduce the time to insight by obtaining meaningful information about competitive intelligence and impacted customer services in a real-time, controlled testbed. Furthermore, it reduces the time to resolution by collecting detailed statistics about network performance and consequently responding quickly to customer issues and improving the Customer Experience.

Italian Context

Since the 7th of March, the Italian government has imposed a lockdown on its wealthiest and most populous region as well as 11 provinces in four of Italy's 19 other regions as part of the measures to contain the coronavirus outbreak. On the 10th of March, the government extended the restrictions and told Italians to stay home and avoid all non-essential travel.

School closures, remote working policies, and lockdown enforcements for our good are driving a surge in internet traffic as kids and adults alike to turn to online video games, streaming, or social tools for recreational purposes or as employees tap services like video conferencing or VPN to access remote company sources. All these services are generating a lot of internet traffic from residential broadband connections.

Considering the latest traffic reports in Italy from the most significant exchange point in the country, the Milan Internet Exchange, the overall peak trend has remained stable but sustained since the maximum of the 10th of March. The graph below corresponds to the public peering traffic levels for the last month and shows the trend of weeks 11 and 12, with maximum values in the range of or below the maximum on the evening of Tuesday the 10th with 1.11 Tbps of peak traffic, a 22% increase from the previous 900 Gbps.

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Figure 2: Traffic statistics at the Milan Internet Exchange (as of 23/03/2020)
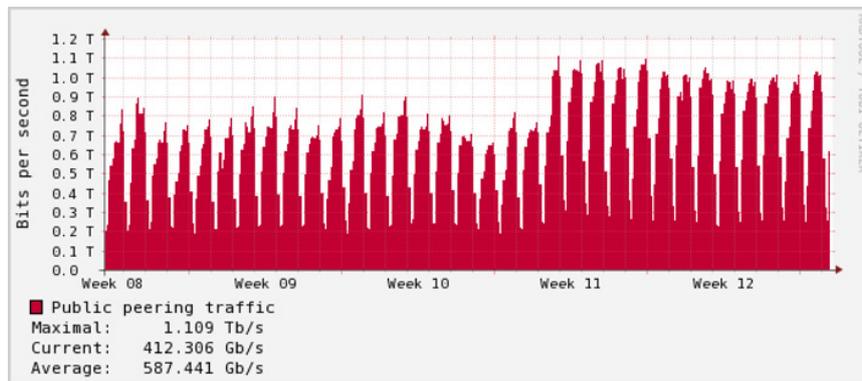
It is noteworthy that these statistics refer to public peering traffic and do not consider private interconnections and peering agreements, but they are an excellent statistical thermometer.

On the operators' side, Telecom Italia CEO Luigi Gubitosi reported a traffic increase of more than 70% in the fixed network, affecting some internet connections temporarily. Rising Internet traffic can be due to a wide range of factors, including game releases like Call of Duty: Warzone by Activision, which requires a massive 100GB download. Gubitosi indicated that the main factor was online gaming, with Fortnite taking up more bandwidth than any other service. With regards to the operator led by Aldo Bisio, Vodafone Italia, there has been higher traffic in fixed than in the mobile, with a boom in gaming (+600%). On its fixed network, data growth has been estimated to be 55%. As an additional reference, Open Fiber has lately recorded an increase in traffic in downloads of 50% and uploads of 300%.

Broadband market intro

According to Autorità per le Garanzie nelle Comunicazioni[1] (AGCOM) statistics[2], the number of broadband connections in Italy increased by 0.4 million year on year (YoY), bringing the total to around 17.4 million by mid-2019.
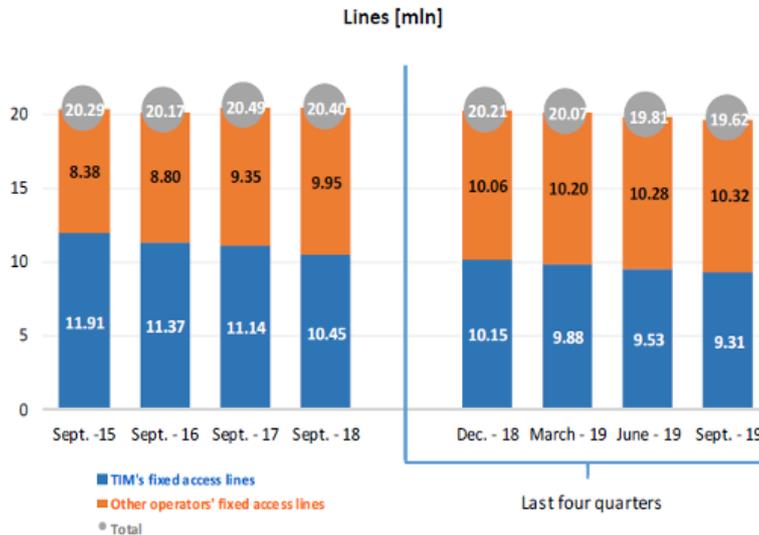
DSL accounted for a share of around 43% of all broadband and ultra-broadband connections by September 2019. DSL lines decreased by about 1.75 million YoY. All the other non-DSL technologies accounted for approximately 9.9 million connections, mostly based on NGA (Next-Generation Access) networks.

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1 Authority for Communications Guarantees (Autorità per le Garanzie nelle Comunicazioni, or AGCOM in Italian) is the regulator and competition authority for the communication industries in Italy.
2 COMMUNICATION MARKETS MONITORING SYSTEM, no. 4/2019, 23.01.2020

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Figure 3: Quarterly evolution of fixed broadband access lines as per AGCOM

Lines [mln]

The four biggest operators accounted for a share of around 89%. TIM's competitors provided approximately 7.9 million broadband connections, and TIM directly provided about 7.5 million.

Coverage with next-generation access (NGA) networks has grown in Italy mainly due to an increasing infrastructure competition with alternative access networks, not only the incumbent TIM's network but also Fastweb and other carriers.

A wholesale-only operator, Open Fiber, was created in 2015 to roll out FTTH with 50% shareholding from the leading distributor of electricity in Italy, Enel, and 50% from a government-owned equity fund (Cassa Depositi e Prestiti). Open Fiber currently offers end-to-end active (VULA) services, passive (fiber unbundling over GPON) services, and bitstream FTTH services. In mid-2019, Open Fiber covered around 12.5% of 31 million households. TIM's access network has traditionally been copper, but since 2016, it has been rolling out FTTH through Flash Fibre, a joint venture between TIM (80%) and Fastweb (20%). TIM currently offers a variety of wholesale services as well, such as VULA, bitstream, and LLU services.

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Overview of service degradation

MedUX is closely monitoring the impact of COVID-19 on the European customer experience and residential fixed broadband performance.

MedUX's data shows that Italian networks have been strained since the government-imposed mobility restrictions began forcing people to stay at home. Degradation has been observed in basic parameters, such as latency, packet loss or contracted speed compliance, as well as in indicators related to web browsing, gaming, cloud storage, and streaming services.

This service degradation varies across technologies (FTTH, VDSL, and ADSL), operators, and regions. Connectivity and service availability are still at high levels despite huge traffic increases and re-balancing (traffic pattern changes), especially during weekends.

Unless otherwise mentioned, the figures and graphics represent average performance nationwide, excluding details about regional differences in deployment and network technology and individual operators' performance.

All regions have been affected in some way, but considering latency as a reference, Lombardia, Emilia-Romagna, and Sicilia have had a relatively more severe degradation in FTTH services. In contrast, services in Lazio and Puglia have had no relevant degradation according to our estimates. Comparing the week of the 9th of March (W11) to the week of the 2nd of March (W10), latency increased in most Italian regions.

See below for a selection of regions and the impact on latency (network response time) by region and week of the year as the percentage of increase/decrease against the week starting the 17th of February (W8). Early school closures and mobility restrictions in Lombardia, Piemonte, and Emilia-Romagna for the week of the 2nd of March (W10) match the latency increase during the same week.
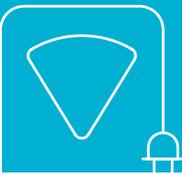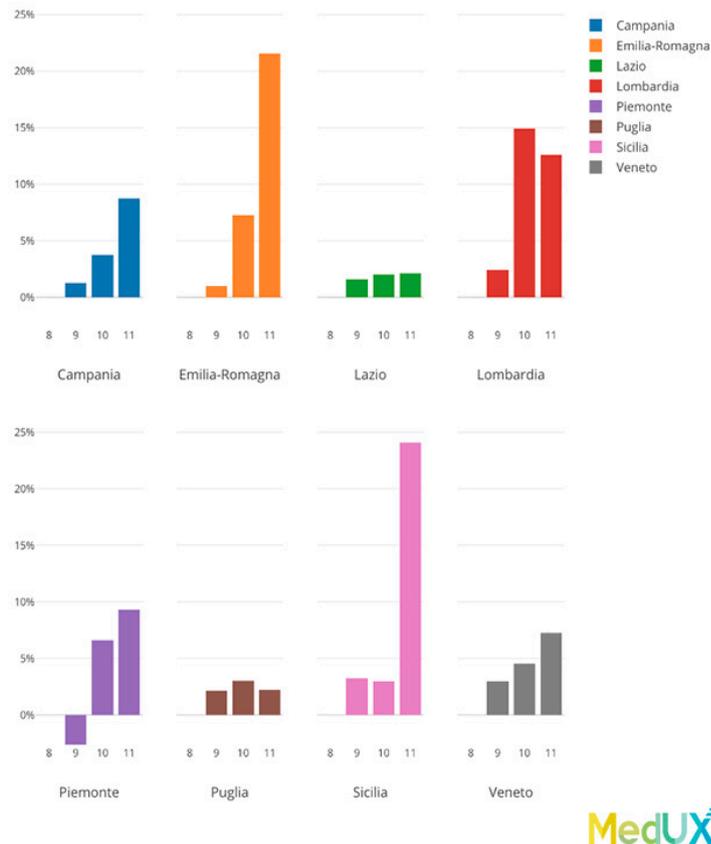
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Figure 4: Latency increase per week for FTTH services in a selection of regions

In general, Internet connections in Italy seem to have slowed down, but no particular service disruptions are preventing users from connecting to the internet. The drop in compliance with contracted download speeds was on average 10% and 8% for FTTH and VDSL services during peak time (20–21h) of week 11 (see below). However, up to a 15% decrease in compliance with contracted download speeds has been observed during afternoon hours on the worst-performing days.

In weeks 7–9, we saw no significant changes in download speed compliance. However, in weeks 10 and 11, starting the 2nd and 9th of March, respectively, we observed a substantial decrease in this indicator.
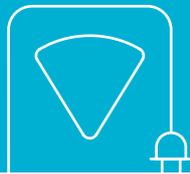
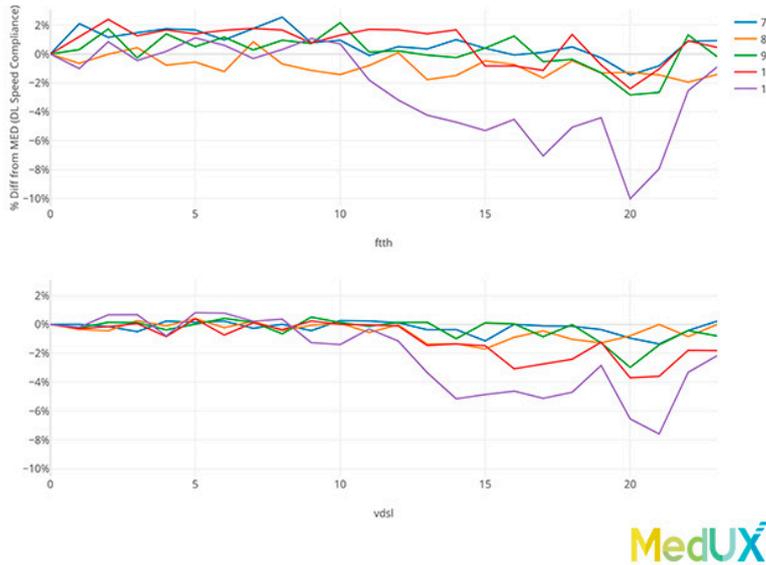Contact us at info@medux.com
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Figure 5: DL speed compliance evolution per week, access technology, and time of day


Latency and packet loss are as important as if not more important than download speed for the user experience in real-time services. These metrics are directly related to the technology used and, to some extent, the international connectivity to reach the measured servers. For illustrative purposes, the performance against Google, Facebook, and YouTube servers has been taken as reference, and insights are as follows:

1. Up to 0.8% and 1.2% total packet loss for FTTH and VDSL services during afternoon hours (incl. peak time) on the worst-performing days.

2. Up to 50% increase for FTTH during morning hours and up to 150% increase during

Figure 6: Latency and packet loss evolution per day, access technology, and time of day

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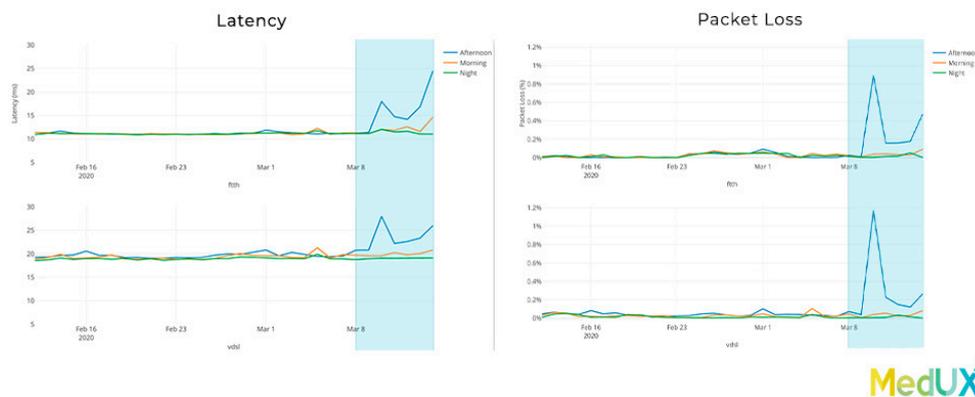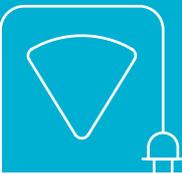
afternoon hours (incl. peak time) on the worst-performing days.

MedUX monitors real user experience and Over-The-Top (OTT) applications, including web browsing (TOP Alexa sites), gaming, YouTube, Netflix, and Dropbox.

1. All operators have been affected by the degradation of web browsing, streaming, and gaming experiences, especially the latter because of latency, jitter, and packet loss worsening.

2. The worst-performing operators suffered a deterioration of streaming and web browsing experience of up to 30% on average for TOP Alexa sites on certain days during afternoon hours.

3. There was an up to 15% increase on average in web loading time (Google, Facebook, and YouTube) during afternoon hours on the worst-performing days.

4. There was an up to 10–15% increase on average in the start-up and loading time of videos (streaming) during afternoon hours (incl. peak time) on the worst-performing days.

Figure 7: Video start-up time evolution per week, access technology, and time of day

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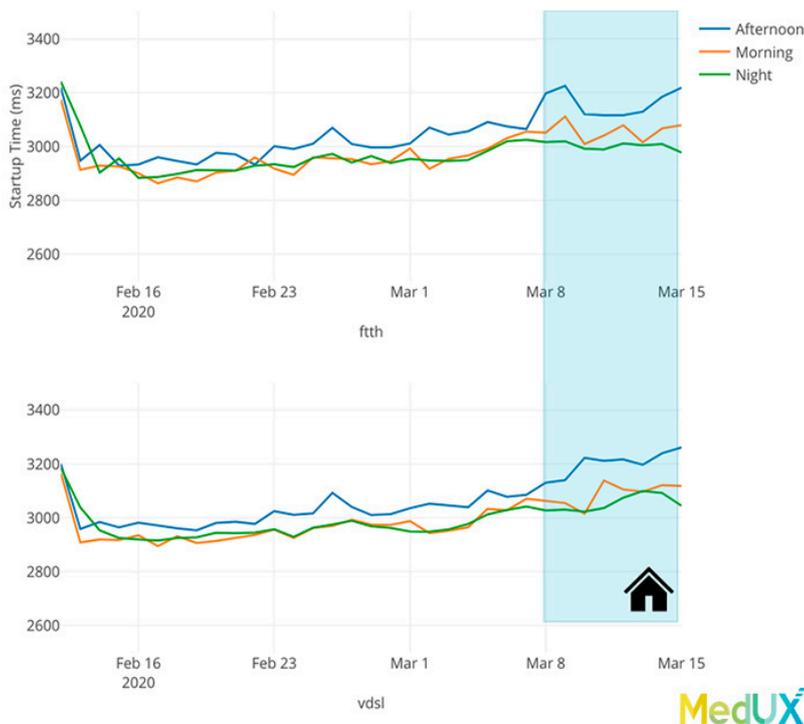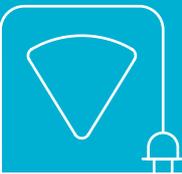
For illustrative purposes, the following graph shows a vital indicator of the streaming experience, such as the video start-up time.

About MedUX

MedUX is the leading company in customer experience measurement in fixed, mobile, and TV telecommunications networks, providing cutting-edge tools and innovative solutions for telecom operators, governments, and companies.

Our solutions enable our customers to stand out from their competitors, reduce costs, and enhance their value propositions, thereby increasing customer satisfaction, anticipating their problems, and avoiding complaints.

By collecting millions of data analytics, MedUX technology helps ISPs better understand their customers and monitor service quality. MedUX gathers 24/7 information and statistics about end-users' perceived experiences, which are eventually affected by the frequency, duration, and severity of network events. User reports and complaints, random performance tests, or simple high-level monitorization alone is not enough to resolve and prevent customer experience issues.

Our insights help our clients reduce the time to insight by obtaining meaningful information on end-to-end network performance and impacted customer services. Furthermore, our insights help our clients reduce the time to resolution by collecting detailed End-to-End performance statistics in real time and consequently responding to customer issues promptly.

Our controlled and dedicated technology offers extended root cause analysis and powerful investigation capabilities for network events and is linked to the service/application layer as well as to other network layers. During our intensive QoE test protocol, we collect valuable information about performance-limiting factors to help detect, isolate, and determine root causes. It includes necessary path-quality information, such as throughput, latencies, and packet loss, as well as other service-level information associated with web browsing, streaming, and cloud storage, among others. Examples of these performance limitations are available to most monitored services or applications relating to connection time-outs, DNS resolution, destination host connectivity, network connectivity, and server errors.

MedUX analyses network performance based on real-time information and results obtained from 5.000 MedUX HOME devices deployed in eight countries in Europe, from which over 600 measurement points evaluate Italian networks. These devices allowed MedUX to measure, in real time, the broadband experience on the customers' premises.

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