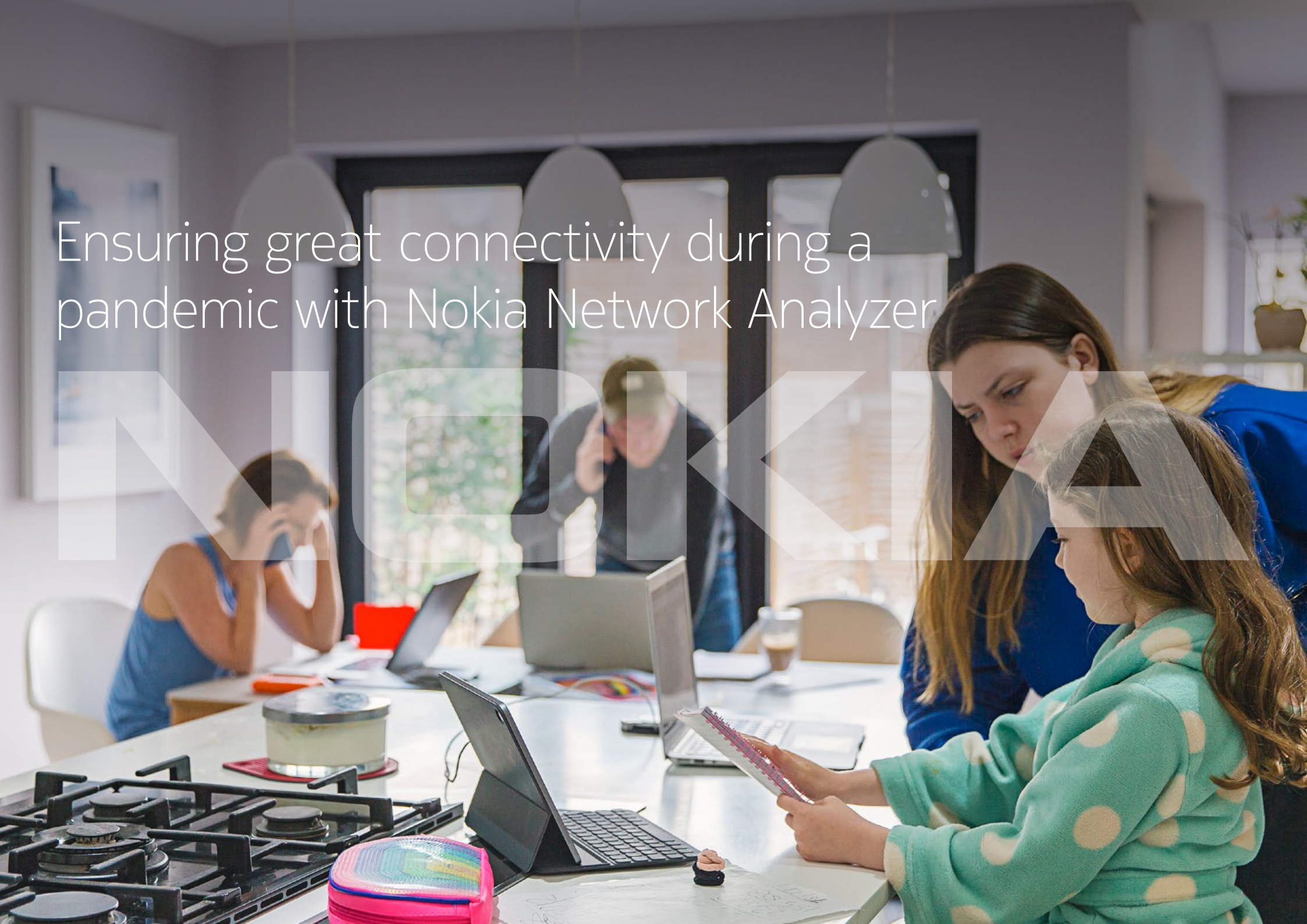
Ensuring great connectivity during a pandemic with Nokia Network Analyzer



The impact of COVID-19 on fixed consumer broadband

- Very few at-home workers have returned to their normal workplace yet[1] and large companies are planning to make working from home the new normal – as in permanently.[2]
- The growth of platforms to work remotely such as Zoom[3], Webex, Skype for Business, etc. has been enormous.
- Video games are thriving, bringing people together. Game sales have grown 52% from a year earlier.[4]



1 https://finance.yahoo.com/news/yahoo-finance-harris-poll-june-work-spending-investing-habits-130047140.html
2 https://edition.cnn.com/2020/05/22/tech/work-from-home-companies/index.html
3 https://www.theverge.com/2020/4/23/21232401/zoom-300-million-users-growth-coronavirus-pandemic-security-privacy-concerns-response
4 https://www.latimes.com/business/story/2020-06-16/column-coronavirus-video-games

A single point of pandemic access

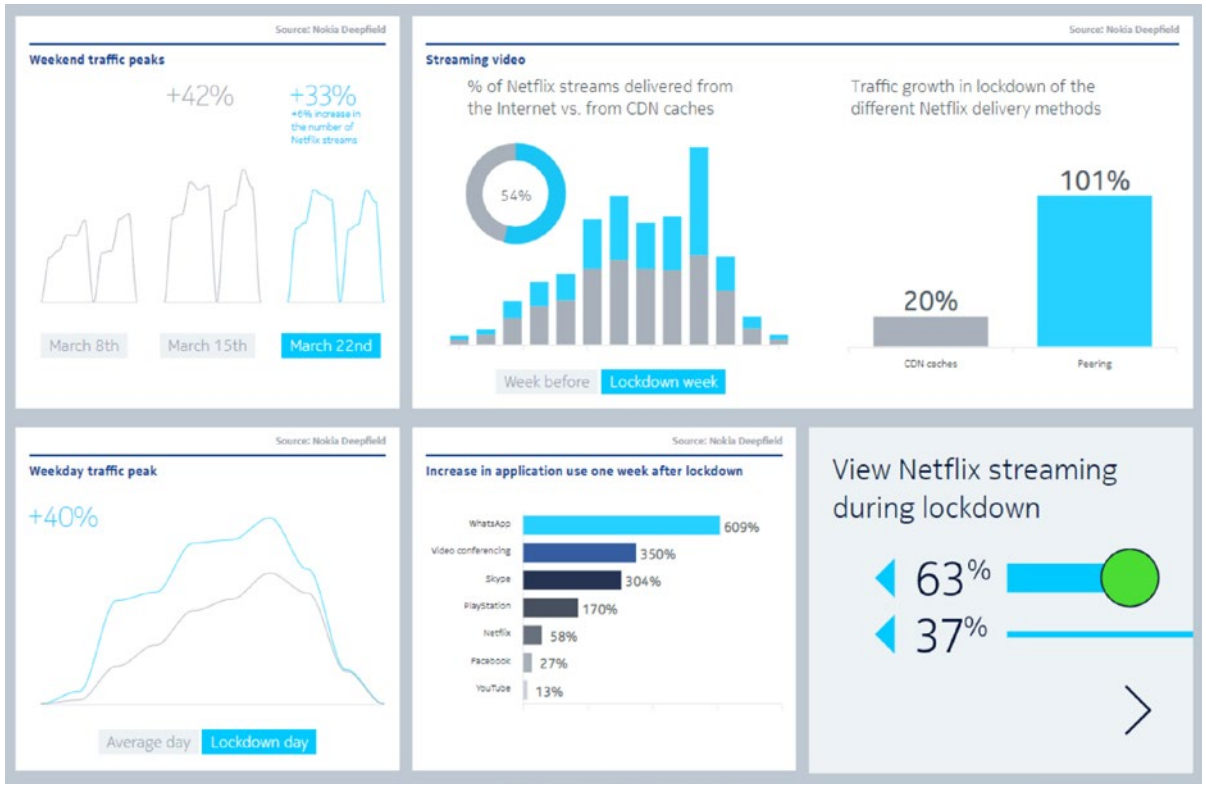
Broadband consumer networks are experiencing the most rapid change in history, thanks to the COVID-19 worldwide pandemic. The global lockdown has created an enormous shift in network traffic. Network traffic that was normally distributed among enterprise, education, and public Wi-Fi networks has now collapsed into a single point of network access - fixed consumer broadband. This has caused significant changes in traffic composition and introduces new challenges for networks worldwide.

Shifting usage patterns put pressure on home and access networks

Social distancing & lockdowns have forced people into their homes and driven new behaviors. Demand for home working access, online education and video streaming has created different traffic patterns, busy hours and points of origination.

One of the largest challenges providers face is meeting customer expectations for a reliable home experience. 70-80% of all problems are in the home and access network.[5] During lockdown, it's more important than ever to understand the home and access network environment and solve issues proactively where possible.

Exceptional situations in which communications become critical are not rare: remote work has been gradually increasing across the world. Even before the global pandemic, the number of elderly people living alone was rising in developed countries, raising the need for remote doctor visits. The need for online education from primary schooling to university degrees has also been increasing, with more online degrees available, higher acceptance of them in the workplace, and more virtual homeschool options available. But at the same time, customer expectations over the past ten years have grown more sophisticated as network connectivity is now considered as vital as air, water, electricity, and even food.[6]

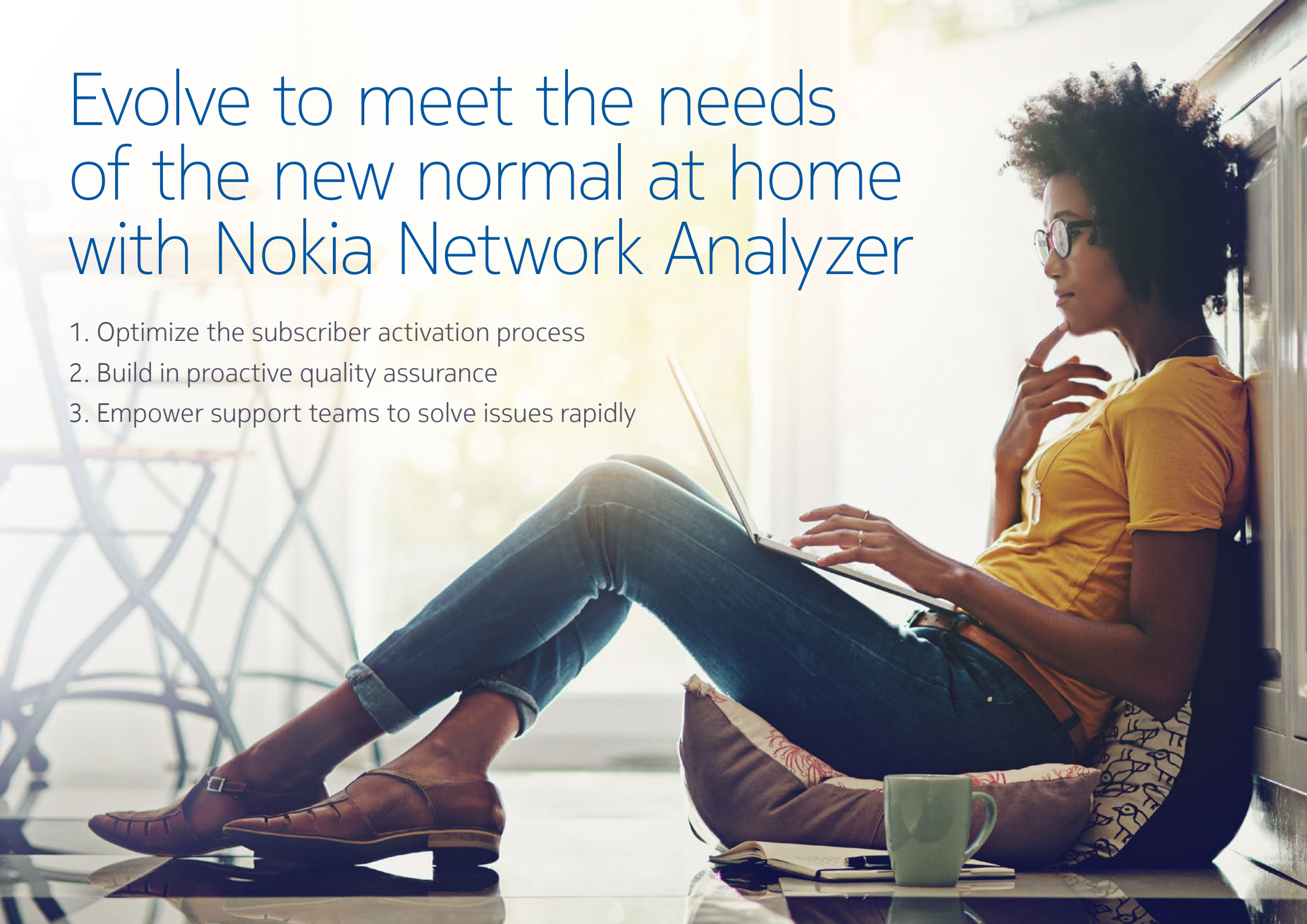


*Impact of COVID-19 on communications, Nokia Deepfield

5 Nokia's customer
6 IDC Whitepaper - Customer Experience Is More Than What You Think It Is, Karl Whitelock May 2019

Evolve to meet the needs of the new normal at home with Nokia Network Analyzer

1. Optimize the subscriber activation process
2. Build in proactive quality assurance
3. Empower support teams to solve issues rapidly



1 Optimize the subscriber activation process

Avoid slow and error-prone activations during the subscriber activation process.

Nokia's AI-based power validation supervises and monitors access networks remotely, validating subscriber activations and monitoring network performance to detect, localize, and troubleshoot faults. It has led, e.g., to reduction in average installation and repair time and reduction in new installations with power drops and quality of service issues.

2 Build in proactive quality assurance

Retain existing customers and eliminate costly errors with proactive quality assurance.

Nokia's analytics-based KPIs monitor and maintain your network proactively, giving visibility to outages and degradations, and enabling corrective actions. It has driven operational costs (OPEX) down, and helped service providers, e.g., to improve the overall quality of service.

3 Empower support teams to solve issues rapidly

Enable your support teams to effectively handle fiber and copper issues.

Nokia's proprietary expert fault diagnosis algorithm addresses fiber and copper faults, providing network-wide and subscriber-centric insights both in real-time and with historical data to helpdesk agents, NOC- and field engineers. It has resulted in savings from fault localization and correct escalation. First call resolution and average handling time have also improved.

Case study

Pakistan Telecommunication Company Limited

Pakistan Telecommunication Company Limited (PTCL) has deployed Nokia automation, analytics and machine learning software to enhance customer experience and improve customer service accuracy and efficiency.

Nokia Network Analyzer – Copper (NA-C) and Nokia Network Analyzer – Fiber (NA-F) gather insights that provide remote diagnosis and troubleshooting of last mile issues. This further enhances service quality and reduces time spent with customer service agents, which reduces operational expense. Combining Nokia Network Analyzer with Nokia Service Management Platform (SMP), PTCL automated and simplified the entire customer care process, significantly reducing the time to resolve customer issues while improving accuracy.

Customer service representatives are now more efficient with all relevant information including guided resolution steps. PTCL customers can also enjoy a better overall experience as Nokia's solutions constantly improve trouble prediction and resolution capability, while reducing customer service costs. Moreover, PTCL customers now have an improved quality of experience across internet connectivity, IPTV and communications services.

"We are committed to digitizing our customer experience and reduce customer effort by meaningful customer interactions with higher on-the-spot resolution. This project has enabled us to re-design our workflows with increased effectiveness at a lower cost. Our collaboration with Nokia has greatly accelerated our experience and organizational transformation."

Moqeem ul Haque, Chief Commercial and Group Strategy Officer, PTCL

Improved customer experience

Increased customer service accuracy and efficiency

Click here to contact us for a demo or more details

Network Analyzer deployments have generated notable savings for American and European CSPs

Increase in quality of service metrics for repairs

17%

Reduction in new ONT installs with power drops and QoS issues

50%

Improvement in call avoidance

20-30%

Decrease in average installation and repair time

15-20%

Resolved help desk cases

65-80%

Network Analyzer continuously supervises the access network. It is designed to deal with fiber and copper network complexities and it delivers user friendly, comprehensive, real-time diagnostics output which helps operators keep quality of service aspects under control.

Nokia OYJ
Karakaari 7
02610 Espoo
Finland

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About Nokia

We create the technology to connect the world. Only Nokia offers a comprehensive portfolio of network equipment, software, services and licensing opportunities across the globe. With our commitment to innovation, driven by the award-winning Nokia Bell Labs, we are a leader in the development and deployment of 5G networks.

Our communications service provider customers support more than 6.4 billion subscriptions with our radio networks, and our enterprise customers have deployed over 1,300 industrial networks worldwide. Adhering to the highest ethical standards, we transform how people live, work and communicate. For our latest updates, please visit us online www.nokia.com and follow us on Twitter @nokia.

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