# New profits from new copper in emerging markets

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ADSL broadband is a fixed-line connection technology provided over home telephone lines. Until 2010, ADSL access led to a rapid global growth of Internet users. And today there are still nearly 300 million DSL broadband users and almost 600 million lines of copper cables worldwide, with emerging markets accounting for approximately 70 percent of those lines. How can operators maximize their returns?

By Zhou Jianjun, Vice President of Huawei Carrier Business Group

## New copper

Over the past three years, new copper wire technologies like SuperVector and G.fast have revitalized fixed-line copper networks. According to Goldman Sachs, these new technologies will greatly benefit fixed-line operators' growth and "enable them to deliver 200+ Mbps high-speed Internet access to the majority of their users."

The new copper line tech requires between 40 and 75 percent less CAPEX than FTTH. Goldman Sachs predicts that by 2020 revenue growth from home broadband for European fixed-line telcos will have caught up with cable operators' revenues thanks to the benefits of new copper wire technology.

Utilizing existing copper resources to accelerate ultra-fast broadband network transformation has become a widely used method for ramping up broadband speeds among fixed network operators. In addition to offering sufficient bandwidth, new copper acceleration technology has proved popular with operators for two main reasons – no lead-in cabling and lower CAPEX.

Copper acceleration removes need for lead-in cabling, allowing for faster TTM: Because new copper acceleration technology leverages existing lead-in copper cabling, no additional cabling has to be laid and fixed terminals can be posted to end users, slashing on-site installation costs. The project deployment cycle for copper acceleration is up to six months less than FTTH.

Egypt Telecom implemented a Fiber-to-the-Cabinet (FTTC) copper acceleration solution, upgrading 3.5 million households in only three years, increasing 110% of FBB subcribers and optimizing the provisioning of fixed-line broadband services. The project was well-received by Egyptian consumers, leading to a considerable increase in customer satisfaction.

Copper acceleration lowers CAPEX and speeds up payback: According to Deutsche Telekom's publication *Capital Markets Day*, the CAPEX of the carrier's copper acceleration project was 70 percent less than FTTH deployment. Cheaper and able to deliver ultra-broadband to more users, copper acceleration is cost-efficient and, based on Huawei's experience, the payback period is under two years.

## Fiber-copper integration

Some operators are employing a fiber-copper integration network construction model, supplementing the main method of copper acceleration, with FTTH. Fiber-copper integration is a creative network construction strategy that integrates a network's "spots and areas". "Spots" are greenfield areas with high user density such as high-rise residential buildings. The conditions of these areas allow FTTH to be used while mitigating the associated issues of high costs and long deployment times. "Areas" refers to the rest of the network where regular copper broadband acceleration methods such as Fiber-to-the-Cabinet (FTTC), Fiber-to-the-Building (FTTB), and Fiber-to-the-Distribution-point (FTTdp) can be easily adopted.

This combined method has significant benefits. FTTH can help to establish a market brand and attract high-end users, while copper acceleration can deliver services for users looking for a more economical product, who often represent the bulk of fixed-line broadband revenues.

Our global market insight shows that whole network upgrades generally take place in home broadband markets every 3 to 5 years and bandwidth upgrades follow a tiered progression from 5 Mbps to 20 Mbps, 50 Mbps, 100 Mbps, and 300 Mbps, and 1 Gbps. These changes are gradual and progress relatively steadily in the context of various factors, including Internet penetration rate, the wealth of video and content, consumer spending power, and information consumption habits in the local market.

For a significant number of operators, fiber-copper integration network construction has proved to be a robust strategy. In Philippine, the carrier PLDT adopted one-stop FTTC SuperVector acceleration solution to upgrade its legacy copper network. The solution satisfied the carrier's requirements to quickly increase speeds and revenue, boost its brand recognition, and attract high-value customers.

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based on the current demands of the market. They can then maintain a technological advantage to beat the competition and ensure the efficiency of commercial investment to obtain ample revenue. As such, fiber-copper integration is an excellent commercial strategy for fixed network operators.

However, for many operators doubts remain around copper wire quality and deployment when it comes to copper acceleration. After all, oxidation and poor contacts in copper cabling buried underground for decades can impact the ability to boost copper line speeds. In response, Huawei developed Line Expert, a copper quality assessment system that lets operators accurately and visually understand the quality of their copper lines and attainable bandwidth following the implementation of the new copper technology.

In one instance, Huawei set up a joint team with an operator, and collected test data and site samples over nearly two months, subsequently producing a copper cabling quality map of the carrier's entire network. Estimates showed that for 90 percent of the copper lines, the new copper technology SuperVector could deliver speeds of 50+ Mbps to end users within 800 meters.

Deployment difficulties associated with outdoor access sites, such as moving sites down to the street, site access, power supply, site integration, and anti-theft measures for batteries, are causes for hesitation for operators deciding on copper acceleration. In answer to these challenges, Huawei launched a one-stop solution that solves these problems, leveraging its experience of having deployed almost 400,000 outdoor access sites globally.

Huawei constantly invests in technological innovations for copper acceleration solutions, particularly in emerging markets where it refines scenario-based solutions to meet local conditions, working closely with operators in everything from front-end business design to back-end network O&M. We believe that basic copper networks still have great potential.

For fixed-line operators with vast copper resources, we recommend leveraging the fiber-copper integration networking strategy to harness the respective advantages of optical fiber and copper networks. With this solution, carriers can achieve the best combination of network advancement and investment efficiency and build future-oriented ultra-high-speed networks that will help them achieve sustainable business success.