



Bringing you safer, faster, and smarter 5G

Guo Ping, Huawei's Rotating Chairman, calls for international collaboration on industry standards and appeals to governments across the world to listen to cyber security experts. His MWC 2019 keynote address outlined how Huawei has developed the most powerful, simple, and intelligent 5G networks in the world, but argued that such innovation is nothing without security. He urges that industry and governments work together and adopt unified cyber security standards.

By Guo Ping, Huawei's Rotating Chairman

The past few months have been a challenge for us. On one hand, our 5G solutions are widely recognized in the industry. On the other hand, there has been a lot of speculation about the security of our 5G solutions. I would like to talk about Huawei's latest innovations and our views on cyber security.

On the 2018 EU R&D Investment Scoreboard, Huawei ranks number 5 globally. Last year, we invested more than US\$15 billion. This consistent investment has produced many positive results. Through nonstop investment, we can keep providing our customers with new, innovative products and more efficient services. 5G is a perfect example of this.

Innovation – It's all in the details **Powerful. Simple. Intelligent.**



Huawei is the first company that can deploy 5G networks at scale. More importantly, we can deliver the simplest possible sites with better performance.



Huawei is the first company that can deploy 5G networks at scale. More importantly, we can deliver the simplest possible sites with better performance. With 100 megahertz, our 5G can reach more than 14 gigs-per-second; that's for a single sector. We're at the leading edge of performance.

Strong capacity also needs strong transmission equipment.

If fiber is available, we only need to install a blade, attach one fiber, and we can bring bandwidth up to 200 Gbps. It's incredible.

If fiber isn't available, carriers can use microwave. However, the bandwidth of traditional microwave is only 1 Gbps. To address this problem, we use innovative architecture to boost that bandwidth to 20 Gbps.

With our 5G smartphone and CPE, Huawei is able to provide end-to-end 5G solutions. We have begun to help carriers deploy 5G at scale.

Proven in field tests and commercial use

In January, Zealer published a report, saying that Huawei's 5G is 20 times faster than the so-called 5G in the US. That's in field tests. In commercial use, it's not 20 times faster, but it's still much, much faster. So I fully understand what President Donald Trump said. The

United States needs powerful, faster, and smarter 5G.

In the two charts on the left, we have the results from IMT-2020's phase 3 tests in China. As you can see, Huawei is far ahead of the game when it comes to single site throughput.

The third chart compares the speeds of a commercial 5G network deployed by several vendors. This is a real customer network. On Huawei 5G, single user speed reaches 1.3 Gbps.

Powerful

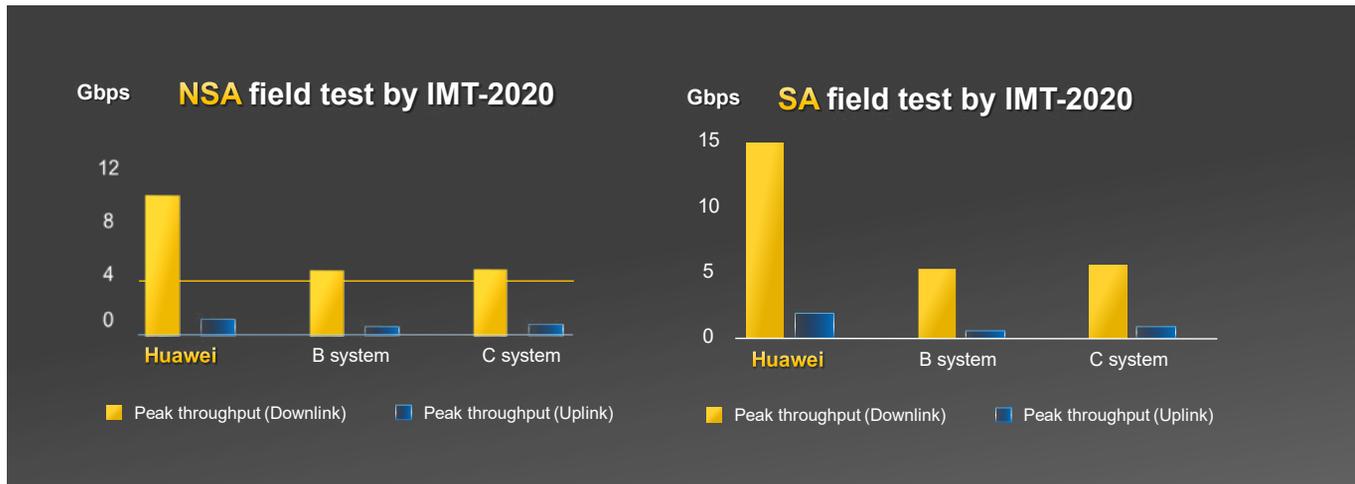
Innovation is in the details.

Let's start with capacity.

For example, with the performance algorithm, we can more than triple cell throughput. For hardware, our 5G chips support 64 channels, the highest in the industry. We have also increased the computing power of these chips by 2.5 times. For microwave, we can support 10 times greater transmission bandwidth than other solutions on the market. Little by little, we're pushing the physical limits of our technology.

Simple

We're also making sites as simple as possible,



without sacrificing performance. For example, if we made 64T antennas with old techniques, one 5G antenna would be bigger than a door. Can you imagine installing that? If we put one on a beach, it would be blown down. To address this issue, we're using new materials. We've reduced the number of components by 99 percent, and with lighter covers, we can reduce weight by 40 percent. These new AAUs are as wide as a backpack and very strong. They can survive grade-15 typhoons. This happened in Shenzhen last year.

Installation is super easy. We can install them directly on a 4G site, or even on a lamp pole. Simple sites greatly reduce carrier CAPEX and OPEX. In Europe, where space is limited, we can help you save 10,000 Euros on site rental for every site, every year.

Intelligent

In the telecom industry, someone said we're using 5G networks of the 21st century. However, network O&M is still in the 18th century. Let's look at one figure. Globally, 70 percent of network faults are from human limitations. To make life easier for carriers, our goal is to build intelligent networks.

Last October, Huawei launched the world's most

powerful AI chips: Ascend 910 and Ascend 310. We can use these to bring intelligence to all scenarios, and reduce computing power costs for carrier networks.

Building on these chips, Huawei has developed many algorithms and models for carrier networks. With AI, we can increase resource efficiency, make O&M easier, and reduce power consumption in telecom networks.

The more we invest in engineering science, the more value we can create. At Huawei, we can bring powerful, simple, and intelligent 5G networks to carriers anywhere in the world, faster than anyone else. Huawei is the global leader in 5G. But we understand innovation is nothing without security.

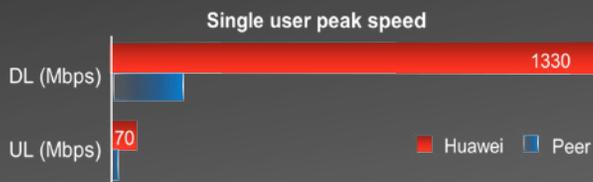
Unified standards and aligned responsibilities

To build a system that we all can trust, we need aligned responsibilities, unified standards, and clear regulations.

There are three areas of responsibility:

- Technology providers have responsibility.

Leading performance across all indicators



- Carriers have responsibility.
- The industry and regulators have responsibility.

Technology providers

Let me start with technology providers, like us.

For technology providers, our responsibility is to comply with standards and build secure equipment. With 5G, we have made a lot of progress over 4G, and we can proudly say that 5G is safer than 4G. As vendors, we don't operate carrier networks, and we don't own carrier data. Our responsibility, what we promise, is that we don't do bad things.

Here, let me say this as clearly as possible: Huawei has not and will never plant backdoors. And we will never allow anyone to do so in our equipment. We take this responsibility very seriously.

Carriers

Carriers are responsible for the secure operations of their own networks.

5G networks are private networks. The boundaries between different networks are clear. Carriers can prevent external attacks with firewalls and security gateways. For internal threats, carriers can manage, monitor, and audit all vendors and

partners to make sure their network elements are secure.

Industry and regulators

As an industry, we all need to work together on standards. This is our shared responsibility. To build safer networks, we need to standardize cyber security requirements. And these standards must be verifiable for all vendors and all carriers.

NESAS is jointly defined by GSMA and 3GPP, and it's a very good idea. Huawei fully supports this scheme. In fact, 3GPP's security standards were created with the support of many government security agencies.

These agencies have strong capabilities to verify 5G security. So, I fully agree with recent recommendations: Governments and mobile operators should work together to agree what this assurance testing and certification regime for Europe will be.

And I would recommend extending NESAS to the world. Let the experts decide whether networks are safe or not.

Best technology, greater security

Huawei has had a strong track record in security for three decades, serving 3 billion people around the world.

The US security accusation on our 5G has no evidence, nothing.

The irony is that the U.S. CLOUD Act allows their governmental entities to access data across borders.

So, for best technology and greater security, choose Huawei. [www.huawei.com](#)