



A better view from the cloud



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On the first day of HUAWEI CONNECT 2016 in Shanghai, Huawei’s Rotating CEO Ken Hu revealed that the company aims to position itself as the enabler and driver of an intelligent world. As such, Huawei will hold true to its culture of customer-centricity, focus on ICT infrastructure, and provide innovative cloud technology.

By Ken Hu, Rotating CEO, Huawei

feel like I could talk about connectivity all day long. Some say that Huawei lives for connections. In the 26 years I’ve spent with the company, I’ve come to realize that connecting people truly gives us a sense of mission. I’ve been to the Shanghai Telecom Museum on the Bund three times, and every time, I walk away with something new. From telegraphs to telephones, from beepers to Motorola’s first DynaTAC mobile phone, from 3G to LTE, and on to research into 5G, humankind has been on a never-ending search for more intimate, faster connections.

The cloud, like the way we connect, has been in a constant state of development. It’s always evolving. Every person, every enterprise, every industry – even every economy – has been shaped by the cloud in one form or another. At the same time, each of these entities has helped shape the cloud we know today. At Huawei, the ways we conceptualize and apply cloud technology are constantly evolving as well.

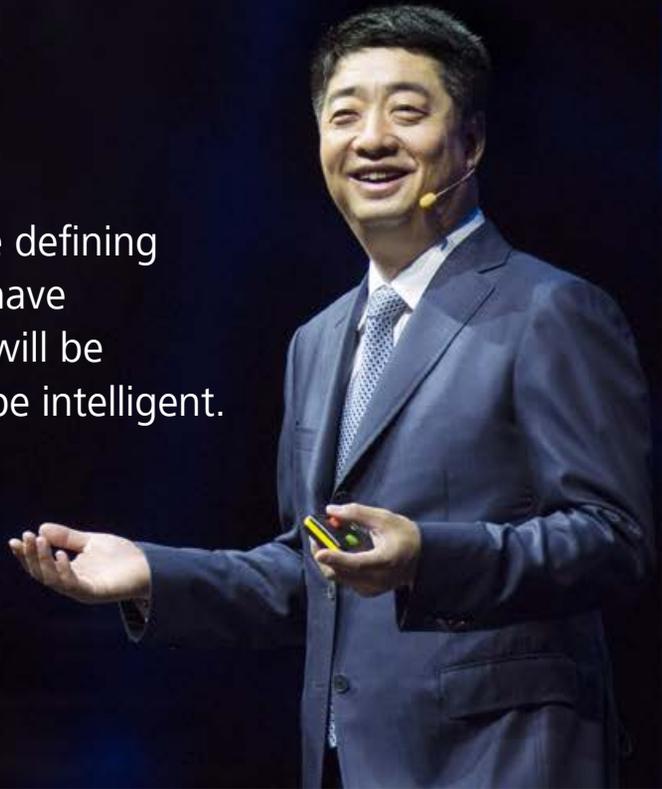
This is how we envision the future: an intelligent world.

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– Ken Hu, Rotating CEO, Huawei

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ICT is the cornerstone of an intelligent world

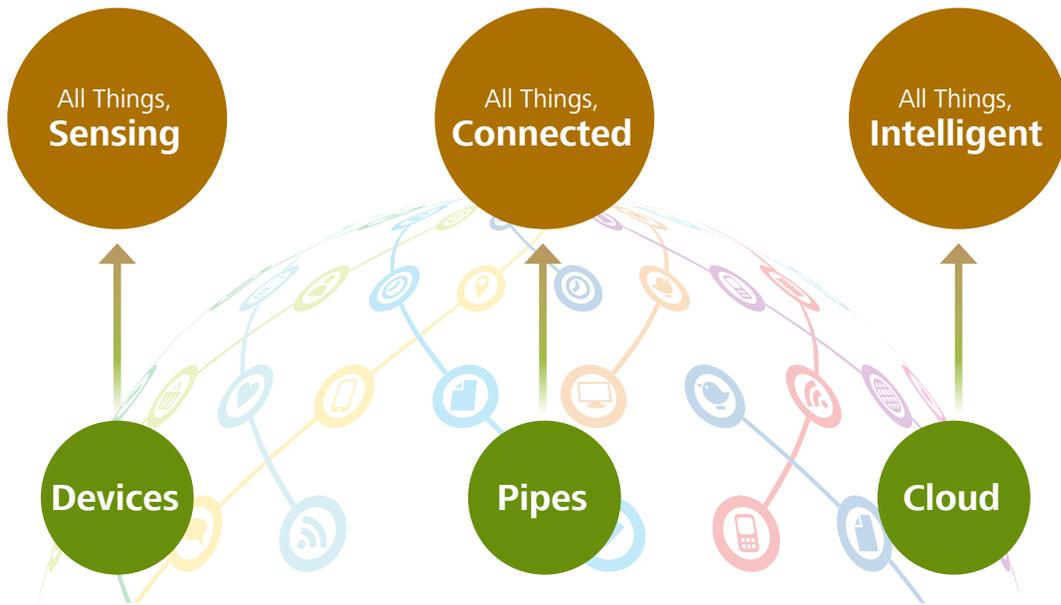
The intelligent world is here, and it will bring about enormous changes in society. We simply have no way of knowing how deep and far-reaching these changes will be. However, we can be sure of one thing: ICT will be the cornerstone of this intelligent world.

The intelligent world has three defining characteristics: All things will have the ability to sense, all things will be connected, and all things will be intelligent. The existence of these three defining characteristics depends entirely on advanced ICT. In an intelligent world, devices will play the role of “feelers” in an all-sensing environment. Networks will connect everything, and the cloud will be the source of intelligence behind all things. These three elements form a synergetic architecture of devices, information pipes, and cloud.

In the future, all people and all things will have the ability to sense their environments. Essentially, each device or physical node on a massive, ubiquitous network will

serve as an entry-point to an intelligent world. In the meantime, computers and people are growing closer in proximity. From room-sized mainframes that were several kilometers away from users to the PC era where computers were at most a few meters away, we’ve now entered the smartphone era where we’ve got constant access to computing power within a few centimeters. Now we’re in the age of wearables, which are just a few millimeters from our skin. Eventually, embedded smart chips will mark the beginning of true human-machine integration. In the next five to ten years, we will see all kinds of smart devices that automatically adapt to various use scenarios. Smartphones will only be one type among them.

In the future, optical fiber and wireless networks will provide us with ubiquitous, super-high bandwidth connections. With current 4G technology, for example, in theory we should be able to achieve latency of around 50 milliseconds. But this type of response time is simply not enough to support VR and AR applications that run on networks, which is one of the reasons why people can’t always catch their Pokémon in Pokémon



Go. There's too much of a delay. In the 5G era, in theory we should be able to achieve network latency of 1 millisecond. At present, we don't have the ability to support a number of applications, but this will all be possible in the near future.

In an intelligent world, interconnected computers distributed all across the world will aggregate vast oceans of information and data, forming a "digital brain" in the cloud. This digital brain will evolve in real time and it will never age. The wisdom and insight it provides can be called upon at any time by people and machines with access to high-speed connections and smart devices. Autonomous vehicles, intelligent medicine, and practically everything that requires mental activity can be augmented by this massive digital brain – at which point we can employ intelligence more efficiently.

Based on this insight and set of assumptions, Huawei is committed to building the technological infrastructure that will harmonize devices, pipe, and the cloud. This will serve as the backbone of an intelligent world. As such, devices, pipe, and cloud technology are the strategic focus of Huawei's investment in the future.

Cloud is shaping everything, change is a process of rebirth

Like other major technological revolutions in human history, the cloud's impact on society has already extended far beyond the confines of technology. The cloud has affected business models and the way people think; it's responsible for a nonstop series of commercial transformations.

In the past ten years, companies like Google, Amazon, Didi Chuxing, and Airbnb were "born in the cloud". They were the driving force behind the Cloud 1.0 era, which was based on agile innovation, good user experience, and low costs. These companies leverage cloud technology and cloud architecture to more effectively share resources. They also leverage mobile Internet technology to connect their customers better, enabling them to adopt disruptive business models and create new value in otherwise traditional, difficult-to-enter sectors like hospitality and the taxi industry.

The success of these disruptors seems to have awakened all industries to the potential inherent in cloud technology. In the next 10 years, we will enter



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the era of Cloud 2.0, in which enterprises are the main players and we will see the rise of countless industry clouds. We estimate that, by the year 2025, all enterprises will employ cloud technology and cloud models, and 85 percent of enterprise applications will be deployed on the cloud. Every company will integrate its core business with the cloud, and be on the look-out for the cloud solutions that suit them best.

Generating value from the cloud: Think big, act small. The cloud is important. However, what's more important is generating practical value from cloudification to create business value. If they hope to generate value from the cloud, companies need to think big and act small.

An about-face in the way we think: Enterprises need to change their mindsets about the role of ICT. Companies should start building awareness of ICT's evolution from a support system to a production system, and boldly employ ICT to drive innovation in their business and operating models. They should redesign their production processes around new technology-not passively adapt technology to serve existing processes. Huawei is proactively exploring how we can better incorporate a cloud mindset in our own operations.

Rethinking talent: The ability to work with cloud-based ICT should be a basic skill among all employees in a corporation. This is especially true of leadership teams, who need to be familiar with and apply new technology in the design and management of their businesses. For a company like Huawei, which has over 170,000 employees, figuring out how to refresh the knowledge structure of our teams is an extremely challenging task, and we're exploring the best ways to manage it.

On a global scale, talent is in short supply in the cloud computing, big data, and artificial intelligence domains. This situation will continue, if not become more acute. Companies need to plan for this ahead of time and start getting top talent on board as soon as they can; preparing your talent reserves in advance is no different from planning for a rainy day. At Huawei, we're proactively rolling out our talent strategy in the hopes that we can attract more of the world's best minds to come and work with us.

On the subject of talent, we have to talk about CIOs. In the cloud era, in addition to heading up technological initiatives, CIOs will play a key role in setting strategy and using ICT to drive business transformation. Those with a strategic vision and the ability to promote new ideas will be worth their

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weight in gold.

Small actions will get you where you want to

go: When companies set their cloud transformation strategies, they need to think big and set long-term systematic strategies. And they need to act small – find small, tactical points of entry, and create value. Gradual, successful initiatives will build lasting confidence in new technology and the strategies that employ it.

Around the globe, Huawei has 80,000 R&D staff, 16 research centers, and more than 15,000 labs. In the past, it was difficult to share resources between teams, so resource utilization rates were rather low. Starting in 2013, we integrated R&D resources across the board, and managed to migrate coding and R&D to the cloud. We restructured our R&D processes and have already witnessed huge boosts in efficiency, like a 2.5-times increase in resource reuse, and an average reduction of 50 percent in workloads in all steps of the R&D process. We've also made significant improvements in product time-to-market.

Becoming the enabler and driver of the

intelligent world: For any business, change means hope. And in the cloud era, those that act are the

ones who will create the future.

Huawei aims to become an enabler and driver of the intelligent world. Specifically, Huawei's strategy is to:

- Stay customer-centric
- Provide innovative cloud technology
- Become our customers' preferred partner
- Proactively contribute to cloud ecosystem development

Providing innovative cloud technology

Cloud technology is constantly evolving, and customer requirements for this technology are constantly evolving as well. Against this backdrop, Huawei is confident in its ability to play a role as a great provider of great solutions. And where does that confidence come from?

In addition to a heavy-duty buildup of core technology and innovation capabilities that we've cultivated over the years, our greatest source of confidence is our customer-centric corporate culture. Over the past 28 years, customer-centricity has become part of Huawei's DNA – the most important guide for everything we

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do. As technology providers, we can't always try to meet everyone's needs with a one-size-fits-all solution. Customer-centricity implies a down-to-earth approach, a willingness to learn from customers, and a willingness to truly build an understanding of the special requirements that arise from industry and business differences. Customer-centricity means developing innovative cloud technology and solutions that address those differences – that are customized and on-demand.

For example, an increasing number of large enterprises pay special attention to independence when exploring cloud solutions: the freedom to choose, and not get locked into one vendor's platform. They also place a lot of stock in interoperability: their ability to connect, exchange, and share data both internally and with other companies. So we went ahead and used mainstream open-source technology to build open cloud architecture.

Openness, security and data privacy protection are of the utmost concern when enterprises migrate to the cloud. In response to this concern, we released a hybrid cloud solution based on unified architecture so our customers can enjoy the independence of a private cloud with the flexibility and agility of a public cloud. We emphasize openness, security, and

enterprise-grade performance in all of our cloud solutions, as well as providing an integrated one-stop environment. More and more customers welcome these solutions with open arms, which further reinforces our confidence in a customer-centric approach to technological R&D.

A partner, not just a vendor

In the cloud era, customers need more than just a vendor – they need a partner that will work closely with their teams. Huawei is ready and willing to enter this type of strategic partnership.

In June of 2016, Deutsche Telekom released the Open Telekom cloud, a complete set of cloud services that includes private cloud, public cloud, and software solutions designed for enterprise use. They chose Huawei as their strategic partner, to provide hardware and software solutions.

Our collaboration on this project was a perfect combination of strengths: Deutsche Telekom's strong digital infrastructure, deep insights, and long-term experience serving enterprises combined with Huawei's strong, continuous technological innovation capabilities in end-to-end hardware and software.

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We believe the highlight of our collaboration is that Open Telekom Cloud was completely driven by customer needs. We discovered that customer concerns primarily centered on the standardization and agility of IT services, the ability to process and analyze big data in real time, and compliance with strict data security regulations. So the solution that we came up with for Deutsche Telekom also focused on these performance requirements: security, reliability, simplicity, and openness. This enabled Deutsche Telekom’s public cloud services to meet enterprise customer needs far better than out-of-the-box public cloud services, which made them quite popular with enterprise clients.

After its launch, the Open Telekom Cloud received widely positive reviews. Deutsche Telekom’s Open Telekom Cloud is an important new set of services for companies in the midst of digital transformation simplicity – not only in Germany, but in all of Europe. For industries and enterprises, this solution will set a benchmark for public cloud services.

Contributing to the ecosystem

Ecosystem is important to cloud development. Huawei isn’t going to release a handful of clouds on its own. As an ecosystem enabler, we aim to help all of our

customers build all manner of clouds, and in doing so actively contribute to the development of the cloud ecosystem as a whole.

As for what we’re doing on that front, we’re actively participating in the formation of industry alliances. Promoting openness, collaboration, and shared success, our goal is to make the pie bigger for everyone involved. In addition to industry alliances, we’re also forging strategic business alliances with our partners like SAP, Accenture, Microsoft, and Intel. Together, we develop solutions that help our customers succeed. We’ve also invested in a huge platform for developers, and actively contribute to open source communities. We’re trying to draw in as many talented players as we can to fully flesh out the value chain.

Behind these actions are two important tenets: First, we believe that the cloud ecosystem must be built around customer needs, and it must create value for customers. This is the purpose of developing the ecosystem, and it will also help guarantee its steady ongoing development.

Second, it’s important that all organizations and enterprises involved in the ecosystem bring their own



We hope that we can work together and explore the best way to shape the cloud – the best way to shape our world.



unique value to the table. We are Huawei. Our role is to make good products and serve our customers well. Achieving healthy, sustainable ecosystem development depends on the support of superior technology and products. Otherwise we've done nothing but carve out a river with no water to fill it.

A magnificent cloud era has only just begun

The cloud era means greater connectivity, more sharing, more freedom. If we truly want to make all this happen, we have to adopt a cloud mindset carve out an ecosystem, and approach this from a higher, more strategic perspective. In a manner of speaking, we need to get a better view from the cloud.

In China's Tian Shan Mountains, there's a place called Xiata Canyon. It has an old road that is part of the ancient Silk Road, the steepest part of the path between north Xinjiang and south Xinjiang. This is the same path that the famous monk Xuanzang took on his journey to obtain Buddhist sutras from India. These days, it's one of the most popular destinations for hiking expeditions in Xinjiang.

The second-highest peak in the Tian Shan mountain

range at 6,995 meters above sea level is Khan Tengri. Nearby sits Muzhaerte glacier and a range of snowy peaks. Traversing these, will take you to the middle of the Nanjiang's lush grassland pastures, the sky an azure dome held aloft by herds of immaculate white clouds.

It's a long road and extremely dangerous. I can't imagine how our ancestors managed to traverse these types of distances, and in such harsh conditions. And then I stop and think: If you've got a sublime vision in your heart, no danger or hardship can hold you back. In fact, the name of the Xiata, which means "ladder", was coined by the monk Xuanzang during his famous journey.

On the Internet these days, you've probably seen the popular meme of the Olympian, Fu Yuanhui, who "calls upon all her superhuman strength" when she swims. But we all know that it's not superhuman strength; it's grit. The road to digital transformation is also long and hard, so we need to put one step in front of the other, and keep on pushing forward. The purpose of this event is to provide a platform where we can throw around ideas, share experience, and exchange thoughts. We hope that, through this process, we can work together and explore the best way to shape the cloud – the best way to shape our world. 