Shape the cloud

Bridge today and tomorrow

Cloud evolution in the enterprise domain shouldn't be isolated. To cross all borders, companies across the planet require a global cloud on a global platform coupled with uniform APIs, architectures, and ecosystems.

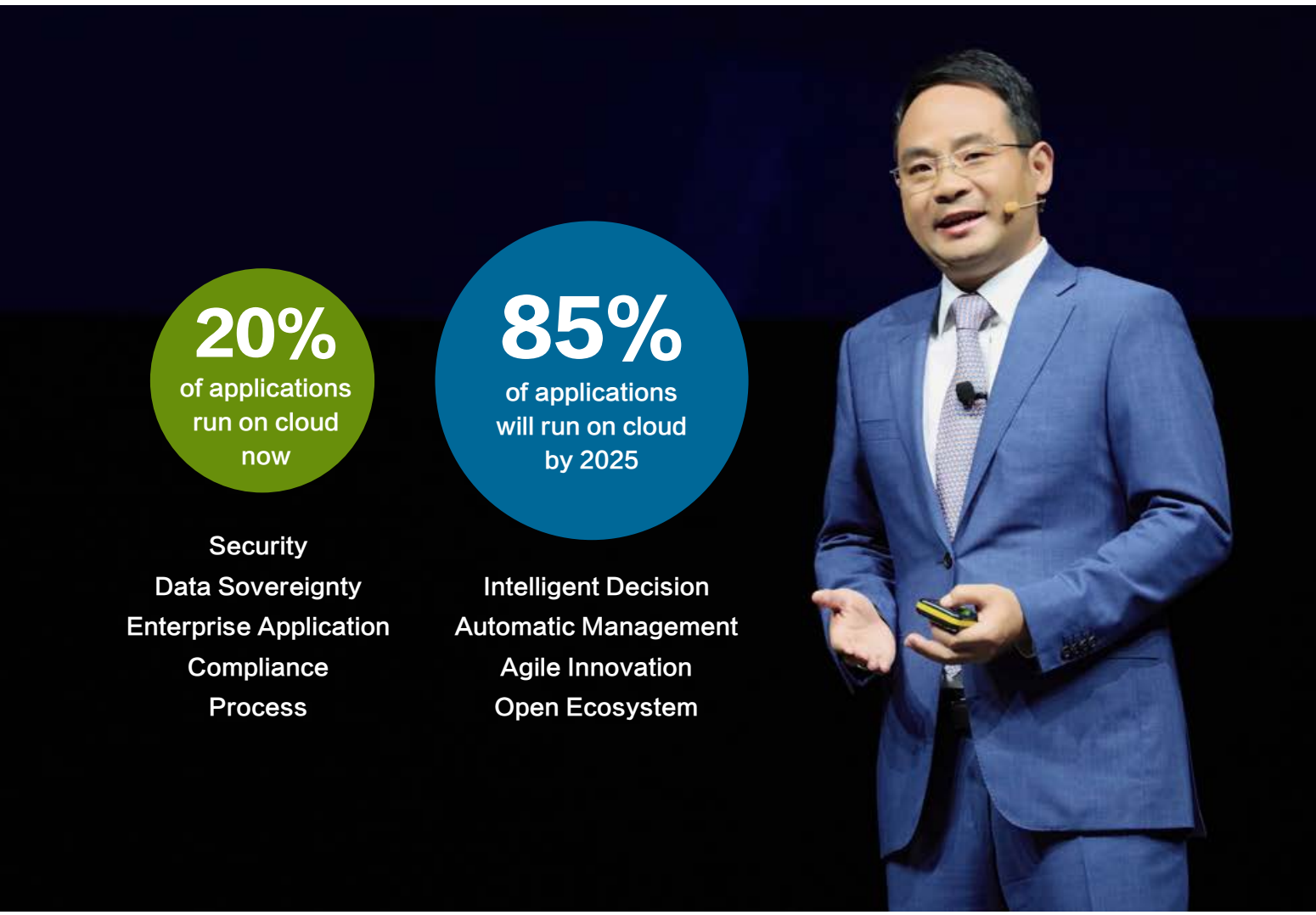
By Zheng Yelai, President of IT Product Line, Huawei

Despite the fact that cloud computing is one of the most disruptive technologies to hit the IT industry in the past decade, only 20 percent of enterprise applications run on cloud. Issues like security, data sovereignty, and the availability of enterprise applications are the major reasons for this. Over the next ten years, enterprise cloud transformation will accelerate, with cloudification moving beyond non-critical services and standardized applications to encompass production systems and business-critical services. By 2025, more than 85 percent of enterprise applications will run on cloud.

Cloud-driven innovation will make enterprises able to make smarter decisions. Automated management, agile innovation, and more open ecosystems will feature strongly in this new dawn for business.

Finding the right enabler

To help enterprises on their journey, Huawei plans to simplify its box devices and make our software platforms more open. Openness yields greater choice, which in turn benefits customers. But, we're not planning to make apps, meaning we will avoid entering the enterprise domain of application systems. We also won't collect or monetize



customer data. Why? Because we believe that corporate data is a core business asset and we prioritize data sovereignty and data privacy.

Helping verticals cloudify

Supported by customers and partners, this year saw Huawei's entry into the Challengers quadrant of Gartner's Magic Quadrant for the server market for the first time. We also jumped into the Leaders quadrant for the storage market, ranking first globally for shipment growth. In the software domain, Forrester's Wave report on global private clouds described us as a "strong performer" based on the open architecture of our FusionSphere cloud operating system. Huawei is known in the industry for product innovation, which is attracting increasing numbers of Fortune 500 and high-growth companies as partners.

In the banking sector, Huawei is working with many financial companies, including Industrial and Commercial Bank of China and China Merchants Bank, to promote the application of new technologies like precision marketing and real-time risk control. In the government and public service sector, Huawei has deployed the largest government cloud in Africa and teamed up with EMM in South Africa to build a reliable smart Digital City, ensuring uninterrupted services 24/7.

In the energy business, we've established a joint innovation center with the world's largest oil company, Saudi Aramco, and deployed a high-performance SAP HANA database system for the Spanish Petroleum Company (CEPSA), dramatically increasing its business performance.

In manufacturing, Huawei deployed a high-performance computing platform (HPC) for Mercedes-Benz to apply in various scenarios, including design simulations and crash simulations for chassis. The HPC platform has enabled the car maker to improve multiple features in its luxury vehicles, ranging from comfort and heat management to aerodynamics.

In the media domain, Huawei's IT products have helped customers meet their service requirements for information gathering, editing, broadcasting, management, and storage. Huawei's storage modules were used at the Rio Olympics, forming a core component of CCTV's production and broadcasting system. Huawei also provided an innovative media solution for French TV during the UEFA European Championship in June and July 2016.

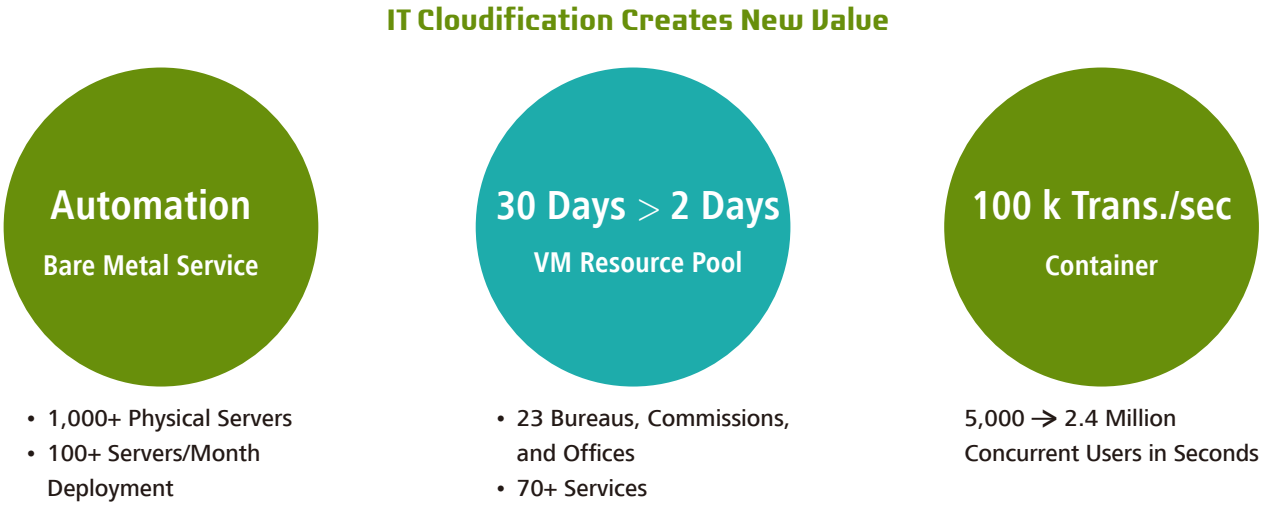
IT clouds improving value

Enterprises' key services can be automatically deployed by cloudifying the IT infrastructure that enables them. A large bank, for example, could reduce the deployment time of a database from two to four weeks to one day using a bare metal service.

Using incorporated resource pools for general services lets enterprises' original service software continue to work. Jiaxing local government, for example, applied an incorporated resource pool solution to host more than 70 services provided by 23 bureaus, commissions, and offices. Doing so cut costs by 35 percent and slashed administrative approval from 1 month to just 2 days by streamlining the process.

Container technology is a solid choice for IoT and other emerging services that are naturally born in the cloud. Huawei's online mall VMall can experience a jump to 2.4 million concurrent users in seconds, but container technology enables the system design capabilities to support over 100,000 transactions per second.

Having worked closely with customers around the world, Huawei knows that Internet-based services and enterprise service models are very different. First, unlike traditional enterprises, Internet companies don't have large numbers of legacy services and systems. Second, Internet companies' consumer-facing



services are free for end users, and standardized user sharing models are widely adopted.

Enterprise IT systems are mainly used to produce high-quality products that are reliable, stable, and secure. Their service types are wide-ranging and their IT systems are complex, contrasting sharply with Internet companies' single service models.

Different service requirements give rise to different types of clouds. In the Internet scenario, the customer must adapt to the cloud; in enterprise scenarios, the cloud must adapt to the customer.

Innovating enterprise applications

Huawei aims to build a single global cloud network with operators and other key partners around the world, complete with uniform APIs, architectures, and ecosystems.

To help customers transition to cloud architecture and maximize the value they get, we've launched 31 new cloud services in 10 categories. These services include computing, storage, networks, security, data analysis, databases, development and testing, and management services; for example, big data analysis solutions, development and testing for cloud solutions, high-performance computing, storage, and network services for enterprise applications.

These new cloud services showcase Huawei's many innovations in enterprise service scenarios. Solutions include the SAP HANA database cluster, which provides 7 TB memory using a flexible, memory-optimized computing service so Huawei's cloud can run even more SAP applications; a new vGPU virtual machine service for GPU resource sharing, allowing one GPU card to be virtualized into four vGPUs and raising resource utilization more than 60 percent higher than experienced with a GPU pass-through solution; and a new M-OLAP solution with over five times the data analytics performance of open source SPARK SQL.

Adapting to enterprise scenarios

For key services, Huawei's bare metal service can help customers cloudify their databases and other key services, achieve loss-free database performance equivalent to non-cloud scenarios, and boost the deployment efficiency of Oracle databases by 10 to 30 times.

For development and testing, Huawei's R&D cloud services provide a one-stop development and testing solution that helps enterprises boost R&D efficiency more than tenfold. The convenience and efficiency of

To fully meet enterprise needs, Huawei builds deliverable and operable hybrid cloud solutions and full-stack solutions from hardware and software to services.

Huawei's development and testing cloud has already been verified by over 90 companies in Dalian's Software Park.

For emerging services, Huawei's container service supports deployment of a single cluster of 100,000 containers, with total management capacity of 1 million containers in a group of clusters, currently the highest container management capacity in the industry. These cloud services are built using either Huawei's IaaS platform, FusionSphere, or our PaaS platform, FusionStage.

Supporting enterprise R&D

Huawei FusionStage 2.0 has open architecture and offers a complete development, deployment, and management environment. It also provides a large number of middleware services, including big data, databases, and IoT, for enterprise applications. For industry customers, Huawei provides different industry components for different industry scenarios. With the ability to deploy up to 1 million containers, FusionStage 2.0 also supports mainstream programming languages and protocols, cutting deployment time for new micro services to under a minute.

Cloudification does not require the customer to change their applications.

FusionStorage 6.0: Full convergence

Huawei's three independent storage solutions for distributed blocks, distributed files, and distributed objects have been widely adopted commercially, including an enterprise private cloud that runs the industry's largest number of virtual machines at 450,000, which is supported by Huawei's distributed block storage solution. Huawei's mobile cloud storage platform serves 130 million mobile users and runs our distributed file storage solution, which has in turn driven the rapid growth of Huawei's smartphone business. CERN's R&D cloud empowers data collection by 150 million God particle sensors, which is supported by Huawei's distributed object storage solution.

Huawei's latest converged cloud storage product FusionStorage 6.0 can now manage blocks, files, and objects on a single cloud platform. The three key characteristics of FusionStorage 6.0 are integration, flexibility, and openness. In terms of integration, FusionStorage 6.0 can store distributed blocks, distributed files and distributed objects. Flexibility is ensured by 4,096 nodes. Installed on x86 servers, openness is achieved by compatibility with OpenStack.

FusionStorage 6.0 overcomes the problem of data silos in cloud environments and lets data flow freely, meeting requirements for service diversity and data explosion in the cloud.

To fully meet enterprise needs, Huawei builds deliverable and operable hybrid cloud solutions and full-stack solutions from hardware and software to services. Thanks to Huawei's capabilities and experience in localization and globalization and our strength in open cloud ecosystems, we accompany customers all the way on the cloud journey to the cloud, beginning with the end in mind.