

# ZTE CORPORATION PREPARES FOR INDUSTRY SHIFT TO 5G WITH RED HAT



## SOFTWARE

Red Hat® OpenShift®  
Container Platform

Red Hat Enterprise Linux®

Red Hat Consulting

## HARDWARE

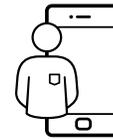
Huawei E9000 Converged  
Infrastructure blade server

HPE BladeSystem  
c7000 server

Dell E9000 server

Fujitsu KS3200 Storage

ZTE Corporation is a leading global provider of integrated communications solutions, including voice, data, multimedia, and wireless broadband. To help network operators and enterprise clients in more than 160 countries navigate the ever-changing communications industry, ZTE sought to establish an integrated information and communications technology (ICT) platform. As the foundation of this Platform-as-a-Service (PaaS), ZTE deployed Red Hat OpenShift Container Platform and Red Hat Enterprise Linux with help from Red Hat Consulting. ZTE can now better prepare for industry changes—particularly the shift to the new 5G telco standard—as well as take advantage of flexible technology and a collaborative DevOps approach to build and deploy products faster.



## TELECOMMUNICATIONS

**30,000** EMPLOYEES

*“As an open source pioneer, Red Hat offers great technical strengths combined with extensive influence in open source communities. Our telecommunications expertise makes working with Red Hat a perfect partnership.”*

MINGHE ZHAO  
CHIEF ENGINEER,  
PAAS PLATFORM RESEARCH AND DEVELOPMENT, ZTE CORPORATION

## BENEFITS

- Reduced software development and delivery times with better DevOps collaboration and more efficient workflows
- Achieved significant financial savings by reducing R&D resource investment requirements with shorter cycles
- Established open source information and communications technology (ICT) platform to deploy microservices-based applications on 5G networks and meet other industry demands



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## **CONSTANT CHANGE IN GLOBAL COMMUNICATIONS CREATES I.T. CHALLENGES**

Advances in cloud computing technology have led to demands from telecommunications operators for faster application development and deployment and more flexible network deployment based on virtualization technology. The industry is shifting to 5th generation mobile networks and wireless systems (5G) to meet these demands.

ZTE Corporation, a leading integrated communications solution provider based in China, operates 107 branch organizations globally, including 20 research and development centers in the United States, France, Sweden, and India with more than 30,000 employees. At these R&D centers, ZTE works to develop innovative solutions to help the industry solve the ever-changing challenges of global communications, particularly rapid testing, go-live services, and on-site resolution of business application deployment issues.

“We need to meet demand and prepare for 5G while overcoming the unique performance, safety, and reliability challenges of telco applications,” said Minghe Zhao, chief engineer for Platform-as-a-Service (PaaS) research and development at ZTE Corporation.

To navigate this ever-changing industry and stay competitive, ZTE sought to establish a PaaS foundation for its information and communications technology (ICT) environment. With this foundation, the company could then speed development and deployment of 5G and other apps using flexible container and microservices technologies.

## **OPEN SOURCE PLATFORMS OFFER ADAPTABLE I.T. FOUNDATION**

As a member of several open source communities and projects—including the Linux Foundation, OpenStack, OpenShift, Kubernetes, Docker, Ceph, the Cloud Native Computing Foundation (CNCF), and CloudFoundry—ZTE is committed to building its new PaaS foundation using open source technology. To adopt an open source PaaS, ZTE required compatibility with Docker container management and cluster arrangement, Kubernetes integration with Intel’s Data Plane Development Kit (DPDK), and automated management of its continuous integration and continuous deployment (CI/CD) approach.

“We faced long-term challenges that included keeping up with the continuous advancement of open source, ensuring efficient product innovation, and maintaining stability during continuous expansion,” said Minghe. “Many of the solutions lacked service application management or had low-performing networks that lacked necessary safe isolation capabilities.”

To meet these needs, ZTE decided to use Red Hat OpenShift Container Platform to build a new ICT PaaS platform. OpenShift Container Platform unites Red Hat’s operating system with Docker-formatted containers and the Kubernetes container orchestration engine to create an enterprise container environment based on industry-leading technology. In addition, Red Hat OpenShift includes DevOps features that are essential for building a high-performance, reliable business platform to integrate service capabilities.

ZTE engaged Red Hat Global Professional Services for OpenShift proof-of-concept (POC) services to speed integration during its initial deployment. The company also engaged Red Hat Consulting for on-site issue resolution by a dedicated enterprise engineer.

“Red Hat provided architecture services, product knowledge, and live issue resolution,” said Minghe. “Our consultants coordinated with Red Hat’s technical specialists to find the best solutions to any issues. This on-site support enhanced our team’s Kubernetes and Docker knowledge, improving our ability to independently address any future technical problems.”

### **PARTNERSHIP IMPROVES PRODUCT DEVELOPMENT AND DELIVERY IMPROVED DEVOPS FOR GREATER EFFICIENCY**

With enterprise open source solutions from Red Hat, ZTE has enhanced its DevOps approach, helping development and operational teams better collaborate to solve business challenges faster.

“Internal operations users benefit from OpenShift’s ability to supply a cloud solution for operators, as well as government and commercial end users,” said Minghe. “At the same time, OpenShift offers automated processes that greatly reduce development time and enhance product quality.”

With these capabilities, ZTE’s developers and operations staff have improved service stability and responsiveness, as well as platform product R&D. For example, system development and delivery time have been reduced by around 10%. OpenShift Container Platform has also simplified ICT PaaS deployment in the company’s network functions virtualization (NFV) environment.

“5G applications can be designed using a more flexible microservices and container-based architecture, making development and deployment easier,” said Minghe.

### **REDUCED RESEARCH AND DEVELOPMENT COSTS**

Through the technical collaboration with Red Hat, ZTE was able to accelerate the R&D process of its ICT PaaS platform and also achieve significant savings in R&D costs. By shortening development cycles, ZTE reduced related resource investments. In addition, ZTE can increase its container use based on business needs without drastically increasing its related costs.

Supporting improvements to DevOps collaboration with Red Hat’s solutions also helped ZTE significantly reduce hardware investment for its POC study prior to solution delivery, compared to the company’s VMware virtualization solution.

“With our development team conducting automation and other work using virtual machines or container technology, resources can be released and shared at any time to optimize their use,” said Minghe.

As a result, ZTE can help its customers save money and enhance their performance. “By helping our customers improve technology sharing, we can help them improve their costs,” said Minghe. “Operators can customize their network requirements to meet demand and quickly satisfy user needs while also reducing operating expenses.”

### **NEW OPEN SOURCE OPPORTUNITIES**

Working with Red Hat, ZTE has gained access to enterprise open source solutions and expertise. “As an open source pioneer, Red Hat offers great technical strengths combined with extensive influence in open source communities,” said Minghe. “Our telecommunications expertise makes working with Red Hat a perfect partnership.”



**CUSTOMER CASE STUDY** ZTE Corporation prepares for industry shift to 5G with Red Hat

As a result of this partnership, ZTE has expanded its participation in open source communities. This exposure not only enhanced the team’s DevOps understanding, significantly speeding delivery of the platform project, but also allowed ZTE to quickly integrate into the OpenShift and Kubernetes communities.

“We are now second in source code contributions in both the OpenShift and Ceph communities, and eighth in the Kubernetes community,” said Minghe. “Our continued contribution has increased our popularity and influence in these communities and opened opportunities to work with third-party developers on new technology for the telecommunications industry.”

Through its ICT PaaS platform, ZTE is now able to support standard Kubernetes clusters and OpenShift cluster management, allowing customers to scale on their own as needed.

**NEW I.T. FOUNDATION OFFERS TOOLS TO MEET INDUSTRY DEMANDS**

With an IT environment based on container technology and Red Hat platforms, ZTE is prepared for the shift to 5G as the standard mobile telecommunications network. In addition, ZTE’s adoption of DevOps and open source will support a virtualized and cloud-based ICT approach to telecommunications R&D.

**ABOUT ZTE CORPORATION**

ZTE was incorporated in 1985 and has grown to become a global leader in integrated communications solution. The company’s multiple information and communications technology (M-ICT) strategy is its blueprint for providing integrated end-to-end innovations that deliver excellence and value to consumers, carriers, businesses, and public sector operators in around 160 countries and regions.

[www.zte.com.cn/global](http://www.zte.com.cn/global)

**ABOUT RED HAT**

Red Hat is the world’s leading provider of open source software solutions, using a community-powered approach to reliable and high-performing cloud, Linux, middleware, storage, and virtualization technologies. Red Hat also offers award-winning support, training, and consulting services. As a connective hub in a global network of enterprises, partners, and open source communities, Red Hat helps create relevant, innovative technologies that liberate resources for growth and prepare customers for the future of IT.



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