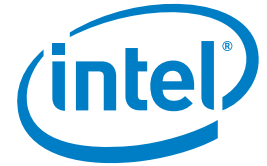


## CASE STUDY

### Intel® Xeon® processor 7400 series

Government

Cloud Computing



# Cloud Computing Speeds up Smart City\* Development

## Digital China bases its cloud computing Smart City solution on Intel® architecture



“Some cities in Jiangsu province have already deployed Digital China’s Smart City cloud computing solution based on Intel® architecture. By applying Intel® Xeon® processor 7400 series, Intel® Virtualization Technology and Intel® Node Manager (Intel® NM), data center architecture has become more stable and reliable.”

Haiquan Li  
Cloud Computing Business Director  
Digital China Information Systems Co., Ltd.

As China’s city digitalization continues to develop, cities are becoming increasingly information-based. In keeping with this development, Digital China has set its sights on deepening its relationships with local governments to further promote advanced information technologies. Through its Smart City cloud computing solution, Digital China aims to effectively integrate urban public resources, assist local governments in providing premium services for civilians and enterprises, and enhance government management of civilians and enterprises. Through its efforts, Digital China aims to help cities make the shift from digital cities into smart cities.

### CHALLENGES

- **Create discrete digital information link.** Link discrete digital information in vertical industries and integrate it in services to meet the needs of local governments, enterprises, and the public.
- **Enhance data center usage.** Ensure stable and reliable usage of data center for uninterrupted flow of digital information to cities through a cost-effective software-hardware compatible platform.
- **Extend solution application.** Meet data center application needs, such as new computing, by extending the Smart City cloud computing solution.

### SOLUTIONS

- **Unite data center.** Deploy 200 servers running on the Intel Xeon processor 7400 series to form a united urban data center that will integrate digital information in various services for vertical industries.
- **Use Intel® Virtualization Technology.** Deploy six to 20 virtual machines for each server that utilize Intel Virtualization Technology to enhance cloud resource management and deployment for a high availability data center.
- **Utilize Intel cloud platform.** Broaden Smart City cloud computing solution application that utilizes Intel’s cloud platform to extend urban data center architecture, which meets all data center application needs.

### IMPACT

- **Change urban digital development mode.** Using Intel Xeon processor 7400 series, Smart City shifts from a traditional discrete computing solution to an agile and integrated cloud computing-based solution.
- **Enhanced urban services.** Enhanced usage of urban public resources, providing better services to enterprises and the public.
- **Provided customized Smart City solution.** By achieving an extendable data center architecture, Digital China can provide a customized solution to more than 60 cities nationwide, and expects to cover other cities all over China.

After years of digitization, Jiangsu province is becoming one of China’s most advanced provinces. With the continuous development of digital information technologies, management in most industries is gearing towards becoming more information-based, employing solutions that meet the public’s and enterprises’ need for digital information-powered urban services. To keep this momentum, the local government of the province has cooperated with Digital China, China’s largest integrated IT service provider, to take advantage of the latter’s Smart City cloud computing solution.

# Intel® architecture provides a stable and reliable platform for Digital China's Smart City solution

## Providing digital information-integrated service

Generally, for cities looking to deploy smart city solutions, vertical industries, such as transportation, medical services and local governments, have already employed digital information-based platforms. However, such platforms allow digital information to be discretely distributed in various industries.

With a united urban data center, Digital China's Smart City cloud computing solution aims to deliver integrated digital information-based services that are being provided by vertical industries, linking all the discrete digital information to meet the needs of local governments, enterprises, and the public needing digital information-based urban services.

"Smart City cloud computing solutions make it easier and more convenient for vertical industries to deliver information-based services, and for their users to benefit from these services. In the past, the public would need to carry a lot of cards like a transport card, oil card, health card and the like to use a specific service. But with our Smart City solution, built with 40 servers using Intel Xeon processor 7400 series, only one card – the citizen card – is enough to get access to all these services," explains Haiquan Li, cloud computing business director for Digital China.

So far, around 400,000 citizen cards have already been issued to easily and efficiently facilitate the delivery of urban services. With the Smart City cloud computing solution's united urban data center, more information in various industries can be collectively checked by local governments or administrations, providing details and data support for government decision-making.

## Lessons learned

- Stability and efficient computability are top requirements for building an efficient and reliable urban data center.
- Virtualization allows urban data centers to enable virtual machines to compute at the same capacity as physical servers.

- Deploying a united, standardized architecture for an urban data center not only provides more options for processors, but also enables flexibility and, in some cases, efficiently extends the architecture to satisfy demand for availability at a lower cost.

## Building a stable and useful urban data center

Utilizing the Smart City application will depend on the urban data center and payment function. Thus, stability is a top priority for constructing an efficient urban data center. For the project, Digital China chose the Intel Xeon processor 7400 series.

"Intel has proven stability in various industries. With its cloud platform development tools, we were able to reduce the cloud computing platform deployment and management processes," shares Li. "In addition, we chose Intel for our Smart City solution for its enhanced computability. As data centers in various cities become quite complicated due to information overload, the Intel platform's computability capacity powers up urban data centers to allow for more stable, reliable use."

Based on the circumstance, Digital China deployed 200 servers running on Intel Xeon processor 7400 series for the urban data center.

## Cloud computing: foundation of a "smart city"

To boost its cloud computing capabilities, Digital China's Smart City solutions use Intel® Virtualization Technology. With hardware support, Intel Virtualization Technology enables virtual machines to compute at the same level of capacity as with physical servers, enabling the urban data center to run various application-based servers. Six to 20 virtual machines were deployed for each server, all stable and running at high speed.

Digital China's Smart City solution also allows system administrators in urban data centers to monitor all the virtual machines. Technicians

## About Digital China

- In 2001, Digital China, China's largest integrated IT service provider, went public at the Hong Kong Stock Exchange. The company has been taking the lead in China's IT distribution and system integration market segment for 10 years.
- From 2009 to 2011, Digital China was listed in Forbes' Top 50 Asia-Pacific best large public enterprises.
- In 2010 and 2011, Digital China was consecutively selected in Fortune China's Top 500. In 2011, it was awarded Fortune China's Best Innovative Chinese Company.

are also able to adjust virtual machine resources or switch to another physical server without service interruption when several machines become overloaded.

More importantly, Intel Xeon processor-based servers are based on a united, standardized architecture. This not only provides more options for processors, but also enables flexibility. In some cases, it can be efficiently extended to satisfy the system's demand for availability at a lower cost.

With the continuous development of smart cities, Digital China foresees new smart city applications that will be in demand. It therefore sets its sights on continuously working with Intel to take advantage of cloud computing security and large-scale data technology, and extend the Smart City solution to meet more complicated smart city needs of local governments, enterprises, and the public.

Find a solution that's right for your organization. Contact your Intel representative, visit Intel's Business Success Stories for IT Managers ([www.intel.com/itcasestudies](http://www.intel.com/itcasestudies)) or explore the Intel.com IT Center ([www.intel.com/itcenter](http://www.intel.com/itcenter)).

This document and the information given are for the convenience of Intel's customer base and are provided "AS IS" WITH NO WARRANTIES WHATSOEVER, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, AND NON-INFRINGEMENT OF INTELLECTUAL PROPERTY RIGHTS. Receipt or possession of this document does not grant any license to any of the intellectual property described, displayed, or contained herein. Intel® products are not intended for use in medical, lifesaving, life-sustaining, critical control, or safety systems, or in nuclear facility applications.

Software and workloads used in performance tests may have been optimized for performance only on Intel microprocessors. Performance tests, such as SYSmark and MobileMark, are measured using specific computer systems, components, software, operations, and functions. Any change to any of those factors may cause the results to vary. You should consult other information and performance tests to assist you in fully evaluating your contemplated purchases, including the performance of that product when combined with other products.

Intel® Virtualization Technology (Intel® VT)

Intel® Virtualization Technology requires a computer system with an enabled Intel® processor, BIOS, and virtual machine monitor (VMM). Functionality, performance, or other benefits will vary depending on hardware and software configurations. Software applications may not be compatible with all operating systems. Consult your system manufacturer. For more information, visit <http://www.intel.com/go/virtualization>.

Copyright © 2012, Intel Corporation. All rights reserved. Intel, the Intel logo, and Intel Xeon are trademarks of Intel Corporation in the U.S. and other countries.

\*Other names and brands may be claimed as the property of others.

1212|UX/PMG/XX/PDF

328369-001EN