Research on Personnel Training Mode of Cloud Computing Technology and Application

Haiyan Liu¹,a, Xiaomin Liu²,b and Feng Liu¹,c

¹Computer and Communication School, Beijing Information Technology College, Beijing, China;
²Water Conservancy and Civil Engineering College of Inner Mongolia Agricultural University, Inner Mongolia, China.

a liuhaiyan@bitc.edu.cn, b 48282192@qq.com, c lhylj2@sina.com

Keywords: Cloud Computing; Training Mode; Training Target; Practice and Training; Course System

Abstract. The paper describes the development trend and application of cloud computing technology. Through the analysis of the demand for the cloud computing technology in the talent, the training target, the corresponding professional positions, professional ability and typical tasks of the cloud computing technology and application specialty is determined. The training mode is put forward which is mainly composed of training mode, teaching staff and course system. The students have both theoretical basis and operation ability and are capable of working on cloud computing technology through this model.

1. Introduction

The cloud computing is regarded as the third wave of information technology and is reform of information technology of a new generation, and the core of IT application mode which will bring the fundamental changes of the work mode and business model. The cloud computing was embedded in the development plan in July 2012 which the State Council issued "12th Five-Year Plan development plan of national strategic emerging industry" [1].

In recent years, development speed of China's cloud computing industry is very rapidly. In 2010, market scale of China's cloud computing reached RMB16.73 billion yuan. In 2013, market scale of China's cloud computing reached RMB 60.68 billion yuan. In 2014, market scale of China's cloud computing reached 117.41 billion yuan. The data published by the 8th China Cloud Computing Conference held in May 2016 shows that, market scale of China's cloud computing industry is developing rapidly during "12th Five-Year" and annual growth rate averaged more than 30%. The market scale has reached about RMB 150 billion Yuan in 2015. China is one of the fastest growing markets in the world. Some experts predict China's cloud computing industry continues to expand in the recent few year, the total market scale is expected to reach 800 billion yuan until 2018 [2].

With the rapid development of cloud computing technology and applications, a large number of talents are needed such as project integration, technical supporting, data operation and maintenance, Equipment maintenance [3-4].

2. Requirement Analysis of Cloud Computing Talents

According to the prediction of compTIA in the "cloud computing trends research report", 90% of enterprises have used cloud computing. According to the survey and prediction of IDC, the requirement of global cloud computing-related work will grow at an annual 26 per cent rate. In accordance with our country, the requirement of cloud computing talents is showing an unprecedented trend of growth and can’t meet the needs of the current industrial development.

The cloud computing technology is a high-tech and advanced industry which covers a wide range. It needs the talents who have the comprehensive technology. On the one hand, the talents of cloud computing industry are the software developers, analysts and designer which make up approximately
20% -30% of talents. On the other hand the talents of cloud computing industry are operators which make up approximately 60%-70% of talents. The college students are fit for this type of job and it is the most easy to cultivate.

At present, the vast majority of the practitioners in the cloud computing vendors have untrained systematic cloud computing education or training. They come from the traditional IT engineers after being trained. The demand for high-end scientific research and development personnel is not large. The demand for the low and middle-end personnel who can design the solution methods of cloud computer, deploy and manage the cloud platform is more. This will provide a good opportunity in training the cloud computing talents for high vocational colleges.

3. Training Target

According to the market demand, the training target of the cloud computing technology and application is to train the students’ good innovative spirit, entrepreneurial ability and professional ethics with an all-round development of morality, intelligence, physics and arts, talents for new industry such as the main cloud computing, large data, new generation of information technology. The students need master the basic theory knowledge of cloud computing, network formation of cloud computing, establishment of basic platform, the basic skills of management and application.

The students have the ability to analyze and solve the practical problems and technology applications of cloud computing, and to learn the new technology and new business capabilities of cloud computing technology and application.

The students are able to engage in planning and design of cloud computing, construction of cloud computing platform, system operation and maintenance of cloud computing, cloud computing application development and deployment, marketing of cloud computing, pre-sale technical support, after-sale technical services. Students can obtain intermediate certificates of cloud computing technology through examination.

4. Personnel Training Mode of Cloud Computing Technology and Application

Personnel training mode of cloud computing technology and application takes the mode of work-study combination. The model is based on the actual work content and the talent requirement of business which focuses on cultivating students’ theoretical knowledge and practical ability. The overall model is based on working process orientation; the curriculum system uses layer-by-layer approach. What students learned can be used in time to the practical projects after finishing the class teaching. So the model can integrate the theory with practice and can provide the talents of applied type in cloud computing for colleges and universities, government, enterprises, institutions, industrial parks. The mode of work-study combination is shown as Fig. 1.
Figure 1. Personnel Training Mode of Work-study Combination.

The training mode mainly includes training mode, teaching staff and course system. The training mode combines theoretical teaching with project teaching. The course system includes the general platform courses, specialty's supporting courses, specialty's key courses and specialty's development optional courses according to the actual work content and the talent requirement of business as shown in Fig. 2. The practice and training is to foster innovative ability of students of higher vocational education which includes the curriculum practice and the professional practice. The projects of practice and training mainly come from the actual projects of the enterprise and competition of cloud computing. The curriculum practice includes the practical teaching of each course of talent training plan. The professional practice includes foundation training, job training, comprehensive training, working practice, graduation design or graduation thesis, innovation and entrepreneurship practice. The foundation training refers to the training associated with practice of professional basis. Job training refers to the training associated with employment-oriented jobs. The comprehensive training refers to the training associated with professional training objectives. Because the cloud computing technology is the latest technology in recent years, the teaching staff need be trained to enhance the professional skills of teachers and to improve the teaching level. At the same time, some enterprise teachers are invited to teach and to increase the actual experience of students.
Through this model students can master the following employment capacity:

1. The students have the capacity of the hardware and software maintenance of computer system;
2. The students have the capacity of LAN design, Network Building and network maintenance;
3. The students have the capacity of planning principles and formulating method of design scheme in LAN design;
4. The students have the capacity of maintenance, installation, commission and management of the relevant equipment of the computer network;
5. The students have the capacity of operation and management of operating systems;
6. The students can master the basic method of programming and can carry out the development of small and medium-sized application software;
7. The students have the capacity of planning and formation of cloud data center;
8. The students have the capacity of deployment of cloud data centers;
9. The students have the capacity of management and maintenance of cloud data center.

5. Conclusion

How to carry out personnel training of cloud computing technology and application is the major problem what high vocational schools are thinking about. This paper has formulated the talent training mode of cloud computer technology and application specialty according to the market demand of cloud computing technology. The training mode mainly includes training mode, teaching staff and course system. In order to achieve the purpose of training the applied talent, the model will be applied to the actual teaching and constantly be refined.

6. Acknowledgment

This work is supported by grants from Beijing Municipal Education Commission 2015 annual Beijing Colleges and Universities Education and Teaching Reform fund project (No. 2015-ms212).
7. References


