Construction of intelligent education platform

Haiyan Guan[1]

[1]Shenzhen Second Senior High School
306118503@qq.com

Abstract. The planning and top-level design of the project refer to and learn from the relevant standards such as the standardization guide of E-government of the state information office, the top-level design of e-government, the planning outline of educational informatization construction and so on. Use cloud computing technology to build resource platform, use network infrastructure to build education man and wireless environment, adopt mature software development technology, and develop public service platform and basic application to meet the needs of education business by using software engineering theory, object-oriented method and software process capability maturity model.

Keywords: Education, Wireless environment, Software .

1   Introduce

The work deployment of the national educational informatization teleconference adheres to the principle of "serving the overall situation, integrating innovation, Deepening Application and improving mechanism", deeply implements the concept of innovation and development, takes application as the core, and strengthens integration and innovation on the basis of in-depth integration, so as to improve the efficiency of educational informatization and release the potential of informatization[1]. We should use information technology to effectively promote the supply of educational services, promote the reform of school attendance and management mode, and design and promote the teaching reform and curriculum reform under the background of the information age. Education informatization should be used to support innovation and entrepreneurship education and talent training, so as to promote the modernization of education and the construction of a powerful country with human resources[2]. Then the educational informatization at the end of the 13th five year plan should achieve three goals. One is to basically build an educational informatization system that "everyone can learn everywhere and can learn from time to time", which is suitable for the development goal of national educational modernization[3]. Second, basically realize the supporting and leading role of educational informatization in the cultivation of high-quality talents and comprehensive reform in the field of education[4]. Third, basically form a development path with international advanced level, integrated development of information technology and education and Chinese characteristics. We should

comprehensively improve the basic supporting capacity of educational informatization, accelerate the promotion of broadband network school to school connection, basically realize the full coverage of broadband network in schools at all levels and all types, improve the network teaching environment, improve the export bandwidth, and strengthen the construction and application of wireless campus[5]. The qualified urban schools in the East and central and western regions should realize the full coverage of wireless networks[6]. We will comprehensively promote the "class to class access to high-quality resources", basically build a public service system of digital education resources, and provide convenient and fast resource services for learners. Vigorously promote the "everyone in e-learning space", popularize and deepen the application of e-learning space, and basically form an information-based support service system suitable for a learning society. We should greatly improve the ability of education informatization service teaching and management, that is, we should comprehensively promote the construction of education cloud resource platform[7]. On the basis of doing a good job in the construction of national platform, all localities should plan and build local resource platforms according to the actual needs of informatization teaching. So that every child can receive fair and high-quality education, truly promote the transformation from examination oriented education to quality education, from paying attention to the inheritance of knowledge to paying more attention to the cultivation of responsibility consciousness, innovative spirit and practical ability, and build a modern education system in the information age.

2   Educational informatization

2.1   The school's application management system is mixed

At present, the school's educational administration management, resource management and teaching application systems are mostly purchased separately by each school. The platforms involved have different considerations in terms of ease of use, standards and security, and can not meet the needs of data collection, resource exchange and teaching exchange. The computer rooms of schools and education bureaus are independent and scattered, the equipment is old and the renewal cycle is long, and there is a lack of professional operation and maintenance personnel, resulting in cumbersome management and waste of hardware resources.

2.2   Lack of effective communication channels between home and school

The ten-year development plan for education informatization (2011-2020) issued by the Ministry of education mentioned that the national basic education will focus on "three links and two platforms" (broadband network school to school, high-quality resource class to class, and network learning space to everyone) to promote the balanced development of basic education. It can be said that modern education with the help of home school contact and communication can not only make education more smoothly, but also make school education orderly. The relationship between

them is complementary. At present, the informatization level of primary and secondary schools is uneven, the application system level is very different and relatively independent, and there is a lack of good communication channels among students, parents, teachers and schools. Home school communication basically depends on the parents' meeting. Most of the communication and exchanges between schools and parents are notices and parents' signatures. Parents are looking forward to widely participating in the learning and training process with their children and forming a benign interaction with the school. However, due to the lack of effective communication platforms and means, parents feel at a loss and helpless about their children's education process.

2.3 Lack of global deployment, top-level design and unified comprehensive management platform

The lack of overall deployment and mature top-level design and long-term sustainable development plan of the city's education informatization have led to the phenomenon of "falling behind when completed" in the informatization construction of some districts and counties; There is no unified and comprehensive management platform for government affairs, educational administration, teaching, teachers, students and assets, and the data between schools and districts and counties and between districts and counties and municipal bureaus cannot be shared and interconnected.

2.4 The teaching level of teachers is uneven, highlighting the contradiction of fairness in education

Teachers in famous schools are very limited, and parents try their best to seize high-quality teachers. Teachers in the same subject lack an effective interactive teaching and research platform, and can not share famous teachers' teaching methods, teaching courseware and teaching experience with other teachers. Moreover, it is difficult to expand the scope of high-quality teaching and research activities, and it is difficult to carry out large-scale teaching and research activities through the network, In particular, teachers and students in remote rural areas do not get good teaching and research resources, which leads to the unfairness of regional educational resources.

2.5 High quality teaching resources cannot be shared

At present, each school purchases some general resources and loads them on the local area network of the school. The teacher courseware, comments and other resources of each school are built separately. Moreover, the existing teaching resource library has few high-quality resources, and the content is relatively single. Schools and schools and social supporting service institutions are relatively closed, and there is a lot of full labor, Unable to communicate and share high-quality teaching resources, which greatly reduces the teaching efficiency, affects the teaching results, and causes a serious imbalance in the distribution of regional educational resources.

2.6 Unable to adapt to the era of big data, the problem of educational security is prominent

As an important link in the development of educational Internet informatization, big data academic analysis will bring unlimited source power to the education industry. Big data can make up for the shortage of school education. The lack of wireless coverage in schools has affected the normal office efficiency and teaching quality to a certain extent; Without the construction of mobile terminal platform, under the background of the general trend of the rapid development of mobile Internet, the traditional information application means have been subverted, and the application of mobile terminal is becoming more and more popular. Without the construction of mobile platform, the construction of learning society of "everyone can learn everywhere and can learn from time to time" cannot be realized. At present, the school IT infrastructure is very fragile, and there are more and more security problems. More and more it usage behaviors and generated data need to use big data analysis technology to deal with security risks in advance.

3   Construction scale demand

3.1   Overall construction scale demand

The education cloud project will eventually provide education and teaching, education research, education management, education resources, smart school construction and other services for teachers, students, parents and personnel of different types of schools and educational institutions, fully covering the "three links and two platforms", promoting education modernization with education informatization, changing the traditional education mode with information technology, and fully covering the city District (county), township, street and school multi-level education management system, covering basic education, special education, vocational education, family education, etc. The education cloud project needs to build an education management information system that connects up and down and covers all kinds of schools at all levels in the city. According to the strategy of "unified planning, pilot first, demonstration driven and gradual promotion", complete the construction system of "cloud + end" of education" Cloud refers to "one center" and "six platforms". One center refers to the education support service operation center. The "six platforms" include: Education cloud core basic support platform, education public service management platform, education cloud resource platform, renrentong online learning space platform, cloud classroom teaching service platform and campus comprehensive management service platform "   "End" refers to the construction of smart school application environment

3.2   Smart school application environment

Smart school application environment refers to the use of cloud computing technology to provide an intelligent application environment for school teaching,

students' campus life and education management through the construction of smart classroom, computer classroom, multimedia library, multimedia interactive classroom, future space and campus management system (video monitoring, access control card), campus wireless network and other systems, Lay the foundation for the full realization of smart education, so as to achieve the goal of "smart environment, smart learning, smart service and smart management" for students, teachers and education managers. According to the construction system of "cloud + end", the "cloud" refers to "one center" and "six platforms", the "one center" refers to the education support service operation center, and the "six platforms" include: a core basic support platform, that is, the core basic support platform of education cloud; Five application platforms, namely, education public service management platform, education cloud resource platform, renrentong online learning space platform, cloud classroom teaching service platform and campus comprehensive management service platform" "End" refers to the construction of smart school application environment. The education cloud project takes the cloud computing management system, cloud computing service system, cloud computing security system and cloud computing standard system as the project construction guarantee, and supports the healthy, safe and efficient operation of the whole education cloud through the education cloud core basic support platform and education support service operation center.

4   Key technology route

4.1   Cloud computing / Cloud Service Technology

The core essence of cloud computing is resource integration, which is the integration of a large number of complex resources. Its resource integration process is a process of resource abstraction, generalization and classification. What cloud users see is good services. Cloud users do not need to know about the integration process of complex resources. Cloud service technology is cloud addressable restservices technology. Through rest service technology, it realizes the service encapsulation of various resources, ensures that the systems of the cloud computing center have strong loose coupling and composability, and facilitates the unlimited expansion and on-demand reorganization of the system. Meanwhile, cloud service technology shall also be adopted for the interface encapsulation between cloud resource integration middleware platform and video conference system, e-mail system, SMS and MMS platform, portal group and other systems.

4.2   SOA and WOA architecture technology

It is web oriented, Wan oriented and second-generation SOA architecture technology. It absorbs the core advantages of B / S structure and SOA architecture, provides good operation experience for all kinds of cloud users, and ensures advanced characteristics such as synergy, reusability, composability, service addressability, adaptability, autonomy and loose coupling.

4.3   OGSI plug-in framework technology

Open grid services infrastructure (OGSI) was proposed by the Global Grid Forum (GGF) in June 2003. The system function module (plugin) developed based on the framework can be loaded or unloaded dynamically without stopping the system itself. It can also remotely install, start, stop and uninstall the module through the remote management tool, or subscribe to the module change and synchronization in the module warehouse. Compared with the traditional development method, the organization, reuse and expansion of system modules become easier, and the testing of modules is also simplified.

4.4   Big data technology

The four characteristics of big data, namely volume, variety, velocity and veracity, require special technologies to effectively process a large amount of data over time, including large-scale parallel processing (MPP) database, data mining, power grid, distributed file system, distributed database and cloud computing platform, Internet, and scalable storage systems. The big data technology involved in the project includes big data calculation and big data analysis and processing.

4.5   P2P data exchange technology

P2P is the abbreviation of peer-to-peer. At present, it has great prospects in strengthening human communication, file exchange, distributed computing and so on. In short, P2P connects people directly and allows people to interact directly through the Internet. P2P makes the communication on the network easier, more direct sharing and interaction, and truly eliminates middlemen. P2P is that people can directly connect to other users' computers and exchange files, rather than connect to the server to browse and download as in the past. Another important feature of P2P is to change the current state of the Internet Centered on large websites, return to "decentralization" and return power to users. At present, it is widely used in IP phone, IP video, IP conference, etc.

4.6   Mobile Internet perceptual computing technology

Mobile Internet is the combination of mobile communication and Internet. Mobile communication and Internet have become the two businesses with the fastest development, the greatest market potential and the most attractive prospect in the world. With the rapid development of broadband wireless access technology and mobile terminal technology, people urgently hope to easily obtain information and services from the Internet anytime, anywhere and even in the process of mobile. Mobile Internet came into being and developed rapidly. The project adopts the "cloud + end" approach and uses the mobile Internet to realize mobile office and public services.

Perceptual computing technology can perceive the user's background, actively provide them with the most appropriate customized content, products or services, automatically perceive the operation habits of various user groups by using background aware computing technology, and aggregate various information resources for various users, such as common function aggregation, to-do task aggregation, subsystem report aggregation, subsystem message aggregation and subsystem log aggregation, Change from passive to active, break the previous application mode of "people looking for information and tasks", and innovate the new application mode of "information looking for people and tasks looking for people".

5   Conclusion

This method has high construction requirements, tight construction time and heavy construction tasks. It is recommended that the construction unit formulate strict project investment and construction management plans, hire powerful design, construction and supervision units, and strive to build the project into a first-class teaching and research method with low cost, high efficiency and high quality.

References

1. Hung C K , Shen Y L . A challenge to the GUI-centric paradigm of information education for the general public. International Conference on Information Technology: Research & Education. IEEE, 2005.
2. Dearstyne B W . Information Education in the 21st Century. Information Management Journal, 2002.
3. Sherron G T . A new approach to information education. Education for Information, 1997, 15(2):153-169.
4. Liu G , Liang Y U , Gong C , et al. Research on Core Elements and Functions of "Internet + Education" from Perspective of Educational Informatization 2.0. e-Education Research, 2018.
5. Zhong D , Li Z M . Research and Application of Educational Informatization Measurement Index for Local Colleges and Universities. 4th Annual International Conference on Management, Economics and Social Development. 2018.
6. Gui G . Research on Educational Informatization Based on E-Context Theory: Taking Higher Mathematics as an Example. 2018.
7. Dan H U . The importance of cloud computing in educational informatization construction. Heilongjiang Science, 2017.