

Water Distribution System Applications Based on Cloud Computing

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Abstract

Two strongly emerging areas in the field of computing are cloud computing and mobile computing. With the huge demand of high speed in mobile communication, low consumption of battery power, low costs of devices and the safety of user information, there are numerous opportunities and challenges in combining these two domains to achieve a positive effect, especially in the area of large scale real-world systems such as water distribution systems. Some engineers need to work outside and have access to network service in a fast, reliable and stable way. Water distribution systems are used to help the engineers to analyse complicated information related to sewers, make predictions about water condition and synchronize their work immediately. Therefore, wireless technology and good network service are demanded by engineers. Mobile computing can satisfy the demand for wireless technology and supply an application that is convenient and easy to operate. Cloud computing can provide a strong, flexible, cheap and safe infrastructure service to other service providers. Therefore integration of cloud computing and mobile computing holds out promising possibilities.

The purpose of this paper is to discover how mobile clients can find servers on the cloud, analyse the Xen architecture and services system of the Amazon cloud, deploy a small virtual water distribution system on the Amazon cloud server and deploy an application on a mobile device, and lastly, to make server applications communicate with client applications. Several tests are also implemented on Amazon Cloud and Google Cloud. Mobile computing and cloud computing are limited by the power of hardware and the speed of networks. However, cloud computing has advantages in terms of price, scale and flexibility. Although mobile computing is limited in many areas when compared to traditional desktop computing it certainly makes outdoor work more convenient.