

Utilizing PDA for Campus M-Service

Maria R. Lee
Department of Information Management
Shih Chien University
70, Ta-Chih Street, Taipei 104, Taiwan
E-mail: maria.lee@mail.usc.edu.tw

ABSTRACT

Lack of mobility has been one of the drawbacks of using the Internet. To overcome the limitation, one of the consequences is to chain the Internet with PDAs. Traditional campus maintenance service may apply to paper-based or Internet-based procedures. However, the constraint of such procedures is inefficient. The provision of efficient services and enhancing maintenance procedures, have been the University Computer Center's objectives. We propose a new paradigm known as "m-service" to provide wireless networks to facilitate the campus services. The proposed campus m-service is making collective knowledge visible. The engineers and managers do not need to waste time inventing the wheel, because they know that a solution already exists. The m-service system enables engineers to download and upload service information easily and efficiently anytime and anyplace. The mobility and flexibility of the computer and networking services enable universities to increase customer satisfaction, shorten service time and mitigate work-flow procedures.

Keywords: m-service, knowledge management, PDA

INTRODCUTION

Lack of mobility has been one of the drawbacks of using the Internet. Nowadays, we can chain the Internet with PDAs, cell phones or even by the TV remote controls to overcome the limitation [Vetter 2001]. The applications of the wireless internet can be used to provide campus services anytime and anyplace. An m-service concept has been applied to Shih Chien University to facilitate the university maintenance services. The service engineers use PDAs to download a job list and update the maintenance status whenever needed. The advantages of applying m-service on a university campus include mobility, flexibility, interactivity and interchangeability.

E-service is defined as the provision of service over electronic networks [Rust and Kannan 2003, Hoffman 2003]. We identify the m-service to be mobile service, which is the provision of services over wireless networks. Same as the e-service concept, the m-service is a customer-centric concept. For customers, e-services can greatly reduce the cost of IT operations [Morency 2000]. The applications of m-service are hopefully able to achieve the same goal to save the IT operation cost.

In addition, we create an m-service environment that facilitate the creation, transfer and sharing of campus maintenance knowledge. Knowledge is becoming very important in gaining and sustaining competitive knowledge [Kermally 2002, Probst, Raub and Romhardt 2001]. The proposed campus m-service is making collective knowledge visible. The knowledge base manages the experience gained on all service requests and provides users with reports for specific problems which may arise in the course of a request. From the engineers and managers point of view, the knowledge base provides internal visibility of knowledge assets. The engineers and managers do not need to waste time inventing the wheel, because they know that a solution already exists.

We aim to provide efficient services and enhance customer satisfaction for campus services. We discuss the service paradigm shift from the traditional (paper-work) service to m-service in the next section. We demonstrate the system design and display in the third section. The final section concludes the proposed campus m-service.

SERVICE PARADIGM SHIFT

The m-service concept has been applied to the Computer Center of the Shih Chien University to facilitate the university maintenance services. We aim to provide efficient services and enhance customer satisfaction for the campus computer and networking services. Traditional (paper-work) maintenance service is giving way to a new paradigm known as “m-service”, which uses the Internet to chain your PC and PDA. Figure 1 shows the process of this paradigm shift.

In the traditional maintenance process, users have to fill in the service request form and send to the computer center. The users in the university environment can be students, teachers and administrative officers. The computer center then manually based on the request information to pass to the appropriate maintenance engineers. The request information could be any computer related problems, such as e-mails,

PCs, networks, or others. When the engineers receive the request, and then go to the indicated place to solve the problems. Once the engineers finish the maintenance process, he/she has to come back to the computer center to sign off the request form.

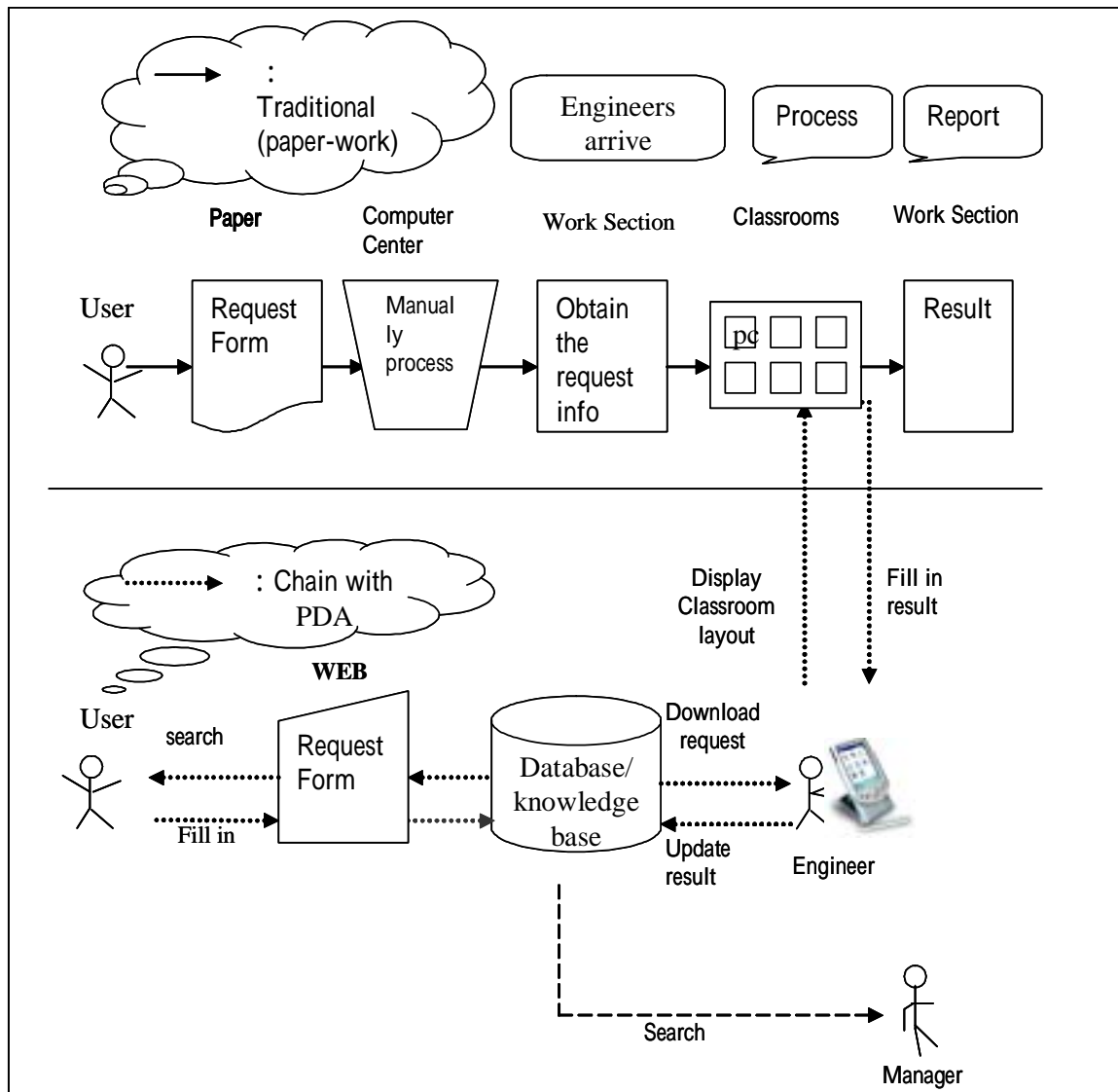


Figure 1. The University Maintenance Process Paradigm shift

The emerging m-service paradigm looks very different. This service-focused paradigm is network-based to improve the service process. In this new paradigm, the users fill in the service request form via the Internet. In addition, the users are able to check the request status anytime. Once the request submits, the developed system will assign the service engineer automatically. When the engineer gets to the office every morning, he/she will use PDA to download their assigned work list. The engineer will base on the work list to go to the indicated classroom or offices to conduct maintenance services. When the engineers finish the assigned job, they are able to use

the PDA to write the status reports. The result will automatically store in database. The system will also base on the PDA system clock to calculate the time needed for the service process.

A knowledge-base is used to providing useful information to the mangers and service engineers who are confronted every day services. Based on the service request, the submitted problems and solutions are inserted into the data base. The same type of requests can be established to be “Q&A”. The users can retrieve the solutions to save the maintenance time and effort. From the engineer’s point of view, the knowledge base is making internal knowledge visible, which means making the organization aware of its own abilities. What experts do we have, and how might they help the computer center to increase its competencies?

According to the knowledge-base, a value-added function is also developed. The manager of the computer center is able to investigate the engineers’ work performance. For example, which service request is to be finished by whom and by what time?

SYSTEM DESIGN

An e-service system is built to construct a Java-based client/server application. Figure 2 shows a three-tier architecture, which includes a client tier, a middle tier (Servlet) and an information tier (database). The client tier consists of two client types – PC and PDA to connect the Internet via wireless networks or TCP/IP. Users can download and search information via the Internet browser or they can use the PDA to update information.

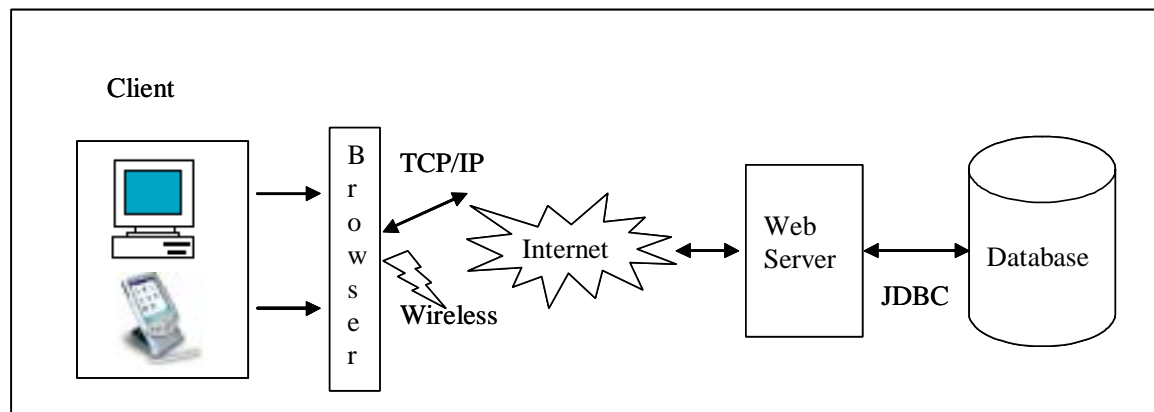


Figure 2. The e-service system architecture.

The system development is by using Pocket PC emulator and JServlet. One of the

advantages of using JServlet is cross platform. Figure 3 shows PDA displays. Figure 3.1 demonstrates that the Engineer enters the system by typing user name and password. Once the log in is successful, a job list is shown. When the engineer finishes the job, he/she can use the PDA to written the report to indicate the service status.



Figure 3. PDA displays.

CONCLUSION

We have introduced an m-service system to enhance campus maintenance service. We have shown the service paradigm shift from traditional-based to m-service based. The advantage of m-services provides mobility, flexibility and interactivity for campus networks. The creation of knowledge management environments makes collective knowledge visible and benefits to knowledge transparency.

We envision the m-service environment can also be applied to mobile phones, Bluetooth and tablet PCs. By looking at the rapid deployment of wireless technologies in hotspots such as cafes, shopping malls and restaurants around the world, the m-service applications will play an important role in future mobile-commerce applications.

Our future work includes incorporating GPS (Global Position System) with university maps. Engineers will be able to locate classrooms/offices based on the campus map. When he/she gets to the classroom/office, the PDA will be able to show the classroom/office layout to speed up the service time. We will also incorporate with SMS (Short Message Service) to enhance campus communication.

ACKNOWLEDGEMENT

The work reported in this paper has been funded in part by the Computer Center, Shih Chien University. The author would like to thank C Chang, G Lin and H Liu for the system development.

REFERENCES

[Hoffman 2003] Hoffman, D. Marketing + MIS = E-Service, Communication of the ACM, June 2003/vol. 46, No.6, 53-55.

[Kermally 2002] Kermally, S. Effective Knowledge Management: a best practice blueprint, John Wiley & Sons, 2002.

[Morency 2000] Morency, J. Ready to shift to an ASP? Communication News, 37, 6, 88-90, 2000.

[Probst, Raub and Romhardt 2001] Probst, G., Raub, S., Romhardt, K. Managing Knowledge: Building blocks for success, Wiley, 2001.

[Ruth and Kannan 2003] Rust, R., and Kannan, P. E-service: a New Paradigm for Business in the Electronic Environment, Communication of the ACM, June 2003/vol. 46, No.6, 37-42.

[Vette 2001] Vetter, R. The Wireless Web, Communication of the ACM, Mar 2001/vol 44, No. 3, 60-61.