A QoS Adaptation Agent based on M2M sensor network

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Abstract. This paper presents the design and implementation of a QoS adaptation agent for collaborative multimedia distance system which is running on M2M sensor networks. A Model for reliable QoS constraints running on pervasive computing consists of several specification components. The system based on M2M sensor networks for a web based multimedia distance system includes several features such as audio, video, whiteboard, etc, running on situation-aware middleware for internet environment which is able to share HTML format. Our proposed model is to present the relationship of QoS and resources based on M2M sensor network to share HTML resource.

1 Introduction

We can describe ubiquitous computing as the combination between mobile computing and intelligent environment is a prerequisite to pervasive computing [1]. Context awareness(or context sensitivity) is an application software system’s ability to sense and analyze context from various sources; it lets application software take different actions adaptively in different contexts [2]. An example of situation-aware applications is a multimedia education system. Education system for distributed multimedia holds the promise of greatly improving all forms of remote education and training [3]. However, since this new education system must be developed in a way that combines various field of technologies, including group communication and distributed multimedia processing which are the basis of packet based videoconferencing systems, integrated service functions such as middle ware are required to support it[4,5,6]. The purpose of the M2M sensor network is to provide communication anytime and anywhere regardless of communication types and its application is rapidly increasing along with fast technological development [7]. In a ubiquitous computing environment, computing anytime, anywhere, any devices, the concept of situation-aware middleware has played very important roles in matching user needs with available computing resources in transparent manner in dynamic environments [8]. It is difficult to avoid a problem of the seam in the M2M sensor
network environment for seamless services. Our proposed model is to present the relationship of QoS and resources based on M2M architecture for seamless services.

2 Related Works: M2M sensor network

The sensor networks are represented by their gateways. When a sensor network is deployed, the gateway gathers information about all available sensors in its network. The gateway then aggregates that information and publishes it, i.e., forwards a description of the sensor network capabilities to the M2M system. The M2M system stores this information and uses it to select sensor networks that should be queried to provide responses to users’ requests [9].

![Diagram of M2M Web Services Extension based on M2M Architecture](image)

*Fig.1. M2M Web Services Extension based on M2M Architecture [9]*
3 Our Approach

Our proposed model aims at supporting adaptive reliable QoS requirements based on M2M sensor network architecture for seamless services by reserving, allocating, and reallocating necessary Resources given dynamically changing situations. A high-level conceptual architecture based on M2M sensor network architecture for seamless services to support adaptive reliable QoS requirements is shown in Figure 2. This paper proposes an URL synchronization function used in WebNote with remote collaborative education system based on M2M sensor network architecture for CBM(Computer Based Multimedia). It retrieves the common characteristics of these tools and designs an integrated model including all these methods for supporting concurrent collaborative workspace based on M2M sensor network architecture. This paper describes an integrated model which supports object drawing, application sharing, and web synchronization methods of sharing information through a common view between concurrently collaborating users based on M2M sensor network architecture. This proposed model consists of multiple view layout and each layout control, a unified user interface, and defines the attributes of a shared object based on M2M sensor network architecture.

![Diagram](image)

**Fig.2.** Our Proposed Model Architecture based on M2M sensor network
4 Simulation Results and Conclusions

A proposed main structure based on M2M sensor network architecture is distributed architecture but for error control and application program sharing, centralized architecture is used. The problem of rapid increase in communication load due to growth in number of participants was solved by letting only one transmission even with presence of many users, using simultaneous broadcasting. A general web-based distance system uses video data and audio data to provide synchronize between server and client. In a M2M sensor network environment, the concept of situation-aware middleware has played very important roles in matching user needs with available computing resources in transparent manner in dynamic environments. It is difficult to avoid a problem of the seam in the M2M sensor network environment for seamless services. Thus, there is a great need for synchronization control algorithm in situation-aware middleware to provide dependable services in based on M2M sensor network. The system based on M2M sensor network architecture for a web based multimedia distance system includes several features such as audio, video, whiteboard, etc, running on situation-aware middleware for internet environment which is able to share HTML format.

References