

A Reliable Requirement of Festival Site based on RCSM for Smart Festival Management System

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Abstract. An error requirement model for resource of distributed festival site called “ERM_SFMS” was proposed for situation-aware middleware as RCSM. ERM_SFMS model was used to detect and recover the resource errors for smart festival management system among actions in distributed festival site. An example of situation-aware applications is a smart festival management system. A smart festival management system for distributed multimedia holds the promise of greatly improving all forms of collecting remote data to show. The model for smart festival management system aims at guaranteeing it through application QoS.

Keywords: error requirement model, ERM_SFMS, smart festival management system

1. Introduction

Currently, the regional local festivals, which are a part of community development projects that utilize the regional cultural resources of the local self-governing entities, contribute in the nurturing of local cultures. And, because of the advantages of festivals -- directly and indirectly -- in terms of their increasing the incomes of the local residents, raising the potential for regional development and being suitable for the acceptance by the dynamic forms of the modern tourism, lately these festivals have been utilized quite a lot. The smart festival management system is a management system that, for the various festivals that are operated by the local self-governing entities and agencies, enables a direct operation of all the process phases from the advance preparation phase to operation phase and the post management and the administrative tasks, etc. of the planning operational headquarters and agencies [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 festival management system. A festival

management system for distributed multimedia holds the promise of greatly improvement all forms of remote site communication [3]. However, since this new festival management 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]. We propose a method for increasing reliability through an ERM_SFMS model for ubiquitous computing environments for smart festival management system. The model for smart festival management system aims at guaranteeing it through application QoS.

2. Related Works

Traditional QoS (ISO standards) was provided by the network layer of the communication system. An enhancement of QoS was achieved through inducing QoS transport services. For multimedia communication system, the QoS notion must be extended because many other services contribute to the end-to-end service quality. The organization of QoS-layered model for the multimedia communication system includes 4 layers. The four layers consist of a user QoS layer, an application QoS layer, a system QoS layer, and a network QoS layer. QoS for smart festival management system guarantees must be met in the application, system and network to get the acceptance of the users of multimedia communication system. There are several constraints which must be satisfied to provide guarantees during multimedia transmission. They are time, space, device, frequency, and reliability constraints [7].

3. The ERM_SFMS Model

3.1 RCSM

A conceptual architecture of situation-aware middleware based on Reconfigurable Context-Sensitive Middleware (RCSM) is proposed in [2].

All of RCSM's components are layered inside a device. The Object Request Broker of RCSM (R-ORB) assumes the availability of reliable transport protocols; one R-ORB per device is sufficient. The number of Adaptive object Containers (ADC)s depends on the number of context-sensitive objects in the device. ADCs periodically collect the necessary "raw context data" through the R-ORB, which in turn collects the data from sensors and the operating system. Initially, each ADC registers with the R-ORB to express its needs for contexts and to publish the corresponding context-sensitive interface. RCSM is called reconfigurable because it allows addition or deletion of individual ADCs during runtime (to manage new or existing context-sensitive application objects) without affecting other runtime operations inside RCSM.

3.2 RCSM-Optional Component and Other Services: ERM_SFMS

Other services in RCSM have many agents for smart festival management system. ERM_SFMS model consists of festival site manager, festival site adaptation, and festival site for monitoring smart festival management system. Figure 1 depicts the modular architecture of ERM_SFMS model components smart festival management system. They are implemented to permit dynamic installation and updating of existing functions even while the ERM_SFMS model for smart festival management system is operating. Proxies are the principal middleware components that monitor and control the resources locally to the active nodes. They can install themselves permanently on new hosts taking part in active paths and their migration is typically single-hop. On the contrary, processors are transient and session/flow-dependent components that have to propagate from the client toward the server by carrying the site requirements of client user/device for that specific service flow [8]. The festival site monitoring module for smart festival management system has the duty of observing the state of resources and services that are local to its hosting node. The admission control module for smart festival management system maintains resource allocation information about all VoD flows currently served. The accounting module exploits the monitoring functions to keep a local log of the site level actually provided to the different receivers. The festival site adaptation module for smart festival management system is responsible for any transformation of data depending on the negotiated site level. The festival site manager module for smart festival management system coordinates the other modules and decides the site levels for the ERM_SFMS components in the VoD path [9].

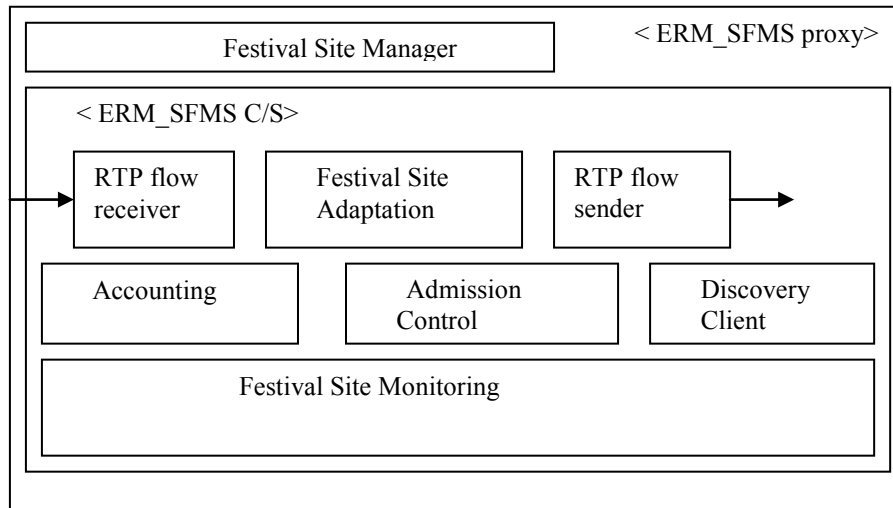


Fig.1. ERM_SFMS Model Architecture for smart festival management system

Our proposed ERM_SFMS model aims at supporting adaptive reliable site requirements defined in application-level missions described by a set of actions of

objects by reserving, allocating, and reallocating necessary resources given dynamically changing situations for smart festival management system.

A high-level ERM_SFMS for smart festival management system conceptual architecture to support adaptive reliable site requirements is shown in Figure 2. Situation-aware agent (SMA), site agent (SA), and reliable site QoS Agent (RSQA) are the main components shown in situation-aware middleware.

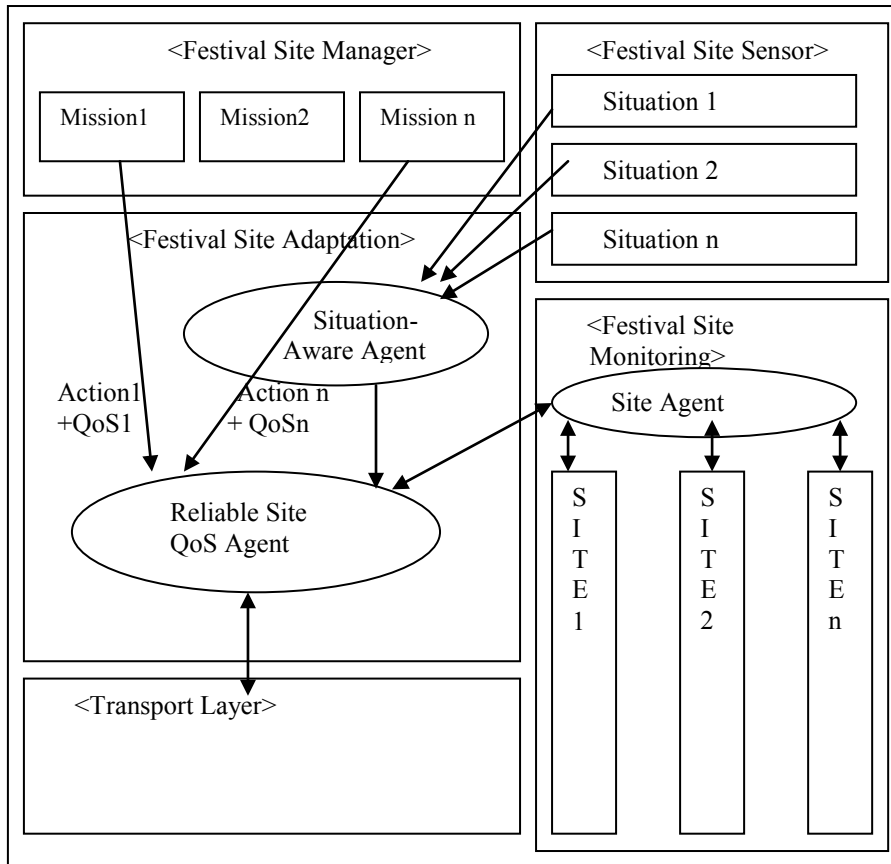


Fig.2. Agents of ERM_SFMS Model Architecture for smart festival management system

Applications request to execute a set of missions to situation-aware middleware with various QoS requirements. A Festival site manager analyzes and synthesizes context information captured by sensors over a period of time, and drives a situation. A site agent simultaneously analyzes resource availability by dividing requested resources from missions by available resources for smart festival management system. It is also responsible for monitoring, reserving, allocating and deallocating each resource for smart festival management system. Given the driven situations for smart festival management system, A reliable site QoS agent (RSQA) controls resources for smart festival management system when it met errors through the site agent (SA) to guarantee requested QoS requirements. If there are some error resource for smart

festival management system due to low resource availability, RSQA performs QoS resource error detection-recovery. SA resolves the errors for smart festival management system by recovering resources for supporting high priority missions.

4. Simulation Results

As shown in Table 1, conventional systems for multimedia collaboration environment are Shastra, MERMAID, MMconf, and CECED. You can see the characteristic function of each system function for smart festival management system.

Table 1. Analysis of Conventional Multimedia collaboration environment for smart festival management system

Function	ShaStra	MERMAID	MMconf	CECED
OS	UNIX	UNIX	UNIX	UNIX
Development Location	Purdue Univ. USA	NEC, JAPAN	CamBridge USA	SRI, International
Development Year	1994	1990	1990	1993
Structure	Server /client	Server /client	Centralized or Replicated	Replicated
protocol	TCP/IP	TCP/IP	TCP/IP	TCP/IP multicast
Error Control Function running on RCS M for smart festival	No	No	No	No
QoS Function running on RCSM for smart festival	No	No	No	No

5. Conclusion

We proposed a method of increasing reliability for smart festival management system through an adaptive reliable QoS for Resource errors model for ubiquitous computing environments. The model for smart festival management system aims at guaranteeing it through application QoS. However, since this new smart festival management 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. QoS for smart festival management system guarantees must be met in the application, system and network to get the acceptance of the users of multimedia communication system. There are several constraints which must be satisfied to provide guarantees during multimedia transmission. They are time, space, device, frequency, and reliability constraints. We proposed a method for increasing reliability through an Adaptive Reliable QoS for resource errors model for ubiquitous computing environments for smart festival management system. The model for smart festival management system aims at guaranteeing it th rough application QoS.

Our future works are QoS-aware middleware of ubiquitous and heterogeneous environments for smart festival management system.

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