

Smart Meeting Space: A Prototype of QoE-Sensitive ACE

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Brian Corrie et al. introduce the concept of QoE-Sensitive ACE (Advanced Collaborative Environments) which guarantees users' QoE (Quality of Experience) during a meeting. It naturally interacts with the users, understands users' intention for the meeting, and determines critical components of the meeting based on the intended task. After initiating the collaboration session, it manages the transfer of data set, the launching of the applications, the connection of applications, and the quality level of the application parameters.

Access Grid (AG), as a realization of the ACE, has presented a successful remote collaboration environment for a group of people distributed geographically. It provides a system configuration model of a collaboration room that supports natural sharing of audio and videos. Also it presents a flexible software architecture that can easily utilize new tools for collaboration.

However, in a view of QoE-Sensitive ACE, AG has several limitations. First, it provides limited interaction methods with the system. For a user to move a video image on a display, the user should ask the administrator of AG node to do it. During a shared presentation session, one should use a keyboard or a mouse to control the presentation. Second, it does not manage meeting context during collaboration. To provide better QoE, it should understand users' requirements and adapt its configuration to meet the requirements during the meeting.

As an effort to develop a prototype of QoE-Sensitive ACE, we have been working on the SMeet (Smart Meeting Space). The SMeet aims at providing users with better QoE by minimizing users' manual configuration for a meeting and by making users focus on the meeting with naturally interacting with the meeting space. To achieve this, the SMeet recognizes a user in the meeting space and configure hardware/software resources of the meeting space according to the user's purpose of meeting. During the meeting, the SMeet keeps monitoring the quality of each running service and tries to keep service quality by adapting service configurations and by employing other service that can make up the service quality.

The SMeet software architecture is designed to provide flexible organization of meeting space supporting user-centric collaboration. Each hardware/software resources in a meeting space are represented as a 'service'. By composing these services, the SMeet performs the task, the user intended operation to accomplish the purpose of meeting. To simplify the task design and task description and to dynamically cope with the state change of a meeting space, the SMeet utilizes a special entity, 'Service manager'. The service manager works as a representative of relevant services categorized into a common functional group, such as media streaming, networking, display, and interaction. Service managers understand meeting context change and cooperate to perform task or to resolve problematic situation. Important operations among the components of a meeting space to perform task are managed by a control point of a meeting space, the SMeet mediator. The SMeet mediator also represents the meeting node in order to exchange information with other meeting nodes.

In the presentation, we will give detailed explanation on the vision and architecture of the SMeet and show our current development status.