

GARP-based Stream Reservation Protocol (GSRP)

Scope of Proposed Project:

The proposed standard specifies services, protocol and procedural elements that allow establishment, teardown, notification and management of QoS guaranteed end-to-end streams through bridged local area networks. Two services are defined: (1) a resource reservation registration service that provides a mechanism for dynamic maintenance of the contents of resource reservation status entries, and for propagating the information they contain to other relevant bridges; (2) an admission control service that provides a standard interface for queries and responses about the availability of local resources for a specific stream.

Purpose of Proposed Project:

This standard will enable guaranteed QoS data transmission of audio/video streams in Bridged LANs. Its primary application is to provide a simple and robust mechanism for virtually error free audio/video streaming over general purpose Bridged LANs in residential environments. It provides resource reservation registration service to facilitate the registration, de-registration and other related management operations of resource reservation information in relevant bridges. This information allows GSRP-aware devices to dynamically establish and update their knowledge of the set of traversing streams, the ingress and egress ports of these streams, and their corresponding resource reservation status. Propagation of this information enables end-to-end management of QoS guaranteed streams. This standard also provides admission control service to respond to queries about the availability of local resources for a certain stream, based on the stream's traffic descriptor and the resource reservation entries that have already been registered; the responses in turn determine the registration service behavior for this stream. The resource reservation registration service and admission control service interact with each other through a standard interface thereby allowing both services to evolve independently.

Reason for the standardization project:

The application of current IEEE 802 technologies for high quality audio/video streaming allows users to load their networks unknowingly to the extent that the user experience is negatively impacted. To enable the widespread use of Bridged LANs for all types of residential networking, including the interconnection of audio/video devices, a simple and robust mechanism to reserve Bridged LAN resources is needed.

The GSRP stream reservation protocol will enable a single network infrastructure in the residence to carry various multimedia applications such as digital video, high-fidelity digital audio, and gaming traffic, as well as traditional non-time-sensitive traffic (e.g., data traffic). To provide the robust guaranteed QoS capability that is required for streaming multimedia applications, the availability of network resources along the entire data path should be assured before transmission takes place. This requires a protocol to manage the resource reservation along the end-to-end paths of streams. While previous efforts (such as SBM) were too complex to be taken up by the consumer electronics market; this standard will minimize complexity by confining itself to applications with homogenous one-to-many reservation, and well defined streams with simple traffic profiles.