

Proposed Demonstration: Hybrid Adaptive Mobile Multicast — Communicating via the HVMcast Middleware

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Abstract

The objective of the G-Lab project HVMcast is the design of a universal, robust service access that allows group applications to run everywhere, no matter what the status of regional technological deployment will be. In this initial demonstration, we will present the current status of implementation that fulfills the goal for universal group communication without meeting enhanced optimization requirements. Group communication will be demonstrated using a local distribution system of three PCs which interconnects to a remote counterpart. Aside from pure communication needs, the demonstration will illustrate the actual state of the HVMcast group distribution system within a visual interface that updates in real-time.

The HVMcast system architecture has been implemented following the design of an adaptive, modular service middleware that integrates the group communication stack presented in [1]. Besides multicast specific calls, the middleware provides basic functionality for (a) service discovery, (b) service selection, and (c) gateway discovery. To provide straightforward multicast service access for any group application we adopt the multicast API described in [2]. The system architecture is displayed in Figure 1.

Following these concepts, novel services may be created as multi-layered components that form parts of an adaptive middleware. Encapsulated by high-level APIs, application-driven service establishment may proceed rapidly, independent of ISP awareness and without the need of globally upgrading the network. HVMcast targets at building such a sample service component for group communication. Emerging popular applications like IPTV and MMORGs urge the need for multicast. At the same time many traditional and mobile systems would largely benefit from ease and efficiency of a network group service. A uniformly accessible multicast service will offer the chance to replace proprietary workarounds deployed in manifold ways, and at the same time it may serve as a complex, challenging test case for the multiservice architecture designed in HVMcast.

Keywords: Internet service architecture, P2P overlay multicast, hybrid architectures, multicast mobility management, multicast security

References

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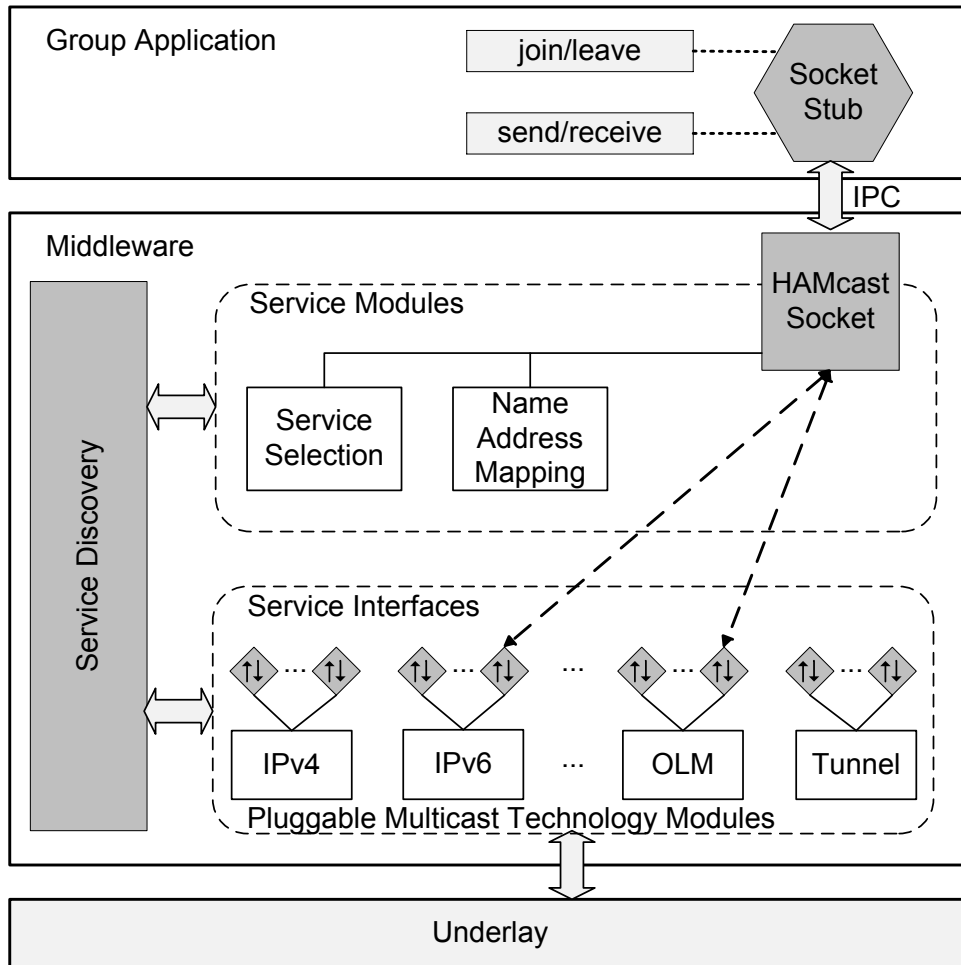


Figure 1: The HVMcast service architecture, showing the middleware components and their interaction with group applications through the HVMcast socket API.

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