Active Multimedia Proxy Services

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Project Goals

Design, Build and Exploit a proxy architecture geared for rapid implementation of new services:
- Protect clients from poor throughput, delay, and loss
- Offer transcoding, error recovery, congestion control, multicast and interactivity

System Highlights

Adaptable: proxy reconfigures based on local characteristics
Modular: only implement new algorithms -- reuse base code
Protocol Independent: No constraint to specific signaling or compression protocols

Proxy Architecture

Control Plane
- Handles control signaling with servers, clients and other proxies
- Client and server signaling separate: ANY client can request data from ANY type of media source

Graph Manager
- Manipulates graph of modules in Data Plane by fulfilling service requests from a SCM
- Uses SCMs to contact stream providers

Data Plane
- Services are realized by passing a stream through a sequence of SGMs connected by stream pipes

Server Control Module
- Fulfills server signaling functionality
- Translates client requests to GM

Client Control Module
- Fulfills client signaling functionality
- Requests from GM are sent to servers

Stream Graph Module
- Performs base operations on a stream
- Transcode from network to disk
- Send to disk, network, graphical device

Stream Pipe
- Cleverly enables one to many passing of streams among SGMs without memory copies

AMPS
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