

Possibilities for incidence of SMIL based multimedia applications

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Abstract – Some different possibilities for incidence of SMIL multimedia applications are proposed in this report. A variant for transferring of SMIL clips using Helix Universal Server 9.0 is discussed and the basic server characteristics and advantages are described.

Keywords – HUServer, SMIL, multimedia applications.

I. INTRODUCTION

The necessity of developing and incidence of multimedia broadcast clips with comparatively small size and good proportion quality – using video compression degree is result of digital networks evolution for information transfer like global network Internet. On-line incidence of multimedia clips, realized with help of rather using SMIL language v2.0, is provocation to companies are developing platforms for digital stream information transfer and safe-keeping. The company Real Networks Inc. is one of leader on the software market for digital media transfer and control with Helix Universal Server.

The purpose of this paper is to represent the platform Helix Universal Server v9.0 and exemplary approach for SMIL based clips incidence.

II. HELIX UNIVERSAL SERVER v9.0 – BASIC PERFORMANCES

It is possible to construct flexible and sensible decision in respect of stream incidence of multimedia clips using stream technologies of Real Networks. The Helix server give powerful administrative tools for stream control.

The Helix Server can distribute stream clips and on-line transmissions in different file formats [5]. The Helix server can operate with file format of different companies that are presented in table I. The platform use as well as with represented formats also with other by means of plug-in.

The Helix server run properly as using operation systems MS Windows also systems based on UNIX. This is the reason to be possible using of desire file formats from desire operation system. The Helix servers that using different operating systems are completely compatible in various network environment.

This server is property for using in NGN (Next Generation Network) [1]. The NGN services that can be realized by means of Helix are Video on Demand, VoIP and Data.

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TABLE I
USED FILE FORMATS IN HELIX SERVER

Company	File Format
RealNetworks	RealAudio (.rm), RealVideo (.rm, .rmvb), RealPix (.rp), RealText (.rt)
Macromedia	Flash (.swf)
Microsoft	Windows Media (.asf, .wma, .wmv)
Apple	QuickTime (.mov)
Standards-Based	MPEG-1, MPEG-2, MPEG-4, MP3
Image Formats	GIF (.gif), JPEG (.jpg), PNG (.png)
Other	AU (.au), AIFF (.aif, .ief), WAV (.wav)

The Helix server distribute stream clips and on-line transmissions, but it not support into tools for their creation.

They are three basic steps for clips stream incidence: clip coding with corresponding code tool, its incidence by means of given server and its reproduction by client side [5]. They are code tools that receive on-line transmission on their input, code them like stream string and they incidence them without a necessity to be safed. An example scheme of incidence stream clips process is given on figure 1.

The possibility for reproducing programs like QuickTime, RealPlayer, Windows Media Player, and Web browser using is typical for the incidence process. That using of great number of reproducing programs give a possibility for server platform independence by client size.

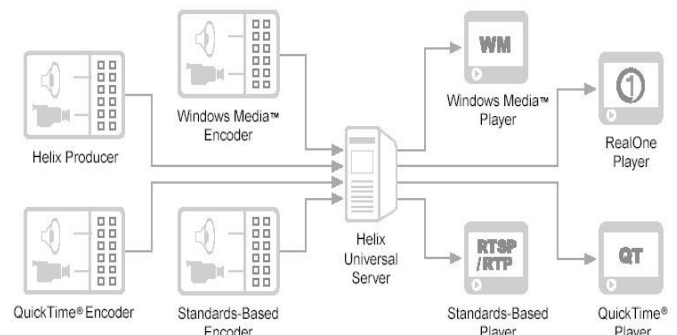


Fig. 1. Universal scheme for stream media incidence

III. USED PROTOCOLS

The Helix Server can transfer stream information in LAN or Internet. Although the server has possibility for HTML pages delivery it usually is used along with distant Web server as code transferring of HTML pages and stream media. The protocols that are using for stream media transfer are of interest. These protocols are:

- Real Time Streaming Protocol (RTSP). RTSP is a standard based protocol for stream data transfer and it is recom-

mended from Internet Engineering Task Force [6]. This protocol provide for server a possibility to communicate with different reproducing programs and also with RTSP MPEG players.

- Progressive Networks Audio (PNA). PNA is an older private protocol that is used in earlier version of RealSystem Server and RealPlayer.

- Microsoft Media Services (MMS). MMS is a private protocol that is used from Helix Server for communication with Windows Media Player [Microsoft].

- Hyper Text Transfer Protocol (HTTP). Although HTTP is not a protocol for stream media files delivery, the Helix Server utilize its for Helix Administrator HTML pages transfer that allow server configuration.

The Helix Server possess additional options like access authentication and control, observation and report creation.

IV. STREAM TRANSMISSION TYPES

The on-line stream information (clips) transmission is one of the used and the applicable possibility of Helix Server. The Server provide for some possibilities for on-line stream information transmission:

- single transmission (Unicasting). Unicasting is the simple method for on-line transmission. It is typical that every one reproducing program supply one's own stream. Single transmission is limited of license client links number.

- multiple radiating (Multicasting). Multicasting curtly decrease a broadband width and it gives a possibility for more users including. In this case the reproducing programs give not one's own streams. Instead all of them are connected to one general stream. There is a disadvantage that Multicasting require a network with high bandwidth.

The Helix Server operate with three types of multiple transfer: multiple transfer with back channel (back-channel multicasts), scaling multiple transfer (without control channel), multiple transmissions for Windows Media (scaling transmissions only for Windows Media Player).

- Splitting. Transfer the stream between two or more Helix Servers. When the number of servers that radiate given stream increase then the number of users using such type servers and a possibility for multiple transmission behind fire walls increase too.

V. INTERACTION BETWEEN SMIL AND HELIX SERVER

SMIL is well-known format for multimedia presentations coding that are using mainly in LAN and Internet. SMIL is a creation of W3C and it is an abbreviation from Synchronized Multimedia Integration Language [2].

The SMIL documents can be created by different methods. The often method is SMIL editors using. They exist many of programs for SMIL clips creation [3]. The primary SMIL advantage is the possibilities for multimedia objects synchronization [2]. They exist two basic ways to incidence of SMIL clips using Helix universal server v9.0:

- using web browser;
- by means of reproduction programs like: Real Player of Real Networks Inc. and QuickTime.

VI. EXPERIMENTAL RESULTS

The results that are achieved at the moment can be present in following directions:

- Helix Server experimentation and configuration;

Helix Universal Server v9 configuration is possible to be realized on operation systems like WindowsNT, 2000, XP, 2003. Installation procedure is not difficult because an installation interface is good realized. A server capacity is tested using Helix Administrator console in laboratory.

- creation of multimedia clips, based on SMIL v2.0;

It is used a TagFree2000 editor of Dasan Technology for example SMIL clips creation. For experimental server test in example clips were included as static also dynamic media objects and they are used all three methods for synchronization in SMIL [6]. These methods are subsequent (seq), parallel (par) and synchronization on exception (excl).

- integration of SMIL clips into Helix Server environment;

Helix Server and SMIL using is suitable combination for realization of different learning tools or some part of them, multimedia presentation clips, also for on-line transmissions radiating. For taken experiments is observing an essential disadvantage – a necessity of Real Player G2 installation, but it is free. It is possible to use web browser – HTTP based incidence of corresponding clips.

At this moment interaction between SMIL clips and Helix server is realized only in laboratory using LAN at Technical University of Gabrovo. They were used as simple also multiple clips transmission. When multiple transmission is used there is some delay in respect of simple transmission. Because users number of server free license file is limited maximum connections to it are only 15. From permitted 15 connections when the server was tested were used only 10.

VII. CONCLUSION AND FUTURE WORK

The material represented in this report is new and interesting approach about multimedia presentation incidence. Using of platforms for stream media incidence like Helix Universal Server in combination with SMIL has the following advantages and disadvantages:

- possibilities of different file formats integration;
- a possibility of presentations incidence in networks with different bandwidth;
- a possibility of settings of received media information from users size according to his requirements;
- a good possibility for synchronization to last user;
- a possibility for on-line transmissions realizing;
- limitations in respect of reproducing programs.

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