

# One Realization of Inexpensive System for News Contribution from Corresponding Offices to Central TV Broadcasting Station

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**Abstract** – One inexpensive realization of network for exchanging of news between TV stations, as well as system for news production is presented in this paper.

**Keywords** – Video material exchange

## I. Introduction

This project is realized on demand of Association of Independent Electronic Media (ANEM), the biggest non-government radio and television network in Serbia and Montenegro, which originally consisted of 16 TV and 28 radio broadcasters. After the events influenced on the fall of Milosevic regime and “Serbian smooth revolution” held on October 5<sup>th</sup>, 2000, more than 80 radio and television broadcasters became affiliate member of ANEM. ANEM strongly supported this project by all means.

System is simplified version of the system designed and partially realized during the ruling of Slobodan Milosevic and high constraints are related mainly on constant depraving, banning and financial exhausting of ANEM stations.

Basic user’s demand was to provide reliable news packages exchange in broadcast quality (full PAL).

Among the others, this project proposed application of digital standards for video acquisition, non-linear video editing and communications in low-budget TV stations members of ANEM.

Also, the devices used for realization of this project had to be in customer (i.e. inexpensive) instead professional quality.

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## II. System Overview

The 9 biggest and most influential TV broadcasters members of ANEM and ANEM Central Office in Belgrade participated in this project. One of the above mentioned broadcasters is B92, located in Belgrade, with national terrestrial covering and satellite covering.

The TV stations involved in this project are located in biggest regional community centers in Serbia.

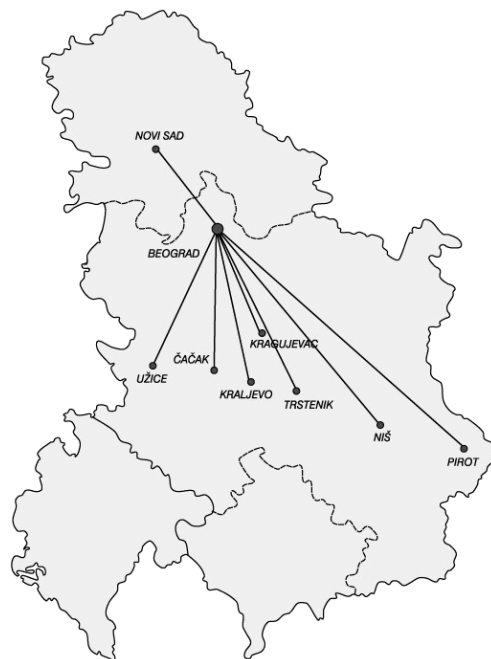


Fig. 1. Corresponding offices (TV stations) location

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The locations and list of participating stations is given on Table 1.

Table 1. Information about participating TV stations

TV Station	Location	Distance (km)	Connection type
B92 (main)	Belgrade	-	DSL, ISDN
Urbans PG	Novi Sad	75	Broadband cable
TV Nis	Nis	240	ISDN/DSL
TV Kragujevac	Kragujevac	140	ISDN
TV 5	Uzice	180	ISDN
TV Cacak	Cacak	140	ISDN
TV Kraljevo	Kraljevo	170	ISDN
TV Trstenik	Trstenik	210	ISDN
TV Pirot	Pirot	310	ISDN

### III. Workstation Overview

Realized system consists of 9 completely configured workstations. Each workstation has to provide autonomous work in video acquisition, non-linear digital video editing and exchanging news.

The parts of each workstation are the digital systems for collecting video information and non-linear digital video editing and systems for communications.

Workstation consists of the digital camcorder, digital tape, PVM monitor, specially configured PC-based computer, ISDN public network connection (or DSL network connection or broadband cable connection) and cabling.

The heart of workstation is PC-based computer equipped with non-linear digital video editing adapter card, i-Link (IEEE 1394) adapter card and ISDN network adapter. As an alternatives, DSL adapter or broadband modem are used. Workstation block-diagram is showed in Fig. 2.

### IV. News Editing and Package Contributing Methodology

In accordance with BBC news standard norm, the duration of each news package is approximately one minute and 45

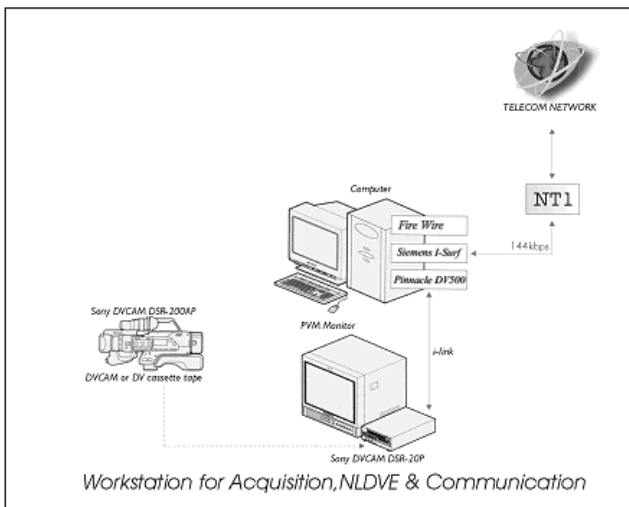


Fig. 2. Workstation block diagram

seconds.

Video information collected by the ENG team are putting in the computer by FireWire (i-Link, IEEE 1394).

Non-linear digital video editing is making using the Pinnacle miro DV 500 adapter card and the suitable software (Adobe Premier).

Package is compressing using the MPEG4 software compressor (DivX Codec). Duration of compressing needed for one minute of the video material is approx. one minute.

Public ISDN services and File Transfer Protocol are using for the transmission of the news package from the workstation located in the TV station to the FTP Server computer located in B92 Central Office. It is assumed that ISDN or DSL or broadband cable connection to local Internet Service Provider (ISP) can be used.

It is possible to connect directly to FTP server located in main station using public ISDN connection.

Direct cross-connection between two of the participating stations is also possible. One station can upload/download files with video material directly to/from local FTP server located in some other station. Public ISDN or other Internet connection is using.

Duration of decompression needed for one minute of the video material is approx. one minute.

### V. Statistics

Number of sended news packages per station, in average, was 5 per month. Average size of compressed file was 33.7 Mb. It means that average size of the news package was 19.2 Mb per minute.

In practice, one minute of the video material is transmitted using ISDN connection for approx. 21 minutes. The duration of transmission of one minute of video package is shown in Table 2.

Table 2. Duration of transmission

ISDN	Broadband	DSL
128K/s	256K/s	1M/s
21 min	10 min	2 min

### VI. Conclusion

System for news video package exchange, reliable and available for low-budget local TV broadcasting stations is considered in this paper.

System is completely based on digital solutions that are available on the market.

Further plans are:

- Incrementally growing of the system (i.e. involving other ANEM stations and corresponding offices);
- Improving the system's performances (throughput and compressing/decompressing techniques).
- Designing the system for management and automatic production of metadata related on video material.

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