ABOUT SOME INFORMATICS SOLUTION FOR ULTRA SPEED TRANSFER OF VISUAL DATA

Dobromir Bonacin, Danijela Bonacin and Maid Omerović

Faculty of Education, University of Travnik, Bosnia & Herzegovina

Abstract

Transfer of anything even information represents an elementary requirement of any communications and usually is accomplished in accordance with the elements of a communication system, a well known fact. Accordingly, the current trends of information charting technology are focused on several important areas of computer graphics which is almost the same time but the biggest challenge and greatest open problems, especially in communication. What seemed like a simple solution, namely the transfer of visual data over high speed networks, began to show serious deficiencies, no matter what the technology is extremely advanced to the optical fiber and wireless communications. Specifically, in parallel with the growth of technology and quality services, have increased opportunities, and of course the appetite of consumers. This article discusses some possible solutions that all have basic assumption about the purpose of visualization. Only if this question is well settled, possible actions are directed towards the real needs of man.

Key words: *visualisation, transfer, purpose, solutions*

Introduction

Present trends of information charting technology are focused on several important areas (egg. Meyer, 1991; Humphrey, Dakle & Schulten, 1996; Ogasawara, 2003, etc..), of which computer graphics is almost at the same time but the biggest challenge and greatest open problem, especially in communication (Ball & Smith, 1992). What seemed like a simple solution, namely the transfer of visual data over high speed networks, began to show serious deficiencies, no matter what the technology is extremely advanced to the optical fiber and wireless communications. Specifically, in parallel with the growth of technology and quality services, have increased opportunities, and of course the appetite of consumers.

Computer market encompasses many areas from academic institutions, state administration bodies, to individuals who are connected to the global mega network. In this crowd of diversity goals, intentions, ideas, etc., one thing is common to all - speed transfers. It is real to assume that this statement does not need additional arguments. All this is further emphasized by increasing opportunities for all types of computing machines, from the largest - supercomputers, to the hand held, iPod devices and cell phones themselves (Carr, Edberg, Majeti & Shepherd, 1997). The visual data, on the other hand have a serious burden of transfers to be made through these and other devices (Kwan-Liu, 1999; Weaver, 1999). Where are all the possible problems? As in any other communication system, problems can occur at the source, the encoder that prepares the material for the channel, the transmission channel, the decoder and the receipt as shown in Figure 1 (Bonacin, 2008). In all these situations, as a result we get a delay, which may or may not have consequences.

But, it certainly is not acceptable if it occurs in two conditions: 1) that the problem is delay of over-communication system, and 2) if that is not always too big delay, then it is incorrect and unknown, and more dangerous because of it. This is especially complicated when you include an audio signal, because it has special properties that best describe the need for synchronization with video material (Davis, Brittain & Smith, 1995). However, generally speaking, unless the material is strictly online and in real time, then a short drop to the video material is not product by serious problems of communication and extensions are possible.

For audio material is very different, because the audio material can not be monitored without continuity (eg, especially the music). So we constantly keep in mind that we have just the video material, but also audio, and audio content, although there are a lot fewer problems with the amount of content, there are a lot more problems with sampling and continuity of the transfer.

Data transfer and purpose

Transfer of anything even information represents an elementary requirement of any communications and usually is accomplished in accordance with the model in Figure 1. This model is, of course, correct, and with no logical errors, but in real life, some problems occur with no direct connection with the quality of such matter or any other model, but with current technology. As you well know scientific and technological solutions come prior of applications and so will be in the future. Some of these solutions for some time are well-kept secrets in political, military, economic and other needs, which is somewhat understandable.

For these two reasons, we are in everyday life in a position to ask (and hopefully) high quality technology solutions and they really come, though somewhat shy and always with at least a small delay. All of that in relation to our expectations, which again is quite understandable on the basis of foregoing.

But if we leave aside such special situations, what is the fundamental problem of this paper is to determine the appropriateness of transfer of visual information in the standard conditions of global computer networks (such as the Internet). The purpose is to transfer what is the absolute criterion in determining the ways of communication. If, for example, on distance learning via videoconferencing, then obviously the teacher is the moderator is not as important as the content is transmitted and how it can be distributed to the participants, which certainly means that the color does not suit just too much importance.

But it also means that some content may not be on-line, previously prepared and stored at a everybody known location on the network. Not to say that it is possible to organize a working group on the side of students where each group has its own communications coordinator for the conference moderator, allowing decrease of visualization pressure and with the transfer of some powers of a lot more than 2 or 3. This means that the previous preparation are far the most important thing, and consequently this approach the meaning of visual transfer in itself significantly decreases.

Furthermore, in another case, suppose we have a very large amount of online material such as is the case in the media that transmit information (such as TV, radio, Internet, newspapers,…). It is obvious that these media can be at least three types of materials that emit: 1) the contents of a live, 2) processed current contents, and 3) prepared programmed contents (figure 2).
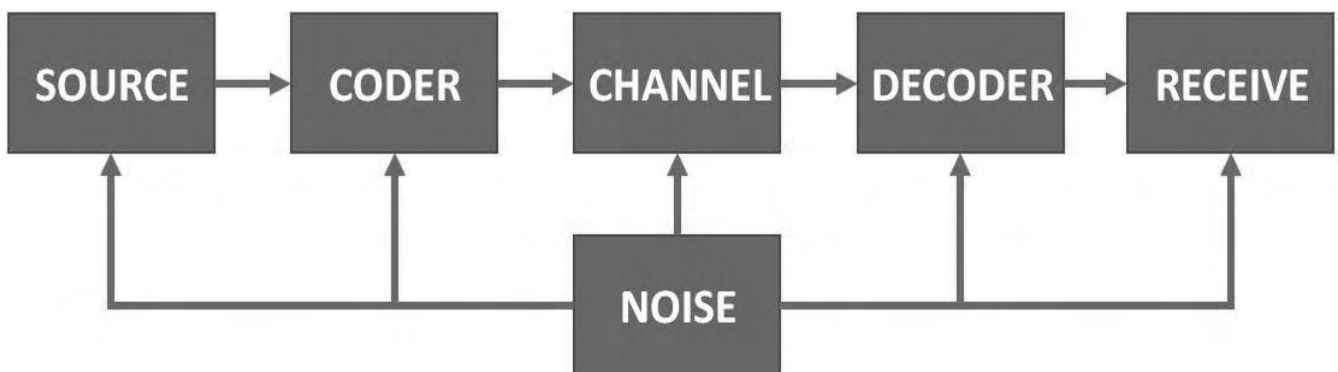

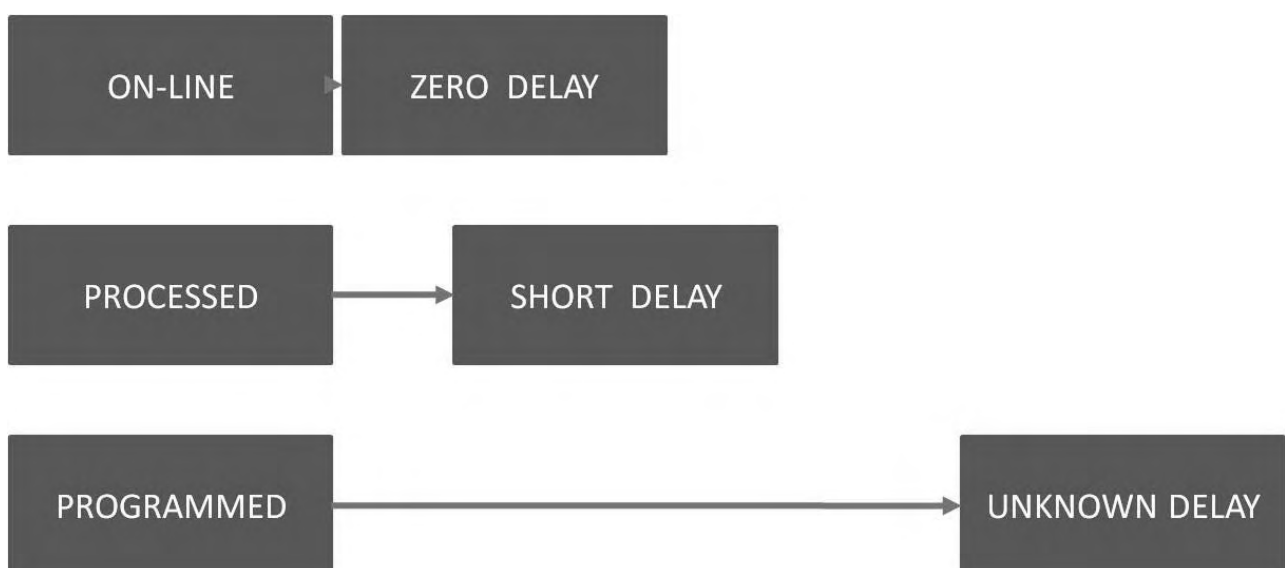Figure 1. Communication system (Bonacin, 2008)

Figure 2. Material by time demand of priorities

For example, in the programming content on TV, update is not critical because it is a longer pre-prepared material (serial films, documentary series,…) which can then be put into broadcasting in specific terms. Worked current facilities are prepared much shorter, but their purpose is the default policy objectives determined by the "house" (political, commercial, educational,…), but in any case there is time delay between taking the unprocessed material circulation in accordance with the process that wants and effects of that goal.

Thus, the visual transfer is the only critical segment of the content is aired live, and even then not entirely sure that every visual detail belongs to the transfer. Put it this way: let us into a show on TV some great guest "star" (political, sports, singing, science,…). What transmits visual communication is not what suits not always the truth, because there are a whole set of activities related to this facility (makeup, lighting, angle, selection gestures, manner and tone of voice, written and template view of that yet). To say nothing of the appearance of the singers to "play back", speeches by politicians who write specially selected persons, directed the moderator's questions, etc.. On the other hand it must be admitted that such a meeting full of sports visualization you just can not just simply replace or otherwise visually compensate. However, even in this case should not be forgotten that such a goal in soccer often experience much better and more beautiful in a variety of views that occur after a goal where we see the beauty of movement and the many details that otherwise fail. Now the natural question arises: What is that all the faithful to show and why? How clearly this paper discusses the visualization and transfer, it should define what types of visual data obtained from these positions do exist, and proposes the following:

1) The actual visual content does not matter and may not be faithfully reproduced; 2) The actual visual content is important but spatially or local time and can be faithfully reproduced in part, and 3) current visual content must be completely transmitted faithfully.

Visualization transfer phases

Under these assumptions, it is clear that the visual realization of the transfer there are certain phases that are in permanent relationships. First of all, it's execution (performance) that is what we want to record or transmit through communication system.

If this is not a blind transfer without processing, then surely noticed that the performance demands recognition, that knowledge of what it is. This is the phenomenon of recognition (recognition). However, even then not all clear, so there is a process that should be extremely fast if you want it to be effective, and this is the identification, and recognition that came with the closest connection.

In this way it is solved the part that refers to the input port and recognition of visual information (Rekimoto & Ayatsuka, 2000). It depends on how much we want to preserve the fidelity of transfer, there will be a medium length of interphase, which is the model that will be derived based on simulation and design processes visual information that we want to transfer away.

When is it solved satisfactorily (designated model parameters), follows the transfer to those that are formed visualization. The final stage in this series is the continuity and continuous transfer of which is less demanding or for modeling and simulation solved (figure 3).
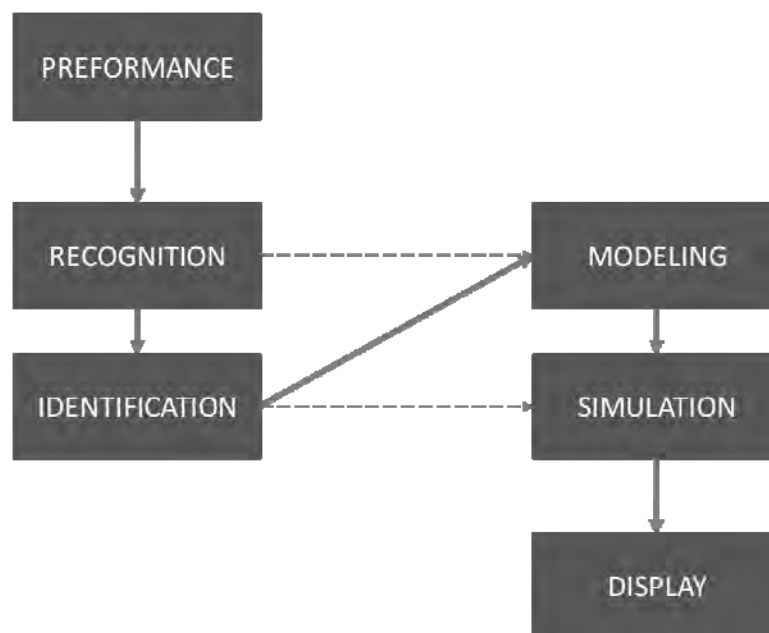
Figure 3. Phases in process of visual data transfer

Conclusion: Possible solutions

After the entire text of this decision to impose itself. Specifically, first and foremost is that: 1) In all situations where the current visual content is not important (eg videoconferencing in the language or literature) there are two simple options, and they read as follows: a) on the side that is much more numerous (listeners, regardless of whether active or not) there is a database programming graphical simulation accurately enough to speakers (authenticity) illustrates the subject/s and the sound is transmitted on-line, and b) immediately before the start of the conference is to exchange the "audience" for the graphic visualization of the one who sends them (emitter) warrants that they are authentic, while the sound still sends online. Assuming that the transfer of authentic and high quality graphics support, this way the law has ruled that communication on-line, but that is not burdened with unnecessary rendering greatly slow the transfer of the entire burden on the entire communication model unimportant things. Time delays or losses are then negligible and void. Possible objection that we do not see the original person does not stand, because that communication on-line through the TV camera then also do not see a real person but only a picture of that person on the TV screen; 2) In all situations where visual content is an essential part, and these situations are much rarer, there is delayed broadcast, as is the decision-making in sport, where the images are reviewed for final decision. Thus, as can be seen, but in the legal domain (decision makers) introduced delayed visual content. To ask a question, how important it is precisely in this moment to watch a game of American football (rugby) and so when the players do everything to be subject to judicial reviewing team. If the audience is waiting for a decision is not what keeps them in the match, then the other which transmits visual experience, quite still watching the game at 10:30 or 15:40, which means that such content is possible (and necessary) store, you can consume when it wants, how he wants, with anyone who wants in terms of wants. There is a big misconception that we are a big fan of a some team when it is on the TV and we watch a game so our 20 million worldwide, because the immediate actors / fans of all such direct is 2000 spectators in the stands; and 3) Finally, you should assume that there exist situation where the visual content is just extremely important and must be transmitted exactly on-line. The authors failed to find any single situation that would justify such an approach, but a real honest scientists, we leave all of you a chance to find such a situation. We would be very glad to hear such an opinion.

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O NEKIM INFORMATIČKIM RJEŠENJIMA ZA ULTRA BRZI TRANSFER VIZUALNIH PODATAKA

Sažetak

Transfer bilo čega pa i podataka predstavlja elementarni uvjet bilo kakve komunikacije i obično se ostvaruje sukladno elementima komunikacijskog sustava, što je dobro poznata činjenica. U skladu s tim, današnji trendovi informacijskih tehologija usmjereni su na nekoliko važnih područja, od kojih računarska grafika predstavlja istodobno gotovo najveći izazov ali otvara i najveće probleme, posebno u komunikaciji. Ono što se činilo kao jednostavno rješenje, a to je transfer vizualnih podataka preko brzih mreža, počelo je pokazivati ozbiljne nedostatke, neovisno o tome što je tehnologija izrazito napredovala sve do svjetlovoda i bežičnih komunikacija. Naime, paralelno s rastom kvalitete tehnologije i usluge, povećale su se mogućnosti, a dakako i apetiti konzumenata. U članku se raspravlja o nekim mogućim rješenjima koja sva imaju rtemeljnu pretpostavku o svrsi vizualizacije. Tek ako je to pitanje dobro riješeno, moguće su aktivnosti usmjerena prema realnim potrebama čovjeka.

Ključne riječi*: vizualizacija, transfer, svrha, rješenja*

Assist.Prof.Dobromir Bonacin, Ph.D.
University of Travnik
Faculty of Education
72270 Travnik, Aleja konzula 5, Bosnia & Herzegovina
Phone: +387 (0)62 907 430
E-mail: dobromir.bonacin@st.t-com.hr