An Introduction to Virtual Communities

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In the process of setting up paid on-line services and in particular virtual environments, a large number of challenges concerning software development and marketing approach are encountered. Some of them have a technical nature, others have a business or even a social character. This article aims at giving the reader some insight in a number of these aspects.

Introduction

Traditionally, there are three main characteristic groups of services: information, communication, and entertainment (ICE). Examples are respectively linear teletext on television, communication through the telephony network, and games for dedicated game consoles. The ideas behind virtual environments are much more generic. They mean to model real life and therefore offer handles to implement all kinds of services. A virtual environment can be seen as a framework for the traditional services mentioned above. Where from the consumers point of view, traditional services only serve a single user, a virtual community is based on multiple users. It is true that multi-user aspects play a role in entertainment and communication services already, although less emphasized. Besides using traditional services, the consumers can create a complete social environment in a virtual world. This is already the case in simple text-oriented chat boxes.

Recent research by Datamonitor has predicted a growth from 2% on-line turnover in the entertainment business this year to 20% in the year 2000 [**?**]. This is an interesting tendency for virtual environments since herein on-line entertainment services are important multi-user applications.

As can be seen in this short introduction, the field of virtual communities is an interesting one. The author is working for Philips Electronics in a project called New Topia. This product combines interactive teletext and telephone communication into a virtual city as shown in Figure **??**. The city can be visited by calling a special phone number. Visual feedback is given through teletext and auditory feedback through telephone. Services are placed on the server and an operator can change or access service content with a separate platform. The main advantage of teletext and the telephone is the large market potential due to the large installed base in Europe. Obvious drawback is the use of ‘old’ technology compared to the hype around Internet and multimedia, the current buzz words. Interestingly enough, most of the actual consumers are not bothered by this fact. In the remainder of this article, a number of things learnt from this project are elaborated upon. These lessons are split into business lessons, people behaviour, and technical issues (especially software).

The Business Community

As soon as a virtual community or in fact any other on-line service must be commercially exploited, there are a number of parties to be dealt with: consumers, network providers, content providers, service providers, and the system provider.

On-line services are distributed via networks. This may be a television broadcast network, a telecommunication network, or a combination, as is the case for New Topia. Currently, network providers earn the most from on-line services, just by distributing the services. The consumer is

used to pay for these networks, but tends to pay

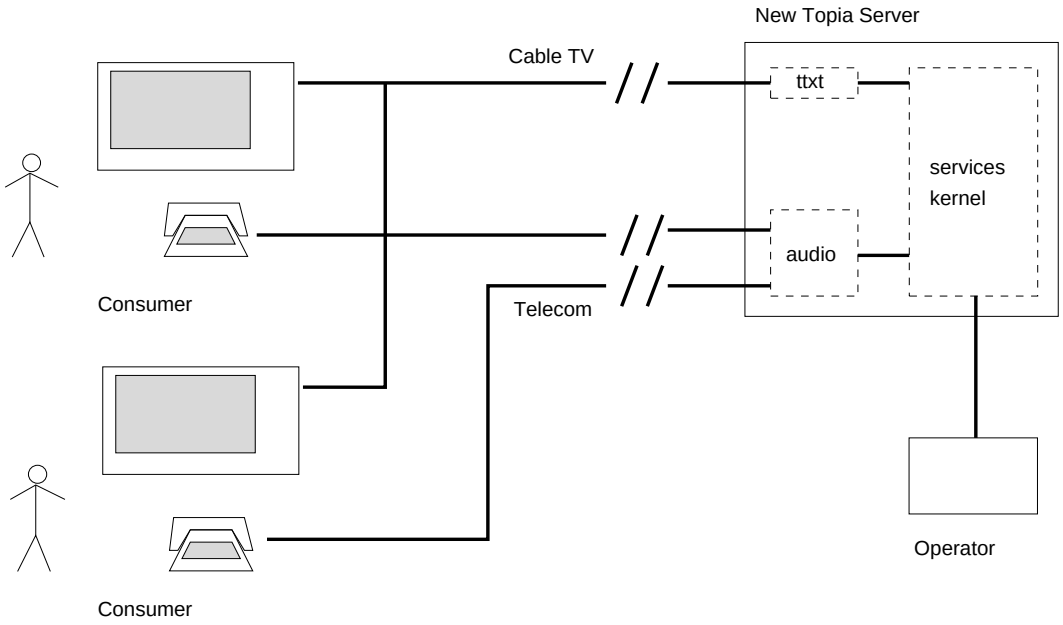

Figure 1: Outline of New Topia.

hardly anything for the services themselves. One of the reasons is that the customer is increasingly becoming aware of the speed with which technology advances and has a sit-and-wait strategy. This is one of the things consumer research for New Topia showed.

In the world of music and newspapers, publishers have a strong position in providing content. It is advisable to find such publishers as partners, because they are exceptionally good in generating content for services, have legal rights concerning the content, and are able to keep the content topical. As an example, the news paper archive service in New Topia is quite popular. Further, publishers have distribution channels for promotional material.

Service providers try to promote their products by placing advertisements or try to sell their information through the use of service networks. Unfortunately, a virtual world as a service environment only attracts service providers if there are enough consumers and, vice versa, consumers only show up if there are enough interesting services. Thus, no services means no people and the other way round!

Because of all these different players in the service field, it is not easy to find a good business model for a virtual community product. It becomes even more complex when we think of the fact that there are a lot of system providers already. For example, for interactive teletext, to which New Topia is an extension, there are multiple systems at cable television network stations present. Another complicating factor is third-party development of software for services. This bears the legal side of licensing.

The People Community

For New Topia there were, up until now, two user trials. During these trials, we learnt a lot about users and the way they behave in a virtual environment. A number of examples may illustrate that behaviour of users in New Topia shows quite a few resemblances with the behaviour of people in the real world. Note that this may not be the case in other virtual communities: New Topia is mainly a social environment and not a creative one in which consumers can shape the world.

An often heard excuse for using the city is the look-up of information. However, taking a peek at logging information, most of the people are in there for communication with others, entertainment, or a combination of these service types. Most popular are communication aspects in services, such as pubs or high-score lists in games. Services that contain elements of all three service types are potential killer applications.

It is difficult to find out who is legally responsible for content that is generated by members of the community. This is the case with any on-line broadcast medium, for example television. In New Topia there is an announcement service where people can leave their text messages behind. These messages can be read by other consumers. There were times that people discriminated ethnic minorities.

Consumers get used to have their own identity, for example, their color and alias. It gives them the feeling that they really mean something in the city. On the other hand, they like the fact that they can be anonymous and can imitate the identity of others. They use this, for example, to sign messages in someone else's name and in this way play tricks on each other. People flock together. At one point in one of our trials, there were two groups that not really liked each other. One of them was a group of young people and the other a group of people that already used New Topia for a longer period of time. This gave raise to very interesting discussions and sometimes even verbal hostilities.

The Software Community

Concerning software, there is quite a large number of challenging problems to be tackled but luckily there are also some useful techniques.

Existing infrastructures are very important in introducing a virtual world. Over the years, a number of services has been developed and in the simple perspective of an end consumer these services should be available in the virtual community too. Also, a service provider expects his Internet service to become operational in a virtual world on the Internet with little additional costs. In the case of New Topia, if a provider has a quiz service on interactive teletext, the provider expects it to work in New Topia with no problem though, clearly, both systems are based on different hardware. Multiple platforms make it even worse. When offering a service in, for example, interactive teletext, the end consumer expects the service to be operational on the Internet as well. This causes service providers to stress the fact that they want services to be developed only once and not for multiple platforms independently. For example, they do not want to update databases on multiple locations and when they offer products they want users from different platforms to be able to order them.

Client-server models are often the basis of systems. A virtual world loses its attraction if it is not an on-line service. So, multiple clients must be able to access the server at once and these clients must be able to interact. The complexity of servers and clients can differ from platform to platform. In the case of New Topia, all the complexity and computing power lies in the server because a low-end television understands only teletext. In the case of an Internet client or set-top-box, the client can be made more intelligent, for example, by using Java.

Object Oriented (OO) techniques help to build a virtual environment for the obvious reason that such an environment closely resembles the real world, or at least should try to. In a virtual world you can, for example, see visitors, places, regions, doors, etc. The New Topia kernel is completely OO. As OO is still a relatively new field in the software world, it is hard to find good software engineers in this field.

Multi-tasking is a key issue since a large number of things happen simultaneously in a virtual world . In simple information services or

games, less things happen at the same time. For New Topia there are many ‘parallel’ processes, ranging from five hundred to two thousand, depending on the number of active services. In the New Topia kernel, a special layer handles this kind of multi-tasking.

A good database model must be the basis for logging and billing of services within a virtual world. There are a number of ways to tackle this problem with the business model: one can work with subscribers, or try to promote ‘free’ use and collect money via the distribution net (cf. the Dutch 06 numbers). The database model must leave all ways open.

All these and many more other aspects make it very interesting to decide upon an architecture and a kernel for a virtual world server such as New Topia. For development of services the service provider, the consumer, and the multidisciplinary development team (software engineers and interaction designers) play important roles. The technical problems should already be taken care of by the server.

Conclusions

This article only superficially shows the problems and challenges when trying to build and exploit a virtual community. The most important conclusion that may be drawn from this article is that the business opportunities are still not tackled adequately yet. A good business model still has to be found.

The introduction of a virtual community also implies a number of social and legal issues. Clearly, a virtual environment is not just an integration of traditional service types. There are many technical issues to be taken into acount due to the inherent complex nature of on-line virtual communities. Fortunately, these can be overcome by existing methods and techniques. □

References

[1] *The European Electronic Games Industry - Online for the Next Millenium?*, Datamonitor Publications Ltd., 1996.

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