A Telematic Security Training Application

by

S. Furnell² D.A.Hill¹, I.Rosewall¹, M.J.Warren¹

¹Business Security Group, Plymouth Business School, University of Plymouth, Plymouth, UK ²Network Research Group, SECEE, Univeristy of Plymouth, Plymouth, UK

Email: m.warren@pbs.plym.ac.uk

Keywords

Security Training, RATIO, Telematics.

Abstract

The paper describes research currently being undertaken in the area of computer based security training. The research described includes the use of computer based training material, the use of internet technology and the use of satellite communications. The aim of the research is to provide computer security training to professionals who live within remote rural areas of the south-west of England. The research described forms basis of a UK/EU project entitled RATIO.

Introduction

The widespread use of computer systems has resulted in a new dependence upon computers and the data they contain. Computer systems now contain millions of records relating to commerce, healthcare, defence banking, and personal information. All this information is at risk of either being mis-used for fraudulent purposes or modified for malicious reasons. In 1992 a UK Department of Trade and Industry (DTI) sponsored survey suggested that the true level of UK losses from computer fraud and misuse was around £1.1 billion a year [1]. This provided an impetus for the DTI to sponsor blue chip UK organisations to develop a set of guidelines to help in the

management of security. These guidelines subsequently formed the basis of the British Standard 7799 [2].

The majority of existing security advice and analysis has been targeted at larger organisations. The problem is that small businesses could afford to purchase the BS guidelines but not the security expertise which explains what the guidelines are. Also small businesses could not afford the security expertise or software to undertake a security review. What small businesses therefore require is a low cost training package which can be used by business personnel to learn about security.

The research is specifically tailored to the south-west of England and the problems faced by that area such as:

- low presence of modern industries, training and development;
- high levels of unemployment;
- high number of small businesses;
- high proportion of population living in remote/rural areas.

The aim of the research was to develop an easy to use security training package that can be used to train business people within rural areas by using telematics applications. The system to be used is an application of the RATIO (Rural Area Training and Information Opportunities) project.

The RATIO Project

RATIO is part of the UK governments regional challenge initiative (funded from European Structural Funds Objective 5b) and has provided £2.3 million to fund the project. The main aims of the RATIO project are to assist regional regeneration and competitiveness by:

• establishing the telematics infrastructure necessary to deliver business and training services to local communities across the region;

• raising the awareness of the need for an up-to-date workforce with the opportunity to gain access to the latest information;

• provide flexible and affordable training service to businesses.

The aim of RATIO is to cater for a varied combination of communication methods such as:

- Satellite live and pre-recorded video and audio data, data transfer;
- Video conferencing, live video and audio data, data sharing;
- Networking data transfer, digital video and audio data transfer.

Across the south-west of England there will be a network of 40 receiving centres so that any centre of population is no more than 15km from a centre. These centres will be equipped as follows:

Level 1 Centres

There are 30 level 1 centres, these will have the following facilities:

- 2-5 PC's;
- modem for e-mail;

- satellite reception equipment for both video and data;
- analogue video conferencing equipment for training;
- VCR and TV.

Level 2 Centres

There are 10 level 2 centres, these will have the following facilities:

- 10 PC's;
- ISDN (Integrated Services Digital Network) Links;
- full internet connectivity;
- digital video conferencing equipment;
- satellite reception equipment for both video and data;
- VCR and large TV.

The equipment and facilities provided by the RATIO project offer a unique opportunity for businesses and individuals to use the latest technologies, which they might not have had access to previously.

RATIO makes use of satellite technology to communicate with other RATIO users and ensures quick data transfer between sites. The primary advantage of satellites over terrestrial links lie in their broad geographical combination [3], this means that in the future the RATIO services can easily be extended across the UK and Europe.

Security Training System

The computer security training system was developed with the following aims:

- raise business peoples security awareness;
- give basic security training;

- allow business people to undertake basic security risk analysis reviews;
- offer direct security advice via satellite video conferencing;
- offer indirect security advice via the use of email;
- publicise existing relevant security standards, i.e. BS7799.

The most important aspect of the project is raising security awareness. The reason for this is that user interaction with technology is simple and SO uncomplicated, the user is not aware of the capabilities, potential or weaknesses of the technical systems [4]. By making professionals aware of security issues it is possible then to train them about good security procedures, different security legislation. different security countermeasures etc.

The security training system makes use of the following technologies:

- Computer based training software;
- Video Conferencing;
- Internet Technologies.

The overall training course is structured in the following way:

<u>Stage 1 : Computer Based Training</u> <u>Material</u>

Every person enrolled for the training would have access to a computer based

security training package. The aim of the package is to initially educate professionals about computer security. The system can be used either on their own home PC's or PC's located within the RATIO centres. The system is designed to be used by itself and at the convenience of the user. The system is designed to be user friendly with an easy to use GUI (graphical user interface) and comes complete with a computerised user guide, paper based user guide and contact point in case of difficulties.

The system offers the user the following features:

• basic security training (see Fig 1);



Fig 1. Screen Shot of Training System

• ability to undertake basic risk analysis review (see Fig 2).

-				Micros	oft Acces	ss - [Rep	ort: Sm	all-Physi	cal Report				•	l
<u> </u>	<u>E</u> dit	<u>V</u> iew	F <u>o</u> rmat	Window	<u>H</u> elp									1
	ii 🖪	<u>a</u> 🛙	田崎	<u>7</u> 9		E.	E I			E 🛛 🛛	?			
		_	Sn	n all Sized		any (P	hvsica	I CMs)						
		Co	untermeas	ure Types										
		Do	cument Co	ntro l										I
				All do cum en narkings and	is should Istored se	have appro curely.	priate se	nsitivity						
		Sit	e/Building	/Room Acc	ess Contr	rol								I
				There should gates and doo These entran working hou	be adequ irways inc ces shoul is or wher	ate protect :luding the d be closed nunattende	ion fort use of a iandloc d.	he site/bui pprovedlo kedoutsid	lding cks. e					
			1	Where appro protection fo during worki to be used wi	priste, the r room su ng hours, nen the ro	re should where IT as including t om is unat	be ade qu sets are he use o tended.	ate access accessible fapproved	locks					
				Windows in appropriately	moccupie rlocked	ıd areas sh	ould rem	ain closed	and					
H Page	x 1	۱ (+										+	ſ
Ready												CAPS NUM		

Fig 2. Screen Shot of report produced by Risk Analysis System

Stage 2 : Video Conferencing

Once the professional has completed the initial training course they will then be able to take extra training courses via the use of video conferencing. The video conferencing studio is located at Plymouth and data is transmitted via satellite (the satellite uplink is also located at Plymouth) or via ISDN links to the RATIO centres. The video conferencing takes the form of a series of seminars, that is then followed by a question and answer session. The security seminars cover the following major topics:

- physical security;
- virus protection;
- network security;
- human security;
- legal issues;
- organisational security policies.

The use of video conferencing will allow for a more constructive style of training to be undertaken. Fig 3 shows an example of video conferencing, this allows for the connection of many users to the one training seminar. Through the use of video conferencing it is possible for specialist IT security training to become more cost effective and available to many more professionals.



Fig 3. Example of Video Conferencing

It is intended that the security training material should form the basis of a IT security course that could be taught across the Internet or via the use of video Conferencing.

Stage 3 : Post Training Support

Once the training seminars have been completed it is possible for professionals to still put forward questions or problems. They would make use of Email or IRC (Internet Relay Chat) and this would allow for questions to be answered and anonymous results shared between interest business people as shown in Fig 4.

-			White Mail	1 0
Colder Ed	it jesert ⊆em	aasa dd	desses Windows Fort	F1-Help
-			Draft now1	
Send	Tec	1	m warren@pbs.p.lym.ac.uk	1
Discort	Bubject		vitus outbreak	
Save	car.			
部 # 1 1	e 🖌 🖬 🖬	x 🛛 E		
I wond and ha if you - a - s	er if yo ve been could h dvise a uggest p virus	u cou infec elp n good roced infe	<pre>id help me I run a small business ted by a computer virsus. I wonder e with the following: wirus checker that I should install; ures that would decrease the risk of ction.</pre>	
Many t	hanks,			
B.Wile	on (CGI	Limit	ed)	

Fig 4. Example use of Email to solve problem

A network of professionals interested in security would be established and this would allow for:

- advertising of future security training seminars;
- advertising conferences;
- sharing of security knowledge and experiences.

This network will also help to start establishing a security culture across the whole of the south-west of England.

Conclusion

In order to face the competition, companies need a more flexible working environment [5], the same is true for training. By using new technologies it is possible for business people living within rural areas to take advantage of new technologies. This is of particular importance to SMEs (Small Medium Enterprises) organisations who would not usually be able to afford IT security training. The security training software was completed in 1996 and the video conferencing service will start at the beginning of 1997. The security training software will be commercially marketed at the start of 1997.

In the future a WWW (World Wide Web) site will be developed, this will offer security advice to SME business people not only within England but also across Europe. This site would offer security advice, security training software and also contact points.

The future aim of the research is to develop a commercially operational security training system that uses the latest technologies described.

Acknowledgements

To Shona Leitch who was part of the software development team.

Bibliography

[1] Robson. W, 1994, Strategic Management and Information Systems, Longman, UK, ISBN 0-273-60042-7.

[2] BS7799 - Code of Practice for Information Security Management, British Standards Institute, 1995, ISBN 0-580-236420.

[3] Reed. T, 1989, Chapter 6, European Communications, Technologies and Regulations of the Single Market, Blenheim Online, UK, ISBN 0-86353-182-2.

[4] Lafleur. L, 1992, Training as part of a security awareness programme, Computer Control Quarterly, Vole 10, No 4, UK.

[5] Opsommer. J and Rulmont. P, 1995, Teleworking and Telecommunication presented at *'International Conference on Multimedia Communications*", Southampton, UK.

Biography

Dr Warren is a lecturer at the Plymouth Business School. He is the head of the Business Security Group.

At the moment he is working a EU HCTA project called ISHTAR. This is concerned with the development of security training material transferable via the internet.

Dr Warren is also working with the RATIO project and help to develop applications that can be transmitted across it.