

Merseyside Fire & Rescue Service
MACC Computer Systems Replacement
Business Case

Document History

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Table of Contents

Document History.....	2
Table of Contents.....	3
Executive Summary	4
Background	6
Project Definition	7
1.1 Project Objectives	7
1.2 Project Scope.....	7
Business Case	9
1.3 Options Considered	9
1.4 Reasons	10
1.5 Benefits Expected	11
1.6 Risks.....	11
1.7 Costs	11
Recommendations	12
Implementation.....	13
Appendix	15

Executive Summary

Introduction

This Document summarises “Merseyside Fire and Rescue Service MACC Computer systems Replacement Business Case Version 1.0”, which outlines the case for replacement of the current computer mobilising system used by MACC in Merseyside Fire and Rescue Service.

History

MFRS MACC fulfils their role using a system called Vision, supplied by Fortek. Vision comprises of proprietary Fortek software installed on standard industry hardware. This was installed and commissioned in February 2005 and it was expected that this hardware platform would meet MFRS requirements until the Regional Control project had gone live in 2007/8. Due to the delays with the RCC project, telent have identified that the following elements of the system require replacement:

Vision Servers (3) – Two at Derby Road, one at OSR

Telephony Interface Servers (2)

Database Server (1)

Web Servers (2)

AVLS Server (1)

Fire Control Operators Workstations (27) – 12 MACC, 5 OSR, 5 Data Management, 2 Training Office, 3 spares.

Peripheral items – Modems, KVM and Monitor, associated interfacing equipment.

Network equipment – switches (3).

The Nortel Meridian telephone switch which receives the emergency calls is deemed to still have several years of life remaining and as such is outside of the scope of this project. If the Regional Control project slips further there may be a requirement to replace the telephone system before it becomes end of life.

Risks

There are two broad categories of risk, as follows:

[1]. Risk associated with Hardware age and obsolescence

[2]. Risk associated with further delays FireControl project and provision of Regional Control Centres

[1]. Both Vision Servers and Clients have run continuously since February 2005. The Client computers in MACC are showing signs of physical degradation in their hardware components. The current specification is now obsolescent and remains a cause for concern should MACC experience “spate” conditions, as is possible during November 5th, or other busy periods.

[2]. FireControl may be two to three years in the future. The continued operation of the current system cannot be guaranteed to see through to a final decision on FireControl.

Recommendation

Replace the current hardware and software, upgrading Vision to the new Vision FX.

This will hold benefits for MFRS in the following areas:

Training costs – while some training is necessary, the bulk of Vision FX will be familiar to MACC operators.

Lower hardware costs – choosing a different system will mean purchasing a new radio interface solution and new telephony interface solution.

Timeline

A more detailed project plan and timescale will be produced after confirmation of funding and after discussion with the appropriate operational personnel. High level proposed dates are as follows:

Procurement	May 2010
Build and test phase	June – July 2010
Training	July – August 2010
Installation/commissioning	Mid-September 2010

Indicative costings (From Suppliers Website)

Vision Servers	£61,392.16
Vision Clients	£23,268.78
Vision Hardware peripherals	£6,769.52
Network equipment	£19,089.97
Cabinets and related items	£4,838.92
Fortek Costs	£64,275
Estimated 3 rd Party additional Costs e.g. telent, BT, Mitel	£12,000
Grand Total	£191,634.35

Background

MFRS have the following Command and Control organisational departments for fulfilling their primary role:

A MACC (or Mobilising and Control Centre). This is the primary location for taking in emergency calls and mobilising resources to incidents;

An Operational Support Room (OSR). This is essentially a Secondary, backup Control Room, situated at Bridle Road HQ.

A data Management department

A Training Office. Currently attached to the MACC at Derby Road.

These departments fulfil their role using a proprietary system called Vision, supplied by a company called Fortek. Vision comprises of software and hardware elements, and is the main instrument used by MFRS to perform their command and Control function.

Project Definition

This Project is initiated by telent in order to assess issues around the current aging MACC mobilising system and to recommend a way forward.

1.1 Project Objectives

The Project intends to assess the business case for replacement of the current mobilising system.

1.2 Project Scope

There are elements of the full mobilising system which have already been replaced or have not been deemed end of life.

This includes:

- The Wide Area Radio. MFRS has recently joined the Airwave radio network, and the equipment needed to interface this to the mobilising system is already in place
- The call recording hardware has been replaced due to a hardware failure.
- The Nortel Meridian Telephony element of this system is still fit for purpose and supported via a third party support contract with BT. This will be reviewed in 18 months time.
- The station-end equipment receiving the turnout messages. This will be reviewed 18 months time.
- The WAN infrastructure between MACC and the stations. This is covered by the ICT Asset Management Plan.

The items included are as follows:

The Vision Servers (3) – These carry the actual applications which constitute the Vision turnout system

The Telephony interface servers (2) – these provide information to the mobilising system on the calls coming in, and categorise them accordingly in terms of urgency etc..

The Database server – this is the final repository of historic incident information.

Web servers (2) – These perform a number of tasks such as traffic management within the mobilising infrastructure and also give access to BOSS.

AVLS Server – This will manage the Vehicle Location data and present it into the mobilising system.

Fire control Operators desktops (27) – these are the interface between Operator and turnout system. They will be divided as follows:

MACC – 12

OSR – 5

Data Management – 5

Training Office – 2

Spare - 3

Also included in the scope of this report are items involved in the provision of backup mobilising out to stations, and the hardware associated with the provision of a network infrastructure for the mobilising system (i.e. network switches).

Business Case

1.3 Options Considered

The options available to Merseyside Fire & Rescue Service are briefly:

[1]. Upgrade of the current Fortek “Vision” system to Vision FX and upgrade hardware.

[2] Upgrade Hardware only

Any new hardware will run the latest version of Microsoft operating system software. The existing version of Vision can not be guaranteed to work with this software. Fortek themselves will not support the existing Vision software running on the latest Microsoft operating system software.

[3] Purchase and installation of a new system from one of Fortek’s competitors in the field.

Choosing another system would mean

- *A large capital investment is very much more than replacement/upgrade*
- *Re-training MACC staff in the new system. While there will be some training needed for Vision FX, the basic operating principles will be recognizable instantly to current MACC staff.*

Additionally, if MFRS chose to remove Vision completely, then a new radio and telephony Integration solution would need to be purchased.

[4]. Do nothing

See Section 6.4 Risks

1.4 Reasons

The current MFRS system was installed during the early part of 2005, going live in February of that year.

Since then, the MACC Client computers have run virtually continuously. During a recent preventative maintenance exercise in MACC, it was found that almost all of the Client computers had suffered some form of physical degradation of components, primarily due to their long operating hours, and their age. Of the twelve positions in MACC, only three have ever been replaced, making the bulk of MACC hardware over five years old, and showing signs of physical stress.

The Servers are the same ones installed in 2005. They have run continuously 24 hours a day, seven days a week since then, and none so far, have been replaced. They are HP ML370 G3 Rack servers. In terms of their specification, they are relatively old, with dual 2.8GHZ single-core processors, 2GB of RAM and 60 GB hard drives.

In terms of major incidents with these servers, only a relatively few incidents have occurred. However, given their age and running hours, it is almost inevitable that these incidents will become more frequent.

1.5 Benefits Expected

Vision FX is an updated, improved version of the current Command and control system. Elements of the current system have been improved. There has been a conversion to Microsoft .Net technologies, and improvements in its database setup. This means that the system is a more stable in terms of reliability. It is also better performing in terms of transaction processing. It is expected that this will mitigate the risks when the system is used in spate conditions

1.6 Risks

There are two considerations when making a risk assessment here.

The first must be the current age and running hours of the hardware, as outlined in the problem definition above. MACC is working on equipment whose specification is now obsolescent. This also raises concerns about the systems ability to perform under load, or “spate” conditions.

The second is the projected go live date for Merseyside in the regional control project is currently June 2012. However there remains significant concern about the progress the project has made and the reliability of that timescale given previous delays and deferrals.

1.7 Costs

Telent have completed preliminary specification work in replacing all of the equipment involved. The accompanying appendix gives a list of suitable hardware and software costs. However, it must be stated that these costs should be considered only as indicative costings. MFRS may be able to procure the equipment at a reduced cost, given their status as a government body.

Recommendations

In considering a replacement turnout system, we have taken into consideration any third party training requirements of MACC, the continuity of service provision, the impact of FiReControl, and the relative costs. It is Telents' recommendation, due to the rising risk of hardware failure, the current system's poor relative performance due to its aging specification, and the fact that the Merseyside FiReControl "go live" date is by no means a certainty, that the best option for MFRS will be to upgrade their current system to Vision FX.

The recommendation of this report is as follows:

- [1]. Purchase Vision FX from Fortek and use it as the new turnout system.
- [2]. MFRS, with guidance from telent and Fortek, purchase the necessary hardware for implementing Vision FX.

A Second phase to this project is the potential integration into an MFRS Corporate Gazetteer. This element will be available depending on the progress of the Corporate Gazetteer project and would cost in the region of a further £6K. If this option is not available at the scheduled upgrade time, a local Gazetteer will be available to Vision as per the current setup.

Implementation

No dates are assigned to any of these events. They are given as a guide to the full procedure, should MFRS decide to go ahead.

- [1]. MFRS Purchase of Hardware. Guidance will be given from telent on any questions arising.
- [2]. Telent perform initial installation/build of hardware within current contract.
- [3]. Fortek build Vision FX at Gosport
- [4]. Training of MACC trainers at Liverpool
- [5]. Cascading of training to MACC staff.
- [6]. Installation of Vision FX at MFRS.

This is a very approximate guide to the events involved. However, upon MFRS approval for this solution, telent will provide a fuller plan, detailing key milestones and dates.

Costs include all the telent & Fortek installation and there are no changes to the annual support costs.

The Fortek Contract is held by telent on-behalf of MF&RA. The contract is part of the wider ICT Infrastructure Provision contact telent has with MF&RA. Telent under this contract can carry out the work without the requirement for MF&RA to carry out a tender process.



Appendix

Vision Servers (3x Vision, 2x Web, 1x TMS, 1x MLS, 1x Oracle, 1xAVLS)

Name/Model	Product No	Quantity	Unit Price	Total Price	Comments
HP Proliant DL360 G6 Server Series	504633-421	9	£3,569.00	£32,121.00	
HP 300GB 6G SAS 10K SFF 2.5-inch Dual Port	507127-B21	24	£369.00	£8,856.00	All servers = 2, except Vision (3) Oracle (4), 1 x spare
HP DL360G6 Slimline 12.7mm SATA DVD Optical Drive	532066-B21	9	£65.00	£585.00	
HP 1.83m 10A C13 UK Power Cord	AF570A	18	£5.00	£90.00	2 each, for nine servers
HP Ambidextrous Cable Management Arm	365403-B21	9	£69.00	£621.00	
HP 4 year 24/7 6 hour call-to-repair support pack	U9736E	9	£1,727.00	£15,543.00	
HP iLO Advanced 1 Server License	512485-B21	9	£305.00	£2,745.00	
m-audio Transit USB external sound card (global sounders)		3	£61.00	£183.00	1x Vis1, 1x Vis2, 1 x spare
			£6,170.00	£60,744.00	

Vision Clients

Name/Model	Product No	Quantity	Unit Price	Total Price	Comments
HP Compaq 8000 Elite	WB649ET	27	£614.00	£16,578.00	12xMACC, 5xDM, 5xOSR, 2xTraining, 3xSpare
Nvidia NVS290 PCIe graphics card	KG748AA	4	£75.00	£300.00	For Stateboard dual monitor use
Second NIC-Broadcom Netxtreme Gig+	FS215AA	27	£30.00	£810.00	12xMACC, 5xDM, 5xOSR, 2xTraining, 3xSpare
NEC 19 inch 4:3 monitor with speakers	LCD195VXM+	30	£149.99	£4,499.70	14xMACC, 5xDM, 5xOSR, 2xTraining, 3xSpare
			£868.99	£22,187.70	

Vision Db Tape Backup

Name/Model	Product No	Quantity	Unit Price	Total Price	Comments
HP Storage works LTO-4 Ultrium 1760 Tape assembly	EH946A	1	£2,179.00	£2,179.00	Tape Drive in a 1 U Rack-mount enclosure
HP Smart array P212/zero memory SAS Controller	462828-B21	1	£139.00	£139.00	Controller Card for Tape Drive (Low profile, half-height)
HP Storage Works SAS Min-Min 1x-4m Cable assembly Kit	AE465A	1	£85.00	£85.00	Tape Drive to Controller connector cable
HP Ultrium Tape cleaning Cartridge	C7978A	1	£81.00	£81.00	
HP Ultrium Media tapes (20-pack)	C7974A	1	£45.00	£45.00	

Secondary Mobilisation PSTN items

Name/Model	Product No	Quantity	Unit Price	Total Price	Comments
3com USRobotics 56K Fax modem	472-3634	18	£72.64	£1,307.52	6xVis1, 6xVis2, 6xVis3
Speed8 LE PCI express 8-port serial card	04003180	3	£200.00	£600.00	6xVis1, 6xVis2, 6xVis3
Speed8 8-port DB25 male DTE fan-out cable	04001790	3	£59.00	£177.00	6xVis1, 6xVis2, 6xVis3
			£331.64	£2,084.52	

Network Switches

Name/Model	Product No	Quantity	Unit Price	Total Price	Comments
Cisco 3750G 10/100/1000 48 port switch	WS-3750G-48TS-S	3	£5,180.11	£15,540.33	2xDerby Rd, 1x Bridle Rd
Replacement firewall router,Cisco 2821	CISCO2821-SEC/K9	2	£1,774.82	£3,549.64	1xDerby Rd, 1x Bridle Road
			£6,954.93	£19,089.97	

Equipment Cabinets

Name/Model	Product No	Quantity	Unit Price	Total Price	Comments
42u Black 80mm x 1000mm Prism Server Cabinet	LightPulse	2	£945.89	£1,891.78	1xDerby Rd, 1x Bridle Road
BELKIN PRO3 16 PORT KVM SWITCH	F1DA116ZEA	2	£299.99	£599.98	1xDerby Rd, 1x Bridle Road
OMNIVIEW ENTERPRISE SERIES DUAL PORT PS/2 CABLE	F1D9400-06	32	£16.99	£543.68	16xDerby Rd, 16x Bridle Road
Daxten RackAccess 17"LCD rack mount monitor	3117-00P-UK	2	£699.99	£1,399.98	1xDerby Rd, 1x Bridle Road
Fixed Heavy Duty Cabinet shelf	LightPulse	2	£66.75	£133.50	1xDerby Rd, 1x Bridle Road
PDU with UK 13amp Plug Sockets (12X uk PLUG OUTLET)	PDU12SUK/UK	5	£54.00	£270.00	
			£2,083.61	£4,838.92	

Windows Licensing

Name/Model	Product No	Quantity	Unit Price	Total Price	Comments
Enterprise CAL (for XP Desktops)	N/A	27	£40.04	£1,081.08	
Windows Server Standard	N/A	8	£81.02	£648.16	
			£121.06	£1,729.24	

Fortek

Name/Model	Product No	Quantity	Unit Price	Total Price	Comments
Fortek costs for Vision Fx, inc. commissioning, programming etc..		1	£58,275.00	£58,275.00	
			£58,275.00	£58,275.00	

Miscellaneous

Name/Model	Product No	Quantity	Unit Price	Total Price	Comments
telent out-of-scope costs (estimated)	N/A	1	£10,000.00	£10,000.00	
BT Symposium configuration costs (estimated)	N/A	1	£2,000.00	£2,000.00	
			£12,000.00	£12,000.00	

Total costs

Total	£91,369.17	£185,634.35
Total inc VAT	£105,074.55	£213,479.50

Decision-dependent variable extra costs

There is an option in Fortek's Vision Fx for Operators to use two monitors. The Operator can decide which aspects of Vision Fx to display across these two screens. The costs below illustrate the scenario of all Vision Fx clients being used with two monito

Vision Clients-twin monitor option

Name/Model	Product No	Quantity	Unit Price	Total Price	Comments
Nvidia NVS290 PCIe graphics card	KG748AA	24	£75.00	£1,800.00	
NEC 19 inch 4:3 monitor with speakers	LCD195VXM+	24	£102.99	£2,471.76	
			£177.99	£4,271.76	