

# Neath Port Talbot County Borough Council Directorate of Finance & Corporate Services ICT Technology Framework 2011 to 2015



## Document History

| Version | Revised by   | Revision date               | Summary of Changes                             |
|---------|--------------|-----------------------------|--|
| V1.00   | Stephen John | 15 <sup>th</sup> March 2011 | Various amendments and removal of draft status |
| V1.01   | Stephen John | 15 <sup>th</sup> March 2011 | Various formatting and grammatical changes     |
| V1.02   | Stephen John | 16 <sup>th</sup> March 2011 | Various amendments and format changes          |
|         |              |                             |  |
|         |              |                             |  |
|         |              |                             |  |

## CONTENTS

|  | <b>Page</b> |
|--|-------------|
| 1. Introduction.....                                   | 1           |
| 1.1 Technology Framework .....                         | 1           |
| 1.2 Operational Excellence .....                       | 1           |
| 2. Current Status of Technology Framework .....        | 3           |
| 3. Statement of Requirements.....                      | 5           |
| 3.1 The Framework.....                                 | 5           |
| 4. Voice, Data and Video (Converged) Network.....      | 5           |
| 4.1 The Network.....                                   | 5           |
| 4.2 Flexible Working / Mobility .....                  | 6           |
| 4.3 Cabling Standards.....                             | 8           |
| 5. Device Standards .....                              | 8           |
| 5.1 Devices .....                                      | 8           |
| 6. Data Centres.....                                   | 9           |
| 6.1 Server Infrastructures .....                       | 9           |
| 7. Operating Systems.....                              | 10          |
| 7.1 OS in the Data Centre .....                        | 10          |
| 8. System Software .....                               | 10          |
| 8.1 Support Statement .....                            | 10          |
| 9. Business Applications.....                          | 11          |
| 9.1 Corporate Priorities .....                         | 11          |
| 9.2 Groupware including E-mail and Diary System.....   | 12          |
| 9.3 Financial Information System .....                 | 12          |
| 9.4 HR and Payroll System .....                        | 12          |
| 9.5 Geographic Information System .....                | 12          |
| 9.6 Electronic Document Records Management System..... | 13          |
| 9.7 Content Management System.....                     | 13          |
| 9.8 Office Suite.....                                  | 13          |
| 9.9 Social Services Information System.....            | 14          |
| 9.10 Revenues & Benefits .....                         | 14          |
| 9.11 Neath Port Talbot Learning Gateway.....           | 14          |
| 10. Network Software .....                             | 14          |
| 10.1 Network Monitoring Tools .....                    | 14          |
| 11. Data Storage .....                                 | 15          |
| 11.1 Capacity .....                                    | 15          |
| 12. Security and Secure Access .....                   | 15          |
| 12.1 Procedures .....                                  | 15          |
| 13. Management Standards.....                          | 16          |
| 13.1 Models.....                                       | 16          |
| 14. Training.....                                      | 16          |
| 14.1 Staff .....                                       | 16          |

## 1. Introduction

### 1.1 Technology Framework

- 1.1.1 This document sets out the Technology Framework for Neath Port Talbot County Borough Council for the period 2011 – 2015. The purpose of the framework is to support the ICT Strategy. The document contains the baseline of the ICT infrastructure across the Council as of January 2011.
- 1.1.2 The technology framework is built upon the standard of achieving operational excellence. The principle of operational excellence concerns the philosophy of continuous improvement, focusing on the needs of the customer, the elimination of waste and the improvement of standards and processes. The application of the most appropriate ICT infrastructure operating to the highest possible standards addresses management principles for success in ICT.
- 1.1.3 The technology framework has been developed by the ICT Division to reflect the requirements of the Council and to align, where possible, with the All Wales strategy to maximise opportunities for collaborative projects. The framework will be monitored during its lifecycle to ensure it remains capable of reacting to changes both to service demand and technological advances.

### 1.2 Operational Excellence

- 1.2.1 The ICT Division, with this framework, aims for operational excellence to support the ICT Strategy. The ICT Strategy assumes that a technical infrastructure is in place which is capable of reliably providing ICT to underpin service delivery.
- 1.2.2 The framework deals with the technical aspects of implementing and maintaining the infrastructure. It addresses capacity issues and the ability to adapt as service demand and technology changes.
- 1.2.3 The Infrastructure consists of the component parts of an ICT solution, the desktop, mobile devices, server, software and communications. What matters to the user however is service availability; is the “system” available when I need to use it? For example, mobile telephone operators aim to achieve what is known as “five nines” or 99.999% reliability .To support this measure a well engineered solution will aim to minimise the number of incidents that give rise to service disruption or outage.
- 1.2.4 The achievement of high levels of reliability in ICT is inextricably linked to cost and this framework document, which is a support piece to the ICT Strategy, aims to ensure that the ICT infrastructure is engineered to reflect the business priorities which the Council has set.

1.2.5 The availability assumptions are as follows:

| Availability Based on 24*7 | Downtime PA (excludes scheduled works) | Infrastructure Area   |
|----------------------------|--|---|
| 99.999                     | 5.25 minutes                           | None  |
| 99.99                      | 52.5 minutes                           | Voice and Data Network<br>Storage Area Network  |
| 99.9                       | c. 9 hours                             | Server Infrastructure<br>Core Applications<br>Business Critical Network connected device(s)<br>including PCs, printers, VoIP telephone handsets |
| 99                         | c. 89.25 hours                         | Network connected device(s)<br>including desktop printers, smart phones   |

1.2.6 The above levels exclude any planned maintenance required to maintain the necessary performance levels or to apply upgrades. Any outage for infrastructure change will be agreed with the service users and timed to minimise service impact. During the lifetime of this framework, consideration will be given to agreeing an “At Risk Window” for infrastructure change.

## 2. Current Status of Technology Framework

The Council's current technology framework contains a limited degree of variation in technical components. Variation is costly and inefficient and should be minimised. One of the measures of success of any technology framework is to continue a process of rationalisation wherever practical

| Technology                       | Quantity          | Comments  |
|----------------------------------|-------------------|---|
| <b>Hardware – Infrastructure</b> |                   |   |
| Unix Servers                     | 15                | 2 Solaris, 13 Red Hat Linux   |
| <i>Windows Servers</i>           | 308               | 60+% provided Virtualised   |
| Storage                          | 40 TB Raw Storage | Tiered Storage , Fibre, SCSI and iSCSI  |
| Telephony                        | 5 Core Switches   | Fujitsu Siemens HI Path IP and ISDX/S Analogue  |
| <b>Data</b>                      |                   |   |
| Directory Services               | 1                 | Microsoft Active Directory  |
| RDBMS                            | 2+                | Principal Databases Oracle and Microsoft.<br><br>Open Source Options e.g. Mysql and PostgresSql will be evaluated as potential replacements during the lifecycle of the framework |
| <b>Applications</b>              |                   |   |
| Core Applications                | 10                |   |
| Service Applications             | 200+              |   |
| Business Intelligence            | 3                 | Oracle Discoverer, Humming Bird Bi-Query and Crystal  |
| Development Environments         | 3+                | Oracle Forms and Reports, .Net , VB and PHP   |
| <b>Hardware User</b>             |                   |   |
| Desktop Computers                | 2300+             | Contract with ICON as Local Supplier  |
| Laptop/Notebook                  | 450+              | HP and Toshiba. Standard offerings to be  |

|                                  |       |   |
|----------------------------------|-------|---|
| Computers                        |       | developed.  |
| Thin Client Devices/<br>Winterns | 380+  | Chip PC WIN/CE, IGEL Windows XP/E   |
| Mobile Phones                    | 1500+ | Framework Agreement with Orange. Standard Nokia Handset deployed  |
| Smart Phones/<br>PDA's           | 240+  | Framework Agreement with Orange. BlackBerry Curve Deployed<br><br>BlackBerry Usage to be reviewed during lifecycle of framework   |
| VOIP Handsets                    | 1100+ | Fujitsu Siemens – Opti-point Range<br><br>Civic Sites will migrate to VOIP as part of enablement for flexible working   |
| Analogue Handsets                | 500+  | Standard Handsets<br><br>Civic Sites will migrate to VOIP as part of enablement for flexible working  |
| Public/ Customer Facing          |       |   |
| Internet Sites                   | 15    | <a href="http://www.npt.gov.uk">http://www.npt.gov.uk</a><br><a href="http://www.afanforestpark.co.uk/">http://www.afanforestpark.co.uk/</a><br><a href="http://www.brocolibob.co.uk/">http://www.brocolibob.co.uk/</a> - Broccoli Bob<br><a href="http://www.digitaldesk.org/">http://www.digitaldesk.org/</a> - Digital Desk<br><a href="http://www.learningpool.org/">http://www.learningpool.org/</a><br><a href="http://pollution.npt.gov.uk/">http://pollution.npt.gov.uk/</a><br><a href="https://planning.npt.gov.uk/">https://planning.npt.gov.uk/</a><br><a href="http://www.npttf.org.uk/">http://www.npttf.org.uk/</a> - Fairtrade Forum<br><a href="http://www.npthomeinspection.co.uk/">http://www.npthomeinspection.co.uk/</a><br><a href="http://www.nptolderpersonscouncil.org.uk/">http://www.nptolderpersonscouncil.org.uk/</a><br><a href="http://www.pontardaweartscentre.com/">http://www.pontardaweartscentre.com/</a><br><a href="http://www.princessroyaltheatre.com/">http://www.princessroyaltheatre.com/</a><br><a href="http://www.visitnpt.co.uk/">http://www.visitnpt.co.uk/</a><br><a href="http://artsbooking.npt.gov.uk">http://artsbooking.npt.gov.uk</a> – Online Booking System<br><a href="http://parking.npt.gov.uk">http://parking.npt.gov.uk</a> – Car Parking |
| DIGI TV                          |       | Alternative Channel Access to Council Services  |
| Social Networking                |       | Twitter and Facebook Sites for NPT  |

### 3. Statement of Requirements

#### 3.1 The Framework

3.1.1 The framework covers technical deployment in each of the following areas:

- Converged Data Voice and Video Network
- Flexible Working / Mobility
- Cabling Standards
- Device Standards
- Data Centres
- Operating Systems
- System Software
- Business Applications
- Network Software
- Data Storage
- Print
- Security and Secure Access
- Management Standards

3.1.2 The importance of management standards as a means of successfully delivering ICT services has been long recognised. The Division will operate in alignment with ITIL best practice.

### 4. Voice, Data and Video (Converged) Network

#### 4.1 The Network

4.1.1 The network infrastructure delivers an Internet Protocol (IP) based network to facilitate the transit of Voice, Data and Video. This integrated Voice, Video, and Data network is currently defined in three groups; Core, Tier 1, and Tier 2. The core network is a resilient 100 MB fibre optic network connecting principal Civic Centres. Tier 1 Sites including Schools and remote offices connect to the core in a traditional hub and spoke design using BT LES Circuits running 10 Mb at the end point and 100mb at the hub. Tier 2 SOHO (Small Office/ Home User) sites connect via VPN/SSL over ADSL Circuitry. The network is in the process of being re-provisioned to the Welsh Assembly sponsored PSBA service. The PSBA network which is provided over SDSL (Symmetric Digital Subscriber Line) and Fibre Circuits provides a fault tolerant network with Internet presence. The PSBA network is security accredited for GCSX and will be linked to the PSN.

Civic sites provide an IP Telephony (IPT) service currently supporting 1000 IP phones. The IP telephony solution is Fujitsu Siemens HI Path product using Siemens Opti-point handsets.

4.1.2 The main provider of network equipment is Cisco Systems Inc.; this includes the firewall architecture and switching infrastructure. Cisco equipment will



form the basis of the Voice, Video, and Data network during the period of this technology framework subject to continued technical and financial stewardship.

- 4.1.3 During the period of this framework a major change to the network topology will be carried out as a consequence of the transition to the PSBA network. Core and Tier 1 sites will be provided with circuitry of the same or greater bandwidth via PSBA. Rental for the PSBA provision is lower than the current network charge. PSBA also provides a “secure” managed solution for SOHO sites. This will be examined to determine if a sound business case for transition can be developed.
- 4.1.4 The internal network in the civic sites and schools will also undergo change in concert with the migration to PSBA.
- The physically segregated Admin and Curriculum are in the process of migration to a unified model with access to service controlled on machine and user identification. The main purpose of which is to address the challenges at a school level with access to “curriculum” and “corporate” services.
  - The network will implement GCSX COCO accredited Virtual Router and Forwarding (VRF) to replace the current Virtual LAN (VLAN) Security Model.
  - An added value feature of the PSBA network is the provision of a Public Service Extranet based on a Shared Services VRF which will only be able to be accessed by public sector connected to the PSBA.

## 4.2 Flexible Working / Mobility

The ability for staff to access their environment from “any” location is fundamental to the accommodation strategy of the authority and the necessary infrastructure has to be in place to provide access to service from:

- Any desk in a Flexible Working enabled site,
- Any connected building,
- Access whilst not connected to the corporate network.

A tiered approach has been implemented to improve staff mobility enabling flexibility to meet the impending business challenges.

### 4.2.1 Thin Client Deployment

The virtualisation of the application base from the desktop has been in use in the council for a number of years with applications delivered over a terminal services framework using Citrix Software. Delivery via thin client removes and therefore disassociates the application delivery from the desktop with the application residing and executed on centrally hosted servers. Access to the

application base will be via browser or desktop delivered icons and provide a high degree of device independence and promote the ability to work from any location which has an appropriate client.

Although there are many options available for application deployment this paradigm is considered to be the most efficient and cost effective. The costs associated with Citrix, however, are a being examined and the council is currently carrying out a proof of concept evaluation of Quest vWorkspace which will provide the same functionality at a lower cost profile.

#### 4.2.2 Device Independence

Using the thin client deployment model outlined above increases the number and types of devices which may access Council services. These services can be accessed via traditional windows based laptop/Desktop, Winterns and SmartPhone/PDA thus providing increased flexibility and mobility.

#### 4.2.3 Wireless Communication.

##### Corporate Wireless

Major sites will be wireless enabled to facilitate peripatetic staff to access service via authority provided laptops/ notebook.

Wireless Drop in centres will be installed across the County Borough to allow Council employees access to its services. A number have already been installed, E.G. Glynneath Library and it is planned to extend to other parts of the County as demand warrants.

##### Public Wifi

Service is delivered via Public Wifi using a secure route for system access. Connections from outside the Authorities network will be subject to two factor authentication and terminated in a thin client session. The controls are necessary to ensure the integrity and security of the network and to maintain the ability for the authority to connect to GCSX which is now fundamental to its operation.

##### Mobile Devices (3G)

In limited use within the council and its expense and capacity mandate that it will only be used when there are no wired or wireless options available.

## BlackBerry

Presently used to access email and calendar with limited access to user applications. The use and function of the BlackBerry devices will be reviewed during the lifecycle of the framework.

### 4.2.4 Telephony

VOIP Siemens mobile HFA is in use which provides the ability to “log in” to a telephone handset such that any given number and its associated calls will be presented at that location. Through this technology, staff are able to receive their calls and voicemails from any network connected VOIP handset.

## 4.3 Cabling Standards

4.3.1 The adoption of cabling standards will apply to all NPT sites. IP is the de-facto transport protocol and as such all network installations will be provided to facilitate an IP stack.

4.3.2 The physical copper cabling will be installed using Cat 6 standards with UTP cable terminated in patch panels or RJ45 Krone Style Sockets. OM3 fibre will be used to provide any connection which exceeds the 90 Metre limit for Cat 6.

Any full or part network installation will require the supplier to provide a full continuity test on all cable runs and a 25 year guarantee for the installation itself. Individual or ad-hoc connections will be provided to the same specification but will not mandate the 25 year warranty. Existing sites will be migrated to the standard as major refurbishment works are undertaken.

## 5. Device Standards

### 5.1 Devices

5.1.1 The framework will specify which devices are supported and may be connected to the Council’s network. Budget for the procurement of the devices is presently held by the user directorate and while this situation persists, purchases will be channelled through the ICT division. Equipment will not be subject to a fixed replacement term and the intention will be to “sweat” the asset until such time as replacement is an operational and economic necessity.

5.1.2 The devices which are covered under the current strategy include:

- Desktop PCs
- Laptops
- Slate/Tablet /E-Readers
- Multi Functional Devices
- Smart phones
- VoIP Phones

5.1.3 The recommended devices will support mobile and flexible work patterns. Members and staff will be provided with the right device to support their service needs.

## 6. Data Centres

### 6.1 Server Infrastructures

6.1.1 The technology framework aims to identify and track the major developments in the server arena throughout the lifecycle of the framework. Server Farms and Blade technology are already well established within the organisation and there is an increasing trend for whole scale virtualisation of the Server estate using a Hypervisor such as Vmware or Microsoft's Hyper-V.

6.1.2 Virtualisation facilitates more rapid provision of server infrastructure, improved reliability, increased availability and a more effective utilisation of physical server infrastructure.

6.1.3 The assimilation of the three ICT units into a single division presents issues surrounding the disparate, albeit similar, technology which each unit has put in place. Rationalisation and consolidation of the server estate to provide economies of scale, more effective management and simplified support will be an ongoing process. As with all technology stacks, existing assets will be sweated to maximise ROI.

6.1.4 All Physical server provision, such as application, database or file and print, will be rack mountable blade technology and will be supplied by a single hardware vendor. Central servers will be located in secure data centres and computer rooms at The Quays and Port Talbot Civic Centre. There is a declining base of floor mounted small office based servers and these will continue to be phased out as opportunity allows.

6.1.5 The next stage in the process will be to increase the virtualised estate, migrating all bar the most block I/O intensive services into the virtual arena. This will include the migration of the existing thin client application servers as the technology has now matured to the level where they may be successfully operated in a virtual environment.

6.1.6 As with the physical infrastructure, the legacy individual farms of the three originating divisions will be consolidated into a single environment. This will maximise the potential for the virtual environment to provide a flexible, scalable, robust solution which will afford improved ROI/TCO.

6.1.7 The technology framework will support the Council in its Data Centres with:

- Reusable components
- Standard processes
- Maintainability and serviceability
- Rapid extendibility
- Automation
- Built in quality
- Resilient architecture
- Scalable architecture
- Manageability
- Flexible sourcing
- Resources pooled and virtualized

6.1.8 The Data Centre at the Quays provides fit for purpose facilities to house the server and networking infrastructure. This encompasses the physical layout and the resilient provisioning of power and chilling. These facilities will be key to the Data Centre providing operational excellence and minimal downtime. The aim is to be able to allow for any planned site maintenance without disruption to the hardware operation and therefore mitigating the risk of failure. This will improve the service at a server and network level.

## 7. Operating Systems

### 7.1 OS in the Data Centre

7.1.1 The aim is to continue to develop the data centre with a reduced number of supported operating systems with Microsoft products as the predominant and Unix used for high end database applications.

7.1.2 The ICT Division will consider the use of Microsoft's Hyper-V to establish whether it provides a viable alternative to VMware to underpin the virtual infrastructure.

## 8. System Software

### 8.1 Support Statement

8.1.1 The current position is that support is provided to a multiplicity of database platforms. It is a nature of the diversity of local government business that

multiple platforms exist in greater numbers than equivalents in the private sector. The diversity creates risk in terms of the depth of staff support that can be provided for applications. However, the framework acknowledges the premise that the Council must consider best of breed application systems software to meet its service needs.

8.1.2 A strategic choice to centre on Oracle and Microsoft SQL products, wherever possible, is made from the technology standpoint. The reasons are as follows;

- Availability and maturity of Oracle and MS SQL server applications in the local government marketplace
- Good levels of in-house expertise
- Mature database technology
- Stability of the product and Company
- Support for co-existence linked to multiple application/single server virtualisation strategy

8.1.3 The ICT division will continue to provide end users of non-Oracle/Microsoft SQL applications with assistance and continue to support such applications. However unless circumstances dictate, during the lifetime of this framework the Council will maintain the stance of selecting Oracle or Microsoft SQL in order to reduce costs and facilitate easier data integration.

Where possible, data should be co-located on centralised drives to provision a more comprehensive database access opportunity. This will allow data replication/abstraction in order to provide separate business intelligence and reporting databases.

8.1.4 In the case of any non Oracle/ Microsoft SQL applications, where the IT Division does not have the necessary internal support, then assistance will be given to obtain any necessary external support. The IT Division will ensure that the relationship with any external support provider is professionally managed.

8.1.5 The rationalisation of system support arrangements will enable the IT Division to support the products it does manage better, allowing a reduction in training and recruitment requirements.

## **9. Business Applications**

### **9.1 Corporate Priorities**

9.1.1 The corporate business applications considered as part of the ICT framework are as follows:

- Groupware including E-mail and Diary System
- Financial Information System
- HR and Payroll System
- Social Services Information System
- Geographic Information System
- Document Management System
- Content Management System and Web Services
- Office Suite
- Revenues and Benefits

## 9.2 Groupware including E-mail and Diary System

9.2.1 The deployment of Exchange and Outlook is now established and in use throughout the Council. Email archival technology has been procured and partially implemented. The focus for the framework will be exploitation of the product and further improving data management.

## 9.3 Financial Information System

9.3.1 The financial information system is Oracle's E-Business Suite. The system has recently been upgraded to Release 12 and the emphasis of the framework will be to maintain and upgrade the system in line with supplier guidance. Opportunities for collaborative working with neighbouring public sector bodies are in progress and will continue to be investigated.

The implementation of an e-procurement solution to improve process and effect efficiency and cost savings will be undertaken during the lifetime of the framework.

## 9.4 HR and Payroll System

9.4.1 The HR and Payroll system supplied by Selima Software will continue to be developed within the lifetime of the framework. A new release of the system is due to be deployed in March/April 2011. Key elements of the new release will focus on management information, end user reporting and self-service functionality.

## 9.5 Geographic Information System

9.5.1 To date, the use of GIS has been predominately confined to the technical departments in the Environment Directorate. However, it is now becoming a key element of the planning and decision making process of the Authority and has a growing presence in service areas across Education, Social Services and Crime and Disorder. The development of a comprehensive GIS strategy,



which is currently being undertaken, will align with and support the Authority's Tier projects.

The current solution is based upon an ESRI Software set incorporating an Oracle Spatial Database Engine (SDE). Developments will include the introduction of web delivered GIS for both citizens and staff, leveraging Business Intelligence through an increased integration of datasets. Emergent developments in Mobile GIS deployments to Smart Phones (Android, Windows and iPhone) will be monitored to understand how it may afford opportunities for service improvement.

- 9.5.2 The Local Land and Property Gazetteer (LLPG) is growing in impact, and will replace existing proprietary addressing solutions. NPT's LLPG has recently been awarded Gold standard.

## **9.6 Electronic Document Records Management System**

- 9.6.1 The EDRMS system has been deployed in Revenues, Planning and Building Control and elements of Social Services. The system will undergo a fundamental review during the lifecycle of the framework and a revised strategy developed.

## **9.7 Content Management System**

- 9.7.1 The Immediacy CMS content management tool underpins the Council's public facing web sites whilst the Intranet is currently based on a legacy Cold Fusion Deployment. Work will be carried out to establish whether the CMS should provision all web sites or if a hybrid based on integration with Microsoft Sharepoint should be deployed.

## **9.8 Office Suite**

- 9.8.1 The current suite in use is Microsoft Office 2003. A migration to the 2010 version or later will be carried out during the lifetime of the strategy. The upgrade will be managed by leveraging the Public Sector licensing models to ensure the most cost effective options for the Council.
- 9.8.2 Although Open Source options have been considered, the integration and support for Microsoft of third party applications renders it non viable at this time. Deployment of open source products for those staff who do not require application integration will be examined but it is likely that the training and support constraints will make such solutions untenable.



## 9.9 Social Services Information System

9.9.1 The in-house product will continue to be developed over the period of the strategy; unless otherwise directed. Key actions will include reacting to internal service demands and exploring possibilities of partner access to elements of the application and/or the data it controls.

9.9.2 Moving to the latest version of the Oracle Database and application toolset will be effected during the lifecycle of the framework .

## 9.10 Revenues & Benefits

9.10.1 The existing Revenues & Benefits system is both mature and meets service needs. The existing server infrastructure is approaching end of life and a migration of the application from Solaris to Linux will be carried out during the lifecycle of the framework .

## 9.11 Neath Port Talbot Learning Gateway

9.11.1 The NPT Learning Gateway (NPTLG) will integrate and streamline the different systems and technologies currently in use within the learning environment, thus reducing duplication and inefficiency within the system. The next steps are to extend the use of the NPTLG to include a Virtual Learning Environment (VLE), which will build on the foundations that have been put in place to date and create an integrated learning platform that builds upon and supports the concept of the connected learning community. This will be achieved by focusing on four key elements:

- Access to 21st Century schools
- Managed Learning
- Managed Technology Environments
- Effective Management Information Systems with integration

## 10. Network Software

### 10.1 Network Monitoring Tools

10.1.1 The Division's current use of network software and monitoring tools is effected through the use of HP Openview and the open source product, Opsview. Together these products are used to monitor the availability of both the network and the server infrastructure and are also capable of pinpointing instances of failure.

The software package Argent is also in use across the Education domain, largely for the same purpose. During the lifecycle of the framework, the benefits of each of the products will be compared in order to standardise on a single offering.

## 11. Data Storage

### 11.1 Capacity

11.1.1 The current data storage capacity at the centre stands at 40TB (RAW). There are a range of storage devices based across two main vendor providers, HP and EMC, underpinning a tiered storage solution using Fibre Channel, SCSI and iSCSI discs. During the lifetime of the Framework this situation will be consolidated into best of breed for each tier of the storage solution. As with other technology stacks, existing assets will be sweated.

11.1.2 The demands for storage capacity are constantly increasing. Email and File Store archival solutions have been deployed which take advantage of Single Instance Storage and Data De-Duplications. The architecture is in need of review and a consolidated approach developed. This is inline with strategy as it will reduce storage and administration costs while ensuring data remains secure and readily available.

11.1.3 Rationalisation of the backup infrastructure and the continued movement away from the medium of tape is essential to minimising "backup and restoration windows". Building on the "de-dupe" and VTL "disk based" backups will allow the ICT Division to enable extended service hours whilst ensuring that a robust and responsive backup and restore mechanism is in place. As referenced elsewhere, this enhanced service is inextricably linked to cost and the TTR ( Time to Recover) and the RPO ( Recovery Point Objective) will need to be agreed for each group of systems.

## 12. Security and Secure Access

### 12.1 Procedures

12.1.1 One of the Division's primary objectives is to create a secure technology framework that is certifiable to external standards. The IT Division, under the guidance of the IT Security Analyst, is continuing the work on security management. Specific details are incorporated within the security guidelines but areas to be focused on include:

- Compliance with GCSX CoCo and PCI DSS
- Audit Logging
- IDS (Intrusion Detection System) and IPS ( Intrusion Protection System)
- Data Tagging

## 13. Management Standards

### 13.1 Models

13.1.1 The management standards that will be employed by the Department to move forward the framework will be based on the ITIL framework and projects will be managed using the Prince 2 methodology.

## 14. Training

### 14.1 Staff

14.1.1 During the period of the framework, significant efforts will be made to improve end user awareness training and to link ICT training closely to the corporate agenda on staff training.

14.1.2 ICT staff will be encouraged and supported in developing innovative uses of ICT by the creation of opportunities for controlled experimentation utilising existing and emerging technologies.