ABERDEEN CITY COUNCIL

COMMITTEE	**Education, Culture and Sport**
DATE	**21 November 2013**
DIRECTOR	**Gayle Gorman**
TITLE OF REPORT	**School Server Refresh and Rationalisation**
REPORT NUMBER:	**ECS/13/071**

1. PURPOSE OF REPORT

This report:

- requests approval to refresh and rationalise the ICT server estate of Aberdeen City Council's education establishments by means of the development and implementation of a virtualised server infrastructure.

- describes the background to the existing ICT server and storage infrastructure within the Council's education establishments.

2. RECOMMENDATIONS

It is recommended that Committee notes the following proposals:

2.1   to progress the refresh and rationalisation of the server estate of Council education establishments by means of the development and implementation by the Council of a virtualised server infrastructure.

2.2   the Council's entry into a framework agreement pursuant to the above recommendation, the particular framework agreement to be selected by the Director of Education, Culture and Sport following consultation with the Council's ICT, Procurement and Legal teams, with exemption being granted from any of the Council's Standing Orders relating to Contracts and Procurement in respect of which exemption is required in order to allow the foregoing.

2.3   the estimated expenditure of

2.3.1. an initial planned capital investment in the current financial year of £180K. No additional capital is requested.

2.3.2. £500K per annum over 3 years from the existing ICT Investment budget in respect of such framework agreement.

2.4   the referral of this report to Finance, Policy and Resources Committee for approval to spend capital and revenue from existing budgets as described in the report.

3.   FINANCIAL IMPLICATIONS

An initial investment of £180k in the infrastructure is contained within the Capital allocation to the ICT Service for financial year 2013/14.
Further investment to the total of £1.5M has been included within the ICT Investment budget over a three year period to facilitate the implementation of server and desktop virtualisation within the schools.

Period	FY 2013/14	FY 2014/15	FY 2015/16	Total
Capital Expenditure				
Virtualisation Infrastructure	£180K			£180K
Revenue Expenditure				
Server and Desktop Virtualisation	£500K	£500K	£500K	£1,500K
Total	£680K	£500K	£500K	£1,680K

A business case has been prepared that indicates implementation costs of around £3M for a fully virtualised environment over two data centres. The funding that is available is only sufficient to implement the virtualised environment at one data centre at this time.

Funding to improve resilience of the virtualised environment over two data centers will be reviewed as part of the options appraisal for corporate data centres as the overall cost is likely to be significantly reduced combining both curricular and corporate requirements.

The business case also identifies a cost of £2.847M operational costs over 5 years.   These costs are, on the whole, offset by current costs of staffing, and ICT network, hardware and software support for educational establishments.

4.   OTHER IMPLICATIONS

4.1. A continued rapid growth in the use of technology in schools is expected during the next five years. This will have an impact on all areas of learning and therefore on service provision. The aim is to deliver an excellent service to schools with an infrastructure to underpin educational requirements.

4.2. The new Glow, the national intranet for Scottish schools, and facilitating choice and flexibility in teaching and learning, will provide and require a significant increase in availability of resources and support services.

4.3. Improvements in consistency, availability and reliability of services will be possible. These are critical to the delivery of an effective service in which users can build confidence.

4.4. Improved management of the schools' ICT estate will be possible through a single point of management, allowing the secondary schools' ICT technicians to complement this service by managing local school requirements. A review of the role of all the technical support staff will be carried out to determine potential changes to job descriptions.

4.5. To facilitate the required timescale, the procurement of the equipment needed to implement the virtualisation of the infrastructure would be progressed by means of a framework agreement, provided by the Government Procurement Service. The timescale required to carry out a framework 'mini tender' would be greatly reduced in comparison with that necessary for a full tendering exercise. Accordingly, Committee is asked to approve the entry by the Council into an appropriate framework agreement.

4.6. The tender will have two phases:
4.6.1. Phase 1 – implement in one data centre
4.6.2. Phase 2 – implement in second data centre as and when second data centre and funding are available.

Standing Orders

Standing Order 1(6)(a) of the Council's Standing Orders relating to Contracts and Procurement as shown below allows for an exemption from Standing Orders when justified by special circumstances;

"*1(6) Subject to compliance with the provisions of the 2006 Regulations [now the 2012 Regulations] or any other rule of law: -*
(a) any contract may be exempted by the Council from any or all of the provisions of Part A of these Standing Orders, provided the Council is satisfied that the exemption is justified by special circumstances and a record shall be kept of these circumstances…"

The contractual documentation which the Council would require to sign in order to enter into a framework agreement will not contain the "Applicable Law" (requiring contracts to be subject to the law of Scotland and the exclusive jurisdiction of the Scottish courts), "Corrupt or Illegal Practices", "Insurances" and "Freedom of Information" clauses in the exact terms required by SO 8, 11, 13 and 26 and may not contain clauses of similar effect. However the absence of such clauses would not be considered to pose a significant risk to the Council in this instance.

5. **BACKGROUND/MAIN ISSUES**

All schools have a local ICT infrastructure which is near the end of its life, difficult to support and due for refresh. Schools are experiencing increasing problems with reliability and capacity of the existing servers. To address the urgency to replace the current infrastructure, an independent options appraisal exercise was completed in January 2013. The resulting report recommended a move to a virtualisation of the schools' ICT infrastructure in a centralised data centre environment.

In developing the infrastructure strategy for the education ICT estate, some of the benefits identified include:

Educational benefits

Reliability, consistency, availability and accessibility	Ability to access resources efficiently and with confidence. Ability to logon from any mobile device to the Education network while in Council buildings.
Reduced log on time	Enabling users to get the most out of the time which they have, improving productivity and user experience. Target average logon time of less than 1 minute.
Shared teaching resources	Shared teaching resources within the Local Authority and potentially with other Local Authorities for subjects that have low numbers, allowing increased diversity of courses and learning.
Increased flexibility of locations	Teaching and non-teaching staff are able to move freely between schools or other education locations, accessing local resources, common resources, personal or education information and deliver appropriate services.
Integrated Domains – single sign on to resources	"single sign on" to Education, GLOW and external Internet services to improve the user experience and productivity.
Agility	Support to increase agility in responding to the technological changes that are expected to continue.
Work from Home	Allow users to rapidly access the Education network from home or other locations away from council buildings.
Reduced costs	The integrated Infrastructure is less costly to support since the more complex components are centralised and managed through experienced support professionals from one location.

Technological benefits

Fully managed environment	In the fully managed environment, the success rate for application deployment to all users is considerably enhanced by being able to carry out adequate testing once per application. Presently, applications are tested as appropriate for each school (12 for Secondary, 48 for primary, 3 for special schools).
Standardised and integrated	Reducing the domains from 70 down to 1. This makes consistent management of the infrastructure and the associated services much easier and improves maintainability, security and permissions management.
Standard desktops	Instead of having 24,000 different desktop profiles, reduce this to around 100. Introducing standard desktops and application profiles and limiting the ability for users to modify applications reduces the user support resource requirements.
Integrated storage service	Reduce the storage services from around 70 mini data centres to 2 centralised data centres. Provide a single, integrated storage service for files and folders that is accessible from anywhere, both within the Education network or externally, and incorporates local storage, corporate storage and cloud-based (Glow) storage. Improve the storage provision for all users, providing working space for the present and future curricular needs.
Reduction in network bandwidth	Reduction in bandwidth requirements between remote sites and the data centre (typically around 40Kbps per user) improving performance for externally hosted services and access to user content (files and folders).
Integrated voice, video and data	Single domain architecture makes Voice over IP (VoIP) cheaper and easier to achieve and provides a means of integrating voice, video and data channels for learning.
Improved support	Improved technical support service to schools
Reduced costs	Potential reduction in refresh costs. Reduced power consumption from virtualised server infrastructure.
Updates, consistency and equality	Ability to upgrade operating systems and apply updates across the estate.

The development of a virtualised architecture for the education estate assumes a timescale which includes the purchase of the equipment

required for the infrastructure, starting in the current financial year, followed by a two year implementation period, with an intended end date of August 2015.

This timescale aligns with the funding arrangement included in the ICT Investment budget over a three financial year period as indicated in Section 3 above.

This timescale also aligns with phase 1 of full implementation, that is, one data centre.

Potential Delivery of both Education and Corporate ICT Services
Aberdeen City Council currently has a managed service contract with a third party until January 2016 to manage the Council's corporate data centre. There will be a need to ensure continuity of ICT Services at the end of the current contract and to fund investment to ensure that the infrastructure within data centre facilities is refreshed and upgraded at the end of the contract period. A review of the options available is being progressed to address this need.

A business case relating to the education ICT estate has been produced which identifies and supports the opportunity that exists to provide all of the Council's data requirements, both corporate and schools, via fully virtualised architecture from two data centres.

A dual site solution offers greater capacity than a single data centre and spreads the load across two sites. While there would be an increase in the total hardware and support requirements, this is balanced against increased reliability and availability, with reduced data centre operating costs per centre. Managing the Council's data requirements from two data centres enables the implementation and provision of disaster recovery facilities.

6. **IMPACT**

This proposal links to the Corporate Governance Business Plan 2013/14 - 2017/18 - Service Improvements.

Citywide network improvements:
"We will improve performance and resilience of the ICT network across the city to ensure that it aligns with the business requirements and expectations."

This proposal links to the Education, Culture and Sport Service Plan 2011/12 - 2015/16.

Technology
"We will widen access to learning for all through the flexible use of technology"
"ICT will be a bigger part of the curriculum and will support and enhance the learning experience"

7.   MANAGEMENT OF RISK

Virtualisation has significant benefits to support efficiencies of administration of ICT infrastructure, but increases the reliance on network connectivity, which in a centralised virtualised environment increases the risk of system unavailability.

The overall risk to system availability is partially addressed by the provision of the Council's data requirements via fully virtualised architecture from two data centres.

The business case includes a risk assessment with appropriate mitigating actions identified.

8.   BACKGROUND PAPERS

ICT Technical Infrastructure Strategy 2010 - 2015
Business Case Education Server and Rationalisation
ICT Asset Management Plan 2012

9.   REPORT AUTHOR DETAILS

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