

 the low tax borough	London Borough of Hammersmith & Fulham CABINET 22 JULY 2013
DATA CENTRE MIGRATION	
Report of the Leader of the Council – Councillor Nicholas Botterill	
Open report A separate report on the exempt part of the Cabinet agenda provides exempt information about the source of savings and the nature of the risks implicit in the present primary data centre.	
Classification: For Decision Key Decision: Yes	
Wards Affected: All	
Accountable Executive Director: Jane West, Director of Finance and Corporate Governance	
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1. EXECUTIVE SUMMARY

- 1.1. H&F's primary data centre is currently hosted in the shared East London Data Centre (ELDC), with a secondary Business Continuity site hosted in Hammersmith Town Hall (HTH). The ELDC is no longer viewed as energy efficient by modern standards, and the lease expires in April 2014. This affords an opportunity for H&F to achieve savings and to move towards the strategic goal of having carbon neutral data centres by relocating these services to industry leading facilities.
- 1.2. The recommended course of action is a migration of data centre services to two data centres which will deliver real cost savings of £154k and further cost avoidance of £484k over the remainder of the HFBP contract.
- 1.3. The total project cost for the migration is estimated at £425k, of which HFBP will fund £225k. H&F needs to fund the balance, at a fixed cost of £200k.

2. RECOMMENDATION

- 2.1. That HFBP be authorised to proceed with a project to migrate the current data centre services from ELDC and HTH to two new data centres, at a cost to H&F of £200k to be funded from the IT Enablers budget.

3. REASONS FOR DECISION

- 3.1. The proposal to migrate the data centre will deliver a range of benefits for H&F, including:
- securing savings and avoiding cost.
 - achieving a near carbon-neutral data centre operation.
- Other benefits are set out in the exempt report.

4. INTRODUCTION AND BACKGROUND

- 4.1. In 2008, the Council moved its data centre operation to the shared ELDC. This virtualised all servers to allow faster recovery when services fail. The cost of that migration from 275 King Street to ELDC involved HFBP staff costs of £800,000 and hardware and infrastructure costs of £1M. The result was a highly resilient, cost-effective and energy-efficient service.
- 4.2. Subsequently, in 2011 the Council improved its service and continuity by investing £1M in a radically re-engineered service. This provided for 32 first order applications to be recovered within 8 hours in the event of an emergency being invoked. This has given H&F the assurance of continuity of application availability for these first order applications.
- 4.3. Today, the ELDC is no longer energy-efficient by modern standards. In addition, the Agilisys contract with the existing supplier expires in March 2014. Consequently a decision has to be made as to whether the service remains in ELDC or transfers to another location.

5. PROPOSAL AND ISSUES

- 5.1. Were H&F to remain in ELDC beyond April 2014, there would be an increase in costs for two reasons:
- Power costs would increase through a new tariff. These costs are estimated at £284k over the remainder of the HFBP contract.
 - Rental costs would also increase due to being the sole remaining Agilisys client at ELDC. These costs are estimated at £200k over the remainder of the HFBP contract.
- 5.2. Both of these costs can be avoided.

- 5.3. H&F presently pay for power in the HTH computer room, at an estimated cost of £154k¹ over the remainder of the HFBP contract. These costs can be saved.
- 5.4. The total of both cost avoidance and cost savings is £638,000.
- 5.5. H&F wish to be energy efficient, and have a strategic goal to be as near carbon-neutral as possible in their data centre operations. The present data centre is not energy efficient, and has a PUE² of 1.75. Whilst true carbon neutral data centres (PUE 1.0) are not currently available, this proposal will achieve near-carbon-neutral operation (PUE 1.17) and a 39% reduction in power consumption.
- 5.6. The server infrastructure in ELDC is end-of-life. There is therefore an opportunity to further H&F's infrastructure free strategy by migrating to a new infrastructure as a service (IaaS) commodity model, removing the need for major capital investment.

6. OPTIONS AND ANALYSIS OF OPTIONS

- 6.1. Three options were considered.
1. Refresh the end-of-life infrastructure, but remain in ELDC and HTH
 2. Migrate to Infrastructure as a Service (IaaS) in new Agilisys data centres
 3. Migrate to Tri-borough data centre service tower resulting from the current procurement
- 6.2. The pros and cons of each are listed below.

Option	Pros	Cons
1 – Refresh end-of-life infrastructure, but remain in ELDC and HTH	Refreshed hardware	<ul style="list-style-type: none"> • Exposure to potentially large unknown operational costs due to lease renegotiation • Cannot realise savings • Cannot realise energy efficiency objectives • Continued risk referred to in the exempt report

¹ The power consumption of the Town Hall computer room is known to be 42.58kW (based on a recent reading on the UPS). Using an industry average cost of power of £0.16 per kWh, this gives a total annual cost of £59,680.

² PUE: Power Usage Effectiveness is a measure of how much energy is spent on cooling as opposed to processing. A PUE of 1.0 is carbon-neutral, with no external energy required to cool the facility

Option	Pros	Cons
2 – Migrate to Infrastructure as a Service (IaaS) in new Agilisys-managed data centres	<ul style="list-style-type: none"> • Known costs of transition and operation • Cost savings • Cost avoidance • Removal of risk referred to in the exempt report • Fits H&F IT strategy of being infrastructure free • Fits H&F strategy for migrating to near-carbon-neutral data centres • Easy to migrate onwards to another provider (e.g. Tri-borough) 	
3 – Migrate to Tri-borough data centre service tower	<ul style="list-style-type: none"> • Removal of risks referred to in the exempt report. • Fits H&F IT strategy of being infrastructure free 	<p>Too many unknowns in the tri-borough procurement at this point, ie</p> <ul style="list-style-type: none"> • cost • supplier • design • carbon reduction • timescale

- 6.3. Remaining in ELDC (Option 1) is not recommended due to its prohibitive cost and the lack of green benefits.
- 6.4. Moving to a tri-borough solution (Option 3) would be attractive were the costs known and the timing better, ie. sufficient to create a compelling business case. The Tri-borough procurement currently underway will not make a recommendation as to supplier till January 2014, with a transition no sooner than October 2014. This option also carries a risk that it may not be possible or it may be higher risk even if possible to migrate to the new solution at the same time as WCC, who will be looking to migrate during the first 9 months of the contract. At this stage, therefore, Option 3 is not considered a viable option.
- 6.5. The recommendation to Cabinet is to adopt the commodity or Infrastructure as a Service (IaaS) option (Option 2). This delivers the greatest benefits in the short term, while supporting H&F's longer term strategies. Post 2016, this Council intends to take advantage of the Tri-borough IT Procurement currently underway. Among other things, this will provide new data centre services in the cloud.
- 6.6. No other Data Centre solutions have been evaluated as there is already a Tri-borough IT Procurement in play which will cover the longer-term Data Centre strategy. This project supports that strategy by providing an interim service that can be moved relatively easily to another supplier if required, while providing H&F with an immediate solution for replacing end of life

hardware and achieving substantial savings over the remaining 2.5 years of the HFBP contract.

7. BENEFITS

7.1. Option 2 will deliver:

- Cost savings and cost avoidance, as set out in the exempt report over 2½ years, the remainder of the HFBP contract
- Near-carbon-neutral data centre operation (PUE 1.17), and a 39% reduction in power consumption
- Avoidance of capital costs replacing end of life equipment in ELDC
- Future flexibility to increase or reduce usage and costs to suit demand

7.2. This option builds upon the Council's previous investments:

- The move to the ELDC which delivered a virtualised and resilient service, simplifying server configuration.
- The business continuity solution which provided a highly resilient and guaranteed service for the 32 first order applications.
- The Storage as a Service (StaaS) development currently underway replacing existing storage devices and enabling significant reductions in the cost of storage. Most of the funds for this investment were provided by HFBP.

7.3. This approach means that a service which previously cost £800k to move (at the same time as performing a £2M upgrade) will, this time, cost £425k.

7.4. HFBP are contributing more than half of the project cost, ie £225,000.

7.5. H&F's investment will be £200k on a fixed price basis.

8. COSTS AND SAVINGS

8.1. These are set out in the exempt report.

9. TIMESCALE

9.1. The recommended option will take 6 months, and will proceed according to the following timescale:

Milestone	Date
Planning and design completed; project start	September 2013
Migration of services	February 2014
Decommissioning	March 2014
Gradual cutover and final go-live	March 2014

10. EQUALITY IMPLICATIONS

- 10.1. There is considered to be little or no impact on equality as a result of the issues in this report.
- 10.2. Implications verified/completed by: (Carly Fry, Equalities Officer, ext. 3430).

11. LEGAL IMPLICATIONS

- 11.1. There are no direct legal implications for the Council as the Council's IT requirements are provided by HFBP under a service contract dated 1 November 2006 (the "IT Service Contract"). Under the IT Service Contract, HFBP contracts directly with third party suppliers for the provision of IT services to the Council.
- 11.2. Implications completed by: Catherine Irvine, Senior Solicitor (Contracts) telephone 020 8753 2774.

12. FINANCIAL AND RESOURCES IMPLICATIONS

- 12.1. The proposed migration will require upfront investment of £425k of which the Hammersmith and Fulham contribution will be £200k. This will be funded from the IT Enablers revenue budget. The migration will deliver cost savings and cost avoidance of £0.638m over the next 2.5 years.
- 12.2. Implications verified/completed by Andrew Lord, Head of Strategic Planning and Monitoring, Ext 2531.

13. RISK MANAGEMENT

- 13.1. These are in the exempt report

14. PROCUREMENT AND IT STRATEGY IMPLICATIONS

- 14.1. There are no procurement related issues as the recommendations contained in this report relate to an order to be placed under the contract with the Council's strategic IT Partner.
- 14.2. Implications verified/completed by: Mark Cottis, e-Procurement Consultant, 020 8753 2757.
- 14.3. Post 2016, the longer-term Data Centre strategy is to take advantage of the Tri-borough IT Procurement for data centre services. This project supports that strategy.
- 14.4. Implications verified/completed by: Jackie Hudson, Director for procurement and IT strategy and tri-borough ICT lead advisor, 020 8753 2946.

LOCAL GOVERNMENT ACT 2000
LIST OF BACKGROUND PAPERS USED IN PREPARING THIS REPORT

No.	Description of Background Papers	Name/Ext of holder of file/copy	Department/ Location
1.	IT strategy - getting the basics right IT infrastructure renewal	Jackie Hudson ext 2946	FCS SmartSpace
2.	Agilisys contribution to the council's efficiency challenge	Jackie Hudson ext 2946	FCS SmartSpace
3.	Tri-borough ICT Strategy for 2012-2015	Jackie Hudson ext 2946	FCS SmartSpace
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