

Date of issue: 26<sup>th</sup> June, 2009

<b>MEETING</b>	<b>OVERVIEW &amp; SCRUTINY COMMITTEE</b> (Councillors Mann (Chair), Basharat, Coad, Davis, A S Dhaliwal, Pantelic and Walsh (2 BILLD Vacancies))
<b>DATE AND TIME:</b>	THURSDAY, 2ND JULY, 2009 AT 6.30 PM
<b>VENUE:</b>	COUNCIL CHAMBER, TOWN HALL, BATH ROAD, SLOUGH
<b>DEMOCRATIC SERVICES OFFICER: (for all enquiries)</b>	KEVIN BARRETT (01753) 875014

### SUPPLEMENTARY PAPERS

The following papers have been added to the agenda for the above meeting:-

Item 7 was not available for publication with the rest of the agenda.

### PART I

<u>AGENDA ITEM</u>	<u>REPORT TITLE</u>	<u>PAGE</u>	<u>WARD</u>
7.	IT Resilience and Business Continuity.	55 - 72	

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**SLOUGH BOROUGH COUNCIL**

**REPORT TO:** Overview & Scrutiny Committee      **DATE:** 2<sup>nd</sup> July 2009

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**WARD(S):** All

**PART I**  
**FOR CONSIDERATION & COMMENT**

**IT COMPUTER ROOM – PROPOSED WAY FORWARD**

**1. Purpose of Report**

This report addresses the relocation of the Council computer room as part of the Council Accommodation Strategy. It also provides an update on Members' IT.

**2. Recommendation(s) / Proposed Action**

That the Committee note the following recommendations to Cabinet -

- a) The need to replace the current computer room be noted.
- b) Officers enter detailed negotiations with Sungard.
- c) Officers commission Unisys to begin the next phase of the project.

**3. Key Priorities**

IT now underpins the delivery of many aspects of the Council's Key Priorities and all departments have become increasingly reliant on the provision of a robust, stable and available IT infrastructure.

**4. Other Implications**

(a) Financial

These are contained within the body of the report.

(b) Human Rights & Other Legal Implications

There are no other legal or Human Rights Act implications.

**5. Supporting Information**

**Background**

- 5.1 The Current Council computer room is essentially an office space that has been assigned to accommodate a number of racks and servers.

- 5.2 Despite much consolidation using new technologies, the present computer room is inefficient. Due to the nature of the town hall, and the size of the room available, the floors can not be raised to enable proper air flow. This means the expense required to power and cool the room is leaving it operating close to its maximum potential.
- 5.3 Over the last five years the significance of IT in the public sector has been transformational, with many of the efficiencies and improvements in working practices being on the back of implementations. This will only increase with the implementation of mobile/flexible working and shared services.
- 5.4 The current computer room was built approximately eight years ago and was not designed to hold the size or complexity of the current infrastructure (which now includes 22 racks containing 170 servers and other devices).

### **Service Interruptions**

- 5.5 Over the past two years business users have suffered loss of availability of IT services following a series of disruptions:
- Air conditioning failures;
  - UPS (uninterrupted power supply) failure as a result of a series of power supply failures to the town hall site;
  - Accidental release of the fire suppressant gas;
  - Power failure during fire alarm testing.
- 5.6 Each time there is a major outage, such as a server room power failure, it can take up to a day to bring to service back on line, in a priority order. This directly impacts on staff working and services to residents. Ensuring any new option also covers business continuity will be essential.
- 5.7 With the accommodation strategy and the potential to move services off the Town Hall site and further since the accidental release of the fire suppressant gas, officers have been looking into options for provision of a new computer room. The options considered included:
- Building a new purpose built computer room on another Council site;
  - Sharing with another Council;
  - Having a third party hosting the computer room, either in terms of the room environment itself, or the whole package of the servers support too.

### **Options**

- 5.8 In order to accommodate the increase in heat and power the Council could look to build a new data centre facility of its own. To build a reliable and efficient environment, data centre managers need to take a holistic approach in planning, designing and laying out the data centre to optimise power and cooling capacity. This includes considering variables such as site location, type of building, system set up, rack configuration, equipment deployment and air flow dynamics. The support of this would either require greater investment in the staff structures or watering down the current resource from carrying out their other duties.

- 5.9 On top of this the cost of building a computer room to these contemporary standards and with capacity to provide for future expansions has become prohibitive and it is not a line of business that Council sees as its core function. The capital costs of constructing a new room, if a suitable building could be found to host it, is estimated to be in the region of £1m capital with ongoing rental and running costs in the range of £160 – 200k.
- 5.10 By placing equipment in a purpose built commercial data centre, the Council would immediately enable the benefits of scalability and cost savings, freeing up existing IT resource to focus on the value added aspects of the IT function.
- 5.11 Third party hosting would also immediately address some of the business continuity issues:
- Resilience of power supply (twin feeds with battery and then diesel generator back up)
  - Resilience of air conditioning
  - Highly effective fire prevention and containing
  - Potential for off-site back up to if the area becomes unworkable
- 5.12 Officers believe the Council needs to have a contractual commitment to the following levels of service:
- Power availability 100%
  - Internet access availability 99.9%
  - Network hardware availability 99.5%
- 5.13 This could also enable the Council in partnership to take advantage of a facility that is committed to adopting green technology, researching and adoption of best in breed components for both the infrastructure and systems.
- 5.14 Options would include free cooling chillers and air conditioning, together with new server technology that consumes less power and generates less heat, helping contribute to the reduction of the Council's carbon footprint.
- 5.15 The Council requires a flexible solution that enables it to reduce or expand its presence without contractual penalties. The option to reduce the level of occupancy is particularly important given the commitment to Shared Services which will eventually be running a number of Council's major business systems.
- 5.16 Having linked with a number of other Councils, and looking into capacity and ability to support a computer room, the future aspirations around it and the business continuity of the service, officers believe they have not come across another Council currently with the capacity to support Sloughs requirements. If there was someone suitable, then again there would also be associated costs of rental and support.
- 5.17 Officers believe a private sector hosting arrangement is the best way forward and have investigated a number of providers of hosted computer rooms, including Orange, Sungard and Unisys.

## **Proposed Option**

- 5.18 Based on experience in the market, contractual requirements around pricing in Euros, potentially leaving the Council vulnerable to currency fluctuations, officers recommend the Sungard option. This is due to their long term record in providing such services and their competitive pricing.
- 5.19 More details can be found in the attached proposal at Appendix A.
- 5.20 The only concern with the proposal is the removal of the service to outside Slough's 01753 exchange area. This would require the issuing of a new number for the service which would be a more meaningful number. Greater detail of this can be seen in Section 7 of the attachment.
- 5.21 The current proposal has an annual rental cost of £440k, although officers will continue to try to negotiate this downwards. This is within budget availability and would reduce as Shared Services came into operation, assuming responsibility for some of the Council's key business systems.
- 5.22 There will also be one off costs of networking and moving to the new accommodation, estimated to be approximately £300k, which would be the same for all options. There would also be an annual line rental in the region of £185k, again manageable within existing resources.
- 5.23 Officers recommend entering into a three year contact with an option to extend by a further two years if appropriate.

## **6. Appendices**

Appendix A - Data centre relocation recommendation document

# **Slough Borough Council**

## **Data Centre Relocation Recommendation Document**

Version 1.7

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## Version Control

Version	Date	Summary of Changes
0.1	1/06/2009	Initial Draft
1	3/06/09	Released
1.1	10/06/2009	Amendments following review.
1.5	16/06/2009	Changes following client review.
1.6	23/06/2009	Changes following GH review
1.7	25/06/2009	Corrections following GH review



## *Executive Summary*

### **Slough Borough Council objective**

Slough Borough Council (SBC) want to sell the Town Hall location as a recent survey revealed that the council would need to invest £2million over the next five years to maintain the building in its current state – this without improvements or modernisation<sup>1</sup> Therefore, it has been decided to relocate from this facility. To assist in this relocation programme all IT Services contained within the Town Hall must be moved out before the end of 2009.

### **Slough Borough Council IT Services Background**

The current IT Services server room is essentially an office space that has been assigned to accommodate a number of racks and servers. It is not believed that this space was ever designed to hold the size or complexity of the current infrastructure (includes 22 racks containing 170 server and other devices). Despite much consolidation using new technologies, the present computer room is inefficient due to its scale and the expense of power & cooling which are operating close to their maximum potential. It is not scaleable and so inhibits growth for additional services and it is prone to outages. However there is an opportunity to assist the council in achieving it's recently announced desire to reduce its carbon footprint.<sup>2</sup>

In recent months business users have suffered loss of availability of IT Services following a series of disruptions:

- Air conditioning failures
- UPS (Uninterrupted power supply) failure: as a result of a series of power supply failures overnight.
- Accidental release of the fire suppressant gas
- Power failure during fire alarm testing
- Power surge which temporarily disabled a number of VoIP (Voice over Internet) telephones

In terms of IT support staff, there is a limited number of skilled specialists within Slough IT. This creates a huge challenge in terms of the ability to quickly deploy new business services and a potential risk, because The Council is singularly reliant on a limited number of key individuals.

A number of options have been considered from building Slough BC's own datacentre in a Slough location and performing the move 'in-house' to using specialist 3<sup>rd</sup> party hosted option with their specialist knowledge and resources. These are presented in detail later in the document.

The recommendation to The Council is to relocate the data center from the current Town Hall building into a hosted energy-efficient and purpose-built facility with a market leading 3<sup>rd</sup> party who specialises in data center hosting (Sungard). Unisys will be employed to lead the design and move of the existing IT infrastructure, working in partnership with Sungard.

This approach ensures that the council have a scalable, secure and reliable data center environment. The move to the new site will be managed by Unisys, an experienced and trusted strategic IT partner to The Council.

Key IT staff of the council will be freed up to focus on more value-added projects to support the council's business services.

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<sup>1</sup> Have Your Say Option Meeting on Town Hall <http://www.slough.gov.uk/news/articles/archive/14494.aspx>

<sup>2</sup> Slough to cut carbon emission and save £millions <http://www.slough.gov.uk/news/articles/19041.aspx>

In order to ensure that the business impact to the council is as small as possible, a project plan has been put together to ensure that the council's IT infrastructure is comfortably migrated at least two months before the financial year end.

In order to meet these timescales and to ensure that the project is as low risk as possible, the cabinet must approve this proposal to ensure that SBC can contract with its suppliers before end of July 2009.

### *Rationale and Options*

#### **What the Industry Analysts Say**

With the advent of high-density computer equipment, modern systems need more power and generate more heat per square metre. This has led to many data centers exceeding their power and cooling capacity. As power requirements continue to grow, energy costs will emerge as the second highest operating cost in 70 percent of worldwide data centre facilities by 2009 according to Gartner, a leading IT Research organisation<sup>2</sup>.

In order to accommodate the increase in heat and power SBC could build a new data center facility. However, to build an optimised, reliable and efficient facilities environment, Gartner recommends that data centre managers take a holistic approach in planning, designing and laying out the data center to optimise power and cooling capacity. This should include looking at all the variables from site location to building type, building systems, rack configuration, equipment deployment, and airflow dynamics must be integrated and optimised. This activity would require significant expertise, cost and time taking resource from the day-to-day operations at Slough.

By placing equipment, infrastructure and connectivity into a purpose built data centre, it will enable the immediate benefits of IT scalability and cost savings, freeing up the Council's IT team to focus on value-added services to support the business.

Like most organisations, Slough IT is undertaking major initiatives to reduce operational costs, address rising power and cooling capacity concerns and deal with the physical space constraints within the server room. At the same time, Slough IT is being asked to find ways to transform the infrastructure into a next-generation data centre that can support business growth, provide high availability services, resilience and security.

### *Relocation*

#### **Potential Benefits for SBC by Relocating**

- Removes barriers to completing the move out of the Town Hall
- Staff focus changed from maintenance tasks to value-added business operations services
- Stable environment will give improved availability of services
- Service assurance KPI's improved by better resiliency of links or equipment
- Availability of specialised and more flexible labour pool as required
- Defined SLA's
- Improved electronic and physical Security
- More efficient network and communications Infrastructure

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<sup>2</sup> <http://www.gartner.com/it/page.jsp?id=499090> – Gartner Datacenter Conference 2008

- Improved delivery of services as the power, cooling and space are being managed at a purpose built location.
- Ability to scale up if more services are required (or down should a Shared Services Model be adopted by SBC)
- Allows different solutions for potentially shared or new systems to replace soon to be obsolete equipment
- Allows for consolidation of server/rack layouts.
- Allows a period to consider and introduce better Business Continuity planning and Management
- Offers many additional and enhanced options that can be added to the service either now or at a later date, such as Disaster Recover, best of breed equipment, Managed Services, Shared Services
- Managed Security Services
- 24/7 Monitoring

### ***Relocation Choice Comparison***

The Slough IT Services management team looked at various options to identify relocating the Server room infrastructure from the Town Hall to another location, remaining in the Town Hall and moving the a third party specialist hosting provider.

**Data Center Options Comparison Table**

	<b>Build another SBC Data Centre</b>	<b>Use of Third Party Purpose Built Data Centre</b>
<b>Security</b>	<ul style="list-style-type: none"> <li>- Physical Door and entry security</li> <li>- Relies on local staff who may or may not be aware of the security policy, sometimes leads to confusion and delays</li> </ul>	<ul style="list-style-type: none"> <li>- 7x24 Security guards at each entry and exit point</li> <li>- External and Internal CCTV cameras</li> <li>- Proximity access control system</li> <li>- Secure managed loading bay</li> <li>- Intruder and door alarms with external infra-red detectors</li> <li>- Identified name controlled access</li> </ul>
<b>Environment</b>	<p>Whilst the Slough environment would need to be planned, it would require significant investment to achieve the 1<sup>st</sup> class environment offered by a 3<sup>rd</sup> party purpose built data center.</p>	<ul style="list-style-type: none"> <li>- Fully Managed and Monitored to provide continuous mains power, cooling within set temperatures, - - Fire detection &amp; Suppression and Rack and Room Layout space for expansion</li> </ul>
<b>Risks</b>	<ul style="list-style-type: none"> <li>- Whilst an improvement there could still be some risks around location, Air Con, Power, Space, Network</li> <li>- Slough do not have the experienced &amp; specialist resources for designing a Data center</li> <li>- Increased workload on an already stretched Staff</li> <li>-The project may not be delivered on time.</li> <li>- Could result in the same problems Slough IT have now, but simply in another location.</li> <li>- Building only a single new data centre does not offer any Business Continuity/Disaster Recover Options.</li> </ul>	<ul style="list-style-type: none"> <li>- Less direct control outside the immediate service levels of the contract</li> </ul>
<b>Benefits &amp; differences</b>	<ul style="list-style-type: none"> <li>- Slough retains control over the data center and could design it to suit our needs.</li> <li>- Telephony Services using local Slough area codes can be moved with no impact</li> </ul>	<ul style="list-style-type: none"> <li>- Purpose-built Data Centre</li> <li>- Access to specialised and more flexible labour pool</li> <li>- Improved electronic &amp; physical security</li> <li>- Manual operational processes are undertaken by third party.</li> <li>- Improved SLA's</li> <li>- Increased resiliency options</li> <li>- Potential to take on more outsourced and shared services</li> </ul>

<b>Strategic Comparison</b>	<ul style="list-style-type: none"> <li>- The Town Hall is freed up from an IT viewpoint</li> <li>- Slough IT Services will have a Server room that will meet Business needs for the near future</li> </ul>	<ul style="list-style-type: none"> <li>- The Town Hall is freed up from an IT viewpoint</li> <li>- Slough IT Services will be in a purpose built Data Centre that can meet future business needs</li> <li>- The management overhead of maintaining environmental services will be removed</li> <li>- Security will be greatly enhanced</li> <li>- Specialist resources are available upon demand</li> <li>- SLA's and Quality levels are high and can be monitored and managed</li> <li>- Further potential enhancement and options available in the future (e.g. Disaster Recovery)</li> </ul>	
<b>Budgeting</b>	Unexpected Expenses - Unpredictable ongoing costs of management and upgrades	Predictable Costs	

The comparison table above was produced by Unisys and Slough BC comparing the two possible options.

*Preferred Option*

To use third party expertise to manage the move on behalf of SBC to a purpose built Data Centre.

**Third Parties**

Slough IT would use Unisys (the strategic IT Services partner), who have successfully delivered a number of IT and business projects for the council over the last several years. Unisys would lead the design and manage the move, incumbent telecommunications provider Telewest will make available the communications links and SunGard will host Slough IT Infrastructure at their London Docklands Data Centre.

As established suppliers Unisys and Telewest are well known to SBC and the council has a good working relationship with each.

**SunGard**

SunGard's purpose-designed technology centres are state-of-the-art designed and built to deliver continuous operations protecting against most common failures e.g. Power, communications and cooling systems.



Technology Centre 2 (TC2) – Located in London Docklands the facility has a gross area of 65,000 sq ft with a 24x7 presence and electronic monitoring and management of customers servers and equipment provided from the network operations centre.

The renewal rate for SunGard’s clients’ is in excess of 98%—indicating a very high level of satisfaction with SunGard’s availability services.

More details on what SunGard Provide;-

<b>General</b>	<ol style="list-style-type: none"> <li>1. 24x7x365 monitoring</li> <li>2. Access to a customer portal</li> <li>3. Access to all major communications providers</li> </ol>
<b>Controlled Environment</b>	<ol style="list-style-type: none"> <li>1. Minimum N+1 redundancy on chilled water cooling system</li> <li>2. 25 x 1400kW of cooling</li> <li>3. Temperature in data centre space maintained at (22°C +/- 2°C)</li> <li>4. Humidity maintained at 50% (+/- 10%)</li> </ol>
<b>Fire Detection &amp; Suppression</b>	<ol style="list-style-type: none"> <li>1. Analogue addressable fire detection system in all areas</li> <li>2. Early warning VESDA system installed in all plant and data centre areas</li> <li>3. Inergen gas protection in computer room and selected landlord areas</li> <li>4. Sprinkler systems in corridor areas</li> </ol>
<b>Security</b>	<ol style="list-style-type: none"> <li>1. 7x24 Security guards</li> <li>2. External and Internal CCTV cameras digital recording to disk</li> <li>3. Proximity access control system</li> <li>4. Secure managed loading bay</li> <li>5. For added security, each cabinet is uniquely identified by a SunGard coding system that does not reveal the identity of the customer housed in the cabinet</li> </ol>

	6. Intruder and door alarms with external infra-red detectors
<b>Power</b>	<ol style="list-style-type: none"> <li>1. Two separate mains feeds from the utility provider</li> <li>2. Diverse power feeds to every cabinet</li> <li>3. Uninterrupted Power Supply (UPS)</li> <li>4. Backup diesel generators with enough fuel to power the data centre for 50 hrs</li> </ol>
<b>Manual Processes</b>	The Intelligent Hands Service provides access to trained technical personnel to assist SunGard's clients on a 24/7/365 basis. This service provides clients with remote "Intelligent Hands" to carry out standard tasks at the client's direction such as change of Back-up tapes
<b>SLA's</b>	<ol style="list-style-type: none"> <li>1. Power Availability 100%</li> <li>2. Internet access Availability 99.99%</li> <li>3. Network Hardware Availability 99.5%</li> <li>4. Monitoring Notification 15 minutes</li> </ol>
<b>Quality</b>	<ol style="list-style-type: none"> <li>1. ISO 9002 / BS25999 accreditation</li> <li>2. SAS 70 compliant UK data centres</li> <li>3. Fire detection system in all areas (conforms to BS 6266)</li> </ol>

The preferred option is to rack the equipment wherever possible, as it is then in a secure environment. If the equipment is able to fit within a rack but is not able to attach, shelves will be provided for the equipment to sit on. If this is not possible, then free-standing systems can also be supported.



CCTV Monitoring and 24 hour manned security presence

### **Why choose SunGard?**

Slough IT Services received proposals from a number of hosting companies including Orange and Unisys, however for value for money, market leadership and potential opportunities SunGard were ahead of the field. Following a site visit, the Slough IT management team were very impressed by the facility, capability, experience and referencability.

SunGard Availability Services is the pioneer and leading provider of information availability solutions. In 1978, SunGard invented the business of disaster recovery, which has evolved into availability services. More than 10,000 businesses and institutions across North America and Europe rely on SunGard to help them keep their people connected with the information they require in order to do business.

## ***Sungard and the Carbon Trust***

Consideration of the environment has equal ranking with the company's responsibilities for commercial, operational and financial aspects of the business. SunGard regularly consults with the Carbon Trust and is currently reviewing their recommendations for reducing carbon load and energy consumption further. In addition SunGard is reviewing possible partners with whom to work to ensure all UK locations operate in line with Government guidelines for carbon emissions and deriving energy from sustainable sources.

SunGard is an aggressive adopter of green technology, researching and adopting best of breed components for both infrastructure and systems. Examples include free cooling chillers and air conditioning, together with new server technology that consumes less power and generates less heat. The company is also piloting virtualisation technologies to consolidate server usage and improve operational efficiency. SunGard follows rigid maintenance procedures centralises operations where possible and integrates planning for the business and data centres to achieve efficiencies and minimise carbon footprint.

SunGard is a member of the US Green Building Council and has used Leadership in Energy and Environmental Design (LEED) accredited design professionals in the development of our flagship facilities for the past 15 years. SunGard will build on its history of sustainable building practices by achieving LEED Certification of its next major new facility.

## ***Case Studies***

### **Leicester City Council - SunGard Ensures Survival of Council Services**

The Council has always recognised the key role technology plays in helping it to provide a reliable service to the people of Leicester. This is reflected in the service level agreement the IT team has with all departments to maintain IT availability 24/7. It therefore works with SunGard Availability Services to ensure essential electronic information is always available to its 6,000 IT users

### **Preston City Council - Rigorous Testing Programme Reaps Dividends**

To ensure it had the right plans in place to meet these SLAs, Preston chose SunGard Availability Services as its Information Availability and BC provider to ensure that key business systems and processes remain connected when it matters

### **Great Ormond Street Hospital - Invocation**

Fire, floods and explosions are just a few examples of the more dramatic type of incident that can create a potential disaster for a company. Just as serious, however, are the 40% of incidents managed by SunGard Availability Services worldwide that are the result of software or hardware malfunctions, like the one that happened at Great Ormond Street Hospital for Children - one of most respected pediatric hospitals in the world

## ***Conclusion***

After assessing a number of solutions, providers and locations over many months, visits and proposals we found that to use the established IT Services provider Unisys to undertake the design and manage the Move, incumbent Telecommunications provider Telewest to make available the communications links and SunGard to host Slough IT Infrastructure at their London Docklands Data Centre is the best overall solution for Slough IT Services.



## *Telecoms Options Justification and Recommendations*

This section focuses on the impact that a move to a new Datacenter location will have on Slough's telecommunication links, opportunities this creates and the reviews the potential to offer the most effective service for the Council.

Current connectivity of the SBC Network consists of multiple point-to-point circuits. Whilst this does meet today's demands of Slough BC this system will not provide a cost effective solution when moving the infrastructure to the Sungard Datacenter.

### ***Executive Summary***

Slough IT Team asked ntl:Telewest (the existing strategic telecommunications partner) to review the current Wide Area Network (WAN) topology to accommodate the move of all IT services to Sungard in Docklands, London. The following is a summary of the options available with a recommendation of the most cost effective and flexible option to the Council based meeting the meeting demands now and in the future.

The move to Sungard, Docklands means that all of the current data circuits in place will have to be moved from their current A end locations to either a local hub site or directly to Sungard. In discussions with our suppliers we have ensured that any move will incur minimal disruption to the individual sites with a seamless handovers to recommended new locations.

Also within document we specifically identified the options for Apropos Call Centre Solution which, due to having a Slough specific number, may need to be handled separately from the other IT and telecoms equipment.

### ***Options reviewed by Slough IT Team.***

This section looks at the options reviewed by Slough BC, ntlTelewst and Unisys and reviews the pro's and cons of each with a final recommendation to The Council as to the most effective solution for Slough BC.

#### **5.1.1 Option 1 - MetroEtherVPN (MEVPN)**

Metro Ethernet VPN is ntlTelewest's VPN (Virtual Private Network) service to connect sites within a single franchise area that require larger bandwidth capabilities. This is essentially a layer 2 service which is managed up to the terminating switch. All of the services would aggregate at the Slough switch and connect via 2 x 1 GB circuits back to Sungard.

#### **Pros**

- Highly flexible and scalable network solution
- Four configuration options including point to point and any to any connectivity
- Slough BC retain control of the network (With unmanaged option)
- Ethernet is Layer 2 - there is reduced routing overhead so there is greater transmission efficiency
- MEVPN supports the provision of multiple communities of interest networks and so applications like IPCCTV, IP (Internet Protocol) voice and data can be delivered on a single network.
- It is a more cost effective solution to other alternatives. .

## **Cons**

- All of sites feeding from the Slough Switch would require new circuit provision
- Only Ethernet circuits can be used with the network

### **5.1.2 Option 2 - Evolved Ethernet**

Evolved Ethernet is a solution only available within specific franchise areas across the UK and we have confirmed this product is available with the Slough area. The solution would have 4 main hub sites configured using a resilient 1 GB ring topology, these are; Central Library, St.Martin's Place, Landmark place and The Centre. From each hub would be the rest of the current spoke locations, meaning that only a B end shift would be required for those sites. We would then provide to dual 1 GB National Ethernet circuits back to Sungard from 2 of the hub sites giving a greater level of resilience. The other advantage to this is will be able to integrate DSL (Digital Subscriber Line) if required into some of the smaller sites to reduce the costs.

## **Pros**

- Highly flexible and scalable network solution
- Four configuration options including point to point and any to any connectivity
- Slough BC retain control of the network (With unmanaged option)
- Ethernet is Layer 2 - there is reduced routing overhead so there is greater transmission efficiency
- MEVPN supports the provision of multiple communities of interest networks and so applications like IPCCTV, IP (Internet Protocol) voice and data can be delivered on a single network.
- It is a more cost effective solution to other alternatives. .
- Dedicated Network to Slough Borough Council
- DSL integration
- Greater level of resilience
- Less disruption

## **Cons**

- Higher price than MEVPN

### **5.1.3 Option 3 IPVPN (Internet Protocol Virtual Private Network)**

IPVPN is ntl:Telewest's fully managed MPLS (Multi Protocol Label Switching) network solution offering a range of flexible and scalable network configurations.

## **Pros**

- Quality of Service (QoS) enabled – this will offer the ability to prioritise network traffic dependent on business demands.
- Class of service – this will allow the council to identify different services to be highly available.
- Multiple protocols for connection i.e. Ethernet, SDH and DSL
- Less resource time to manage the network therefore reduced costs to SBC

## **Cons**

- Not as cost effective as either Options 1 and 2

### ***Apropos options***

The Apropos solution works with a specific Slough telephone number and this number cannot be retained if the solution is moved to Sungard's facilities in Docklands as the number is associated with the local switch. This section looks at the alternatives considered by ntl:Telewest for Apropro to have best solution for the Council ntl:Telewest does not consider replacing the Apropos solution as a viable option at this time it will cause significant disruptions to the council and potentially its citizens. Therefore, the recommendation to the council is to consider one of the following options, at least in the short term, until a suitable alternative solution can be investigated and deployed.

#### **5.1.4 Option 1.**

This option is possible but will cause significant disruption to the citizens. Option 1 is to move the existing Apropos servers to Sungard's Data centre, in Docklands. However, moving the current equipment would require the Council to change the existing 01753 numbers terminating on the Apropos system to a new geographic number, as Docklands is outside the 01753 exchange range. Alternatively the Council can change to a Non geographic number, 0800 or 03xx number but this will mean changing all literature and advising the Citizens and local advertising that the number has changed.

ntl:Telewest have investigated the possibility of forwarding the existing 01753 numbers to a new number range, however this would mean that the council would have to pay an extra charge for forwarding calls. It would also mean increasing the two 1Gig circuits into the data centre to support the additional voice traffic. Furthermore, an additional 2mb circuit would also be required to support integration into the existing Centrex/IPMM VPN (Virtual Private Network)

Overall this solution would be too disruptive and too expensive to be a viable option at this time.

One future consideration could be to replace the proprietary Apropos service and adopt a solution based on newer VoIP technology and procuring an 'off the shelf' CMS application to replace Siebel. Provided the new CMS application met most of the council requirements it could both cut the cost of the present solution and provide flexibility to host the physical aspects of the service anywhere in the UK breaking away from the constraints of the 'local switch – local number'.

The drawback would be that local telephone numbers could not be used for the Service Centre and would have to be changed.

#### **5.1.5 Option 2.**

To retain the current Apropos servers in a Slough Borough Council location, either in the Town Hall or in another Slough location. This would be relatively easy to implement and would have little impact on the council and its users, and be the most cost effective short term solution. This option means the existing numbers could be moved to the new location along with the servers retaining the present number therefore not impacting citizens. However, a new computer room fitted with air-conditioning, Alarm controls, Fire Extinguishers, Uninterruptable power supply, Data circuits, etc would need to be built and maintained in order to house this equipment.

### **5.1.6 Option 3.**

ntl:Telewest could house the Apropos Servers in its local Slough switch Centre. ntl:Telewest would allocate Slough Borough Council rack space to house the Apropos servers. Access to the site will have to be agreed between ntl:Telewest and Slough Borough Council.

Again, this will be relatively easy to implement, the existing 01753 numbers are fed from the local ntl:Telewest switch and can be moved to the racks housing the Apropos servers. This option again would be seen as a short to medium term option for Slough in order to provide the time to review Apropos and consider longer term viable options. Depending on what option Slough Borough Council chooses to support the move of the data centre to Docklands, an additional data circuit will be required from ntl:Telewest's Slough Switch to either a Slough Borough Council location or to the data centre at Sungard. The price for the circuit to the Slough Switch will be similar to anyone of the local circuits already quoted, obviously depending on the bandwidth required. There will also be a small additional charge for power and racks.

However, hosting computer systems is not the core business of ntl:Telewest. It is not certain that the facility being offered will be of the same quality as that of SUNgard and that it has the necessary security, power and other environmental controls in place. It would take further discussion with ntl:Telewest to determine if this option could be viable.

**Option 3 should be investigated further as it may still be the most suitable in terms of cost and time constraints but should still be considered a short term solution.**

#### *Conclusion*

Implementing a new telco Network will provide advantages over Slough existing infrastructure. **After assessing the various options available the recommended solution to meet the Councils requirements is option 2 the Evolved Ethernet solution.**

The solutions offers SBC by far the most resilient option from the core 1gb ring topology it will provide dual 1gb circuits back to Sungard Because of the unique way in which Evolved Ethernet has 'evolved' it also offers multiple protocols, which mean for the smaller sites DSL can be provided if required. In essence the Council will get many of the advantages of IPVPN but at a much lower cost but all of the advantages of an Ethernet based network i.e. lower latency rates.

In terms of pricing for the managed version of Evolved Ethernet the main cost will be on the provision of a CPE router and slight uplift on the annual rental. However with some of the sites able to use DSL this will help bring the costs back down.

The conclusion does not cover the Apropos aspect.