

APPENDIX S

WAVERLEY BOROUGH COUNCIL

EXECUTIVE - 8 JULY 2008

Title:

IT INFRASTRUCTURE RATIONALISATION – SERVER VIRTUALISATION PROGRAMME

[Portfolio Holder for IT: Cllr Mr A E B Taylor-Smith]
[Wards Affected: All]

Note pursuant to Section 100B(5) of the Local Government Act 1972

An annexe to this report contains exempt information by virtue of which the public is likely to be excluded during the item to which the report relates, as specified in Paragraph 3 of Part I of Schedule 12A to the Local Government Act 1972, viz:-

Information relating to the financial or business affairs of any particular person (including the authority holding that information).

Summary and purpose:

To receive an update report on plans to rationalise and replace the Council's physical IT servers with a virtualised infrastructure allowing multiple service based applications to share a single physical host virtual server.

Environmental implications:

The replacement of over 40 physical servers with as few as 8 virtual servers will provide significant environmental cost reductions in terms of reduced power usage, air conditioning and rack/floor space.

Social / community implications:

There are no direct implications.

E-Government implications:

There are significant benefits in moving to a virtual server environment such as improved resilience and potential Business Continuity and Disaster Recovery benefits.

Resource implications:

There is provision for the virtualisation project within the 2008/09 IT capital programme and the funding available is set out in the Exempt Annexe to this report. The virtualisation programme along with plans, which will be the subject of future reports, for the development of Citrix software and the introduction of thin client terminals in place of desktop PCs form an 'invest to save' opportunity which will lead

to an estimated reduction of £40,000 in the annual capital programme provision of £85,000 for desktop and server upgrades.

Information / Background

1. Virtualization can be defined as a system that hides the physical characteristics of computing resources from their users, be they applications, or end users. This includes making a single physical resource (such as a server, an operating system, an application, or storage device) appear to function as multiple virtual resources; it can also include making multiple physical resources (such as storage devices or servers) appear as a single virtual resource. Virtualization is an approach to pooling and sharing IT resources so that the supply of resources - processing power, storage, networking and so on - can flexibly and automatically meet fluctuating business demand. Virtualization can improve the quality of the IT services, enabling more consistency and predictability of operational availability.
2. The Council currently operates a large number of separate physical servers, 46 in total, with each individual server generally running a single business system or application.

Benefits of virtualization

3. From an IT operations perspective maintaining fewer virtual servers has advantages in time saving and when operating with management software such as VMWare automatic load distribution and balancing, reducing downtime and loss of service to users.
4. The introduction of virtualized servers will streamline software development and testing by allowing developers to create multiple environments with different operating systems on the same server.
5. Virtualized servers enable the optimisation of server utilisation thereby avoiding unused excess capacity. Virtualized servers are far more flexible than physical servers, and enable the scaling of resources up or down as needed.
6. The energy savings achievable as a result of virtualizing the Council's server environment are significant and have been estimated at 1.427 Tons BTU/hr of cooling.
7. There are also Business Continuity/disaster recovery benefits to be achieved through virtualization. Virtual machines are encapsulated within disk files that may be moved and copied easily like any other data file. This provides a number of improved options around disaster recovery as it would allow 'copies' of servers to be stored in alternate locations ready to be started quickly (in the jargon a 'hot start') as new virtual machines on any suitable host machine.
8. In accommodation terms the reduction of traditional servers to a virtual server environment would achieve significant savings in space occupied. There will also be potential to drive down energy costs further by introducing localised

cooling for what will be a single rack of blade virtual servers rather than an air-conditioned room.

Progress to date

8. Officers arranged for a four-week Capacity Planner study to be carried out to identify and measure the utilisation of the existing servers, to identify the feasibility of virtualizing machines (servers) and to size the number of virtual servers required.
9. The Capacity Planner study showed that the majority of servers 38 out of the total of 40 studied were operating at an average CPU capacity of only 7.68% which is very low even when compared to other traditional server environments. The study indicated clearly that virtualization would address this over capacity.
10. Three other Surrey district/borough council's, Mole Valley, Woking and Runneymede have already introduced virtualization programmes and officers are in contact with colleagues in these authorities to learn from their experience.
11. Following on from the Capacity Planner exercise it was concluded that as a first phase in the programme the aim would be to replace 36 servers with 8 virtual blade servers.
12. Subject to the Executive's endorsement of this project and to the capital funding available officers will produce a detailed implementation plan and procure the system.

Conclusion

13. Officers are proposing that procurement of the virtual servers required should be made through the Government's CATALIST contract for ICT services. Catalist (formerly GCat) is a framework agreement with 25 of the UK's leading ICT suppliers, negotiated on the Public Sector's behalf by OGC buying solutions, an agency of the Office of Government Commerce.

Recommendation

It is recommended that the Executive approves the virtualization project set out above, subject to the cost being contained within the funding limits set out in the (Exempt) Annex to this report.

Background Papers (SD(E))

There are no background papers (as defined by Section 100D(5) of the Local Government Act 1972) relating to this report.

CONTACT OFFICER:

Name: Roger Standing **Telephone:** 01483 523221
E-mail: roger.standing@waverley.gov.uk