

CABINET

ACCOMMODATION FOR THE ICT SERVER ROOM

(Report by the ICT Services Manager and the Projects and Assets Manager)

1. PURPOSE

- 1.1 To recommend that the ICT server room on the 2nd floor of Pathfinder House should be extended.

2 BACKGROUND

2.1 DEPENDENCY ON SERVER ROOM EQUIPMENT

2.1.1 The Council relies heavily on the availability of information and access to IT systems in order to deliver services. This is especially true at Pathfinder House & Castle Hill House but is increasingly the case at Leisure Centres too where, for example, computerised booking of facilities is used by reception staff. A failure of the database server at Pathfinder House will adversely affect all these locations and services.

2.1.2 On the occasions where Pathfinder House has been without power it is evident that staff are not able to carry out many basic service functions without access to their desktop PCs, and the information held on the central servers housed in the 2nd floor server room.

2.1.3 In spite of this dependency very few instances of complete system close-down have occurred. This is largely due to the prompt and effective action of ICT Services staff in maintaining the service.

2.2 SERVER ROOM ISSUES

2.2.1 A detailed analysis of the issues can be found in the paper presented to the Technical Infrastructure Project Board (part of the Customer First Programme) in December 2003. This report only identifies the major issues.

Physical Environment

2.2.2 The high levels of system availability can only be maintained if the environmental conditions which sustain the servers are kept within prescribed limits. These include:

- Temperature & humidity
- Robust power supply
- Space around equipment racks for staff to carry out maintenance

2.2.3 The construction and limitations of Pathfinder House impose additional constraints on the 2nd floor server room location, including:

- **Ceiling loading & cavity restrictions** – limiting the positioning and scale of air conditioning & cable densities.
- **Floor weight restrictions** – which mean adjacent equipment racks have to be further apart on the 2nd floor than they would need to be on the ground floor.
- **Location of air conditioning units on external wall** – the external wall is already congested.
- **Floor to ceiling height** – which restricts the air flows necessary for efficient cooling of equipment and limits rack size thus taking up more floor space.
- **Air conditioning** – specialists have advised that a brick wall, enclosing the main server room, needs to be removed to achieve satisfactory air flow; this would require powering down all systems (because of the disruption and dust).

2.2.4 During the Summer of 2003 external temperatures caused air conditioning failures and a complete close-down of servers was only narrowly avoided. Whilst staff are able to function (albeit with reduced efficiency) in environmental extremes the servers will close down automatically. With an increased number of servers since last Summer there is a risk that a partial or complete closedown of servers will occur in the Summer of 2004 (or earlier if there is an exceptionally warm spell of weather).

Expansion Needs

2.2.5 In 1997, the Council's ICT infrastructure consisted of 4 servers, 150 connected PC's and printers and two remote sites. There was a total of about 20Gb of data space. Currently, there are 54 servers, over 1000 items of network-connected equipment, and 11 other connected sites. There is a total of about 2000Gb of data space.

2.2.6 The situation is not static as the infrastructure is still expanding; the demands of the Customer First Programme have increased this rate of expansion. To date, this expansion has been achieved by expanding the original server room into an adjacent ICT Services area. As a result, the space allocated for the servers is virtually full to capacity and any further expansion will not be possible without further displacing staff from the ICT Services area.

2.2.7 Putting a definitive figure on the "final" number of servers that need to be housed is not feasible (different suppliers have different configurations) so some further space for expansion needs to be allowed for.

2.2.8 The key point to note is that expansion on the 2nd floor tends to be achieved by horizontal expansion (i.e. floor area occupied) whereas without these physical limitations it could be achieved by vertical expansion (subject to ceiling height).

2.2.9 There are many other design criteria which are present in modern day, robust computer room which are absent from the 2nd floor server rooms (see report to the Technical Infrastructure Project Board).

3 EVALUATION OF OPTIONS

3.1 A number of options have been considered. It is clear that some would incur significantly more expense than others. Depending where the room is located, between 1 & 3 workstations desks are required for ICT Services staff who need ready access to the air conditioned equipment area.

3.2 There are four main options:

- 1) Relocate the server room to the ground floor of Pathfinder House
 - i. As a bought-in “module” room within the Council Chamber
 - ii. As a bespoke built room within the Chamber
- 2) Further extend the existing server room on the 2nd floor
- 3) Relocate the server room to a purpose-built area adjacent to Pathfinder House
- 4) Relocate the server room to Godmanchester Depot

3.3 Evaluation

3.3.1 The Council Chamber options are a similar cost to option 2, but bring with them the significant disadvantage of loss of the space for meetings, Council and Development Control Panel in particular, which require a large amount of space.

3.3.2 Extending the existing 2nd floor server room is the most cost effective solution. However, it requires at least 2 days of down time so would need to be scheduled to minimise disruption to service. The loss of space for officers can be managed within the 2nd floor by moving people around.

3.3.3 The two relocation options – options 3 and 4 – are prohibitively expensive due to the need to provide a weatherproof shell (option 3) or an expensive communications link (option 4).

3.4 Cost

3.4.1 Costs are estimated at £74k, as set out in the Annex. The recent request to Cabinet for the release of MTP funds amounted to £20k for building works, with repairs to the air conditioning and the cost of humidity control totalling £9k being funded from existing revenue.

3.5 Timescale

3.5.1 The works are planned to coincide with the new power supply for Pathfinder House, which requires the location of the server room to be identified, and should be completed by 1st June 2004.

4 CONCLUSION

4.1.1 The computer room needs to be expanded and to have more effective air conditioning if the existing service is to be maintained through the Summer months and the Customer First Programme is to continue unhindered.

4.1.2 Option 2 is the most cost-effective solution, but requires an additional £45k of funding above the £20k requested in the MTP bid.

5 RECOMMENDATION

Cabinet is asked to endorse Option 2 and approve additional capital funding of £45k.

Background papers:

“Expansion of ICT Infrastructure” (Report to Technical Infrastructure Project Board 23-Dec-2003)

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Cost of Extending 2nd floor IT server Room

	£K
Building – demolition of walls, new office, new ceiling	10
Flooring – new flooring (anti-static)	5
Painting – walls	2
Electrical – from new switch provided by Electrical upgrade project	10
Air conditioning – removal of existing & installation of new	25
IT Cabling	5
Sub-total	57
Consultant fees (12% of project cost)	7
Contingency – including overtime for HDC staff for weekend working	10
TOTAL	74