CHESHIRE FIRE AUTHORITY

ITEM: 5

MEETING OF : CHESHIRE FIRE AUTHORITY
DATE : 18TH APRIL 2012
REPORT OF : AFCO RICHARD OST
AUTHOR : GRAHAM FOSTER

SUBJECT : ICT Programme of Change Update

Summary

1. The purpose of this paper is to give members an update on the ICT programme of change. Members approved additional funding to support this programme of change in June 2011 and part of this approval was the requirement to report progress.

2. This paper highlights the progress so far across the three phases of the ICT programme of change that was set out in the authority paper dated 8th June 2011.

3. The three phases were around infrastructure, software consolidation and ongoing systems support.

Recommended That**:**

[1] the report be noted.

Background

4. ICT infrastructure is a general term that applies to the physical hardware and software that sits behind the scenes driving ICT systems (networks, servers, switches, routers etc) as well as desktop devices such as PCs and laptops.

5. As with many organisations the development of the Services' ICT infrastructure has been relatively organic and ad hoc. While there has always been an underlying ICT strategy there has not necessarily been a unified clear vision for the development of electronic systems to support and enhance business processes and organisational need. This has resulted in a divergence of systems and processes across the Service with departments storing data and information in separate and disparate locations and on systems that do not complement each other.

6. During 2010 it became clear that the hardware, on which these systems operate, was also starting to fail. This was due to a number of issues including obsolete desktop computers, obsolete server devices, poor

maintenance of critical systems, poor infrastructure design and obsolete network configuration. The overall effect of this was that users experienced systems that were very slow or very often failed completely.

7. In June 2011 a paper recommending a three phase approach to deliver improvements needed to the ICT infrastructure, along with additional funding requirements was approved by members.

8. Phase one focused on replacing obsolete networks, servers, PCs and back office systems with modern, fast and resilient hardware capable of supporting Cheshire Fire Service now and in the future. In addition, Phase one would improve our resilience and ability to recover from loss of systems and data at HQ.

9. Phase two was to deliver efficiencies in data sharing across departments to ensure "single keying" of data by rationalising software systems and developing bespoke software to link back office applications. Work on phase two is well under way with the first system, "FireCore", already released resolving the long term issues for recoding and uploading risk critical information onto fire appliances.

10. Finally phase three's aim was to review and refine the Services current first and second line ICT support profile to ensure end users have the highest level of support while ensuring maximum value for money for the Service.

11. While the three streams each have distinct actions and outcomes there are some interdependencies which mean much of the work to complete them will be carried out simultaneously.

12. Since June 2011 there has been a programme of change initiated within the ICT department, which has seen a great deal of improvement to the hardware infrastructure. This included the replacement of all obsolete desktop computers (over 100 in total), the replacement of obsolete servers and the upgrade of all ICT server systems to the latest available. With the replacement of network equipment on all stations, network speeds have improved enough to enable users to access systems with improved application reliability and user experience.

13. The full benefit of these upgraded systems will not be seen until the final stage of the process is complete, the installation of the new Wide Area Network (WAN).

Phase One

Wide Area Network - WAN

14. The WAN is effectively the system of copper or fibre optic cables that connects each site into Service HQ. It also provides the connection to the outside world via the internet.

15. The general configuration and the size of connections combine to provide the level of resilience and the amount of data that can be sent across it at any one time.

16. The current configuration is a hub and spoke design, with Service HQ at the centre, which is considered as old technology for an organisation such as CFRS due to the low level of resilience (with multiple single points of failure present). In addition, by modern standards the capacity of the links is considered low, most are 2Mb or below, and are generally inadequate for the level of data needed by modern systems.

17. As part of the ongoing programme of change, a planned refresh of the network is already underway to provide a more resilient mesh network (resembling a spiders web linking sites) with scalable capacity (100Mb fibre to each WT station and 1GB to Service HQ) but having at least a minimum of 10Mb to each site. The procurement process was undertaken through the OGC Buying Solutions Framework and the contract has now been placed with Updata with a view to completing the full installation by mid 2012.

18. In addition to releasing the invitation to tender via OGC, ICT explored collaboration opportunities with both Cheshire Shared Services and Cheshire Police to investigate the feasibility of connecting to, and sharing, their respective WANs.

19. While both could offer good levels of connection and resilience, neither could match the overall technical specification or price of that being offered by Updata.

20. The contract for the supply of the WAN has deliberately been based on an annual review, affording CFRS the opportunity to continually assess future collaboration with others e.g. Cheshire Shared Services. As Updata is also the main WAN contractor for Cheshire Shared Services the network design will be such that future collaborations and links, either as part of a Public Service Network (PSN) or directly, can be configured relatively simply.

21. The new WAN configuration will provide a robust platform to facilitate rapid, resilient and secure connections to all CFRS sites with the added advantage that it will be PSN ready.

Local Area Network - LAN

22. The Local Area Network is the secure internal method of transmitting data around each site, either by cables or across a wireless network. Basically the LAN is a data communication system allowing a number of independent devices to communicate directly with each other.

23. The speed at which data can travel around the LAN is governed by the capacity of the network cabling and also the capability of the core network devices, switches and routers.

24. In 2010 the core network was upgraded as a separate project by an external company, Telent. This upgrade to the core system and its software greatly increased the data handling capacity of the central system and made some improvements to overall performance. Unfortunately, the majority of the rest of the systems were not upgraded at that time and so overall performance was limited by these older and slower network devices.

25. Since then, as part of the ICT programme of change, these slower, older and in some cases obsolete devices have been replaced by newer, more reliable and efficient hardware, which allow the utilisation of modern data transmission management software known as 'Quality of Service' (QoS).

26. The full utilisation of QoS ensures that certain traffic, such as voice across the VoIP telephony system, is processed and transmitted as a priority over other forms of data, such as email. This prioritisation ensures that telephone conversations are maintained to a high quality and do not suffer from the 'Norman Collier' effect but may add a few milliseconds or seconds to the delivery time of an email.

27. The replacement of these devices will service the data transmission needs for the foreseeable future but, to prevent this scale of hardware upgrade in the future it is vital that a programme of annual hardware replacement be instigated.

28. To facilitate this rolling hardware refresh a review and realignment of the department budget has been carried out by ICT managers.

Server Infrastructure

29. During the ICT review process towards the latter half of 2010, it was identified that a number of servers responsible for managing and hosting the secure storage of all corporate data, and critical core systems such as CFRMIS, Outlook, Blackberry etc., were at, or nearing end of life.

30. The combination of resource hungry applications and old, slow servers, meant these applications were running intolerably slow and causing great frustration for users. Added to this was the heightened risk that the server, and/or the associated storage was in danger of sudden failure, causing major disruption and data loss (especially as some of the backup systems were not fully functional at the time). Closer inspection also revealed that critical patches and virus protection software had not been installed on many of the servers.

31. The replacement of these servers was identified as a priority and additional funding was found through the mid year review process to enable replacement at the beginning of 2011; at which time the latest software, patches and virus protection was installed.

Desktop Equipment

32. Currently the Service has over 500 computers comprising of desktop PCs, laptops and tablets. These are utilised as 'thick clients' which indicates they have the operating system and user software installed on them. With the increase in complexity of both operating systems and software applications these devices now require fast processors and ample memory to ensure acceptable performance.

33. During the third quarter of 2010 it was identified that around 100 of the then current stock of desktop devices was effectively obsolete due to the fact they could not be further upgraded and the processors and memory could not perform sufficiently well with modern software.

34. All of the obsolete PCs have now been replaced with modern, higher specification desktop units and a continuing rolling replacement programme is being initiated.

General Software Applications

35. Over a number of years the Service has invested heavily in Microsoft software and applications. Although the latest licence agreements had been purchased, the Service was still working with much older, and unsupported, software.

36. As part of the ICT programme of change, all Microsoft applications, both server and desktop, have been upgraded to the latest release version. The only exception to this is with regard to specialist equipment that requires specific operating versions such as mobilising station end equipment and mobile data terminals.

37. In the short to medium term it is not proposed to make any changes to the provision of general software applications but to continue using the latest releases of Microsoft technologies through an annual refresh and upgrade programme. However, with the continual improvement and ongoing development of open source software, and the possibility of benefitting from Government procurement processes, this will be under constant review within the ICT department to identify opportunities and possible efficiency savings.

Data Storage & Disaster Recovery

38. The continual increase of electronic data within the Service has placed extra demand on the storage, back up and archiving systems currently used by ICT.

39. Building on the benefits of previous investment, ICT have increased the amount of network storage available by replacing obsolete hardware with a modern and resilient data storage platform. This has

improved data access speeds and dramatically improves our ability to recover data and systems in the event of a disaster by replicating all service data to our DR site.

40. Further benefits of the data storage upgrade will also be seen by rationalising how data is organised on the new platform by reducing duplicate data and providing strong guidance on what should be stored.

Phase Two Software Rationalisation

41. In October 2011 the Software Development Team successfully released the first application as part of Phase Two of the ICT Programme of Change. The application, "FireCore" is a web based modular system, and has resolved the long term problems for recording and uploading of risk information onto fire appliances by automating a number of error prone manual steps.

42. FireCore has been built from the ground up with the ability to link existing back office systems together to deliver efficiencies in data sharing across departments, and we intend to continue developing further modules within the FireCore application during 2012/2013.

Phase Three Support

43. As part of the ICT programme of change a review was carried out to assess the support and maintenance contracts covering the various elements of the infrastructure.

44. That review formed phase three of the programme and identified that there were five external companies contracted to support these elements. Closer examination identified that the support provided was in some places duplicated and in others was non existent.

45. This had the obvious problems that some equipment was not supported at all whereas other areas had overlapping support. The issues with no support were obvious but where there was overlapping support this caused ongoing difficulties. The different companies usually had differing ideas on how some devices needed to be configured and so the devices, and so our network, changed on a constant basis.

46. Fault reporting was equally problematic with each vendor having to be contacted separately. Additionally, it was very difficult to then identify who had responsibility for maintaining and rectifying the issue as, sometimes, each blamed the other.

47. As part of the programme of change all support and maintenance contracts were realigned to terminate at the end of 2011. At the same time a procurement process was initiated to consolidate all support

requirements for both existing and new systems.

48. Following the tender process Nviron, a local company based at Preston Brook, Runcorn, have been awarded the contract and the benefits are already been felt through improved fault resolution and 24/7 monitoring of ICT systems and hardware.

Conclusion

49. As can be seen from the information above, the programme of change has required fundamental changes and upgrades to the vast majority of the Services ICT infrastructure. This has been a complex piece of work requiring major change while maintaining existing services. Budgets have been realigned to support a rolling refresh programme that supports the ICT Strategy and is reflected within the ICT asset management plan.

50. With the installation of the WAN and the completion of the data storage and replication systems upgrade (disaster recovery hardware) the final sections of phase one will then be completed by mid 2012.

51. The ICT Steering Group is overseeing the programme of change and updates have been taken to the Performance and Overview Committee.

Financial Implications

52. The full capital and ongoing revenue costs presented and agreed by members June 2011 are still relevant and no additional funding is required to deliver a successful ICT programme of change.

Legal Implications

53. Apart from the necessity to properly capture the contractual arrangements there are no other direct legal implications.

Equality & Diversity Implications

54. There have been no equality and diversity implications identified.

Environmental Implications

55. None identified

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