



5 November 2018

Agenda Item: 5

**REPORT OF THE SERVICE DIRECTOR FOR FINANCE,
INFRASTRUCTURE AND IMPROVEMENT**

DATA CENTRE MODERNISATION (CLOUD) PROGRAMME UPDATE

Purpose of the Report

1. To provide Members with an update on the progress of the Cloud Services Programme.

Information and Advice

Background

2. The County Council's ICT Strategy 2017-20 sets out the technology direction of travel and the key work programmes supporting its delivery. This includes the transition away from owning and operating a data centre and all of the associated infrastructure (servers, storage, switches, racking, power, air conditioning etc.) with a move to using off-site service delivery including third party data centres and *Cloud* services. Funding to support this was approved by Policy Committee in December 2016.
3. The County Council's ICT infrastructure is vital in supporting many of its services to run effectively. There are some 600 different systems that are used daily with more than 11,500 connecting devices accessing them (desktops, laptops, tablets and smartphones). Systems are run on different operating systems (e.g. versions of Microsoft Server, AIX) and many have interfaces enabling data to transmit between them. There is secure storage of all of the data and back-ups and there are many technology interfaces with external organisations. Secure access to the internet is provided and all of the infrastructure is compliant with Public Services Network standards (PSN).
4. The County Council currently has its own data centre at County Hall and the current model of delivery relies on the County Council purchasing all of the infrastructure within it and having a cyclic 5 year replacement programme so that it remains current and fit for purpose.
5. As an alternative, there are several models of Cloud service delivery available (some are described later in the report) and these incorporate a supplier providing the data centre, the infrastructure within it and sometimes the applications and services themselves. The industry trend is towards Cloud service models.
6. ICT Services has increasingly been making use of off-site and cloud services over the last 4 years. Through our business continuity arrangements we already have some 20%

of our infrastructure in a private sector data centre at Derby (Node 4). Applications currently provided through Cloud solutions include Microsoft Office 365 e-mail and calendar services used by Inspire and VIA, plus the software solutions used for electronic forms and customer contact services.

7. Although the current data centre model has worked effectively, now is a good time to progress to a full Cloud model for the following reasons:

- Major investment would be required over the next 3 years to update the current ICT equipment within the County Hall data centre as it increasingly reaches obsolescence.
- The data centre environment itself is ageing and will require investment to maintain it.
- Annual costs of the current model are rising as suppliers increase their costs by more than inflation.
- The current infrastructure costs are very difficult to reduce, even if the service usage shrinks as we are tied to a physical infrastructure which we own. This lack of flexibility becomes more of an issue as services (such as VIA, Inspire) exercise more choice and as the operating model of the County Council changes.
- The ongoing programme of upgrades to keep the current infrastructure up to date is resource intensive and expensive.
- Reductions to ICT staffing were made in April 2017 in anticipation of moving to a Cloud service model.

Progress to date

8. There are 5 phases to the Cloud Services Programme, summarised below:

Phase 1 (discovery)	The discovery phase assesses the Cloud options, produces the business case, makes recommendations and starts the activity to optimise the current ICT environment in readiness for a Cloud model.
Phase 2 (requirements)	The requirements phase identifies the full set of services and outcomes required from a cloud service model in readiness for procurement.
Phase 3 (procurement)	The procurement phase approves the Cloud solutions and providers and establishes plans and contracts.
Phase 4 (design & build)	Following contract completion, the design & build phase involves the supplier in fully identifying infrastructure requirements, designing and building the new infrastructure and confirming transition plans.
Phase 5 (implementation)	The implementation phase is the transition to go-live from the Cloud service provider, followed by the decommissioning of current services.

9. Phase 1 through 3 are now complete with work now well underway in the design and build phase.
10. As part of phase 1 a business case was developed for the Cloud Services Programme and was presented to Policy Committee in December 2016.
11. In phase 2 a full scan of the existing ICT infrastructure was undertaken to identify all applications, hardware solutions and system interfaces that we have. This information was used to identify the most appropriate cloud solutions and any preparatory activities in readiness for the transition e.g. *virtualising* more applications to run on shared hardware rather than their own hardware (this reduces hardware requirements and makes transition to Cloud easier), consolidating the numbers of servers that are required and re-sizing the infrastructure requirements (e.g. memory and CPU usage) so that we do not over specify needs.
12. The procurement phase (3) is also now complete and the anticipated composition of the Cloud service models are as follows:

Model	Description
Software as a Service (SaaS)	<p>This model enables an organisation to rent an application and its underlying infrastructure. This is often chargeable on a per user per month basis.</p> <p>The first solution delivered through this model will be Microsoft Office 365. This is Microsoft’s SaaS solution for the delivery of their office productivity software e.g. Outlook (e-mail, calendar, contacts), Word, Excel, PowerPoint, SharePoint (team and project spaces), OneNote, OneDrive (file and folder storage and sharing), Skype for Business etc.</p>
Infrastructure as a Service public Cloud (IaaS)	<p>The supplier builds, provides and supports the server infrastructure that the software, databases and data are hosted on. This is delivered through the provider data centre(s) in the form of <i>virtualised</i> servers (physical servers that are segmented to run multiple systems) and accessed through secure network connections. The County Council would retain responsibility for the provision and support of the systems.</p>
Co-location model	<p>The County Council will retain a small amount of infrastructure and some systems in a supplier provided data centre(s), in the same way that we currently use the Node 4 data centre. This is because not all technologies currently lend themselves to the above 2 models.</p>

The exact service models used will still flex and change over time as technology, pricing and business priorities change.

13. The first 3 phases of the programme were overseen by a governance board being approved with the involvement of the Corporate Director (Resources).
14. With phase 4 now nearing completion a new governance model is proposed (Appendix A), establishing a Cross Departmental Cloud Programme Board reporting into the Corporate Leadership Team (CLT) and the Improvement and Change Sub-Committee. The Cloud Board will be supported in its delivery by an ICT delivery programme and a Departmental Working Party.
15. The identified benefits of moving to an off-site and Cloud services model include:
 - Only paying for the infrastructure and services that you use.
 - Flexibility to quickly grow or shrink the ICT estate.
 - The ongoing programme to upgrade and replace ICT infrastructure as it becomes obsolete is significantly reduced as this becomes the responsibility of the Cloud supplier.
 - Based on our discovery activity with 6 Cloud service suppliers there are estimated to be financial benefits from adopting this model.
 - It becomes easier to identify costs down to the level of business units enabling more transparency, and potentially a re-charging model.
16. There are also risks associated with moving to an off-site and Cloud services model:
 - There is an increased reliance on Cloud suppliers for service availability and upgrades, necessitating stringent contractual and service level management.
 - The process of transitioning to Cloud services presents some risk to service continuity and integrity.
 - There are some security and interoperability considerations within a Cloud model, but we have some experience of these with our current use of a second data centre.
 - There is always a risk of unplanned price increases.
17. As phase 4 is nearing completion CLT have requested that an independent gateway review be undertaken on the programme. This will be commissioned in November with the results being reported back in the next appropriate committee cycle.
18. At this stage it is anticipated that a go-live date in 2019 could be achieved but this will become clearer as the phases progress.

Financial Implications

19. The actual cost of moving to and operating a Cloud services model will not be fully known without a procurement exercise and having fully transitioned to the new delivery model. Reasonable estimates based on soft market testing identified investment of £4.1million to support the transition over a 3 year period (year 1 £1.550m, year 2 £1.750m, year 3 £800k). This is to establish and transition to a Cloud service model and for the estimated

parallel running costs. These works will be funded from capital receipts flexibility as reported to Full Council in February 2018 as part of the 2018/19 Budget Report.. The business case identified that the cumulative cost of moving to a Cloud model becomes lower within 3 years.

20. As part of the ICT Services re-structure in April 2017, staffing levels were downsized to reflect a smaller ongoing infrastructure replacement programme as we transition away from data centre ownership. Through the Cloud Services Programme further savings of £50k in 2019-20 and £200k in 2020-21 are proposed for inclusion within the medium term financial plans. This is to reflect some network cost savings from a greater take-up of Skype for Business for telephony, plus a revamp of resource requirements, supplier contracts, use of contractors, processes and technology use once the Cloud services models of delivery have been implemented.

Other Options Considered

21. The option of continuing with the current data centre model has been considered but was not cost effective in the medium term as identified above.

Reason for Recommendation

22. To update the committee on the work towards a full Cloud service model.

Statutory and Policy Implications

23. This report has been compiled after consideration of implications in respect of finance, equal opportunities, human resources, crime and disorder, human rights, the safeguarding of children, sustainability and the environment and those using the service and where such implications are material they are described below. Appropriate consultation has been undertaken and advice sought on these issues as required.

RECOMMENDATION

It is recommended that:

- 1) Members approve the Governance structure identified in Appendix A.
- 2) Members agree to receive an update report in 3 months' time and consider what further action they wish to take.

Nigel Stevenson

Service Director Finance, Infrastructure and Improvement

**For any enquiries about this report please contact:
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Constitutional Comments (CEH 19/10/2018)

The recommendations fall within the remit of the Improvement and Change Sub-Committee under its terms of reference.

Financial Comments: (SES 19/10/18)

The financial implications are set out in paragraphs 19 and 20 of the report. The £4.1m funding required to enable the move to a Cloud Based model will be funded in full from capital receipts flexibilities. The report also proposes additional financial savings of £50,000 in 2019-20 and £200,000 in 2020-21.

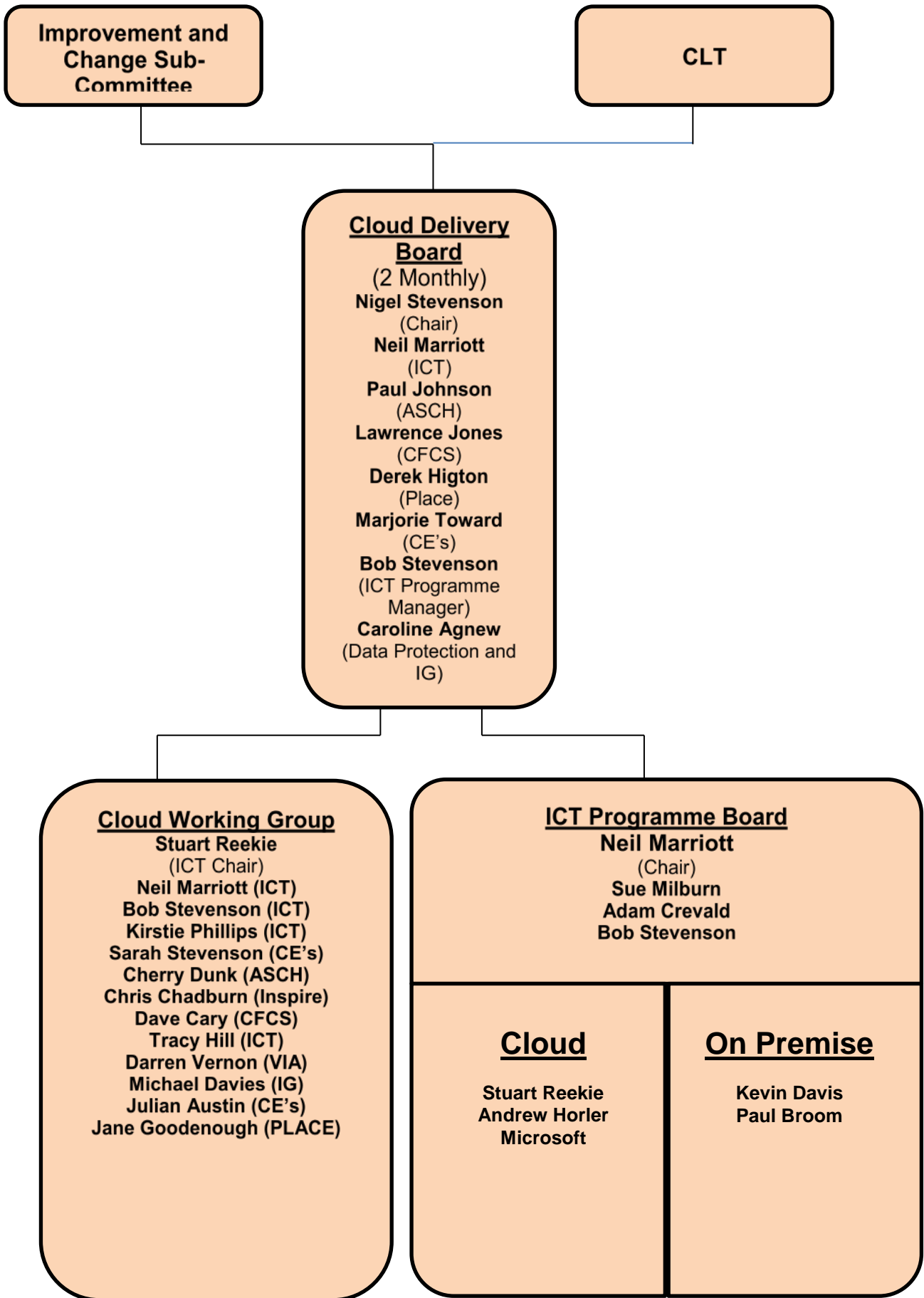
Background Papers

None

Electoral Division(s) and Member(s) Affected

All

Appendix A -Cloud Governance



It is proposed that a **Cloud Delivery Board** is established to provide governance, collective decision making, determine overall prioritisation and provide communication for the duration of the Cloud programme. The Board is accountable for the success of the programme and related projects and has responsibility and authority for the various projects

A Cloud **Working Group** be established to:

- Agree and prioritise Cloud deployments outside of the main schedule
- Act as forum for practical issues arising from the deployment of Cloud Services
- Understand the impact of Cloud deployments and champion within departments / ASDM's
- Have visibility of and input to the planned changes and impact on services
- Help mitigate any risks identified
- Ensure effective communications to departments and ASDM's
- Gather any departmental information needed to ensure applications and data remain compliant and secure.

The **ICT Programme Board** will be responsible for:

- Overall delivery of programme and project activities
- Planning & coordination
- Deployment of Cloud services
- Issue resolution
- Acceptance testing
- Communications and feedback