

REPORT OF THE CHAIR OF FINANCE AND PROPERTY COMMITTEE**DATA CENTRE MODERNISATION (CLOUD) PROGRAMME****Purpose of the Report**

1. To provide Members with an update on the progress and proposals for the Cloud Programme.

Information and Advice**Background**

2. The County Council's ICT Strategy 2014-17 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 data centres, commonly referred to as *cloud* services.
3. The County Council currently has its own data centre at County Hall and this 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.
4. As an alternative, there are several models of cloud service delivery available (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.
5. As part of the ICT strategy, ICT Services has increasingly been making use of cloud services over the last 3 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 other cloud solutions include, as examples, 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.
6. The trend, growth and flexibility of cloud services is such that some soft market testing with potential suppliers has been undertaken to understand what a full cloud proposition might look like, what the ongoing costs might be and to understand the costs and risks of transition. This discovery phase has identified that a move to full off-premise cloud based delivery is both possible and, in the medium term, is more cost effective and provides significantly more flexibility to the Authority as it moves into different models of service delivery. As part of the discovery phase a programme of changes are being

made to how our existing infrastructure is sized and configured in readiness for transitioning to a cloud solution at some point in the future.

7. Although the current data centre model works effectively, the discovery phase has concluded that now would be a good time to progress to a full cloud model for the following reasons:

- Major investment will 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.

Progress to date

8. There has been significant work undertaken to fully cost the current data centre provision and to understand the cloud service model options. Over 50 potential service providers have attended briefing sessions to understand our current model of delivery. From these sessions we have gained ideas as to how we might transition safely and securely to a new model and re-size and configure our existing infrastructure to support an easier, more effective and lower cost model.

9. Further soft market testing with 6 suppliers has helped shape how the initial transition to a cloud model could be shaped. There are a range of cloud service models available and it is anticipated that our initial approach would mainly incorporate the following mix:

Co-location model	There is some ICT infrastructure that we would need to retain and so we would rent space at a service provider data centre to co-locate this equipment there.
Private cloud model	Most of our existing services would be hosted in a dedicated (private) environment at a service provider data centre(s). The infrastructure would be provided, supported and managed by the supplier, but existing arrangements for supporting the applications themselves would continue. Our internet connectivity would also be provided out of this facility.

Multi-Tenant Infrastructure as a Service (IaaS)	This would be a secure set of servers sitting within an approved supplier environment servicing the needs of multiple customers including the County Council. This would be used to provide us with the ability to flex up and flex down as demand changes. This is an ideal landing place for development environments (used for testing and developing systems prior to go-live), short term projects or services with an uncertain future.
Public cloud model	The service provider makes applications and storage available over the internet e.g. Microsoft Azure. This is best suited to services that have minimal security requirements and present us with minimal risk.

The exact cloud models used would become more apparent as part of the tendering and contractual process, and will change over time as technology, pricing and business priorities change.

10. The identified benefits of moving to a fully 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.
- There is significant interest from the cloud supplier market with more than 200 companies showing initial interest.
- Based on our discovery activity with 6 potential 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.
- As an early adopter of such a model we could negotiate with the provider a commercial arrangement for any future contracts they gained using the methodology adopted as part of this framework arrangement.

11. There are also risks associated with moving to a fully cloud model:

- The cloud delivery market is still maturing and subject to change as suppliers vie for business.
- There is significant reliance on a cloud supplier for service availability and upgrades, necessitating stringent contractual and service level management.
- There are few examples of a local authority putting all services into a cloud model.
- The process of transitioning to cloud services presents a risk to service continuity and integrity.
- There are 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.

Proposals

12. It is proposed that the Cloud Programme follows 5 phases with a gateway checkpoint and sign-off at each before progressing to the next. A Cloud Programme board chaired by the Corporate Director (Resources), and reporting to the Corporate Leadership Team, would approve each phase. It is further suggested that a six monthly progress report on the programme would be brought to Finance and Property Committee for information. The 5 phases are 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 and produces tender documentation.
Phase 3 (tender)	The tender phase is the procurement process to propose and approve the best solution, partner, plan and contract.
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.

13. 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. The programme will require £4.1m capital investment over a 3 year period. A bid has been made to the Capital Programme and it is anticipated that approval to its inclusion in a revised Capital Programme will be sought at the February Full Council meeting. In the interim, subject to approval of this report, work will continue on phase 1 and 2 of the programme.

Financial Implications

14. The actual cost of moving to and operating a cloud services model will not be fully known without a tendering exercise with suppliers, but reasonable estimates have been derived on the basis of the soft market testing. An analysis of the cumulative cost of

maintaining the current data centre model and the move to the delivery of a cloud model are set out below:

	2016-17 £000	2017-18 £000	2018-19 £000	2019-20 £000	2020-21 £000
Option 1 Current model	3,464	6,982	10,552	14,179	17,868
Option 2 Cloud model	1,809	6,613	10,993	13,912	15,773

15. The cloud model above factors in the £4.1m of additional capital investment that would be required over a 3 year period (2017-18 £1.550m, 2018-19 £1.750m, 2019-20 £800k) to establish and transition to a cloud service model and for the estimated parallel running costs. The above table shows that the cumulative cost of moving to a cloud model becomes lower by 2019-20, which is effectively within 3 years.

Other Options Considered

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

Reason for Recommendation

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

Statutory and Policy Implications

18. 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 Policy Committee notes the position on the Cloud Programme and the proposed phases for implementation and capital requirements.

Councillor David Kirkham
Chair of Finance and Property Committee

For any enquiries about this report please contact:
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Constitutional Comments

Because this report is for noting only, no Constitutional Comments are required.

Financial Comments: (SES 23/11/16)

The financial implications are set out in the report.

Background Papers

None

Electoral Division(s) and Member(s) Affected

All