

Project Name: Using Cloud Computing for Research  
 Version: 1.1  
 Contact: Max Hammond  
 Date: 15/12/2009



## Project Plan

Project Information			
<b>Project Name</b>	Using Cloud Computing for Research		
<b>Start Date</b>	16 November 2009	<b>End Date</b>	15 May 2010
<b>Budget</b>	£59,800		
<b>Lead Institution</b>	Curtis+Cartwright Consulting Ltd		
<b>Project Director</b>	Geoff Curtis		
<b>Project Manager &amp; contact details</b>	Max Hammond - max.hammond@curtiscartwright.co.uk		
<b>Partner Institutions</b>	University of Surrey & Charles Oppenheim (both via subcontract)		
<b>Project Web URL</b>	TBC		
<b>Programme Name</b>	Research Infrastructure		
<b>Programme Manager</b>	James Farnhill		

Document Name			
<b>Document Name</b>	Using Cloud Computing for Research Project Plan		
<b>Author(s) &amp; project role</b>	Max Hammond, project manager		
<b>Date</b>	19/11/2009	<b>Filename</b>	<i>Short project plan.doc</i>
<b>URL</b>	<i>if document is posted on project web site</i>		
<b>Access</b>	<input type="checkbox"/> Project and JISC internal		<input checked="" type="checkbox"/> General dissemination

Document History		
Version	Date	Comments
0.1	19/11/09	First draft
1.0	14/12/2009	Release version
1.1	15/12/2009	Minor updates

## **Overview of Project**

### **1. Background**

Cloud computing is a relatively recent concept that has arisen out of developments in grid computing, virtualisation and web technologies. The term covers an entire stack from infrastructure through storage, platforms, and applications. Of these, Software-as-a-Service has so far been the most successful in universities through outsourcing of email and collaborative functionality. However, it is cloud infrastructure and storage that are most relevant to this project. Clouds are characterised by on-demand deployment of virtual, flexible, highly scalable resources with a pay per use charging model. The current range of computational facilities available to researchers includes HPC systems (eg HECToR and institutional clusters), grid-computing infrastructures, such as the NGS and campus grids, and locally owned and operated resources. Cloud computing has the potential to prove a valuable addition to, or even replace entire aspects of, this computational arsenal.

However, before cloud computing plays a truly significant role in academic research there are several potential issues that need to be resolved, including: when and where would cloud resources be utilised best; changing staff competencies; legal and data ownership/security implications and the economic case for cloud computing. Advice and guidance concerning these areas is required urgently by individual researchers, staff responsible for current institutional compute resources and more senior institutional managers. JISC has the remit to understand the risks and opportunities of an early stage technology such as the cloud for the benefit of the whole sector. Synthesis of experience to date, and then provision of useful guidance will ensure that the “early adoption” stage of cloud computing by the sector is less risky and more beneficial than if all institutions acted alone. It is timely to undertake this project (and related work on technical and organisational/environmental aspects) because many people are trying, or want to try, cloud computing but cannot always make an informed decision.

### **2. Aims and Objectives**

The objectives of the project are to:

- document use cases for cloud computing in research for data storage and computing;
- develop guidance on the governance, legal and economic issues around using cloud services for storage and computing in academic research;
- make recommendations to JISC on possible further work in the area for data storage and computing.

### **3. Overall Approach**

Our proposed approach is first to review guidance already available on cloud computing for data storage and computing, considering potential differences between UK HE research use of cloud and that of other sectors/organisations. We intend to build on readily available conceptual frameworks such as NIST’s service and deployment models and the white paper from the Cloud Computing Use Case Discussion Group in order to describe more use cases than otherwise possible. We will then consult widely and interview in depth to accumulate further use cases and case studies to design and populate the guidance. Finally we will provide decision support, and not a single recommendation, as critical thinking is still required from researchers and institutions as to what data storage or compute solution is most appropriate given functional requirements, budget, security, reliability, trust, etc as well as the cloud services currently on offer.

### **4. Project Outputs**

- D1 – A detailed project plan (this document);
- D2 – An interim progress report;
- D3 – A short briefing paper - Can cloud computing help your research?
- D4 - A guide to cloud computing for research

D5 – Completion report

## 5. Project Outcomes

- Understanding of where cloud computing can best be used in research for data storage and computing.
- Clear direction for the JISC in stimulating innovation in the use of cloud computing in UK HE.

## 6. Stakeholder Analysis

Stakeholder	Interest / stake	Importance
UK researchers	Advice and guidance could help them carry out more effective research and explore new methods for research by using the cloud	High
Research computing/information systems departments	Advice and guidance will help them to provide appropriate facilities for researchers and strategic guidance on priorities with regard to the cloud.	High
Concurrent JISC cloud projects	Require co-ordination to deliver a consistent and comprehensive analysis	High
Cloud service providers	Will have opportunities to supply to UK academic sector, and may develop products which better meet the sector's requirements.	Medium
JISC	Funder/recipient of recommendations for future work.	Medium

## 7. Risk Analysis

Risk	Probability (1-5)	Severity (1-5)	Score (P x S)	Action to Prevent/Manage Risk
Insufficient coordination between projects weakens outcomes.	3	3	9	Regular meetings between the teams, co-ordinated approach to stakeholders with Technical review.
Academic community does not engage with the information gathering stage of the project.	2	4	8	From our current contacts we know that there is considerable interest in participating. We have proposed a range of approaches for engaging with researchers and other stakeholders to optimise our chances of getting the involvement and information we need for the project.
No case studies for non-STEM subjects can be identified.	3	2	6	We would develop hypothetical case studies instead, focusing on key differences such as the use case and skills required.
Key staff are not available due to accident, illness or staff transfers.	1	1	1	There is sufficient flexibility in team loading and capacity to rearrange effort if required. We also have other staff and associates that could fulfil roles as necessary.

## 8. Standards

Not applicable. Standards do not form part of this project.

## 9. Technical Development

Not applicable. No technical development will occur in this project.

## 10. Intellectual Property Rights

The partnership will retain the IPR associated with the project. All project or service outputs will be made available free of charge and in perpetuity within the further and higher education sector and in accordance with JISC's Open Access Policy. Permission is granted to HEFCE to freely exploit the outputs under a Creative Commons Attribution Non Commercial No Derivative Licence 2.0 UK: England and Wales. Curtis+Cartwright will ensure that we have rights to use all third party copyright and other IPR prior to digitisation or incorporation into any outputs and take all necessary measures to try and trace rights holders which will include documentation of our efforts.

## *Project Resources*

### 11. Project Partners

All partners will be on a sub-contract basis, meaning a consortium agreement is un-necessary. Dr Lee Gillam from Surrey University will be employed as a consultant to provide real-world understanding and practical experience of cloud computing. Professor Charles Oppenheim will provide specialist legal and institutional management input.

### 12. Project Management

The project will be managed using Curtis+Cartwright project management and quality assurance processes, in line with the advice and guidance in the JISC Project Management handbook. Key members of the team are:

- Dr Max Hammond – project manager;
- Dr Rob Hawtin – will conduct and synthesise research as required;
- Dr Lee Gillam - subject matter expert;
- Professor Charles Oppenheim – legal and institutional expert.

### 13. Programme Support

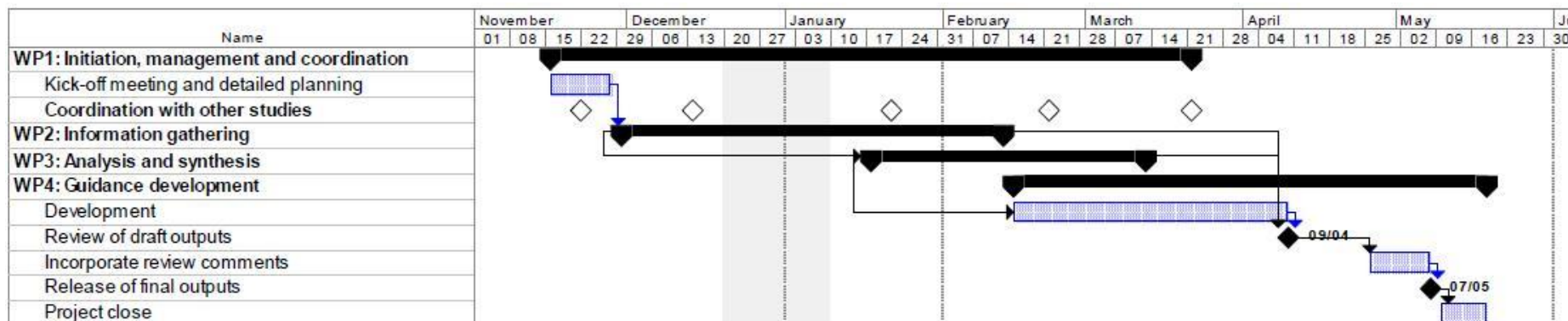
Timely completion of this review is subject to the following dependencies on JISC: timely provision of any documentation that is required in order to support this work; support for proposed activities, in particular venues for workshops; and, timely review of the final outputs by relevant stakeholders (two weeks scheduled).

### 14. Budget

Labour:	£48,500
MLH:	35 days
RWH:	25 days
LG:	26 days
CO:	9 days
Travel & Subsistence:	£2,000
Workshops:	£1,500
VAT @15%	£7,800

## Detailed Project Planning

### 15. Workpackages



	Start	Finish	Milestone	Responsibility
<b>WORKPACKAGE 1:</b>				
<b>Objective: Create project management outputs and manage project.</b>				
1. Kickoff meeting	17/11/09			JISC
2. Stakeholder analysis	16/11/09	29/11/10		RH

Project Name: Using Cloud Computing for Research  
Version: 1.1  
Contact: Max Hammond  
Date: 15/12/2009

3. D1 Detailed project plan	16/12/09			Yes	MH
4. Monthly meetings	16/11/09	15/5/10			JISC
5. D2 Interim Progress Report	16/2/09			Yes	MH
<b>WORKPACKAGE 2:</b>					
<b>Objective: Gather information</b>					
6. Literature review (covering both academia and the private sector)	29/11/09	27/12/09			LG
7. Broad-ranging interviews with those listed in ITT §23 (plus representatives from research councils)	10/1/10	7/2/10			MH
8. Detailed use case and requirements interviews with active researchers	10/1/10	7/2/10			MH
9. Broad views and concerns sought from active researchers via workshops	10/1/10	14/3/10			MH
10. Detailed requirements and constraints interviews with research computing services and information services departments to understand their views and shape the guidance	10/1/10	7/2/10			MH
11. Consult related JISC initiatives	29/11/09	14/3/10			MH
12. Review actual cloud services and their terms and conditions, plus feedback from other customers via news channels and discussions boards.	29/11/09	14/3/10			LG
<b>WORKPACKAGE 3:</b>					
<b>Objective: Analysis and synthesis</b>					
13. PESTLE Analysis	17/1/10	14/3/10			RH

Project Name: Using Cloud Computing for Research  
Version: 1.1  
Contact: Max Hammond  
Date: 15/12/2009

14. Assess use cases					RH
15. Legal analysis					CO
16. Create recommendations					MH
17. Synthesis					RH
<b>WORKPACKAGE 4:</b>					
<b><u>Objective:</u> Guidance development</b>					
18. Development	14/2/10	9/4/10			MH
19. Review of draft outputs	9/4/10	25/4/10			JISC
20. Incorporate review comments	25/4/10	7/5/10			RH
21. Release of final outputs	7/5/10	15/5/10			MH
22. D3 Can cloud computing help your research?	7/5/10	15/5/10		Yes	MH
23. D4 A guide to cloud computing for research	7/5/10	15/5/10		Yes	MH
24. Project close	7/5/10	15/5/10			MH
25. D5 Completion report	15/5/10	15/5/10		Yes	MH

## 16. Evaluation Plan

Timing	Factor to Evaluate	Questions to Address	Method(s)	Measure of Success
Over project	Applicability to target community	Does the advice and guidance meet researcher needs? Does the advice and guidance meet IS/research computing needs?	Consultation with both groups	Positive feedback from groups. Takeup of advice on guidance on completion of project.
Following project	Use of guidance when planning research ICT procurement	Has this guidance influenced the decision to use Cloud computing? Has this guidance made procurement of cloud services easier?	Consultation with active researchers, follow-up with those who supported this project <sup>1</sup>	Positive feedback from consultees.

## 17. Quality Plan

Output Timing	All report outputs				
	Quality criteria	QA method(s)	Evidence of compliance	Quality responsibilities	Quality tools (if applicable)
As produced	According to C+C QA policy, including spelling, grammar, compliance with proposal, and fitness for purpose.	Internal review	Completed QA forms	Process: MH Project Authority: Geoff Curtis	N/A

## 18. Dissemination Plan

Timing	Dissemination Activity	Audience	Purpose	Key Message
Through project	Consultation with stakeholders who will use outputs	Researchers, IS, research computing	Raise awareness	Help and guidance will be available
Through project	JISC website and comms channels such as news items	Researchers, IS, research computing	Raise awareness	Help and guidance will be available
End of project	JISC events	Researchers, IS, research computing	Encourage use of guidance	Help and guidance is available

<sup>1</sup> This must be conducted retrospectively, and is out of scope for this project. The programme should consider how to conduct this evaluation in line with its overall evaluation process.

Project Name: Using Cloud Computing for Research  
 Version: 1.1  
 Contact: Max Hammond  
 Date: 15/12/2009

## 19. Exit and Sustainability Plans

Project Outputs	Action for Take-up & Embedding	Action for Exit
Reports	Build community of use through dissemination activities above	Promotion through JISC on website and at events. Ensure reports are placed in JISC repository and are linked to from project page on website.

Project Outputs	Why Sustainable	Scenarios for Taking Forward	Issues to Address
D3, D4	Potentially useful as long as kept up to date	Integrate with training materials available via JISC Infonet?	Keeping materials up to date.