# 300COM / 303COM Detailed Project Proposal

| First Name: | |
|---|---|
| Last Name: | |
| Allocated Supervisor Name: | |

## SECTION ONE:  DEFINING YOUR PROJECT

### 1.1 Detailed research question

Is setting up a windows virtual desktopto be deployed using the cloudand accessed with a low power thin android client a feasible option?

### 1.2 Keywords

Virtualisation/virtualization; remote desktop; power saving; DaaS; hypervisor; cloud computing.

### 1.3 Project title

Creating a virtual desktop for a low power thin client running android.

### 1.4 Abstract

This project proposes a solution to deploying a virtual desktop into the cloud and accessed with a low powered thin android client running on a quad core ARM processor. Cloud computing is an excellent way to manage resources in real time and to pay for what is needed. It allows for resources to be shared when required without the hassle of advanced configuration. Virtualisation allows businesses to reduce IT costs as well as increase the efficiency, utilisation and flexibilityof hardware. A proposed option is to create a private cloud that is used to deliver a virtual desktop to the end user harnessing the powers of both the cloud and virtualisation. The desktop will be accessible anywhere in the world via an internet connection. To allow this to happen a virtual machine manager is selected and installed onto the server located in the cloud, then a windows 7 virtual machine is deployed onto the server. To measure if this is feasible option test users carry out a set of defined tasks on both a standard windows desktop and the proposed virtual desktop in the cloud. Using analysed data generated from test users it is concluded if the proposed solution is feasible.

## SECTION TWO: YOUR RESEARCH PLAN

### 2.1 Primary Research Plan

1. Firstly define a set of tasks the test users will perform.
2. Get the users to carry out the set of tasks on the standard windows 7 desktop and fill in a questionnaire about their experience.
3. Deploy the proposed solution. (Deploy a windows 7 virtual machine into the cloud using the best suited virtualisation software).
4. Get the users to carry out the same set of tasks using the same mouse, keyboard and screen but using the low power android thin client to connect to the virtual desktop in the cloud.
5. Get the users to complete the same questionnaire as they previously did.
6. Analyse the data from both situations.
7. Conclude if the proposed solution is viable/feasible.

The reason I have chosen questionnaires as my primary research method is because it allows me to possess accurate data directly from the test user which can be analysed more accurately than the original primary method I proposed which was just observations. Observations seemed sufficient at first but after more research it will not be acceptable to base my research based on such a relaxed method of data collection. I decided I needed accurate quantitative data to successfully answer my research question, however there will be some qualitative questions posed to the test users so I can get some feedback about the usability of the proposed system. The test users will still be observed when working on both the normal windows 7 desktop and the proposed system but the accurate data I will rely on for analysis will come from the questionnaires.

## 2.2 Secondary research sources (key texts for your literature review)

**References**

Anderson, P., (2014). *Virtualisation for local cloud computing: DWU data centre.:EBSCOhost*. [online] Available at: http://web.a.ebscohost.com/ehost/viewarticle?
data=dGJyMPPp44rp2%2fdV0%2bnjisfk5Ie46bdQtai2S7ak63nn5Kx95uXxjL6nr0evpq1KrqeyOLOwskm4qbI4v8OkjPDX7Ivf2fK
B7eTnfLujr02wrLBJsae3SaTi34bls%2bOGpNrgVd%2bv5j7y1%2bVVv8Skeeyztk61prZNta6kfu3o63nys
%2b585LzzhOrK45Dy&hid=4104 [Accessed 7 Nov. 2014].

Hwang, K., Fox, G. and Dongarra, J. (2012). *Distributed and cloud computing*. Watham, MA: Morgan Kaufmann.

Mahjoub, M., Mdhaffar, A., Halima, R. and Jmaiel, M. (2011). A Comparative Study of the Current Cloud Computing Technologies and Offers. *2011 First International Symposium on Network Cloud Computing and Applications*. [online] Available at: http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=6123450 [Accessed 4 Nov. 2014].

I feel the above references are a great starting point for looking at what is already out there and what I can use to create the proposed solution and they are current. There will also be lots of documentation used for actually deploying the virtual machines. All of these will be referenced in the project.

## SECTION THREE:  IMPACT AND PLANNING

## 3.1 Client, Audience and Motivation:

**Why is this project important?**

To me this project is important as I can see the potential benefits for home users, the developing world and small businesses using virtualisation technologies for their own benefit. Using virtualisation could mean the end of expensive desktop computers as we know it. All the complicated data processing by a standard desktop can be outsourced to the cloud and used as and when needed and the user pay's for what they use rather than paying up front costs for the hardware they may never use to the full potential.

Many SME's are already using virtualisation and the cloud for many different solutions to deliver desktops such as a financial institute in the United States. They are using four nodes that support 450 hosts with more than 12,000 virtual machines which log millions of messages everyday. (VmWare, Inc.2014). Many organisations are also welcoming schemes such as 'BYOD' (Bring your own device to work) schemes which allow staff to use a range of applications tailored for the company, this essentially means staff can use their personal devices to connect to the cloud to a virtualized environment on any device that is compatible. An example of this is Foley & Lardner LLP, a firm of around 2100 employees who have recently adopted VmWare Horizon which gives employees the access to virtualized desktops via their iPad's and laptops. (VmWare. 2014). I believe it is now time for end users to be able to harness the power of cloud and virtualisation and I am eager to start testing how practical it actually is for a normal home user.

**To whom is this project important?**

This project will be useful for users looking to carry out resource intense activities running on windows 7 or any other operating system supported from anywhere in the world but are limited to carrying around a thin client with them, or when it's not appropriate to buy new hardware. It could also be useful for new startup companies that do not want to invest up front for powerful hardware and would rather outsource the computing power to data centers on a pay as you go basis. Another possibility is for charities to use these devices in the developing world as the thin android client consumes a maximum of 10W of power, therefore it's very cheap to run and the up-front cost is small compared to buying brand new

hardware. The main cost is for the datacenters in the cloud that supply the virtual environments.

For example this could be related to many of the following groups.

- Startup businesses.
- Charitable organisations.
- Users that need scaled resources on demand for certain applications.
- Users that want to do some testing with different operating systems but don't have the hardware.
- People looking to buy a new desktop computer (They could just get a thin client and use a desktop in the cloud on demand).

## 3.2 Evidence of project management

To keep on top of the project and receive advice from my supervisor we have set up a weekly meeting that occurs at 10.30am on a Wednesday, in this meeting we will talk about how I am progressing and any support I need will be given. All meetings with supervisor will be noted down and stored on to Google Drive. This will allow me to go back and look at previous meetings. An example of the template can be seen via 'Appendix A' which I created after the first meeting.

I will also be keeping an up to date project log. This has already been created and tasks will be added every week by myself. A screenshot of the project log can be seen via 'Appendix B'.

Google drive will also play a major part in my project management as it allows me to keep my files across multiple devices with the most current version always at my disposal. It also has the option for previous versions of files which can help me if any of the files ever get corrupted. It is important to keep constant backups and keep an up to date copy with me everywhere I go so I'm always able to work on the project.

Furthermore to keep a plan of time for the project and to highlight deliverables as well as submission dates I have created a Gantt chart in Microsoft project which can be seen via 'Appendix C'.

## References

VmWareInc, (2014). *Large U.S. Financial Institution Turns to Automated Log Management for Faster, More Cost-Effective Problem Solving*. [online] Available at: http://www.vmware.com/files/pdf/customers/VMware-Anonymous-US-Financial-Institution-CS-14Q1-EN.pdf?src=WWW_customers_VMware-Anonymous-US-Financial-Institution-CS-14Q1-EN.pdf [Accessed 8 Nov. 2014].

VmWare, (2014). *The BYOD Opportunity*. [online] Available at: http://www.vmware.com/files/pdf/view/VMware-BYOD-Opportunity-Whitepaper.pdf [Accessed 8 Nov. 2014].

**Appendices**

Appendix A.

# Meeting notes

| | |
|---|---|
| **Supervisor** | Reda Al Bodour |
| **Time** | 9.15am |
| **Date** | 29/10/2014 |

## Points Covered

- Went over ethics form that needs to be created online.
- Reda clarified that the project is a 'proof of concept' and not to make it too difficult for myself by trying to over complicate things.
- Confirmed with Reda that I would have a draft copy of the detailed project proposal for next week (5/11/14).
- Spoke about how to put this method into a full scale production which I can talk about in the paper, but just to keep it as a proof of concept.

Appendix B.

Project Log – Adam Holt

| Date | Task | Duration | Deliverable/Management Notes | Status |
|---|---|---|---|---|
| 29/10/14 | Prepare a draft of the detailed project proposal. | 1 week | Fill in the detailed project proposal form and have it ready for 5/11/14 to show Reda. | Complete |
| 29/10/14 | Find suitable resources to help with the project. | 6 weeks | Get together lots of relevant resources for the literature review. | Ongoing |
| 5/10/14 | Redo primary research method | 6 days | Needs to be completed to submit for Nov 11th 23:55 | Complete |
| 5/10/14 | Write more for abstract – add more about cloud computing | 6 days | Needs to be completed to submit for Nov 11th 23:55 | Complete |
| 5/10/14 | Make gantt chart | 6 days | Needs to be completed to submit for Nov 11th 23:55 | Complete |
| 7/10/14 | Changed primary research method | Immediate | Changed so I can get more scientific data from my research. | Complete |
| | | | | |
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Appendix C.

GANTT CHART

| | i | Task Mode | Task Name | Duration | Start | Finish | Predecessors | Text1 | Resource Nan |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | ⊿ **Milestone 1 - Planning** | | | | | | |
| 2 | | | Create initial project allocation & Allocate with supervisor | 10 days | Mon 06/10/14 | Fri 17/10/14 | | | |
| 3 | | | Read into the subject & Analyse | 14 days | Mon 06/10/14 | Thu 23/10/14 | | | |
| 4 | | | Create detailed Project Proposal | 8 days | Thu 30/10/14 | Mon 10/11/14 | 2 | | |
| 5 | | | Complete Ethical Considertaions Form | 24 days | Tue 11/11/14 | Fri 12/12/14 | | | |
| 6 | | | ⊿ **Milestone 2 - Research Literature** | | | | | | |
| 7 | | | Gather information on topic | 14 days | Tue 11/11/14 | Fri 28/11/14 | | | |
| 8 | | | Create report template | 1 day | Mon 01/12/14 | Mon 01/12/14 | 7 | | |
| 9 | | | Start literature report Introduction | 12 days | Tue 02/12/14 | Wed 17/12/14 | 8 | | |
| 10 | | | ⊿ **Milestone 3 - Analysis** | | | | | | |
| 11 | | | Analyse all of the information/sources gathered | 7 days | Mon 05/01/15 | Tue 13/01/15 | 9 | | |
| 12 | | | Literature report on case studies & what are the types of software available | 10 days | Wed 14/01/15 | Tue 27/01/15 | 11 | | |
| 13 | | | Start to analyse the findings in the literature review | 5 days | Wed 28/01/15 | Tue 03/02/15 | 12 | | |
| 14 | | | ⊿ **Milestone 4 - Recommendations/Implementation** | | | | | | |
| 15 | | | Design the proposed system by using the literature review | 5 days | Wed 04/02/15 | Tue 10/02/15 | 13 | | |
| 16 | | | Test the proposed system to see if its ready for primary research | 2 days | Wed 11/02/15 | Thu 12/02/15 | 15 | | |
| 17 | | | ⊿ **Milestone 5 - Primary Resarch** | | | | | | |
| 18 | | | Arrange for test users to test proposed system | 2 days | Fri 13/02/15 | Mon 16/02/15 | 16 | | |
| 19 | | | Get users to test system and fill in questionaires | 10 days | Tue 17/02/15 | Mon 02/03/15 | 18 | | |
| 20 | | | ⊿ **Milestone 6 - Evaluation & Conclusion** | | | | | | |
| 21 | | | Evaluate how the recommendations worked out | 5 days | Tue 03/03/15 | Mon 09/03/15 | 19 | | |
| 22 | | | Produce report on the recommendations | 3 days | Tue 10/03/15 | Thu 12/03/15 | 21 | | |
| 23 | | | Show progress to supervisor - informal | **0 days** | **Mon 02/03/15** | **Mon 02/03/15** | | | |
| 24 | | | Critcial Evaluation & conclusion | 5 days | Fri 13/03/15 | Thu 19/03/15 | 22 | | |
| 25 | | | Talk about how the project could be implemented on a larger scale | 5 days | Fri 20/03/15 | Thu 26/03/15 | 24 | | |
| 26 | | | **Submission!** | 0 days | Mon 20/04/15 | Mon 20/04/15 | 25 | | |