

Into the Cloud

- a small company perspective

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I. Executive Summary

This paper details Lucid’s experience of moving a significant part of our small-company infrastructure into the cloud.

The paper is intended for a non-technical or semi-technical audience. It provides an overview of the business drivers for the project, the technology decisions made, and the subsequent changes in working practice.

We have successfully implemented a hybrid operation model including Public Cloud, Web Applications and Local Software. This infrastructure has enabled a dramatic increase in home working with subsequent savings in office costs and commute time.

This has been achieved whilst maintaining, and in some cases enhancing, our capabilities. In our experience the cloud model offers significant advantages for small businesses.

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1. Introduction

The internet is abuzz with information relating to Cloud Computing, so why write yet another paper and add to the cacophony? My reason is simple: no one is speaking for the small company.

Much of the literature is marketing driven; it is produced by the marketing-communications departments of software companies and targeted at large 'enterprise' organisations. Enterprises have large IT departments with big budgets and are therefore of great interest to vendors.

What of the small company? Is The Cloud for us too? In this paper I'll attempt to offer an honest appraisal of our recent (6 months ago) move Into The Cloud. I've no agenda – I'm not trying to sell you small business services – not unless you have an interactive training requirement that is...

1.1. About Lucid

Lucid was founded in 2002. We're a small consultancy specialising in interactive communications and web applications. Our turnover is less than £1M and we have a small core staff with most of our creative resource fulfilled by associates. Importantly, we have strong in-house technical development skills and our associates are all technology savvy.

See www.lucidcommunications.co.uk for more details.

1.1. A note on terminology

In a previous technically oriented white paper (Cloud Computing: a brief summary, September, 2009) we adopted the categorisation of Software as a Service; Platform as a Service; and Infrastructure as a Service. However, the business nature of this paper and the evolution of the Cloud offerings, I'd like to adopt the following terminology:

Public Cloud	Pre-packaged computer resources available online via subscription. For the small business these will typically relate to data storage and software as a service.
Private Cloud	Computer resources made available via a <i>private cloud infrastructure</i> . The creation of a private cloud requires that you source and build your own infrastructure using virtual services such as Infrastructure as a Service or Platform as a Service. For many small businesses this will not be an option due to the expense and required in-house technical capability.
Web Applications	Computer resources made available via the web and hosted in a known location, ie. You have access to a server sitting in a datacentre somewhere. This is different from Private Cloud in that you have a physical system on which the application is hosted. Of course users have no idea whether an application is being delivered from a physical server or from virtual infrastructure. Again, for many small businesses this will not be an option due to the expense and required in-house technical capability.
Local Systems	Resources resident on computers in your office. You may still have the shared drive on the office server or the suite of Microsoft Office on your laptops. Many vendors use the term Legacy Systems but it's a somewhat leading term in that it implies that these resources are outdated.
Hybrid Operation	The mixed usage of Public Cloud, Private Cloud, Web applications and Local systems.

2. Moving to a cloud based infrastructure

Yesterday I threw our old Dell PowerEdge office server into the skip; we're not replacing it.

This isn't some invented white-paper punch line; I really did go to the tip yesterday and throw away our old office server. Being of a conservative nature, we've had it in storage for six months as a fall-back position should our cloud project go horribly wrong.

Before we detail *what* we've done, let's first take a look at *why*:

2.1. Why adopt the cloud model?

Are we being trendy? – following the latest fashion like tablet computing? No. We're looking to reduce our costs, both in terms of hard cash and time. Crucially, however, we're not prepared to accept a reduced capability. *Critically*, we're not prepared to reduce the service level to our clients or the *perception* of our service by our clients.

In analysing our cost base, the cost associated with running the office in London became a cause for concern. Rents are high, councils continue to hike business rates as a convenient means of raising extra revenue and, as occupancy levels fall during recession, landlords lower the maintenance levels on their properties. Could we simply rent an office elsewhere? Not really – our domestic arrangements precluded that and many of our clients are resident in London so why travel to an office to then travel into London, back to the office and then home at the end of the day?

In addition, we identified another issue– that of the commute. Travelling in the south east of the country continues to be an expensive and challenging experience. Staff spent on average two hours commuting each day. There was a strong appetite for home working.

2.2. Project Office Diaspora

And so project Office Diaspora was born. Its mission: to enable staff to work from any location without loss of capability.

Our requirements list was as follows:

1. Provide access to shared data
2. Provide access to important applications: a source-code control system, an issue tracker, our development environment, office productivity tools etc.
3. Facilitate remote working as a virtual team

2.2.1. Shared Data

Surprisingly, this was the most troublesome issue to solve. We required a modest 150GB of shared space; we had project and commercial data accumulated since our 2002 start-up and we were not prepared to reduce our capability in this area.

We also had another problem. In addition to project data we had 1TB of video footage on mirrored disk in the office. This is obviously specific to the nature of our business but represents a critical asset which can't be downgraded.

We set about evaluating a number of potential solutions. We looked at shared workspaces and drop-box type offerings. We found the complex shared workspaces to be too complex – overkill for our requirements and the simple drop-box offerings to be too simple. The focus of the workspaces was clearly on collaboration rather than simple data sharing whilst the drop-boxes focussed on simple file sharing, with no support for folder structures.

We needed a data store which supported the uploading of file hierarchies (ie. folder structures) and multi-user sharing. Finally we found Egnyte (www.egnyte.com). It offered simple file upload, multiple file uploads (with folders) and ftp access for large transfers. Egnyte has become the mainstay of the project. It's reliable, secure, expandable, functional and dirt-cheap! The Egnyte Local Cloud capability is particularly great for a project based company such as Lucid. We each have a Local Cloud folder containing active projects. All data transfers in and out of this folder are automatically replicated into the cloud and back onto the machines of other users. Egnyte Local Cloud represented an **enhancement** to our capability.

We do have a problem with our 1TB video store however. The issue is not the size of the data per se but rather with the bandwidth (size of the data pipe) required to access it. Each video clip is very large compared to the small files contained in our main data store. In other words, our other data is fine-grained whilst the video comes in whopping great chunks. It's not (currently) feasible to access the data remotely and we have therefore accepted defeat and it remains replicated on a number of disks. The video sit with our video editor (an associate) and backups are stored offsite. Whilst acceptable, this is not a slick solution.

2.2.2. Technical Applications

Surprisingly these were relatively straight forward to source.

We were seeking like-for-like Public Cloud replacements for our source code control system and issue tracker (both specific, well understood applications relating to software development). Our technical lead set about evaluating the alternatives and we settled for Project Locker (PL), www.projectlocker.com. Yet again we were pleasantly surprised at the quality of the solution and the low cost. Projectlocker integrates SVN source control with 'Trac' for issue tracking. This allows us to link source control check-ins to issues by simply adding comments to our SVN check-in. PL can send out email notifications and even change the issue status based on the comments. This was another enhancement to our previous workflow. Our only criticism of PL is that the default Trac user interface is not the most appealing.

2.2.3. Business Applications

Here we made a decision that office productivity tools such as Microsoft Office, Project, PowerPoint, Adobe Photoshop etc, would remain as Local Systems. These tools are resident on user's laptops and are therefore portable. Collaboration is facilitated using the shared data store and is not required at an application level. This decision may be revisited in the future.

Regarding our management information systems, we are in a rather unusual position in that we have LuMIS, our own in-house developed bespoke web application. This is hosted in a data centre under our management, ie. It's a Web application hosted on a physical infrastructure. We have continued to invest in its development and LuMIS now provides functionality spanning Quotes, Projects, Invoicing (in and out), Expenses, Holidays and Project Time Tracking. Furthermore, it provides a compact monthly data set to our accountants – who are of course outsourced.

2.2.4. Collaboration

To date, this area has yielded the most disappointing results. We require a simple collaboration tool which provides conference calling, online chat and possibly desktop sharing. There are many solutions available, most of which appear to be complete overkill for our small business. In the end we've gone with the ubiquitous Skype (www.skype.com). One advantage that Skype has is its support for Phone Apps. We now have the Skype App installed on our Android phones and therefore have connectivity when on the move.

2.2.5. Working Practices

As important as the technology decisions have been, the change in our working procedures has been of equal importance. We have adopted the following practice:

- All staff are home based. All are provided with:
 - Laptop
 - Smartphone (internet access, Skype client, Egnite client and email client)
 - Printer and scanner (if required)
 - Backup disk for home use
- Staff attend a 9 am conference call and present a synopsis of their progress and plans for the day. Further conference calls occur as required.
- Skype's online chat function remains active throughout the day.
- We have a virtual office agreement with Regus (www.regus.co.uk) which provides:
 - Inbound call handling
 - Postal services
 - Access to physical office space when required (see below)
- All staff, where possible, work from our office base in Chiswick each Wednesday.

Two points are worth highlighting:

Our telephone responsiveness has improved! The Regus call handlers have instructions to direct calls to the relevant mobile and to move the call to another recipient if the staff member is unavailable. We didn't have a dedicated receptionist in the past whereas now clients *always* speak to a person and are much more likely to reach the relevant staff member quickly.

Our office-based Wednesdays are very important. Staff agree that it's really important to spend time as a group at least once per week. Conference calls and online chat are great but face-to-face conversations are always better. Furthermore, our morning conference call is very important, for staff and especially me. It's the point at which I arrive at work. I know I need to be at my desk with my head 'in gear' prior to the call. I know that I need a plan for the day.

2.3. Solution Summary

In summary, we have adopted a hybrid cloud model, making use of Public Cloud, Web Applications and Local Systems:

Public Cloud	Egnyte; Project Locker; Skype
Web Applications	LuMIS – Lucid's Management Information System for Quotes, Project Management, Invoicing, Expenses Holidays and Time Tracking; Microsoft Sharepoint for Project collaboration with clients; Smartermail for email provision.
Local Systems	Microsoft Office productivity tools; Microsoft Visual Studio developer suite and other specialist applications such as Adobe Photoshop.

3. Conclusions and next steps

Our experience is: it works! My apologies if these systems are 'old hat' to you. But for us, even as a technically oriented small business, the move to Cloud based computing was not without risks.

We set out to reduce costs, in both time and money. This has been achieved. We've saved all of the costs associated with running a full time office; we don't need to constantly upgrade our office server and we don't waste valuable time and energy maintaining systems which can be purchased from the cloud for a fraction of the cost.

We do have a few open issues: As detailed, large video files will continue to present a problem until low cost large bandwidth becomes available; we all have a myriad of passwords to manage; and Skype will continue to crash occasionally.

3.1. Next steps

We'll keep abreast of cloud developments. We're not convinced that our office productivity tools can't be de-localised. Google appear to be making strides in this area, our phones are Android based and Egnyte have a partnership with Google Docs, so we have a nice convergence.

We'll also continue to evaluate collaboration solutions. There must be a simple, cost effective virtual work space which matches our requirements.

And finally: why didn't we do this a year ago? It's great. And perhaps the last word should be given to the workforce: we couldn't go back if we tried – no one would put up with the commute!

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