

UC in deep thought.

Have you noticed how often great ideas hide inside a good lunch?



Case studies & observations.

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Project: Dental Care Centre, Canterbury

A busy Dental Surgery thrives on the ebb and flow of human beings. Some arrive looking for relief from excruciating pain, others for regular check up and reassurance. When the principal function of the business is fixing broken people, then some key good things are:

- A clean well equipped surgery as the patients appreciate it and it makes it a nicer place to do good work.
- A nice calm reception area and the opportunity to chat casually and informatively at a time which can be stressful for the patient.
- Painless procedures i.e. less pain, mean patients will spread the word and it is good to extend the experience all the way to include the administration.

No one needs a computer for a toothache!

However, all the activities impact on the digital data being gathered. There is the medical database, digital signatures, digital x-rays, boring bookkeeping and all the communications. The digital demands are ever increasing and much of the data will be required for the lifetime of the patient. Due to the speed with which computing is evolving, it is easier and cheaper to just store everything.

However, this makes the backup and recovery elements increasingly difficult. So why not throw it all at Dropbox and trust the bureaucrats? Other than the obvious, unfortunately this creates two issues (i) in order to verify the validity of what is saved it needs to be retrieved and restored and (ii) the risks of using a third party for patient data that has to be accessible for the patient's lifetime are as yet untested.

Though institutional ignorance may prove a valid argument, we thought that creating a replica at home would at least allow the copy to be quickly verified and validated. However, when we put two servers side by side it took some 18hrs to copy. Doing this across the internet was not viable even with the many shrink-wrapped options for compression.

Then we looked at the data generation sources and filtered the bits that changed frequently from the bits that were updated occasionally. We placed one micro-server at the surgery to act as a central repository and loaded it with all the elements. Now at the end of the working day only the data that has changed is copied to the micro-server from the various workstations and database server. This central repository is not accessible by the ordinary users on the network, so the copies cannot be seen by the unauthorised.

The other micro-server was put at home and registered with a Dynamic DNS service since the internet connection is a domestic feed. At night the server at the surgery contacts the server at home. The two servers authenticate using encrypted pass-keys and then transfer the data using RSA 2048bit encryption with a private certificate only known to the two of them.

Because only the changed data is exchanged, even after a busy day this takes just a few minutes. The replica at home is a fully functional working copy and so can be verified without any additional actions. The servers mail a daily log to the administrator serving as a diary recording all the changes that took place.

A simple solution, the hard bit was getting it to work.

Project: General Aero Services, Thurrock Airfield

Chapter 1

When your business is to fix light aircraft it is a good idea to be based somewhere nice and open. This is good for the neighbours and the pilots. It is not so good for BT Openreach and regardless of what we may read in the press, they only want high density. Negotiating with BT is like David meeting Goliath when Goliath casually stomps on David and doesn't even stop to scrape her boots.

Another way needed to be found by using the good internet connection at home, multiple small feeds at the airfield and the fact the airfield enjoys great 4G coverage!

Having established a nice fat business feed into the house with some Real IP numbers, a couple of the best available feeds were arranged for the airfield and a 4G SIM card was acquired by signing a punitive agreement and handing over the children as hostages.

A firewall was put in and a mail server was established behind it at home. The mail server was given an identity accessible from outside e.g. the airfield. Therefore it made sense that this server should not only deliver the mail, but could also provide a database of contacts, shared calendars and such. It also made sense that it should be accessible from any device, so it was browser based from the outset.

The clever bit was with the firewall at the airfield. This has to listen to all the demands and route them appropriately. For instance Email travels 4G whereas Ebay doesn't. Later when VoIP was added, more fancy footwork was needed. This part of the work was carried out by those who took over from us as they are better able to provide the continuity of care.

I know we are good at finding creative ways to do something simply, but because simple isn't finite this can become a liability once you have what you want.

Chapter 2

Now there is a new chapter unfolding. Conventional data storage used to be based on a structured hierarchy i.e. we stored data with prior knowledge of who else would have access to what, but since the web, we have got used to choosing on the fly who we want to share with.

CERN looked at Dropbox and decided they liked it, but not enough. So they adapted some stuff from Open Source. Having achieved what they wanted they have given back to the community some of the good stuff they have done.

We have taken this and put it in at the airfield to act as their central repository. The idea is that when an issue arises → pictures are taken → saved on the server → which emails the client a web address → the client can have a look or download them without the common email restriction on size → everyone sees the same version.

We can't wait to see how this works. As the users are all gifted and qualified engineers, we look forward to seeing how this develops!

Project: GMK Print, Margate

When GMK Print took over Martell Press it was a case of Jonah swallowing the Whale. Those who fondly remember the creative institute Pregnant Prawn, saw it disappear into this mother ship.

The focus of the new entity had to adapt to this new identity as it is an amalgam of three related, but separate businesses. Growth continues to be excellent and with it came the usual tensions on the existing infrastructure. To get print jobs approved meant sharing large files that often exceed the email limits.

As per all internet feeds via adsl, the upload speed available is a fraction of the download. To sit there and upload to a sharing platform such as Dropbox tied someone up and that someone was usually the designer whose time is billable and under constant pressure.

A fatter internet feed could help, but at a price. The alternative commissioned was their own on-site Dropbox type of device. The files are placed in it at the Gigabit LAN speed available, it sends an email to the client and the client can collect it at their own convenience. It has also meant that everyone has the same version, with 'everyone' being only those you want.

The solution cannot speed up the actual final transfer, however the designer can get back to billable work much more quickly. A secondary benefit is that the amount of money spent on coffee has drastically reduced resulting in a gentler, calmer creative environment.

The work generated now is less Gothic while Vampires and Virgins remain a fond and happy memory. After all in this part of the country the undead are an integral part of society. They are usually found busily canvassing for election to the local/county council or even central government.

More work in less time with less stress, what is there not to like? The issues were to get it to work within the existing infrastructure, without a real IP and working with a number of service providers who did not talk to each other.

A simple solution, just a little tricky to get laced in at first.