



Virtual challenges

FS tech recently collaborated with EMC Consulting to host its latest roundtable discussion, addressing advancements in virtual desktop infrastructure (VDI) technology, and the considerations necessary prior to the implementation of a new VDI

WC: What are the perceived barriers to implementation of VDI?

NG: From a banking infrastructure I see many of the integrations, probably in second or third phase from 2004 through to now, being the old ESX with just XP desktop deployed on it to now being a streamlined operation, so there has been a big move forwards. If you look at the insurance companies they are only just adopting it. What have they done? What are the pitfalls they initially came across and how can insurance, with 10 per cent of the budgetary spend, gain on that experience? There are global companies at the moment that state, 'we are going to deploy 100,000 VDI.' I've heard that many times and the highest figure I've seen is 25,000 - 30,000. The restrictions being IOPS per individual virtual desktop, the build itself, it's probably known by some of the people around this table, of traditional anti-virus scans kicking off on every single virtual desktop at the same time and bringing the whole infrastructure down. I've had financial customers who have experienced that. It's a learning curve but an expensive one when you've got a production desktop environment and the desktops all crash.

MV: If you set up a virtual desktop, can you do so in order that you have a standard build that you use then you scan that build and you create it every time a user uses it. You don't need to scan it over and over again?

TA: You can have a virtual machine that just self-destructs at the end of the day. You can log on, you get a brand new setup, a brand new machine, from the gold image which you can keep clean. It's about the difference between the two options, what you are going to do with user customisations and the data.

MV: That's the problem, isn't it?

TA: You can have user cases around stateless machines, large call centres you can force with policies; you can push the actual data away from the machine and not store anything there so you don't need a local machine. Most of the banks and most of the financial services customers we deal with are doing that kind of thing with regular desktop clients. I know for a fact RBS do not allow any identifiable data to be stored on the desktop, so much so that Outlook runs in online mode, not cache mode on the desktops, nothing identifiable is even on the hard drive. You just get a brand new machine and you can look at that but there are user cases that require more customisations taken out of the call centre more to the knowledge worker, that kind of atmosphere, there are ways you can do it, there are architectures where you can remove the bulk of the user data and the user changes and still have a very solid single image that can be scanned. I think what Nigel is alluding to is the way that VDI is now driving people to think about anti-virus in a much more holistic pattern. You need to look at a whole range of stuff like: where do they attack, where does the stuff come in from?

Attendees:

WC:	Wil Cunningham (chairman)
GW:	Gary Wilson, EMC
NE:	Nic Evans, Evans Global Associates
MV:	Michael Vieira, Mizuho International
TC:	Timothy Coup, Helaba
HF:	Halldor Fossa, RBS
NG:	Nigel Goodwin, EMC
TA:	Toby Armfield, EMC
AS:	Anthony Spiller, Acumen IFA Services
MW:	Marcus Watzlaff, Lloyds Banking Group

NG: Six years ago, the standard mode would have been deploying the ESX server, go with the corporate build you have or create a virtual machine on standard build - that's it, off you go. The reality of that is you can't scale and you need to look at the way the build is. We are seeing a lot of layered approaches now so deploying a base core build, the operating system in a tuned environment - by tuned, I mean non-essential Windows services turned off, shadow copy...the wireless service by default is turned on in a Windows server build, you don't need wireless in a virtual desktop - so to go through and optimise that and then look at how the applications are deployed and the traditional desktop

builds, for some of our customers, has included every application that every user might want access to. That's a huge disk image size to start with and if you've got that times 30, 40, 50,000, it's a large amount of storage to purchase, so now we are looking at how we shrink down that build, streamline it and also the IOPS are reduced and then you know to use the technology that is available today. Atlantis, for instance, they are new in the market but they give you that opportunity to have the gold image that you reference, and then incremental reference images if you like that are just a percentage of that gold size. The technologies have been coming through within the last four or five years. I would say we have made a giant leap forwards and I only see things changing for the better.

Barriers

WC: Any other perceived barriers?

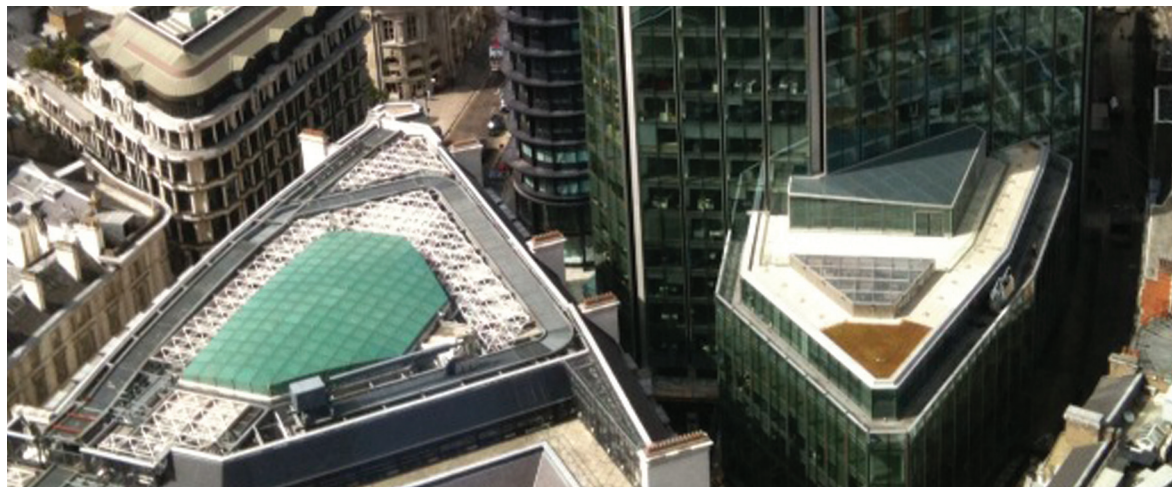
NG: Performance and cost - the TCO for a virtual desktop and the required infrastructure to support that versus buying a Dell, a HP, how can you match that and that's been the biggest roadblock to date - the pure infrastructure cost of deploying VDI en masse. In the EMC world we are coming up with a full proposition that reduces it by 75 per cent so because we own the storage infrastructure we are able to optimise that and we've got a whole stack we are releasing around the optimised virtual desktop and storage. I think after May it will be an interesting market again, based on people being able to address the TCO more proactively.

NG: Is VDI the single solution? No, it's one of the most prominent at the moment but it's not the single solution. What we haven't addressed is a rack workstation. HP's got a solution, Dell came to

market with one and there are others out there, so VDI isn't the only one, it's just one of the most prominent at the moment.

TC: We've only got around 100 users but we've got a huge application mix with some legacy applications and bespoke systems which need special attention. When looking at it as a whole project you can see that a mixed infrastructure is still needed. We're going to be using virtual desktops where it is very easy to standardise, and for our traders, for example, we will not be initially virtualised but we may eventually have a physical box in the server room running a virtual desktops per physical machine. Despite the performance that our traders need we're going to benefit from virtualising, we have the extra security of systems in datacentre etc, but you are virtually going like for like in that relationship in terms of hardware.

HF: Doesn't that align our last statement together with the application profiling that you've mentioned - the most important things being user/application profiling? If you are going to consider doing a VDI roll-out in a medium/small type organisation with a smaller number of users but with probably a less diverse application landscape possibly including some legacy applications, before you go anywhere with the real infrastructure roll-out you have to know your customers, know your users and your application landscape. I think that's an investment well worth making earlier on, so that you know whether you're going to be able to hit 40/50 per cent of your user base with a fairly standard turnkey install. If that percentage shrinks, which it can do in investment banks because we have in-house specific applications: we have many third party applications we can't virtualise and we've got legacy applications for this, that and the other - and very high-end



The view from Tower 42, the venue for the latest *FS*tech roundtable.



demands on computer power being there without being subject to any delays. There are lots of different things going on in my world in terms of investment banking users coming to us and saying, 'That virtualisation thing you are talking about isn't for us.' That means that your percentage you had targeted amidst your TCO calculation was based on shrinks, then suddenly the cost-benefits case doesn't stack up anymore and you've still got the cost of the datacentre and the power and everything else that goes with it.

Best approach?

WC: How do we circumvent the problem and can you see a best approach emerging from the companies who have already gone down this road?

NG: As has already been said, you need to understand the footprint of your customers. Off the back of that there are technology start-ups coming into the market to automatically assess, to go out and understand who you are as an individual, what client/compute you have today, which applications do you use? An example of that is Liquidware Labs, they do an automated assessment, personally I don't know how good it is at the moment but it's a step in the right direction.

HF: Just to exemplify that with my own personal experiences this week. I moved from one part of my fairly new RBS office to another, from a 'chubby' client where I had four screens on my desk to a better 'thin' client that could only drive two screens and for my whole team supposedly desktop engineers having to patch each individual allocated VDI so that it would display correctly on the two screen stroke 'thin' client. This then meant man-hours on getting up to the previous 'chubby' client, where the same team was moved to that different location!

WC: Do you have a standard cost model that takes in the legacy transformation as well? Does that come into it?

NG: We do and after May we can really divulge what it is we are coming to market with, that really will shake up the market because the model today works but it's not the optimal model. From the cost outlay, the storage is extremely expensive if you don't heed the advice of how to slim the build down and referring to an earlier point, what applications can exist in a virtual environment and should they? So a bit of advice upfront plays a long way into the future. Unfortunately the vendors are seen as coming in the front door trying to sell as much as they possibly can as opposed to, from an EMC standpoint, we don't

sell servers so it makes no difference to us. We don't sell networking but we can give you advice on what we are seeing from big estates such as ourselves but we get held up at the front door and therefore those best practices aren't passed on, unfortunately.

GW: I think the thing coming out of this is that when you look at it from a cost, you can't really validate VDI purely from that point of view. I find a lot of the comments about profiling interesting in that we've started to take a bit about user-centred computing, so you've had this thing about putting the customer first. It's interesting to me in the last year that the iPad has been mentioned a few times, about how the iPad is driving IT agendas. The number of CIOs that I meet that have one on their desk is considerable and they use it all the way through the meeting to point out how they want to transform their organisation. Users are calling the shots in that they get better experiences from the home environment than they do in the office and it becomes a case of, I want this like my iPhone and so on. Users are starting to drive the agenda. One of the things I'm seeing in approaching something like a roll-out of VDI, it's that we need to think more about the user than the cost, about how can we optimise the user experience through this, how can we optimise the desktop much more and think about how to integrate search engines to the desktop, how do we integrate apps into the desktop, how do we make this more of a customer experience? It's something that the business can become more efficient at.

iPads

NG: Is there anyone around the table who has an iPad in the enterprise and apps proactively working - do you allow them?

MV: Do you allow any data to be stored on iPads? Because there is a huge security risk. I'd like to know who's actually using them properly with corporate data.

NG: I do.

MV: So if I picked that up and walked away with it, I'd be able to get to your data. You could jailbreak it - all the encryption codes for an iPad are stored within the actual files of the iPad and all you have to do is get around that. There is no way to secure it.

NG: We remote erase and things like that.

MV: Encryption on a laptop is completely different to encryption on an iPad, because the key for the encryption on your laptop

isn't contained within it, but with the iPad, the keys to the castle are in there. When you come into it with a jailbreak you end up with a Linux file system there and in that file system there's the file that holds the key to it. It is impossible to secure an iPad or iPhone to any level that would allow corporations to store really sensitive data in it.

MV: Isn't this exactly where VDI would work in that you're not storing anything?

NE: Correct, so I think the challenge is with the current model. I'm no specialist in this area, no specialist in VDI to be honest! So in terms of the iPad I suppose in the current version it's the ability to turn off security in the VPN, or the VPN client so you can browse it etc. which Apple promised to be fixed in the next few versions - in terms of they will give it a VPN connection, you can't turn off as an end user and then that becomes more of an access to your resources from the platform and there's no residual data on it.

MV: If you write your own application for the iPad which doesn't store the data and it uses the VPN connectivity, that's fine, that's secure, your data is stored, it's central and then you're fine but if you try to have your email on there or anything else at the moment our data is stored in it.

NG: That is one of the components we are coming to market with - we have two applications already, so there's a number of EMC VMware applications to do remote sessions but come June, as part of the proposition that we come to market with, there will be a specific iPad app to do exactly what you just said. Run from the iPad but the data is centralised within your corporation.

Optimisation

WC: How do you optimise VDI and what are the biggest benefits of the solution?

NG: In terms of optimising you've got to look at the layered approach, rather than just having a big, chunky, virtual disk image. How can you slim that down and have profile virtualisation so to help the end user experience only deploy the applications that you are using at that point in time. There are methodologies that you can approach today that could help you automatically optimise, there are technologies to help do that. It's down to cost, the methodology equals consulting, there's a cost. It's a case of, what is your investment into VDI - is it to save money? Or is it the strategic deployment to increase security and ease of use? I'm seeing more and more deployments of VDI as

strategic as opposed to cost and it purely is because at the present moment in time you can't really put a TCO model on the table that is cost-comparable to a traditional desktop.

MW: So would you recommend offshoring?

NG: In what respect? Putting your virtual desktops out to a third party? I don't recommend it because I don't understand the capabilities of those third parties but there are a number of them out there that are doing it so that's on a case by case basis but most of the customers we have want to keep it in their infrastructure because it's under their own security capabilities and their infrastructure management. They know the end users and they know what they've got. If you suddenly give that to a third party service provider, you don't know what their infrastructure is and you've got absolutely no say over how that is maintained.

HF: We must not mix up offshoring with outsourcing. You can outsource within our own jurisdiction which is something that we've done. At RBS we have outsourced, not in the specific space of desktop virtualisation but in terms of the cloud - we are staying in the UK, in England if you like, and making sure that our data is subject to those laws and we can go after, shall we say, accountable third parties if those restrictions are in breach. But we get the benefit of not having lots of estate on our books. To repeat: this is not desktop virtualisation but nevertheless the data centre management, power, keeping the lights on, all that stuff doesn't become our day-to-day cost.

NG: Actually that has just addressed the question asked. With yourself, I know who that's outsourced to, they've actually taken on a quarter of a million desktop ownerships - client ownerships within a 12 month period between two contracts. We are seeing a lot of that so it's not VDI outsourced, it's outsourced the client and if you drive innovation that is VDI or rack workstation then they get bonuses paid on that.

Common themes

GW: There is the theme of optimisation and the theme of users, but is anybody seeing much happening around self-service provision? I have seen an interesting example where business users are able to do self-service for provisioning their own desktop.

WC: Why should a company not implement VDI with all the exciting things that are coming about in June?



NG: I'm not a 100 per cent advocate of VDI. It serves a good purpose in the right environment but I think there are other mechanisms and you highlighted it, so long as you've got that layer in between that gets you into the corporate environment, what is it? For the insurance companies that have got less expendable cash to hand they are looking at different environments so VDI is possibly just for the call centres, they don't need those microseconds of latency, they can have the end user experience being slightly degraded from a workstation so they can afford that exposure. I think this next year will tell.

WC: So a high percentage of legacy systems...would that rule it out as well?

NG: I've seen that, out there in the retail branches, there is a lot of consolidation into VDI because then the actual desktop is right next door to the service it is interacting with. However, there are the old kiosk applications written by Joe Bloggs who is no longer with the company, there are the card readers, the passport printers and things like that, all considerations we take for granted today with the traditional desktop that maybe the protocol or the actual connection browser itself can't handle.

TA: There are going to be user cases for VDI and again it's profiling, understanding the environment. There are going to be user cases that require a high end laptop, there are going to be cases that require different USB sticks, a whole bunch of different levels of end user access. VDI needs to be one part of that, it's not the silver bullet for anything. It will be a component of an overall strategy - you may have your sales guys or mobile workers out in the field with iPads doing everything via web-based apps. You may have guys with iPads again accessing intermittently the VDI they require for certain features but again doing combinations of other applications. You may have call centres that are just rammed full of VDI and a bunch of developers or traders who have hugely powerful machines with 28 monitors and everything stuffed under the desk. Yes, we are going to go down the VDI route and we're just going to roll-it out and do 100 per cent, but you're not going to find anyone who can probably roll VDI out to 100 per cent of an organisation.

NG: You must procure a device that permits you to do your job on a day to day basis. If you are a mobile person there is no point in getting an alien-ware, top of the gaming spectrum machine that you can't drag around with you. You are

responsible for that device, if you break it then you also need to be responsible for fixing it. And we've actually got a reasonably good support function that will help. They are versed in Mac and they are versed in Windows. I think we can cope with it, but as Toby said it's on a high end spectrum.

Disaster recovery

WC: In terms of disaster recovery time, how quickly does it recover?

NG: You've got a period of time, but actually what is that period of time for a physical desktop or a laptop if it fails? Typically I know for most companies it's 24 hours, maybe 36 to get a replacement if you're lucky. So you can't then go to the VDI team and say, well actually I know you can do it in 30 minutes so I want it in 30 minutes. Your traditional way takes three days so we'll give it to you in three hours, how does that sound? The end users suddenly expect more because they've been given a little bit more.

TA: A couple of things around DR very quickly. You've got to look at the DR side, whatever disaster it is that you are looking at. Are you looking at as we said access denied to an end user building, in which case, great, they just go somewhere else, no problem. Or are you looking at losing a datacentre? Because then in the traditional world the datacentre doesn't impact the end users but in a VDI world it potentially could.

Communications

WC: On a final note, how should a company approach communications, training operational readiness, organisational process?

NG: There's a lot of public domain information out there and companies have to check what they've done, where they've gone, when it's gone well when it's not gone well. You can do self-study, you don't need to call a consultancy in to do that but when you've made your mind up that you don't have to go down that route then you have to approach it pragmatically. Which is understanding the end users, so we're right back to profiling first of all.

GW: And the organisation generally and the change that's required so you've touched on quite a few things with the support model and so on. It's thinking about that upfront. I've seen that VDI has sometimes been the technology decision because it will be cheaper or let's move it into the datacentre or fix it from a technology point of view, but there are lots of people involved in a process change.