

**TalkTalk
Business**

Business Brief

Virtualisation

UK business is becoming virtual

But are you using virtualisation in the most effective way for your organisation?

IT priorities survey 2012: cloud, compliance and virtualisation come out top. As for infrastructure projects, professionals continued the emphasis on server virtualisation with more than half (58.3%) citing it as a top priority this year.

(Source: TechTarget, 2012)

The buzz and hype around the business benefits of virtualisation are just short of deafening. With the internet becoming increasingly reliable and efficient, and a boom in hosted applications and services for businesses, virtualisation has proved itself by demonstrating tangible benefits such as cost effectiveness, scalability and reliability: plus, by virtue of its customisable "layers", it can offer bespoke solutions to organisations at the right level for the business need.

With Gartner quoting cost savings of up to 50%, virtualisation has a proven track-record and virtualisation technology is sufficiently mature today that the opportunity for infrastructure transformation has truly arrived.

According to Dell, the most frequent goal of virtualisation is to centralise administrative tasks while improving scalability and overall hardware resource utilisation, as most servers run at a portion of their capacity. This centralisation of resources simplifies management operations and allows a single maintenance operation to span a large number of virtualised desktops, saving manpower and resource. Simply, virtualisation optimises hardware utilisation, resulting in reduced cost.

The importance of the network

Virtualisation has increased the value of the network. Dell cites virtual computing as the most network-centric computing paradigm to date. Although virtualisation technology has already reshaped the face of business IT infrastructure, for organisations to optimise all the benefits virtualisation brings with it, they need to ensure that they are working on a truly business grade network that can support the efficiencies, business continuity, security and compliance benefits that are offered by this evolved technology.

The network has gone from being the unequipped "highway system" of a company to being the most significant and relied upon IT asset: the single resource that ties all corporate workers to the applications and information they need. As such, those organisations that can find the optimum way to leverage the network can gain a significant competitive advantage.

To do so, the network must be considered holistically and aligned with a wider data centre strategy. The network that your virtual applications are operating on can become a key point of strategic differentiation, enabling increased agility and ensuring that the CIO can meet whatever challenges the business brings forward and scale and adapt resources to changing business needs. With the network now becoming increasingly important strategically, it is fast becoming the ideal resource to build and implement an IT strategy around.

Why your organisation needs a next generation network

The network is the most scalable, cost-effective platform for application delivery. Legacy architectures operate on the basis that the applications and content workers need access to is locally installed on laptops or desktops. The increasing diversity of endpoints today is well known and that computing model no longer scales.

Now, the most cost-effective mechanism for delivering applications and content is through the network. The data centre model is proving to be the most streamlined way to embrace virtualisation, with all virtual services housed, administered and backed up in the data centre. This centralised model is less expensive to monitor and manage than a distributed environment and next generation data centres deliver unrivalled scalability to grow in line with individual business needs, connectivity to support businesses now, and the protection they need from increasingly sophisticated security threats.

The network has become the backbone of the data centre model. IT resources have historically been deployed in tight silos, but with virtual computing, those resources can be distributed to applications when needed. In this model, the network works as the enabler and becomes increasingly important as it is relied upon to deliver information and applications quickly and seamlessly to end users.

What's driving virtualisation?

We've established that in order to reap the benefits of virtualisation, your network needs to evolve too. However, it's often easier said than done to make the switch. It can be "easier" to stay with the incumbent supplier – after all, you know how they work and what they offer.

But legacy connectivity cannot always offer the speed, scalability and reach that a virtual environment needs. So, let's look at why this upheaval is worth it, the three key reasons your business needs to go virtual.

1. COST EFFECTIVENESS
2. MOBILITY AND BYOD
3. THE GREEN ISSUE

1. Cost effectiveness

Gartner predicts that enterprises achieve cost savings of between 20 – 50% through virtualisation.

In the current economic climate, CIOs are under pressure to cut costs, and do more with less. This state of affairs points clearly towards effective resource utilisation as a key tool to meet business objectives.

Virtualisation enables more computing power through fewer resources, by consolidating disparate applications and processes into centralised, easily shared pools.

Industry analysts report that between 60% and 80% of IT departments are pursuing server consolidation projects (CIO.com). By consolidating the numbers and types of servers that support business applications, companies are looking at significant cost savings.

Put simply, server consolidation through virtualisation can help the CIO to achieve cost savings in a number of ways:

- **Fewer servers**
- **Less power consumption (both from the servers themselves and the facilities' cooling systems)**
- **Less floor space**
- **Optimised use of underutilised computing resources**
- **Less management resource for a smaller server footprint**

(Source: CIO.com)

CIOs should look for virtualisation solutions that can offer cross-platform management systems for both virtual and legacy physical machines. It's not feasible for enterprise level companies to virtualise all operations at once, so it's essential to migrate to a virtual platform that can manage legacy operating systems, without modification, alongside new virtual applications and processes.

Cost savings can be made through a number of variations of consolidated server and human resource, optimised provisioning, optimised server utilisation, a reduction in system complexity, and efficient management of workload operations. Businesses should work to ensure the best fit for their individual needs, and implement a virtualisation solution which optimises resources and reduces costs, based on their specific needs and business growth targets.

However, virtualisation beyond 66% of workloads can give rise to increased costs for components such as storage, software, test development and platform.

So, it's essential that businesses work with their providers on a case by case basis to ensure the right levels of virtualisation for their needs, to enable cost effectiveness and optimise virtualisation benefits.

There is no one-size-fits- all approach, and it's important that organisations are cognisant of this and consider their own specific needs from the planning stage.

Not only can a move to a more virtual infrastructure reduce an organisation's physical requirements (be that through on site servers or through the Data Centre model) – it can also streamline and reduce complexities around the levels of management of those servers.

2. Mobility and BYOD

Giving employees the tools they need to work more flexibly, by ensuring the same end-user experience regardless of device or location, increases productivity and satisfaction and IT infrastructure needs to meet the demands of an increasingly mobile and demanding workforce.

Employees need to be able to access content anywhere, at any time. The trend towards mobile working is only one element of the increasingly flexible, "always on" workforce. Employees also want to access corporate information and applications through a device of their choosing.

The massive proliferation of smart mobile devices and tablets has made this challenge more complicated. They have added numerous platforms and operating systems for the CIO to deal with, instead of just a single OS.

However, virtualisation enables the trend towards Bring Your Own Device (BYOD) because it allows numerous operating systems to run through one CPU. Virtualisation is key to enabling employees the freedom to enjoy a similar experience across a broad range of devices - from their desktop and laptop PCs to smartphones and tablets. An additional benefit to supplying employees with a standardised application environment is that organisations can ensure a clean separation between work and personal applications and data, while improving manageability.

Again, virtualisation is a key enabler for mobility and BYOD, but the network you're operating on is the key enabler for virtual solutions – so it's of paramount importance to get this right.

Virtualisation, implemented in the right way, enables the introduction of centralised, but flexible, device management. Data access can be kept as secure as it previously was through on-site desk tops and the organisation can benefit from all the advantages that a more engaged, productive employee base brings.

3. The green issue

Environmental regulations and reporting are only going to become more onerous on enterprise level companies. It is essential that the corporate world cuts down its carbon footprint and becomes more environmentally friendly to meet the demands of increasingly stringent guidelines.

Organisations looking to improve their carbon footprint really need to take a look at virtualisation as a first step. Fujitsu Siemens, for example, are so confident in their virtualisation and automation strategy that if they can't achieve the 40% saving in cost for power and cooling that it promises, it will donate £10,000 to The Climate Group on behalf of any FT350 company that misses the 40% target.

Still don't believe the hype around virtualisation? What about this best practice example from the London Borough of Hillingdon, showing just what virtualisation can do for an organisation?

With the help of virtualisation technology, Hillingdon is now 90% virtualised and has built a successful private cloud. As a result, it is spending 60% less time on IT maintenance and administration, avoided £810,000 in new physical server investment and is saving £93,000 a year on energy bills.

The equation is simple:

Virtualisation means fewer servers, which means a reduction in data centre space, reduced power, leading to reduced cost and energy consumption and ultimately producing a greener company policy with increased business value.

The layers of virtualisation

As already touched upon, it's important that businesses take a tailored approach to virtualisation, and implement technology in the way it best works for them. As such, it's important to understand the layers of virtualisation, and how the technology can be used to complement and best fit the needs of your own business. Microsoft's virtualisation whitepaper cites three key layers where some form of virtualisation can be applied within an organisation:

Machine layer

The machine layer refers to the abstraction of hardware from the operating system that runs on it. This means that a number of physical machines can be consolidated onto one server and their workloads optimised, enabling increased flexibility in provisioning and migrating and enabling cost savings to be made in terms of power and space requirements.

Application layer

In the application layer, the application itself is not reliant on system configurations as it is isolated from the operating system. These "containerised" applications do not need to be installed on the physical machine, instead they are managed centrally and deployed directly to the user's desktop in a "contained, virtualized image", one which does not interfere with or require interaction with the operating system itself.

Presentation layer

In the presentation layer, the application is executed in one location, for example on a server in a data centre, and the presentation layer, or the user interface, is abstracted and displayed on a different device, in a different location. The application execution and the data used are thereby isolated from the user's client operating system. Remote desktops or remote applications are provided to the user and can be seamlessly integrated with the client desktop: giving the look and feel that they are running locally, while actually being isolated in the data centre.

Microsoft: The Architectural Foundation for Dynamic IT

Key virtualisation requirements for the CIO

1. KNOW YOUR NETWORK
2. OPTIMISE YOUR RESOURCE
3. VIRTUALLY FUTURE PROOF

4. SIMPLIFIED MANAGEMENT
5. RELIABILITY AND SECURITY

1. Know your network

Don't approach virtualisation from a purely server-oriented perspective. As discussed, requirements will change from organisation to organisation, and you need the best fit for your business. Use your provider to help you devise a strategy that works for your company, across your entire network and IT environment.

It's essential to understand how all components of the IT infrastructure work together and align to communicate and interface with your employee base, and other stakeholders. If you know your server, traffic and growth patterns well, you're in an excellent position to harness virtualisation technology in the optimum way for your business, and implement the right solutions as part of a wider IT strategy that is aligned to – and can grow with – your wider organisation.

Understanding your network through proactive monitoring and management also gives network security a boost, because you're better equipped to spot any anomalies that might indicate a threat. Take the time to know your network – and what your network needs.

Once you're travelling along the right network, take the time to conduct frequent network and security assessments – take stock of your environment and study network traffic. Ensure that you're working to your network strategy, and if not, find solutions to steer your business back to the right path.

2. Optimise your resource

Different skill sets are required within the IT department for a move to a virtual world. A move towards skills centred around network infrastructure is becoming apparent, rather than traditional on-site hardware maintenance and the management of application or software updates. Increasingly, budget is being allocated to hosted solutions and outsourcing to the data centre.

A holistic approach to infrastructure, as well as applications and interfaces is required. The first step is to establish where you can streamline your processes and where legacy connectivity can be consolidated and migrated to a next generation network.

Once you have established where duplication and unnecessary processes are occurring, you can implement a virtualisation solution that encompasses the needs of all components in your IT and telecoms framework. Again, it's important to work with a provider that can accommodate the needs of your entire workforce and advise you on where best to implement changes.

The whole point of virtualisation and resource management is that the speed and effectiveness of your applications will enable faster levels of service, and free up critical resources which would be better spent on bigger business challenges. In this way, your virtual world will reduce costs for your organisation, and ultimately, your organisation will achieve a competitive advantage by being increasingly agile and flexible.

3. Virtually future proof

Virtualisation has the inherent benefit of being flexible and, as such, scalable to future business needs but it's also important to appreciate the effects it will have on factors such as business processes, administrative rights, performance monitoring tools and security strategies, which will all need to adapt to your virtualisation strategy.

Again though, the vital network comes into play here, businesses cannot afford to be restrained by patchy, legacy connectivity and to migrate so many processes to a virtual environment, your network needs to be up to scratch.

To harness the benefits of the "always on" employee base and see true productivity gains and cost reduction, you need a failsafe, business grade network that can meet the demands of your evolving business.

Enterprise level organisations will need to adopt high capacity Ethernet services to accommodate their virtual world and data centre networks. Many are doing this right now, in order to future-proof their investments.

CIO.com cites the ability to dynamically provision virtual machines and move them among physical servers, as allowing organisations to respond to the business requirement for additional computing resources in a matter of seconds or minutes. Again, virtualisation is not a fad – it can prove a real asset to businesses, and your business cannot afford to be left behind.

You need bandwidth that can be supplied at a granular level so you can scale up, or indeed down, in line with the evolution of your business strategy. You need fast fixes in place, so that if anything does go wrong, you have the SLAs that an enterprise level organisation needs, to avoid lost time resolving issues. Agree these SLAs with your provider up front and ensure they have an in depth understanding of your business and the tools it needs in the here and now, and going forward.

4. Simplified management

With so much going on these days, it's essential to simplify where possible. Monitoring and managing network activity for virtualised applications is vital. You need a virtualisation solution which allows management, monitoring and reporting to be performed remotely: allowing you to view network performance, and to completely manage your systems without needing to attend a physical site.

Through design optimisation, consolidation and convergence onto one next generation network and following the data centre model, processes can be implemented to draw the complexity out of network monitoring and management, allowing the CIO one "viewing platform" to understand quickly how traffic is flowing through the network and, going forward, establish where further consolidation can be implemented and processes streamlined further.

The data centre model, as touched upon, provides the most streamlined approach to embracing virtualisation. The responsibility for security, for example, can be taken from the hands of the IT department and entrusted to the provider. In this case, you should be demanding a data centre that can offer physical as well as data security 24 hours a day, 365 days a year, to ensure your information is only being accessed by your employees, as and when they need it.

5. Reliability and security

Security and reliability should be at the core of your virtualisation strategy, and again, this is where the network comes into play. There's no point implementing a bells-and-whistles virtual environment for employees if they will then face the frustration on not being able to access it on demand.

Ensure your connectivity can keep up with your business needs by migrating away from legacy connectivity and embracing the secure, scalable reliability of a next generation network.

Virtualisation really is the tool that will take enterprises towards cost effectiveness, a reduced carbon footprint and an engaged, flexible, "always on" employee base, but security needs to be built from the design stage – not bolted on once new processes or applications have been implemented.

Consider security costs as part of the virtualisation design and implementation package. Ask questions of your provider: how will your legacy processes remain secure when running through a virtual network? What levels of protection does your data centre have in place? You're entrusting business critical data to a third party – and you need to ensure you have clarity and reassurance about how it will be stored.

If the reliability of your new virtual world is in doubt, you will lose the efficiencies you sought to gain from it in the first place. Ensure that you've got the business grade connectivity you need to virtualise properly, to reduce disruptive events, maximise business continuity, reduce server downtime and efficiently manage server maintenance.

Final thoughts

There isn't a one-size-fits-all approach that businesses can take to virtualisation, as every organisation is at a very different stage in its journey towards embracing the technology and each organisation has very different needs to begin with.

There are two overarching messages to take away from this Business Briefing:

The move towards virtualisation is inevitable. Especially for large, enterprise level companies that need to take into account the myriad and differing needs of an increasingly mobile workforce. To accommodate your employees and their devices, you will need a virtual environment that best suits the needs of your business and allows you the flexibility to grow in line with your business.

Do not compromise on the network, even if it means shifting away from the incumbent vendor. The incumbent vendor may be the path of least resistance but is often only the 'good enough' choice. In the era of virtual computing, good enough is no longer good enough.

Virtualisation is a fantastic enabler for organisations, and is lighting the way forward in implementing new applications and processes. To gain competitive advantage, you will need to look towards implementing a virtualisation strategy – but make sure it's the right one for you. Work with a provider that truly understand your business, the level and layer of virtualisation you need, and the connectivity you will need to get the most from a virtual world.

For more information on how business grade technology can boost your portfolio and maximise your revenue, talk to TalkTalk Business or investigate our connectivity portfolio [here](#).