

# Opex-based data centre services: Co-location, managed services and private cloud business support

A leadership perspectives white paper  
Recommended next steps for business and  
industry executives



Issue 7 in a series



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# Executive Summary

IT leaders in organisations of every size in every vertical sector find themselves under prevailing pressure to find new ways to cut costs, optimise existing assets, improve service levels and satisfy ever-stricter compliance requirements.

This is driving the popularity of opex-based data centre services like co-location and managed services. It is also leading to a high level of interest in cloud, which is seen as a new way of delivering opex-based ICT-based business services and one which offers more economical use of ICT assets and resources.



## Business case overview

After years of decentralisation and departmental server-based computing, much of the focus in enterprise IT is returning back to the data centre. Once again, they have become a popular all-in-one processing house for business.

One reason is that, one large data centre loaded with servers, storage arrays and networking boxes can be controlled by fewer people because new-generation systems management software is automating tasks once done manually. Organisations are increasingly able to drive more functionality, services, and speedier deployments from their data centre, but they also looking for ways to reduce data centre operating costs, for several reasons:

- Many legacy data centres are poorly designed, inefficient, and consume too much electricity – the data centre is the biggest consumer of electrical power for many organisations, especially those in the public sector or in services industries.

- Many enterprises waste too much money on maintaining multiple data centres or computer rooms associated with branch offices, local subsidiaries, mergers and acquisitions, and local or regional expansion. They need to rationalise, centralise, and consolidate their IT footprints in fewer locations.
- Public sector organisations looking to become the prime data centre services provider for joint government department or local authority initiatives need to find better ways to share infrastructure, services, and resources.

This is creating demand for opex-based service offers in key UAE business segments.

This includes high quality co-location data centre space and is also creating a demand for data centre services that go beyond just the physical infrastructure and facilities. These services include four main segments:

- **Co-location** – where the service provider owns and operates the data centre facilities which holds the customer's IT equipment.
- **Managed hosting** – where the service provider owns and operates the data centre facilities and also manages the customer's IT equipment (excluding the operation of the applications).
- **Hosted applications** – where the service provider owns and manages every aspect of an application set hosted on premise or off-site.
- **Cloud/utility computing** – where the service is hosted locally and delivered from a private cloud, or the service provider owns and manages various publicly shared compute resources, such as storage, security or software and which are delivered remotely.

Co-location or co-lo data-centre services are where a third-party provider lets out space in a specialty building or purpose-built data centre for multiple customers (tenants) to locate servers, storage, network equipment and other IT equipment. The co-location provider purchases, installs and maintains the fabric and ancillary equipment: power, cooling, physical access and security systems. It also provides network access either to its own network infrastructure and services or to other network operators' services.

As well as removing the need for upfront capital expenditure, co-location allows an organisation to focus its IT staff on the actual work being done, instead of on the infrastructure needed to process the work. Significant benefits of scale mean that co-location services are run more cost-effectively than can be achieved using an organisation's in-house IT infrastructure. This generally results in cost economies, and a better quality of service.



Similar benefits stem from managed server/storage services, where a service provider remotely manages the operation of an organisation's server/storage backup infrastructure. This can be on-premise or off-premise and is normally charged on a price per unit/GB basis, and backed by a service level agreement. Some suppliers also offer managed application infrastructure services, for SAP and such like, much in the same way.

Cloud is comparable to the familiar web hosting services that are a well-established element of most organisations' online computing environments. Cloud services are considered more flexible than traditional hosting, as they come with the added advantage that they can be scaled up (and down) dynamically, providing businesses with the flexibility they need.



Where business services have moved online, they have unique requirements since the workload is driven by user demand. For instance, planned and unplanned peaks can occur in usage depending on business activity, time of day, day of week, etc.

Where the data centre has to be provisioned for peak usage, cloud resources are theoretically 'elastic' and will flex to meet such variable business demand. Private clouds that are deployed within an organisation promote the ideas of industrialisation, consolidation, and standardisation of data centre technologies based on automated management processes that are used to scale the infrastructure without having to scale the IT workforce with it, and virtualisation technologies which boost utilisation and allocate resources dynamically.

du is among a group of the world's top telecoms operators which now offer hosting and managed services. With its networks, its data centre expertise and its strategic role in switching and managing network bandwidth, du is extremely well placed to provide co-location and hosting services. The latter are becoming increasingly important as organisations turn to their preferred telecoms and network operator for more ICT and applications services.

The company is already well established as a provider of web and email hosting to end-user customers. And because it has access to available data-centre capacity in strategic business locations next to, or in close proximity to, network hubs and access peering points, it is possible to expand the services footprint for customers wanting IT managed services and the ubiquitous cloud. The telecoms operator's pivotal role in supporting and managing IP networks and access to high bandwidth services puts it in a strong position as a provider of data-centre managed services, such as server, storage and applications hosting to customers.



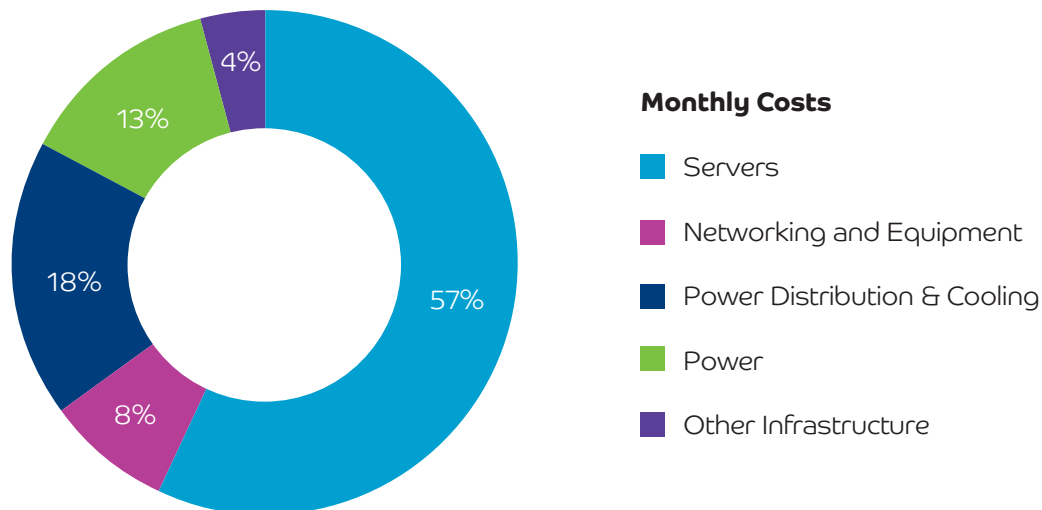
## Counting the cost of capex/opex-based data centres service

Enterprises are coming under a variety of pressures to rationalise, consolidate, update, or replace their legacy data centres. But building a new data centre is an expensive undertaking – it can run to \$10,000 or \$12,500/sq m to build a modern data centre – so many are looking at their build versus buy options.

Customers are also starting to question their capacity needs: their data centres may be full now, but will they be empty in 10 years' time when they have moved to the public cloud? From this standpoint, the opportunity to outsource IT to a well-run, energy efficient co-location centre or managed hosting facility is proving an attractive option for enterprises with legacy data centres and organisations that are considering how they should best start with their data centre consolidation plans.

The costs associated with running internal data centre facilities need to be assessed and compared with the charges of an opex –based data centre service. But the pace of infrastructure innovation makes cost modelling of these various options difficult. Where all capital expenses, operating costs and consumable bills of IT power and cooling are normalised to a monthly bill, the message is that server costs dominate and power and cooling drives the bulk of the operating expense (this excludes administrative costs, which vary considerably from site to site).

### Three year server & ten year infrastructure amortization



Source: <http://mvdirona.com/jrh/TalksAndPapers/PerspectivesDataCenterCostAndPower.xls>

It therefore seems that there is solid business logic in shifting towards opex-based data centre services, where the need for server capital investments is reduced. Not only are there cost economies at play here, but the move promises improved efficiency from the use of highly tuned operational processes, and optimised resource utilisation. Proponents of hosted and managed services claim they provide high quality of service, help reduce the maintenance burden, and lower the level of dependency on the IT department.

For the CFO, a major pull is the potential to reduce IT capital expenditure, because services can be bought on an as-needed basis and treated as variable operating expenditure, which can flex according to variable business demand instead of IT being weighed down with all of the fixed costs of a wholly internal asset base. These are not the only benefits:

### Benefits of Opex-based data centre services

- Pay as you go and pay as you grow usage model.
- Transfers capital expense to variable expense.
- Increases speed of deployment of new business services.
- Avoids any need to over provision resources or maintain unnecessary spare capacity.
- Allows the business to dedicate capital to vital business investments rather than low value infrastructure.
- Charge-back models drive good usage behaviours.
- Higher asset resource utilisation and lower environmental impact than attained using internal systems, which makes for Green(er) IT.
- Lower cost, higher reliability solution.

There is a mix of data centre service providers in the UAE and they vary considerably in terms of the availability they can offer and quality of service they can provide. The data centre types can be usefully classified into tiers, each of which has different attributes that make them suited to specific opex-based services.

Tier level	Description	Characteristics
<b>Tier 1</b>	Basic data centre	Composed of a single path for power and cooling distribution, with no redundant components
<b>Tier 2</b>	Redundant components	Composed of a single path for power and cooling distribution, but with redundant cooling
<b>Tier 3</b>	Concurrently maintainable	Composed of multiple active power and cooling distribution paths, though only one path is active; power and cooling paths have redundant components
<b>Tier 4</b>	Fault tolerant	Composed of multiple active power and cooling distribution paths with redundant components for fault-tolerance

Organisations do not want to pay for capabilities they do not need. Tier-4 data centres with their redundancy will prove just too expensive for all but a handful of customers. While some government agencies may prefer Tier-4 data centres, Tier-3 is generally more acceptable to the enterprise market and these are used to run many business critical applications and systems. Most organisations opt for this or for a Tier-3+ service which has additional levels of redundancy built in. Lower Tier-2 options may be perfectly adequate for certain non mission critical systems, however. The choice, as ever, is based on the trade-off between availability levels and cost.

This said, the operating footprint costs are constantly being squeezed downwards, thanks to innovative use of new data centre technologies.

Notably, vendors are designing new facilities using modular 'pod-type' architectures, some of which do away with the need for raised floors and their associated costs. Services, such as cooling, power distribution and cabling are integrated with servers, racks and IT equipment in a self-contained unit or the services are delivered overhead to pods or groups of server racks enclosed in a self-contained aisle. Some service providers are also designing and building modular data centres with the option to support up to Tier-4 or Tier-3+, but where Tier-4 or Tier-3 is implemented only in a small section of the data centre, which they can expand by upgrading lower tier sections at a later date if needs be.

Compliance and regulation also continue to have a significant impact on choice, with businesses realising that shifting their data-centre facilities to an opex-based service provided by a specialist actually presents them with better options than implementing expensive physical security enhancements within their own in-house facilities.

In addition to the software and network requirements covering firewalls, database access, backup and recovery, and application security, some regulatory obligations include requirements for controlled physical access to data centres and levels of on-premise security including full access history. For organisations that do not currently have security-badge entry to their data centres, logging of access and activity, digital video surveillance and 24 x7 on-site security, a switch to a service provider can result in savings compared with updating existing premises and is one more factor influencing decisions as to whether to update, build new or move to opex-based data centre services.

Managed services is the most popular option for businesses that no longer want to host their own IT or build new data centres to house IT. For many enterprises, particularly national subsidiaries of multinational corporations, mid-sized enterprises, and public sector organisations, the opportunity to have their IT hosted as well as managed is a critical criteria. du can ensure that IT is housed in a secure, resilient, enterprise-class environment of a standard which customers otherwise might not be able to afford. Unlike a traditional full-scope outsourcing arrangement, clients retain in-house responsibility for IT strategy, architecture, technology acquisition, and applications.

Clearly, there are advantages to this type of engagement with regard to data centre provision:

- Customers can avoid capital expenditure on data centre facilities, as responsibility for investment in the data centre lies with the service provider.
- The managed services provider can consolidate, optimise, and maintain the customer's IT more efficiently and with economies of scale that may be difficult for customers to achieve in their own data centres.
- Customers only have to deal with one supplier; rather than separate suppliers for their data centre facilities, IT support, and managed services; they can negotiate a single SLA for the combined services.
- Customers can benefit from state-of-the-art shared facilities that they may not be able to afford themselves, especially for local or regional subsidiaries.
- ICT services vendors like du are constantly upgrading and building new data centres that offer higher levels of resilience and deliver greater power efficiency.
- Customers may find a more cost-effective support model for niche applications or software that is only used within the enterprise on a limited basis.

## Counting the cost of capex/opex-based data centres service

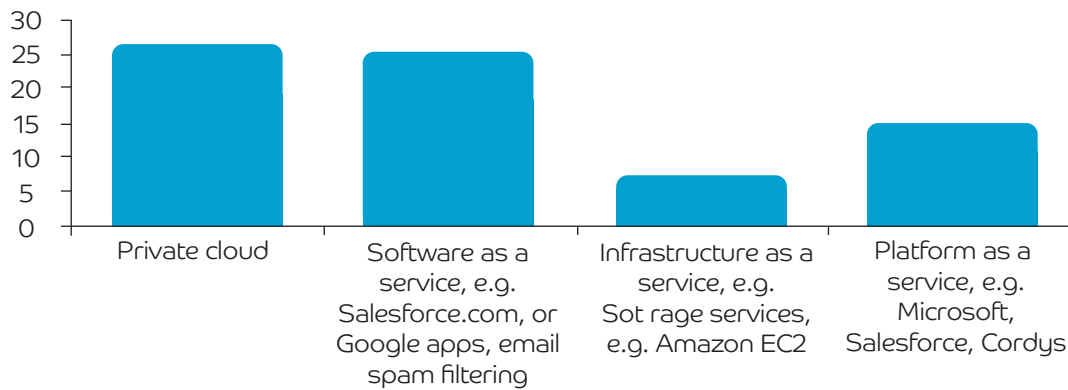
Far from being just a question of organisations running out of data centre capacity and needing more space for an ever-expanding IT footprint, data centres are now implicated even more fundamentally in new delivery models such as cloud.

Initial perceptions that opex-based public cloud services were more appropriate for the consumer and small business markets, or for niche applications only, are giving way to a broader acceptance of the opportunities for the public cloud model to provide genuine alternatives to traditional enterprise ICT approaches. Salesforce.com, for example, pioneered the provision of niche CRM cloud offerings over a decade ago, but has now evolved to provide a

wide range of cloud services. Salesforce now provides mission-critical applications for more than 100,000 organisations worldwide, including some of the world's largest enterprises.

They are also interested in the potential of private clouds, which can be demonstrated in the take-up of virtualisation (one of the enabling technologies of cloud) and plans to build private clouds, both on- and off-premise. In a survey of 60 private commercial and public sector organisations of various sizes across the UAE, two-thirds were found to have active virtualisation projects and around a half of all cloud proponents are using or currently considering the use of private cloud technologies.

## Cloud service types currently in use/planned by UAE organisations



As a leading telco du is perfectly placed as a business partner for cloud computing, because cloud plays to many of its operating strengths:

- **Shared infrastructure.** The cloud concept arose from telecoms networking, in particular the concept of VPNs, where enterprise-grade network services are provided securely and to high performance levels from a shared platform.
- **Managed and hosted IT and communications services.** Telcos like du have addressed a range of managed IT services requirements for many years. These include co-location and data centre services, managed security, and hosted services including enterprise-grade web hosting, hosted email services, and hosted PBX services.
- **Data centre infrastructure.** du is a major user of data centres both for internal computing requirements and for supporting hosted services of public sector and commercial customers like.
- **Security, data integrity, and trust.** du has a track record and reputation for data privacy and network security, and these are key areas in terms of internal IT expertise needed for managed and hosted solutions. Security and privacy are key to success in cloud computing, and many customers will demand adherence to security standards and auditable security processes. This is an important differentiator, particularly with regard to competition from smaller and less well-known players.
- **Communications as a service.** Telcos have already embarked on hosted communications and video collaboration services, which share some of the characteristics of the cloud computing model and SaaS in particular.
- **Strong customer relationships.** du has existing strong customer relationships with important large enterprise customers through managed voice and data networking solutions and, in some cases, managed IT services.
- **Strength of SME customer base.** du has sales and support channels for a wide variety of solutions, from communications and networking to web hosting and Internet security, and can provide cost-effective access to a wide range of business and communications applications usually only available to large enterprises.

