



TELECLOUD

CLOUD SOLUTIONS FROM THE TRUSTED DATA CENTRE

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Designing The Future



Contents

Welcome to Telecloud

We hope that within this brochure you will discover the benefits of virtualisation and cloud adoption. In addition, develop an understanding of the implications and the way in which two industry leaders, Telehouse and KDDI have come together to provide the infrastructure, expertise and end to end management to make cloud migration a safe and sensible strategy for business growth.

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The data centre has evolved

Over the last twenty years, Telehouse has established itself as a leading global data centre provider, becoming the trusted name for corporations to house their business-critical systems off-premises in secure and highly-connected facilities.

With IT infrastructure and mission-critical data protected in 24/7 guarded facilities, Telehouse offers clients round the clock peace of mind alongside some of the most highly connected and reliable hubs on the planet.

Today, Telehouse's global operations include 45 data centres across the world supporting over 2000 major corporations. It's data centres are the backbone of global financial institutions, media/content providers, retailers and IT organisations alike. These corporations now require the same level of performance, security and reliability from a cloud infrastructure, as well as greater flexibility in managing their on-demand data centre.

To provide outstanding levels of service, Telehouse has partnered with its parent company, KDDI, a leading telecom and systems integration giant, to launch Telecloud, a global portfolio of cloud solutions designed for the enterprise that requires cloud computing services backed by a highly resilient and secure infrastructure.

Who is Telecloud designed for?

- Organisations new to virtualisation with legacy systems in place
- Business-critical applications that require virtually no downtime
- New applications/systems that require greater integration methods
- Organisations that want assurance that their data remains in designated locations
- Organisations that require a cloud platform with secure connections
- Organisations that require the ability to scale their virtual data centre rapidly in line with their business requirements.

Where is your data stored?

We recognise that data security is of paramount importance and should never be compromised.

Cloud servers are hosted within the data centre infrastructures that host the physical servers in our colocation facilities. Designating, locating and sending data is completely in the hands of the client, mitigating any uncertainty about the whereabouts of virtual servers.

With over 40 Tier III Telehouse data centres around the world, and a vast cable network, a Telecloud client stays in control by choosing where their servers are located, how it travels and when they want access to them.

As with a physical data centre infrastructure, clients can choose to have their primary virtual infrastructure secured in one location or opt for a multi-site setup spanning several countries. The platform can also be backed up and synchronously replicated by a second Telehouse data centre in the same country or from a choice of over 20 major global cities.

Seven steps to better data sovereignty

How Telecloud ensures the sovereignty and control of your data is not compromised:

- 1 Specify and designate the data centre for primary and backup clouds
- 2 Clarify the details/specifications of your physical servers that host the virtual machines
- 3 Secure network and route of data travel
- 4 Understand the laws of jurisdiction within the country from where your cloud is operating
- 5 Utilizing Telehouse and KDDI's experience of being the trusted brand for hosting outsourced confidential data
- 6 Working with globally operating organisations whilst maintaining local knowledge
- 7 Define access rights and data recovery policies

45 Telehouse data centres
 45 Secure cloud locations



4

5

Globally Connected



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"Since installing our first peering switch 20 years ago establishing the LINX platform, Telehouse has continued to grow to become one of the best connected network hubs on the planet."

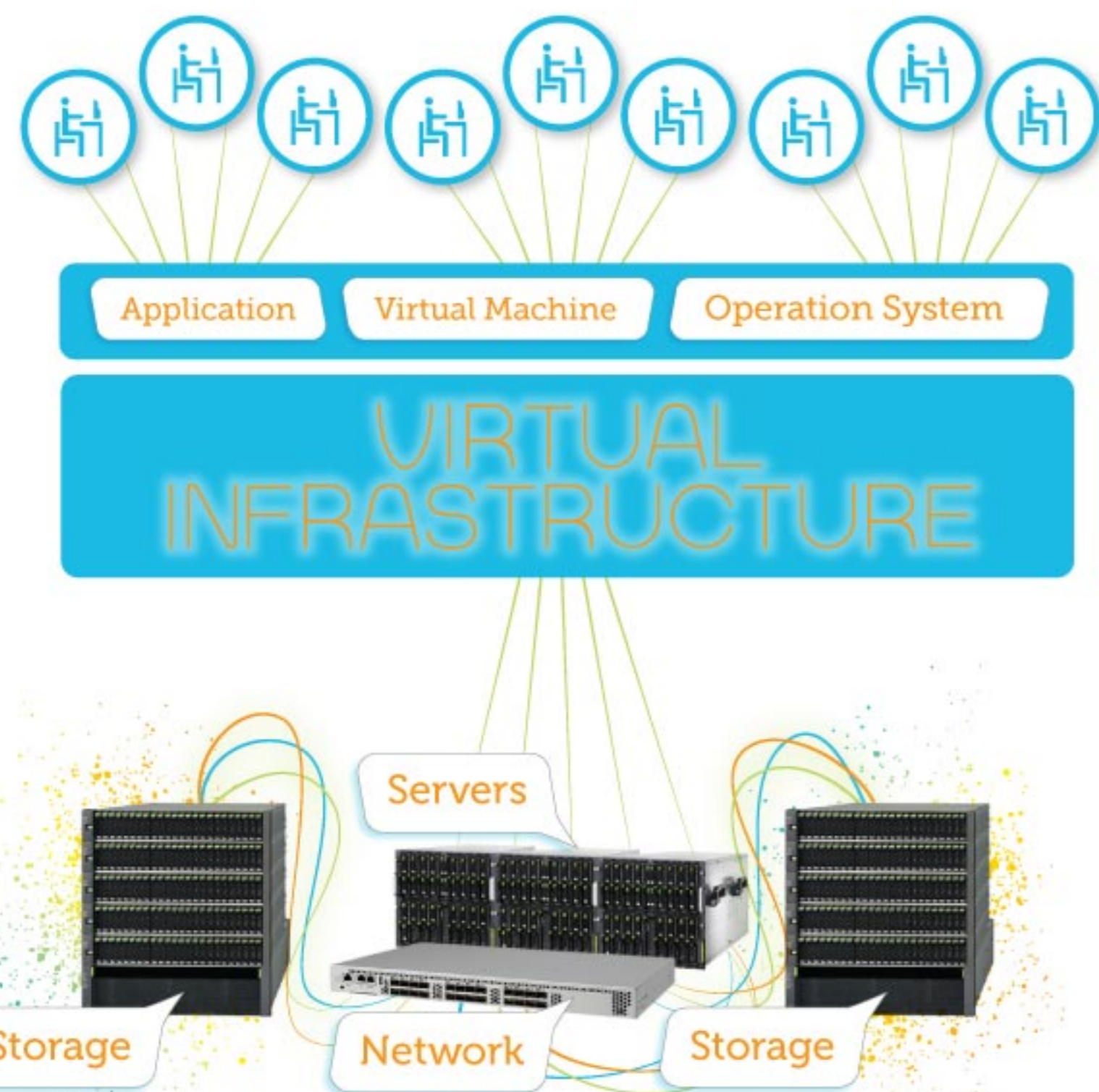
CEO, The London Internet Exchange.



Cloud Infrastructure made Clear

Previously, data centre managers struggled with getting results with machines at full capacity, so they assigned one physical server to one application. This resulted in servers only being utilised at 5% of their potential, resulting in 95% unused technology.

This proved unnecessarily expensive and slowed down the growth or launch of applications. It also interrupts the uptime of the IT environment causing considerable financial loss.



Virtualisation Key to the Cloud

Virtualisation improves the utilisation, efficiency and availability of the entire IT infrastructure in three main areas: server, storage and network.



The hypervisor, or virtualisation software, turns the physical infrastructure into a manageable and flexible environment so that resources can be delivered on an 'as per need' basis.

The hypervisor sits directly on the hardware and converts the individual physical servers into multiple virtual machines. They behave as independent computers hosting the operating system and application with direct access to virtual storage and network. Multiple network storage devices can be pooled into a single storage device, and the virtual network allows for the splitting up of available bandwidth into independent channels, which can be assigned to a particular virtual machine in real time.

What does it mean for me?

Hosting multiple virtual machines on one server dramatically increases the utilisation rate of each server, reaching on average 60 - 80% as compared to 5 - 15% previously. This results in:

- Fewer servers required to run IT infrastructure, with less hard disk space required to store data
- Less physical infrastructure, reducing data centre footprint, power and cooling demands
- Access to unlimited resources and faster delivery times, meaning ICT infrastructure can be scaled up and down within minutes, so no need to engineer to peak loads
- Seamless integration of your IT environment, with no interruptions causing planned downtime enabled through the mobility of a virtual infrastructure.
- Pay per use models, resulting in little or no capital expenditure in deploying a high performance ICT infrastructure
- Backing up data centre infrastructure is made easier and inexpensive, improving business continuity and disaster recovery

Cloud Computing Telehouse on-demand

The benefits of cloud computing lie not only in cost savings but also in the agility of acquiring and releasing capacity, which can be done at your fingertips, giving you complete control of your virtual data centre costs.

A virtualised infrastructure can deliver greater performance, reliability and quality of service, and can be implemented as part of a cloud strategy. Telecloud offers three main ways of doing this:



Cloud Migration made Sensible

For over 50 years KDDI, one of Asia's largest telecommunications providers has been delivering resilient network and system integration solutions to corporations around the world, making KDDI the ideal cloud integration partner.

5 steps for seamless cloud integration

- 1 Telehouse cloud architects work with you to devise the cloud strategy and suitable cloud model that works in line with your organisations existing infrastructure, application requirements and current and future business growth plans.
- 2 Assessment of budgets, application benchmarks, cost reduction opportunities, service delivery improvements and levels of integration, infrastructure provisioning and autonomy.
- 3 Design and implement physical and virtual infrastructure within the chosen data centre, with back up DR services.
- 4 Implement connectivity and security strategies across application development, release and test environment.
- 5 Maximise the potential of cloud technology by migrating applications and data, with further integration to the rest of the company with on-premises applications and databases.



Telehouse and KDDI provide fully integrated bespoke cloud solutions via the delivery of three levels of infrastructure, which can be adopted in gradual phases to suit your business needs.

Physical Infrastructure

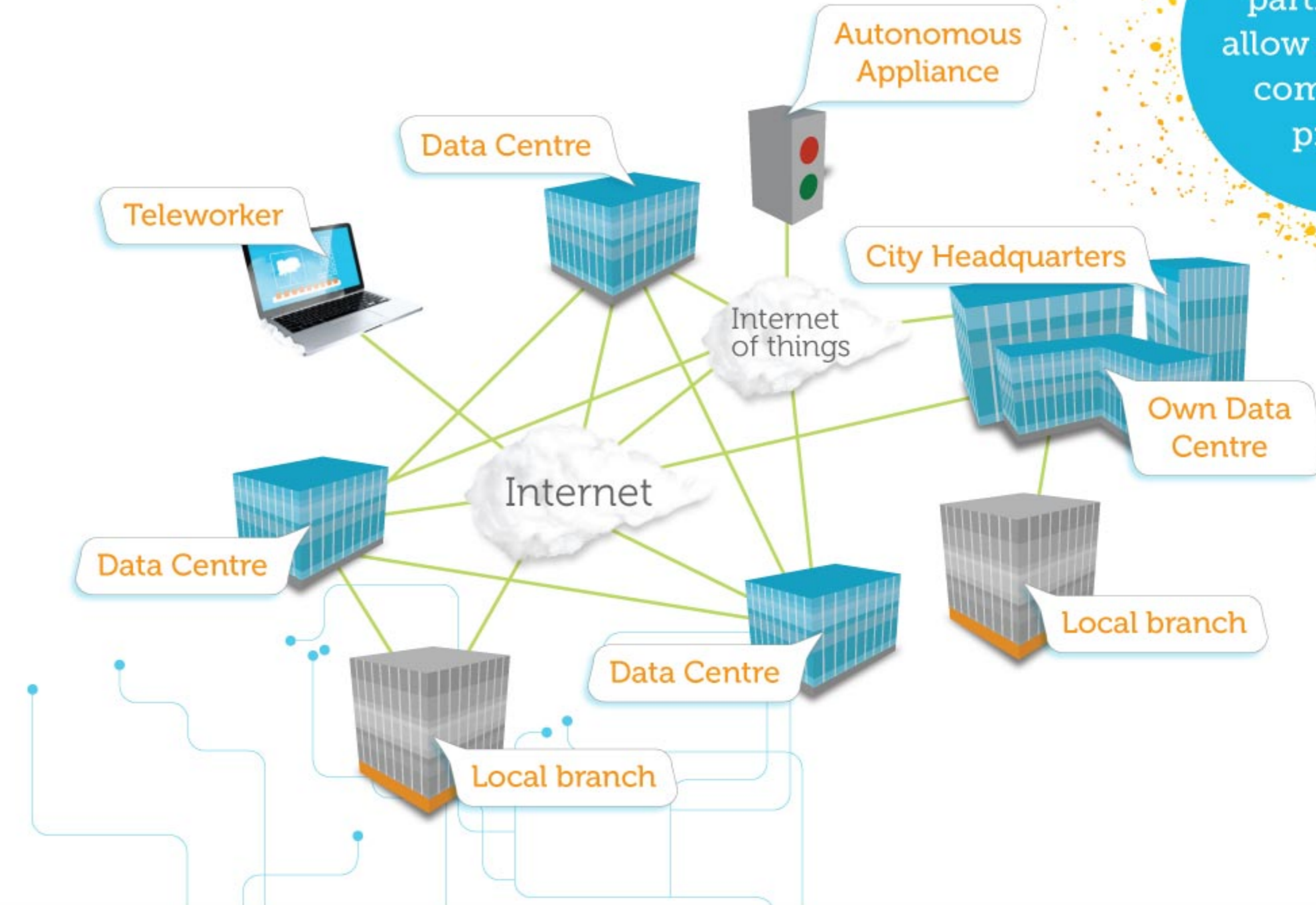
Data Centres, Physical Servers, Storage and Switches, Network, Physical Security

Virtual Infrastructure

Virtual servers, Virtual Storage, Hypervisor, Virtual security, VM Automation Solution

Service Delivery Infrastructure

Self-provisioning, Remote Hands, Design and Consultancy



Our partnerships allow us greater competitive pricing

How do I access my data?

Cloud services are reliant on connectivity, security and local presence. KDDI's worldwide network, reliability and competitive service delivery means that our clients' cloud applications are in safe hands.

The Telecloud connectivity infrastructure

- KDDI can provide secure and reliable connectivity to and from Telehouse data centres
- Flexible customer connectivity offerings with bandwidth in 170 countries
- Telehouse data centres are located in network heavy districts offering low latency
- Ability to set up cloud functionality that users can access with minimum latency
- Relationships with numerous network providers to ensure maximum coverage
- Upgrade connectivity between sites, data centres and users
- CD Networks (CDN) for improved data access
- Unified management of resources, cloud IAAS and network

"Our business required a substantial infrastructure to deliver innovative M2M services to the seriously large corporates which we work with. Telehouse and KDDI's cloud services supported by professional facilities, professional expertise and engineering support seemed the natural partner for us."

Technical Director, Arkessa.



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Cloud Computing made Secure

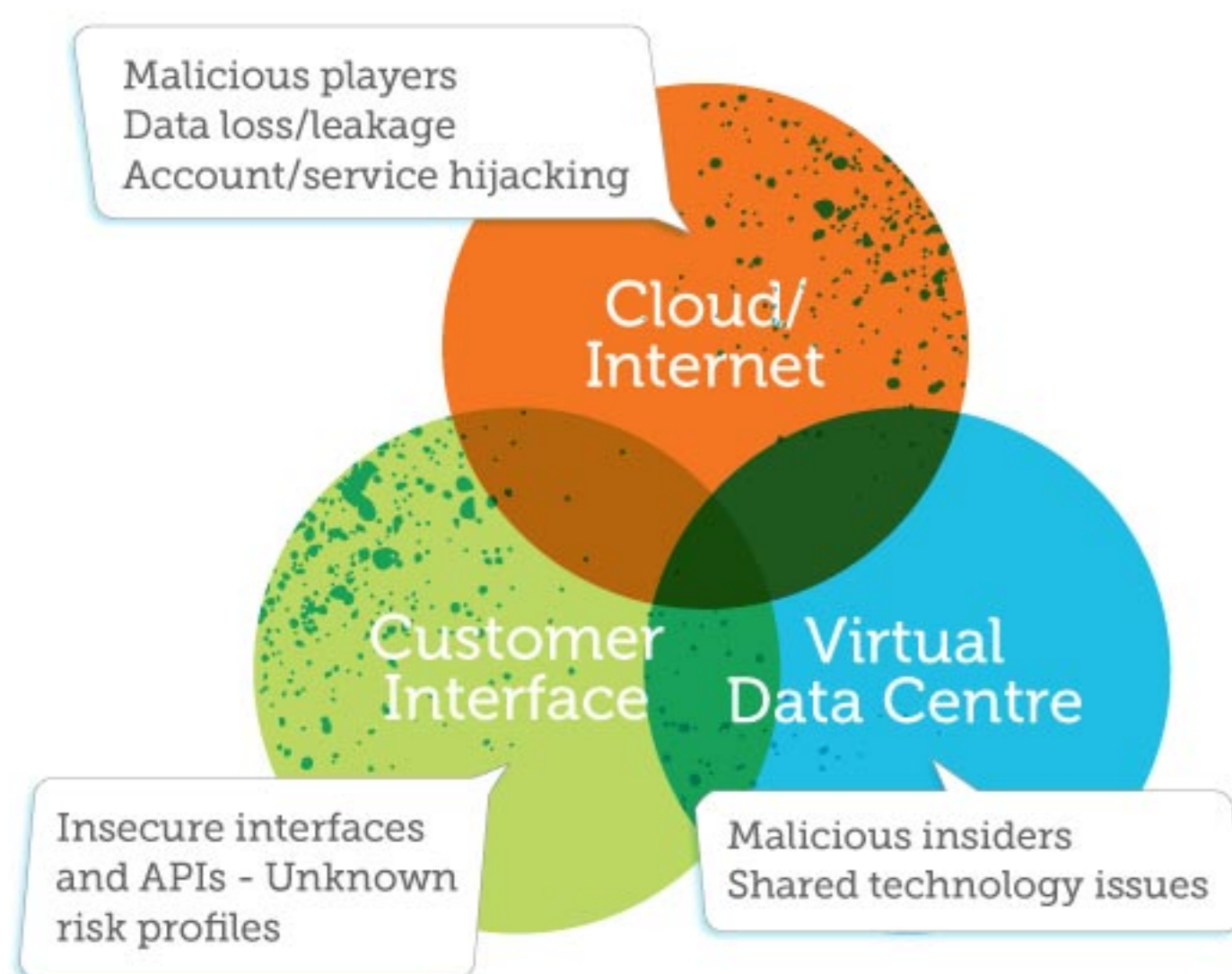
The growth of cloud based services has led to an influx of cloud providers without proven experience in managing secure data environments, or of using new technology to store, migrate and deliver customer data.

As one of the original data centre providers to host mission-critical applications off-premises, Telehouse's reputation is built on its commitment to data security and peace of mind; trusted by the world's leading banks, professional services, public sector and consumer goods organisations.



Avoiding the risk implications of cloud computing?

There are risks of adopting a cloud infrastructure, which lie in three environmental areas of vulnerability; all of which can be safely avoided with Telecloud:



Telecloud security

- Avoiding shared technology issues**
 Poor configuration and management of the hypervisor can make the underlying platform vulnerable. KDDI's highly experienced cloud specialists use VMware, Xen, Hyper-V and KVM to install and configure virtual machines. Continuous vulnerability scanning and configuration audits ensure that clients' operations are secure from other tenants' data or networks.
- Data loss prevention & recovery**
 The security and protection of company data can be compromised by the actions of malicious insiders from within the data centre. This underlines the importance of the role the data centre has in cloud security management. Telehouse operates established policies and has cutting edge technology designed for protecting highly confidential data in secure facility suites.
- Securing interface and APIs**
 Exposure of the cloud management interface can cause accidental and malicious attacks. Telecloud implements strong authentication and access control, and the API dependency chain is carefully analysed by activity monitoring.
- Monitoring of hijacking**
 One of the benefits of cloud computing is the lowered responsibility towards hardware and software management. However, this can be a major drawback if the cloud provider refuses to disclose security risks. KDDI can provide bespoke SLAs with full disclosure on logs and applicable data, monitoring and altering, together with infrastructure details (technology and patch levels) and access management.

- Managing unknown risk profile**
 Public cloud providers that offer unlimited resources and simple registration are easy targets for spammers, malicious code authors, DDOS and hackers trying to penetrate their IAAS servers. KDDI have strict registration and validation processes, enhanced network and traffic introspection, and operate comprehensive monitoring of public blacklists.
- Guarding against malicious players**
 Loss of core intellectual property can be highly damaging. KDDI implement strong API access control and employ identity and access management to clients' standards with IPsec and SSL-VPN networks. Specific backup and data retention measures are available to ensure data is recoverable.
- Protecting against malicious Insiders**
 Phishing, fraud and exploitation of software can manipulate cloud credentials. KDDI can support and mitigate against these risks by utilising authentication techniques on a virtual and physical layer, employing proactive monitoring to detect unauthorised activity.



Additional Security measures

- Antivirus**
 Antivirus scanning can be done on the cloud to reduce the risk of malicious activities.
- Firewall**
 Firewalls can be implemented as a virtual machine image running in its own processing compartment or at the hardware level at each gateway in "out of band" firewall management channels. Customize firewall rules and activate IP-filtering technology on the host, the guest or both to enable security zones.
- Encryption**
 Data can be encrypted at the client level using a key. All data stored in a cloud (and any internal storage of data) should be on an encrypted disk only.
- Bandwidth**
 For privately managed cloud environments, leased lines of up to 10 Gbps can be encrypted end to end to reduce the risk of traffic being intercepted.



"As many of our customers provide essential public services, in particular the LGfL, it was essential to work with a provider who offers highly secure, reliable and resilient data centres, and had previous experience of hosting and working with government and public sector bodies."

Head of Network Development, Synetrix Managed Services.

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Private and Hybrid Cloud Solutions

There are various different models of cloud infrastructure and Telecloud can help you find the best fit for your business.

Private and hybrid cloud solutions are designed for enterprises managing sensitive data or highly complex applications. Servicing these requirements demands thorough investigation, consultancy and design phases. KDDI's long established experience in designing and implementing complex system integration models positions them as ideal cloud architects; KDDI also provides complete end-to-end management of the entire infrastructure and its service delivery, allowing you to focus on growing your business.




Our architects offer free assessment and consultancy

Private Telecloud

For CIO's who want to retain a strict level of control and automate their on-premise or external data centre, a private cloud is the ideal option.

Our team of cloud specialists can design and build a bespoke cloud infrastructure based on your requirements with reference to hardware, network, virtual platform specifics, security and application management, policy and service level standards and the self-service customer portal. The private cloud is fully owned by the client and can be hosted in any of our global state-of-the-art Telehouse data centres while being managed by our 24 x 7 specialised engineers.

Hybrid Telecloud

The Tier 3 plus London data centre offers a "best of both worlds" solution. The platform uses industry leading hardware, energy efficient architecture and VMware virtualisation technology, utilising an embedded network and power redundancy to ensure maximum uptime.

Data transfer to another data centre can happen at the same time and rate, with shared internet access (up to 10 Mbps per customer + 1 public IP address) and 99.8% SLA. Furthermore, as clients own the storage devices and other hardware and network based on their requirements, they can operate total sovereignty over their infrastructure.

When is a private or hybrid cloud right for me?

- Private or hybrid clouds are designed for enterprises that need customised, totally/partly owned cloud infrastructure and can afford the capital and time investment required to migrate to a virtual infrastructure
- A private cloud is designed based on expected and consistent workloads. For unpredictable growth patterns, a more hybrid or public cloud is suitable to accommodate 'cloud bursting' capabilities
- When accessing data that requires strict governance and limited access on private low-latency networks with customised security configurations
- A hybrid cloud model provides access to specialist staff such as security consultants, database administrators and cloud architects, who maintain the hybrid cloud platform. This is ideal for companies that do not have dedicated expertise in house
- A hybrid cloud can be adopted if part of the cloud infrastructure can be hosted on shared equipment such as the network

How is a private or hybrid cloud implemented?

Our Telecloud architects believe every business should have a unique IT strategy. A successful cloud strategy is the key to future-proofing your company's ability to converge its legacy systems onto a more flexible and reliable virtual infrastructure, and also to provide the backbone for establishing competitive advantages.

The 6-stage process for implementing a private or hybrid cloud infrastructure:



- 1 Discover**
Assess the current physical infrastructure and investigate areas for inefficiencies
- 2 Design**
Propose a bespoke cloud architecture detailing the platform, private network, security, backup and other requirements
- 3 Deliver**
KDDI's qualified engineers will build your virtual infrastructure and test reliability and resilience
- 4 Migrate**
A multistage process where workloads are migrated independently to lower risk and downtime
- 5 Manage**
24 x 7 onsite monitoring where any faults are remediated and security patches/updates applied
- 6 Maintain**
We ensure your platform delivers on SLA and work with you to grow and integrate your cloud infrastructure into your business and realise return on investment

The Public Cloud Solution

The public Telecloud is designed for enterprises that require a high performance, standardised cloud service. It's the closest thing to "cloud computing" as it offers the greatest level of efficiency and cost cutting.

Designed for dynamic workloads such as consumer led applications as well as test and development systems, the Telecloud public service is highly resilient and flexible. It also gives the option of replicating virtual servers onto other data centres for business continuity and disaster recovery.

When is public cloud right for me?

The public Telecloud is the right choice when:

- The need to host a more risk tolerant application/data requires greater access to scalable resources, with shorter delivery times within a secure data centre
- Incremental capacity or the ability to add computer capacity for peak times is required
- Spare capacity during unpredictable periods is needed, so that it can be used by other VMs
- Standardised tools and applications are used by many employees or users. Examples include e-mail, contact management systems or a company intranet site
- A sandbox to develop applications across geographic locations is necessary. The cloud is especially effective when development, testing and collaboration are needed
- A SAAS (Software as a Service) application requires deployment flexibly with security needs

What are the benefits?

- Ability to pay for actual usage on a highly flexible basis with no capital expenditure or installation costs and minimised operating spend
- Customers can access resources on a limited budget
- Spikes in demand can be accommodated easily without compromising performance or incurring downtime with a 99.8% guaranteed SLA
- Gives clients access to a network optimised public cloud at 100 Mbps
- Industry leading self-service portals such as VMware and vCloud Director are available to manage the cloud environment effectively
- Minimal time and effort maintaining the infrastructure



Shared Virtual Data Centres

Take a tour of our data centres and check out our cloud platforms for yourself



Safe and secure

Hosting data on a public cloud, or shared infrastructure, can be a concern for some enterprises. However KDDI and Telehouse have worked extensively to ensure that security isn't compromised. Monitoring is on-going and security is delivered in three ways:

Physical Infrastructure

- Platforms are housed within ISO 27001 (information management) certified highly secure data centres
- Intruder detection and 24 x 7 CCTV surveillance
- Customised firewalls and data integrity checks
- Dedicated backup and snapshot policy with remote access

Virtual Software

- VMware technology partitions virtual machines, segregating each customer's servers and data, ensuring they are privately secured within the multi-tenant environment
- Monitoring agent on each virtual machine and free data restoration
- Centralised access control with single sign-on for users
- Physical and virtual access to servers are limited and backups of servers are protected and can be encrypted

Platform Monitoring

- Security audit on server and network with monthly reports
- 24/7/365 e-mail and telephone technical support
- 24/7/365 supervision with e-mail and SMS alert
- Backup machine snapshot every month (stored for 2 months)
- Network hardware supervision and security audits



Telecloud can provide from virtual space to fully managed cloud environments

Speak to us today:
Tel: 0207 512 0550

Additional Cloud Services



Telecloud Storage

Enterprise grade multi-tiered SAN storage is available as a part of the IAAS offering. Multiple tiers meet different performance, data protection and compliance needs. The storage can be accessed over the internet, through private links or by other parts of the cloud infrastructure rented by the client.



Telecloud Backup

Telecloud backup is a scheduled service that enables organisations to replicate their own selected on-premise data to the secure cloud platform.



Telecloud Disaster Recovery

Telecloud through KDDI offers comprehensive disaster recovery through its cloud infrastructure. For organisations that have already deployed their own private cloud and require improved disaster recovery and continuity of service, data can be replicated from client sites synchronously or asynchronously to rapidly bring customer workloads online following a natural disaster.



Virtual Desktops

Powered by Citrix and VMware, the hosted desktop allows access to a full Windows desktop experience from internet connected PCs, smartphones, tablets and thin client terminals. It also provides full access to Office as well as other applications using the cloud infrastructure.



SAAS Solutions

KDDI offers standard and bespoke SAAS solutions, ideal for when specific software applications are required without the burden of managing them. These can be accessed via the internet, private links, mobile phone and thin client terminal devices.



Hosted Microsoft Exchange Mailboxes

Provides storage of up to hundreds of gigabytes. This allows for email archiving, AntiSpam and AntiVirus scanning to the highest industry standards.



Hosted Microsoft SharePoint

Provides an easy-to-use collaboration environment. Documents can be shared, managed and edited by multiple users, and previous versions can be tracked. Users can also create team workspaces and share calendars which, when integrated with hosted SharePoint, can be made available through the website.



Microsoft CRM

A full-service customer relationship management suite, that integrates sales, customer service and marketing processes to provide an exceptional customer experience.



Contact

Visit www.telecloud.eu for further info

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Several colorful, curved lines (blue, orange, green) flowing from the bottom right towards the center, mirroring the design in the top left corner.



www.telecloud.eu