

Mission critical
application
hosting for
business and
government

Managed Dedicated & Virtual

agility. security. availability.

Overview

The Macquarie Hosting Managed Dedicated & Virtual Server solution enables you to take advantage of a selectively outsourced managed IT service for a fixed monthly cost.

Let us take care of the day to day infrastructure tasks, ensuring you are able to focus exclusively on your mission critical applications - maintaining full control and flexibility to run the applications the way you wish.

Macquarie Hosting provides a dedicated managed Infrastructure-as-a-service solution, customised to your specific needs to ensure your applications perform at their very best - backed by a team of 24x7 engineers ready to take action.

We will procure, deploy and manage the dedicated hardware and/or virtual servers including onsite sparing and vendor maintenance.

The devices are proactively monitored 24x7 via the Intellicentre Network Operations Centre (NOC) for predictive hardware failures. Standard HP DL series server hardware models are available.

Dedicated & Virtual Server support includes the hardware layer, hypervisor layer (support for both VMware vSphere4 & Microsoft Windows Server 2008 R2 Hyper-V) as well as the local guest Operating System layer.

Managed Hosting Solutions are hosted in the highly accredited ISO27001 & PCI DSS compliant Intellicentre, behind redundant and secure firewalls. Vendor certifications include Microsoft, Redhat, VMware, HP & Sun.

The service can be tailored during the design process according your specifications. Redundant Internet access, Firewall security, Intrusion Prevention, Anti-Virus, virtualisation, tape-backup, SAN storage and high-availability failover options can be bundled into a total solution. A dedicated Technical Consultant is available to guide you through this process.

If you are looking for a secure, cost effective and fully managed server solution for any hosting need, then this is the perfect solution to allow you time to focus exclusively on your business and applications.



Online Management Tools

- Real time & Historic stats
- Online Adds, Moves, Changes
- Online Trouble tickets

Monitored & Patch Managed Guest Operating system

- Baseline image
- 24x7 monitoring
- Patch Management
- Cluster support (option)
- SAN Storage & Backup (option)

Monitored & Managed Virtual Hypervisor

- VMware ESX 4, or
- Win 2008 R2 Hyper-V

Monitored & Managed hardware

- HP ProLiant DL series

Data Centre Facilities

- Highly accredited & Certified
- True 24x7 operations

Benefits of Managed Dedicated & Virtual Hosting

Minimise Risk of Downtime

Redundant design options to suit multiple risk profiles.

Leverage Virtualisation for greater levels of redundancy and failover.

The service is backed by Industry leading Service Level Guarantee's (SLGs).

Downtime can equate to loss of productivity, revenue & reputation

Access to People & Skills

The Macquarie support team becomes an extension of your team, increasing the ability to support complex infrastructure on a 24 / 7 basis.

Instant access to 3-tiered vendor certified engineering teams with specialist experience in supporting mission critical application infrastructure environments.

Lower capital expenditure

Services are provided via fixed monthly service fees, turning expensive capital expenditure into a simple consistent operational expense.

Leverage our large scale platforms, network, storage and management tools to drive major cost savings out of running your mission critical applications

Flexibility & Scalability

All services are designed and customised specifically to your needs - providing flexibility to adapt as your needs change.

Leverage the benefits of Virtualisation to speed up your go-to-market - providing fast operational readiness and scale to take advantage of potential market demands.

| Macquarie Hosting Differentiators

Highly Certified

Outsource your mission critical infrastructure to a certified trusted partner - Macquarie Hosting - with 24x7 onsite operations and the highest level of global accreditations, including ISO27001 (prior AS/NZ7799), PCI DSS and DSD Gateway to Highly Protected & Restricted

Virtualisation, end-to-end solution

Macquarie Telecom takes an end-to-end solution approach to mission critical application hosting; ensuring your network, servers, virtualisation, storage and security are all designed to work together to deliver performance and availability.

24x7 Managed Services

The services are monitored and managed 24x7 via leading enterprise grade tools, backed by onsite engineers located in the highly certified Intellicentre network operations centre (NOC).

Stringent SLG's

Macquarie Telecom take Service Level Guarantees (SLG's) seriously. We provide financial compensation for non-compliance because we understand the business need for uptime of your mission critical applications.

Visibility via Management Tools

Macquarie Hosting provide industry leading online management tools to ensure you have complete visibility of your service and how it is performing - including real time, trending reports and email/SMS alerts.

Specialists in Mission Critical

When all you do is support mission critical applications 24x7 for business and government organisations, you become highly specialized in knowing what is important and why.

Personal Accountable Service

All Macquarie Hosting customers have a named, personal Account Team who will get to know your business as well as you do, and thus be able to offer face to face tailored solutions to specifically meet your needs.

| Managed & Monitored Hardware

As part of a managed dedicated or virtual hosting solution Macquarie Hosting will acquire all server hardware on your behalf.

- ✓ Hardware acquisition
- ✓ Hardware maintenance & sparing
- ✓ Hardware Monitoring
- ✓ HP Proliant Support pack installed for server diagnostics
- ✓ Choice of RAID, disk & memory options

Macquarie Hosting utilise the Hewlett Packard (HP) Proliant Server range as standard. These servers leverage the latest Intel & AMD chipsets to provide true enterprise grade performance & stability, whilst maintaining a keen eye on Green IT and low energy consumption.

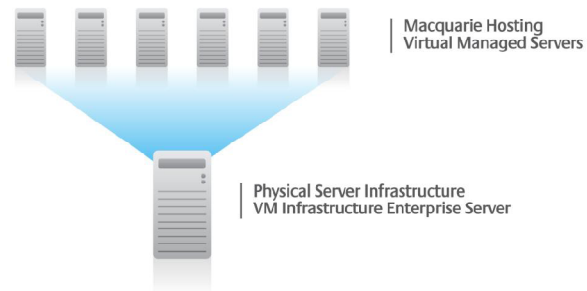
- HP DL360 G7
 - Latest Intel® Xeon® 5500 Series Processors - up to 2 quad core processors
 - Ultra-dense 1RU platform with redundant power, redundant fans, mirrored memory and embedded RAID capability.
 - Up to 8 internal hard drives
 - Up to 192GB Memory
- HP DL380 G7
 - Latest Intel® Xeon® 5500 Series Processors - up to 2 quad core processors
 - Ultra-dense 2RU platform with redundant power, redundant fans, mirrored memory and embedded RAID capability.
 - Up to 8 internal hard drives
 - Up to 192GB Memory
- HP DL580 G5
 - Latest Intel® Xeon® 7400 Series Processors - Up to 4 quad core processors
 - Rack optimised 4RU, redundant power, redundant fans, mirrored memory and embedded RAID capability
 - Up to 16 internal hard drives
 - Up to 256GB Memory
- HP DL585 G7
 - Latest AMD Opteron® 8400 series twelve core processors - Up to 4 twelve core processors
 - Rack optimised 4RU, redundant power, redundant fans, mirrored memory and embedded RAID capability
 - Up to 8 internal hard drives
 - Up to 512GB Memory

| Managed & Monitored Virtualisation

Macquarie Hosting leverage virtualisation technology to provide additional layers of value to our customers, including server consolidation, high availability, scalability to grow and flexibility for faster adds, moves & changes.

Macquarie Hosting supports both VMware and Microsoft Virtualisation platforms to ensure our customers are able to select the most appropriate technology platform to support their mission critical applications.

Whilst there are some distinct differences between the two Virtualisation hypervisor platforms, the Macquarie Hosting management, support and service models are the same.



- ✔ Hypervisor license rental
- ✔ Hypervisor implementation
- ✔ Hypervisor monitoring & management (as per following tables)
- ✔ Hypervisor feature support (as per following tables)
- ✔ Hypervisor guest virtual machine monitoring and support

| VMware Virtualisation

Hypervisor Supported	<ul style="list-style-type: none"> ■ VMware VSphere 4.0 (ESXi4.0 version only) 	Standard
Hypervisor Licensing	<ul style="list-style-type: none"> ■ VMware Service Provider Program ■ License rental per VM 	Standard
Hypervisor Management (MT Only)	<ul style="list-style-type: none"> ■ Managed via central VMware Virtual Center management console(s). Macquarie Hosting management access only. 	Standard
Customer access to Virtual Servers	<ul style="list-style-type: none"> ■ Via guest operating system remote console 	Standard
High Availability	<ul style="list-style-type: none"> ■ Ability to automatically fail-over virtual machines from one physical host to another: <ul style="list-style-type: none"> ■ Some downtime is experienced during the automatic fail-over process ■ Requires N+1 physical host redundant design ■ Requires available resource on the redundant physical host in order to operate the VMs in a fail-over state 	As per SOW
Fault Tolerance	<ul style="list-style-type: none"> ■ Ability to automatically fail-over virtual machines from one physical host to another: <ul style="list-style-type: none"> ■ No downtime is experienced during the automatic fail-over process ■ VMs are run in shadow mode across multiple physical hosts ■ Requires N+1 physical host redundancy ■ Requires available resource on redundant physical host at all times for the shadow VMs to operate. 	As per SOW
Dynamic Resource Service	<ul style="list-style-type: none"> ■ Ability for the host to dynamically allocated resource to VMs when needed. ■ Combined with VMotion for VM DRS across hosts 	As per SOW
Stateless Provisioning	<ul style="list-style-type: none"> ■ Ability to provision existing VMs onto a new physical host via the SAN without the need for physical host configuration. 	As per SOW
VMotion / Storage VMotion	<ul style="list-style-type: none"> ■ VMotion provides the ability to move a VM from one physical host to another physical host. ■ Storage VMotion provides the ability to move a VM from one storage location to another. ■ VMotion is available via the standard Change Control process (change fees apply) ■ Physical hosts need to have resources available for the VMotion 	Change Request
VM Snapshot	<ul style="list-style-type: none"> ■ A Snapshot is a single point in time copy of a VM, recording all transaction logs onward ■ A useful rollback strategy for application patching or application upgrades ■ Available via the standard Change Control process (change fees apply) ■ Physical hosts need to have resources available for the Snapshot 	Change Request
VM Cloning	<ul style="list-style-type: none"> ■ The ability to take a complete copy of a VM and make operational. ■ The standard Ordering and Provisioning process applies for Cloning (change fees apply) ■ Physical hosts need to have resources available for the Clone. 	Change Request
VMSafe	<ul style="list-style-type: none"> ■ Not supported feature 	N/A
VCB	<ul style="list-style-type: none"> ■ Not supported feature 	N/A

| Microsoft Virtualisation

Hypervisor Supported	<ul style="list-style-type: none"> ■ Microsoft Windows Server 2008 R2 with Hyper-V* <ul style="list-style-type: none"> ■ Data Centre Edition ■ Standard Edition ■ Enterprise Edition 	Standard
Hypervisor Licensing	<ul style="list-style-type: none"> ■ Microsoft Service Provider License (SPLA) ■ License rental per physical host (per physical proc) 	Standard
Hypervisor Management (MT Only)	<ul style="list-style-type: none"> ■ Managed via central Microsoft Virtual Machine Manager console(s). Macquarie Hosting management access only. 	Standard
Customer access to Virtual Servers	<ul style="list-style-type: none"> ■ Via guest operating system remote console 	Standard
High Availability / Host Clustering	<ul style="list-style-type: none"> ■ Ability to automatically fail-over virtual machines from one physical host to another: <ul style="list-style-type: none"> ■ Leverages the Microsoft Windows 2008 Failover Clustering Technology ■ Requires identical host servers ■ Some downtime is experienced during the automatic fail-over process ■ Requires N+1 physical host redundant design ■ Requires available resource on the redundant physical host 	As per SOW
Live Migration	<ul style="list-style-type: none"> ■ Provides the ability to move a VM from one physical host to another physical host. ■ Is available via the standard Change Control process (change fees apply) ■ Physical hosts need to have resources available 	Change Request
Cluster Shared Volumes	<ul style="list-style-type: none"> ■ New to Windows S008 R2 ■ Provides a consistent single file name space across multiple hosts ■ Recommended for Live Migration 	As per SOW

| Microsoft Server Versions

The version of Microsoft Windows Server 2008 R2 operating system license determines the capability and features available for Virtualisation.

The table to the right outlines some of the key differences.

Specification	Web	Standard	Enterprise	Datacenter
Cross-File Replication (DFS-R)	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Failover Cluster Nodes (Nodes)	<input type="radio"/>	<input type="radio"/>	16	16
Fault Tolerant Memory Sync	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Hot Add Memory	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Hot Add Processors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Hot Replace Memory	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Hot Replace Processors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
IA64 RAM	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
IA64 Sockets	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Network Access Connections (IAS)	<input type="radio"/>	50	Unlimited	Unlimited
Network Access Connections (RRAS)	<input type="radio"/>	250	Unlimited	Unlimited
Remote Desktop Admin Connections	2	2	2	2
Remote Desktop Services Gateway	<input type="radio"/>	250	Unlimited	Unlimited
Virtual Image Use Rights	Guest	Host + 1 VM	Host + 4 VM	Unlimited
X64 RAM	32 GB	32 GB	2 TB	2 TB
X64 Sockets	4	4	8	64



| Monitored & Patch Managed Operating System

As part of a managed dedicated or virtual hosting solution Macquarie Hosting will provide operating system licensing, monitoring and patch management support. Macquarie Hosting supports all major operating system platforms - Microsoft Windows, Redhat Linux & Sun Solaris.

Patch management is paramount to the security of any server. As an integral part of the Managed Dedicated or Virtual Server service, you have the choice to:

Pre-approved (7 days notice)

- Allow pre-approved updates to be installed on an agreed monthly cycle.
- 7 days notice is provided for applicable patches - if no response is received from you to hold off from patching, the patch process will take place at the end of the 7 days.
- This is Macquarie Telecom's preferred option as it ensures patches are applied in a timely manner, minimizing the potential for vulnerability, or

Manual Approval

- Require your signoff for each update (allowing you the time to test applications with patches) on a monthly basis.
- This is reliant upon you to respond in a timely fashion to all patch requests.

✓ Operating Systems Supported	<ul style="list-style-type: none"> ■ Microsoft Windows Server 2003 or 2008 R1 <ul style="list-style-type: none"> ■ Data Centre Edition ■ Standard Edition ■ Enterprise Edition ■ Redhat Enterprise Linux 5 <ul style="list-style-type: none"> ■ Enterprise Edition ■ Advanced Edition
✓ Operating System License Rental	<ul style="list-style-type: none"> ■ Microsoft - Per physical CPU ■ Redhat - Per physical CPU
✓ Operating System Licensing for Virtual	<ul style="list-style-type: none"> ■ Microsoft Standard Edition (per host cpu) <ul style="list-style-type: none"> ■ 1 Physical + 1 Virtual Machine ■ Microsoft Enterprise Edition (per host cpu) <ul style="list-style-type: none"> ■ 1 Physical + 4 Virtual Machines ■ Microsoft Data Centre Edition (per host cpu) <ul style="list-style-type: none"> ■ 1 Physical + Unlimited Virtual Machines
✓ Operating System Monthly Patching	<ul style="list-style-type: none"> ■ Tools - WSUS for Windows & Satellite for Redhat ■ As per patch method agreed in the SOW <ul style="list-style-type: none"> ■ Pre-Approved (7 days notice) ■ Manual Approval
✓ Password Management	<ul style="list-style-type: none"> ■ Standard password management process employed
✓ Baseline Security Template	<ul style="list-style-type: none"> ■ Standard security template baseline deployed <ul style="list-style-type: none"> ■ Wireless configurations are disabled ■ NetBios is disabled on the server ■ The default administrator account is renamed and securely stored and managed at the NOC. ■ The system event log is increased in size from 512kb to 16MB. ■ Increase in default server audit settings. ■ The browser service is disabled.
✓ IIS or Apache Installation & pre-configuration	<ul style="list-style-type: none"> ■ Based on customer requirements - additional fees apply
✓ TS Installation, TS License server install, with SAL's	<ul style="list-style-type: none"> ■ Based on customer requirements - additional fees apply
✓ Availability Monitoring	<ul style="list-style-type: none"> ■ Operating system availability is monitored via the NOC, using SNMP & Status Requests
✓ Performance Monitoring	<ul style="list-style-type: none"> ■ Customer self monitoring of key performance indicators is available via the Inview Management tool - including CPU, Memory, Disk. SMS alerts available when thresholds have been met. ■ The NOC can also monitor key performance indicators as part of the service - additional fees apply.



| Monitoring

The Macquarie Hosting NOC monitors all Managed Dedicated Servers 24 hours per day.

- HP Systems Insight Manager (SIM) is used as the central monitoring system, with Virtual Machine Pack installed.
- The Managed Dedicated Servers send out SNMP messages (traps) on a regular basis (every few minutes)
- HP SIM is used to consolidate the server SNMP alerts and provide summary status to the NOC
- HP SIM also sends out a server status request every 5 mins to ensure that a SNMP trap has not been missed
- Should an SNMP trap be received, or a poll missed, an alarm is raised in the Intellicentre NOC
- Each alarm is assigned a priority by HP SIM (as critical, major, minor and informational)
- Engineers immediately assign ticket number and investigate critical and major alarms as a priority, followed by minor and informational.

In addition to HP SIM

- VMware Virtual Centre is used to monitor VMware virtual host and virtual servers
- Microsoft Systems Centre Virtual Machine Manager is used to monitor Microsoft virtual host and virtual servers

| Management Tools

Standard & Premium options exist for online reporting via the Macquarie Telecom Online Inview portal. This provides you with the ability to monitor the capacity utilisation of your managed hosting service, both in near real time as well as via historic trend graphs.

The Macquarie Telecom Online Inview portal also allows you to set threshold alerts for each of the metrics that can be sent to you via SMS or Email.

Both dedicated and virtual servers are visible via the Macquarie Inview portal.

Feature	Standard	Premium
CPU Utilisation	✓	✓
Disk Space		✓
Memory Utilisation		✓
NIC Card Throughput		✓
Internet Usage		✓

| Change Control

All changes on the Managed Dedicated Server are handled by the trained engineers.

As part of our certified processes, each Add, Move or Change is logged via a unique ticket to ensure adequate documentation, approval and sign off.

The easiest & most efficient way to log a Change ticket is via the Macquarie View Online portal. Simply fill in the online order form, select the appropriate timeframe and submit the approved Change Request.

Timeframes can be Standard, Expedited or Scheduled.

Upon submission of your online Change Request an email confirmation will be generated, outlining your change request detail, timeframe & unique ticket number.

The progress of the Change Request can be followed online.

Change	Charges	Turnaround
Server hard reboot	Included	1 hour
Load CD/USB in server	Included	1 hour
DNS Changes	MSPL	24 hours
Firewall Changes	MSPL	48 hours
Email & Web Filtering Changes	MSPL	48 hours
Windows Update	Included	7 days

| Provisioning

The broad steps in Managed Dedicated Hosting Solutions deployment and provisioning include:

- Pre-sales design, lead by a Business Development Manager and Technical Consultant. They will consult to you on the desired solution at no charge.
- Pricing & Design presentation
- Contract compilation and finalisation of a Statement of Work (SOW)
- Hardware purchase and run-up
- Software build, test and commissioning
- System testing
- Handover to your IT /Application team and Macquarie's 24x7 support operations centre