



Consulting One

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Small Business Server Solution Guide

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Introduction

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Generally, if you want to do something with the document other than read it or link to it, just ask.

Competitors, don't ask (and we check our logs all the time).



Small Business Server Solution Guide

At Consulting One we specialise in installing business technology solutions. A lot of our installations are either for new businesses starting up, or for existing businesses refreshing their technology (some organisations like to do this every 3 to 5 years depending on their needs).

After performing all of these installations you'd be right if you were thinking that we pretty much have the process efficiently figured out by now and manage to avoid most of the complications and pitfalls that tend to present themselves.

No two installations are ever exactly the same as all customers have their own unique requirements. However, we do find that most of our projects for small business customers tend to be similar enough that we felt we could put this guide together to explain the various components that may make up your individual project.

This guide is not a substitute for sitting down with us and having us explain each section of your quote or proposal logically – we are more than happy to fully explain any element of our proposed solution and make alterations to suit your unique needs (and budget).

HP ML350G6 Hardware



One of the challenges we're continually faced with is cost vs. function when recommending solutions. To explain further – we want and need to provide a server system that is low in cost so that the greatest number of organisations can afford them. However we also need to recommend a system that will be good for at LEAST 3 years (we'll discuss later on how that could be longer), and be reliable and quiet during that time.

The answer to all our prayers in our opinion is the HP ML350G6 server. This server is designed and built for the small business in mind, utilising very high quality components at a price that we feel is very similar to less suitable servers.

This server ships as a special bundle that includes quite a few extra components that would otherwise be expensive optional extras. Depending on your needs some of these components may not be present. A summary of some of these are:

- Dual 300GB hard drives. We will most likely add additional disks or replace these disks with different sizes depending on your needs now and over the next few years;
- 12GB of RAM. More than enough for most small business requirements, although we sometimes add a little more if there is a specific need for it;
- Dual Power Supplies. Statistically the most likely part of the server to fail, and the most likely cause of interruptions (e.g., a power cord becoming accidentally unplugged). Having two power supplies installed used to be a luxury that was difficult to justify, but it's in our bundle at no extra cost;
- iLO. The Integrated Lights Out (iLO) technology allows us to access and control the server remotely, even when it is powered off. We're able to see what's on the "display" even if a monitor isn't plugged in and view the status of all the hardware. In a geographically diverse region like Central Queensland this provides extra assurance that support is available when you need it, regardless of where you are;
- Support for multiple disk redundancy technologies. Most inexpensive small business servers will not support RAID-5, which limits options. Our bundle includes the battery-backed cache option that enables this feature. There's a separate section below on the topic of disk redundancy;
- Small Business Server 2011 (SBS 2011) software, licensed for 5 users. Normally this software requires purchasing separately, but it is included in our bundle at a fraction of its usual price. If you have more than 5 users in your organisation additional Client Access Licenses ("CALs") will be required. See the next section for more info on SBS 2011.

Microsoft Small Business Server 2011



Designed and priced for small businesses, Microsoft Small Business Server 2011 (SBS 2011) is a bundle of products supplied as an all-in-one offering, pre-installed on any small business server provided by Consulting One.

SBS 2011 is specifically aimed at small businesses with 75 or less users. The cost is roughly comparable to a regular copy of Microsoft Windows Server, although SBS includes a lot of extra functionality for little or no additional cost.

Messaging – SBS 2011 includes a full copy of Microsoft Exchange Server 2010 which allows you to host your own email (for example, so you can receive email to sales@yourcompany.com.au), allows you to share mailboxes amongst staff, access shared calendars, book resources and much, much more.

Collaboration – SBS 2011 also includes Microsoft SharePoint Foundation 2010 which allows for document and information sharing and collaboration, calendaring and a lot of other customisable uses.

Backups – Built-in backups mean that expensive third party solutions may not be required. For most small businesses the supplied backup solution is perfectly adequate.

Remote Access – Remote web access allows access to email, contacts and tasks from your email server. With some small additional work access to mobile devices such as phones and tablets can be configured also. See the remote access section below.

Disk Redundancy

The particular model ML350G6 that we supply can support more than 12 hard drives installed at any one time (12 as standard, and another 12 optionally later on). Generally we'll configure disks according to the following criteria:

- Is it enough storage to accommodate the operating system and all the customer data?
- Is it enough storage to allow for reasonable future growth? This could be anywhere from 2 to 5 years depending on your funding model;
- Are we leaving enough spare disk slots spare for the future? Situations change after all;
- Is the selection economical? Altering the sizes and numbers of disks may be cheaper as long as we don't compromise our decisions from previous points above;
- Do we have enough disks for the correct levels of redundancy? This section will explain disk redundancy...

Many servers have a provision for allowing extra hard drives to be installed to increase the amount of data that can be stored. Over time it's natural for storage requirements to exceed the current capacity and for extra storage to be installed. This storage can be configured in a number of ways, depending on your needs as determined by us during consultation.



In any server there is a risk of an individual disk failing due to electronic or mechanical malfunction. Even though the disks we use are a higher quality than those used in personal computers and notebooks they can (and do) fail eventually.

The diagram below (Diagram 1) illustrates a server on the left with two hard disks installed and both utilised for data without any redundancy, and the one on the right represents two disks installed and configured for redundancy (which we call RAID 1).

The server on the left has twice the amount of storage space available, but if either of the disks fails it could be time to close up the business and head home for the day until another disk can be retrieved, installed, and the data recovered from backups. Depending on the amount of data involved, and which disk failed, this could take several days to repair.

The server on the right has half the disk space available for data storage because it is configured into a redundant RAID 1 array. We sometimes call a RAID 1 array a MIRROR because all data is duplicated twice. If either disk fails on our right-hand-side server, it won't stop the server from working and the business operates as usual.

On some types of servers we would utilise a RAID 1 array for the disks that the operating system and other critical files are installed on, although there are some exceptions. If you're unsure about your particular configuration we'll be happy to discuss our decisions with you.

Note that logically at least two disks are required to create an array of this type as a single disk could never be considered redundant.

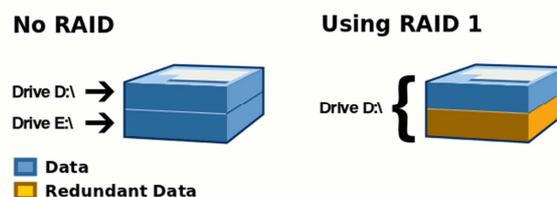


Diagram 1 – No Redundancy vs. Raid 1 Mirror

As reassuring as having all your data duplicated twice is, it does become impractical eventually to have two full copies of all of your data because this effectively doubles the cost of your storage.

A RAID 5 array is another disk redundancy method that we utilise that can be more practical as the number of disks increases.

The diagram below (Diagram 2) illustrates a server on the left with three hard disks installed and all three utilised for data without any redundancy, and the one on the

right represents three disks installed and configured for redundancy (which we call RAID 5).

The server on the left has the largest amount of storage space available, but if any of the disks fails it could be time to close up shop again and head home until the situation is resolved – which involves sourcing another disk and recovering data.

The server on the right has three disks available for data storage, but because they are configured into a redundant RAID 5 array, part of each disk is used for redundant data. If any disk fails on our right-hand-side server, it won't stop the server from working and the business operates as usual. In this case we're using three disks in our array, so one third of each disk is taken up by redundant data.

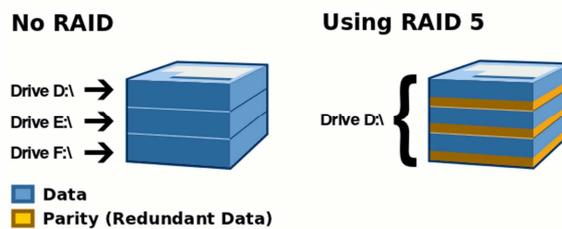


Diagram 2 – No Redundancy vs. Raid 5

Another way of thinking about this is that in a RAID 5 array, an amount of space equal to one of the individual disks is taken up for redundancy. If we had a RAID 5 array with three 300GB disks configured, about 600GB would be available. If we configured four 600GB disks then about 1.8TB would be available for use.

On some types of servers we would utilise a RAID 5 array for the disks that the business data is stored on (email, documents, general files), although there are some exceptions also. Again, if you're unsure about your particular configuration we'll be happy to discuss our decisions with you.

Note that logically at least three disks are required to create an array of this type.



Backups and Off-Site Storage



Generally, we are recommending the usage of external USB drives as a small business backup solution, unless the situation requires otherwise.

The portable USB drives we utilise are high density and simple to operate. Years of operation should be achieved from each one and when they do fail, replacements are readily on hand and inexpensive compared to other solutions.

When choosing the “best” backup rotation we’d normally recommend at least 5 drives. Remember that each drive effectively represents a point in time that data can be restored from and the fewer drives you have, the fewer options you have when you need to restore data.

There’s an old saying in the industry – “Nobody ever cares about backups, but they sure do care about restores.”

When data loss does occur, it is usually the time when many organisations realise they have poorly planned and invested in their backup technology. We feel that at least 5 drives mitigate the risk of a few failed backups in a row occurring, and a properly setup and tested backup system is critical.

Backups should also be regularly stored offsite in an appropriate location. Discuss your options with us. If you don’t have an appropriate storage location, talk to us about offsite storage options.

Anti-Virus, SPAM, and Security



Over the years we've tried many anti-virus, spam and security products and it is our opinion that the Trend Micro Worry-Free Business Security Advanced (WFBS) suite is by far the best value and performing product when used with Small Business Server 2011.

The upfront cost is certainly more expensive than some other products although the ongoing maintenance costs are fairly low compared to other similar products.

Importantly, WFBS integrates properly into Microsoft Exchange Server and utilises a single license just like a workstation which keeps things simple and fair. Furthermore, we're yet to point the finger of blame at WFBS for causing any server-related performance issues or trouble in general, which cannot be said for most other products.

For new installs we will certainly recommend Trend WFBS. For refreshes of infrastructure where another product is in use we will usually provide the option of cross-grading at a reduced cost. Depending on promotions Trend often adds additional incentives also and we'll present these if they are available.

Uninterruptable Power Supplies



An Uninterruptible Power Supply (UPS) is effectively a battery that connects between your server and the mains power in your building. If the mains power is disconnected the UPS will provide power for some amount of time (anywhere from minutes to nearly an hour depending on the model).

The UPS seems to be the first item on the list that small business owners want to remove due to cost, or will want to substitute with a cheaper model advertised elsewhere. We have no issues at all with this, although we do provide this information as a source of accumulated knowledge and experience in our business.

So what makes one UPS different from another UPS?

Capacity - First of all you need to consider the maximum amount of energy (in watts) that the devices connected to the UPS need at peak operation (or may eventually need if extra parts such as disks or modules are added later on). Watts are not necessarily Watts when purchasing a UPS. A 1500VA UPS might commonly only output 900W, depending on the design of the device – a better designed UPS will be more efficient and output closer to 1500W.

Up Time – How long does the UPS need to power all your devices at the given capacity? You will certainly need enough time to be able to survive short power interruptions over several minutes. Consider planning for longer up time to give you an opportunity to shut things down gracefully if needed.

Features – Does the UPS support mains bypass? Does it have a battery self-test? Can it be connected to a server or other devices and shut them down when the battery is low? Will it send email alerts, or can you add an environmental monitoring card someday to let you know your office is 50 degrees in summer over a weekend and too hot for equipment to be on?

Usually, our UPS selection will be middle of the range or slightly above and will take the above factors into consideration already.

SSL and Remote Access



Our quote or proposal may include a line item for an “SSL Certificate”, “Secure Certificate”, “Unified Communications Certificate” etc. The purpose of this certificate is to secure communications over the Internet between your server, and any private devices that wish to identify the server and exchange data with it. Normally our certificates last for 3 years and they are purchased from standard industry authorities such as Instant SSL or VeriSign.

These services will typically be:

- Remote access to a remote desktop session;
- iPhone, iPad or other Smart Phone access to email, contacts, calendar and tasks;
- OutlookAnywhere access to email, contacts, calendar and tasks

It is possible to operate some of these services without a secure certificate, although it is troublesome, can be time consuming, or will cause certain devices to not ever be able to connect (some Windows Smart Phones).

This is an item that can certainly be added later on so discuss with us if it is a concern.

