

HOMENETWORKING01.INFO

01/01/2011 |

Smartphones and tablets now working with sensors and controllers

29/12/2010 11:58

Introduction

A trend that we may be seeing with smartphones and similar devices is that they work with various third-party sensor or controlled devices through the use of various apps written by the sensor's or controlled-device's vendor. A main driver for this trend has been the "There's an App for that" mentality that has been established around the Apple iPhone with that smartphone becoming the centrepiece of most people's lives.

Examples of this include the recently-launched Parrot "ARDrone" remote-control helicopter that uses a dedicated Wi-Fi link to an iOS device running a special app that is its controller; a barbecue thermometer being launched at the Consumer Electronics Show 2011 that uses a Bluetooth link to an iOS device that acts as a remote temperature display. There were even other examples like the Nike running-shoe pedometer that uses a dedicated wireless link to an iPod Nano running an exercise-tracking application.

These applications may be novelty ideas of implementing an iOS or Android smartphone as a SCADA (Supervisory Control and Data Acquisition) device but there will be more applications that will become more real in our lives.

Examples application fields will include:

- Food safety (thermometers that measure temperature for areas where perishable food is stored)
- Personnel health and wellbeing (blood pressure and heart-rate monitors)
- Building automation and security (dashboard apps that work with HVAC, security systems, smart meters and the like; garage door openers that work with a touchscreen smartphone)
- Automotive and marine instrumentation (engine monitoring and diagnostics)

The current situation

The main problem is that whenever an application that works with an outboard sensor or controlled device is developed, a lot of code is added to the program to work with the sensor or controlled device. This extra "bulk" is written by the app writer usually because the writer is the one who designs the device. The communications between these device and the host smartphone or tablet is typically using USB for wired connections; Bluetooth, dedicated or network-integrated Wi-Fi for wireless connections and the application developer has to work with the link that is appropriate to the device.

If the device designer wants to build a lively application-programming environment around the device, they have to either prepare a software development kit which usually requires the distribution of a runtime module with the application. This can take up memory and can put a strain on the battery life of the device.

What can be done

An improvement to this situation that would improve the lot for device designers and application developers who write SCADA for smartphones and tablets would be to establish a "driver" model for sensor and controlled devices.

Here, the operating system could run a "driver" for the application in a similar vein to how peripherals are managed by desktop operating systems. Here, the operating system can do things like manage the polling cycle for sensors or transmission of events to controlled devices, including responding to sensors that are set to trigger software events for the device class.

This can help with conserving battery power by disconnecting from a sensor or controlled device if the destination apps aren't run; or sharing data between two or more apps benefiting from the same sensor data. This could benefit some platforms, most notably Android, where one can write lightweight indicator applications like "widgets", notification-area icons or active wallpapers which just benefit from sensor data or respond to certain conditions.

The problem is that the smartphone operating systems such as iOS and Android don't support the same kind of programmatic modularity that desktop computing has permitted due to limitations placed on them by battery-operated handheld device designs with constrained memory and storage size. This issue may have to be examined whenever a subsequent major revision of the smartphone operating system is being worked on; and could include whether a separate "driver store" is maintained at the platform's "app store" or that drivers are supplied as "apps". This can then allow the manufacturers to update drivers as necessary, for example to add new functionality.

Conclusion

The idea of controlling or monitoring devices from computers or mobile devices is going to become something more mainstream rather than just a novelty and the operating system designers may have to factor this in to their designs.

Another UK village to have fibre-to-the-premises broadband

29/12/2010 10:44

Article

thinkbroadband :: Rutland Telecom to deploy fibre to Hambleton village[1]

From the horse's mouth

Internet service for Hambleton - Rutland Telecom[2]

Rutland Telecom - Web site[3]

My comments

Rutland Telecom[4] is at it again with another UK village being wired up with next-generation broadband. Here, Hambleton which is near Oakham in Rutland, is being equipped with fibre-to-the-premises broadband.

They are achieving this goal in a similar community-driven model to the VDSL-based fibre-to-the-cabinet setup in Lyddington[5], Leicestershire which I have touched on in this site.

One thing that impressed me about this is that it is technically "ahead of its time". Here, the setup uses an "active" point-to-point fibre arrangement rather than the commonly-deployed "passive optical network" arrangement. This is equivalent to moving a wired Ethernet network from a hub which shared the bandwidth between the devices to a switch which gives each device its own bandwidth at the best speed. Here, the setup is future proof and capable of high speeds and increased bandwidth and can satisfactorily cope with the situation when the village becomes a town.

There had been 60% takeup on the offer to register for the next-generation broadband which shows real interest in better-standard Internet in the country. The service is intended to go live on (North-Hemisphere) Spring 2011.

This company is now encouraging other small UK communities to gain their help in setting up next-generation broadband. It could then be a step in the right direction for telecom co-operatives and similar companies to look towards raising the bar for a standard of Internet service normally taken for granted in urban areas.

Links

- [1] <http://www.thinkbroadband.com/news/4511-rutland-telecom-to-deploy-fibre-to-hambleton-village.html>
[2] <http://www.rutlandtelecom.co.uk/FTTP>

[3] <http://www.rutlandtelecom.co.uk/>

[4] <http://www.rutlandtelecom.co.uk/>

[5]

[/2010/04/more-rural-broadband-activity-in-the-uk-lyddington-leicestershire/#utm_source=feed&utm_medium=feed&utm_campaign=feed](http://www.rutlandtelecom.co.uk/2010/04/more-rural-broadband-activity-in-the-uk-lyddington-leicestershire/#utm_source=feed&utm_medium=feed&utm_campaign=feed)

TwonkyMobile app-another DLNA control point for your Android phone (VIDEO CONTENT)

28/12/2010 02:46

Twonky Mobile app for your Android phone

Click on this link to view the video[1] if it doesn't show up on your device.

Direct link to the Twonky website[2]

No doubt you may have decided to go towards an Android smartphone or tablet device and it may not have come with an adequate DLNA media app. There is another DLNA so

Judging from this video, I could see that the Twonky Mobile app can do what is expected of a DLNA control point app for a mobile phone or tablet device. It can even link with online content like podcasts or YouTube videos that you pull up through your Internet browsing as well as the content that is in your phone or DLNA media servers.

To get at this software, you would have to go to the Android Market and hunt for "Twonky Mobile" and is currently free for a short time.

Links

[1] <http://www.youtube.com/watch?v=PJwwd7LHUHE>

[2] <http://www.twonky.com/products/twonkymobile/default.aspx>

HomeNetworking01.info's guide to the Boxing Day Sales

25/12/2010 11:39

Hi everyone!

I am writing this special article which will help you get the most out of your visit to the stores during the Boxing Day Sales. No doubt, you will have enjoyed your Christmas celebrations with your family and friends and are about to see the New Year in. Concurrently, you will be bombarded with print, TV, radio and online advertising by the big consumer-electronics stores and department stores concerning the deep discounts that are offered on computer and consumer-electronics equipment during the Boxing Day sales that will be on this week.

Here, the usual price ranges that you expect for certain classes of equipment may change due to the deep discounting that these retailers do but it is worth paying attention to the features that

the equipment offers.

Beware that the “doorbuster specials” and other highly-promoted specials may not offer a good return on their value because they may be low-end equipment that doesn’t have the necessary features that you want out of the equipment. In the case of printers, you may find that you have two ink cartridges that are costly to replace when they run out.

Printers

I have started with this class of equipment here because most people end up making mistakes when they buy printers on price alone. Here, the very cheap multifunction printer will typically end up being costly to run and may need new ink very frequently.

When you buy an inkjet printer, look for printers that use four or more ink cartridges. Here, there is one cartridge per colour and if you run out of one particular colour, you just need to replace that cartridge.

As well, some printer manufacturers, most notably HP and Brother, sell multi-cartridge inkjet printers that can take high-capacity cartridges. Here, you benefit from the fact that during low-demand periods, you could get by with standard-capacity cartridges but can run high-capacity cartridges during the high-demand periods like end of school term for example.

A printer that is fully network-enabled can be worth its salt in situations where you have multiple computers or a laptop connected to the Internet via a wireless network. This is more important for a multifunction unit because the network-enabled multifunction units provide network access to the scanner as well as the printer with nearly all of them offering the ability to scan a document to a particular computer from the machine’s control panel. In the case of most of the recent HP (Hewlett-Packard) printers, you gain extra functionality like email-to-print or “print-app” functionality because of the fact that you have network functionality.

Network Infrastructure

Be careful when buying a router for your home network. There are two major classes of routers – a router, sometimes referred to as a broadband router, which only has an Ethernet connection on the Internet side and is designed to connect to a broadband modem; and a modem router, which has an integrated broadband modem, typically an ADSL2+ modem, or, in an increasing number of cases, a wireless-broadband modem for the Internet side.

If you are buying to replace an ADSL modem or older /failed ADSL modem router, it would be preferable to buy an ADSL2+ modem router. Similarly, you could buy an ADSL modem router as the core piece of equipment when you set up a new broadband service in a built-up area and have that service as a “BYO modem” or “wires-only” service, which attracts cheaper setup charges.

If your Internet service uses cable-modem, fixed-wireless, fibre-optic or similar technology and the provider provides a modem or “ONT” as the customer-premises equipment, you could get by with a broadband router connected to the modem’s Ethernet port as the network-Internet “edge”.

As for wireless routers, you may gain a better deal by looking at the 802.11n equipment because you can have them run with existing wireless-enabled network devices by using an 802.11g “compatibility” mode. This may not achieve the full high-speed throughput that 802.11n is designed for but still has a very good operating range for wooden or brick-veneer houses. You will still need to consider the second access point and wired backbone for houses with double-brick or masonry interior walls, including interior fireplaces and brick-veneer extensions built on to double-brick or masonry houses.

Speaking of which, if you are buying HomePlug powerline equipment, it would be preferable to go for equipment that is based on HomePlug AV standards. Here, this equipment will comply with IEEE 1901 powerline-network standards and work properly with the newer HomePlug AV2 standards. As well, you will get higher data throughput and improved reliability across the powerline network.

Games consoles, TVs and consumer AV

The Sony PlayStation 3 and Microsoft Xbox 360 can work beyond just being a games machine that is hooked up to the TV. These consoles, especially the PlayStation 3, can become very powerful networked media terminals that can benefit from media held on your computer’s hard disk, a network-attached storage device or the Internet.

It is also worth paying extra attention to DLNA-compliant network AV equipment. Here, you can start slowly towards the networked-AV world yet be in a position to play your pictures, music and video collection from your Windows or Mac computer through the use of cheap or free software. You may be able to use your smartphone or tablet computer as a media controller even if the media files are held elsewhere on the network. This can be achieved through the use of DLNA /UPnP AV media-controller software that is either supplied on your phone or available through the phone’s application store for a modest sum of money or, in some cases, for free.

As well, you may find that an Internet radio may be an entry point in to the world of networked AV and also give you a chance to hear radio from distant lands. This is especially more so if you “cottoned on” to a radio station that you had heard on your travels and were enamoured by its programming. There may be some bargains out there that are worth considering as manufacturers move towards newer models of these radios.

Laptop, Notebook and Netbook Computers

Make sure that you buy the right computer for its role in your IT lifestyle rather than on the price. A 14” or larger laptop would work well as an easily-transportable alternative to a desktop or all-in-one whereas a netbook or 13” notebook would work well as a secondary computer that you use when you travel.

If the computer is expected to be the primary computer, look towards increased hard-disk capacity and RAM memory. Dedicated graphics may be important if games, multimedia and graphics are important to your computing life. Conversely, a 15” laptop with low-tier processor specifications may be useful for retirees who are going to use it primarily for word-processing, email or Web-browsing.

Conclusion

When you plan to take advantage of the Boxing Day Sales to buy your computer equipment, it always pays to know what you want and where you envisage your use of the equipment over the next two to three years.

Product Review-HP LaserJet Pro CM1415fnw colour laser multifunction printer

20/12/2010 02:30

Introduction

I am reviewing the Hewlett-Packard LaserJet Pro CM1415fnw colour laser multifunction printer which is an entry-level colour laser multifunction printer that is enabled for HP's ePrint and Apple's AirPrint "driver-free" network printing technologies.



[1]

Print Scan Copy Fax /

E-mail Paper Trays Connections Colour Colour Colour Colour
1 x A4 USB 2.0 Laser xerographic 1200 dpi Resolution Super G3
with colour receive Ethernet
802.11g WPA2 WPS Wi-Fi Automatic Document Feeder HP
ePrint IPv6 ready

ePrint functionality is available with a firmware update available after December 13 2010.

Prices

All prices are quoted in Australian dollars as GST-inclusive recommended retail price at time of publishing.

Printer

The machine's standard price \$599

Inks and Toners

Standard Price Pages Black \$94.34 2000 Cyan \$89.57 1300
Magenta \$89.57 1300 Yellow \$89.57 1300

There are no fees or charges associated with the HP ePrint service.

The printer itself

User interface



[2]

The touchscreen control panel is the only user interface for this printer

This printer has a user interface that breaks away from the typical multifunction printer that I have reviewed. Here, it uses a colour touchscreen user-interface as the main control panel. The only real hardware switch that exists on the printer is the power on-off switch on the side.

I would say that this has been brought on through the popularity of touchscreen smartphones and tablet MIDs based on the Apple iOS, Android and Windows Phone 7 platforms. The user interface also is augmented with quick-navigation touch-buttons that light up as required in a "pinball-machine" manner so you can get to the home screen, browse pages on some menus or cancel an operation.

This has allowed HP to apply design flexibility when it comes to integrating the ePrint print-apps functionality which I will be talking about later. As well, HP are able to use a smaller control panel area on a desktop laser multifunction printer while avoiding the problem of reducing the machine's ergonomics and useability.

Network connectivity

The printer can work with Ethernet or 802.11g WPA2 Wi-Fi networks. When you enrol the printer in to a Wi-Fi network and you need to enter a WPA-PSK passphrase, you have an alphabetic keypad on the touchscreen to enter this detail. If the Wi-Fi router or access point supports WPS "quick-setup", this printer does support the functionality.

It is also worth noting that if you connect the printer to a network via the Ethernet connection, this automatically overrides the Wi-Fi connection. This will mean that you don't have to do any further configuration if you find that Wi-Fi is too unreliable and you decide to connect it to an Ethernet or HomePlug connection instead.

There could be an option for the user to set up the printer to become a Wi-Fi access point if the printer is connected to the network via an Ethernet connection. This can come in handy if the printer is used in an area where there is insufficient signal strength for the wireless network and it is connected to the network via an Ethernet or HomePlug link.

Walk-up functions

Copy

This unit is capable of working as a basic laser-based colour copier but as the ID copy function as its unique feature.

ID copy

One feature that is peculiar to this machine so far is an "ID copy function" where you can copy both sides of a small document like a business card, ID card, passport or endorsed cheque on to one side of an A4 sheet of paper. This feature has become more important as most business transactions are increasingly requiring one of the parties to present an identification document.

Here, you place one side of the document on the left side of the scanner glass then touch START. The machine will scan that one side, then you turn the document over and place it on the right side of the scanner glass and touch "Done". Then the machine will turn out a 1:1 copy of both sides of that document.

At the moment, this function doesn't support the ability to scan both sides of an ID document on to one file or send both sides of an ID document as a fax.

Book-friendly automatic-document-feeder lid

This printer has the typical automatic document feeder that is part of the lid, But it has been also designed so that the lid is able to lift up rather than be hinged in the conventional manner. This can come in handy when you copy, fax from or scan bound documents like books.

Fax

The fax subsystem uses flash memory rather than RAM to store faxes that are to be sent or received faxes. This effectively eliminates the vulnerability of received or pending faxes to a power failure which is a common issue with most fax equipment. It therefore supports a comprehensive "fax vault" function which allows the user to release received faxes upon entry of a password, thus avoiding the situation of confidential faxes falling in to the wrong hands.

There are a few limitations however such as the inability to send colour faxes and no support for T.37 or 7.38 Internet faxing. This latter function would allow the fax to work with IP-based telephony setups that are going to become the norm over the next few years.

USB port and walk-up printing /scanning

The USB port on the front of the machine allows one to print a document or photo held on a USB thumb drive or scan to a USB thumb drive. This function could be augmented with a card slot for memory cards or PictBridge "print-from-camera" functionality.

It doesn't seem to allow the user to start a scan job which ends up at a nominated computer from the control panel. This is a feature which I consider a serious omission because all of the network-enabled multifunction printers that I have reviewed other than this machine do allow the user to specify which computer a scan job ends up at and what application is to benefit from the image.

Quick-forms and HP Print Apps

This unit has a "quick forms" functionality for printing out stationery like graph paper, ruled paper for handwriting, checklists and music manuscript paper. Like the other HP printers, the graph paper and music paper is relatively limited in what you can specify like 5mm or 1÷8" for graph paper; or 10 staves in portrait or 8 staves in landscape for music paper.

The HP ePrint setup allows users to download "print apps" which allow a user to print out documents like newspapers, stationery, colouring pages and the like from the printer's control panel. It also gives the printer a unique email address which works as an "email-to-print" service in a similar vein to the previously-reviewed HP Photosmart B110a. The "email-to-print" service could support a "fax vault" function to delay release of jobs unless a code is entered in to the machine.

I would like to see this printer become equipped with functionality which allows controlled or accounted ePrint job release so it can become a public printer for use with wireless hotspots and other public networks. Here, it could then be feasible for the organisation who runs the hotspot to charge for printouts to recover running costs, use a branded "drop-box" Web page for users to submit print jobs to print or even integration with hotel billing systems.

This issue, alongside the availability of many quality walk-up printing apps for this printer class, will be likely to appear as the ePrint platform matures over time.

Computer functions

Driver Installation and Performance

The printer comes with driver CDs for the main operating systems and supports Windows 7 and MacOS X Snow Leopard. It could use the same installation method that was used with the LaserJet M1210 Series multifunction printer where the driver software was kept on the flash memory rather than on CDs that come with the machine.

The drivers offer the basic functionality expected for a small-business printer and don't offer a confidential-print mode where jobs can be released at the printer using a user-determined password.

Printer performance and image quality

The printer does work efficiently when a print job comes in while it is in standby mode. Here, it will take 12 seconds from when you start a document-based print job at your computer for it to start printing. Then it takes 5 seconds per page to print the job.

It will take a longer time to print highly-detailed photos or other bitmaps and ends up powering down the print engine between each page, but is quick with text-based material.

When the printer turns out photographic material on plain paper, the images come out darker with colours that are saturated stronger in comparison to the other colour laser printers that I have tested. The dark print output is a similar issue with laser printers when they print this material on plain paper.

Other issues of note here

The printer is likely to jam if the paper is restocked while it is printing, a common practice that most people do if the printer runs out of paper during the print job. Here, you have to wait until the pages stop coming out of the printer and the motor stops before adding paper during a print job or fax-receive even if the machine's display shows the "paper-out" message.

Like a lot of printers that I have used and reviewed, this printer could benefit from more flash memory especially as the cost of this kind of memory comes down.

A problem I have noticed with this printer, along with other Hewlett-Packard LaserJet printers is that you can't buy a "high-capacity" toner cartridge for these printers. This may be of limitation to users who either want to run high-capacity cartridges for reduced "per-page" printing costs or avoid the need to frequently buy and reload toner cartridges in their machines. It may also affect users who are used to inkjet printers that have high-capacity cartridges as an option or users who like to run standard cartridges but need to run high-capacity cartridges for intense print runs.

Conclusion and Placement Notes

This printer may come in handy as an organisation's first colour-laser multifunction printer or as a low-duty "quality laser" secondary multifunction printer like a reception-desk unit. The unit's "fax vault" function could appeal to organisations who handle confidential data but have contract staff coming through the premises "out of hours".

It wouldn't work well as a primary printer on a site where many jobs have to be turned out in succession. The lack of an auto-duplex mechanism would impair its ability as a publishing printer and would reduce its "green" credentials a bit.

Therefore I would find that this colour laser printer can become a difficult option to consider for an entry-level colour laser multifunction printer for a small business especially as the high-end colour inkjet multifunctions that are pitched at this class of user are approaching it for speed, quality and print economy.

Links

[1] [http://homenetworking01.info/wp-content/uploads/2010/12/2010-](http://homenetworking01.info/wp-content/uploads/2010/12/2010-12-21-001.jpg#utm_source=feed&utm_medium=feed&utm_campaign=feed)

12-21-001.jpg#utm_source=feed&utm_medium=feed&utm_campaign=feed
[2] http://homenetworking01.info/wp-content/uploads/2010/12/2010-12-17-001.jpg#utm_source=feed&utm_medium=feed&utm_campaign=feed

PROMISE Technology's contribution to the DLNA Home Media Network

18/12/2010 12:43

News Article

PROMISE Technology Announces General Availability of SmartStor Zero and Its Fusion Stream DLNA Digital Media Apps | DMN NewsWire[1]

From the horse's mouth

SmartStor Fusion Stream[2]

My comments and notes

SmartStor Fusion Stream app

The SmartStor Fusion Stream app is another program that integrates a smartphone or tablet computer based on the iOS or Android platforms in to a standards-based DLNA Home Media Network.

It is capable of what is nowadays expected for a smartphone-based DLNA network media app. That is it can play or show media held anywhere in the DLNA Home Media Network on the device itself or a DLNA Media Renderer device capable of accepting media that is "pushed" to it from a control device.

Another key feature is that it integrates the local storage with the DLNA Home Media Network. Here, you can upload pictures or videos taken with the device's camera to a DLNA-compliant media server that supports the upload function. It can also download media held in the DLNA Home Media Network to the device's local storage so it can be enjoyed "on the go".

The ability to download content held on a DLNA Media Server to the local storage of an iOS or Android device with this software could be handy especially for iOS users who want to add selected pictures to their device without having to perform special sync routines. This is because iTunes doesn't seem to support "drag-n-drop" syncing of pictures that a user selects to an iOS device - a feature that can come in handy if an iPod Touch or iPad is put in to service as an electronic photo album or digital photo frame.

A main question that I would have at the moment would be whether pictures and videos that come in to a smartphone that runs this software can be shown via a DLNA screen or uploaded to a DLNA Media Server if they came in via email, MMS picture or Bluetooth? Similarly, I would like to be sure that the program doesn't impair the performance of the smartphone or device; or doesn't take too long to browse the a DLNA media collection on

a server.

This program could raise the bar when it comes to DLNA interface programs for mobile phones and internet tablets.

SmartStor Zero

The SmartStor Zero is another two-bay network-attached storage device which is optimised to work as a media server. As well as serving media to DLNA equipment and iTunes clients, it can accept content that is uploaded from mobile devices that are equipped with DLNA-Upload software like most of the DLNA-integration software for the Android platform and the abovementioned Fusion Stream app for the iPhone.

This device's Web-based user interface has the ability to become an access point for the media held on the NAS. But it supports the ability to allow one to directly upload selected pictures to Facebook whether to a new album or as extra images for an existing album.

Another bonus is that the Installation software doesn't add any drivers or other components to allow a computer to gain access to the NAS. Instead, the software works with the host operating system's network-storage capabilities to "find" the NAS and provide a mount point or mapped drive letter for the storage resources.

One feature that I would like the DLNA software to benefit from is to support the photo tags that are part of iPhoto or Windows Live Photo Gallery. This could even include the People Tags and Geotags that Windows Live Photo Gallery supports so as to allow one to search or browse for people in the photo library using the user interface provided by a DLNA-compliant media player or control point.

Links

[1]

<http://dmnnewswire.digitalmedianet.com/articles/viewarticle.jsp?id=1290299>

[2]

http://www.promise.com/storage/raid_series.aspx?region=en-global&m=19&rsn1=3&rsn3=39

VPNs and remote access in the home and small-business space—a lot of unanswered questions

10/12/2010 14:43

What is remote-access and VPNs

The concept of remote-access and VPNs is primarily about gaining access to computer resources located in a location that is physically distant from where we are. The typical applications that we talk of are access to business data held out our small business's shopfront from our home office's computer or gaining access to data as we travel.

The method that is usually implemented is to set up a Virtual Private Network or VPN which is a virtual secure network link

between one or more computers in one network and computers in another network. This link is hosted over another network infrastructure like an Internet service and acts as the secure data "tunnel" or path between these networks.

This will typically allow one to "draw down" files held on a remote hard disk or more likely use a "remote desktop" program to operate a computer from afar. The latter application would typically be performed using programs like VNC or Microsoft's Remote Desktop /Terminal Services with a server component running on the host computer (which has the data and programs) and a remote-terminal client program on the computer that the user is working from.



[1]

One of Draytek's VPN-endpoint ADSL modem routers

Previously, a VPN was based around two Internet-connected computers with one, typically a file server, being a "VPN server" and the remote computer being something like a laptop or home computer. Now the VPN can have a specially-enabled router as the "VPN server" or can become a secure link between two physical networks separated by an Internet connection and facilitated by specially-enabled routers.

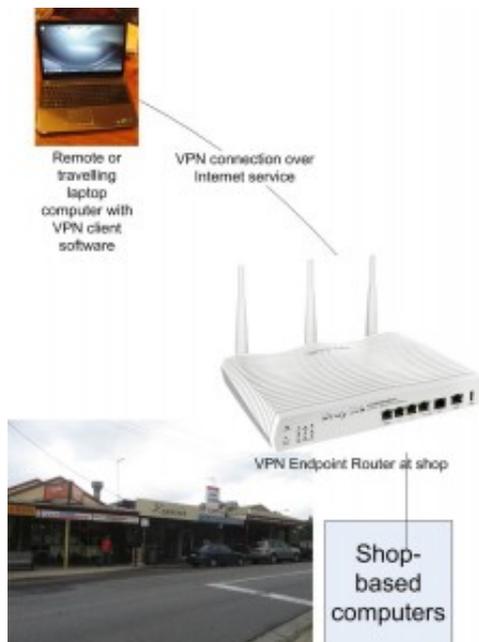
Two types of VPN

There are two types of VPN setup that are in use. They are the "Client to Box" setup and the "Box to Box" setup.

"Client-to-Box" - Remote computer to local network

The "Client to Box" setup has a user operating a single computer to gain access to the remote network. This is typically used to allow a mobile worker or a telecommuter to gain access to company resources from their laptop or home computer.

The computer runs a "VPN-client" program that is either part of the operating system or a separately-supplied program. Here, this program provides the login experience for the user and authenticates the computer to the main network. Then it effectively "bridges" the computer's resources to that network.

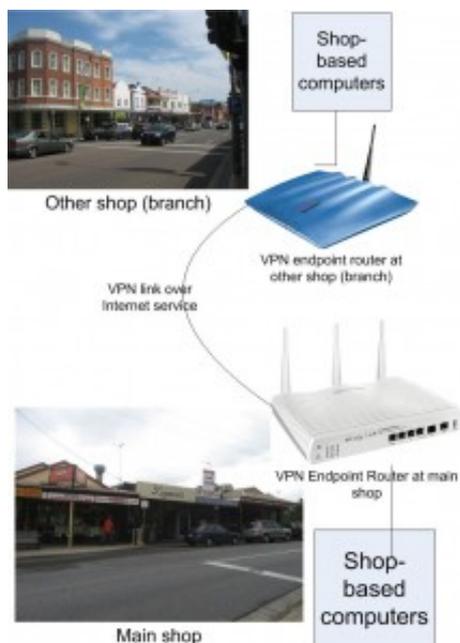


[2]

Single-Client Remote Access VPN

“Box-to-Box” - Connecting multiple logical networks

The “Box to Box” setup is simply a secure link that is established between networks established in different locations. The typical reason to do this is to avoid the costs of renting a dedicated line between the locations and use the economies of scale that the Internet offers. This is typically established with the use of special “VPN endpoint” routers joining the networks and these routers create a secure encrypted “tunnel” for the data to move between the networks.



[3]

“Box-to-Box” VPN connecting two networks

Relevance to the small business and home users

These VPNs do appeal to small businesses and home users in many ways. One is to allow a shopkeeper to have access to data held at either their home office or their shop from the other location. Similarly, a small-business owner can establish a branch of their business in a new location and make sure they have access to the business resources at the main location from the branch’s network.

Another example for a “client-to-box” setup is to allow a tradesman or similar worker to gain access to customer data held on his home-office computer from the road through the use of a laptop computer connected by a wireless-broadband link or use of a wireless hotspot.

There is even the prospect of home users using this VPN technology to gain access to media held on a home media server from remote locations. One example would be to “pull up” audio material held on the home media server from one’s car using a wireless-broadband link to download or stream the material. Another example would be to have the same media that you have “at home” available on a home network installed at a secondary home that you own or rent.

As well, it could be feasible to use VPN technology as part of home security and automation, especially when it comes to managing remote properties.

Similarly, there can be the ability to support the use of the home network’s facilities in households where one or more members maintain separate Internet services and networks. Examples of this may include a business that is operated from home and a separate Internet connection for business-owned equipment; lodgers, students who want to have their own Internet use on their own terms

Limitations with the current technology

Hard to provision

The main limitation for home and small-business users when dealing with the VPN is that the VPN is typically hard to provision, whether it is to set up for the first time or to adapt it to suit future needs.

The user need to make sure each location’s local network uses a different IP address range which would be a difficult task especially as most small networks are set up to the IP-address specifications that are determined by default when you get the network-Internet “edge” router.

Then they need to know the VPN protocols, security protocols and the VPN passphrase and set these in the “hub” VPN endpoint. They have to make sure this is accurately copied and copy these details to the “spoke” VPN endpoints at the remote locations. Here they may become confused with determining which is “outbound” and which is “inbound” for each tunnel when configuring each endpoint.

They would also have to make sure that one of the VPN endpoints or the one that is to be the “hub” endpoint either has a fixed Internet IP address or can support a dynamic DNS service like DynDNS.org or TZO and is set up for this service.

Most of these tasks would then daunt most home and small-business computer users unless they had a lot of detailed computer knowledge and skills.

Limited protocol and application set

Most VPNs can only handle the protocols associated with bulk file transfer between two or more general-purpose printers. They don't properly support device discovery for other devices which is important for the home and small-business user.

As well, they don't work properly when it comes to streaming of real-time media between sites due to issues with streaming protocols and quality of service. Here, VPN applications involving these applications may have to implement application-layer gateways to facilitate the QoS and protocol needs.

Action to facilitate these networks

The UPnP Forum have released the "RemoteAccess" Device Control Profile for facilitation remote access and VPN use especially when it comes to supporting UPnP-compliant devices on the "other side" of a remote access link or VPN tunnel from "your side". The first version is pitched at the "client-to-box" VPN setup, mainly to allow smartphone and laptop users to gain access to media on the home network. The second version, to be coming over the next year, is intended to support "box-to-box" setups like multi-site "super-networks".

This has been released in conjunction with the "ContentSync" Device Control Profile which allows for synchronising of content collections (or parts thereof) between two UPnP AV MediaServer devices.

It has then made a relevant case for home users to value VPN and remote-access technology for personal-media applications such as keeping copies or subsets of media libraries at other locations or playing media held at one location from another location.

What needs to happen

Improve provisioning experience

The routine associated with provisioning a remote-access setup or VPN "super-network" needs to be simplified in a manner similar to what has happened to Wi-Fi wireless networking. Here, this was facilitated by the user not needing to work out any new data except to identify a wireless-network segment via its SSID.

In a VPN or remote-access network, the user sets up a "hub" endpoint which would work on machine-determined VPN protocol settings. Here, the user determines the location name, dynamic-DNS service or fixed IP address; and the VPN network password.

As well, a dynamic-DNS service that has a lot more "meat" such as increased reliability could be a service that is sold by carriers and Internet service providers as a value-added service. These services could typically be packaged as a product differentiator between different Internet-access-package lineups or just simply as an add-on item.

Then the user sets up a "spoke" endpoint or client terminal by providing the fully-qualified location name and the VPN network

password as well as an identifier for the "spoke" endpoint.

This setup could support the use of machine-generated passwords that have been successfully implemented with Windows Connect Now easy-Wi-Fi setup method in Windows XP Service Pack 2 and Vista; as well as the HomeGroup password in Windows 7. Similarly, there could be support for configuration files like what has happened with Windows Connect Now - USB setup where a configuration file is uploaded to a Wi-Fi router or client device to facilitate quick wireless-network enrolment.

A client-to-box setup could be set up with the user entering the VPN name and password in to a VPN client program that is part of the computer's or smartphone's operating system.

Site-local subnets (logical networks)

The provisioning process for a "box-to-box" remote-access network should make it easy to create site-local subnets that are peculiar to each logical network. This could require the "hub" endpoint to keep track of the subnets and cause "spoke" endpoints to determine new subnets as part of the setup process.

It can include the ability to reinforce a DHCP "refresh" so that all network devices that are in a logical network obtain new IP addresses if the addressing scheme has to be redefined for that network. This is because most network devices in home and small business networks are allocated IP addresses using DHCP rather than the user defining them in order to simplify setup of equipment on these networks.

Use of a logo for easy-setup VPN systems

A VPN or remote access system needs to work to an industry standard that is supported by many vendors. Here, equipment and software that complies to this standard needs to be identified with a trademark and logo which denotes this compatibility so customers can choose the right hardware and software for an easy-to-provision remote access setup.

Retroactive upgrading programs

There are small businesses who run VPN setups that are typically based on VPN-endpoint routers that have existed for a long time and are currently in service. The standards for providing "easy-setup" VPN systems could be retroactively implemented in these units by applying updated firmware that incorporates this functionality to existing VPN-endpoint routers. This may happen more easily for devices that are based on open-source firmware.

Conclusion

Once the industry makes it easier for home and small-business users to establish or manage their remote-access setups and VPN-based multi-premises super-networks, the kind of features that larger businesses take for granted can be of benefit to this class of user.

Links

- [1] http://homenetworking01.info/wp-content/uploads/2010/12/Vigor2700VG.jpg#utm_source=feed&utm_medium=feed&utm_campaign=feed
- [2] <http://homenetworking01.info/wp-content/uploads/2010/12/Client>

-Box-VPN.jpg#utm_source=feed&utm_medium=feed&utm_campaign=feed
[3]
http://homenetworking01.info/wp-content/uploads/2010/12/Box-Box-VPN.jpg#utm_source=feed&utm_medium=feed&utm_campaign=feed

The Mac App Store—what could this mean for the Apple Macintosh platform?

10/12/2010 05:46

Mac App Store launching in January sans Game Center and in-app purchases? | Engadget[1]

My Comments

At the moment, Apple Macintosh users can buy software in a packaged form from any store that sells software for this platform. As well, they can download software from various Websites, including the developers' own Websites and run this software on their computers.

Now Apple is introducing the Mac App Store as an extension of the iTunes App Store that is the only way to get extra software for any iOS device (iPhone, iPod Touch or iPad) for the Macintosh desktop. The main question I have about this is whether this App Store will exist simply as another storefront for MacOS X software where such software can be purchased with the iTunes gift cards or a regular credit card or as a move by Apple to make this storefront the only way for MacOS X users to add software to their computers?

There has been controversy about the App Store in relation to the iOS platform over the last few years because it allowed Apple to have greater control over the software that could run on that platform. Situations that came about included outlawing Adobe Flash on the iOS platform and prohibiting the supply of software that Steve Jobs didn't see fit like Wi-Fi site-survey tools for example. I had talked with some friends of mine who were regular Mac users and they feared that if Apple set up the App Store on the Macintosh platform, it could become the start of a situation where you can't load applications on a Mac unless they came through the App Store.

What I would like to see of the Mac App Store is that it exists as another storefront and "download city" for Macintosh-platform software and that MacOS developers can maintain their own sites and distribution channels for such software. It should then keep the Macintosh platform a flexible desktop-computing platform with the expectations of this class of platform rather than a desktop version of the Apple iOS embedded-computing platform.

Links

[1]
<http://www.engadget.com/2010/12/09/mac-app-store-launching-in-january-sans-game-center-and-in-app/>

Product Review—Dell Inspiron 15R consumer laptop

03/12/2010 06:32

Introduction

I am reviewing the Dell Inspiron 15R [1] consumer laptop which is pitched by Dell as a value-priced mainstream consumer laptop that would suit most home users. It is another example of the recent trend by companies making equipment for the Windows platform to upstage Apple on aesthetics, build, functionality and performance in a cost-effective manner.



[2]

Price

- this configuration RRP AUD\$949 Processor **Intel Core i3 M330 CPU (2.13GHz)** Intel Core i5 processors - extra cost option RAM **4Gb** shared with graphics on Intel HD option 6Gb - extra cost option Secondary Storage **500Gb hard disk** DVD burner, SD card reader 320Gb hard disk - cheaper option 640Gb hard disk - extra-cost option Display Subsystem **ATI Mobility Radeon 5470 Graphics 1 Gb display memory** Intel HD Graphics - cheaper option Screen 15" widescreen LED-backlit LCD Network 802.11n Wi-Fi **Bluetooth 2.1** Ethernet Connectors USB 3 x USB 2.0 eSATA 1 x eSATA combined with one USB socket Video 1 x HDMI 1 x VGA Audio 1 x 3.5mm Headphones output jack Digital out via HDMI 1 x 3.5mm microphone input jack Operating System on supplied

The computer itself

Aesthetics and Build quality

The review unit isn't styled in a manner that copies the aesthetics of Apple's MacBook range of computers. The back of the display is finished in a red colour but is available in a range of other colours when you order the computer through Dell's website.

As mentioned below, the keyboard area isn't colour-coordinated to the back of the display. Here, the keys are finished in black and set against a chrome-look bezel that reminds me of the way various car manufacturers used a chrome panel around a group of controls on the centre console or around power-window buttons on the armrests of high-end vehicles to emphasise luxury.

These aesthetics may appeal to those of us who like to move away from the "Apple-copy" styling that is happening with some portable computers. The only limitation with this glossy finish is that it attracts fingermarks too readily.

User interface



[3]The computer has a numeric keypad alongside the keyboard and this keyboard is the orthodox kind that Dell uses rather than the "chiclet" calculator-key layout that I have seen in other laptops. The trackpad is even made to be a "distinct" area with easily-identifiable buttons rather than the Macbook-inspired panel which has an area marked out for the buttons.

Storage

There is a 500Gb hard disk that is split in to 400Gb user space and 37.4Gb OS space plus a system-recovery partition for the main secondary storage. As well, a DVD burner and an SD card reader provide for the system's removable storage needs,

This capacity would be suitable for a consumer notebook that is intended to become the sole computing device for someone who wants to head to the laptop-based "new computing environment".

Audio and Video

I have observed the visual experience when running the movie as part of the battery rundown test and it was smooth even through the scenes where there was a lot of action. The sound is very good if played through headphones or external speakers but like all laptops, it leaves a lot to be desired when played through the computer's own speakers.

Battery life

I have run the computer through the DVD run-down test and it has completed 2 hours, 17 minutes while playing a feature movie through Windows Media Player and the wireless functionality was enabled. It played the same DVD feature movie during the run-down test for 2 hours 39 minutes with no wireless modem in use; a task that would be performed when the laptop is used on a long-haul flight.

When I took the computer "on the road", the battery duration was good for word-processing and Web-browsing even though it was powering my mobile phone as part of a tethered wireless-broadband-modem setup. I was able to get a few hours out of a USB tethered Nokia N85 when I ran the computer on batteries only and the phone was the wireless-broadband modem.

Other experience notes

When I have used this computer, it hasn't run hot too quickly. This would be typical for a "standard-form" large-screen laptop where there is enough room for the components to breathe.

Conclusion

I would recommend this laptop as a value-priced option for most of us who want a large laptop computer for use as a main computer at home — the new laptop-centric computing environment — or as part of tertiary study. At a pinch, it may suit the small-business user who uses it as a computer to take between the office or shop and their home.

It wouldn't be good for regular air or other public-transport travellers who want to use the computer while on board the plane or other transport vehicle. This is because it is too large for typically cramped spaces like urban public transport or the economy-class cabin in a plane.

Links

[1] <http://www.dell.com/au/p/inspiron-15r/fs>

[2]

http://homenetworking01.info/wp-content/uploads/2010/12/2010-10-23-028.jpg#utm_source=feed&utm_medium=feed&utm_campaign=feed

[3]

http://homenetworking01.info/wp-content/uploads/2010/12/Dell-Inspiron-15r-just-fits-on-economy-class-airline-tray-table.jpg#utm_source=feed&utm_medium=feed&utm_campaign=feed