HOW TO CHOOSE THE RIGHT
IT HARDWARE FOR YOUR NFP

James O’Callaghan - IT Consultant

14th August 2018
WHO AM I

JAMES O’CALLAGHAN
IT CONSULTANT

» 5 years in IT support at Infoxchange
» Worked with hundreds of NFPs
» Provides advice to a wide range of NFPs on hardware selection
Infoxchange is a not for profit organisation that has supported hundreds of non-profits to select, purchase and use a wide range of technologies:
Agenda

» Common NFP technology
» Sample use cases
» Gauging your needs
» Desktop vs laptop
» Choosing an operating system
» Hardware components
» Software
» Peripherals
» Purchasing tips
» Replacement strategy
» Top tips
Types of PCs commonly used by NFPs

35% Desktop
22% Laptop
22% Smartphone
11% Tablet
6% Other

2018 NFP Sector technology survey – Infoxchange and Connecting Up
Key principles of hardware selection

» **Supportable** – All hardware is purchased and configured consistently to ensure that support can be provided efficiently.

» **Cost efficient** – All hardware will be chosen to maximize the value and create the best return on investment for the purchase over the life of the equipment.

» **Reliable** – The hardware model selected will be chosen to provide reliable performance and to ensure continuity of business and minimise any interruption or need for maintenance.

» **Familiar and easy to use** – The hardware and software needs to be selected and configured to allow for a familiar interface that doesn’t require significant adjustment and training of staff.
GATHERING YOUR REQUIREMENTS
Gauging your needs

A few question you could ask yourself are:

» What is my computers primary purpose?

» Is this computer a home computer or for business purposes?

» Do I need my new computer to be mobile?

» How much am I willing to spend on a computer?

Once you have determined the computers main function and your particular needs then you will need to look at what machine is right for you.
Use Case – Office based admin worker

» **User** – only works in the office and has basic software requirements

» **Hardware** - Desktop PC

» **Software** – Windows 10 Pro, Office 2016 Pro

» **Features** – low cost, reliable, longevity

» **Peripherals** – Monitor, webcam, keyboard, mouse

» **Example model**: Dell OPTIPLEX 7050 SFF, i7-7700 8GB (2400-DDR4), 256GB(M.2-SSD), DVD-RW, Intel HD,

» **Warranty / life span** – 3 or 4 years

» **Cost estimate** - $1,190 + GST
Use Case – mobile support worker

» **User** – regularly works offsite or at client sites

» **Hardware** – Laptop

» **Software** – Windows 10 Pro, Office 2016 Pro

» **Features** – portable, flexible, integrated

» **Peripherals** – Monitor, dock, mouse

» **Example model**: HP PROBOOK 430 G5, i5-8250U, 8GB (2400-DDR4), 256GB SSD, Intel Integrated, 13.3in (HD-LED),

» **Warranty / life span** – 3 years

» **Cost estimate** - $1,245 +GST
Use Case – highly mobile manager

» **User** – regularly works offsite or at home or in meetings
» **Hardware** – Laptop / Ultrabook / Tablet
» **Software** – Windows 10 Pro, Office 2016 Pro
» **Features** – portable, flexible, lightweight,
» **Peripherals** – Monitor, dock, mouse, stylus, case
» **Example model**: Microsoft Surface Pro 4, 14” FHD (i7, 8Gb RAM, 256Gb SSD, touchscreen)
» **Warranty / life span** – 1-3 years
» **Cost estimate** - $2,200 ex GST
Use Case – case worker

» **User** – in client meetings or interviews
» **Hardware** – Tablet
» **Software** – Apple ios, Office 365
» **Features** – portable, flexible, lightweight, touchscreen
» **Peripherals** – Stylus, case, adaptors
» **Example model** iPad Pro 12.9-inch iPad Pro Wi-Fi + Cellular 256GB
» **Warranty / life span** – 1-3 years
» **Cost estimate** - $1,619 + GST
Desktop vs laptop

Laptop
Pros:
» Weight and size
» Ease of use
» Convenience
Cons:
» Upgrades and repair
» Ergonomics
» Price

Desktop
Pros:
» Price
» Upgrades and repair
» Powerful components
Cons:
» Size and Portability
» Additional peripherals i.e. screen(s)
## Sample devices

<table>
<thead>
<tr>
<th>Device purpose</th>
<th>Sample device</th>
<th>Sample cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Premium laptop – for mobile managers</td>
<td>SURFACE BOOK2 256GB SSD, i7-8650U, 1.90 GHz, 8GB RAM 13.5&quot;, Windows 10 Pro, Standard 1 year limited warranty</td>
<td>$2,605</td>
</tr>
<tr>
<td>Standard Laptop – for mobile staff</td>
<td>HP ProBook 430 G5, I5-8250, 8GB(RAM), 256GB(SSD), 13.3IN (FHD), Windows 10 Pro, 3 year warranty</td>
<td>$1,285</td>
</tr>
<tr>
<td>Desktop - office based staff</td>
<td>DELL OPTIPLEX 7050 SFF, I7-7700 8GB(RAM), 256GB(SSD) DVDRW, W10P, 3 yr warranty</td>
<td>$1,185</td>
</tr>
<tr>
<td>Tablet – for highly portable case workers</td>
<td>MICROSOFT SURFACE PRO 256GB SSD, i7-7660U, 2.50 GHz, 8GB RAM 12.3&quot;, Windows 10 Pro, Standard 1 year limited warranty</td>
<td>$2,125</td>
</tr>
</tbody>
</table>
HARDWARE COMPONENTS
What is a motherboard?

A motherboard is a circuit board and has different slots enabling other circuitry to be added to it, including:

» CPU
» RAM
» Monitor
» Graphics card
» Hard Drives
» Power Supply

More information:
https://www.computerhope.com/jargon/m/mothboar.htm
What is memory?

Commonly known as RAM, Random Access Memory, is a type of storage device the CPU uses to assist in processing data, much like a hard drive.

» What types of tasks will you will be doing on a daily basis?

» Available in 1GB, 2GB, 4GB and even 8GB units

Note: RAM can always be updated later in a computers life and is the best and cheapest way to increase a computers overall output/speed.
What is a processor and why is it important?

» **Number of cores**, performance is the most important factor here, the higher the number, the higher the core count. i.e. i3, i5, i7

» **Clock speed**, measured in gigahertz (GHz), determines how quickly a CPU can process information.

» **Power consumption** is another important factor when deciding on a processor, especially for laptops-lower power consumption means longer battery life.
Graphics cards

One of the most expensive pieces of a computer is the graphics card, used to display the graphics on your monitor.

» Integrated or Dedicated?
» Size
» Resolution
» FPS
» Price $$$

More information:
http://www.tomshardware.com/reviews/build-your-own-pc;2601-3.html
Hard disk types and sizes

Serial ATA (SATA)
» Faster than PATA
» SATA cables are more flexible
» One disk drive allowed per SATA controller

Small Computer System Interface (SCSI)
» Faster than SATA
» They are very reliable.
» Good for 24/7 operations.
» Well-adapted for storing and moving large amounts of data.

Solid State Drives (SSD)
» Faster data access
» Durability
» Less power usage
Peripherals

Computer peripherals are devices connected externally to a computer. There are three types of peripheral, input, output and input/output.
Printers vs multi function copiers

Printers
Pros:
» Cheap purchase price
» Easy to buy retail
» Good for small quantities
Cons:
» Expensive ink
» Basic functionality
» Minimal support

Copier
Pros:
» Cheaper per page
» Leasing
» Support
» Staple, binding etc
» Good for large quantities
Cons:
» Long contract
» Cost can be expensive

Hp laserjet example
Copier examples
Key software requirements

» **Windows operating system** – the ability to run any supported version of Microsoft Windows, however all new devices imaged with the latest Windows offering and an aim to upgrade all current devices, still under warranty, to the respective operating system.

» **Microsoft Office suite** – all staff require the ability to use the Office suite, currently Office 2016, including Word, Excel, PowerPoint and Outlook.

» **Microsoft Office 365 applications** – staff will require the ability to use local applications that integrate with Office 365 including One Drive for Business and Skype for Business.

» **Web browsers** - the latest versions of Internet Explorer, Google Chrome and Mozilla Firefox will be install on each device. Typically most other applications including CRM, finance systems, Website, Social Media, Survey tools and eNewsletter tools will be web based.

» **Domain functions** – the ability to join a Windows server domain and perform standard functions such as printing etc.
What to include in your standard operating environment (SOE) or image?

<table>
<thead>
<tr>
<th>Software</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows 10 Pro</td>
<td>Operating System</td>
</tr>
<tr>
<td>Office 2016 Pro Plus</td>
<td>Through Office 365 or Connecting Up</td>
</tr>
<tr>
<td>Kaseya or Teamviewer</td>
<td>Remote access software for your IT provider</td>
</tr>
<tr>
<td>Kaspersky or AVG</td>
<td>Antivirus and security</td>
</tr>
<tr>
<td>Malware Bytes</td>
<td>Malware protection</td>
</tr>
<tr>
<td>Quicktime</td>
<td>Media player</td>
</tr>
<tr>
<td>Google Chrome/ IE/Firefox/Edge</td>
<td>Web browsers</td>
</tr>
<tr>
<td>Adobe Reader</td>
<td>PDF Reader</td>
</tr>
<tr>
<td>Adobe Flash</td>
<td>Streaming video and audio</td>
</tr>
<tr>
<td>Adobe Pro</td>
<td>$77 from Connecting Up (if required)</td>
</tr>
<tr>
<td>PDF Creator</td>
<td>Free PDF converter tool</td>
</tr>
</tbody>
</table>
Choosing an operating system

Choosing an operating system is a big decision to make, go with what you feel comfortable with.

» What operating systems are available? Linux, MAC, Windows etc

» Is the O.S intuitive?

» Research system features and capabilities i.e. will your new system be compatible with your current environment.
## How to access donated Microsoft Office?

<table>
<thead>
<tr>
<th></th>
<th>Cost</th>
<th>Feature updates</th>
<th>Mobile applications</th>
<th>Licensing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Office 2016 via Connecting Up)</strong></td>
<td>$38 per license, single purchase</td>
<td>Available at major release under Software Assurance</td>
<td>View only</td>
<td>For use on one device for all users (i.e. computer)</td>
</tr>
<tr>
<td><strong>Office 365 Pro Plus</strong></td>
<td>$4.40 per user, per month</td>
<td>As they are released</td>
<td>View and edit</td>
<td>Install on up to 5 devices per user</td>
</tr>
<tr>
<td><strong>Office 365 E3 (also includes additional benefits above)</strong></td>
<td>$6.10 per user, per month</td>
<td>As they are released</td>
<td>View and edit</td>
<td>Install on up to 5 devices per user</td>
</tr>
</tbody>
</table>
Things to be careful of if buying retail

» Windows version is often not professional eg student – should be Windows professional

» Warranty is often minimal eg 1 year send back – should be 3 year next business day onsite

» Office is often sold as an accessory – should access donation/discount program

» Doesn’t include anti virus or other software

» Doesn’t include support or configuration

» Charity or bulk discounts can often be better through your IT provider
Replacement strategy and considerations

- **Operating system** – any PC with unsupported operating system including XP and Window 7 will need to be upgraded due to the security risks associated with running software that is no longer being supported by Microsoft.

- **Supportability** - Typically, it is not efficient to repair or upgrade hardware that is over 4 years old, therefore if hardware out of warranty has issues its often more costly to fix than replace.

- **Warranty** – we recommend that any hardware not under warranty should be replaced and not repaired. All new hardware should have a warranty of at least 3 years.

- **Capacity** – The processing power, RAM and memory should be adequate to meet the minimum requirements to run all business-critical software and applications. Often after 3 years the newer more power hungry applications such as Office don’t perform well
Top tips for designing your technology solution

1. Base your design on your future business model
   *What will your organisation look like in 5 years? How will your staff work? Will you grow?*

2. Determine your requirements for infrastructure
   *What systems do you need? Are these systems available in the cloud?*

3. Know how your staff need to work and your use cases
   *Are staff working from remote locations or home or on mobile devices?*

4. Understand what peripherals you need and factor the costs
   *Do you need docks, monitors, cases, stylus etc?*

5. Consider a hybrid model of both laptops, desktops and tablets
   *Fit for purpose devices based on role and use case?*

6. Explore group purchasing with an IT vendor
   *Do you have an IT provider who can provide quote? Get multiple quotes*

7. Build the business case and compare with other options?
   *How can you justify any costs, effort or change – reduce risk, decrease costs, improve performance?*