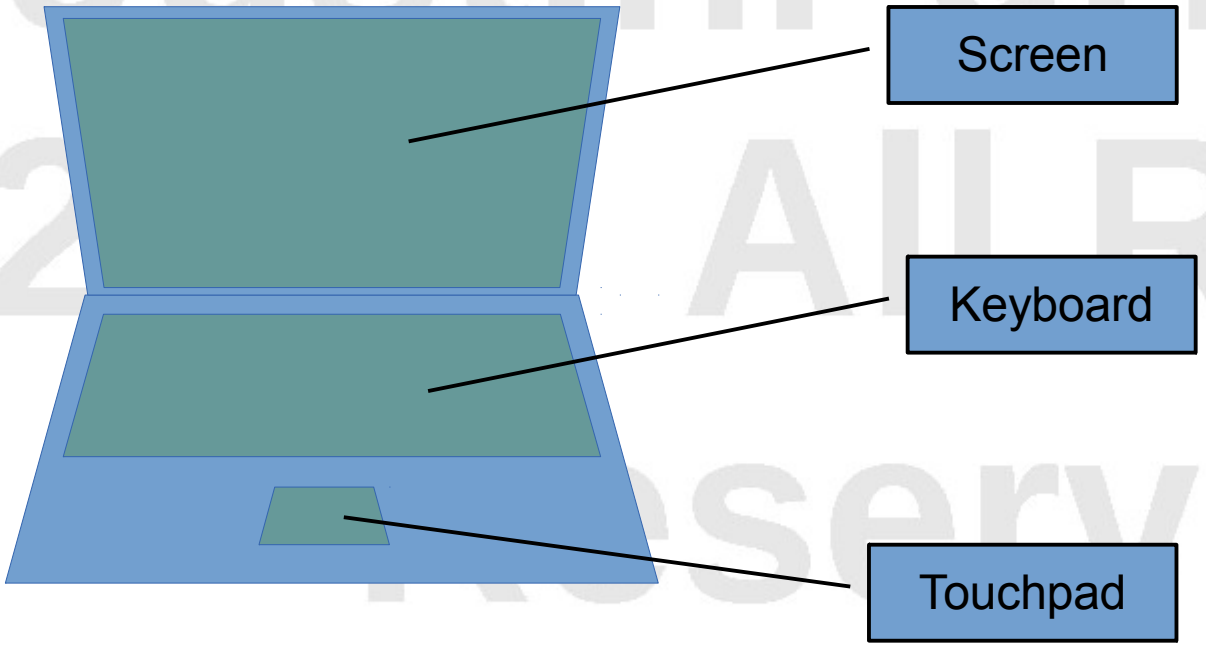
Laptop Buyer's Guide

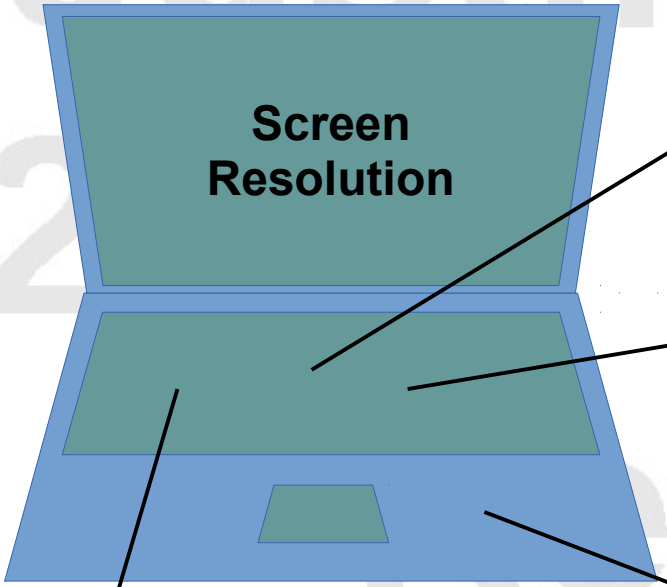
Q2-2015



Laptop

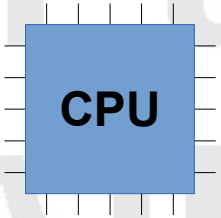
Key Components

Better Screen Resolution means you can see more on the screen at one time (“real estate”), and games / applications will look more visually appealing.

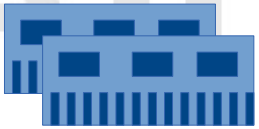


Brand (Laptop Manufacturer)

Choosing the right brand means compatibility and reliability.

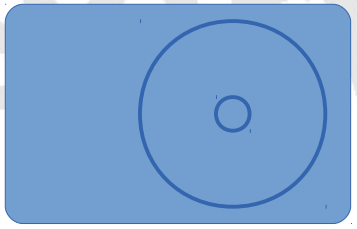


The CPU is the “Brain” of the computer. Faster / Better CPU means better responsiveness.



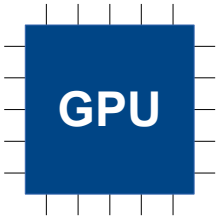
RAM

RAM is the temporary working space for your computer. More RAM means you can load more applications at once, or larger applications (such as games) will run faster.



Hard Drive

The Hard Drive is where your files are stored. Files include pictures, video, and documents, as well as programs you've loaded (or downloaded), and Windows itself. A bigger hard drive gives you more room to load bigger programs, and store more data.



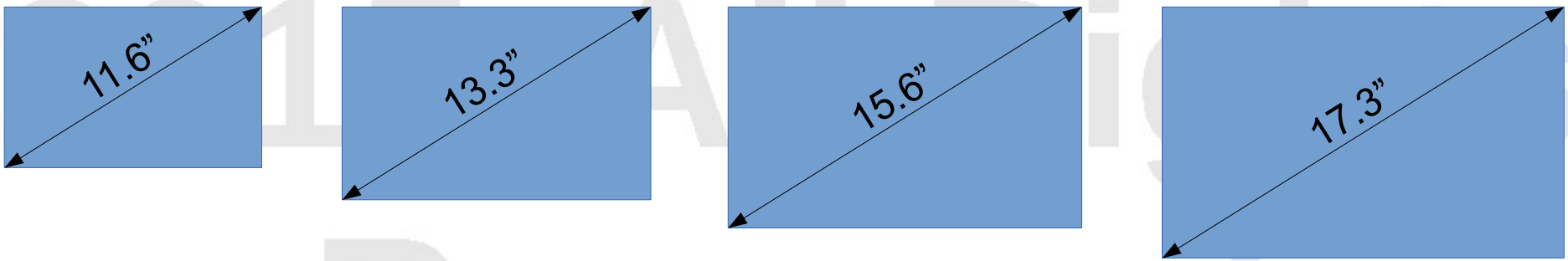
The Graphics Processor, or GPU, is the cousin of the CPU. The GPU's job is to render graphics. A better GPU means faster gameplay or video, and better visual effects.

Step 1: Know your Screens!

Small Frame
Small keyboard, compact form factor, light weight

Medium Frame
Standard keyboard, "normal" size, "normal" weight

Large Frame
Large keyboard (including numeric keypad), oversized – requires a larger bag, slightly heavier



$ Less — Cost — $$$ More

Lower Resolution — Resolution — Higher Resolution

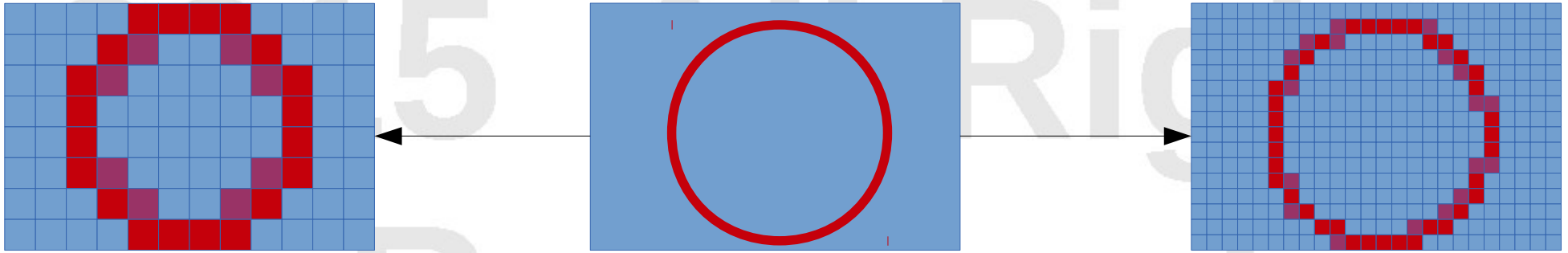
Screen Resolution

"Resolution" is the number of dots, or "pixels" used to compose the screen image. More pixels in the same area, means finer detail.

Lower Resolution
(Fewer Pixels)

Actual Image

Higher Resolution
(More Pixels, more realistic)

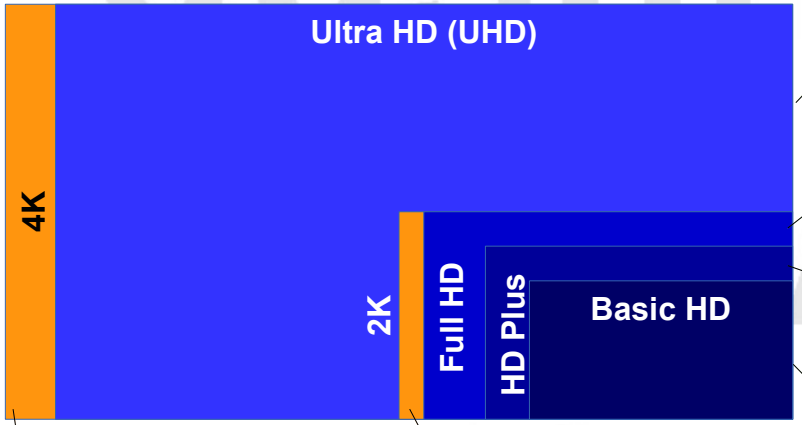


$
Less

Cost

$$$
More

Standard Resolutions



4096 x 2160
Competing standard to "Ultra HD"

2048 x 1080
Expensive version of "Full HD"

17:9 Aspect Ratio

3840 x 2160
Expensive, but best quality and screen real-estate

1920 x 1080
Good for video games, HD movies, video editing, programming, and graphics

1600 x 900
Decent for video games, watching movies, and editing documents

1366 x 720
Good for basic browsing, e-mail, video streaming

16:9 Aspect Ratio

Ultra HD / UHD / 4K
Highest cost, best picture

Full HD / 1080P / 2K
Slightly more expensive, very good picture

HD Plus
Best value, OK picture

Basic HD / 720P
Least expensive, very basic picture

Increasing Cost, Better Quality

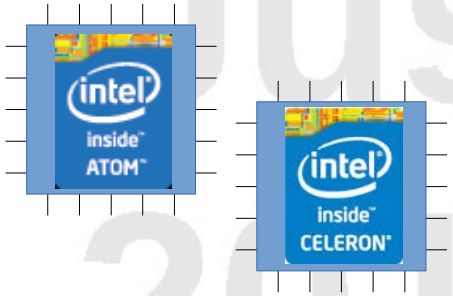
Selecting a Screen

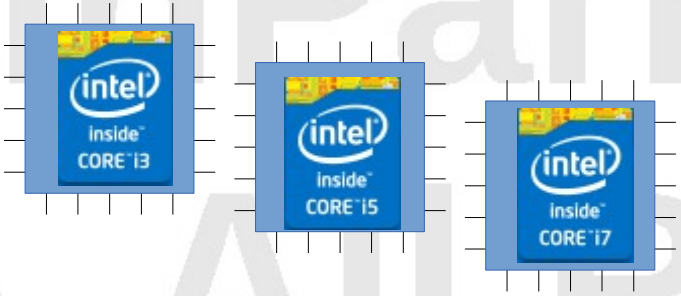
The screen itself is 1/3 to 1/2 of the total cost of the laptop, and it basically can't be upgraded.
Choosing the right screen ensures that you get the right system at the right price.

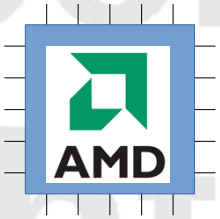
Screen Resolution \ Screen Size	11”	13”	15”	17”
HD 720P 1366 x 720	Low cost, and portable	“Value” option	For a few dollars more, get **HD Plus**	Probably not available
HD Plus 1600 x 900	Higher Cost; Marginal quality benefit	For a few dollars more, get the 15”	“Decent” option	For a few dollars more, get **Full HD**
Full HD 1080P 1920 x 1080	Probably not available	For a few dollars more, get the 15”	“Good” option	“Very Good” option
Ultra HD / 4K 3840 x 2160	Probably not available	Probably not available	For a few dollars more, get the 17”	“Best Quality” (Most expensive)

Step 2: Pick your CPU

In a laptop, CPU Brand limits GPU options





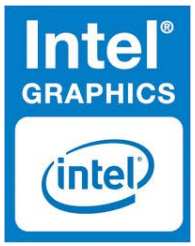


Intel Atom and Celeron
Atom and Celeron are low-end, low power consumption CPU designed for tablets and netbooks, and aren't really suitable for laptops. **Some inexpensive laptops come with Atom or Celeron processors – avoid them.**

Intel Core
"Core" is the mainstream CPU found in most laptops and desktops. These have multiple processing cores, on-board cache memory, and focus on processing over power conservation. "Normal" laptops have Intel Graphics, while high-end laptops have an NVidia GPU

AMD
An often less expensive competitor to Intel, AMD CPUs provide value for low-end applications, but provides access to ATI (AMD) Radeon Mobility graphics.
AMD is a valid option, but I personally prefer Intel CPUs.

No GPU

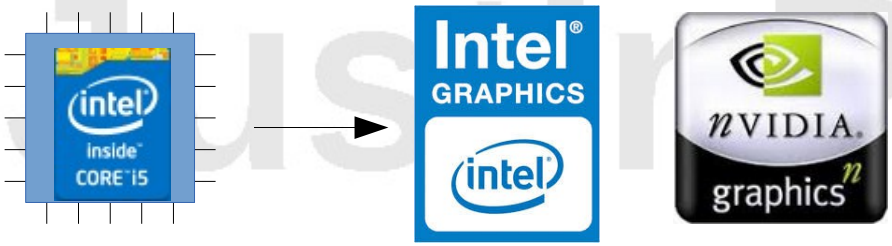


Standard GPU

High End GPU

various ATI GPU options

My Opinion: Intel vs AMD



Intel provides options. The Intel chipset comes with an Intel GPU – a basic option not known for performance, but cost-effective for browsing, watching videos, and playing Facebook games. There is a higher-end Intel GPU, suitable for low-end gaming, but you can also elect to purchase a laptop with the higher-end, open standard, nVidia GPU instead.

Intel runs cooler, with consistent performance. Intel runs like a diesel engine – rock steady with plenty of power behind the pedal, regardless of workload.

At a slightly higher price point, Intel relies on fewer, more powerful cores, generally running at lower clock speeds, with more on-die cache.

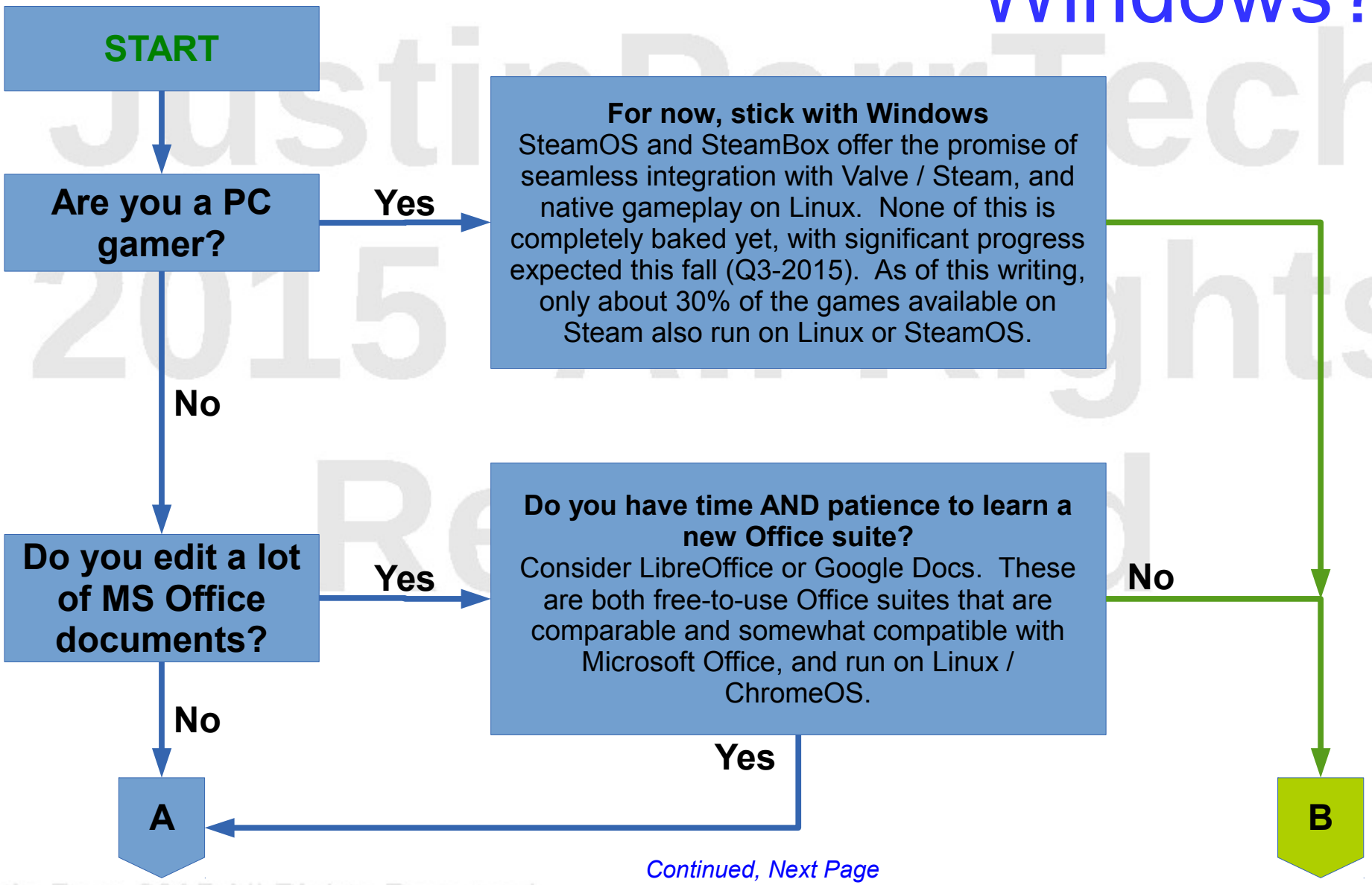
This is my opinion based on nearly 30 years of PC hardware support experience. If you don't like it, go EARN your own opinion.

ATI is owned by AMD. In a laptop, the GPU is tied to the chipset, so you're stuck with ATI graphics if you buy an AMD, and vice-versa.

AMD tends to run hotter, with sporadic performance. Like a turbocharged engine, AMD puts stress, wear, and tear on the system due to fluctuating clock speeds and performance under various workloads.

AMD relies on more cores running at higher clock speeds, which generates more heat. Less on-die cache means **lower price point**, but relies on the CPU to compensate.

Step 3: Do You Need Windows?



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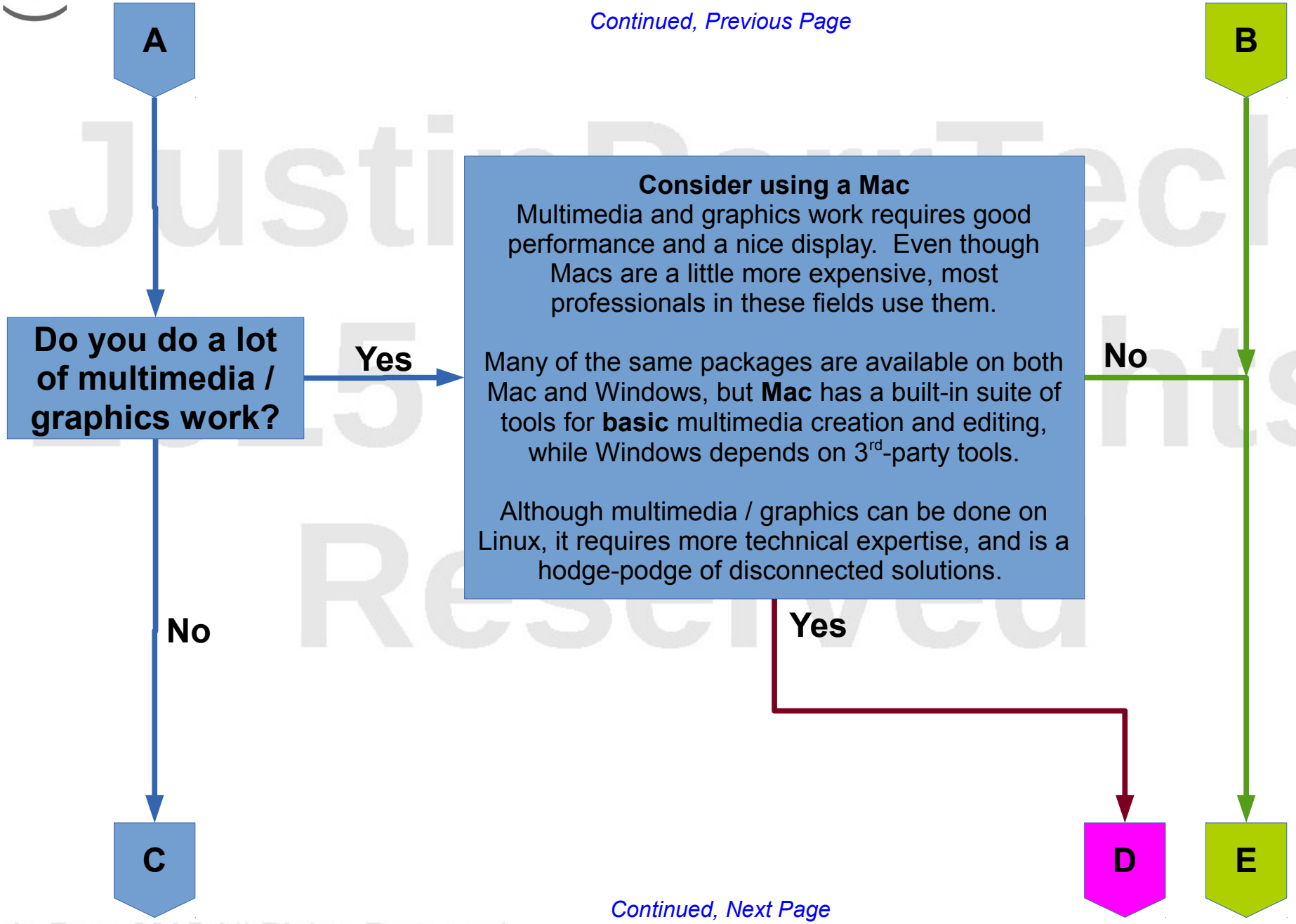

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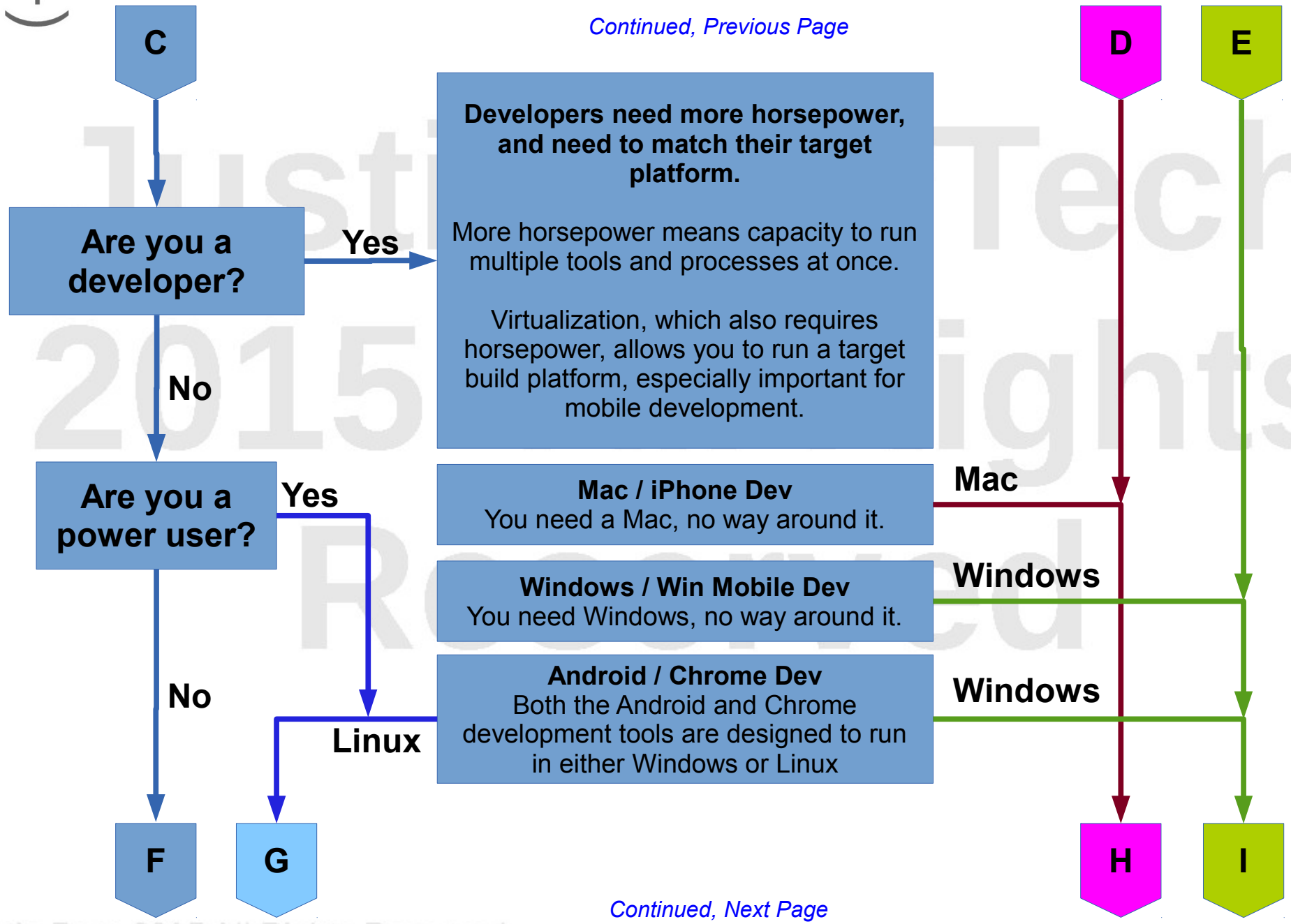

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Consider Debian Linux

Debian is a user-friendly, feature-rich, rock-solid, and very popular Linux distribution, with wide hardware support, and virtualization.

Linux is NOT for the feint of heart – don't run Linux as your primary “go-to” machine unless you're highly-technical, and until you're pretty comfortable with it.

Get your feet wet by running a boot disk distribution on top of another operating system, and take the plunge when you're ready.

$0

Consider a Chromebook

Running Google's Chrome OS, these light weight notebooks are secure, easy to use, and provide tablet-like functionality in a laptop package that's also good for lightweight document editing simple games, simple graphics, and blogging.

$$$

Consider a MacBook

Macs are a little more expensive, but they are easy to use, and come out-of-the-box with basic mutlimedia composition and editing tools, with the ability to run “professional” grade, as well as open source software.

$$

You're Stuck with Windows

Windows 8 / 8.1 is awful.

BUT, Windows is widely-supported, and is still the best platform for gaming, development, and general use, despite it's poor reliability, hideous user interface, and fragile disposition.

The good news is that you'll probably eligible for a “free” upgrade to **Win10**.

The bad news is that Win10 will probably also suck.

JP TECH

Laptop Buyer's Guide – Q2, 2015

Feature Set By OS

Operating System

Features	Chromebook	Deb. Linux	MacBook	Windows
Gaming	Good for tablet / Facebook type games	Medium support for new games and hardware	Support for some games, not all	Supports all games and hardware
App Ecosystem	Runs many Chrome, Android, and Linux apps	Wide variety of software through pkg. manager	Meh. Mostly graphics and multimedia	Thousands of open source and commercial apps
Virtualization	Runs Android Apps	Yes, just about every platform can be emulated.	Limited support for specific platforms	Yes, just about every platform can be emulated.
Development	Nope.	Linux, Android, Chrome	Mac / iPhone	Windows, Android, Chrome
Native Tools	Productivity, Google Docs	Everything	Productivity, Basic Multimedia Creation / Editing	Umm... “Paint”?
Multimedia / Graphics	Lightweight only	Multiple options, but everything is a bit kludgy	Basic tools, with support for commercial apps	Excellent support through third-party (free and non-free)

A Few Words of Caution

Plunging in to a new operating system can be disruptive.
It takes time to learn any new system. Plan ahead, and make sure you don't have any pending deadlines nor tight timeframes to transition to a new system, or you might find yourself spending frustrated late nights Googling for how to use some obscure feature, or change a setting.

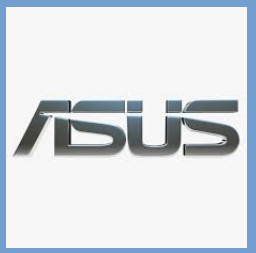
Don't Assume Windows is Windows.
Since Windows 7, every major release of Windows has incorporated major user interface changes. Just because you know how to use Windows XP, Vista, or 7, does **not** mean you know how to use 8, 8.1, or 10. Take some time to familiarize yourself with **any** new operating system, and evaluate alternatives.

Run Side-by-Side until you're comfortable.
When migrating to a new laptop, run the old one side-by-side until you're sure you've copied all of your data, and that all of your software is installed and working on the new laptop. Test everything. Make sure the critical things you **must** have, all work as expected.

Step 4: Select the Brand

HP has a multiple product lines with a wide range of features. Excellent quality and good customer support sets HP aside from other manufacturers. I've been almost exclusively using HP systems (PCs, netbooks, laptops) since 2008, and out of 12 or so systems, I've had exactly one (a refurb) die.

Acer provides excellent products at budget prices. I've owned 3 to 4 Acer systems over the last 7 years.



Asus has a long history in the PC industry, as well as a reputation for quality and performance. I can't PERSONALLY recommend them, because I don't have any recent experience with their gear, but they are always worth a look.

As communist as their red logo, Lenovo is a wholly-owned subsidiary of a Chinese (nationalized) parent company. Buy a Lenovo in order to fund cyber warfare and cyber crimes against the United States.

Dell used to absolutely rock. That was in the early 2000's. Then, they started to suck. That was in the 2008 timeframe. I have owned MANY Dell systems, but none since 2008. Although I haven't checked out their laptops recently, they are absolutely worth a look.

Toshiba makes EXCELLENT consumer products.
They also make SHITTY laptops that are hard to use, underperforming, and difficult to repair. AVOID, AVOID, AVOID

Note for Gamers

Are you a serious gamer?

Yes

Do you have tons of money to spend?

Yes

No

Consider AlienWare

Owned by Dell, AlienWare has been in the industry for almost 20 years, specializing in high-end, high-performance hardware. AlienWare laptops have special features like multiple CPUs, tons of super-fast RAM, high-end nVidia GPUs, and ultra resolution displays.

THIS is an awesome gaming laptop.

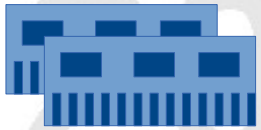
Stick with HP or Acer

Get a higher-end model with a bigger display, more RAM, and an **nVidia** brand GPU

THIS is a decent gaming laptop.

Step 5: All About RAM

What's the Difference?



RAM, or "Memory"

This is where you run stuff
More RAM means you can run larger games, or more apps at once.

This gets erased every reboot...

This is fast...
RAM can be accessed in billionths' of a second, called nanoseconds.

This is 1,000,000 times faster...

This doesn't hold a lot...
RAM is measured in billions of bytes, called Gigabytes, "Gig", or GB.

Lots of this...

This is 2,000 times more expensive per GB...

This is where you store stuff
The hard drive is where the operating system, programs, files, documents, pictures, and videos are stored, long term.

...This doesn't

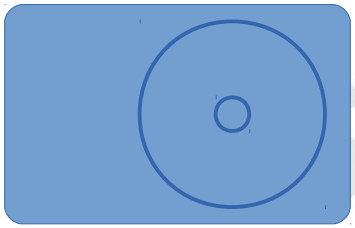
...This is slow
The HD can be accessed in thousandths' of a second, or milliseconds.

...Than this.

...This does.
HDs are measured in trillions of bytes, called Terabytes, or TB.

...Makes this faster.
Called "caching" ('KA shing'), extra RAM can be used to store data before it's written to the HD.

...Than this.



Hard Drive, "HD", or "Storage"

How Much RAM?

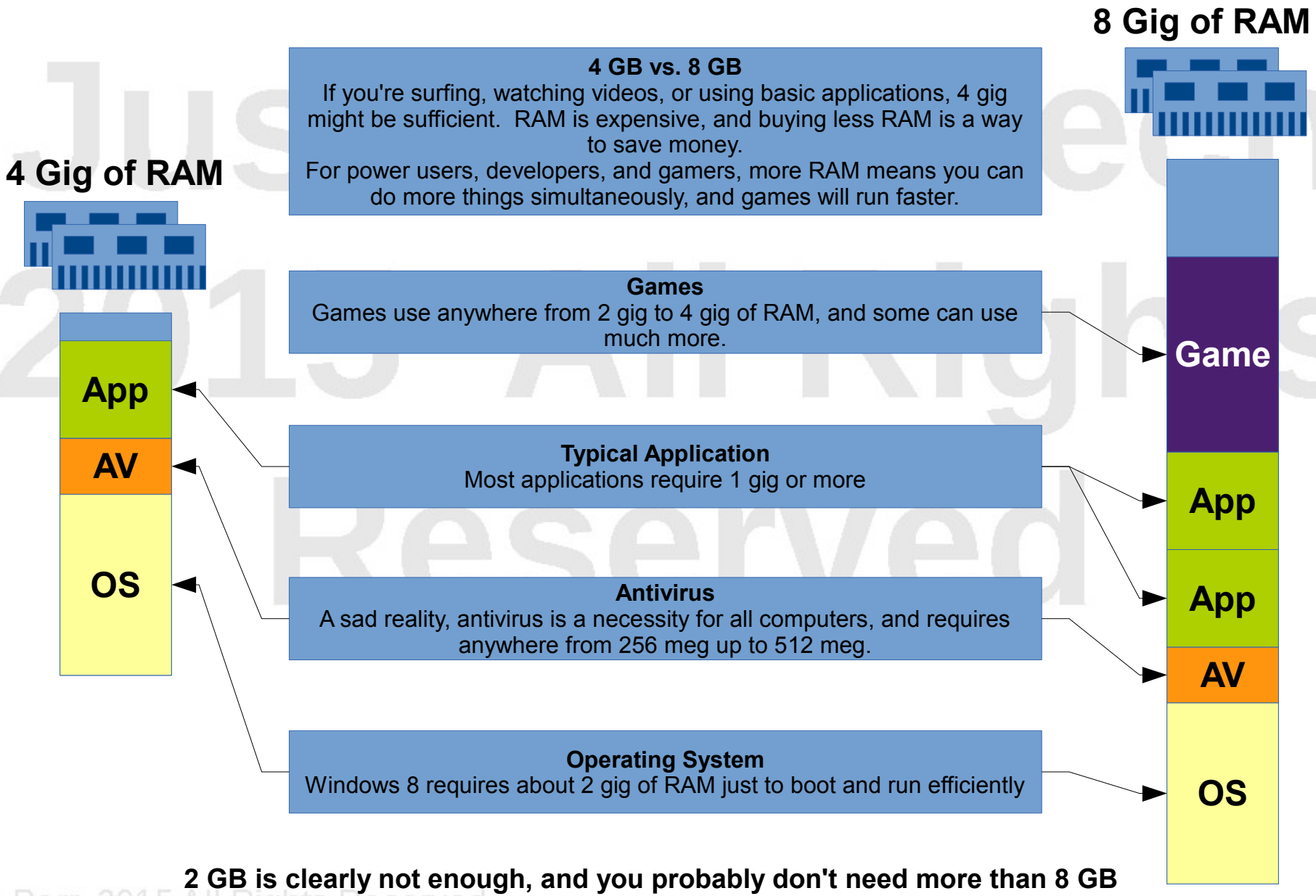
4 GB vs. 8 GB
If you're surfing, watching videos, or using basic applications, 4 gig might be sufficient. RAM is expensive, and buying less RAM is a way to save money.
For power users, developers, and gamers, more RAM means you can do more things simultaneously, and games will run faster.

Games
Games use anywhere from 2 gig to 4 gig of RAM, and some can use much more.

Typical Application
Most applications require 1 gig or more

Antivirus
A sad reality, antivirus is a necessity for all computers, and requires anywhere from 256 meg up to 512 meg.

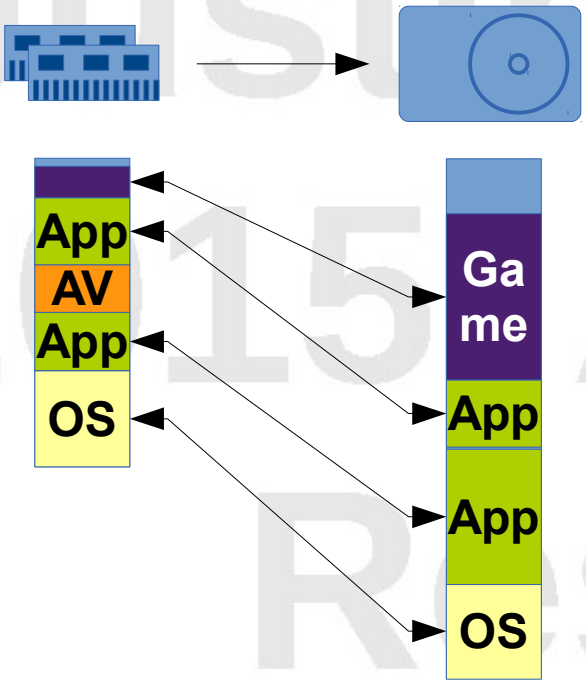
Operating System
Windows 8 requires about 2 gig of RAM just to boot and run efficiently



2 GB is clearly not enough, and you probably don't need more than 8 GB

Additional Notes on RAM

Page File / Swap File



The Hard Drive can be used as "Virtual" Memory
If you use more RAM than you have, the OS will try to "page out" to disk, storing some of the memory segments on disk temporarily until it's needed.
Remember, the **disk is 1,000,000 times slower than RAM.** If your game is "paged out" to disk, it will run like crap. Close some of your apps, or buy more RAM.

DIMM Configuration

Memory "sticks" are called DIMMs
People say "chips", but they are referring to "sticks" or DIMMs, which are the self-contained memory component that you can add to or remove from a computer.

Laptops require Laptop DIMMs
Desktop DIMMs are larger, and won't fit in a laptop.

Most Laptops have 2 DIMM slots
If you buy a laptop that already has 2 DIMMs, it's full. To add memory, you have to replace one or both DIMMs. If you buy a laptop with 1 empty slot, you can simply add 1 additional DIMM to increase the total RAM.

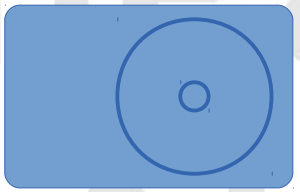
2 x 2 Gig = 4 Gig Total
This Laptop is Full

1 x 4 Gig = 4 Gig Total
This Laptop has an empty slot, and can be expanded to 6, 8, or 12 later.

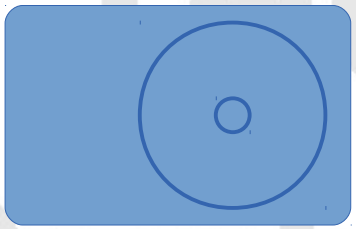
Step 6: Pick Your Hard Drive

$ - 500 GB

$$ - 750 GB



$$$ - 1,000 GB (1 TB)



Note: All of these options are physically the same size – I'm using scale to denote a logical representation of total storage space.

Operating System
100 Gig
(Actually, MUCH bigger than this)

1 Picture – 5 meg (0.006 gig)

1 MP3 Song – 10 meg (0.025 gig)

1 Low quality Movie –
500 meg (1/2 gig)

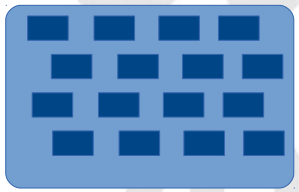
1 High quality Movie –
1.5 Gig

Video Game
(5 GB or more)

Typical App
(2 GB or more)

Don't buy less than 500 GB. More than 1TB is probably more than you need.

What About SSD?



SSD means "Solid State Disk"

SSD is basically a big memory stick.

What's the Difference?

This is like a big memory stick
SSD uses "flash" (static RAM) technology, like a memory stick, or the memory card you use with your phone or camera.

This is solid state...
SSD has no moving pieces.

Flash memory wears out faster
SSD blocks can be written about 1,000 times before the tiny mechanical switches wear out. Once a block "dies", it's marked as bad, and eventually the whole device will fail. SSDs last about 2 years.

This has small storage
SSDs are usually 16GB to 32GB. Suitable for tablets or Chromebooks, there isn't enough storage for movies or large data files.

This is fast...
SSDs can be accessed in 100's of nanoseconds. They are 10,000x faster than hard drives.

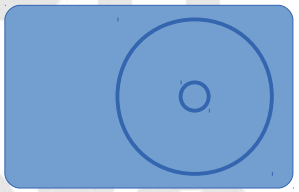
This stores information on a spinning "platter"
As the platter spins at 7,200 RPM, "heads" read information from specific locations, or sectors.

...This is not.
Hard drives have motors and bearings. Moving parts that wear out over time.

Hard drives can last a long time
Hard drives have moving components that could fail almost immediately, or last for 10 years. There is no way to predict a hard drive failure.

This has large storage
Laptop hard drives are typically between 500GB and 1000GB (1TB)

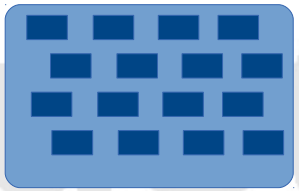
...This is slow
Hard drives can be accessed in milliseconds.



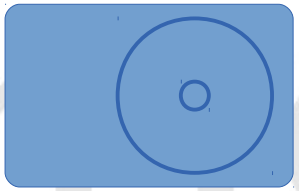
"Normal" Hard Drive

Hard drives have "platters" that spin at 7,200 RPM.

Should I get an SSD?



Generally, NO!



Solid State Disk (SSD)

Pros:
- Very fast (10,000x faster than a normal hard drive)
- Same technology as tablets and memory sticks

Cons:
- Expensive
- Low Storage
- Lifespan of about 2 years

Good for:
- Chrome OS
- Some laptops, such as Alienware, can hold two hard drives. An SSD makes sense, to host the OS and other files, allowing lightning-fast boot-up, application processing, and gameplay.
- Casual use, where file storage will be minimal

Conventional Hard Drive

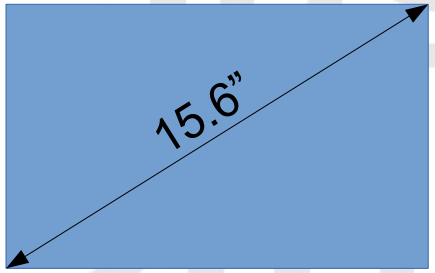
Pros:
- Large Storage
- Low Cost
- Very reliable

Cons:
- Very slow
- Moving parts means failure is inevitable

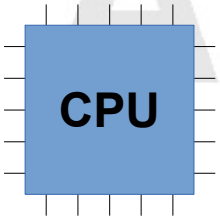
Good for:
- Windows, Linux, Mac
- As a primary drive, a conventional HD can very reliably store the OS, applications, and data files (pictures, music, videos, etc...)
- As a secondary or external drive, a conventional HD can augment the relatively small storage of a SSD, providing large, cheap, reliable storage for important files.

Step 7: Sanity Check

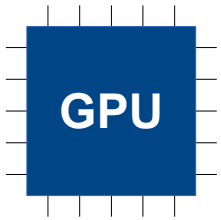
Things you CAN'T Upgrade (Laptop)



Display
Get the size and resolution you want, because upgrading the display is impractical and cost-prohibitive.



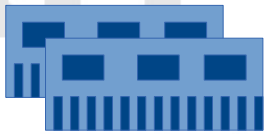
CPU
In a laptop, the CPU is integrated in to the motherboard (main board) and can't be replaced.



Graphics / GPU
Don't go cheap on the graphics, if you think you might need to upgrade later. The GPU is integrated in to the motherboard, like the CPU, and can't be replaced.

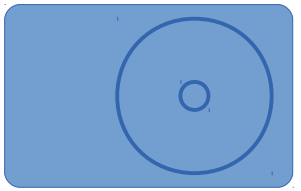
Buy now, for 3 to 5 years
Whatever you buy today, you might be stuck with for the next 3 to 5 years, so make sure you aren't sacrificing anything you can't live without.

Things you CAN Upgrade Later



RAM
RAM is very easy to upgrade or replace. Make sure you keep an eye on the prices, because they tend to rise after about 18 months – you want to upgrade before the 18 month mark.

Hard Drive
It's a little more complicated than RAM, but for the most part, the Hard Drive can be upgraded later. This can often be a cheap way to extend the life of your old laptop.



Operating System
As much as the hardware manufacturers would prefer otherwise, older systems can be repurposed by installing a different operating system.

Step 8: Accessories

Wireless Mouse
A trackpad works for people who like track pads, but most people prefer a “real” mouse.
You can get an inexpensive Logitech wireless travel mouse for about $20, or you can step up to a low-end “gaming” mouse for about $40. Serious gamers might prefer the Logitech or Razer gaming mice.
I endorse Logitech. I've been using their products since the 80's, and they are rock solid.

External Drive
An external drive connects to your laptop via USB cable, and is critical for backing up your data.
Your laptop hard drive is a mechanical device with moving parts that WILL FAIL. It's not a question of “if”, it's a matter of “when”. I've had hard drives last 10 years, and I've also had hard drives last 3 months.
Frequently, copy your critical files to an external drive for safekeeping.
A good rule of thumb is to have an external drive that's the same size or larger than your internal drive. $100 to $150.
I endorse Seagate. I exclusively run Seagate drives.

Good Laptop Bag
A **good** laptop bag has padding surrounding the laptop compartment, hard corners to prevent drop breakage, and extra padding on the bottom, to cushion bumps and drops. Get a slightly larger bag that has room for your power brick, mouse, and other accessories.
Avoid “sleaves” that have minimal padding and no storage.
I endorse Targus. They have been making excellent laptop bags since forever. $60 to $120.

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About Optical Drives

Read Only

Compact Disc (CD)

- Holds 650 meg (just under 1 gig)
- Music is sold commercially on CD
- Useful for listening to music
- **CD drives are mostly obsolete,** replaced by DVD drives that can also read CD disc formats

Digital Video Disc (DVD)

- Holds 4.5 gig (Single Layer) or 9 gig (Dual Layer)
- Can be double-sided (Single Layer is called DVD-9, and Dual Layer is called DVD-18)
- Most DVD drives can read CD discs
- Minimal cost
- Most retail software is distributed in CD or DVD format – most games are distributed on DVD.
- Useful for listening to music, playing games, and watching DVD movies.

BluRay

- Proprietary format (owned by Sony)
- Holds 20 gig
- **BluRay drives do not necessarily read DVD discs**
- High-Def movies and some larger video games are distributed on BluRay.
- Slightly more expensive
- Useful for watching HD movies and playing games distributed on BluRay
- Bottom surface is fragile

Read or Write

CD-R

- All the capabilities of CD
- Can write audio CD format
- Can write up to 650 meg of data
- **Mostly obsolete**

DVD+R

- All the capabilities of DVD
- Multiple standards – DVD+R is the most compatible (4.5 gig per side)
- DVD+R DL allows writing of 9 gigs per side
- Create audio CDs, Video / Audio DVDs,and write data in CD or DVD format.

BluRay Burner

- All the capabilities of BluRay
- Your mileage may vary
- Fragile discs
- Not needed, unless you create or edit HD video

Which Optical Drive?

Option 1: Stick with DVD

Having the option and ability to create an OS "rescue disc" (Windows calls it a "repair disc") is useful.

Newer operating systems, such as Windows 8.1, rely on USB sticks, rather than optical discs for recovery.

Commercial software, including most games, are sold on DVD. Some games are sold on BluRay, so pay attention to the format when you make a purchase.

Upgrade from DVD to DVD+R (or DVD+R DL) to be able to write data to CDs or DVDs, such as data, songs, and video.

Option 2: Skip the Optical Drive

If you're a casual user or gamer, you can get most games (and other software) via digital distribution through Steam or Amazon (or other Digital channels) without the need to install from disc. Pay attention to make sure you're buying a "digital download", and not a physical disc.

Most newer systems can boot from a USB stick.

USB sticks can be used to copy data to / from other systems.

An external USB DVD or DVD+R drive can be added later, if needed.

If you go this route, you're probably saving $50 or less.

Step 9: Financial Q&A

How much should I expect to spend?

Expect to spend $400 to $600 on the laptop itself.

Avoid low-end systems that use Celeron or AMD processors, to try to reach a price point.

Expect to spend $600 to $1000 on a gaming laptop.

Gaming laptops have better hardware to provide faster performance – they are also a poor investment, since they quickly become outdated by newer hardware.

Is this your first laptop?

Expect to spend about $200 on accessories.

A backup drive is mandatory. You'll probably also want a decent mouse and laptop bag – these make excellent birthday / holiday gifts from relatives, to help defer the cost.

How long do laptops last?

Plan for your investment to last 2 to 4 years.

Gamers and other high-end users will need to upgrade more frequently, as new software demands newer hardware. Casual users can use older hardware much longer, because they don't need new hardware with better performance and new features.

Should I get the Extended Warranty?

Make an Educated decision.

Fact: Most manufacturers include a 1 year warranty.
Fact: An "extended" warranty is provided by the store, and "extends" the manufacturer's warranty.
Fact: The manufacturer's warranty doesn't cover a broken display – the one, expensive item most likely to break.
Fact: Store employees are paid commission to sell you an extended warranty.
Fact: Most people don't use their extended warranty – they forget about it, the store goes out of business, or the store has a labrynthine set of requirements for actually making a warranty claim, designed to prevent you from submitting a legitimate claim.
Fact: The sales people ***lie like cheap rugs*** because they are paid commission. **They will say lies like, "even if you back over it in your driveway, it's covered".** Most in-store extended warranties exclude intentional damage, and many other types of damage that can be construed as inconsistent with the terms of the warranty. Saying "Well, the sales guy said..." means absolutely nothing, and the store doesn't care. The sales guy got his commission, and he probably moved on to a new job by the time you need to make a warranty claim.

On the one hand, you could lose 100% of your investment tomorrow, if you drop your brand new laptop.

On the other hand, you could spend the extended warranty money on a decent Targus laptop bag instead.

Step 10: Write It Down

Use this form to write down your desired laptop specs. Don't be afraid to print out multiple copies, and hand one to the sales guy at your "Big Box" retailer, to see how well he can match the specs. If you shop online, make a checklist of which brands and models most closely meet your needs.

Screen (Display):	
Resolution	Display Size
CPU / GPU:	
CPU and Chipset (Intel / AMD)	GPU (Intel, nVIDIA, AMD)
Operating System:	Manufacturer:
ChromeOS Windows MacOS Linux	HP / Acer / Mac / Other
RAM (Memory):	Hard Drive: (Storage):
Minimum 4 Gig, Max 8 Gig	Minimum 500 Gig, Max 1 TB
Accessories: Mouse	Portable, External (Backup) USB Drive
Laptop Bag (15" or 17" / Bag / Backpack)	Optical Drive

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Step 11: Second Choice

Have a second choice in mind, in case your primary choice is too expensive, or not available.

Write down your "minimum" acceptable specifications.

Screen (Display):	
Resolution	Display Size
CPU / GPU:	
CPU and Chipset (Intel / AMD)	GPU (Intel, nVIDIA, AMD)
Operating System:	Manufacturer:
ChromeOS Windows MacOS Linux	HP / Acer / Mac / Other
RAM (Memory):	Hard Drive: (Storage):
Minimum 4 Gig, Max 8 Gig	Minimum 500 Gig, Max 1 TB
Accessories: Mouse	Portable, External (Backup) USB Drive
Laptop Bag (15" or 17" / Bag / Backpack)	Optical Drive

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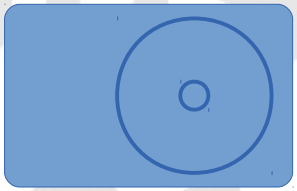
What Do I Do With My Old Laptop?

1. Wipe it!



Protect your sensitive data

You use your laptop every day, and it contains sensitive, important details about your life. Aside from the obvious things, like pictures and videos, there are also things like bank and credit card information, browsing history, medical information, and many other data elements that can be maliciously obtained, and then exploited.

Deleted files are recoverable

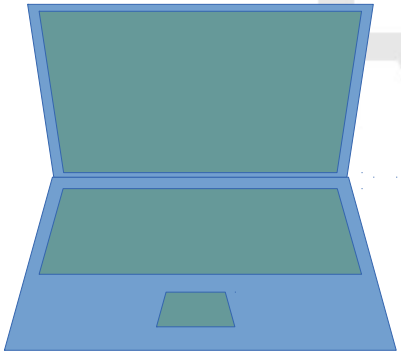
When you delete a file, it's unlinked from the folder where it sits, but the file itself is recoverable using special tools.

Regardless of what you do next, take the time to securely delete your files.

Use a boot disk utility, such as DBAN: http://www.dban.org/

Note: The laptop WILL NOT BOOT after being wiped, until a new OS is installed.

2. Repurpose or Donate



Consider Donating

A working laptop, even an older one, even with small defects, can make a tremendous difference in someone's life. Consider donating to the Veteran's Administration, or to your local school. It's OK to donate a "wiped" laptop (no operating system) – they have people (like me) who can load an operating system, such as ChromeOS or Debian Linux

Repurpose

With limited know-how, you can easily repurpose a working laptop:

Media Server: Store video and music, and access it via WiFi anywhere in your house

Media Player: Connect to your TV, and play video and music

Print Server: Move your printer anywhere you want, and print to it over WiFi

Game Server: Run a dedicated game server to free up resources on your main system, and allow your friends to all connect

Test System: Useful for development, a clean system allows you to test your code.

Backup Server: Back up your files over WiFi to your old laptop.

With a little bit of Google, most of these are freely available using a downloadable boot disk

Conclusion

1. **Know your specs.**
2. **Buy smart.**
3. **Plan for 2 to 4 years.**
4. **Buy a backup drive and use it.**
5. **Don't skimp on accessories.**
6. **WIPE YOUR OLD LAPTOP.**
Then, repurpose, or donate.

Things you need to do, to set up a new Windows laptop:
justinparrtech.com/JustinParr-Tech/how-to-set-up-a-new-windows-pc-or-laptop/