SSD/HDD Usage Crib Sheet:

SSDs have been around for a while now, the technology has been improved considerably, to the extent that they are considered to be just as long-lasting as HDDs. As always, remember the caveat emptor maxim, that you get what you paid for.

1) **SSDs are not suitable for undisturbed long-term storage,** as they have capacitors that need re-charging at regular intervals, 3 x per annum at least. Thus, **HDDs are still the best for long-term storage**, in ideal conditions, viz, temperate, minimum humidity, no harsh handling treatment, et al.

2) **SSDs are *fast*, thus, ideal for boot drives,** given that they have regular use as such. They are also read, and are serviced by, existing apps such as CrystalDiskInfo, GSmartcontrol, et al, plus, partitioned, wiped, etc., by other existing apps within any operating system software.

3) **SSDs are ideal for transfer of data between systems,** as they can withstand reasonable physical handling, **unlike HDDs, which should always be unmoving whilst in operation.** In fact, SSDs are also superior to ordinary *flash* drives in operation, viz, speed, accuracy, and useful lifespan, although they still should be connected/disconnected via OS protocols, note. Use a USB3 port, via a USB3 system socket, if practicable, for best performance.

4) **SSDs/HDDs are just as vulnerable, as all micro-electronics components are, to power fluctuations,** up or down, so, they should always operate whilst protected by a UPS, or, at least a power conditioner, either of which should be protecting any important computing system, anyway. Laptops have batteries as UPSs, but, **always-on laptops should have their batteries removed/disconnected, note.**

5) **SSDs are more likely to catastrophically fail than HDDs,** so, should have regular SMART checks as they as they age, which, indeed, should be the case with HDDs anyway, although the latter will give more **SMART** preliminary warnings before actual operational failure. **Excess heat will also affect both SSDs and HDDs, in the form of extra material stress, both expansion and contraction, with normal use.**

6) **However, entire working OS backup should be a routine procedure, regardless of using SSDs or HDDs,** for any computer system, as whole-drive clones, images, or, even just copies or clones of individual boot partitions. All of these options are available, for modern systems, regardless of OS type, or brand. **Files should have additional backup**, noting the mantra '**if not backed up 3 times, then not backed up at all'**, thus, no sympathy for those who would choose to ignore this universal standard of effective computing.

7) **SSDs are lighter, and thus more portable, than HDDs**, especially the newest E-types, which no longer have any surrounding enclosures when installed. Note also, that the socket configuration may not now be SATA, however, which means specific enclosures are needed for external use, and, also when matching their corresponding USB cable connections.

8) **SSDs are not defragged, unlike HDDs, instead, they are trimmed**, in that the SSD is scanned by the TRIM command, to enable the release of specific unused space for further data deployment. Modern OSs should do this automatically, and/or via a command line, so, consult respective OS manuals. **Defragging causes unnecessary wear on SSDs,** which are much faster in all respects, anyway, being entirely electronic, and, regardless of where data resides.

9) **Troubleshooting an SSD/HDD,** that will not boot, and/or, is not recognised by the system, is by the usual heuristic methods. Firstly, apply **Magic Spray,** (aka electrical contact spray), at the plug-in connection point with the system. If this does not work, **replace** the SSD/HDD, and see if the system then enables initial booting, to at least read the BIOS. **A MemTest 86 boot disc RAM check** at this point may be useful, as an initial system function check. After which, a **Linux OS on a test SSD/HDD** is very useful, to enable booting up properly, and thus, to check the entire system in operation. (Linux Mint is a reliable choice.) **If the system itself is proven OK, after these basic testing procedures, consider the SSD/HDD defunct, and then resort to your backup resources and protocols.**

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