Why Install or Upgrade?

Unit 29, Assignment 1

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Contents

1 Reasons to Upgrade

In the world of software, updates are something almost everyone who has owned a computer or mobile device is familiar with. Despite being a common occurrence, many remain unaware of the benefits of updating their software. This section will explain why it is important to keep your software up to date.

It is common for updates to include a multitude of changes, and it should not be assumed that an update will only include one of the following reasons.

1.1 Security

The single most important reason to keep a piece of software up to date is security. Vulnerabilities in software can provide attackers with a way to gain access to a system, for example as an entry point for the installation of malware. This could lead to the loss of sensitive data, the theft of personal information, or the exploitation of a system for malicious purposes.

Installing available security updates will protect against any exploits that have been discovered in the piece of software. This safeguards against the possibility of a bad actor making use of a vulnerability to gain access to a system.

1.2 Functionality

Another principal reason to ensure software is kept updated is the addition of new features. There may be a particular feature that a newer version has that a user may wish to make use of. For example, a new version of a note-taking application may add the ability to embed voice recordings in notes or a new version of a web browser may add support for a new web technology standard, such as WebAssembly.

1.3 Bug Fixes

Improvements are always being made to software, and one of the most common—yet begrudgingly installed—types of update is a bug fix. Bug fixes are small changes that fix a problem with the software. For example, a bug fix may fix a problem where performing a certain action caused the program to crash unexpectedly.

1.4 Performance

Updates may also offer performance improvements. These are changes that make the software run faster or use less resources. For example, a new version of a web browser may improve the speed at which web pages are rendered, or a file compression utility may implement a new algorithm that compresses files more efficiently.

1.5 Compatibility

Another reason to keep software up to date is to ensure compatibility with other pieces of software. A piece of software any make use of other software packages to perform certain tasks, such as a word processor using a separate program to create PDF files. If either

software is not kept up to date, it may not be compatible with the other, and it may not work as expected.

Compatibility issues extend beyond software intra-operability and into the realm of hardware. When installing a new component into a system, it is important to ensure that it is supported by the software that will be used with it. This includes the Operating System and any drivers that may be required. As an example, a new graphics card may not be compatible with an older version of a graphics driver, and may not work as expected.

2 Risks of Installing or Upgrading Software

While there are many benefits to keeping software up to date, there are also risks that should be considered. This section will explain some of the risks that may be encountered when installing or upgrading software.

2.1 Loss of Service

Particularly in the case of software that is used to provide a service, such as a web server or a database, the installation of an update may cause the service to cease functioning. Alongside the downtime during the process of installing the update, there is the potential for the update to introduce bugs or other issues that may be detrimental to the service.

This is not an uncommon occurrence, especially when upgrading to new major versions that incorporate large changes. For example, a new version of a web server program may introduce a new configuration file format that is incompatible with the old format. This may cause the server to fail to start.

This issue can be mitigated in several ways. Testing new versions of software in a staging environment before they are fully rolled out is an option that can be used to ensure the new version functions as expected. A second way of ensuring an upgrade has minimal impact on the service is to run redundant instances of the software, if possible. This would allow the service to continue to function while the update is being installed on the primary instance.

2.2 Compatibility Issues

The installation or upgrade of software can introduce compatibility issues with other software and hardware. For example, a new driver may deprecate support for an older version of a graphics card, or a new version of software may require a newer version of an Operating System. Conflicts and incompatibilities can also occur between different versions of the same software.

Compatibility issues are often introduced when support for older versions of a piece of software is dropped. An example of this would be web browsers dropping support for Adobe Flash. This resulted in websites that made use of the antiquated technology to become difficult or impossible to use.

Reading through release notes and documentation for the software being installed or upgraded is a good way to ensure that the software will be compatible with the system it is being installed on. One should check that there are no known compatibility issues with other software or hardware that may be present.

2.3 Difficulties in Adopting New Software

Upgrading to new versions or switching to a new piece of software can be a difficult process. This is a particular problem when the new software differs significantly from the old. The biggest change is often found in the user interface. For example, a new version of an email client may have a completely different layout to the old version, or an operating system may fundamentally alter the way programs are launched. Large changes can be difficult to adapt to, prompting frustration and a reluctance to use the new software.

With any change—even the most minor—there will be a learning curve, that some may find difficult to overcome. How prevalent this issue is will depend on both the magnitude of the change and the user's willingness to adapt.

Providing adequate training, documentation and support for new software is a good way to mitigate this issue. This will ensure that users are able to make use of the software as intended. Depending on the software, it may also be possible to modify the user interface to make it more familiar to users of the old software.

2.4 Knock-on Costs & Loss of Revenue

When installing or upgrading software, there are costs beyond that of the software itself. As touched upon above, these costs can include the loss of revenue due to downtime, the cost of training and support, and the cost of any required hardware changes or additional software.

For example, a new version of a web server may require a new version of the operating system that is not supported on the hardware currently in use. This may require the organization to purchase new hardware, which will incur additional costs that may not have been immediately apparent.

In any organization, the unavailability of a necessary piece of software or service can have a significant impact on the ability to perform work. For example, a company that relies on a piece of software to provide a service to its customers. If the software is unavailable, the company will be unable to provide the service to its customers, resulting in a loss of revenue. An example would be a law firm using software to manage its clients. If this software were to become unavailable, the firm would be unable to perform work for its clients, resulting in a loss of revenue.

Without proper planning, it is not unlikely that the cost of installing or upgrading software will outweigh any potential benefits. Knock-on costs and loss of revenue should be considered before deciding to install or upgrade business-critical software. Creating adequate plans to mitigate the impact of downtime or other issues is a good way to ensure that any potential issues are minimized.

3 Whitehall Primary School Upgrade

3.1 Advantages & Disadvantages of the Upgrade

3.1.1 Advantages

- The school would be able to open the documents created by students at home, mitigating the current frustration and annoyance.
- The new software could contain bug fixes and improvements that will benefit both students and staff, including additional features.
- The latest version will have greater support for Windows 10, making use of new, more efficient APIs and more modern design and user experience tropes.
- Microsoft Office 365 is provided for free to staff and students, meaning there is no cost to the school to use it.

3.1.2 Disadvantages

- There will be a learning curve for the staff while they get used to the new software.
- Using Microsoft Office means that the school may become reliant on Microsoft, and may be unable to switch to a different software suite in the future.

3.2 Justification of Expenditure

A new version of Microsoft Office is a worthwhile investment for the school, even when other alternatives, such as OpenOffice, are available.

While many alternatives tout compatibility with Microsoft Office documents, this is never a perfect solution. The compatibility with Office relies on reverse-engineering the proprietary Microsoft file formats, and is not always perfect. This means that there is a risk that documents created using the alternatives will not open correctly in Microsoft Office or vice versa. This would only add to the current frustration that is experienced.

There are many new features and improvements that are only available in Microsoft Office. For example, there is a strong emphasis on collaboration in the latest versions, with features such as real-time co-authoring. Features such as these are lacking or non-existent in OpenOffice. Additionally, cloud storage—which allows for easy file and document sharing—is not available in OpenOffice without other software, which will not be as well integrated as the Microsoft solution.

Microsoft has a monopoly in the realm of office productivity, especially in education. They have a large team of developers who are paid to work on their software. This means it is unlikely that development will ever cease. This is in contrast with OpenOffice, where the developers admit that there are so few volunteers working on the project that releases have shipped with known security vulnerabilities and bugs. Microsoft has the resources to ensure that their software is secure and stable, and will continue to be developed and improved. OpenOffice's infrequent updates and lack of development means that it is unlikely to ever be as feature-rich as Microsoft Office.

The school already makes use of Microsoft Access to manage pupil records. This means that the school is already somewhat familiar and comfortable with Microsoft products, since the design of Access is modelled after the other Microsoft Office products. This will make the transition to the new version of Microsoft Office easier for the staff.

Microsoft offer Office 365 for free to students and staff, meaning that there is no cost to the school to upgrade, other than the time needed to install the software and provide training to staff.

If the school wished to make use of additional Microsoft services, such as hosted Exchange email and Azure Active Directory, this would then incur a cost. However, due to the small number of computers planned to be upgraded, there would not be a great need to make use of these services; the free Office 365 offering provides sufficient functionality for the school's needs, even cloud storage and collaboration.