Information Technology Equipment Life Cycle

February 24, 2014

Public Act 59 of 2013 Sec. 829*:*

Sec. 829. The department of information technology shall provide a report that analyzes and makes recommendations on the life-cycle of information technology hardware and software. The report shall be submitted to the Senate and House of Representatives standing committees on appropriations subcommittees on general government and the senate and house fiscal agencies by March 1.

Definitions

Life cycle: The period of time during which information technology hardware and software remains useful to the state.

Refresh rate: The planned rate of replacement for information technology hardware and software.

Background

Industry Lifecycle Practices

- PC hardware: Industry experts favor a four year life cycle for desktop PC's with a three year life cycle for notebooks. However, the State has implemented a four year on-site warranty for both desktops and notebooks. Units can be purchased or leased. Agencies are keeping devices into the fifth and sixth years as the Department of Technology, Management, and Budget (DTMB) provides security patches and virus updates while parts are available. Longer cycles may leave hardware out of warranty and unsupported; sub-optimize worker productivity; or present budget problems (e.g. when external events create a need for wider change).

- PC software (operating systems and utilities): Upgrade operating systems strategically, i.e., based on advantages/risks presented by the upgrade, not with every new Windows operating system (OS) release.

- Number of vendors (Dell, HP, Apple, etc.) supporting the organization: Typically, one vendor for each segment of a computer fleet; e.g., Dell for desktops. This practice provides vendors with pricing incentives.

- The Governmental Accounting Office (GAO) stated that they do not have an official position, but the common federal practice that they have observed informally among agencies is a three-year replacement goal.

Security Issues

Six major security issues support shorter life cycle replacement times for desktop personal computers:

1. Outdated hardware systems are vulnerable to attacks at sign-on.

2. Older systems don't have adequate locking and password functions.

3. Security fixes and vulnerability patches are often no longer available for older systems.

4. Older operating systems often don't contain the necessary tools to identify and remedy system compromises.

5. The risk of system compromise via e-mail and instant messaging attacks is greater with outdated hardware, operating system software and anti-virus software.

6. The overall security risk for older systems is increased due to a lack of available technical support and defensive measures.

State Lifecycle - Current Status

- Operating systems on state workstations range from Windows 2000 to Windows 8, with the majority on Windows XP. DTMB has a project working with the agencies to move to Windows 7 Enterprise.

- Standard desktop and laptops are purchased with four year on-site, Next Business Day (NBD) warranty and four year defective media retention.

- It is not uncommon for desktop workstations and printers to be used into the fifth and sixth years.

- The State continues to move to a mobile environment at a rapid pace.

- The most common reason for desktop equipment replacement is to support new state applications and programs that require equipment with additional memory and faster processors to perform. The second leading reason for equipment replacement is equipment that is end of life where new parts, security updates, and virus updates are no longer available. Desktop hardware is not being replaced at a rate that shows a normal four year lifecycle across all agencies. Many agencies are pushing the equipment into the sixth and seventh years, but are running into support problems and are the leading cause of virus outbreaks.

Lifecycle Recommendations

Leverage Existing Equipment

To leverage existing equipment, the state has established standards for usage and lifecycle based on the following user categories:

High-performance workers (power users): Users with compute-intensive or graphics-intensive applications and/or those that use large data sets in spreadsheets and/or databases such as software developers, graphic designers, or computer-aided design (CAD) engineers**.**

Mobile workers: Notebook/Tablet users who work outside the traditional office environment as much as 80% of the time. They tend to carry their notebooks most of the day and will often work in many diverse locations including customer offices and their cars.

Day-Extenders: Notebook users whose systems tend to stay docked in the office the majority of the time. These workers typically take their notebooks to meetings or take their notebook home in the evening or over the weekend to do extra work.

Fixed-function or task-based workers: Workers who focus on very limited, specialized tasks such as claims processing. The performance demands of these applications are usually not very demanding, and the applications tend to stay in place longer than mainstream office productivity applications.

Recommended PC Refresh Rates

- The recommended use per model is four (4) years (based on analysis of industry and government practices).
- The recommended on-site warranty period is four (4) years (keeps machines under warranty during useful life).
- The recommended time period for removal of desktop equipment from service is five (5) years (parts/patches no longer available).
- An exception process to the standards has been established by DTMB.
- DTMB will review the refresh rate recommendation every year based on budget conditions and other impacting issues.
- DTMB will investigate new technologies and make recommendations as the technology becomes available.

Desktop Salvage Process

The industry experts' reports indicate that PCs currently being deployed are sufficient for mainstream users for four years. However, as workstations age they can be transferred to workers needing less computer capability. Current State practice is that as new equipment is implemented, the older equipment is redeployed to another business unit. Redeploying desktop equipment is widely done across all state agencies.

- Usable desktop equipment is returned to the DTMB Depot Maintenance & Logistics to be returned to agency or to be reissued to other state agencies as needed.
- The state has an asset recovery program that allows out of warranty desktops to be traded in on a one-for-one basis.
- Obsolete equipment is properly salvaged through a contract with a Michigan electronics recycling company. The State of Michigan is using zero land fill programs for the salvage of our computer equipment.

- Both our salvage and asset recovery programs are certified as zero land fill programs.

Recommended Average Server Refresh Rates

The industry typically depreciates servers over three years. However, pursuing a server replacement based on a depreciation schedule can cause tremendous churn depending on the number of servers being used in the enterprise. It may cause staff to be so consumed with server replacement projects that administrative productivity suffers. To avoid these problems server refresh in State government has a longer life cycle.

- Most hardware vendors commit to five years of parts availability for servers; therefore, the State purchases five year on-site server support for the outstate servers. These devices are also protected by UPS devices that are kept under the same warranty period.

- The goal for application servers kept in the Data Centers is a four year lifecycle. However, due to financial constraints, the State has the option to purchase five year warranties to extend the period of usage when appropriate.

Recommended Software Replacement

In the State of Michigan's business environment, the latest released software is purchased with desktop and server equipment. However, it is common practice to hold off upgrading to new releases until after they have been in use in the private sector for a period of time to avoid beta or newly released software problems. This practice allows others within the industry to fully test and vet the software before it is implemented at the state. However, at the same time, the state makes every effort to change or upgrade the software before it goes end of life. With end of life software, the State risks not being able to acquire needed vendor support and the lack of security patches.

As servers and PCs are purchased, the state typically licenses the newest operating system with downgrade rights to the current state platform. This allows the state to plan migrations and have the necessary licenses available when the migration is made. Migrations to new operating systems are never made to beta versions and will only be done after the industry has fully tested the newly released operating systems and state applications have been tested.