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Bulletin

Title: **ARS IT Hardware Life Cycle Management**

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This Bulletin provides guidelines for the minimum requirements for equipment to attach to ARSNet. It also provides recommendations for the acquisition of new computer hardware.

Table of Contents

1. Introduction

The ARS Office of the Chief Information Officer (OCIO) is in the process of implementing the ARSNet wide-area network. This Bulletin provides guidelines for the minimum requirements to attach to this new network. In addition, the OCIO is providing recommendations for the acquisition of new computer hardware for desktops, servers and routers.

2. Technology Refreshment

The purpose of this document is to provide guidelines for maintaining information technology (IT) hardware capable of handling the current business requirements of the Agricultural Research Service and providing recommendations for replacement of IT hardware to meet future requirements. Ideally, all IT hardware will be replaced on a regular basis as part of a technology refresh strategy. These guidelines are intended to assist in planning and budgeting for replacement of technology to reduce operating costs, improve system security, increase end-user satisfaction, and enhance budget planning.

The recommended minimum system configurations and IT hardware refreshment strategy as indicated below will provide the optimal balance of lowest operating costs and highest user productivity. These hardware standards should be used when making IT purchases for upgrades or new equipment. Technology refreshment at each Area and Location will depend upon available funding.

If planning for a longer lifecycle, you may want to consider purchasing a more powerful machine to ensure that systems will offer useful performance for the longer period of time. It is recommended that you purchase a longer warranty and service contract to cover extra years of service. A longer planned life cycle may increase the risk that technological advances will push your machines into early obsolescence or require expensive hardware upgrades to support new capabilities.

3. Minimum ARSNet Network Requirements

Workstation computers (PCs) and laptops must be able to support the Microsoft Windows 2000 or higher operating system (OS). PCs and laptops running Windows 98 OS will NOT be able to connect to the ARSNet.

Approved PC Operating Systems

Existing workstation PCs running the following operating systems will be able to connect to the ARSNet.

Windows 2000
Windows NT (upgrade ASAP)
Windows XP

Approved MAC Operating Systems

OS X v10.2.8 or higher

Approved Server OS

Windows 2000
Windows 2003

Recommended Operating Systems for New IT Purchases

PC   Microsoft Windows XP Professional
Servers   Microsoft Windows Server 2003
MAC   Mac OS X Release 10.4
Linux   Red Hat Enterprise Linux Version 4

Operating systems for workstations should be upgraded to the current recommended technology as the hardware is replaced. All operating systems have a vendor supported lifecycle. Once the lifecycle expires, the vendor stops providing critical patches that improve performance, fix known flaws, and ensure security weaknesses are corrected.

4. Recommended Minimum Requirements for Computer Hardware Acquisition

Below are guidelines for the acquisition of new workstations, laptops, routers, firewalls, and servers. This list is based on the awareness of the limited funds available for the purchase of new equipment as well as the realization that some of this equipment will be in use well beyond the three year replacement cycle. Since software requirements for memory and speed are anticipated to increase, the following recommendations attempt to account for minimum software requirements three to five years in the future.

Workstation PCs

Pentium 4 or equivalent, CPU speed 3.0 GHz, 1MB cache, Front side Bus 800MHz
NTFS
1.0 GB DDR2 non-ECC SDRAM, 400MHz
40 GB Hard Drive
1.44 MB Floppy Drive
CD-RW or DVD +/- RW
Energy Star Enable

Monitor

15" Flat panel
17" CRT
(A CRT is less expensive but uses more energy, is difficult to lift and store, and has a significantly larger footprint.)

Laptop

1.6 GHz
1 GB SDRAM
NTFS
40 GB Hard Drive
WLAN
CD RW
NIC
A/C adaptor
Docking Station Optional

Server

GHz, processor, and memory size selection should be based on intended end use.
Network Card: Dual Port Gigabit Server Adapter
Two (2) 870W Hot Plug Redundant Power Supplies
Redundant Hot Plug Fans

Routers and Firewalls

ARSNet is based on a Cisco platform.
Edge routers and all firewalls should be Cisco.

5. Life Cycle Management

Desktop and Laptop Computers

A three year lifecycle for desktop and laptop computers is recommended. Experience shows that a three year refresh cycle provides the best balance between operating costs and user productivity. Extending the computer lifecycle from three to four years may increase operating costs over the long term.

Network Printers, Shared Network Devices, and Peripherals

Printers and peripherals should be replaced approximately every five years. The primary factor to consider when determining replacement of printers and peripherals is volume. Volume affects the amount of wear on equipment that can lead to hardware failure. Higher volume and use will shorten the hardware system life.

Network Servers (file and print sharing)

A three year production lifecycle is recommended for network servers used to provide file and print services. Typically network servers should be used in full production for a period of three years, and then used as resource servers for three additional years.

Web Servers (content, application, and database)

A three to four year lifecycle is recommended for servers used to provide web services, content management, application support, and database management.

Network Infrastructure (routers, firewalls, switches)

A five year lifecycle is recommended for network infrastructure including routers, firewalls, switches, and similar technologies.

Recommended Replacement Schedule:

Desktop and Laptop Computers   3 years
Network Servers (file/print sharing)   3 years + 3
                                                 (3 yrs in full production, 3 yrs as a resource server)

Network Printers (shared network devices)   5 years
Web Servers (content, application, and database)   3-4 years
Network Infrastructure (routers, firewalls, switches) 5 years

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