Computer and Systems Response Time Recommendations

Purpose:
To provide recommendations to enhance computer and system response time by identifying measures that can be implemented and provide guidance for implementing those measures.

Objectives:
- Define computer and system response time.
- Identify specific factors that can potentially impede computer and system response time.
- Present recommendations that can improve computer and system response time.
- Provide guidance concerning implementation of recommendations to improve computer and system response time.

Background and Description:
The BCMA Program Office, under the direction of the Health Systems Committee (HSC) and other stakeholders (BCMA Steering Oversight Board and BCMA Coordinators), is tasked with addressing BCMA equipment issues that inhibit the correct use of BCMA. The purpose of the Infrastructure Optimization Project is to develop best-in-breed recommendations regarding BCMA equipment. Within the Infrastructure Optimization Project, there is a sub-project: Develop Recommendations for Computer and System Response Time.

Response time is defined as the elapsed time from when a user takes an action on the computer until the result of that action appears on the computer screen.

In 1999 the VA developed the BCMA system to improve the safe and timely documentation of patient medications. Factors had been identified with computer and system response time that can affect the overall performance of BCMA. These adverse effects decrease the likelihood of the correct use of BCMA. Through inputs from field users, the BCMA Collaborative and Subject Matter Experts (SMEs) best practices have been identified to optimize computer and system response time.

Barriers can include equipment, computer configuration, software, lack of system maintenance procedures, knowledge management, and/or environmental factors. We encourage facilities to eliminate or reduce barriers through implementation of the recommendations designed to increase the successful usage of BCMA.

Guidance:
- Utilizing the computer configuration recommendations from the Infrastructure Optimization Project will enhance the computer and system response time.
- Each facility must assess their respective environment and take appropriate action within the scope of their resources.
- Future applications being deployed must be considered in the redesign and upgrading of wireless networks.
- Facilities should engage the VISN and local BCMA Multidisciplinary Committees in prioritizing and developing policy/ procedures to implement these recommendations.

- Providing feedback and sharing lessons learned at the local and national level is strongly encouraged on the BCMA Coordinator SharePoint site http://vhacmnapp3/bcma/bcmac/default.aspx. For posting documents, send them electronically to elizabeth.mims@med.va.gov
- User observations should provide the foundation for implementing recommendations to establish facility settings, policies, and process.

Recommendations:

Recommendation	Rationale
Computer	
Clear non-user profiles from BCMA computers on a routine basis.	Can be done through a script (batch file). Large number of user profiles slow down the computer boot-up process.
Run disc clean-up and disc defragmenter on a routine basis (for desktop PCs and laptops with hard drives).	Limit consumption/ space of computer's hard drive. Improve hardware IO.
Delete temporary Internet files and Cookies on a routine basis.	Limit consumption/ space of computer's hard drive.
IRM to ensure no unneeded background applications /services running (i.e., Microsoft Office Quick Launch).	Limit consumption/ space of computer's hard drive.
On a periodic basis/ routine basis, re-image/ghost hard drives.	Facilitates clean up in "clean up of computer hard drive".
Look toward thin clients in the future instead of PCs.	Much easier and more efficient to maintain devices because it's all done on the server side.
On a routine basis, run anti-spyware and anti-addware programs.	To prevent the consumption of CPU time and bandwidth.
Network	
Ensure that there are adequate numbers of access points for the devices in use.	Multiple devices accessing the same access point create a higher volume of traffic on one access point slowing the system.
Minimum link speed should be the speed of your access points.	Sites can identify the link speed by taking the number of devices accessing that point and dividing it into the transmitting speed. For example, if the transmitting speed of the access point is 54 megabytes and two devices are communicating to that access point, then the link speed is 27 megabytes which is the transmission rate that each device will communicate with the network.
Access points should be robust (meaning that all devices communicating with the access point should have a link speed	Multiple devices accessing the same access point create a higher volume of traffic on one access point slowing the system.

equivalent to the bandwidth of the access point). When upgrading access points, look for devices that have the ability to prioritize applications.	Robust access points allow for faster communication speeds resulting in faster response time.
Sites must be cognizant when upgrading access points that the new is compatible with the old.	To prevent system down time and degradation of the network response.
BCMA access points need to provide sufficient coverage for all areas where medications can be administered.	To prevent dead zones, dropped connections, and the need to re-boot the computer. Lead walls, magnetic fields (i.e. MRI), electrical closet, mirrored globes, etc. can impact coverage.
General	
Consideration must be given for computer/session time out so that the computers remain active for a sufficient period of time while delivering medications and/ or treatments.	Allows user to interact with the applications and avoids unnecessary re-entry into the application during this time. Coordinate efforts with Multidisciplinary Committee and ISO to develop. Users need the application to remain active to serve as a reminder following interruptions.
Medical centers need to conduct a network analysis performance review pre- and post-installation of new equipment and software applications/ upgrades requiring connectivity to the network.	Having 802.11b devices and 802.11g devices on the same network will degrade the network communication speeds to that of the 802.11b devices. The potential result is a reduction in network response.
Include appropriate empowered staff in conducting assessments of dead zones.	Provides knowledge to appropriate persons who can take corrective actions.
Devices that are wirelessly enabled that do not need to use wireless communication need to be turned off.	To reduce traffic and consumption of bandwidth from devices unnecessarily signaling the wireless network.