State of Colorado

Information Technology
End User Computing Standard Specifications

Version 8.4

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Governor's Office of Information Technology (OIT)

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I. Specification Statement

Specification

This document establishes minimum specifications for end user computing. End user components include personal computers, portable computers, PDAs, network printers, operating, anti-virus and productivity suite software. It is a directive of the Commission on Information Management (IMC), that all state agencies utilize these specifications when acquiring communication an information technologies.

Statutory Authority

C.R.S. 24-37.5-101(1)(g); C.R.S. 24-37.5-106(1)(c), C.R.S. 24-37.5-106(1)(e), C.R.S. 24-37.5-106(1)(i); C.R.S. 24-37.5-202(1)(d); and C.R.S. 24-37.5-204.

Coordinating Agency Authority

1. Executive Director of the Department of Personnel – C.R.S. 24-37.5-106 (1)(e); and
2. Commission on Information Management (IMC) – C.R.S. 24-37.5-106 (1)(e).

II. Purpose

The objectives of this standardization effort are to:

1. enable easier maintenance of desktop units by reducing fragmented configurations and improving an ability to troubleshoot that would otherwise increase the cost of ownership;
2. balance satisfying the business needs of the enterprise's employees with minimizing complexity and differentiation in technology assets;
3. decrease research required to acquire hardware and software;
4. eliminate the installation of non-approved applications;
5. improve compliance and better enforce software licensing;
6. facilitate communication and information transfers among the enterprise's employees;
7. improve technical support and training by reallocating funds saved at the initial purchase to these areas; and
8. facilitate aggregated procurement of communication and information technologies for one or more state agencies.

III. Scope of the Document

These specifications apply to all State agencies as defined in C.R.S. 24-37.5-102(5).

IV. Methodology

The CIO forum established this end user computing standard specifications subcommittee to accomplish several tasks:

1. Establish specifications for end user hardware
2. Establish specifications for end user software
3. Establish specifications for anti-virus software
4. Establish specifications for network printers

Each department was asked to send representatives to the meetings. The subcommittee first met on February 25, 2000 and continues to meet on a regular basis. Its membership consists of

representatives from numerous Statewide branches, departments and agencies of Colorado state government.

The subcommittee gathers its information from the knowledge base and experience of its members; data gathered from a prior New Century Colorado (NCC) subcommittee; journal articles, and sessions the subcommittee holds with representatives from the Western States Contracting Alliance (WSCA) personal computer vendors, and chipset manufacturers. The composite of all of this information leads the subcommittee to its recommendations.

The subcommittee, in recognition of the volatility of the end user computing market, meets to review these specifications every three months, and then produce reports of its latest findings to the CIO forum.

The subcommittee works with the WSCA vendors to define the configurations of desktop and laptop computers that will satisfy the needs of the Level II users (see Appendix A). The target standard hardware configurations are based on a three-year replacement cycle (see Appendix C, item 2). Agencies who are working on a longer replacement cycle may need to adjust their minimum configuration to offer higher performance than what is outlined and/or purchase additional years of warranty service. Chipsets, processors, and standard memory sizing are those which have been available on the market and are an acceptable corporate stable configuration, resulting in the specific recommendations enumerated in Tables II & III (see Appendix A). This approach maintains the fundamental and helps ensure the State is buying at or near the price-for-performance "sweet spot" of the PC market on an ongoing basis.

WSCA pricing information

HP/Compaq Corporation:
http://www.hp.com/buy/colorado
Dell Computers:
http://www.dell.com/
Gateway Computers:
http://esource.gateway.com/colorado
MPC Computers:
http://www.mpccorp.com/
Howard Computers

Lenovo Inc.

V. Exemptions

Agencies are discouraged from filing a request for exemption from these specifications. The Governor's Office of Innovation & Technology (OIT) and State Planning & Budgeting (OSPB) may jointly approve exemptions on a case-by-case basis if the request is supported by extraordinary circumstances.

VI. Related Policies, Standards, Guidelines, Specifications, and Rules

OIT Policies

- **Aggregation – (**P-101) that the OIT coordinate and aggregate the use and acquisition of the State's communications and information resource technologies.
- **Data Destruction** – (P-104A) that the State remove Colorado data from agency computers and electronic media resources prior to such being disposed of as well as certify and audit such removal.
- **Infrastructure** – (P-106, Draft Deliberative) that the State shall have a single IT infrastructure that is scalable, reliable, flexible, maintainable, and interoperable.
- **Interoperability** – (P-105) that the State promote and encourage interoperability.
- **Life Cycle Management** – (P-107) that all decisions regarding information technology investments (initial and continuing) must be based on the consideration of associated benefits, costs and risks over the full lifecycle of the product and/or service.
- **Procurement** – (P109) that the State achieve economy, efficiency and effectiveness of the its investment in information systems by taking advantage of shared services and enterprise spend management opportunities.
- **Security** – (P-104) that each state agency develop and implement an information security program and utilize a layered security approach to protect its IT assets.

Standards

- **ADA IT Accessibility** – non-visual access standards for information technology systems employed by state agencies and technology access clause that may be used in contracts by state agencies when they purchase, upgrade, or replace information technology equipment or software.

Guidelines

- **IT Chart of Accounts Overview** – COFRS expenditure "object" codes specific to IT
- **Total Cost of Ownership** – to identify and quantify the overall costs associated with ownership of technology assets for the ultimate purpose of enabling decisions which minimize such costs.

Specifications

- **None applicable**

Rules

- **IT Expenditure** Accounting – that each and every IT expenditure, upon being entered into the State's financial system, shall be coded with the most appropriate IT expenditure object code from the State's IT Chart of Accounts
- **IT Procurement Review** – to coordinate agencies acquisition of communication and information technologies and resources to avoid duplication and maximize cost effectiveness and use.
- **IT Security** – that each agency develop and implement an information security program and utilize a layered security approach to protect its IT assets.

VII. Impact

The IMC shall, in fulfilling its statutory responsibility (CRS 24-37.5-202[1d]) to promulgate rules which set criteria for approving or rejecting agency procurements, include reference to these specifications. OIT will utilize these specifications in reviewing and approving or rejecting state agency IT procurements as well as in aggregating IT procurements.

VIII. Maintenance

The OIT charges the CIO Forum to review these specifications quarterly. All workgroup recommendations are to be submitted to the CIO Forum, which coordinates with all state agencies. The CIO Forum submits recommendations to OIT for final adoption by the IMC.

IX. Effective Date

This policy shall be effective from the date of approval by the Chief Technology Officer or Chief Information Officer of the State of Colorado.

X. Appendices

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Appendix A: Specifications – Hardware

SPECIAL NOTE: The subcommittee recommends the use of security devices, such as locks and protective cases, for any computing equipment deemed to be at high risk of theft (i.e. small form factor desktop computers, laptop computers, portable scanners, portable printers, etc.).

1. End User Levels

The subcommittee recognizes three levels of users based on the information described in Table I. Although each of these levels requires a different set of hardware specifications, the configuration is based on the needs of the Level II users as they represent the majority of the state workforce.

Table I
Definition of User Levels for Desktop Specifications

Note on determining the level of user: This table is intended to be used as a guideline and will not fit each individual circumstance. Agencies are to use this table as a guide to look at the anticipated use of all applications and access needed by the user to determine the appropriate User level based on the best judgment of each agency's IT staff.

Percentages listed with the access or application type level are percentages of users categorized for that level, based on actual data received from agencies represented in the subcommittee.

Access or Application Type	Level I 3.77%	Level II 90.04%	Level III 6.19%
Information Management System			
Query	H	H	H
Data Entry	H	H	H
Programming	H	H	H
Archiving	M	M	M
Document Imaging	L	M	H
E-Mail	L	H	H
Intranet/Internet	L	M	H
Word Processing	L	M	H
Spreadsheet	0	M	H
PC Database (Suite Based)	0	M	H
Presentation Software	0	M	H
Project Management Software	0	M	H
CAD Programs	0	L	H
Network Design/Flow Charting	0	L	H
Automated Legal Research	0	L	H
Scanning/Imaging/etc	0	L	H
Video/Audio Applications	0	0	M
Database Client (non-suite)	0	M	M
GIS	0	0	M

Access or Application Type	Level I 3.77%	Level II 90.04%	Level III 6.19%
WEB Development	0	0	M
Database Administrative Software	0	0	H

Legend:

No Anticipated Use	0
Low Use	L
Average Use	M
High Use	H

2. Desktop

The subcommittee recommends the following specifications for desktop configurations.

The subcommittee works with the WSCA vendors to define the configuration for desktops that would satisfy the user needs outlined above. The minimum configurations are outlined below.

Table II
Minimum Desktop PC Standard Configuration

Specification	Desktop PC	
Chipset: Motherboards must be the same per order (DMI compliant)	Intel: Current "Q" chipset	AMD: Current Radeon
Processor	Intel Core 2 Duo E6750	Athlon 64 AMD 4400+ X2
RAM	2 GB DDR	
Monitor Size	19" LCD	
Monitor Resolution	1024 x 768 .26mm	
Media Reader	DVD	
Hard Drive	80 Gb; Serial ATA 150, 7200 RPM	
Network Adapter	Ethernet 10/100/1000, DMI; Wake on LAN	
Video Standard	Integrated	
Sound Standard	Sound Blaster compatible	
Operating System	See Software Standards Section (appendix B)	
Mouse	Optical w/scroll	
Keyboard	Standard 104+	
Ports	USB required v. 2.0	
Energy Compliance	Energy Star 4.0 (80% efficient power supply) or better	
Desktop Management	DMI Software	
Shipping	Included	
Tech Support	3-yr. on-site next business day: Parts & Labor. Consistent for all 3 yr. for CPU, monitor and all factory installed peripherals.	

Although this specification should accommodate the needs of most end users in State government, the subcommittee recognizes the need for specialized hardware requirements. In some circumstances, there will be very good rationales supporting additional hardware, and those items should be considered for funding based on justifications presented by each budget request. The vendors have agreed to provide these exceptions on the pricing configurations provided on their Internet pricing pages. Even the listed exceptions, however, may not cover very specialized workstations that will need to be accommodated. The exceptions may include:

1. Monitor upgrades (i.e. Widescreen LCD monitor, larger size, higher resolution)
2. V-Pro management chipset (requires desktop management software in order to utilize)
3. Trackballs
4. Other ADA peripherals
5. Disk imaging
6. Installation costs
7. Backup options: tape drive/CD-RW/DVD-RW
8. Training
9. Hardware to support specialized software (e.g. microphones required for voice recognition software)
10. Higher speed/dual processor with upgraded chipset
11. Hard drive upgrades (i.e. SAS, SCSI Ultra III)
12. RAM upgrades
13. USB memory key
14. 1.44 floppy disk drive
15. Wireless LAN card (to be reviewed with networking subcommittee)
16. Wireless peripherals (i.e. keyboard, mouse)
17. Higher level sound cards
18. Higher level video cards
19. Higher level or extended duration of support
20. Security/Biometrics/Smartcard (authentication enhancement)

3. Laptop

All portable computers must comply with all state security policies, rules, and procedures, including **P-CCSP-018 Mobile Computing R01**.

The subcommittee recommends the following specifications for laptop configurations. Under many circumstances, individuals may need a docking station and will not have a desktop.

The subcommittee recognizes the need for specialized platforms, such as ruggedized models. The specifications for ruggedized equipment will not meet the minimum specifications and will need to be defined by the specialized application requirements of the agency.

The subcommittee works with the WSCA vendors to define the configuration for laptops that would satisfy the user needs outlined above. The minimum configurations are outlined below.

Table III
Minimum Laptop PC Standard Configurations

Specification	Ultra Light		Standard	
	Intel	AMD	Intel	AMD
Chipset	Mobile Intel 965 GM		Mobile Intel 965 GM	Radeon
Processor	Core 2 Duo U7600		Core 2 Duo T7500	Mobile Athlon 64 TL52
RAM	2 GB		2 GB	
Monitor Size	12”		14”	
Monitor Resolution	Active Matrix; 1024 Native		Active Matrix; 1024 Native	
Media Reader	see exception list		See exception list	
Floppy	see exception list		See exception list	
Spindle	1		2	
Hard Drive	Vendor standard size or above: Smart IDE		Vendor standard size or above: Serial ATA, 5400 RPM	
PC Card Slots	1		1	
Network Adapter	Integrated Ethernet 10/100/1000		Integrated Ethernet 10/100/1000	
USB Port v. 2.0	1+		1+	
Operating System	See Software Standards Section (Appendix B)		See Software Standards Section (Appendix B)	
Keyboard	80% of full size or better		Full Size	
FAX/Modem Integrated	V.92 56K		V.92 56K	
Battery	Trickle Charge: Holds for 2 hrs		Trickle Charge: Holds for 2 hrs	
Energy Compliance	Energy Star 4.0		Energy Star 4.0	
Carrying Case	Standard		Standard	
Shipping	Included		Included	
Tech Support	3-yr. on-site next business day: Parts & Labor. Consistent for all factory installed peripherals. (Batteries excluded after 1 year)		3-yr. on-site next business day: Parts & Labor. Consistent for all factory installed peripherals. (Batteries excluded after 1 year)	
Notebook Management	DMI Software		DMI Software	

Although these configurations should accommodate the needs of most end users in State government, the subcommittee recognizes the need for specialized hardware attached to some laptops. In some circumstances there will be very good rationales supporting additional hardware, and those items should be considered for funding based on justifications presented by each budget request. The vendors have agreed to provide these exceptions on the pricing configurations provided on their Internet pricing

pages. Even the listed exceptions, however, may not cover very specialized workstations that will need to be accommodated. The exceptions may include:

1. Docking Station/Port Replicator (some circumstances will warrant more than one for a user)
2. FireWire
3. External mouse
4. External monitor
5. No fault Insurance
6. Hardware encryption
7. Solid state hard drive
8. Spare or high capacity battery
9. CD-RW/DVD-RW or DVD/CD-RW combo
10. External keyboard
11. RAM upgrade
12. Training
13. Three spindle system
14. Media reader and floppy for ultra-light
15. Wireless LAN adapters / wireless broadband connection
16. Wireless peripherals (i.e. mouse, keyboard)
17. Screen upgrade
18. Portable USB hub
19. USB memory key
20. Upgraded carrying case
21. Higher level or extended duration of support
22. Security/Biometrics/Smartcard (authentication enhancement)
23. For ultra light – an ultra low voltage processor of 1.2 GHz

4. Tablet PC

All portable computers must comply with all state security policies, rules, and procedures, including **P-CCSP-018 Mobile Computing R01.**

The subcommittee recommends the following specifications for tablet configurations. Under some circumstances, individuals may need a docking station and will not have a desktop.

The subcommittee recognizes the need for specialized platforms, such as ruggedized models. The specifications for ruggedized equipment will not meet the minimum specifications and will need to be defined by the specialized application requirements of the agency.

The subcommittee works with the WSCA vendors to define the configuration for tablets that would satisfy the user needs outlined above. The minimum configurations are outlined below.

Table IV
Minimum Tablet PC Standard Configurations

Specification	Convertible	
Chipset	945 GM	AMD: None available
Processor	Core 2 Duo U7600	
RAM	2 GB	
Monitor Size	12.1”	
Monitor Resolution	Active Matrix; 1024 Native	
Media Reader	See exception list	
Floppy	See exception list	
Spindle	1	
Hard Drive	Vendor standard size or above: Serial ATA, 5400 RPM	
Network Adapter	Integrated Ethernet 10/100/1000	
Wireless connectivity	802.11bg	
USB Port v. 2.0	2+	
Operating System	XP Tablet PC	
Keyboard	80% of full size keyboard	
FAX/Modem Integrated	V.92 56K	
Battery	Trickle Charge: Holds for 2 hrs	
Energy Compliance	Energy Star 4.0	
Carrying Case	Standard	
Shipping	Included	
Tech Support	3-yr. on-site next business day: Parts & Labor. Consistent for all factory installed peripherals. (Batteries excluded after 1 year)	
Notebook Management	DMI Software	

Although these configurations should accommodate the needs of most end users in State government, the subcommittee recognizes the need for specialized hardware attached to some tablet PCs. In some circumstances there will be very good rationales supporting additional hardware, and those items should be considered for funding based on justifications presented by each budget request. The vendors have agreed to provide these exceptions on the pricing configurations provided on their Internet pricing pages. Even the listed exceptions, however, may not cover very specialized workstations that will need to be accommodated. The exceptions may include:

1. Docking station/port replicator (some circumstances will warrant more than one for a user)
2. Processor upgrade
3. Solid state hard drive
4. FireWire
5. External mouse

6. External monitor
7. No fault insurance
8. Spare or high capacity battery
9. USB media drives (e.g. CD-RW/DVD-RW, DVD/CD-RW combo, floppy, etc.)
10. External keyboard
11. Training
12. RAM upgrade
13. Wireless 802.11g or better / embedded wireless broadband connection
14. Bluetooth
15. Wireless peripherals (i.e. mouse, keyboard)
16. Screen upgrade
17. Portable USB hub
18. Upgraded carrying case
19. Higher level or extended duration of support
20. Security/Biometrics/Smartcard (authentication enhancement)

5. PDA

All portable computers must comply with all state security policies, rules, and procedures, including **P-CCSP-018 Mobile Computing R01**.

The state recognizes the need for PDA systems and the benefits they bring to the users. The basic functions of all PDA systems include synchronization of calendar, contacts and tasks with the end user's current software. Be aware the typical PDA lifecycle is not expected to be more than two years, based on the current rate of change in PDA technology.

Business uses for PDAs include synchronizing calendar and contacts, using e-mail, ability to dial-in to pickup e-mail, specialized programs for inspections or other reporting features, and various wireless options. We recommend each agency set their own standards for PDA configurations based on the anticipated usage and their individual agency's needs.

6. Network Printer

The subcommittee limits its recommendations to network printers, and generally recommends against the proliferation of desktop printers except in circumstances where security issues may be a factor (e.g., in the area of human resources and executive offices dealing with personnel and budget issues). Otherwise desktop printers are not cost effective to purchase and maintain compared to their laser counterparts. The fact remains, however, that it will be a difficult business task to convince users of the need to migrate from their own personal printers to network printers—one clear advantage is the quality of the output and the overall speed of printing.

Table V
Network Printer Specifications

Spec Description	Printer Class I	Printer Class II
Pages per minute	32-45	32-50+
RAM	32	64

DPI	600x600	FastRes1200 (1200dpi quality)
Network Ready	Ethernet 10/100-TX	10/100-TX
Printer Control Language	PCL 5/6	PCL 5/6
Warranty	One year on site	One year on site

Although these two classes of printers should accommodate the needs of most end users in State government, the subcommittee recognizes the need for specialized printers. In some circumstances, there will be very good rationales supporting additional hardware, and those items should be considered for funding based on justifications presented by each budget request and in accordance with departmental guidelines. The exceptions may include:

1. Postscript or other capabilities (i.e., IPDS capabilities)
2. Multiple trays
3. Impact printers
4. 2000 sheet paper tray
5. Memory upgrades
6. Color network ready laser printers
7. Plotters
8. Duplexing capabilities
9. Combining system printing with other functions like: scanning, copying and faxing
10. Security features
11. Extended warranty beyond manufacturer's standard warranty
12. Envelope feeders

Other printer standard recommendations:

1. Shared networked device with 1 printer per 1-12 users for Class I printer
2. Shared networked device with 1 printer per 12-24 users. The choice between class I & II printer should be based on the layout of the physical office area and the production needs of user group. Higher production needs would justify a class II printer and lower production needs would justify a Class I printer.
3. Shared networked device with 1 printer per 24-36 users for Class II printer
4. Use of non-OEM toner cartridges should be avoided. Several departments have reported significant maintenance issues that have developed from using these cartridges that essentially negate any benefits derived from a cheaper up-front cost.

SPECIAL NOTE: Check the manufacturer's warranty specifications on the brand and type of toner that must be used. Some manufacturer's warranties are void if off-brand or recycled cartridges are used.

The subcommittee recommends that each department target a single manufacturer for printers. Recognizing that departments may change manufacturer from time to time based on pricing, specs, and support, departments should nevertheless try and standardize on one manufacturer for printers. Standardization allows better control of support, training, and supply costs, including technical staff time.

Appendix B: Specifications – Software

1. Desktop Operating System

The subcommittee recommends that the operating system standard for new purchases be Microsoft Windows XP Professional with Service Pack 2. This will allow a phased transition from legacy operating systems. Whenever practical, departments should consider whether upgrade of legacy operating systems will extend the useful life of existing PCs.

The subcommittee will review alternative operating systems at the request of the CIO Forum.

2. Office Productivity Suite

The principal challenge with office productivity software is an inability to easily share documents, spreadsheets, databases, etc. across various vendor packages and sometimes across different releases or versions within a vendor's package. For a large organization to run effectively and efficiently, everything possible needs to be done to facilitate the work product. Time is wasted when files can't be shared and have to be continually converted, re-edited, or recreated.

The committee therefore recommends that Microsoft Office 2003 be established as the minimum Statewide standard. Any department submitting a budget request to convert from their current suite should also include a training plan for support staff and the end users. This may need to be expedited based on lifecycle changes by the manufacturer.

The subcommittee recognizes the different versions of the Microsoft Office Suites and the applications available per suite as shown in Table VI. Based on each Department's needs, they may have one specific suite as a standard, or a combination.

Table VI
Microsoft Office Suites

Application	Office 2003 Standard	Office 2003 Professional	Office 2003 Premium
Word	X	X	X
Excel	X	X	X
Power Point	X	X	X
Outlook	X	X	X
Access		X	X
Publisher		X	X
InfoPath		X	X
OneNote			X

Cost is a major issue in selecting a standard office productivity suite. There is both the purchase cost and the ongoing licensing, or maintenance cost. Although licensing and maintenance costs are high for Microsoft Office Suite, it is currently the "de facto" standard for internal and external customers of the state. This fact plays a significant role in the subcommittee's decision to recommend the

Microsoft Office Suite as the state standard. Another significant factor is reduced training costs for a state workforce already familiar with Microsoft Office Suite.

3. Anti-Virus and Spyware Protection

The subcommittee reviewed what the different departments were doing to protect against viruses and spyware. It became clear there are a variety of hardware platforms and software packages being used. The best approach at this time is to define a list of requirements and functions that need to be considered, rather than naming a product standard.

The protection of the State's data must be a priority. A line of defense must exist at the server and desktop to protect the equipment from receiving malware and potentially forwarding them. The cost of lost data can be extreme. The subcommittee recommends the following business practices:

1. Protection software must reside on desktop/ laptop, servers and firewall
2. Protection software must be updated automatically
3. Protection software should protect inbound and outbound E-mail and Server traffic, including attachments
4. Procedures must be in place to scan diskettes and CD ROMs
5. Protection software must be managed centrally within departments
6. Departments should secure a department wide protection software license and ongoing maintenance funding
7. Protection software must be covered for the telecommuter
8. Protection software is recommended for the home user

4. Other minimum software recommendations

All agencies should define approved application standards for use in their agency. The definition should include policies and procedures regarding loading of any non-approved applications (including applications downloaded from the Internet).

Appendix C: Additional Observations, Recommendations, & Conclusions

1. Technology

The prevailing issue in establishing a standard configuration for end user technology is the rapidly changing rate of technology. Many hours of discussion occurred among the subcommittee members, as well as during a focus group meeting with the State's primary PC vendors. The conclusion of those discussions was that the end user specifications outlined above should be reviewed quarterly. Two of the quarterly meetings (one every 6 months) will be dedicated to meeting with the WSCA vendors to make changes to the hardware configurations. At the other two quarterly meetings per year, we will focus our efforts on changing the document, including software and printer configurations.

2. Lifecycle

The subcommittee bases its recommendation on a three-year lifecycle, using the findings and experiences of the subcommittee member departments. The nature of an exponentially expanding personal computer hardware and software market mandates that personal computer hardware be upgraded every three years; accordingly, there should be a three-year replacement cycle. The subcommittee reconsidered this recommendation at a meeting in early 2002. The subcommittee strongly re-endorses the three-year replacement cycle for the following reasons:

1. Changes in the software industry are happening with such frequency that they require upgrades in the hardware in order to perform effectively;
2. The applications that State employees are encouraged to develop are requiring upgrades in PC hardware consistent with this replacement cycle. Such applications include Web enabled software, other Internet research software, and, most importantly, document imaging which enables the State to reduce expenses associated with paper document storage and improve customer service;
3. The per year cost of extending warranties on existing machines beyond three years is about a third of the cost of a new machine;
4. Manually maintaining hardware beyond the original 3-year warranty period incurs additional costs in the hardware maintenance line and additional costs in personnel lines stemming from increased support requests; and
5. Finally, it is very difficult to quantify the compatibility problems associated with maintaining both new and old equipment. These compatibility problems revolve around the network, the operating systems, acquiring old parts, training issues for the users, etc.

It is the subcommittee's understanding, at this time, that only a few departments are actually funded for a three-year replacement cycle. This shortfall between budget requests and actual funds provided has resulted in a 4-5 year replacement cycle for some departments. However, this subcommittee feels it is inadvisable to adjust a technical standard for budgetary reasons. Changing this technical replacement cycle to exceed three years could place the State's technical infrastructure in jeopardy, and therefore also compromises the State's goals of ensuring public safety, providing customer service to its citizens, and effectively/efficiently running State government.

3. Leasing

The actual contract or recommendation of leasing does not fall under the guidelines of this sub-committee. Leasing should be handled by the agency in compliance with the recommendations of the State Controller's office. In any case, leased equipment should meet the minimum hardware specifications of this document.

4. Ordering

An additional way for the State to reduce PC costs is to "piggy-back" orders Statewide. This would allow the enterprise to negotiate further discounts when a purchase involves a higher volume. The Office of Information and Technology statutorily reviews all IT purchase orders over $100,000. An effort should be made to flag purchases, aggregate totals, leverage increases to the purchase volume, and then negotiate a significant discount. The prices quoted by the vendors and listed in their price matrices are "single-unit" based. All of the vendors were abundantly clear that this "piggybacking" effort would gain additional savings.

5. State Supplied Equipment

It is recommended that the State will not provide more than one computer per user. We recommend the use of a portable computing solution with a docking station/port replicator for users who need a computer outside of their primary working location.

6. Conclusions

The subcommittee intends that the recommendations outlined above will be reviewed quarterly, and will position the Statewide governmental enterprise at a place to satisfy the objectives mentioned early in this report. All of those objectives can be summarized as the general need to provide State employees with the most cost-effective end user computing configurations to meet the needs of their customers.