Appendix A: MetaArchive Technical Specifications

The following technical standards describe the minimum requirements for a preservation node of the MetaArchive Cooperative. We highly recommend the Capricorn Technologies specification appended below, but any system that meets these minimum requirements will suffice. The technical specifications will be reconsidered at MetaArchive annual meetings and revised on an as-needed basis by the Technical Committee. Please contact the MetaArchive Cooperative prior to any equipment purchase to ensure that you are using the most up to date technical specifications.

Required	Recommended	Notes	
Machine architecture capable of running and operating system with a Sun or Sun- compatible JVM	x86 or compatible processor of at least 2GHz	The x86 architecture is recommended because it is well-supported by Linux distributors and is used by numerous hardware vendors. A 2GHz processor is considered slow for modern servers, but is probably faster than LOCKSS software requires; the hashing operations used in polling will depend more on disk access speed than processor speed than pro	
	Rack- mountable server chassis	Although this isn't a hard requirement, the storage solutions appropriate for a Private LOCKSS Network will most likely be rack-mounted, so it makes sense to keep the Server itself in a rack.	
At least 2 GB of RAM	3-4 GB of RAM	At a lower level, excessive swapping may occur.	
4 TB, RAID disk storage		Although LOCKSS software does provide redundancy, RAID is still required on individual servers and provides an extra layer of protection against hardware failure. Appropriate hardware may include many name brand vendors (Dell, etc.), or the recommended Capricorn configuration listed below.	
RPM-based Linux Distribution	Enterprise Red- Hat Linux Distribution	The highly recommended distributions are: 1) Red Hat Enterprise Server; 2) CentOS.	
Apache Web Server.		This is the recommended web server for distributing the configuration and plugins. The Linux distributions mentioned above should ship with an appropriate version.	
Java Virtual Machine version 1.4 or later		LOCKSS software requires a Java Virtual Machine, any version starting from 1.4 should run the LOCKSS daemon.	
LOCKSS software			
LOCKSS nodes should be physically secure, accessible only to appropriate staff members, and climate controlled		Temperature of 40-80°F and humidity of 10-80%.	
A firewall should be used to block access to all unnecessary ports		Any services not required for the functionality and maintenance of the LOCKSS node should be protected by a firewall. Appropriate ports to leave open include: 1) Ports used by LOCKSS network; 2) Ports used by Apache if the node itself is also being used as a plugin repository; and 3) Ports used for secure remote access. For Unix machines, ssh should be considered an appropriate method of remote access. Telnet and VNC are not considered secure methods.	
User accounts should be kept to a minimum		Only the system administrators who need to maintain the server should have user accounts. These accounts should have strong passwords.	
There should be no direct remote administrative access		In the case of SSH, this constitutes disabling root logins.	
Security patches should be applied promptly		For users of the RPM-based Linux distributions, this can be achieved by periodically running yum or up2date for the latest software updates.	

PREPARED BY THE TECHNICAL COMMITTEE AND APPROVED BY THE STEERING COMMITTEE LAST REVISED FEBRUARY 2008 CONSULT WITH METAARCHIVE BEFORE IMPLEMENTING YOUR TECHNICAL INFRASTRUCTURE TO BE SURE YOU ARE WORKING WITH THE LATEST TECHNICAL SPECIFICATIONS.

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QTY	/ ITEM	DESCRIPTION	UNIT COST	TOTAL	
1	PS4000	PetaBox PowerStore PS4000, 1U, 4TB storage node	\$2.699	\$2.699	
		Includes:	+_,	<i> </i>	
		- 2GB RAM			
		- AMD Athlon 64 dual core CPU			
		- ASUS Mainboard			
		- NVIDIA GeFrce 6150/nForce 430 Chipset			
		- 4 USB 2.0 ports			
		- 1 IEEE 1394a port			
		- 1 Parallel port			
		- 1 VGA/RGB port + 1 VGA DVI-D port			
		- PS2 mouse and keyboard ports			
		- 10/100/1000 Ethernet port			
		- 4x1TB raw SATA HD capacity per Node			
		- 12-month factory hardware warranty			
			A / A A	• • • • •	
1	4-POST RAILS	Rails for 4-Post Rack	\$120	\$120	
		OPTIONS			
P5 3		OPTIONS	*••••	* 045	
1	SRV_36_PS4_1	36 months Help Desk & NBD On-Site Support	\$315	\$315	
		8/5 Help Desk + Next Business Day On-Site Response			
		nardware warranty and maintenance for 7 PS4000 device	ces		
1	RAIDCONFIG	RAID5 Configuration and test/box	\$100	\$100	
1	SHIPPING	ESTIMATED Shipping Fee* * UPS Surface Method	\$50	\$50	
		Quotation Valid for 15 Days Product typically ships within 12-15 days ARO All prices are in USD			
		Price does not include any applicable sales tax			
		FOB Origin			
		Net 30 Terms			
		TOTAL		\$3,284.00	