Value of add-ons to eradicate errors adds up

Raymond Aller, MD

A primary obligation of any health care provider is to do no harm. The same can be said for information systems. Yet many anatomic pathology information system features, add-ons, and interfaces that reduce errors are, for various reasons, not being used widely.

In CAP TODAY's annual lineup of anatomic pathology information systems, pages 22–40, vendors were asked if they offer such features as an interface to an automatic cassette labeler or other "innovative peripherals."

We were delighted to see that some vendors now provide a direct connection to automatic slide etchers and cassette labeler equipment. We urge all vendors to offer this capability. We likewise urge histology laboratories to budget for, and implement, these labeling devices.

Errors are inherent in any system that relies on handwritten identification numbers, and most laboratories still label by hand their tissue cassettes. Even the most comprehensive checks cannot eliminate the errors that result from this manual process. Yet many laboratories are not taking steps to install equipment that can eliminate this type of error, such as slide etchers and automatic cassette labelers for histology. Laboratorians should contact their anatomic pathology system vendors and request that automatic slide etchers and cassette labelers be connected to their systems.

Another add-on that has much to offer is the LOINC (Logical Observation Identifiers, Names and Codes) test identification dictionary, which is available at no charge. Even though many systems include an indexed field for storage of the code, many vendors still do not ship the dictionary with their products. This may be because users have been slow to recognize the importance of unambiguous result identification in communicating results to other systems. While this add-on is more pertinent to clinical laboratory systems, which may have several thousand distinct result codes, it is becoming increasingly more relevant to anatomic pathology as this field evolves to include more specific antigenic and genetic testing. Such testing results will be transmitted more accurately to other systems using LOINC.

On the marketing front, of note in this year's survey is the acquisition of two popular AP vendors—Dynamic Healthcare Technologies and Tamtron. Cerner has acquired DHT and now offers DHT's CoPathPlus along with its widely installed AP system offerings on its Classic and Millennium integrated platforms. It will be interesting to see how Cerner integrates CoPathPlus into its broader product strategy.

Tamtron, on the other hand, has been acquired by Impath, which has been primarily a service company in the anatomic pathology segment. We expect that PowerPath and other Tamtron products will strengthen Impath's clinical service line.

Even with these recent acquisitions, there has been remarkable stability in the community of vendors supplying anatomic pathology systems. Cerner, Computer Trust Corp., Cortex, Meditech, Pathology Computer Systems (Anatrol), Psyche (System Analysis Corp.), SCC Soft Computer, Small Business Computers of New England, Sunquest (e-Suite), and Tamtron have been featured in CAP TODAY's AP systems surveys for at least a decade. Other vendors, including Opus, PathLogix, and Triple G, have been featured for several years.

New to this year's AP survey are CCA, a longstanding vendor of clinical lab systems, and NetSoft.

Also worthy of mention are the two systems in the survey developed by pathologists for their own practices and offered to others at minimal or no cost—EasyPath (EasyPath Software) and Integrity (William Shang, MD.)

The information supplied in this year's AP systems survey is based on vendors' responses to a questionnaire. We urge readers to verify the functionality and reliability of any system they are considering and the quality of the vendor's customer support by speaking with users of the system. We have long maintained that you are far better off choosing an adequate but limited system with outstanding customer support than a full-featured system with little support.

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	patriology compater	
Part 1 of 11	CCA (Creative Computer Applications Inc.)	Cerner Corp.
	Chris Coleman info@ccainc.com	Lori Cross lcross@cerner.com
See accompanying article on page 20	26115-A Mureau Rd., Calabasas, CA 91302 (800) 437-9000 www.ccainc.com	2800 Rockcreek Parkway, Kansas City, MO 64117 (816) 221-1024 www.cerner.com
Name of system	CyberPath	PathNet Anatomic Pathology
First LIS install./first AP system install./most recent AP system install.	1982/2000/2001	1982/1984/2001
No. of contracts for sites operating AP system (H/IL/C or GP/FI/OS)* No. of sites where system is operational	13 (7/2/3/1/0)	435 (413/11/3/8/0)
No. of installations underway but not yet live	13 4	498 20
Percentage of installations stand-alone	0%	5%
Staff to develop-install-support-other** • In entire company	12-4-19-38	1,010-954-355-723
In LIS division (including AP)/in AP systems only	6-4-13-38/2-4-13-38	70-50-35-40/—
No of workstations/terminals in sites enerating system (min. may.)	2–250	7–60
No. of workstations/terminals in sites operating system (minmax.) Range in No. of surgical pathology cases per year in sites operating system	3,000–200,000	5,000–40,000
Range in No. of gynecologic cytology cases per year in sites operating syst.	3,000–10,000	2,000–50,000
Central hardware	Compaq, IBM RS/6000, HP 9000 series	Compaq, IBM RISC/6000
Terminals/workstations	PC workstations	PCs, NT workstations
Innovative peripherals Network installation required?/networks supported	 yes/	image-enabled, Web-enabled, bar codes yes/LAN, WAN, TCP/IP, Unix
Programming language(s)	Microfocus COBOL, Dialog, C, Visual Basic	Visual Basic, Visual C++, Java
Databases and tools used	ODBC-compliant	three-tiered client/server, Oracle
Word processor(s) used Operating system	MS Word SCO Unix, AIX, HP-UX	MS Word 7.0, Visual Writer Windows 95, 98, NT; AIX; Open VMS
Features • Surgical pathology information system	installed	installed
Cytology information system	installed	installed
Autopsy information system Specimen log-in	installed installed	installed installed
Interface to automatic cassette labeler	not available	not available
Entry of block IDs	installed	installed
Specimen labels Histology slide labels	installed installed	installed installed
Bar-coded slide labels	installed	installed
Histology worksheets Interface to automatic slide stainer	installed —	installed not available
Text editing	installed	installed
Word processing on central computer Word processing on PC workstations	not available	installed
Word processing on PC workstations Voice-entry of gross description	installed installed	installed not available
Voice-entry of final diagnosis	installed	not available
Spell checker Gross and microscopic images integrated in reports	installed installed	installed available but not installed
Electronic signature	installed	installed
Remote printing of completed reports Direct for reports	installed installed	installed installed
Direct fax reports Web-based remote inquiry of reports	installed	installed
Physician Web access for order entry	installed	installed
Natural language search capability SNOMED II	not available	installed installed (Classic platform)
SNOMED International	available but not installed	installed (Millennium platform)
SNOMED RT/CT Multiple been talk wide area petwork	available but not installed installed	— installed
Multiple hospitals-wide area network Sound-alike retrieval of patient history	available but not installed	installed
Autopsy measurements/organ weights	available but not installed	installed
Tumor registry reports Management reports	installed installed	installed installed
Cytology abnormal/unsatisfactory list to doctors	installed	installed
Cytology diagnostics statistics by pathologist/cytotechnologist Histology/cytology correlation report	installed installed	installed installed
Reports sufficient to comply with CLIA '88 regulations	installed	installed
Comprehensive billing/accounts receivable HIS interface: A/D/T	installed	installed
HIS Interface: A/D/T HIS interface: result reporting	installed installed	installed installed
HIS interface: incoming clinical results	not available	installed
Interface to external billing system Standard ASTM/HL-7 interface?	installed yes	installed yes
	<u> </u>	
Software provides indexed field in each test definition for LOINC code? Provide LOINC dictionary for each new installation?	field available but not indexed no	yes no
Complete AP ASP solution?	no	yes
Method of charging for ASP service	_	fixed fee, transaction-based, other (purchase software, monthly hardware maintenance)
Client software required	_	requires software be installed on client PC
ASP information conduit Client contracts supported from data center not operated by client	Ξ	operates over Internet or requires private, dedicated circuit 12
How data center is operated	_	by vendor
Other IS interfaces	major vendors' systems	commercial vendors
Voice-recognition packages integrated with system	Dragon Naturally Speaking Professional	Dragon with radiology
Histology and cytology laboratory instruments interfaced	_	_
Source code?/User group?	escrow/yes	escrow/yes
User can modify screens? • User-defined report writer?/Custom programming?	no yes/yes	yes (limited to preferences) yes/yes
	• •	
Cost (hardware/software/installation and training/monthly maintenance) • Smallest stand-alone system	_	_
Largest stand-alone system	_	-
Base price of integrated system, excluding AP configuration • Incremental cost to add smallest AP configuration	_	_
Incremental cost to add smallest AP configuration Incremental cost to add largest AP configuration	_	_
Distinguishing features (supplied by vendor)	a designed by pathologists and leb managers	Woh anabled orders registration results in suin.
	 designed by pathologists and lab managers corporate commitment to service 	Web-enabled orders, registration, results inquiry multi-facility logic/support
*H=U.S. hospitals, IL=independent labs in U.S., C or GP=clinics or group practices in U.S., FI=foreign installations, OS=other sites	• ease of use	integrated AP/CP and imaging reports
**other=sales, marketing, administration, and other company functions		
Tabulation does not represent an endorsement by the College of American P	atheric state	Survey editors: Raymond D. Aller, MD, Hal Weine

Anatonno	, patriology computer	Systems
Part 2 of 11	Cerner DHT Inc.	Computer Trust Corp.
See accompanying article on page 20	J.P. Fingado or Jay Johnson jjohnson@dht.com 51 Sawyer Rd., 2 University Office Park, Waltham, MA 02453 (781) 642-6200 www.dht.com	David Liberman, MD info@ctcsurge.com 1 State St., Boston, MA 02109-3507 (617) 557-9264 www.ctcsurge.com
Name of system	CoPath Plus	WinSurge
-	4000/4000/0004	
First LIS install./first AP system install./most recent AP system install. No. of contracts for sites operating AP system (H/IL/C or GP/FI/OS)*	1982/1983/2001 424 (369/20/25/10/0)	1989/1989/2001 48 (29/11/0/0/8*)
No. of sites where system is operational	510	50
No. of installations underway but not yet live Percentage of installations stand-alone	44 100%	1 100%
Staff to develop-install-support-other**	100 /0	100 /6
• In entire company	19-15-68-27	_
In LIS division (including AP)/in AP systems only	17-13-60-9/17-10-47-5	
No. of workstations/terminals in sites operating system (minmax.) Range in No. of surgical pathology cases per year in sites operating system Range in No. of gynecologic cytology cases per year in sites operating syst.	10–400+ 5,000–200,000 2,500–500,000	4–1,200 5,000–300,000 0–150,000
Central hardware	IBM RISC/6000, Intel Pentium, Sun Solaris	PCs, IBM RS/6000
Terminals/workstations	Intel Pentium, Mac	PCs, Citrix/Windows NT terminal server, Web, VPN, terminals
Innovative peripherals	voice input, image acquisition, bar coding, cassette/slide labelers and engravers, gross and microscopic cameras	auto-fax, remote-print color or B&W to doctors' offices, integrated voice in production, microscope cameras, TWAIN, digital cameras, others
Network installation required?/networks supported	yes/—	user's option/Windows 2000, NT, 98, 95, LAN or WAN, TCP/IP, Unix
Programming language(s) Databases and tools used	Power Builder, C++ MS SQL server, Sybase	Visual Basic VI Caché, SQL, Crystal Reports
Word processor(s) used	MS Word, Visual Writer	Word, RTF, plain text
Operating system	NT, AIX Unix, Sun Unix, thin client	Windows 2000, NT, 98, 95, Unix
Features		
Surgical pathology information system	installed	installed
Cytology information system Autopsy information system	installed installed	installed installed
Specimen log-in	installed	installed
Interface to automatic cassette labeler	installed	available in June 2002
Entry of block IDs Specimen labels	installed installed	installed installed
Histology slide labels	installed	installed
Bar-coded slide labels Winted any words have a	installed	installed
Histology worksheets Interface to automatic slide stainer	installed —	installed available but not installed
Text editing	installed	installed
Word processing on Countral computer Word processing on PC workstations	— installed	installed
Word processing on PC workstations Voice-entry of gross description	installed installed	installed installed
Voice-entry of final diagnosis	installed	installed
Spell checker Gross and microscopic images integrated in reports	installed installed	installed installed
Electronic signature	installed	installed
Remote printing of completed reports	installed	installed
Direct fax reports Web-based remote inquiry of reports	installed installed	installed installed
Physician Web access for order entry	available but not installed	available in June 2002
Natural language search capability SNOMED II	installed	installed
SNOMED II SNOMED International	installed installed	installed installed
SNOMED RT/CT	installed	not available
Multiple hospitals-wide area network Sound-alike retrieval of patient history	installed not available	installed installed
Autopsy measurements/organ weights	installed	installed
Tumor registry reports	installed	installed
Management reports Cytology abnormal/unsatisfactory list to doctors	installed installed	installed installed
Cytology diagnostics statistics by pathologist/cytotechnologist	installed	installed
Histology/cytology correlation report Paparts sufficient to comply with CLIA /88 regulations	installed	installed
Reports sufficient to comply with CLIA '88 regulations Comprehensive billing/accounts receivable	installed not available	installed not available
HIS interface: A/D/T	installed	installed
HIS interface: result reporting HIS interface: incoming clinical results	installed installed	installed available but not installed
Interface: Incoming clinical results Interface to external billing system	installed	installed
Standard ASTM/HL-7 interface?	yes	yes
Software provides indexed field in each test definition for LOINC code? Provide LOINC dictionary for each new installation?	no no	yes no
Complete AP ASP solution?	yes	no
Method of charging for ASP service	transaction-based, other (transaction/subscription)	_
Client software required ASP information conduit	browser-based operates over Internet	
Client contracts supported from data center not operated by client	2	_
How data center is operated	by vendor	_
Other IS interfaces	Cerner, SMS, Meditech, Sunquest, McKesson, Triple G, IDX, others	SMS, McKesson, TDS, Datagate, HDS, IDX, others
Voice-recognition packages integrated with system	IBM MedSpeak, Dragon, Talk Technology	Dragon Naturally Speaking Professional
Histology and cytology laboratory instruments interfaced	Shurmark, Thermo Shandon slide and cassette labelers	Shurmark slide etcher, microscope cameras, TWAIN devices
Source code?/User group?	escrow/yes	escrow (user's option and expense)/yes
User can modify screens? • User-defined report writer?/Custom programming?	yes yes/yes	yes yes/yes
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Cost (hardware/software/installation and training/monthly maintenance)		\$10L/\$20L/\$10L/\$ F7FL
Smallest stand-alone system Largest stand-alone system	_	\$10k/\$29k/\$10k/\$.575k \$100k+/\$100k+/\$200k+/\$6k
Base price of integrated system, excluding AP configuration	-	\$0
Incremental cost to add smallest AP configuration Incremental cost to add largest AP configuration		\$10k/\$29k/\$10k/\$.575k \$100k+/\$100k+/\$200k+/\$6k
		ψ 100K T / ψ 100K T / ψ 200K T / ψ 0K
Distinguishing features (supplied by vendor)	• integrated image-management system	flexibility around user-controlled workflow and reports anterprise and multi-pite coalebility.
*H=U.S. hospitals, IL=independent labs in U.S.,	client hosted or ASP CoPath environment Web-based results reporting	enterprise and multi-site scalability focus on service drives company
C or GP=clinics or group practices in U.S., FI=foreign installations, OS=other sites **other=sales, marketing, administration, and other company functions	2002 2002 County Coponing	* pathology practice management companies
onio - saios, markoning, auministration, and other company full cutters		

		patrology compater	
	Part 3 of 11	Cortex Medical Management Systems Inc.	EasyPath Software
		Duane A. Fitch dfitch@cortexmed.com	Selig Leyser, MD seligl@worldnet.att.net
	See accompanying article on page 20	2001 Western Ave., Ste. 410, Seattle, WA 98121 (206) 812-6981 www.cortexmed.com	2551 103rd SE, Beaux Arts, WA 98004 (425) 455-9012 home.att.net/~easypath/
-	Name of suchan		31
	Name of system	The Gold Standard	EasyPath
	First LIS install./first AP system install./most recent AP system install.	1983/1983/2001	1992/1992/2000
	No. of contracts for sites operating AP system (H/IL/C or GP/FI/OS)* No. of sites where system is operational	108 (37/48/20/3/0)* 105	6 (5/0/1/0/0) 7
	No. of installations underway but not yet live	3	0
	Percentage of installations stand-alone	46%	100%
	Staff to develop-install-support-other** In entire company	6-3-4-7	1.3-0-0.1-0.1
	In LIS division (including AP)/in AP systems only	_	-
	No. of workstations/terminals in sites operating system (minmax.)	1–70+	5–10
	Range in No. of surgical pathology cases per year in sites operating system	unknown	8,000–30,000 (estimate)
	Range in No. of gynecologic cytology cases per year in sites operating syst.	unknown	<1,000–50,000 (estimate)
	Central hardware	any Windows compatible	Windows 95 or better, Macintosh 6800 or better
	Terminals/workstations Innovative peripherals	PCs using Windows operating systems voice recognition, mark sense reading capability, others	Windows 95 or better, Macintosh 6800 or better voice input (optional), image input and output
	Network installation required?/networks supported	yes/TCP/IP	no/—
	Programming language(s) Databases and tools used	Visual Basic MS SQL, associated tools	4th Dimension 4D Write (word processor), 4D Customizer, Compiler
	Word processor(s) used	MS Word	4D Write (integrated into database)
	Operating system	Windows	Windows 95, 98, NT, 2000, Macintosh 7x or better
	Features		
	Surgical pathology information system Outplage information system	installed	installed
	Cytology information system Autopsy information system	installed installed	installed installed
	Specimen log-in	installed	installed
	Interface to automatic cassette labeler Entry of block IDs	installed installed	installed installed
	Specimen labels	installed	installed
	Histology slide labelsBar-coded slide labels	installed installed	installed installed
	Histology worksheets	installed	installed
	Interface to automatic slide stainer	not available	installed
	Text editing Word processing on central computer	installed installed	installed not available
	Word processing on PC workstations	installed	installed
	Voice-entry of gross description Voice-entry of final diagnosis	installed installed	requires Windows or Windows product requires Windows or Windows product
	Spell checker	installed	installed
	Gross and microscopic images integrated in reports Electronic signature	installed installed	installed installed
	Remote printing of completed reports	installed	installed
	Direct fax reportsWeb-based remote inquiry of reports	installed installed	installed available but not installed
	Web-based remote inquiry of reports Physician Web access for order entry	available but not installed	available but not installed available but not installed
	Natural language search capability	installed	installed
	SNOMED II SNOMED International	installed installed	SNOMED-like codes available SNOMED-like codes available
	SNOMED RT/CT Multiple begins to be suited and produced to the suited	installed	SNOMED-like codes available
	 Multiple hospitals-wide area network Sound-alike retrieval of patient history 	installed installed	installed available but not installed
	Autopsy measurements/organ weights	_	installed
	Tumor registry reports Management reports	installed installed	installed installed
	Cytology abnormal/unsatisfactory list to doctors	installed	installed
	 Cytology diagnostics statistics by pathologist/cytotechnologist 	installed installed	installed installed
	 Histology/cytology correlation report Reports sufficient to comply with CLIA '88 regulations 	installed	installed
	Comprehensive billing/accounts receivable	installed	not available
	HIS interface: A/D/T HIS interface: result reporting	installed installed	not available installed
	HIS interface: incoming clinical results	not available	not available
	Interface to external billing system Standard ASTM/HL-7 interface?	installed yes	not available at one installation
	Software provides indexed field in each test definition for LOINC code? Provide LOINC dictionary for each new installation?	_	no no
-	Complete AP ASP solution?	yes	no
	Method of charging for ASP service	fixed fee	_
	Client software required ASP information conduit	requires software be installed on client PC operates over Internet	_
	Client contracts supported from data center not operated by client	none	_
	How data center is operated	by third party	_
	Other IS interfaces	_	_
	Voice-recognition packages integrated with system Histology and cytology laboratory instruments interfaced	_	_
-		occrowhoc	occrow (if required) /no
	Source code?/User group? User can modify screens?	escrow/yes —	escrow (if required)/no no
	User-defined report writer?/Custom programming?	yes/yes	yes/yes
	Cost (hardware/software/installation and training/monthly maintenance)		
	Smallest stand-alone system	\$50k total	\$1.4k (PC only)*/\$5k/\$0/\$0 \$1.4k \$2.2k per PC (estimate)*/\$10k/\$2k (estimat)/\$0
	Largest stand-alone system Base price of integrated system, excluding AP configuration	—/\$10k/included/\$5k \$20k	\$1.4k-\$2.2k per PC (estimate)*/\$10k/\$2k (optional)/\$0 —
	Incremental cost to add smallest AP configuration	—/\$2.5k/hourly rate/\$.05k	_
	Incremental cost to add largest AP configuration	—/\$2.5k/—/\$.05k	_
	Distinguishing features (supplied by vendor)	niche vendor—AP system is only product	economical yet powerful cross-platform
		over 95 percent of functionality has been derived from a stand- alone user group	written by practicing pathologist easy to use and maintain
	*H=U.S. hospitals, IL=independent labs in U.S., C or GP=clinics or group practices in U.S., FI=foreign installations, OS=other sites	customers have all their information online real-time	to add and mannam
	**other=sales, marketing, administration, and other company functions	* numbers also reflect former Classic DOS clients	* price of printers not included
	other sales, marketing, during stration, and other company functions		

PELIENST

Part 4 of 11	Meditech	Meditech
rait 4 Ui II	Paul Berthiaume info@meditech.com	Paul Berthiaume info@meditech.com
See accompanying article on page 20	1 Meditech Circle, Westwood, MA 02090	1 Meditech Circle, Westwood, MA 02090
	(781) 821-3000 www.meditech.com	(781) 821-3000 www.meditech.com
Name of system	Meditech AP application (client/server)	Meditech AP application (Magic)
First LIC in tall (Cost AD cost on in tall (cost on AD cost on in tall	407.0/4004/0004	40/0/4004/0004
First LIS install./first AP system install./most recent AP system install. No. of contracts for sites operating AP system (H/IL/C or GP/FI/OS)*	1969/1981/2001 —	1969/1981/2001 —
No. of sites where system is operational	138	
No. of installations underway but not yet live	9	3
Percentage of installations stand-alone	0%	0%
Staff to develop-install-support-other** • In entire company	1,855 total	1,855 total
In LIS division (including AP)/in AP systems only	information unavailable	information unavailable
No. of workstations/terminals in sites operating system (minmax.) Range in No. of surgical pathology cases per year in sites operating system	5–1,000+ —	5–1,000+
Range in No. of gynecologic cytology cases per year in sites operating system	_	_
Central hardware	Compaq, Dell, IBM	Compaq, IBM, Dell
Terminals/workstations Innovative peripherals	only PC workstation supported	terminal and PC workstation supported
Network installation required?/networks supported	yes/—	_
Programming language(s)	Magic C/S	Magic
Databases and tools used Word processor(s) used	— MS Word, rich text	Magic MS Word
Operating system	Magic	Magic
Features	installed	installed
Surgical pathology information system Cytology information system	installed installed	installed installed
Autopsy information system	installed	installed
Specimen log-in	installed	installed
Interface to automatic cassette labeler Entry of block IDs	— inctalled	— installed
Entry of block IDs Specimen labels	installed installed	installed installed
Histology slide labels	installed	installed
Bar-coded slide labels Highlam workshoots	installed	installed
Histology worksheetsInterface to automatic slide stainer	installed 	installed
Text editing	installed	installed
Word processing on central computer	_	_
Word processing on PC workstations Write and processing on PC workstations	installed	installed
Voice-entry of gross description Voice-entry of final diagnosis	installed installed	installed installed
Spell checker	installed	installed
Gross and microscopic images integrated in reports	installed	installed
Electronic signature Remote printing of completed reports	installed installed	installed installed
Direct fax reports	installed	installed
Web-based remote inquiry of reports	installed	installed
Physician Web access for order entry	-	-
Natural language search capability SNOMED II	installed installed	installed installed
SNOMED International	installed	installed
SNOMED RT/CT	installed	installed
Multiple hospitals-wide area network Sound alike retrieval of netions biotom	installed	installed
Sound-alike retrieval of patient history Autopsy measurements/organ weights	installed installed	installed installed
Tumor registry reports	installed	installed
Management reports	installed	installed
Cytology abnormal/unsatisfactory list to doctors Cytology diagnostics statistics by pathologist/cytotechnologist	installed installed	installed installed
- Cytology diagnostics statistics by pathologist/cytotechnologist - Histology/cytology correlation report	installed	installed
Reports sufficient to comply with CLIA '88 regulations	installed	installed
Comprehensive billing/accounts receivable	— installed	— installed
HIS interface: A/D/T HIS interface: result reporting	installed installed	installed installed
HIS interface: result reporting HIS interface: incoming clinical results	installed —	mistalieu —
Interface to external billing system	installed	installed
Standard ASTM/HL-7 interface?	yes	yes
Software provides indexed field in each test definition for LOINC code?	no	no
Provide LOINC dictionary for each new installation?	no	no
Complete AP ASP solution? Method of charging for ASP service	no 	no
Client software required	_	
ASP information conduit	_	-
Client contracts supported from data center not operated by client	_	_
How data center is operated	_	_
Other IS interfaces	Sunquest, McKesson, SMS, many others	Sunquest, McKesson, SMS, many others
Voice-recognition packages integrated with system	Dragon Systems	Dragon Systems
Histology and cytology laboratory instruments interfaced	_	_
Source code?/User group?	yes/yes	yes/yes
	some	some
User can modify screens?	Some	
User can modify screens? • User-defined report writer?/Custom programming?	yes/—	yes/—
User-defined report writer?/Custom programming?		yes/—
User-defined report writer?/Custom programming? Cost (hardware/software/installation and training/monthly maintenance)		yes/—
User-defined report writer?/Custom programming? Cost (hardware/software/installation and training/monthly maintenance) Smallest stand-alone system Largest stand-alone system		
User-defined report writer?/Custom programming? Cost (hardware/software/installation and training/monthly maintenance) Smallest stand-alone system Largest stand-alone system Base price of integrated system, excluding AP configuration		
User-defined report writer?/Custom programming? Cost (hardware/software/installation and training/monthly maintenance) Smallest stand-alone system Largest stand-alone system Base price of integrated system, excluding AP configuration Incremental cost to add smallest AP configuration		yes/— — — — — — — — —
User-defined report writer?/Custom programming? Cost (hardware/software/installation and training/monthly maintenance) Smallest stand-alone system Largest stand-alone system Base price of integrated system, excluding AP configuration		yes/— — — — — — — — — — — — —
User-defined report writer?/Custom programming? Cost (hardware/software/installation and training/monthly maintenance) Smallest stand-alone system Largest stand-alone system Base price of integrated system, excluding AP configuration Incremental cost to add smallest AP configuration	yes/—	over 30 years' experience developing & implementing LISs
User-defined report writer?/Custom programming? Cost (hardware/software/installation and training/monthly maintenance) Smallest stand-alone system Largest stand-alone system Base price of integrated system, excluding AP configuration Incremental cost to add smallest AP configuration Incremental cost to add largest AP configuration	yes/—	over 30 years' experience developing & implementing LISs seamless support for labs in an integrated delivery network
User-defined report writer?/Custom programming? Cost (hardware/software/installation and training/monthly maintenance) Smallest stand-alone system Largest stand-alone system Base price of integrated system, excluding AP configuration Incremental cost to add smallest AP configuration Incremental cost to add largest AP configuration Distinguishing features (supplied by vendor) *H=U.S. hospitals, IL=independent labs in U.S.,	yes/—	over 30 years' experience developing & implementing LISs
User-defined report writer?/Custom programming? Cost (hardware/software/installation and training/monthly maintenance) Smallest stand-alone system Largest stand-alone system Base price of integrated system, excluding AP configuration Incremental cost to add smallest AP configuration Incremental cost to add largest AP configuration Distinguishing features (supplied by vendor)	yes/—	over 30 years' experience developing & implementing LISs seamless support for labs in an integrated delivery network

	pathology compate.	- ,
Part 5 of 11	NetSoft Inc.	Novovision Inc.
Tall 3 of Tr	Bill Hughes bhughes@netsoftusa.com	Mai Abdala sales@novovision.com
See accompanying article on page 20	2937 Moorings Parkway, Snellville, GA 30039 (770) 982-7337/(866) 463-8763 www.netsoftusa.com	301 N. Harrison St., Ste. 384, Princeton, NJ 08540 (877) 668-6123/(732) 329-3206 www.novovision.com
	(770) 982-73377(800) 403-8703 www.netsortusa.com	(877) 608-61237(732) 329-3206 WWW.HOVOVISIOH.COITI
Name of system	IntelliPath	NovoPath
First LIS install./first AP system install./most recent AP system install.	2001/2001/2001	1999/1999/2001
No. of contracts for sites operating AP system (H/IL/C or GP/FI/OS)*	5 (0/5/0/0/0)	14 (1/5/8/0/0)
No. of sites where system is operational	8	18
No. of installations underway but not yet live	5	1
Percentage of installations stand-alone Staff to develop-install-support-other**	100%	100%
• In entire company	4-4-6-2	5-4-3-4
In LIS division (including AP)/in AP systems only	_	_
No. of workstations/terminals in sites operating system (minmax.)	10–21	3–20
Range in No. of surgical pathology cases per year in sites operating system	19,000–70,000	3,000-50,000
Range in No. of gynecologic cytology cases per year in sites operating syst.	12,000–19,000	1,500–90,000
Central hardware	Pentium III or IV servers or equivalent (Dell, Compaq, HP)	Intel-based server w/Windows NT or 2000
Terminals/workstations	Pentium III or IV PCs (Dell, HP, generic)	PC-based or Internet Explorer running on non-Intel-based PCs
Innovative peripherals	auto/direct fax, microscopic & document imaging, bar-code printing & scanning, handheld/PDA interface, Web access/delivery	bar-code printing, voice recognition, Insight digital camera bundling, bar-code scanners
Network installation required?/networks supported	no/—	yes*/LAN or WAN with TCP/IP or Windows networking
Programming language(s)	Clarion	MS Visual Studio Tools
Databases and tools used	Pervasive SQL, TopSpeed	MS SQL server 2000, Oracle, Access
Word processor(s) used Operating system	integrated Windows 98, NT, 2000, XP, Novell	MS Word, HTML Windows 2000, NT, XP, 98, 95
	, , , , , , , , , , , , , , , , ,	
Features	installed	inctalled
Surgical pathology information system Cytology information system	installed installed	installed installed
Autopsy information system	installed	installed
Specimen log-in	installed	installed
Interface to automatic cassette labeler Entry of block IDs	available but not installed installed	installed installed
Specimen labels	installed	installed
Histology slide labels	installed	installed
Bar-coded slide labels Histology worksheets	installed installed	installed installed
Histology worksheetsInterface to automatic slide stainer	not available	available but not installed
Text editing	installed	installed
Word processing on central computer Word processing on PS workstations	installed	installed
Word processing on PC workstations Voice-entry of gross description	installed available second quarter 2002	installed installed
Voice-entry of final diagnosis	available second quarter 2002	installed
Spell checker	installed	installed
Gross and microscopic images integrated in reports Electronic signature	installed installed	installed installed
Remote printing of completed reports	available but not installed	installed
Direct fax reports	installed	installed
Web-based remote inquiry of reports Physician Web access for order entry	installed available second quarter 2002	installed installed
Natural language search capability	installed	installed
SNOMED II		available but not installed
SNOMED International SNOMED DIVIGIT.	_	available but not installed
SNOMED RT/CT Multiple hospitals-wide area network	installed	available but not installed installed
Sound-alike retrieval of patient history	not available	installed
Autopsy measurements/organ weights Times a printly consistent and are a second as a	installed	installed
Tumor registry reportsManagement reports	installed installed	installed installed
Cytology abnormal/unsatisfactory list to doctors	installed	installed
 Cytology diagnostics statistics by pathologist/cytotechnologist 	installed	installed
Histology/cytology correlation report Reports sufficient to comply with CLIA '88 regulations	installed installed	installed installed
Comprehensive billing/accounts receivable	installed	not available
HIS interface: A/D/T	available but not installed	installed
HIS interface: result reporting HIS interface: incoming clinical results	available but not installed not available	installed installed
Interface to external billing system	installed	installed
Standard ASTM/HL-7 interface?	yes	yes
Software provides indexed field in each test definition for LOINC code?	no	no
Provide LOINC dictionary for each new installation?	no	no
Complete AP ASP solution?	no	yes
Method of charging for ASP service	_	fixed fee
Client software required	-	browser based, requires software be installed on client PC
ASP information conduit Client contracts supported from data center not operated by client		operates over Internet
How data center is operated	_	by third-party (USI)
Other IS interfaces	IDV	
Other IS interfaces Voice-recognition packages integrated with system	IDX —	HL-7 interface and ASCII file transfer Dragon Systems Naturally Speaking, Medical Suite
Histology and cytology laboratory instruments interfaced	-	_
Source code?/User group?	escrow/no	escrow/no
User can modify screens?	yes	yes
User-defined report writer?/Custom programming?	yes/yes	yes/yes
Cost (hardware/software/installation and training/monthly maintenance)		
Smallest stand-alone system	—/\$15k/\$0/\$.166k	_
Largest stand-alone system	—/\$88k/\$12k/\$.9k	-
Base price of integrated system, excluding AP configuration • Incremental cost to add smallest AP configuration		
Incremental cost to add smallest AP configuration Incremental cost to add largest AP configuration	_	
Distinguishing features (supplied by vendor)	 powerful, flexible, and easy to use all components integrated, including word processing and billing 	 Web browser-based electronic requisitions; image capture; sign-out total control over report formatting w/ no limit on No. of formats
*H=U.S. hospitals, IL=independent labs in U.S.,	report system unsurpassed using Crystal Reports	live, fast, and responsive technical support w/ extended hours
C or GP=clinics or group practices in U.S., FI=foreign installations, OS=other sites **other=sales, marketing, administration, and other company functions	, , , , , , , , , , , , , , , , , , , ,	* for multi-user operation
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	0 11 111 0 1 11 1	B.11
Part 6 of 11	Opus Healthcare Solutions Inc. Shelli Allen sales@opushealthcare.com	PathLogix Corp. Jerry Grayson info@pathlogix.com
	10713 N. Ranch Rd., 620, Ste. 400, Austin, TX 78726	Jerry Grayson Info@patnlogix.com 470 Nautilus St., #306, La Jolla, CA 92037
See accompanying article on page 20	(800) 676-3371 opushealthcare.com	(858) 454-8030 www.pathlogix.com
	(000) 070-3371 Opusiteatiticale.com	(030) 434-0030 www.patiliogix.com
Name of system	OpusAP	PathLogix
•	•	•
First LIS install./first AP system install./most recent AP system install.	1985/1987/2001	— /1998/2001
No. of contracts for sites operating AP system (H/IL/C or GP/FI/OS)*	3 (3/0/0/0/0)	64 (3/61/0/0/0)
No. of sites where system is operational	3	64
No. of installations underway but not yet live	1	2
Percentage of installations stand-alone	0%	90%
Staff to develop-install-support-other**		
• In entire company	14-14-7-6	_
In LIS division (including AP)/in AP systems only	_	_
No. of workstations/terminals in sites operating system (minmax.)	_	1–80
Range in No. of surgical pathology cases per year in sites operating system		1,000–35,000
Range in No. of gynecologic cytology cases per year in sites operating system	_	1,000–40,000
hange in her or gynocologie offeregy cases per fear in sites operating syst.		1/000 10/000
Central hardware	_	standard hardware that supports Windows applications
Terminals/workstations	_	standard terminals
Innovative peripherals	n/a	voice recognition, professional imaging, billing syst. interfaces, others
Network installation required?/networks supported	yes/—	no/—
Programming language(s)	C++	Visual Basic, SQL
Databases and tools used	proprietary, Postgres	SQL server, Access
Word processor(s) used	proprietary text editor	integrated MS Word
Operating system	HP-UX	Windows 98, NT, 2000, XP
Features		
Surgical pathology information system	installed	installed
Cytology information system	installed	installed
Autopsy information system	installed	installed
Specimen log-in	installed	installed
Interface to automatic cassette labeler	not available	installed
Entry of block IDs	installed	installed
Specimen labels	installed	installed
Histology slide labels	installed	installed
Bar-coded slide labels	installed	available but not installed
Histology worksheets Interface to outcomedia clide steiner	installed	installed
Interface to automatic slide stainer Toyl additing	not available	installed
Text editing Word processing on central computer	installed not available	installed installed
Word processing on Central computer Word processing on PC workstations	available in spring 2002	installed
Voice-entry of gross description	not available	installed
Voice-entry of gross description Voice-entry of final diagnosis	not available	installed
Spell checker	installed	_
Gross and microscopic images integrated in reports	not available	installed
Electronic signature	_	installed
Remote printing of completed reports	installed	installed
Direct fax reports	installed	installed
Web-based remote inquiry of reports	installed	installed
Physician Web access for order entry	installed	_
Natural language search capability	installed	installed
SNOMED II	not available	available but not installed
SNOMED International	not available	available but not installed
SNOMED RT/CT	not available	available but not installed
Multiple hospitals-wide area network	installed	installed
Sound-alike retrieval of patient history	not available	
Autopsy measurements/organ weights The appropriate resource.	available but not installed	installed
Tumor registry reports Management reports	not available installed	installed
Cytology abnormal/unsatisfactory list to doctors	not available	installed
Cytology diagnostics statistics by pathologist/cytotechnologist	installed	installed
Histology/cytology correlation report	available but not installed	installed
Reports sufficient to comply with CLIA '88 regulations	installed	installed
Comprehensive billing/accounts receivable	installed	available but not installed
HIS interface: A/D/T	installed	_
HIS interface: result reporting	installed	_
HIS interface: incoming clinical results	installed	_
Interface to external billing system	installed	installed
Standard ASTM/HL-7 interface?	yes	_
Software provides indexed field in each test definition for LOING and C	no	
Software provides indexed field in each test definition for LOINC code? Provide LOINC dictionary for each new installation?	no no	
Trondo Eonto dictional y for edon new installation:		
Complete AP ASP solution?	available on request	no
Method of charging for ASP service	_	_
Client software required		
	_	
ASP information conduit	Ξ	
ASP information conduit Client contracts supported from data center not operated by client	=	
ASP information conduit	_ _ _	<u>-</u>
ASP information conduit Client contracts supported from data center not operated by client How data center is operated	_ _ _	
ASP information conduit Client contracts supported from data center not operated by client How data center is operated Other IS interfaces		billing and hospital information systems
ASP information conduit Client contracts supported from data center not operated by client How data center is operated Other IS interfaces Voice-recognition packages integrated with system		billing and hospital information systems Dragon Naturally Speaking, IBM
ASP information conduit Client contracts supported from data center not operated by client How data center is operated Other IS interfaces		
ASP information conduit Client contracts supported from data center not operated by client How data center is operated Other IS interfaces Voice-recognition packages integrated with system Histology and cytology laboratory instruments interfaced	n/a	Dragon Naturally Speaking, IBM —
ASP information conduit Client contracts supported from data center not operated by client How data center is operated Other IS interfaces Voice-recognition packages integrated with system Histology and cytology laboratory instruments interfaced Source code?/User group?	n/a —/yes	Dragon Naturally Speaking, IBM — —/—
ASP information conduit Client contracts supported from data center not operated by client How data center is operated Other IS interfaces Voice-recognition packages integrated with system Histology and cytology laboratory instruments interfaced Source code?/User group? User can modify screens?	n/a —/yes yes	Dragon Naturally Speaking, IBM — —/— yes
ASP information conduit Client contracts supported from data center not operated by client How data center is operated Other IS interfaces Voice-recognition packages integrated with system Histology and cytology laboratory instruments interfaced Source code?/User group?	n/a —/yes	Dragon Naturally Speaking, IBM — —/—
ASP information conduit Client contracts supported from data center not operated by client How data center is operated Other IS interfaces Voice-recognition packages integrated with system Histology and cytology laboratory instruments interfaced Source code?/User group? User can modify screens?	n/a —/yes yes	Dragon Naturally Speaking, IBM — —/— yes
ASP information conduit Client contracts supported from data center not operated by client How data center is operated Other IS interfaces Voice-recognition packages integrated with system Histology and cytology laboratory instruments interfaced Source code?/User group? User can modify screens? • User-defined report writer?/Custom programming?	n/a —/yes yes	Dragon Naturally Speaking, IBM — —/— yes
ASP information conduit Client contracts supported from data center not operated by client How data center is operated Other IS interfaces Voice-recognition packages integrated with system Histology and cytology laboratory instruments interfaced Source code?/User group? User can modify screens? • User-defined report writer?/Custom programming? Cost (hardware/software/installation and training/monthly maintenance)	n/a —/yes yes	Dragon Naturally Speaking, IBM —/— yes —/yes
ASP information conduit Client contracts supported from data center not operated by client How data center is operated Other IS interfaces Voice-recognition packages integrated with system Histology and cytology laboratory instruments interfaced Source code?/User group? User can modify screens? • User-defined report writer?/Custom programming? Cost (hardware/software/installation and training/monthly maintenance) • Smallest stand-alone system • Largest stand-alone system Base price of integrated system, excluding AP configuration	n/a —/yes yes	Dragon Naturally Speaking, IBM / yes/yes /\$2.5k///\$60k//
ASP information conduit Client contracts supported from data center not operated by client How data center is operated Other IS interfaces Voice-recognition packages integrated with system Histology and cytology laboratory instruments interfaced Source code?/User group? User can modify screens? • User-defined report writer?/Custom programming? Cost (hardware/software/installation and training/monthly maintenance) • Smallest stand-alone system • Largest stand-alone system Base price of integrated system, excluding AP configuration • Incremental cost to add smallest AP configuration	n/a —/yes yes	Dragon Naturally Speaking, IBM
ASP information conduit Client contracts supported from data center not operated by client How data center is operated Other IS interfaces Voice-recognition packages integrated with system Histology and cytology laboratory instruments interfaced Source code?/User group? User can modify screens? • User-defined report writer?/Custom programming? Cost (hardware/software/installation and training/monthly maintenance) • Smallest stand-alone system • Largest stand-alone system Base price of integrated system, excluding AP configuration	n/a —/yes yes	Dragon Naturally Speaking, IBM / yes/yes /\$2.5k///\$60k//
ASP information conduit Client contracts supported from data center not operated by client How data center is operated Other IS interfaces Voice-recognition packages integrated with system Histology and cytology laboratory instruments interfaced Source code?/User group? User can modify screens? • User-defined report writer?/Custom programming? Cost (hardware/software/installation and training/monthly maintenance) • Smallest stand-alone system Largest stand-alone system Base price of integrated system, excluding AP configuration • Incremental cost to add smallest AP configuration • Incremental cost to add largest AP configuration	n/a /yes yes no/yes	Dragon Naturally Speaking, IBM
ASP information conduit Client contracts supported from data center not operated by client How data center is operated Other IS interfaces Voice-recognition packages integrated with system Histology and cytology laboratory instruments interfaced Source code?/User group? User can modify screens? • User-defined report writer?/Custom programming? Cost (hardware/software/installation and training/monthly maintenance) • Smallest stand-alone system • Largest stand-alone system Base price of integrated system, excluding AP configuration • Incremental cost to add smallest AP configuration	n/a /yes yes no/yes	Dragon Naturally Speaking, IBM —/— yes —/yes —/\$2.5k/—/— —/\$60k/—/— — —/\$2.5k/—/— —/\$100k+/—/— • advanced imaging; Internet; voice-recognition compatibility
ASP information conduit Client contracts supported from data center not operated by client How data center is operated Other IS interfaces Voice-recognition packages integrated with system Histology and cytology laboratory instruments interfaced Source code?/User group? User can modify screens? • User-defined report writer?/Custom programming? Cost (hardware/software/installation and training/monthly maintenance) • Smallest stand-alone system Largest stand-alone system Base price of integrated system, excluding AP configuration • Incremental cost to add smallest AP configuration • Incremental cost to add largest AP configuration	n/a /yes yes no/yes	Dragon Naturally Speaking, IBM — //— yes —/yes —/\$2.5k/—/— —/\$60k/—/— — —/\$2.5k/—/— —/\$100k+/—/— • advanced imaging; Internet; voice-recognition compatibility • fast and easy to use; outstanding customer satisfaction
ASP information conduit Client contracts supported from data center not operated by client How data center is operated Other IS interfaces Voice-recognition packages integrated with system Histology and cytology laboratory instruments interfaced Source code?/User group? User can modify screens? • User-defined report writer?/Custom programming? Cost (hardware/software/installation and training/monthly maintenance) • Smallest stand-alone system • Largest stand-alone system Base price of integrated system, excluding AP configuration • Incremental cost to add smallest AP configuration • Incremental cost to add largest AP configuration Distinguishing features (supplied by vendor)	n/a /yes yes no/yes	Dragon Naturally Speaking, IBM —/— yes —/yes —/\$2.5k/—/— —/\$60k/—/— — —/\$2.5k/—/— —/\$100k+/—/— • advanced imaging; Internet; voice-recognition compatibility
ASP information conduit Client contracts supported from data center not operated by client How data center is operated Other IS interfaces Voice-recognition packages integrated with system Histology and cytology laboratory instruments interfaced Source code?/User group? User can modify screens? • User-defined report writer?/Custom programming? Cost (hardware/software/installation and training/monthly maintenance) • Smallest stand-alone system • Largest stand-alone system Base price of integrated system, excluding AP configuration • Incremental cost to add smallest AP configuration • Incremental cost to add largest AP configuration • Incremental cost to add largest AP configuration Distinguishing features (supplied by vendor)	n/a /yes yes no/yes	Dragon Naturally Speaking, IBM — //— yes —/yes —/\$2.5k/—/— —/\$60k/—/— — —/\$2.5k/—/— —/\$100k+/—/— • advanced imaging; Internet; voice-recognition compatibility • fast and easy to use; outstanding customer satisfaction
ASP information conduit Client contracts supported from data center not operated by client How data center is operated Other IS interfaces Voice-recognition packages integrated with system Histology and cytology laboratory instruments interfaced Source code?/User group? User can modify screens? • User-defined report writer?/Custom programming? Cost (hardware/software/installation and training/monthly maintenance) • Smallest stand-alone system • Largest stand-alone system Base price of integrated system, excluding AP configuration • Incremental cost to add smallest AP configuration • Incremental cost to add largest AP configuration Distinguishing features (supplied by vendor)	n/a /yes yes no/yes	Dragon Naturally Speaking, IBM

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Part 7 of 11	Pathology Computer Systems	Psyche Systems Corp.
7 41.7 57 77	Daniel J. Hellmann anatrol@seidata.com	Deborah Drennan info@psychesystems.com
See accompanying article on page 20	411 Mulberry St., Madison, IN 47250	321 Fortune Blvd., Milford, MA 01757
	(812) 265-2808/(800) 262-6289	(800) 345-1514 www.windopath.com
Name of system	Anatrol	WindoPath
First LIC install (first AD system install (most recent AD system install	1007/1007/	1075 /1007 /2001
First LIS install./first AP system install./most recent AP system install. No. of contracts for sites operating AP system (H/IL/C or GP/FI/OS)*	1987/1987/— 14 (6/7/0/1/0)	1975/1986/2001 59 (36/15/0/8/0)
No. of sites where system is operational	14 (0/7/0/1/0)	——————————————————————————————————————
No. of installations underway but not yet live	1	_
Percentage of installations stand-alone	~5%	90%
Staff to develop-install-support-other**		10 10 10 7
In entire company In LIS division (including AP)/in AP systems only	Ξ	10-10-12-7 —/3-4-6-3
in the division (morating in //in in Systems only		70 1 0 0
No. of workstations/terminals in sites operating system (min.–max.)	1–25	1–45
Range in No. of surgical pathology cases per year in sites operating system Range in No. of gynecologic cytology cases per year in sites operating syst.	~800–20,000 cytology (2,400 histology) ~800–20,000	1,000–40,000 0–100,000+
Kange in No. or gynecologic cytology cases per year in sites operating syst.	~000-20,000	0-100,000+
Central hardware	user-specified (any industry standard for MS, Novell, Unix)	HP or equivalent (HP LC2000 Netserver or equivalent)
Terminals/workstations	user-specified	HP or equivalent (HP Vectra VL400 or equivalent)
Innovative peripherals Network installation required?/networks supported		voice recognition, professional imaging integrated in WindoPath yes/—
Programming language(s)	no Dataflex (Delphi/extended systems)	Small Talk Visual Basic
Databases and tools used	Dataflex, extended systems	MS SQL server 7.0, 2000 BrioQuery, Report Writer Faxing (Right Fax)
Word processor(s) used	MS Word, Corel WordPerfect	integrated
Operating system	Windows, Unix, DOS	Windows NT, 95, 98, 2000
Features		
Surgical pathology information system	installed	installed
Cytology information system	installed	installed
Autopsy information system Specimen log in	installed	installed
Specimen log-in Interface to automatic cassette labeler	installed not available	installed available but not installed
Entry of block IDs	installed	installed
Specimen labels	installed	installed
Histology slide labels	installed	installed
Bar-coded slide labels Histology workshoots	available but not installed	available but not installed
Histology worksheets Interface to automatic slide stainer	installed not available	installed not available
Text editing	installed	installed
Word processing on central computer	installed	not available
Word processing on PC workstations	installed	installed
Voice-entry of gross description Voice-entry of final diagnosis	available but not installed available but not installed	installed installed
Spell checker	installed	installed
Gross and microscopic images integrated in reports	available second quarter 2002	installed
Electronic signature	available second quarter 2002	installed
Remote printing of completed reports Direct fax reports	installed available but not installed	installed installed
Web-based remote inquiry of reports	available third quarter 2002	installed
Physician Web access for order entry	available third quarter 2002	available but not installed
Natural language search capability	_ ·	installed
• SNOMED II	installed	available but not installed
SNOMED International SNOMED RT/CT	installed —	available but not installed available but not installed
Multiple hospitals-wide area network	installed	installed
Sound-alike retrieval of patient history	available second quarter 2002	installed
Autopsy measurements/organ weights	available second quarter 2002	installed
Tumor registry reports Management reports	installed installed	installed
Management reports Cytology abnormal/unsatisfactory list to doctors	installed	installed installed
Cytology diagnostics statistics by pathologist/cytotechnologist	installed	installed
Histology/cytology correlation report	installed	installed
Reports sufficient to comply with CLIA '88 regulations	installed	installed
Comprehensive billing/accounts receivable HIS interface: A/D/T	not available	not available installed
HIS interface: A/D/T HIS interface: result reporting	not available	installed
HIS interface: incoming clinical results	not available	not available
Interface to external billing system	available but not installed	installed
Standard ASTM/HL-7 interface?	no	yes
Software provides indexed field in each test definition for LOINC code?	_	no
Provide LOINC dictionary for each new installation?	_	no
Complete AP ASP solution?	no	no
Method of charging for ASP service	no 	no
Client software required	_	_
ASP information conduit	_	_
Client contracts supported from data center not operated by client	_	_
How data center is operated	_	_
Other IS interfaces	_	McKesson, Sunquest, SMS, Meditech, HDS
Voice-recognition packages integrated with system	_	Dragon Naturally Speaking Professional
Histology and cytology laboratory instruments interfaced		CAS analyzer
Source code?/User group?	escrow/no	yes/yes
User can modify screens?	no	yes
User-defined report writer?/Custom programming?	yes/yes	yes/yes
Cost (hardware/software/installation and training/monthly resistances)		
Cost (hardware/software/installation and training/monthly maintenance) • Smallest stand-alone system	_	\$16k/\$21.135k/\$10k/\$.634k
Largest stand-alone system	_	\$125k/\$150.995k/\$21k/\$4.53k
Base price of integrated system, excluding AP configuration	_	\$60k*
Incremental cost to add smallest AP configuration	_	\$1.4k/\$3.02k/—/\$.061k
Incremental cost to add largest AP configuration	_	\$1.4k/\$3.02k/—/\$.061k
Distinguishing features (supplied by vendor)		anti-file–locking benefit allows multiple same-case viewing
		 optional internal or external word processing
*H=U.S. hospitals, IL=independent labs in U.S.,		fast response time due to object-oriented design providing
C or GP=clinics or group practices in U.S., FI=foreign installations, OS=other sites		minimum hardware
**other=sales, marketing, administration, and other company functions		* monthly maintenance fee for interfaces varies

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Part 8 of 11	SCC Soft Computer	SIA (a Sysmex company)
	Ellie Vahman sales@softcomputer.com 34350 U.S. Highway 19 North, Palm Harbor, FL 34684	Bill Blair blairb@sysmex.com 5210 E. Williams Circle, Tucson, AZ 85711
See accompanying article on page 20	(727) 789-0100 www.softcomputer.com	(520) 790-4624 www.sia-molis.com
	(121) 107-0100 www.sortcompater.com	(320) 170-4024 www.sia-mons.com
Name of system	SoftPath	Molis Anatomic Pathology
·		
First LIS install./first AP system install./most recent AP system install.	1979/1993/—	1983/1983/—
No. of contracts for sites operating AP system (H/IL/C or GP/FI/OS)*	140 (105/10/3/22/0)	20 (0/0/0/20/0)
No. of sites where system is operational	_	20
No. of installations underway but not yet live	-	_
Percentage of installations stand-alone Staff to develop-install-support-other**	16%	20%
In entire company	276-185-147-112	_
In LIS division (including AP)/in AP systems only	207-139-110-84/39-8-15-5	—/6-4-3-1
in the division (moraumy ray/mr ra systems only	207 107 110 01107 0 10 0	70 10 1
No. of workstations/terminals in sites operating system (minmax.)	5–110	4–75
Range in No. of surgical pathology cases per year in sites operating system	3,000-75,000	250–143,000
Range in No. of gynecologic cytology cases per year in sites operating syst.	5,000–400,000	12,000–25,000
Central hardware	IBM pSeries (RS/6000), HP 9000	ann Mindaus anns
Terminals/workstations	PCs	any Windows server any Windows 2000 and Lotus Notes Client-compatible PC
Innovative peripherals	multiple voice options, telepathology via Internet, images and lab	available on request
' '	results on pathology report, integrated MS Word, bar coding	•
Network installation required?/networks supported	_	yes/TCP/IP
Programming language(s)	C, C++, Visual C++, Java	Lotus Script, Delphi used for RMM
Databases and tools used	CenturaSoft RDM, Oracle	Lotus Domino, Oracle for RMM
Word processor(s) used	MS Word, WordPerfect	Lotus Notes Windows 2000
Operating system	Unix, Windows NT	Windows 2000
Features		
Surgical pathology information system	installed	installed
Cytology information system	installed	installed
Autopsy information system	installed	installed
Specimen log-in	installed	installed
Interface to automatic cassette labeler	installed	installed
• Entry of block IDs	installed	installed installed
Specimen labels Histology slide labels	installed installed	installed installed
Bar-coded slide labels	installed	installed
Histology worksheets	installed	installed
Interface to automatic slide stainer	not available	available but not installed
Text editing	installed	installed
Word processing on central computer	installed	installed
Word processing on PC workstations	installed	installed
Voice-entry of gross description Voice entry of final diagnosis	not available	installed
Voice-entry of final diagnosis Spell checker	not available installed	installed installed
Gross and microscopic images integrated in reports	installed	installed
Electronic signature	installed	installed
Remote printing of completed reports	installed	installed
Direct fax reports	installed	installed
Web-based remote inquiry of reports	installed	installed
Physician Web access for order entry	installed	available but not installed
Natural language search capability	installed	installed
• SNOMED II	installed	installed
SNOMED International SNOMED RT/CT	available but not installed not available	installed available but not installed
	installed	installed
Multiple hospitals-wide area network		not available
Multiple hospitals-wide area network Sound-alike retrieval of patient history	installed	
Multiple hospitals-wide area network Sound-alike retrieval of patient history Autopsy measurements/organ weights	installed installed	installed
 Sound-alike retrieval of patient history Autopsy measurements/organ weights Tumor registry reports 	installed not available	installed installed
 Sound-alike retrieval of patient history Autopsy measurements/organ weights Tumor registry reports Management reports 	installed not available installed	installed installed installed
 Sound-alike retrieval of patient history Autopsy measurements/organ weights Tumor registry reports Management reports Cytology abnormal/unsatisfactory list to doctors 	installed not available installed installed	installed installed installed installed
Sound-alike retrieval of patient history Autopsy measurements/organ weights Tumor registry reports Management reports Cytology abnormal/unsatisfactory list to doctors Cytology diagnostics statistics by pathologist/cytotechnologist	installed not available installed installed installed	installed installed installed installed installed
Sound-alike retrieval of patient history Autopsy measurements/organ weights Tumor registry reports Management reports Cytology abnormal/unsatisfactory list to doctors Cytology diagnostics statistics by pathologist/cytotechnologist Histology/cytology correlation report	installed not available installed installed installed installed installed	installed installed installed installed installed installed
Sound-alike retrieval of patient history Autopsy measurements/organ weights Tumor registry reports Management reports Cytology abnormal/unsatisfactory list to doctors Cytology diagnostics statistics by pathologist/cytotechnologist	installed not available installed installed installed	installed installed installed installed installed
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Sound-alike retrieval of patient history Autopsy measurements/organ weights Tumor registry reports Management reports Cytology abnormal/unsatisfactory list to doctors Cytology diagnostics statistics by pathologist/cytotechnologist Histology/cytology correlation report Reports sufficient to comply with CLIA '88 regulations Comprehensive billing/accounts receivable HIS interface: A/D/T HIS interface: result reporting HIS interface: result reporting HIS interface to external billing system Standard ASTM/HL-7 interface? Software provides indexed field in each test definition for LOINC code? Provide LOINC dictionary for each new installation? Complete AP ASP solution? Method of charging for ASP service Client software required ASP information conduit Client contracts supported from data center not operated by client How data center is operated Other IS interfaces Voice-recognition packages integrated with system Histology and cytology laboratory instruments interfaced Source code?/User group? User can modify screens? User-defined report writer?/Custom programming? Cost (hardware/software/installation and training/monthly maintenance) Smallest stand-alone system Largest stand-alone system Base price of integrated system, excluding AP configuration Incremental cost to add smallest AP configuration Incremental cost to add largest AP configuration Incremental cost to add largest AP configuration Incremental cost to add largest AP configuration Distinguishing features (supplied by vendor)	installed not available installed yes no no no yes individually negotiated requires software be installed on client PC operates over Internet, requires use of private, dedicated circuit o by vendor major vendors IBM MedSpeak, Dragon cassette labeler escrow/yes yes yes/yes	installed yes no no HISCOMM, Molis, Delphic G2, Dragon, IBM, L&H cassette writer, image scanner, bar-code scanner, others yes/yes yes yes/yes \$15k/\$100k/\$60k/\$1.5k \$30k/\$250k/\$100k/\$3.2k — — — • uses groupware to control workflow

Part 9 of 11	Small Business Computers of New England Inc. Gene Calvano gene_calvano@sbcne.com	Sunquest Information Systems Inc. Ken A. Kark ken.kark@sunquest.com
See accompanying article on page 20	Route 101–Meeting Place, Box 397, Amherst, NH 03031	4801 E. Broadway Blvd., Tucson, AZ 85711
See accompanying article on page 20	(800) 647-2263/(603) 673-0228 www.sbcne.com	(800) 748-9658 www.sunquest.com
Name of system	AP Easy	CoPath Plus
First LIS install./first AP system install./most recent AP system install.	1989/1989/—	1979/1993/2001
No. of contracts for sites operating AP system (H/IL/C or GP/FI/OS)*	120 (47/70/0/3/0)	150 (150/0/0/0)
No. of sites where system is operational	120	150
No. of installations underway but not yet live Percentage of installations stand-alone	3 100%	94 0%
Staff to develop-install-support-other**		
In entire company In LIS division (including AP)/in AP systems only	3-2-3-3 —	— —/10-18-15-5
	4.00	
No. of workstations/terminals in sites operating system (minmax.) Range in No. of surgical pathology cases per year in sites operating system	1–28 1,000–50,000	8–256 10,000–200,000+
Range in No. of gynecologic cytology cases per year in sites operating syst.	2,000–75,000	3,000–50,000+
Central hardware	Windows 95, 98, NT, ME, 2000; Macintosh platforms	IBM, Compaq, Dell
Terminals/workstations	Windows 95, 98, NT, ME, 2000; Macintosh platforms	IBM, Compaq, Dell
Innovative peripherals	image-enabled reports w/digital camera, microscope camera, color printing, direct fax	_
Network installation required?/networks supported	yes (for multi-user systems)/TCP/IP	yes/LAN, WAN, TCP/IP
Programming language(s) Databases and tools used	FileMaker Pro FileMaker Pro	Sybase, Power Builder Sybase, Power Builder
Word processor(s) used	integrated with FileMaker Pro	Word
Operating system	Windows 95, 98, NT, ME, 2000; Mac OS	AIX, NT server, NT workstation
Features		
Surgical pathology information system Subject information system	installed	installed
Cytology information system Autopsy information system	installed installed	installed installed
Specimen log-in	installed	installed
Interface to automatic cassette labeler Entry of block IDs	installed installed	available but not installed installed
Specimen labels	installed	installed
Histology slide labels	installed	installed
Bar-coded slide labels Histology worksheets	installed installed	installed installed
Interface to automatic slide stainer	available but not installed	not available
Text editing Word processing on central computer	installed installed	installed installed
Word processing on PC workstations	installed	installed
Voice-entry of gross description Voice entry of fine discretion	available but not installed	installed
Voice-entry of final diagnosis Spell checker	available but not installed installed	installed installed
Gross and microscopic images integrated in reports	installed	installed
Electronic signature Remote printing of completed reports	installed installed	installed installed
Direct fax reports	installed	installed
Web-based remote inquiry of reports Physician Web passes for order paths:	installed	not available
Physician Web access for order entry Natural language search capability	installed installed	not available installed
SNOMED II	installed	installed
SNOMED International SNOMED RT/CT	available but not installed available but not installed	not available not available
Multiple hospitals-wide area network	available but not installed	installed
Sound-alike retrieval of patient history Autopsy measurements/organ weights	installed installed	not available installed
Tumor registry reports	installed	installed
Management reports	installed	installed
Cytology abnormal/unsatisfactory list to doctors Cytology diagnostics statistics by pathologist/cytotechnologist	installed installed	installed installed
Histology/cytology correlation report	installed	installed
Reports sufficient to comply with CLIA '88 regulations Comprehensive billing/accounts receivable	installed client billing installed	installed installed
HIS interface: A/D/T	installed	installed
HIS interface: result reporting HIS interface: incoming clinical results	installed available but not installed	installed available but not installed
Interface: Incoming clinical results Interface to external billing system	installed	available but not installed installed
Standard ASTM/HL-7 interface?	no	yes
Software provides indexed field in each test definition for LOINC code?	no	_
Provide LOINC dictionary for each new installation?	no	_
Complete AP ASP solution?	yes	no
Method of charging for ASP service Client software required	fixed fee requires software be installed on client PC	_
ASP information conduit	operates over Internet	_
Client contracts supported from data center not operated by client	2	_
How data center is operated	by a third-party (DataPath, LLC)	
Other IS interfaces	Antrim, Meditech, CPSI Windows and Mac packages that support FileMaker Pro	FlexiLab LIS
Voice-recognition packages integrated with system Histology and cytology laboratory instruments interfaced	Windows and Mac packages that support FileMaker Pro none	IBM MedSpeak —
		nalvos
Source code?/User group? User can modify screens?	yes/no yes	no/yes yes
User-defined report writer?/Custom programming?	yes/yes	yes/yes
Cost (hardware/software/installation and training/monthly maintenance)		
Smallest stand-alone system	\$1k/\$3k/\$0/\$0	_
Largest stand-alone system Base price of integrated system, excluding AP configuration	\$50k/\$12k/\$5k/\$.17k 	_
Incremental cost to add smallest AP configuration	_	_
Incremental cost to add largest AP configuration	-	_
Distinguishing features (supplied by vendor)	customized solution; lab involved in features design	service, installation, and support
*H=U.S. hospitals, IL=independent labs in U.S.,	 Internet reporting of results (final reports) to client physicians 	 integration with FlexiLab LIS—ADT, results, billing inquiry
C or GP=clinics or group practices in U.S., FI=foreign installations, OS=other sites	integrated client billing and interface to professional billing	flexible screens, reports, and ad hoc reports
**other=sales, marketing, administration, and other company functions		

Anatomi	c pathology compater	Cyclome
Part 10 of 11	Tamtron Corp.	Triple G Systems Group Inc.
See accompanying article on page 20	Mark Cesa sales@tamtron.com 6203 San Ignacio Ave., Ste. 110, San Jose, CA 95037	Angelica Lau info@tripleg.com 3100 Steeles Ave. East, Ste. 600, Markham, Ontario, Canada L3R 8T3
Name of system	(408) 972-9600 www.tamtron.com PowerPath	(905) 305-0041 www.tripleg.com Ultra AP
First LIS install./first AP system install./most recent AP system install. No. of contracts for sites operating AP system (H/IL/C or GP/FI/OS)*	1984/1984/2001 206 (136/57/10/3/0)	1991/1994/2001 33 (5/1/0/27/0)
No. of sites where system is operational	301	53 (5/1/0/27/0) 54
No. of installations underway but not yet live	17	6
Percentage of installations stand-alone	100%	0%
Staff to develop-install-support-other**	15 17 10 0	F0 2F 1/ 20
In entire company In LIS division (including AP)/in AP systems only	15-16-10-9 —	50-35-16-30 /5-3-4-0
N. C. 1 . C. C	F 400	0.50
No. of workstations/terminals in sites operating system (minmax.) Range in No. of surgical pathology cases per year in sites operating system	5–400 2,000–100,000	2–50 5,000–250,000
Range in No. of gynecologic cytology cases per year in sites operating system		1,000–75,000
Control handware	Campage IDM LID	Harist company assument IDM DC // 000 HD 0000 CHN
Central hardware Terminals/workstations	Compaq, IBM, HP Compaq, HP, IBM, Dell	Unix servers-support IBM RS/6000, HP 9000, SUN Windows 98, NT, 2000
Innovative peripherals	bar code, image	voice input, optical storage, bar-code input, image capture &
	7700 UD	retrieval interfaces
Network installation required?/networks supported Programming language(s)	yes/TCP/IP Borland Delphi	yes/TCP/IP, Novell, Unix Unify Vision, C
Databases and tools used	MS SQL	Unify Dataserver database, Unify development tool kit included
Word processor(s) used	MS Word	MS Word
Operating system	Windows	Unix
Features		
Surgical pathology information system	installed	installed
Cytology information system Autonor information system	installed	installed
Autopsy information system Specimen log-in	installed installed	installed installed
Interface to automatic cassette labeler	available third quarter 2002	installed
Entry of block IDs	installed	installed
Specimen labels Wintellow while labels	installed	installed
Histology slide labels Bar-coded slide labels	installed installed	installed installed
Histology worksheets	installed	installed
Interface to automatic slide stainer	not available	installed
Text editing	not available	installed
Word processing on central computer Word processing on PC workstations	installed installed	installed installed
Voice-entry of gross description	available third quarter 2002	installed
Voice-entry of final diagnosis	available third quarter 2002	available but not installed
Spell checker Spell checker	installed	installed
Gross and microscopic images integrated in reports Electronic signature	available second quarter 2002 installed	installed installed
Remote printing of completed reports	installed	installed
Direct fax reports	installed	installed
Web-based remote inquiry of reports	available second quarter 2002	installed
Physician Web access for order entry Natural language search capability	installed installed	not available installed
SNOMED II	installed	installed
SNOMED International	installed	installed
SNOMED RT/CT Multiple heavitale wide area maturally.	installed	available but not installed
Multiple hospitals-wide area network Sound-alike retrieval of patient history	installed installed	installed installed
Autopsy measurements/organ weights	installed	installed
Tumor registry reports	installed	installed
Management reports Gytelogy abportmat/yupgaticfactory list to dectors	installed	installed installed
Cytology abnormal/unsatisfactory list to doctors Cytology diagnostics statistics by pathologist/cytotechnologist	installed installed	installed
Histology/cytology correlation report	installed	installed
Reports sufficient to comply with CLIA '88 regulations	installed	installed
Comprehensive billing/accounts receivable HIS interface: A/D/T	installed installed	installed installed
HIS interface: A7071 HIS interface: result reporting	installed	installed
HIS interface: incoming clinical results	available second quarter 2002	installed
Interface to external billing system Standard ASTM/HL-7 interface?	installed	installed
Standard ASTIWATE-7 IIILEHACE!	yes	yes
Software provides indexed field in each test definition for LOINC code?	no no	yes
Provide LOINC dictionary for each new installation?	no	no .
Complete AP ASP solution?	no	yes
Method of charging for ASP service Client software required		fixed fee or transaction-based browser-based
ASP information conduit	_	requires use of private, dedicated circuit
Client contracts supported from data center not operated by client	_	0
How data center is operated	_	by a third-party (customer site)
Other IS interfaces	McKesson, Seimens, IDX, Eclipsys, Cerner	IDX/Phamis, SMS, McKesson, Meditech, Ulticare, IDX, CompuCare,
		Cerner
Voice-recognition packages integrated with system Histology and cytology laboratory instruments interfaced	n/a n/a	VoiceSpeak, Dragon Shurmark
Source code?/User group? User can modify screens?	escrow/yes	escrow/yes
User can modify screens? User-defined report writer?/Custom programming?	no yes/yes	yes yes/yes
Cost (hardware/software/installation and training/monthly maintenance) • Smallest stand-alone system	_	\$50k/\$150k/\$125k/\$3.5k
Largest stand-alone system	_	\$1m/\$2m/\$500k/\$25k
Base price of integrated system, excluding AP configuration	_	\$500k
Incremental cost to add smallest AP configuration	_	—/\$75k/—/\$1.125k
		_
Incremental cost to add largest AP configuration	_	
Incremental cost to add largest AP configuration Distinguishing features (supplied by vendor)	AP systems leader	fully integrated modules; single database design
Incremental cost to add largest AP configuration	AP systems leader "case centric" workflow outstanding customer satisfaction	fully integrated modules; single database design designed for multiple laboratory, IDN environment proven in high-volume laboratories

Part 11 of 11	William Shang, MD
See accompanying article on page 20	William Shang, MD wshang@yahoo.com 1 Norton Ave., Oneonta, NY 13820 (607) 431-5630 www.geocities.com/wshang/
Name of system	Integrity
First LIS install./first AP system install./most recent AP system install. No. of contracts for sites operating AP system (H/IL/C or GP/FI/OS)* No. of sites where system is operational No. of installations underway but not yet live Percentage of installations stand-alone Staff to develop-install-support-other** In entire company In LIS division (including AP)/in AP systems only	1998/1998/2001* none (six copies sent out over Internet)** unknown** — 100% 1 total
No. of workstations/terminals in sites operating system (minmax.)	7
Range in No. of surgical pathology cases per year in sites operating system Range in No. of gynecologic cytology cases per year in sites operating system.	t. 13,000
Central hardware Terminals/workstations Innovative peripherals Network installation required?/networks supported Programming language(s) Databases and tools used Word processor(s) used Operating system	IBM PCs IBM PCs voice input, others no VBA MS Access any possible; Dragon Naturally Speaking in use Windows 95, 98, ME, XP
Features Surgical pathology information system Cytology information system Autopsy information system Specimen log-in Interface to automatic cassette labeler Entry of block IDs Specimen labels Histology slide labels Histology slide labels Histology worksheets Interface to automatic slide stainer Text editing Word processing on central computer Word processing on PC workstations Voice-entry of final diagnosis Spell checker Gross and microscopic images integrated in reports Electronic signature Remote printing of completed reports Direct fax reports Web-based remote inquiry of reports Physician Web access for order entry Natural language search capability SNOMED II SNOMED III SNOMED RT/CT Multiple hospitals-wide area network Sound-alike retrieval of patient history Autopsy measurements/organ weights Tumor registry reports Management reports Cytology abnormal/unsatisfactory list to doctors Cytology diagnostics statistics by pathologist/cytotechnologist Histology/cytology correlation report Reports sufficient to comply with CLIA '88 regulations Comprehensive billing/accounts receivable HIS interface: Rowling autopaths	installed installed installed installed installed not available not available not available not available not available not available installed
Interface to external billing system Standard ASTM/HL-7 interface? Software provides indexed field in each test definition for LOINC code?	installed no no
Provide LOINC dictionary for each new installation? Complete AP ASP solution?	no
Method of charging for ASP service Client software required ASP information conduit Client contracts supported from data center not operated by client How data center is operated	
Other IS interfaces Voice-recognition packages integrated with system Histology and cytology laboratory instruments interfaced	McKesson Dragon Naturally Speaking none
Source code?/User group? User can modify screens? • User-defined report writer?/Custom programming?	yes/no yes yes/yes
Cost (hardware/software/installation and training/monthly maintenance) • Smallest stand-alone system • Largest stand-alone system Base price of integrated system, excluding AP configuration • Incremental cost to add smallest AP configuration • Incremental cost to add largest AP configuration	 \$1k _
*H=U.S. hospitals, IL=independent labs in U.S., C or GP=clinics or group practices in U.S., FI=foreign installations, OS=other sites **other=sales, marketing, administration, and other company functions	based on MS Office Access '97 or 2000 many features to speed sign out and create reports open code allows customization for individual needs * all info. applies to syst. operated by Wm. Shang, MD, unless indicated ** freeware, open architecture