

Mattawan Consolidated School

Request For Proposal

Digital Content Management & Streaming System

RFP: MCS-IPTV-2010

Summary

Mattawan Consolidated School is currently soliciting bids for an IPTV solution to replace its aging internal broadband cable infrastructure. All proposals should be directed to:

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All proposals must be received no later than Friday, July 16, at 12:00 noon. As this is not a sealed bid, electronic submissions are encouraged, but not required.

Performance Specifications

Digital Content Delivery and Management Capabilities

Digital Content Repository/Library

The system shall include an on-demand digital content repository whereby instructors, students and staff can search, locate and view many different formats of media directly within the system's web-interface. Supported digital library resources must include video, audio, live IP video and audio broadcasts, images, graphics files, documents, Flash files, HTML documents, Intranet sites, website URL links and cataloging of non-electronic items including publications, texts, equipment and physical objects.

The term "on-demand" shall mean that each user, from his or her own computer station, shall be able to search and view material when they need it and for how long they need it, independent of other users on the system. On-demand means "without scheduling" so that the resource is viewable without download delay on an instant's notice by the user pending built-in rights management allowing access based on available licenses for that resource.

Specifically, the system must support the uploading, archiving, cataloging and delivering for the following formats:

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|--------------|--|
| 1. Video | Flash Video (FLV), Windows Media (WMV, ASF), H.264/MPEG4, |
| 2. QuickTime | (MOV), H.264, MPEG1 and MPEG2 |
| 3. Audio | MP3, AAC, Windows Media (WMA), WAV, AU, AIFF |
| 4. Podcasts | Storage, streaming and iTunes XML directory publishing and synchronizing |

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|---------------------------|--|
| 5. Live video broadcasts | Encoders and IP cameras like http://server:port , mms://server/filename , rtsp://server:port/name.sdp , and multicasting like http://server/name.nsc |
| 6. Images/Graphics | JPG, GIF, TIF, BMP, PNG, etc. |
| 7. Documents | Adobe Acrobat PDF, Microsoft Word (doc, docx), Excel (xls, xlsx, .xlt), Text files (txt, csv), OpenOffice, Apple iWork |
| 8. Multimedia Files | Impatica, MS PowerPoint (ppt, pps, pptx), MS Producer, Apple Keynote |
| 9. Captivate and Camtasia | |
| 10. Flash Media | Flash Paper, Flash video and Flash-based Websites |
| 11. Web Sites | http:// , https:// websites and Intranet site URLs |
| 12. Drawing Files | AutoCAD drawings, Visio drawings |
| 13. E-Books | PDF and other electronic textbooks |
| 14. Book/Text/Publication | Print materials (import library system records), cataloged and searchable |
| 15. Equipment | Physical object cataloging (i.e digital camera, tools, AV equipment) |
| 16. Video Conferences | Storage and delivery of recorded audio conferences, videoconference and live broadcasts |

Additional Core System Features

- Users must have personal Bookmarks for creating a list of favorites. System must allow a user to see their previous searches and viewing history.
- System must include a way to reserve content. This should allow users to reserve a digital license for a specific date and time. This should be integrated with the digital rights management function so the maximum number of users that can reserve a resource during a time period is limited by the number of licenses for that resource. Users must be able to view, edit and delete their reservations but not those of others. Manager-level users should be able to view and override reservations of all users.
- The system must allow authorized users to view, print and export reports on media usage. Reporting shall allow sorting by user and usage statistics within date ranges and given formats. The system shall show what resources were viewed, how often they were viewed, who viewed them and for how long they were viewed.
- System must support the creation and display of closed captions on Flash video, QuickTime, H.264 and Windows Media video that do not originate from VHS tapes or cable with Line 21 captions or from DVD or digital cable with subtitles. This means the system must provide the ability to import SMIL, SAMI and text transcript files for video titles and provide synchronized playback with the video.
- Multiple digital repositories shall be supported as a way to separate content libraries (i.e. a library for only elementary schools, staff development, special programs, etc). The system must include the ability to assign “trusted” status to these segmented libraries so users with certain permissions can access and share content in multiple libraries.

- A minimum of four functional security levels must be supported including Content Manager, System Administrator, Instructor, and General User. Additional permissions should allow users to be assigned rights as encoder manager, digital announcements management, content licensing approval and content uploading rights. For security purposes the system shall automatically require the user to login again after a set period of time has passed as determined by the district. The system shall also have a global-defined auto log-out function that allows the System Administrator to set the time period for automatically logging users out when a client computer is left unattended.
- The system shall automatically backup the database to a specified Network storage location and automatically email a backup file to specified technology staff.

Education Performance Standards Alignment and Management

The system must support alignment and tracking of curriculum, lessons and learning resources to education benchmarks and learning standards. The system must at least have the capabilities below;

- System shall be pre-loaded with the district's State Educational Content Standards and National Education Standards.
- Shall include web-based tools that allow the district to add their own set(s) of learning standards as well as the corresponding performance benchmarks for those standards. System must have a method to organize standards for easy navigation by standard set, subject area, standard statement, grade level and corresponding performance benchmarks.
- Shall allow correlating and tracking of performance benchmarks with the learning resources in the repository. The system must provide a mechanism so learning resources within the digital library can be quickly linked to one or more sets of standards, one or more standards statements and one or more grade level performance benchmarks.
- Shall include ability for staff to modify any existing publisher/vendor provided standards and the correlations of any pre-loaded content that may be delivered with the system to meet the district's educational objectives and curricula.
- Shall include ability for staff to make standards correlations for user and district uploaded resources.
- Shall include ability for teachers and staff members to perform keyword searches through all sets of standards and retrieve the correlated learning resources.
- When instructors and curriculum staff view a resource in the digital library it shall provide a list of relevant standards and benchmarks that have been correlated.
- The correlation of digital library resources shall support at least the following formats; video (Windows Media, QuickTime, MPEG1, 2 and 4, H.264 and Flash), audio (MP3, wma, wav, aac, aiff), documents (Flash paper, PDF, MS Word, MS Excel, Txt and HTML files), presentations (MS PowerPoint, MS Producer, Captivate, Impatica), Websites, graphics and image files (jpg, tiff, gif, bmp and png).
- Must allow administrator/manager to copy a set of standards and edit them to meet the needs of specific district initiatives without impacting the original set of standards.
- Standards modification shall be available only to specific user groups based on login permissions and standards correlation should be available only to instructors, staff and curriculum personnel based on login.

Copyright & Digital Rights Management

System shall include Copyright, Fair Use and TEACH Act compliance tools necessary to help the district meet the guidelines and be compliant with content utilization and licensing across the organization.

Fair Use Compliance Functionality

- System shall include a quantitative analysis tool to automatically rate compliance and non-compliance of content based on Fair Use guidelines and the district's individual policies.
- System shall allow the district to determine if content is permitted or restricted from uploading and/or viewing based on the Fair Use compliance tool results.
- Must provide a method to protect and restrict access to content to meet the substantiality guidelines of Fair Use.
- Must provide a mechanism to manage content approval with designated administrative staff providing sign-off before content that has been added is available for viewing for general users and instructors.

TEACH Act Compliance Functionality

- Must include sophisticated decision-making tools for content protection, resource tracking, digital licensing, usage restriction and digital rights management to help the district comply with the guidelines of the TEACH Act.
- Must ensure the district's written Copyright policy has been displayed for all users to read and confirm acceptance before they are allowed to use the system. System must log the acceptance or non-acceptance of each user for reporting purposes.
- Must provide a method to assign specific content to specific users based on educational parameters while restricting access to that content for other users.
- Must be able to read the district's User Authentication system (Open Directory/LDAP) for course membership information and group membership that can then be used in the system to restrict or grant access to content.
- Must provide tracking of individuals history and usage of content, how much of the content was used, how long they used it and how many times they accessed it.
- Must be able to limit the amount of a video or audio resource that can be viewed by users without the need to edit the original video or audio file into smaller clips in each instance.

Digital Rights Management (DRM) Functionality

System should include integrated tools for DRM to help protect, track, license and report on content that includes;

- License settings to restrict the number of concurrent copies that can be viewed simultaneously for all digital asset formats including live TV channels and broadcasts.
- Must include the ability to encrypt content with file level DRM settings to restrict unauthorized copying or distributing of publisher's video and audio content when distributing via email, CD/DVD or downloading for off-line viewing.
- Must include ability to permit or restrict downloading of content for local playback.

- Must provide ability to link to content in the system from 3rd party applications while still tracking, protecting and managing the digital content licenses.
- Must have the ability to distribute the same digital content files on multiple edge-deployed media servers while still tracking and protecting the content based on licensing done from the centralized system.
- Ability to set specific unique passwords on individual titles that supersedes other digital rights settings.
- Ability to set expiration dates on individual resources that automatically makes the content inaccessible. Should allow managers to search for expired content to enter renewal dates on subscriptions or for permanent deletion.
- PayPal or a similar e-commerce mechanism for allowing the district to make certain content available via pay-per-view or pay-per-use for special online viewing and delivering educational content to the community.

Functional Technical Specifications

- System must be web-enabled and accessible from an industry-standard Internet browser. Must support the following Internet browsers as a minimum; Windows PCs -Microsoft Internet Explorer and Mozilla Firefox and for Macintosh PCs -Safari and Mozilla Firefox.
- Must use and support industry-standard Web browser video and audio players for Internet Explorer, Safari and Firefox. On Windows computers it must use Windows Media player, Flash player and use QuickTime player for .mov and H.264 files. On the Mac it must use QuickTime player, Flash player and support Flip4Mac player for Windows Media files. Must include the cost for a player for both Windows and Mac computers to play MPEG1 and MPEG2 videos for a minimum of 2,000 PCs.
- System and all hardware must be installed locally at district's facilities without hosted/asp components required because of district-wide Internet bandwidth restrictions.
- System must be licensed as a perpetual license without annual subscription (i.e. district can continue to use the system at the current version level even if no payments are made after the initial purchase). Pricing should be such that any content purchases from the vendor of the system and 3rd party publishers are independent of the district's use of the system.
- Must include Web server for availability over the LAN/WAN and the Internet.
- All operating system software for the system, application software, client players and other licenses required for operation of the system must be provided and included in the price of the proposed system. Client computers and their Windows or Mac operating system and virus software to be provided by the district.

User Authentication & Permissions

- System shall support login authentication from the district's existing user directory servers. It must support Microsoft Active Directory, eDirectory and OpenLDAP protocols. The user authentication integration must map users' credentials, such as group membership, from the district's directory with similar credentials in the system. Must provide a mapping tool for non-technical users to assign groups based on keyword for role-based permissions.
- Accounts must be synchronized so that disabling a user, adding a user, changing passwords or changing group memberships in the district's directory has the same affect in the system.

- Concurrent with support of authentication from the district's directory the system must support manual management of user accounts. System shall provide import of user account information from a text delimited file with duplicate record verification and error checking.

Digital Content & Streaming Video Server Hardware

The system shall include storage and streaming servers to meet the performance criteria below:

Include the necessary quantity of streaming server hardware to support a minimum of 250 simultaneous streams of on-demand, DVD-quality video, at 2Mb/s per stream (600Mb/s throughput). Must support the same number of users viewing the same or different video, at the same time, with each having the ability to stop, start, pause, and rewind at their own pace and sequence.

The video and digital content storage should be large enough for a minimum of 100 hours of video based on DVD-quality, at no less than 2Mb/s (2 - 4 TB usable storage space).

- Storage array specifications must be RAID-5 with hot-swap drive bays and a minimum of 10,000 RPM SAS/SCSI.
- Server hardware must include a rack-mount chassis including sliding rail kits.
- Must have redundant power supplies for maximum uptime.
- Streaming server must support both unicasting and multicasting of video.
- Must support at a minimum the delivery of Flash video, Windows Media, QuickTime and MPEG.
- Must include 3 years of next business day, on-site warranty covering parts and labor.

With the Internet not enabled for multicasting on a wide scale and community broadcasting desired, live streams from encoders must be able to be redirected through the streaming servers and delivered in unicast mode to support viewing by hundreds of concurrent people.

Scalability with Content Replication, Load-Balancing and Media Server Farms

The system must include tools that provide scalability in supporting an increasing number of concurrent on-demand streams and an increasing amount of storage capacity. Must include the following:

- Load-balancing of multiple streaming servers to support concurrent viewing of the same DVD-quality video title to thousands of people on-demand (limited only by the available bandwidth of the LAN/WAN). Users should not be required to select content from a particular server with content automatically delivered by the load-balancing function based on demand.
- Must support configuration of multiple media server farms (one or more streaming servers working together) so the district can strategically upload content on the best media server farm based on demands for that content (i.e. certain content may be required at all sites so thousands of users can concurrently watch and would be placed on a media server farm with three or four servers working together, while other specialized content might be placed on a single server farm so as not to use storage capacity unnecessarily).
- Must support automatic content replication between streaming and storage servers located at the central site or located on the edge of the network at a remote facility. When content is replicated to a remote site or multiple servers, the system should deliver content for remote users from the closest server without user interaction based on network subnets.

Content Conversion, Encoding & Live Broadcasting

Live Digital TV Channels

The system shall provide 4 channels of live streaming for delivering internally produced TV shows, cable/satellite programming and other live video/audio sources. These should be available over the IP network from the central data center across the district LAN/WAN and over the Internet. This solution needs to be scaleable up to a minimum of 20 live channels.

Each channel shall be delivered from a hardware encoder and in DVD-quality defined as 640 x 480 resolution, 24-30 fps and use of no more than 2Mb/s per stream. In addition encoders must support lower broadband-quality levels at 128kb/s up to 512kb/s for Internet broadcasting of events to the community.

Live channels must be delivered in one of the following video streaming formats - Windows Media, QuickTime, H.264 or Flash. Channels should be available through multicast and/or unicast and viewable from within the system's web-interface. It is the district's preference that the encoding hardware support all of the formats without requiring a separate encoder for each format. Please list as options the costs of additional streaming formats that are not included in the base system price.

The system must give users (based on role-based permissions) the ability to remotely control tuners, VCRs, DVD decks and other IR and RS-232 controllable equipment over the IP Ethernet network through the web-interface. System should provide for changing the source channel of NTSC cable tuners. Must include remote control of VCRs and DVD decks including Play, Stop, Pause, FF, RW, On/Off. Must include remote control of ATSC tuners and QAM digital tuners through IR/RS232 for compatibility with the district's preferred cable/satellite provider and transition to digital cable and digital receivers.

Encoder hardware requirements:

- Encoders for live channels in client data centers must be no larger than 1U-high, 19-inch rack-mount form-factor.
- Encoders must include at minimum a 146GB SCSI hard drive for storing captured video locally on the client LAN.
- Must support concurrent capture and live broadcasting.
- Must be upgradable to support HD-quality encoding at a minimum of 1280 x 720 resolution in either Windows Media, QuickTime, H.264 or Flash. Include as both price options, the cost to replace with HD-encoders or the cost to upgrade the encoder to HD.
- Must include 4 analog/NTSC tuners with necessary control capability and include rack-mount kit and connectivity cabling (see note below on digital cable conversion).
- Must include 4 QAM tuners with necessary rack-mount kit and connectivity cabling (see note below on digital cable conversion).
- Must include 4 control kits for the Encoders to support 3rd party cable/satellite digital set-top tuners for remote channel changing. Must include control programming to setup the IR or RS232 control.
- Must include 4 VCR/DVD combo decks with IR or RS232 control capability and include rack-mount kit and hook-up cabling to control them through the system from within the web interface.
- System must support recording/capture of live broadcasts from no less than 40 encoders simultaneously.

- Must include 3 years of next business day, on-site warranty covering parts and labor on encoding hardware.

**The system must include necessary equipment and services to support the transition to digital cable on the district's TBD timeline. The district will supply the digital QAM tuner boxes and MCards compatible with their cable provider. Vendor must include in their cost proposal any additional hardware, cabling and software to enable control of the digital receivers through the system's web-interface via IR.*

Automatic Broadcast, Record and Record & Broadcast - The system shall provide the ability from the web-interface to automatically begin a live broadcast, record a broadcast or broadcast and record concurrently for each encoder.

Shall provide for selecting an appropriate quality level through preset templates, based on the viewing audience, as well as setting the duration of the event.

Must be able to organize and group the digital channels based on district criteria (i.e. Elementary or Staff Training).

Must be able to restrict viewing access to each channel by password, number of concurrent viewers, staff accounts (not available to students) and the maximum length of time a users can view at one time.

After recording live events, broadcasts must be added to the digital library so they can be searched and viewed on-demand. Must have ability to set permissions on which users (on an individual basis) can control which encoder(s).

Must include the ability to record live broadcasts immediately, as well as to pre-schedule recordings. Must have a calendar view of scheduled and upcoming recording sessions for management and administrative purposes.

If a user has permission to control only one encoder they should be able to record any of the available channels from that encoder, albeit one at a time. If they schedule a program to record it should automatically change the tuner to the appropriate channel at that time, record for the set period of time and then go back to the default channel when finished.

In order to help meet Copyright requirements when recording a live channel the user must have ability to set an expiration date so the recorded show automatically expires and is unavailable after that date.

Mobile Encoding, Live Broadcasting and Digital File Conversion

Include line item pricing for mobile encoding and broadcasting carts to be used for converting content, encoding and broadcasting live video and audio. This solution must conform to the following:

- Must support hardware to encode traditional media content from VHS tapes, DVDs and DV camcorders over Firewire.
- Mobile cart must include the ability for a user to convert stored video and audio files from CDs, DVDs or USB drives from the original format to an optimum streaming format (i.e. AVI video or WAV audio file converted to QuickTime or Windows Media). Converted video and audio files should be able to be uploaded from the cart to the video server over the network for on-demand viewing. This allows content purchased from publishers and content produced in-house to be converted to streaming format and quickly deployed.
- Cart must support concurrent capture and live IP broadcast of video and audio content.

- Must support a means to initiate a live broadcast stream from the cart and automatically launch and play on selected classroom computers and set-top box locations across the LAN/WAN and Internet. This will be used for broadcasting morning announcements and staff training sessions.

Hardware Requirements:

- Mobile cabinet must be an enclosed metal cabinet (minimum 14-gauge) with built-in 19" wide front rack rails with pre-tapped holes and screws to mount equipment. Includes locking and vented front and rear doors, 4" casters, 1" laminate top surface with mounted 17" LCD on an articulating arm, speakers, and surface mounted camera bracket with articulating, adjustable head.
- Encoder must be in a rack-mount form-factor and include a minimum 250GB hard drive.
- Encoder must support encoding in ALL of the following formats for flexibility in content conversion and delivery – Flash, Windows Media, QuickTime, MPEG2, MPEG4/H.264.
- Encoder system must support capture of Line 21 closed captions and the mechanism to playback those captions along with the video for end-users. Caption playback must support all the designated formats.
- Encoder shall support live streaming and encoding DVD-quality video at a minimum of 720 x 480 resolution, 30 fps and use no more than 2Mb/s per stream at that quality. Must also support additional quality levels including broadband-quality from 128kb/s to 512kb/s for Internet broadcasting. Should have pre-defined templates so non-technical users can pick a template and convert content and/or live broadcast at that quality.
- Should include dual-layer DVD-R burning capability to archive encoded/captured content.
- Include a rack-mountable VHS/DVD combo deck with s-video, composite video and Firewire (IEEE 1394) inputs with a unified s-video output for all inputs into the encoder.
- Include 3 CCD DV Camcorder with Firewire output, a padded camera bag and 3 blank recording media with cabling.
- Include a 3U rack-mountable pull-out storage drawer.
- Include all interconnect cabling required for a fully-functional system.

**It is preferred that the encoder hardware be upgradable to support HD-quality encoding at a minimum of 1280 x 720 resolution in either Windows Media, QuickTime, H.264 or Flash. As an option, include the price to configure the mobile cart with everything necessary for HD-quality encoding including Blue-Ray DVD and HD Camcorder.*

Digital Information & Communication Bulletin Boards (Digital Signage)

The system will be used to deliver information, communication and bulletins out from the central district office and from each school site over the IP network. "Virtual IP channels" should be available for viewing in classrooms from Windows and Macintosh PCs and must be available in designated areas like hallways, entryways, lunchrooms and media centers through large LCDs with attached IP set-tops/decoders.

- Shall include 5 virtual channels (in addition to live TV channels) to support the delivery of a digital bulletin board for district information and the others for each school sites. All necessary equipment must be included to install the equipment in the client provided racks and to deliver the virtual channels over the network (see set-top hardware requirements to see how many are required and the locations).

- Each digital bulletin channel should be customizable by the channel manager for look and feel including logo, background appearance, resolution/size, ticker tape information and live weather information feed.
- Designated digital bulletin board channel managers shall be able to setup multiple playlists of resources to play automatically, to sequence from one to the next at pre-set times.
- System shall include ability to send out all-call broadcasts that can be forced to launch and play on classroom PCs and set-tops within designated zones defined by the district. Designated zones should be customizable and can be configured to include one computer, multiple computers, a whole building, multiple buildings or district-wide. All-call broadcasts should be able to be scheduled in advance to play automatically at a date and time, on a recurring basis or sent immediately to one or more zones.
- System shall have ability to send out emergency broadcasts that can be forced to launch and play on classroom PCs. Selection of designated zones is to occur in the same manner as all-call broadcasts. Emergency broadcasts are sent immediately and override whatever is currently playing on instructor PCs and set-tops. Emergency messages must have the option of including a text/graphical message, live video broadcast from an encoder, playlist of video/audio or other resources or a pre-defined message.
- All-call and emergency broadcasts must send out appropriate display control commands when used in conjunction with set-tops. It must turn on the displays within the selected zone(s), change the displays to the proper input and ensure the volume is on. Upon completion of the broadcast the system should turn off the display, or if a typical daily bulletin board was playing it should revert back to what was playing before the broadcast. Both IR and RS232 controls should be supported for flexibility in which display types can be used.

Media Displays: Set-tops/Decoders

Shall include line item pricing for set-tops or IP media decoders for display of multimedia content, live IP channels and broadcast communications in select locations on large format LCD displays. Set-tops must integrate with the system's digital information bulletin system, digital library for VoD and live broadcasting, as well as with the all-call and emergency broadcasting functions.

- Set-tops shall support video output for VGA, DVI and HDMI and have s-video out along with stereo audio.
- Support , 100MB and/or 1GB Ethernet connection with DHCP and Static IP.
- Shall provide RS-232 control for automatic on/off, input selection and volume control of the connected LCD display during all-call and emergency broadcasts from the system. The control must be initiated by the system over the IP network to all of the set-tops configured within the selected zone for that particular broadcast. Include the programming necessary to support different brands/models of display's RS232 codes for district provided LCDs.
- Shall support smooth playback of HD-quality streaming video files at a minimum of 1080/720p resolution at 85Mb/s in Windows Media, Flash, and H.264 or QuickTime.
- Set-top shall decode and display the following formats: Video (Flash, Windows Media, QuickTime, H.264, MPEG 1, MPEG2), audio (MP3), documents (PDF, MS Word, MS Excel), presentations (MS PowerPoint), Websites and HTML, graphics and image files (jpg, tiff, gif, bmp). If necessary include the software licenses and/or player licenses to display all of these formats.
- Shall include a hand-held remote for each set-top allowing a user to browse and search the digital library, select and view live IP channels and select a digital bulletin board broadcast. User shall

be able to start, stop, and pause videos when viewing on-demand and show it and other content formats in full-screen.

- Include optional pricing for RF wireless keyboard/mouse that may be added for select locations to provide increased interaction with content.
- Shall include a wall-mount bracket for each set-top to mount it hidden behind a 27" to 42" LCD panel. **LCD panels will be provided and mounted in select locations by the district outside of this package.*
- Shall include necessary interconnection cabling to hook each set-top into an LCD panel. Include VGA, DVI or HDMI as required by the LCD model, audio cable, RS232 cable and Ethernet cable. **District shall provide power outlet and Ethernet wall jack within 6' of the LCD mounting position.*

Training and Staff Development

System shall include a minimum of 38 hours of on-site staff training at the district and school facilities. The training shall be performed only after the installation, configuration and testing phase of the project has been finalized and must be conducted during normal school hours. Phase 1 shall be done within 30 days after the installation and shall include a minimum of 4 hours of technical training for district-level IT staff, 4 hours of non-technical training for district managers/administrators, 4 hours for district media specialist/librarians and 16 hours for teacher/user-level additional instruction to be conducted in half-day, non-consecutive increments. The remaining 10 hours is for phase 2 and must be completed within 120 days after phase 1 completion. Phase 2 should be customized training covering advanced topics, for those in need of a refresher and for new staff.

Technical training must be conducted by a factory-trained and certified trainer. Manager and user-level training must be conducted by a factory-trained and certified trainer who is versed in application-based training for the needs of educational institutions. During training sessions each participant must be given training materials in print and provided access to electronic copies.

List each specification and capability outlined that your solution does not include in the price and if it is an option include the cost to add the capability to the system. If your solution does not support the capability or specification please note it below. If not listed below you should be prepared to provide and demonstrate the functionality upon acceptance testing.