Final Report

Transcript Task Force

AACRAO-appointed Electronic Transcript Task Force Report

Autumn, 2010

In April 2008, the Vice President for Records and Academic Services appointed an ad-hoc task force to evaluate the current state of technology and the various options that have become available to records officers regarding electronic transcripts. The committee was charged with producing a report that would describe the options that new and current technologies provide for electronic transcripts, note current best practices, and forecast future development. The membership of the committee, reporting to Vice Presidents Glenn Munson and Brad Myers, consisted of the chairs of the Student Academic Records Committee and long-serving members of AACRAO who had been closely involved in the development of electronic transcript solutions both at their employing institutions and on behalf of the profession as a whole. The appointed Task Force members are:

- 2008-09 Chair: Judy Cavin Brown, Five Branches University
- 2009-10 Chair: Sarah Harris, University of Iowa
- Andrew Hannah, University of Chicago
- Dave Stones, Southwestern University (TX)
- Bob Morley, University of Southern California

Introduction

It is manifestly obvious to the members of the task force that electronic transcripts are no longer a concept awaiting definition. They are here to stay. We recognize that paper transcripts remain the standard, at least as far as volume alone determines. But we also note that whereas for the foreseeable future many students and alumni will continue to benefit from paper transcripts, an ever increasing number and eventual majority will expect and require electronic transcripts to serve their needs. As registrars, we must structure our in-office processes so that hardcopy and electronic transcripts complement, rather than impede each other and our staffs. Our obligation to maintain the accuracy and security of transcripts is obvious, absolute, and permanent. It is embedded in the core mission of our profession. As the task force has established, electronic transcript technology should not be considered a threat to that obligation. Rather, electronic transcripts are just the latest in a long

line of technological advances that over time registrars have approached, perhaps first with caution, but then welcomed and embraced.

Distribution of paper transcripts to designated recipients continues to utilize the postal service or in rush situations an expedited delivery service such as Federal Express. Delivery by postal or even expedited services is coming to be considered too slow. The handling of paper by recipients, who often transcribe entries from the document into separate databases and systems, is atypical for how they regularly receive and handle most other types of information. Paper, in general, as a medium for the conduct of business, whether admissions, financial aid, banking, employment, taxes, social networking (aka letters), etc., is fast becoming an anachronism. The security of the documents and the speed of their delivery is therefore dependent on the agents to whom they are entrusted. The two or three days for most U.S.P.S. deliveries or the next-day expedited services are the standard business models registrars have incorporated into their transcript operations, staffing, and budgets.

Since the advent of the internet, however, this practice has become increasingly problematic for many of the individuals who are requesting transcripts, namely students and alumni. Their expectations, which are often impressed on them by the third-parties to whom their transcripts are to be delivered, are for faster delivery, on the same-day, if not in near-time, if not in real-time, and via the electronic methods with which they, both requesters and recipients, are now familiar for conducting most aspects of their commercial, professional, educational, and personal business. Over the last two decades, and particularly the last eight years, a small but effective set of electronic delivery methods have emerged for registrars to use for exchanging transcripts. In most cases, the delivery method will determine the medium in which the transcript is to be produced or vice versa.

Two scenarios for electronic transcripts:

- An alumna is applying for a job with a small graphic-arts company located in another state. A transcript is needed within minutes to accompany an interview. An electronic transcript is acceptable, but it must be in a format the personnel director's PC will accept, and he's neither a programmer or an IT geek (he's a personnel director) and there's a hefty firewall around his systems. These conditions inform the Registrar what kind of electronic transcript to produce and how to transmit it.
- After attending a community college part-time for several years a student is applying to a bachelor's degree program at the State's premier land-grant university. Although this represents a life-changing event for the student, for the registrar of the community college it is a routine business transaction since her student-system is a member of a network to which all the public colleges and universities in the State belong. The transcript that is exchanged between the two schools is not so much a document as a datafile that is compiled, encoded, and encrypted by the community college, transmitted via a secure internet protocol, then retrieved automatically by the University's systems, decoding and loading the data into the student's electronic portfolio in the admissions office.

Summary of current electronic transcript technologies:

The task force summarizes and condenses the current available electronic technologies that are used for the production of official transcripts by registrars. A more expansive discussion of these technologies will be provided later in this document. The technologies are as follows:

- PDF (Portable Document Format via Adobe) or other image files (TIF, GIF, JPG) is, in effect, an electronic picture of the paper document. This format allows ease of delivery through the internet as attachments or via web-hosted unique objects (URL's), they can easily be uploaded into imaging file systems. A drawback is that as a picture they cannot easily be scraped by automated systems for specific data elements used for filing or subsequent evaluations (aka: data mining).
- Standard Coded Data EDI (Electronic Data Interchange) in the format developed and maintained by the AACRAO-SPEEDE Committee. This is an open-source format for transcript data output from student information systems. EDI allows one computer to send data to another computer which may unambiguously process the data. This is an excellent method for distributing transcripts (in the sense that a transcript is a compilation of information about a student) to schools, agencies, and other parties within networks or partnerships that use common technological resources for the automated reception, processing, and subsequent evaluation of that transcript information.
- Standard Coded Data XML (Extensible Markup Language) via the "College Transcript Schema" developed by the AACRAO-SPEEDE Committee functioning as a Post-Secondary Education Standard Council (PESC) workgroup. Another open-source format now commonly available and becoming integrated as “native" into student information systems and other vendor-supplied software. XML can provide a less expensive option for automated evaluation and processing.

This report will concentrate on EDI, XML and.pdf production and delivery methods in the post-secondary education world, including for transfer student and graduate and professional school admissions. We specifically did not include electronic transcripts for the K12-to-college admissions processes in our work, although it quickly became obvious to us that this separate but related area is likewise deserving of consideration by AACRAO.

For a thorough review of the technologies, including terminology, and notes on implementation, the task force strongly encourages any registrar or admissions officer considering electronic transcripts to consult the AACRAO publication: **Electronic Data Exchange Primer *(2008)*** *authored by the SPEEDE committee, and the latest version of the* **AACRAO Transcript Guide**.

Taskforce Work and Methodology

In February 2009, the task force arranged for AACRAO to send a survey to all educational institutional members separately to admissions offices and registrars' offices. 721 institutions responded. 171 (24%) of the respondents indicated that they RECEIVED some type or types of

electronic transcripts; 123 (17%) responded that they SENT electronic transcripts in at least one format. In the Spring of 2010, the task force contacted 14 of the responding institutions that had commented in 2009 that they hoped to be exchanging within the year. Three of the 14 responded two of which indicated that they had added electronic delivery to their transcript services.

In late 2009 the task force chair received the results of a REGISTRAR-L listserv email survey concerning how registrars would advise deans at their schools on the authenticity of .pdf transcripts they may have received, and how other institutions handle these documents. Among the responses, we quote one: "Paper producing businesses can no longer survive on paper products only. As the world continues to go more electronic, more and more vendors are and will be entering this arena. It's not a question of IF it is going to happen but rather it already IS HAPPENING and it will continue to grow. So, schools will have to address this issue at some point. There are institutions who only accept electronically submitted transcripts and other application materials. We were finding that some of our former students were meeting limitations of where they could apply."

This statement resonated soundly to the members of the task force, and provided a theme to our work, as we concurred that by failing to move forward into the electronic exchange world, members of AACRAO are limiting themselves, their institutions, and the students and alumni they serve.

At the AACRAO annual conventions in 2009 in Chicago and in 2010 in New Orleans, members of the task force held panel presentations to review their work and findings. They reviewed the surveys and elaborated on the nature of the technologies which are summarized above, explaining how registrars and admissions officers might implement them at their institutions, and referring attendees to related literature (e.g., the *Electronic Data Exchange Primer*) and other sources of information, including the many other workshops and sessions concerning electronic transcripts that were held at the annual conventions. The members of the task force also relied in great measure on their personal experiences and knowledge as they had been intimately involved in the development and implementation of these technologies at their own institutions over many years.

In January 2010, the task force distributed a survey to vendors who provide services related to electronic transcripts, several of which are corporate members of AACRAO. The survey asked a variety of questions ranging from what and how services are provided to cost and pricing models. Specific questions included:

- Does your product require the school create its own EDI/XML transcript?
- Is software made available to assist the school in creating their EDI/XML transcript?
- Does vendor software resident at the school create the EDI/XML transcript?
- Does the vendor accept transcript data from the school and assemble the EDI/XML transcript at their site?
- Are EDI/XML transcripts sent via email?
- Are EDI/XML transcripts sent via the Texas server?
- Is a network registry of vetted receivers required?
- Is a secure web service provided where receivers can receive transcripts?
- Is data sent through some form of secure FTP? Is the data encrypted?
- Is a TS131 (acknowledgement) required?

- Can the system deliver to multiple mailboxes at a single school/organization?
- Can the system deliver in batch?
- Can the system deliver in real time?
- Are students notified that their transcripts have been delivered?
- Is the sending institution notified that transcripts have been delivered?
- How long do transcripts reside on servers or in mailboxes?
- Are reporting and auditing functions available?
- Is assistance provided or can it be purchased that will interface into a school's SIS?

Because of the proprietary and confidential nature of some of the information requested by the survey related to pricing, copyrighted material, and patented technologies there was noted (and expected) reluctance on the part of some of the vendors to complete all aspects of the survey. There was also concern from the vendors (again, not unexpected) on how their submissions would be compiled, compared, and published. The task force, in particular Bob Morley who coordinated this vendor survey, went to great lengths to communicate and balance the needs of the task force, as we were charged by our Vice President, with the business requirements of the vendors, who we should stress were under no obligation to respond to the survey. Those vendors that completed the survey are listed below, and the task force extends to them a great thanks for their contributions and especially their candor.

- AVOW Systems Inc.
- Credentials Inc.
- Docufide Inc.
- National Student Clearinghouse
- Pearson
- SCRIP-SAFE International
- XAP Corporation

The Task Force and AACRAO do not endorse any particular vendor. The Task Force advises members interested in pursuing an electronic transcript solution to directly contact vendors.

The following sections of this report reproduce extended portions of the presentations given by the task force members at the AACRAO conferences in Chicago and New Orleans.

Concerning EDI and XML

Where EDI allows one computer to send data to another computer which may unambiguously process the data, XML represents the next generation of information exchange between systems, being more web-savvy and eventually cheaper. EDI has a large base of users, based on over two decades of operation under the guidance of the AACRAO SPEEDE committee. Together, EDI and XML support solutions that are fully automated. They represent a strategic vision to decrease cost, increase speed and efficiency. EDI and XML deliveries are supported by the University of Texas-Austin server, a free service available to all educational institutions, started in 1995.

SPEEDE and EDI

The attention that electronic transcripts have received over the past several years, as various new network services, along with .pdf delivery, have been introduced, is considered by those who have been involved with SPEEDE and EDI to be somewhat amazing. These new services, generally commercial options, do provide opportunities to serve new niches, including deliveries to individuals and companies. But often the press announcements tout these products as the first ever electronic delivery systems. They are not. The homely but reliable SPEEDE transcript machinery keeps quietly chugging along, providing security plus cost and time savings, for a growing number of schools trading transcripts with other schools.

The AACRAO SPEEDE Committee was first appointed in 1988. The initial version of the SPEEDE format for electronic transcripts was released in 1990, and the SPEEDE Committee has been developing and promoting student electronic data standards ever since. It hosted 13 annual workshop/conferences from 1990 to 2002, and has become a major track in the AACRAO Technology Conference since its inception in 2003.

SPEEDE is working! The University of Texas at Austin began operation of a free standard-format electronic document Server in September of 1995. As of June, 2010, the Server has delivered over 22 million transaction sets, including over 6 million transcripts, as well as acknowledgments, admission applications, test scores, and request for transcripts. Hundreds of schools benefit monthly, and these deliveries have not cost those schools a dime other than the minimal internal costs to deploy the technology.

The UT Austin Server delivers huge numbers of electronic documents and files for statewide operations among most of the public schools in British Columbia, Florida, Iowa, Oregon, and Texas. Significant numbers are exchanged monthly in Arizona (Maricopa County sending to ASU and Univ. of Phoenix), California, North Carolina (part of a state system), South Carolina, and Tennessee. Volume has picked up considerably in Alabama, Arkansas, New Jersey, and between a few schools in Mississippi, Virginia, and Wyoming. The Server delivered 1,071,864 transcripts in 2009 up 25% over 2008. Monthly usage reports appear on the University of Texas at Austin SPEEDE page.

In addition, state or province networks in California, Florida, Maryland, Ohio, Ontario, and New Jersey carry volume transactions not reflected in the University of Texas's counts. Some schools (San Jose State, for example) use both the statewide network and the UT Austin Server.

EDI systems in statewide projects allow high schools to deliver transcripts in volume to colleges in Arkansas, Florida, and Texas via statewide mandates. Contracts have been signed for statewide service in several other states.

The AACRAO SPEEDE Committee has been responsible for many program sessions, at AACRAO, AACRAO Technology, PESC, and elsewhere. Members may subscribe to the SPEEDE-L listserv to receive bi-monthly updates posted by Tom Stewart (Miami-Dade Community College, retired), a founding member of the SPEEDE Committee.

SPEEDE and XML

The EDI data standards currently in use were approved through ANSI (the American National Standards Institute). With this technology and these formats being fairly stable, the SPEEDE Committee turned most of its attention to the newer XML schema, which provides a quicker, easier, and ultimately less expensive way for some schools to join the exchange process. SPEEDE and AACRAO chose to use the Postsecondary Electronic Standards Council (PESC) to approve these XML data standards. An XML schema/format for the postsecondary transcript, paralleling the EDI Transaction Set TS130, was approved by PESC in May 2004, following an effort of several years. Another benefit is shared data definitions and structures among testing, transcripting, admissions, financial aid, and the NCES (National Center for Educational Statistics). The SPEEDE Committee represents the long-term interests of AACRAO members by being heavily involved in PESC workgroups developing additional XML schema for the high school transcript, degree audit data, admission application, reporting, and request/response for transcript. SPEEDE Committee members are leading some of these efforts. A current PESC workgroup is considering ways to embed an XML file in a PDF.

The states of Georgia and Tennessee have already had dozens of schools at least testing XML transcripts, also through the UT Server. The XML format is built into the eTranscript California effort and XML is an option in several other of the commercial opportunities (such as that used in Kentucky). Another exciting development is the beta test status of an XML to EDI converter at the UT Austin Server. This should allow newer XML-sending schools to deliver to the hundreds of EDI-receiving schools. The SPEEDE Committee defined the crosswalk to make this possible.

Implementation of SPEEDE EDI or PESC XML exchanges either state/province-wide or within groups of trading partners continues to be an important strategic initiative. Use of standardized formats and codes allows quick production of electronic transcripts in large batches, and supports the possibility of near-instantaneous logging, uploading, and evaluation of these transcripts by the receiving schools. This does sometimes depend on SIS functionality some have it, and the others need to be encouraged. It makes sense that all schools will want to keep EDI-XML exchanges as a long term goal.

Ongoing SPEEDE and XML Issues

With the deployment of the UT Austin Server 15 years ago, the problem was solved - for about 10 years. With near zero delivery cost, schools had a system to exchange transcripts with a single site-registration per school, multiple delivery methods supported, privacy enforced by encryption, and no need to worry about which network their trading partners were using.

Then the scope of the project changed, and many of the problems from the 80's and 90's reemerged. EDI/XML was not pervasive, even for school to school exchanges, due to SIS lags, lack of large volume trading partners, institutional development and integration costs (which truly were minimal), and other factors. Attention also came to be directed toward the large number of transcripts sent to individuals or businesses, and the wish for fast, secure delivery therein.

SPEEDE and the UT Server tried to be ahead of the curve, and they were certainly that. Their solutions continue to represent best practice (best fits as this report details) for many institutions exchanging transcripts. Meanwhile, new technologies have allowed services to be developed for other niches. These new methods are promising. As SPEEDE has guided EDI and PESC XML to be team players with AACRAO, so it is hoped by the members of the task force that the technologies for electronic transcripts that have developed to date mostly outside the SPEEDE domain likewise play well, working alongside, complementing, and in all likelihood eventually to be integrated with EDI/XML solutions.

PDF transcripts

The ubiquitous Adobe .pdf reader software that comes with every new PC or Mac established both a common platform for reading electronic transcripts no matter which school they came from (as long as they were saved as a .pdf) but also indicated a common location or methodology for inserting levels of security and authentication into the process of transmitting and receiving the documents which registrars would demand. Most current versions of vendor-provided student information systems can print a transcript to a .pdf. (At the most basic level, a.pdf transcript can be created by running a printed transcript through a scanner connected to a PC.) Adobe and businesses, such as the banking and pharmaceutical industries, began working on standard ways to secure .pdf's from internet, to maintain a traceable provenance of documents as they were distributed throughout the e-verse, and to lock down the original content of the documents against inadvertent (and advertent!) alterations. Registrars have determined that these technologies can be integrated with transcript business practices, and several vendors have established services to enable their use on a large scale.

- **Simple** benefits of .pdf transcripts: they are in the long-run cheaper than hardcopy transcripts, requiring no paper, printers, toner-cartridges, postage nor the salaries of clerical staff to handle all the above; .pdf documents can be saved indefinitely.
- **Advanced** benefits of .pdf transcripts: they can be distributed securely through internet, will soon be embedded with XML allowing œheader record data for routing; student information systems can generate and distribute them automatically.
- **Obvious** benefits of .pdf transcripts: simplest type of electronic transcript to produce, can be delivered to anyone, anywhere with a PC or Mac, more and more recipients WANT electronic transcripts. By asserting and demonstrating that.pdf transcripts generated by registrars and their SIS's can (and should) be considered official, vendors will assist in their production and delivery in a certifiably secure manner. Some schools have implemented .pdf solutions for official transcripts without utilizing vendors, through their own institutions' internally supported production and distribution methods.

Clients for .pdf transcripts

For registrars, the availability of and access to .pdf transcript solutions is growing: vendors with a long history of service to registrars related to academic records and transcripts are providing new .pdf solutions; vendor solutions can support a school at either a per œtransaction or document fee, a standing contract rate, or both; in-house .pdf solutions are possible if information technology staff are

willing to collaborate with registrars in their creation. Yet what registrars are not paying for paper, envelopes, printers, toner, maintenance fees, postage (and labor) they may well be paying to the vendors for their contracts and transactional services. They may, however, redirect those costs to the students/alumni who order .pdf transcripts as a œconvenience fee. Registrars need to carefully weigh their budgets, current expenses, including labor, and the volume of transcripts they are producing against the fees charged by vendors and the costs the students should bear for what could be argued are custom services.

For recipients, the demand for .pdf transcripts is apparent, but there are as yet no standards, guidelines, or published œbest practices for receiving and handling. The different methods employed by the various vendors for distribution of .pdf transcripts are confusing if the recipient is sent them from multiple sources. These methods may include: two emails, one with a URL another with a password, which by copying and pasting allows a user to log-into a secure URL containing the unique content of a .pdf transcript; logging into a secure virtual mail folder for which the recipient must set up a password-protected secure account; or no special security features at all beyond the assertion that if the .pdf is retrieved from a URL with a specific domain in its address, that it must be official. As recipients receive .pdf's, many are still printing copies, photocopying them, and either filing them in manila folders or subsequently SCANNING the print-outs to store in an electronic folder!

Registrars who produce .pdf transcripts and admissions officers who receive them should work together to establish recommended technologies (plural) for their schools. For the students and alumni who order transcripts (they being the third set of clients), the application forms they complete and the associated instructions and FAQ's they read should indicate preferred methods and addresses for them to pass along to their registrars as they place orders for electronic transcripts to accompany their applications. These instructions and FAQ's should not, however, direct the requestor to comply with only one technology or standard. If a single electronic standard is required (as several agencies and institutions now do), then there must be instructions to the applicant on how to provide an OFFICIAL transcript should the school he/she attended be unable to provide it in that specific electronic format.

Current .pdf Transcript Solutions

At this time (Fall, 2010) there are three models in wide-use for .pdf transcripts:

- Internal¦School generates .pdf transcripts and transmits them to the designated recipients via secure web service (https) using unique URL and Password combinations emailed to the recipients. The transcripts are considered official only as they are delivered, not for subsequent copying or sharing, etc. The provenance of the original URL domain establishes the authenticity of the document. Beyond that, it is up to the receiver to testify to that authenticity as the document is moved œdownstream.
- Virtual Mailbox/Exchange Partnerships¦School establishes that its vendor has a partnership arrangement with the other school/agency to which transcript is to be delivered. A .pdf transcript is generated and securely delivered to a virtual mail-box maintained by the vendor for that recipient school. Employees or systems of that recipient

school, either upon email notice from the vendor or by routinely checking the mail-box, retrieve its contents¦then file or route the .pdf's internally as needed.
- Direct distribution to individuals: The school generates a .pdf transcript and delivers it along with the email address of the recipient to the vendor. The vendor notifies the recipient that the transcript is waiting, usually separating the unique URL for the .pdf from the password needed to open it in two emails.

Any of the three solutions can accommodate œdigitally signed .pdf's where proprietary technology embeds hidden security features and permissions into the data-stream of the individual .pdf so that recipients/viewers can confirm its authenticity and any alterations to the .pdf are either immediately apparent or cause the .pdf to be unreadable.

Vendors are now providing turn-key suites of e-transcript services featuring the handling of .pdf transcripts. They will host the ordering of transcripts as student logins to their campus portals are authenticated, and transferred to their servers. They handle the internet-commerce of payments via credit cards for the transcripts. They link up with the school's SIS to submit the orders information (perhaps via XML) and then receive back from the SIS the actual .pdf transcripts. They may then arrange for the .pdfs to be œdigitally signed. Finally they accommodate the actual delivery of the .pdf's to the designated recipients. From the registrar's perspective the reduction in staffing and logistical costs is significant.

On Security

The most secure transcript is the one that is never sent. Registrars must be confident that the technologies employed to create and distribute electronic transcripts remain as secure as the traditional technologies in use for paper transcripts. In point of fact, this comparison is a canard. Those traditional technologies for paper transcripts are actually found lacking when compared to electronic methods now in use. A paper transcript committed to the postal service can be lost without the registrar or the requestor ever aware. A paper transcript can be altered, particularly if it is unofficial. We still hear every day of 3rd parties accepting actually encouraging unofficial transcripts. All the special features that registrars have added to paper transcripts, latent images, chemical agents, impressed seals, hologram stickers (!), all come to naught if the receiver of the transcript doesn't know to expect them¦in which case clever forgers (and there many of them) can provide very attractive bogus alternatives. We require a signature but can't establish its provenance. We do not require all such signed transcript requests to be notarized or otherwise authenticated.

Regarding the security of electronic transcripts, it goes almost without saying that sending or accepting a transcript as an unencrypted email attachment should be a forbidden practice for any registrar or admissions officer. Beyond that, whatever methods are used by registrars for securing electronic transcripts, they should be audited and approved by their institutions' IT security units, in other words, the professionals. Even when using EDI/SPEEDE, with its well-documented protocols, routine internal audits should be done to make sure all the related PC's, servers, and networks within the institution are secured. When contracting with vendors, registrars should request documentation from them related to the independent audits they have had done on their systems, which should then be scrutinized by the institution's IT security. It is thus vitally important that registrars partner with

their IT colleagues. A registrar who is gung ho on deploying electronic transcript solutions at an institution, but who cannot get adequate buy-in from IT counterparts will have a hard time succeeding with the project.

Standard Procedures: All new staff in registrars and admissions offices and IT units with access to transcript data and the transcript ordering software and related hardware should undergo a background check when hired. Signing œappropriate use statements related to access of the data and software should be required. FERPA training, including annual refreshers should be SOP.

FERPA: There remains the overhanging question about how any electronic transcript solution complies with FERPA. In short, FERPA is neutral on electronic transcripts and the technology of distributing confidential information. It continues to specify that the release of transcripts must be properly authorized by students, and it does permit for such authorization to be established via a properly administered electronic signature. As registrars with obligations to maintain the security of the confidential information with which we are entrusted, we should be overly zealous in ascertaining how that level of security continues, or degrades, as the electronic transcripts we produce travel through the internet. Our obligation is to deliver transcripts as authorized by the students to the specific parties they have indicated in what we each consider to be an adequately secure manner. If we are not convinced that manner is secure enough then we cannot release the transcripts. To the extent technology allows, we can pursue means to guarantee that once delivered the electronic transcript files remain inviolate¦but that is beyond the requirements of FERPA. It is common sense that any electronic transcript plan should be reviewed by the school's legal counsel before implementation.

Technical Standards: Breaking down electronic transcript processes to a series of steps and considering the technical security applied to each is a constructive task, again requiring the consultation of IT professionals. Each step may well require a unique security protocol.

- Student log-ins to campus portal, including the initial distribution of network ID's and passwords
- Transcript ordering web-forms
- Uploading or transcribing the orders to SIS
- The security of the SIS
- The security of the PC's used by registrar staff
- The network environment, aka œfirewall of the school itself
- Network security as order information and e-transcripts (EDI, XML, .pdf) are transmitted to vendors.
- The security of the vendor's hardware
- The security of the vendor's software
- The optional use of œdigital signatures for .pdf transcripts
- The recommended us of receipt acknowledgements for EDI/XML transcripts
- The communications between schools, vendors, students, and recipients
- The transaction logs of all of the above steps

As mentioned elsewhere, the *Electronic Data Exchange Primer* and the *AACRAO Transcript Guide* are invaluable resources when considering these issues.

The "Best Fits"

When considering the types of transcripts, their destinations, the volume produced by individual registrars' offices, and the nature and size of their respective institutions, certain commonalities what the task force calls "Best Fits" emerged that informed the electronic transcript technology that likely would be most efficient.

Electronic Sender-Destination Combinations

- College sends large volumes of transcripts to one or more other Colleges or Higher Ed Agencies: Best fit = EDI/XML

Likely scenarios here are for registrars of community colleges or public (and perhaps private) institutions with large numbers of students who transfer to other colleges or universities. These schools may (although not necessarily) be part of state systems, consortia, partnerships, or other common groups; where electronic information, not just transcripts, is routinely exchanged for administrative, research, and pedagogical purposes. EDI/XML transcripts are incorporated into this routine exchange of data"certainly in a secure manner"to expedite moving student record information from one SIS to another, or to an admissions system, alleviating the needs for overhead of transcriptions and paper-handling, and augmenting assessment of the information for both service to the students and for institutional research. (Please see *Electronic Data Exchange Primer* " Ch. 11)

- College receives many transcripts from one or more other Colleges: Best fit = EDI/XML

Likely scenarios are undergraduate transfer admissions offices or scholarship/grant-providing agencies which routinely receive many hundreds or thousands of college transcripts. Again, being part of state systems and consortia increases probability that the common software to decode the EDI and XML data formats can be integrated with administrative systems. In-house or vendor-provided information technology (IT) resources are required for this and the above scenario, but the specialized knowledge of IT staff to support these solutions is becoming widely available, almost œoff-the-shelf as the saying goes.

- College sends transcripts to individuals or businesses: Best fit = PDF

Appropriate for schools where a large percentage of transcripts produced by a registrar goes to individuals, usually prospective employers, which is often the case with proprietary or professional schools, or where they accompany applications to graduate schools in which case they are likely addressed to individual admissions chairs or committees. These individual receivers likely still function with the applicant's transcript document in front of them. The .pdf transcript best fits this model. It can be delivered directly to an individual (or the individual can retrieve it on a one-off basis) and can be viewed or printed and used as if it were delivered in a traditional (in a posted envelope)

manner. But in the .pdf format it can be saved along with other electronic documents in a computer system's folders for subsequent retrieval, sharing, or archiving. Security of the .pdf remains as important, if not more so, than paper transcripts as they are received, copied, shared, and filed

- College receives fewer transcripts from a variety of locations: Best fit = .pdf

Admissions offices are now receiving, unsolicited, electronic transcripts from any number of sources, and in all the formats and more mentioned in this report. Unless the admissions office wishes to stipulate that only one or certain electronic formats will be accepted”in which case it must be prepared to routinely accept those formats”and also in which case it runs a risk of alienating some prospective students whose current college is unable to produce transcripts in those particular formats it can't be surprised if transcripts in multiple electronic formats continue to be delivered. Transcripts in .pdf are by far the easiest, from a technological perspective, electronic option for a registrar to produce, and for an admissions office to receive or retrieve.

- College sends small volumes to many colleges pending budget and resources: Best fit = hardcopy (still) or .pdf
- College receives small volume of transcripts from wide variety of individuals or schools: Best fit = hardcopy or .pdf

Electronic Transcripts Home Runs

Depending on the core technology a school employs for electronic transcripts, the task force envisions two types of Home Runs the ultimate use of state-of-the-art tools to accommodate a student's need for official transcripts. These are pure speculation, but each step references a technology now in use by AACRAO members. Combining them into a seamless package is how we define the home run.

- The EDI/XML home run:
- The log-in is transferred to the e-transcript vendor™s servers via Shibboleth
- The students place transcript orders there, pay via credit card
- Order information is transferred to the campus SIS via the XML transcript-order schema
- Campus SIS checks for holds and notes if the recipient is listed in either a set of œpartnered institutions or is a registered UT server client. If so
- An EDI or XML transcript is sent via secure FTP (or https or other secure protocol) to the UT server where it is placed in the recipient mailbox.
- Recipient automatically retrieves the EDI or XML transcript, which is downloaded into its database, and from which evaluations and institutional research reports can be run.
- The .pdf home run:
- Students log into a campus portal, authenticate themselves via LDAP, indicate they wish to œorder transcript
- The log-in is transferred to the e-transcript vendor's servers via Shibboleth
- The students place transcript orders there, pay via credit card
- Order information is transferred to the campus SIS via the XML transcript-order schema

- Campus SIS checks for holds and if OK generates a .pdf transcript
- The .pdf transcript is sent to the vendor server via secure FTP or secure protocol.
- Vendor may arrange for digital signage security to be incorporated into the .pdf
- Vendor communicates retrieval instructions to the recipient
- Recipient retrieves the .pdf
- Potential enhancement: As the .pdf is generated by the campus SIS, corresponding XML transcript data is embedded into the .pdf. As the .pdf is subsequently received by the recipient, the XML data can be used to route the document via header information to specific folders or other destinations, and the rest of the XML body can be downloaded into the recipient's database for evaluations and data mining.

Forecasts for Future Development of Electronic Transcripts

- As more admissions offices/agencies discover benefits of e-transcripts they will encourage students/alumni to order them some to the exclusion of paper.
- As more e-transcripts are requested and produced, Registrars will struggle to understand how to be cost effective.
- The marketplace will drive down the costs
- Only a small number of nationwide (or planet-wide) vendors with large resources, or government-backing, or a killer app may remain.
- Depending on the number of surviving vendors and their profit margins, the costs to registrars will be affected. If there is competition, we can only hope that costs will go down or at least remain low.
- EDI and XML College-Transcript will become standard currency for exchanging transcripts between schools and agencies of higher-ed. Translators will convert EDI to XML and back again. An inexpensive medium for distribution, i.e., the Texas Server, will be priceless for AACRAO members.
- .pdf transcripts will be commonplace for individuals receiving transcripts (as opposed to agencies and admissions offices).
- For admissions offices and financial aid agencies, loading an EDI, XML or .pdf transcript into an electronic portfolio will be standard operating procedure”the transcript will never be printed.
- Registrars, particularly of larger schools, will be able to produce and distribute all three types of transcripts: hardcopy, PDF, and EDI/XML simultaneously and seamlessly.

The Task Force's Recommendations

- AACRAO should be proactive in advocating the acceptance of electronic transcripts in the marketplace and in the day-to-day business of registrars and admissions officers. The agencies to whom registrars send large volumes of transcripts (e.g., LSDAS, AMCAS, NSF, Fulbright-Hays) should readily accept electronic transcripts and publish directions in their application materials about how they wish to receive e-transcripts.
- AACRAO should continue its efforts to bring together representatives of all the key stakeholders (registrars, admissions, and IT) to identify best practices and synergies

between their respective areas for requesting, producing, receiving, and processing e-transcripts, specifically for undergraduate transfers, graduate/professional admissions, and applications for scholarships, fellowships, and grants.

- The Registrars Transcript Guide should continue to be updated as the technology evolves, with expanded sections on electronic transcripts, including EDI, the Texas Server, the XML transcript-related schema, .pdf's, and e-transcript security.
- A public registry, accessible via the web, should be maintained by AACRAO. This will list the official transcript sending and receiving protocols in use by the individual members. The entries in this registry could be confirmed/updated by members annually as they renew their institutional membership. The SPEEDE Committee could be charged to investigate and recommend a structure for such a registry. Note that many of the e-transcript players are not AACRAO members, e.g. community colleges, technical schools, etc., and their involvement should not be ignored.
- AACRAO should develop and publish guidelines for the distributing and reception of e-transcripts. AACRAO members should be encouraged to follow these guidelines as they develop their own electronic-transcript services. In a broad sense this will serve to maintain the level of security and authenticity of transcripts that registrars are obligated to provide, and in a narrower sense assures that for each institution the proper individuals and offices and their addresses are identifiable by whomever needs to know them.

Key Links/References:

- University of Texas-Austin SPEEDE: http://registrar.utexas.edu/speede/ for server, Q&A, etc.
- AACRAO SPEEDE for state progress, state contacts, RIPS (& AACRAO Resource Center)
- *Electronic Data Exchange Primer (AACRAO 2008)*
- *AACRAO Transcript Guide*
- Postsecondary Electronic Standards Council: www.pesc.org watch activities of work groups on this.
- Also included:
    - AACRAO Users Surveys - Admissions and Registrars
    - Task Force commercial services survey

HEREAFTER are the surveys which will appear (only) in the associated web sites referenced in the above document.

AACRAO Users Surveys--Admissions and Registrars

AACRAO's Vice President for Records and Academic Services has directed a task force to report on the state of electronic transcripts. To help us analyze the processes already in place at your institutions, we ask that you answer the following questions. Please note, a similar survey is being sent to the Registrar's/Records Office at your institution for their input.

For our purpose, the definition of an electronic transcript is: a transcript that comes in any of the following formats: EDI (SPEEDE), XML,.pdf or other standardized electronic (non-hardcopy) format.

Name of institution: _____

Position of person responding to survey: _____

1. Does your institution's Admissions Office(s) RECEIVE electronic transcripts? No____ Yes____

If yes, please check the appropriate box(es):

EDI XML PDF Other

From High Schools: ____ ____ ____ ____

From Colleges: ____ ____ ____ ____

Do you receive or retrieve from a third party vendor? If so, whom:
_____

Approximately what percentage of high school transcripts are received electronically?
_____

Approximately what percentage of college transcripts are received electronically?
_____

2. Does your institution receive electronic transcripts via methods not addressed in this survey? If so, please explain below.

The task force appreciates your time and effort.

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institutions, we ask that you answer the following questions. Please note, a similar survey is being sent to the Admissions Office at your institution for their input.

For our purpose, the definition of an electronic transcript is: a transcript that comes in any of the following formats: EDI (SPEEDE), XML,.pdf or other standardized electronic (non-hardcopy) format.

Name of institution: _____

Position of person responding to survey: _____

1. Does your institution's Registrar's / Records Office **send** electronic transcripts?

No ____ Yes ____

If yes, please check the appropriate box(es):

	EDI	XML	PDF	Other
To Colleges/Universities:	____	____	____	____
To Businesses/Individuals:	____	____	____	____

If yes, do you distribute transcripts yourself or through a third party vendor/agency? If vendor or agency, whom: _____?

If yes, approximately what percentage of all the official transcripts you produce in a year are distributed in any of the electronic formats you have indicated?:

To other Colleges/Universities:____%

To Businesses/Individuals: ____%

2. Does your institution distribute electronic transcripts via methods not addressed in this survey? If so, please explain below.

The task force appreciates your time and effort

Task Force Commercial Services Survey

AACRAO Survey of Electronic Transcript Delivery Services

AACRAO's VP for Records and Academic Services has directed a workgroup to collect information and report on the current availability and pricing of electronic transcripts delivery services. To this end we have developed this survey to identify prospective suppliers for the electronic delivery of transcripts and to describe their companies, services, and pricing. Results of this survey will be made available to AACRAO members in a report that will be published In AACRAO's *College and University,* as well the AACRAO website. In addition, the work group will also present the results of the survey at the AACRAO annual meeting in New Orleans, April 2010.

Please note that the workgroup will not recommend any one technology, vendor, or practice over another. The questions are intentionally exploratory and encourage you to provide detailed responses so that AACRAO members may conduct a prudent evaluation of the features, prices and services offered by each company. Our purpose is to describe the current state of electronic transcripts and to provide useful information to the AACRAO membership that will help them make an informed decision regarding whether or not they should deploy an electronic transcript service.

Thank you in advance for taking the time necessary to complete the survey.

Part 1	**Short Answer**	**Description / Explanation**
CORPORATE INFORMATION	**(Yes, No, n/a, number, etc)**	
What is your company's full name		
Year of incorporation		
How is your company organized?		
List any other products/services you currently provide.		
How many academic customers do you currently serve?		
How long has your company been providing electronic transcript services?		
Where or to whom should schools interested in learning more about your service be directed?		
Web link		
Where or to whom should technical questions be directed?		

Other information you wish to add

Part 2	**Short Answer**	**Description / Explanation**
ELECTRONIC TRANSCRIPT FORMATS	**(Yes, No, n/a, number, etc)**	

In what format(s) can you deliver electronic transcripts?
(Check all that apply)

- PDF
- EDI (ANSI X12 standard)
- XML (PESC standard)
- ASCII/flat file
- MS Word or MS Excel
- Proprietary format
- Other

Part 3	**Short Answer**	**Description / Explanation**
CREATION OF THE ELECTRONIC TRANSCRIPT	**(Yes, No, n/a, number, etc)**	

What data format do you require from the school as you prepare to deliver the school's transcript electronically? (Check all that apply)

- PDF
- EDI
- XML

- ASCII/flat file
- MS Word or MS Excel
- Proprietary format
- Other

Does your system create the.pdf for the sending institution?

If you deliver an electronic transcript in.pdf format, does it include:

- Cover sheet?
- If a cover sheet is provided, what information is included?
- Link to school website?
- Link to registrar's website?
- Link to school course catalog?
- School identity
- Transcript Key/Legend
- Other features

Part 4	**Short Answer**	**Description / Explanation**
DISTRIBUTION OF OUTGOING ELECTRONIC TRANSCRIPTS	**(Yes, No, n/a, number, etc)**	

How do you distribute transcripts (check all that apply):

- Texas Server delivers to each recipient using the senders' specified requirements

- Provide a secure web service where receivers can retrieve transcripts
- We utilize a network registry
- We email the transcript
- How are transcripts delivered to recipients unable to use the Texas Server or your in-network capabilities?
- Are recipients required to be registered with your service?
- Other, please describe

Once delivered to the recipient, will the transcript expire?

Once opened by the recipient, will the transcript expire for the recipient?

Part 5 **RETRIEVAL/DISTRIBUTION OF INCOMING ELECTRONIC TRANSCRIPTS**	**Short Answer** **(Yes, No, n/a, number, etc)**	**Description / Explanation**

Other than a.pdfreader, does your system require any special software installation to receive delivered transcripts?

NOTE: Questions below may pertain only to a.pdf transcript.

How are mailboxes established for recipients?

Does your system deliver to multiple mailboxes at a single school/organization?

Does your system deliver in batch to a single destination?

Are recipients required to identify themselves each time transcripts are delivered?

Are email(s) delivered to the receivers with instructions (perhaps including passwords and URL's) whenever a transcript is ready for be retrieved electronically?

Are students notified that their transcript requests have been delivered and have been opened by intended recipient?

Is the sending institution notified that transcripts have been delivered and opened by intended recipients?

Are transcripts delivered in real time?

Other

Part 6 **DATA STORAGE**	**Short Answer** **(Yes, No, n/a, number, etc)**	**Description / Explanation**
Does your service require a copy of the sending school's transcript database?		
Does your service store transcript data after delivery of the transcript? ● If so, for how long? ● If so, can the transcript data be released multiple times? ● If so, can the data be mined?		
How are delivered transcripts documented and reported if (after) they are physically removed from the system?		
Other information you wish to include.		

Part 7 TECHNICAL REQUIREMENTS	Short Answer (Yes, No, n/a, number, etc)	Description / Explanation
List the Student Information Systems on which you have installed your electronic delivery service.		
Describe a typical installation process and the time required for implementation and activation of your system.		
Does your service require the use of proprietary software?		
What are the minimum hardware/software requirements that your service requires of a school, if any?		
Describe how your system accommodates multi-campus delivery and reporting requirements.		
Describe the on-line help capability your system provides to all users.		

Part 8 SECURITY	Short Answer (Yes, No, n/a, number, etc)	Description / Explanation
How are institutional/campus administrators selected and authorized?		
Is the data that you send/receive encrypted?		
Is the data that you send sent through some form of secure FTP?		
Are any networks secured?		
Are any servers secured?		

If you deliver.pdf transcripts, are they secured via a digital signature?

If NO, how does your system ensure that transcripts are authentic and have not been altered?

How are delivered electronic transcripts verified as authentic over time?

Describe the use and assignment of user passwords

Part 9	**Short Answer**	**Description / Explanation**
HIGH SCHOOLS	**(Yes, No, n/a, number, etc)**	
Is your service utilized in high schools?		
Describe any features only used by high schools.		

Part 10	**Short Answer**	**Description / Explanation**
REPORTING FEATURES	**(Yes, No, n/a, number, etc)**	
What reporting functions are included with your service?		
Can you report the number by type (e.g., PDF, XML, EDI) of transcripts delivered on a monthly basis, weekly basis?		
Are your reporting services offered at additional cost?		

Part 11	**Short Answer**	**Description / Explanation**
PRICING/CONTRACT TERMS	**(Yes, No, n/a, number, etc)**	

Is a binding contract required?		
If yes, please describe contract period.		
Is there a per transcript fee? How much?		
Is there an installation/initiation fee?		
Is there an annual fee?		
Are there initial or annual third party license fees?		
Do you offer tiered pricing/service models? If so, please explain.		
Are there charges for training?		
Do you offer discounts?		
Are there code escrow fees?		
Are there charges for upgrades or new releases?		
Are fees borne entirely by the sender?		
Are there fees borne by the recipient?		
Is pricing bundled to other services?		
Describe your customer support program.		
How is your transcript delivery system documented?		

Part 12	**Short Answer**	**Description / Explanation**
SUMMARY	**(Yes, No, n/a, number, etc)**	
Please list and describe the 5 top benefits of your system.		

1.

2.

3.

4.

5.

Describe any features of your service not previously mentioned.

Part 13 **AFFILIATIONS**	**Short Answer** **(Yes, No, n/a, number, etc)**	**Description / Explanation**
Are you an AACRAO member?		
Are you a PESC member?		
Are you contracted to provide services to a state(s), region or consortium?		
List any other affiliations pertinent to electronic transcript services.		
Attach a list (or active link) identifying the postsecondary institutions using your services as receiving and/or sending institutions.		

Part 14 **TRANSCRIPT ORDERING SERVICE**	**Short Answer** **(Yes, No, n/a, number, etc)**	**Description / Explanation**
This area is focused on transcript delivery. Briefly describe:		

Do you offer a transcript ordering service

Is your ordering service integrated with your delivery service

Can other ordering services be used with your delivery service?