Nevada Department of Education

Educator Licensure System

Implementation Report

October 1, 2018

Background and Overview

In 2014 the Nevada Department of Education's Office of Educator Licensure (OEL) began exploring options for replacing its existing computerized licensure system, known as Bighorn. Bighorn was implemented in 2005, and the underlying flat-file database had been in use since 1985; given that the life expectancy of most such systems is approximately ten years under normal circumstances, the Department felt it prudent to begin looking at system replacement.

In August 2014, the Department completed a technology investment request (TIR) detailing the need for a new licensure system. That request included projected total costs of $423,054.00 for system implementation over the course of three fiscal years (FY 16 - FY 18). This figure was based upon vendor bids and actual costs for systems implemented by other State agencies between 2004 and 2011, adjusted for current pricing. With ongoing annual expenses, the TIR projected a five-year total ownership cost of $551,354.00 for a new system. On August 13, 2014 the TIR was approved by the Department of Administration's Division of Enterprise IT Services (EITS), which agreed that there was a need for system replacement within the next two to three years.

During February and March 2015, the Department issued a Request for Information (RFI) to obtain initial information on available licensure systems and associated costs. Nine vendors responded to the RFI, and four of the nine had products which met the Department's needs. Cost estimates for these systems ranged from approximately $600,000.00 to $1 million, including any necessary programming modifications and migration of data out of Bighorn.

The 2015 Legislature did not approve funding for a new licensure system as detailed in the TIR, as the projected costs contained within that document were deemed unrealistic. The Legislature did approve $60,000 for the Department to commission a study of current licensure requirements and practices, and it issued a letter of intent directing the Department to seek funding approval for a new licensure system from the Interim Finance Committee once that study had been completed and firm cost estimates for such a system had been established.

Pursuant to the Legislative directive, the Department utilized the RFP process and ultimately contracted ACS Ventures to complete a three-part licensure study beginning in April 2016, and took delivery of the final report on September 30, 2016. Although the Department continued to retain the services of ACS Ventures to assist with bill draft request language for the 2017 legislative session, the substantive portion of the study affecting the Legislature's letter of intent was complete.

In October 2015 the Department contracted a separate vendor, Chandra Technologies (Chandra), to conduct a technical assessment of Bighorn and make recommendations as to whether it would be possible and/or cost effective to upgrade and repair the existing system rather than to replace it entirely. This study was completed in April 2016, and Chandra determined that because of outdated architecture, the existing system could not feasibly be modified in a number of critical respects, and that other upgrades, while possible, would be prohibitively expensive compared with the cost of replacement. Chandra's report was forwarded to the IFC in April 2016, along with a letter expressing the Department's intent to request funding up to $800,000.00 for a new licensure system based upon the report's findings and the responses to the RFI.

On November 10, 2016 the Department, in cooperation with the State Purchasing Division, released a request for proposals (RFP) to solicit bids for a new system. The RFP specified that the Department was looking for an off-the-shelf product which could be modified as needed, as this was determined to be more cost-effective and more efficient in terms of implementation time than developing an entirely new

solution. In addition to this requirement, a number of other necessary features and functionalities were identified, including, but not limited to:

- The capability for applicants and licensees to apply for licensure online, view the status of any pending applications, upload documents to their records, and manage their personal and contact information via a secure user portal
- Limited access to information, via a secure internet portal, for school districts and Nevada-approved educator preparation programs, with the capability for such users to upload certain information into the system as required
- A bulk email tool, as well as capability to automatically send email reminders to licensees whose licenses are going to expire within a specified time frame
- Interface with vendor systems to allow information such as applicant test scores to be uploaded to the appropriate records in the system automatically on a set schedule
- Scheduling of system tasks, including certain reporting functions, to run automatically at intervals
- Storage and viewing of uploaded documents in PDF format within licensees' records[1]
- Receipt of background reports on applicants electronically from the Department of Public Safety once their ongoing system upgrade allows such functionality
- Ability to function not just as a licensure system, but also as an educator data system, collecting a broad variety of relevant data for later use to inform policy decisions and legislative initiatives.
- A robust query tool that would allow staff to access data and generate reports in response to Department needs, statutorily mandated reporting requirements, and public information requests
- Ability for Department staff to handle most system configuration/basic programming tasks in response to ongoing statute and regulation changes on a regular basis, without having to utilize outside resources or incur additional expenses

Six vendors with products meeting the Department's requirements responded to the RFP, submitting bids ranging from $609,000.00 to $1.6 million for system configuration, system implementation, and data migration. An evaluation committee convened on January 5, 2017 and chose inLumon, a Reno, Nevada-based technology company, as being best able to fulfill the requirements outlined in the RFP in the most cost-effective manner.

The Department signed a contract with inLumon on February 9, 2017, and on that date also submitted a revised TIR to EITS reflecting the Department's current technology situation and funding requirements. EITS approved the revised TIR on February 13, 2017. The contract with inLumon was approved by the Board of Examiners at their March 14, 2017 meeting, contingent upon approval of funding for the project by the IFC, with a vendor start date of May 1, 2017.

Project Budget

On April 4, 2017, the Department requested funding from the IFC in the amount of $650,000 for the licensure system contract. This total incorporated the actual cost of $609,835.16 quoted by inLumon for system implementation and data migration. Because of Department concerns over the age of the existing Bighorn system and its underlying database, it also included $40,164.84 in additional funds to be used if necessary should any issues arise during the data migration phase of the project. Department staff

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[1] *This function was previously handled by a third-party imaging system. Elimination of this separate imaging system represents a cost savings to the Department of approximately $10,000.00 annually, as it was licensed under contract with a separate vendor.*

demonstrated that the OEL had sufficient funds in its reserve account to pay for the new system and had a plan in place to repay the reserve account over the next several years.

The IFC approved the Department's request for funding, granting $108,000 to be used during the balance of FY 17 based on Department projections, and the balance of $542,000 to be added to the Department's FY 18 budget. The IFC also approved an ongoing annual expenditure of $144,000 for hosting, maintenance, and vendor support of the system, starting in FY 19. In addition to anticipated increased application volume due to school district hiring trends in recent years, to ensure that ongoing costs would be sustainable, the Department proposed to implement a fee increase of $19.00 per license for initial licenses and renewals, which would generate an estimated $200,000.00 to $225,000.00 in additional revenue annually to fund these expenditures. As of the April 2017 IFC meeting, these fee increases were still pending approval by the Legislative Commission; they were approved on June 21, 2017, and were implemented in April 2018 to coincide with the public release of the new system.[2]

The Department made a total of six payments to inLumon during FY 17 and FY 18 based upon receipt of contracted deliverables, with one payment of $108,000 during FY 17, and the remaining five payments, totaling $501,835.13, during FY 18, for a total expenditure of $609,835.16. The contingency amount of $40,164.84 set aside for data migration was not needed and reverted to Department reserves at the end of FY 18.

Beginning with FY 19, the Department was allocated budgetary authority to expend $144,000.00 per annum for hosting, maintenance, and support of the licensure system. As of the date of this report, it is anticipated that the Department will continue to utilize inLumon to provide these services moving forward.

Project Implementation

Work on the licensure system project began on May 1, 2017, with the intent to have the system ready for user acceptance testing by September 2017 and to have it available online for the public to use in December 2017. The inLumon product is a "customizable off-the-shelf" (COTS) system, incorporating a base product which is capable of performing many standard licensure/certification functions as designed, but which can also be modified as necessary to meet the unique needs of the end user. When work on the project started, the inLumon product was in use in some form with a number of licensing and enforcement boards in both Nevada and California, including the Nevada Board of Professional Engineers and Land Surveyors, the Nevada State Board of Massage Therapists, and the California Massage Therapy Council. The product in its existing state incorporated most of the features deemed essential by the Department. However, because the OEL issues a number of different types of licenses with varying renewal requirements and periods of validity, modifications would be needed to convert the inLumon product from one that handled a single, non-variable strand of license issuance and renewal to one that could seamlessly integrate a number of various licensure transactions with differing rules and requirements. Initial project planning meetings between the vendor and the Department focused heavily on this necessity and devoted a significant amount of time to codifying the business rules that would govern the different transactions within the system. Another major consideration, with the passage of Senate Bill 69 in the 2017 Legislative Session, was to create sufficient efficiencies within the system to ensure the Department would be able, with its existing level of staffing, to comply with the statutory license review

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[2] *In line with initial projections, during FY 18, the Office of Educator Licensure realized excess revenue from licensure fees in the amount of $201,196.50, due primarily to increased application volume and partially to fee increases.*

and issuance time frames contained within that bill (now codified in NRS 622.530). A number of business rules and product modifications were written in such a way as to facilitate this.

Because of the complexities of the required modifications to inLumon's base product, user acceptance testing on core functions was completed slightly later than anticipated (mid-January 2018), but well within acceptable parameters for a project of this size and level of intricacy. The first phase of data migration, which included moving all licensure data for approximately 110,000 licensees from Bighorn to the new system, was completed on January 21, 2018, and on January 22, 2018 the new system went live for use by Department personnel only. While applicants and licensees continued to make application using paper forms as they had done previously, OEL staff entered these applications into the new system for processing and license issuance, Bighorn was no longer used for any license/application processing functions. The decision was made by Department leadership to allow staff to function within the new system for several weeks before allowing public access, so that any unforeseen issues or "bugs" occurring during use could be identified and corrected. During this phase the decision was made to name the new system "OPAL" (Online Portal for Application and Licensure), in honor of the official State of Nevada precious gemstone.

The first of the agency access "Business Partner Portals" (BPPs) went live for use by fingerprint vendors in late January. This BPP allows vendors to log in and verify that applicants have applied for licensure with the Department before submitting their fingerprints for the statutorily mandated background check, and also to report to the Department when applicants are fingerprinted for tracking purposes. A similar BPP for use by school and district personnel, which will allow reporting of assignments and salary information pursuant to NRS 391.120, is currently undergoing final testing prior to implementation. A third BPP allowing Nevada approved educator preparation institutions to report information on program completions to the Department will be implemented once the district portal is fully live.

After nine weeks of use by OEL staff, OPAL was made available to the general public on April 4, 2018, and the Department began accepting applications and processing licenses completely online for the first time. The Department stopped accepting paper applications as of July 1, 2018, and now requires that all applications be submitted online except in extenuating circumstances. Applicants may still come to either the Las Vegas or Carson City OEL offices to apply for a license in person; computers are available in each of the OEL's two offices for them to apply online, and staff will assist with any questions or problems they may have throughout the application process.

The second phase of data migration occurred during July 2018, and included the migration of all archived and imaged documents to OPAL from their existing location on a file server maintained by the Department's document imaging provider. These documents had previously been accessible only via a third-party viewing application, and could not be viewed from within the corresponding license record in Bighorn. This phase also included converting all migrated documents to PDF format and matching each to the corresponding licensee to allow access from each individual record. Approximately 289,000 files were migrated during this phase.

InLumon staff have continued to work with Department personnel to identify and fix any issues with functionality occurring during system use, and will continue to build out additional non-essential functions and enhancements within the system as agreed upon in the terms of the contract.

System Functionality

General:

The inLumon product was customized and configured to serve as the Department's new licensing and data system capable of managing the entire lifecycle of educator licensure. It was designed to track an individual's entire licensure history from initial application through renewal, professional development, and other data metrics as desired. Figure 1 below shows a partial example of how an individual's record appears to an OEL staff member within OPAL. The system maintains all current and historical information on licenses, endorsements, and provisions held by a licensee, and supporting documents may be uploaded to an individual's record by either the licensee or Department staff. Correspondence between staff and licensees or applicants is managed primarily via OPAL's secure communication function, and any correspondence sent or received within the system is automatically archived within the licensees' records.

Figure 1

Applicant/Licensee Dashboard and Portal:

OPAL allows for the issuance of new licenses/endorsements and renewal of existing licenses from a secure online portal where educators complete and submit applications. Alternatively, Department staff with approved access may enter information on a licensee's behalf through a "back office" user portal. Applicants and licensees are required to establish a user profile for online access prior to using OPAL, and are guided through a series of prompts to facilitate this task upon first navigating to the OPAL website. Once a profile has been established, a user may log in and complete a number of licensure-related tasks online via the web portal. Figures 2 and 3 below show views of the "dashboard" that a licensee or applicant sees upon logging into the system.

Figure 2 shows how an applicant is able to monitor the progress of his or her most recent application in real time within the dashboard. Providing this transparency eliminates uncertainty about the status of a pending application, and has helped to reduce the number of calls from applicants wondering where their applications are within the licensure process.
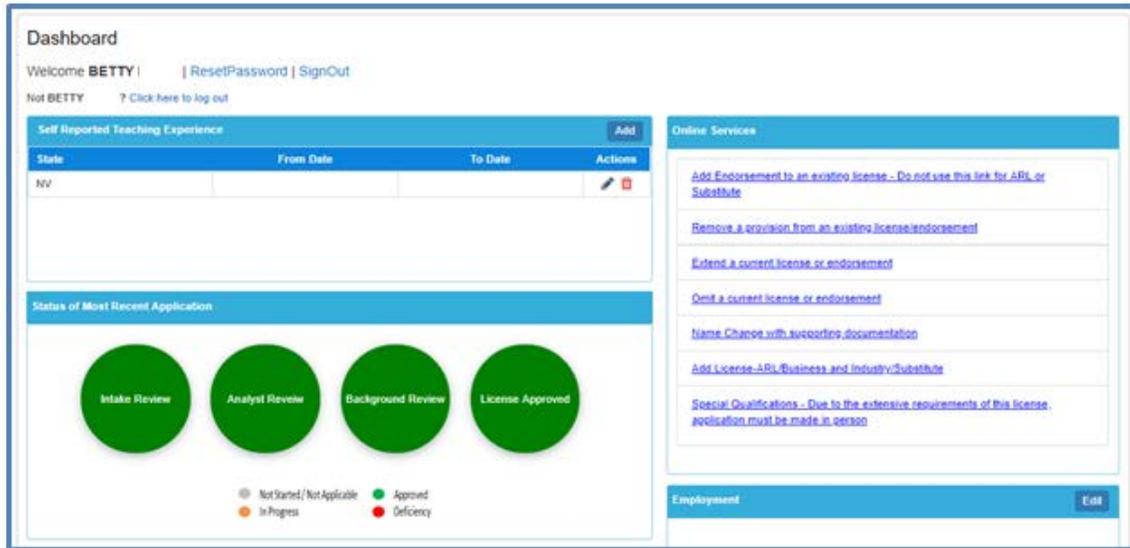
Figure 2

inLumon worked with Department staff to custom design the layout of the dashboard, empowering users to perform most common tasks online. As shown in Figure 3, this includes the ability for a user to maintain their own personal information, such as name and contact information (mailing address, phone number, and email address), without having to submit paper updates to OEL staff for processing.
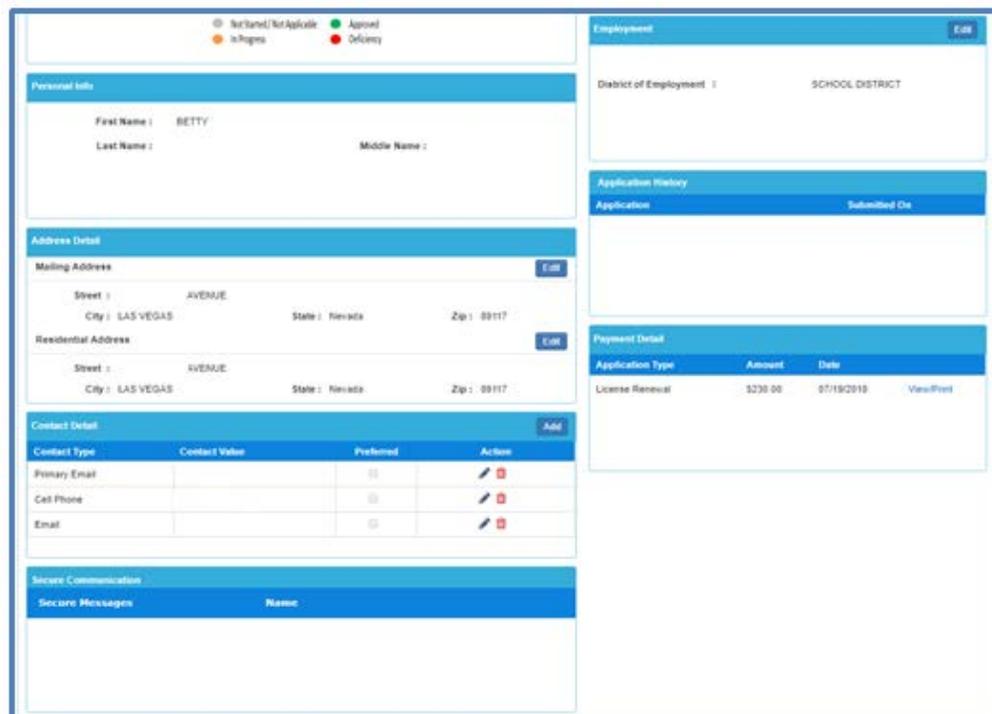
Figure 3

Additional user tasks available online (with ability to upload supporting documents as necessary) include:
- Submitting a name change
- Adding or omitting a license or endorsement

- Removing provisions from a license or endorsement
- Requesting an extension of an existing license
- Viewing and printing a copy of the user's license
- Uploading professional development documents

OPAL has the capability to send emails and SMS (text) messages as an application moves through the workflow process, including updates on the status of background checks, and can also generate automatic reminders about expiring licenses, missing documents, steps to be taken to complete the application process, etc.

Staff Portal:

Department staff log into OPAL through a portal similar to that used by applicants, and view the status of submitted applications as shown in Figure 4 below. This view indicates whether a pending application has been submitted by an applicant via the online portal (noted with an "OL" in the "Started By" column) or entered on an applicant's behalf by Department back office staff (noted with a "BO" in the "Started By" column).

Application Type	License#	First Name	Last Name	Submitted Date	Assign To	Started By	Status	Locked By/ On	Action
New App (Initial)		Heather		06/31/2018		Heather (OL)	IntakeQ + BGQ		Verify
Additional Lic/End		Jacqueline		06/31/2018		Jacqueline (OL)	Intake		Verify
New App (Initial)						inLumon Support (BO)	Backoffice Pending		Edit
Reapply		Andrew				inLumon Support (BO)	Backoffice Pending		Edit
New App (Initial)		Natalie		08/21/2018		Natalie (OL)	Intake+BGQ Approved	inLumon Support / 08/21/2018	Verify
New App (Initial)		testOnLocal				inLumon Support (BO)	Backoffice Pending		Edit
Renewal		Nicholas				inLumon Support (BO)	Backoffice Pending		Edit

Figure 4

This view also shows, for each application submitted:

- Type of application
- License number (if an existing licensee)
- First and last name
- Date application was submitted
- Status of each application within the workflow process
- Department staff member an application is assigned to, if applicable ("Assign To" column)
- Department staff member currently working within an application, if applicable ("Locked By/On" column)
- Color coded action icons showing the application status at each stage of the workflow process,

from application intake to licensure analyst approval and background clearance

Online Payment Processing:

OPAL allows applicants to submit online credit card, debit card and EFT payments using an API (Application Program Interface) with Wells Fargo, which is the State's designated payment processing institution. The system allows users to split a payment across multiple forms of payment (e.g. two or more different credit cards). OEL staff may also take payments within OPAL for applicants who personally come to Department offices to apply for a license. Figure 5 below shows the payment screen as it appears to Department staff; the online licensee/applicant view is similar, with differences as noted below.

Figure 5

The payment processing functionality includes:
- An override feature – Only available for authorized Department staff when entering payment for a paper application that has been entered via the back office portal. This can be used to override or change payment amounts if needed (e.g. to waive certain fees if extenuating circumstances apply).
- Flexible payment option – An applicant will only see the "Credit/Debit Card" option,

Department staff will have additional payment options available, including Check, Money Order, and Cashier's Check.

Background Check Management:

OPAL allows Department staff to monitor the applicant background check process from the time of application submission until results are received. It displays the status of both FBI and DPS background checks, along with the date of every status change throughout the process. All applications for which the background check process is not complete are displayed in a Background Queue, from which the status of an individual applicant's background check may be viewed as shown in Figure 6.
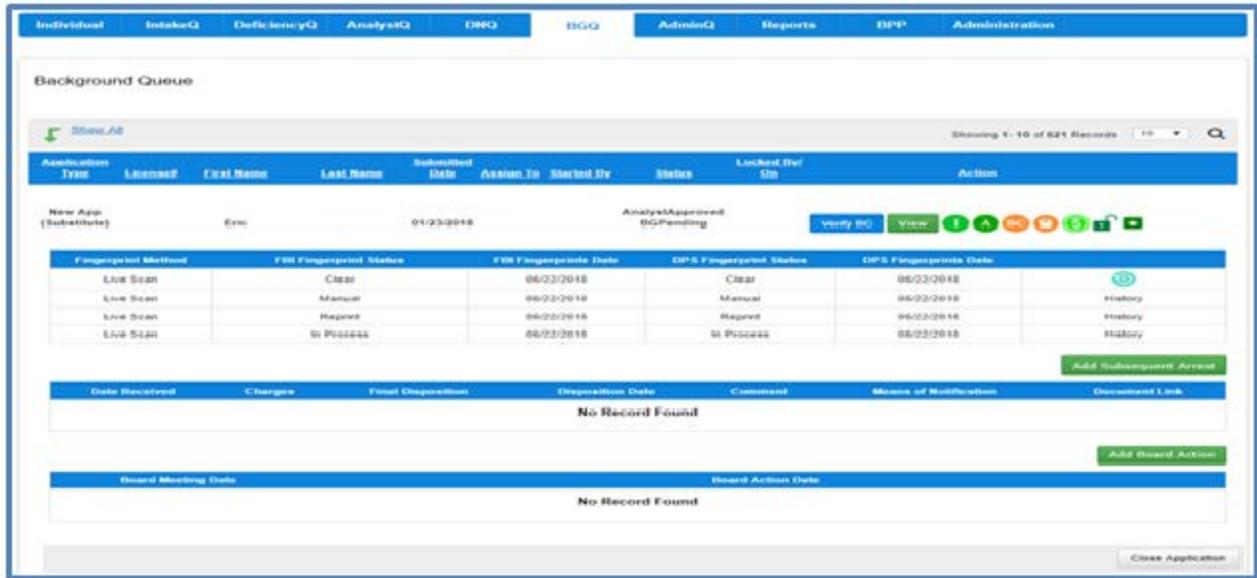
Figure 6

OPAL sends automated reminders at set intervals until an applicant submits fingerprints for background, and allows for automatic archiving of applications if fingerprints are not submitted within a specified (user-configurable) time period. Department staff may also generate secure email notifications to applicants if background reports received from DPS or the FBI indicate that more information will be required to properly evaluate an applicant's eligibility for licensure. In the event an applicant is determined to be ineligible for licensure based upon background check results, notification to the applicant may be sent from within the system.

As noted above, an online BPP allows authorized fingerprint vendors across Nevada to verify that an applicant exists within OPAL prior to submitting fingerprints for background, and also allows vendors to indicate they have submitted fingerprints electronically for that applicant. When a vendor notes that fingerprints have been submitted, the applicant's record is automatically updated with that information for tracking purposes. Having this information readily available enables Department staff to work directly with vendors and applicants to resolve issues that may arise with electronic transmission of fingerprints to DPS – a capability which was severely limited prior to the implementation of OPAL.

The system does not allow a vendor to use the BPP to conduct a name search only; vendor verification of an applicant via the BPP is accomplished by the entry of a combination of individual identifiers provided by the applicant directly to the vendor. Fingerprint vendors do not have access to any personal information within OPAL, and to obtain BPP login credentials, vendors must first undergo a review by

Department staff.

Although DPS does not at this time have the capability to securely transmit background check results or criminal history information to client agencies electronically, it is currently undergoing a multi-phase upgrade to its computer systems that may, in the future, allow such communication. With this in mind, OPAL was configured with the capacity to interface with the DPS system should that functionality become available.

Configurable Workflow Routing:

The OPAL application workflow is designed to follow an existing application workflow process. Applications that are initially received in OPAL's Intake Queue (Figure 7 below) are reviewed for completeness by Department staff. Any application that is found to be incomplete for any reason (e.g. missing documents) is noted as deficient, and the application is then moved into a Deficiency Queue, where it will remain until the deficiency is corrected. Staff send notification to the applicant via OPAL's secure communication portal at the time the application is marked deficient, allowing the applicant a specified time frame in which to correct the deficiency.   Automated reminder emails are then sent to the applicant every seven days until the deficiency is corrected or until the time frame expires. When the applicant corrects the deficiencies, the application is automatically moved from the Deficiency Queue back to the Intake Queue, where staff review the application again. If the deficiency is not corrected within the time frame specified, the application is automatically archived by the system, and the applicant is notified by email that it has expired.

Figure 7

Once an application is determined by staff to be complete, it is then moved to an Analyst Queue where an Educator Licensure Analyst determines whether the applicant meets the qualifications for licensure in the

area(s) for which they have applied.   Applications displayed in the Analyst Queue (Figure 8) may be sorted by any column, in either ascending or descending sequence.

All queues within OPAL display a series of action icons denoting where the application is within the workflow process. Note the following in Figure 8 below:
- Green "I" icon in the "Action" column - an application has successfully completed the Intake Queue workflow stage.
- Orange "A" icon in the "Action" column - a licensure analyst has not yet reviewed the applicant's qualifications for licensure. This icon will turn green once that review is completed and the reviewing analyst updates the application status in the system.
- Green "BC" icon in the "Action" column - application has successfully completed the background check workflow stage.
- Green clipboard icon in the "Action" column - application had a deficiency, but that has been addressed.
- Green "$" icon in the "Action" column - the appropriate application fees have been paid.
- Green padlock icon in the "Action" column - application is "unlocked" and can be accessed by a Department user.
- Red padlock icon in the "Action" column - application is locked by a Department staff member and cannot be opened by other staff; it also shows in the "Locked By/On" column who is working within the application and the date the file was accessed.

Figure 8

The background check process occurs concurrently with the movement of the application through the

Intake and Analyst Queues. As outlined above, applications for which the background check is not complete will be displayed in a Background Queue, and the background process may be managed from within that queue. Once the analyst review and the background check are both successfully completed, the pending license will be issued, and the system will automatically send a PDF copy to the applicant with a confirmation email. If the applicant is determined to be ineligible based upon either the analyst review or the results of the background check, the applicant is notified by email and the license is not issued.

Case Management:

In addition to automated workflow, the OPAL system also provides case management functionality. When an investigation of a licensee is initiated (e.g. upon receipt of notification of the arrest of a licensee), the case is assigned to that individual's record and all events and investigative notes related to the case may be tracked within that record.

Electronic Document Management:

Electronic document management is an inherent capability of OPAL, allowing for single and multiple documents to be uploaded directly into a licensee's file for ease of access, review and retention. Figure 9 illustrates how scanned documents and files can be uploaded via a user-friendly interface and accessed within the associated record.
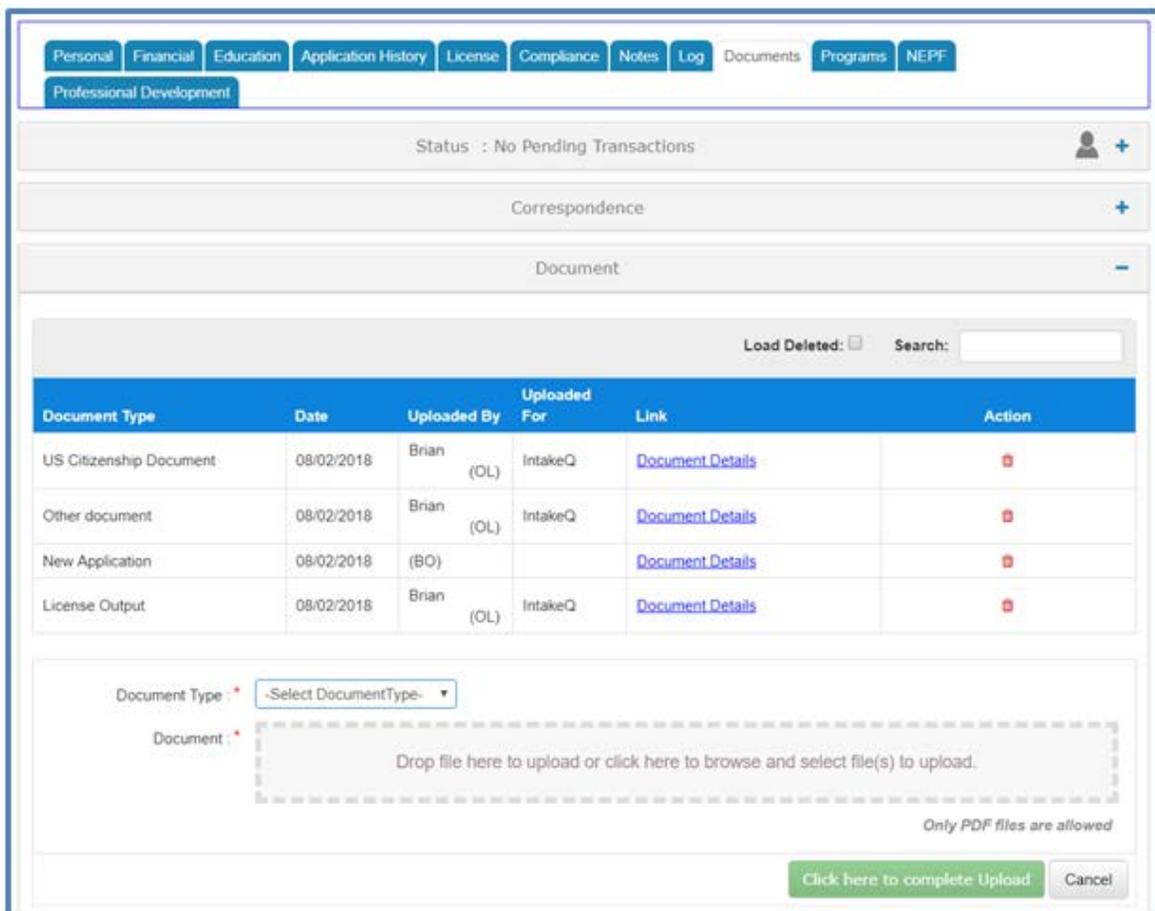
Figure 9

Testing Vendor Interface:

The Department receives weekly test score reports from its testing vendor, Educational Testing Service (ETS). OPAL automatically uploads these score reports via an API, and displays the results in each test taker's OPAL record as shown in Figure 10 below. Each instance of tests taken by an individual are displayed separately and shows the test number, test name, date taken, score achieved, and result (pass/fail).

If passing test results allow an individual to clear a provision on the license, the system will automatically remove that provision from the license and send an email confirmation to the licensee.
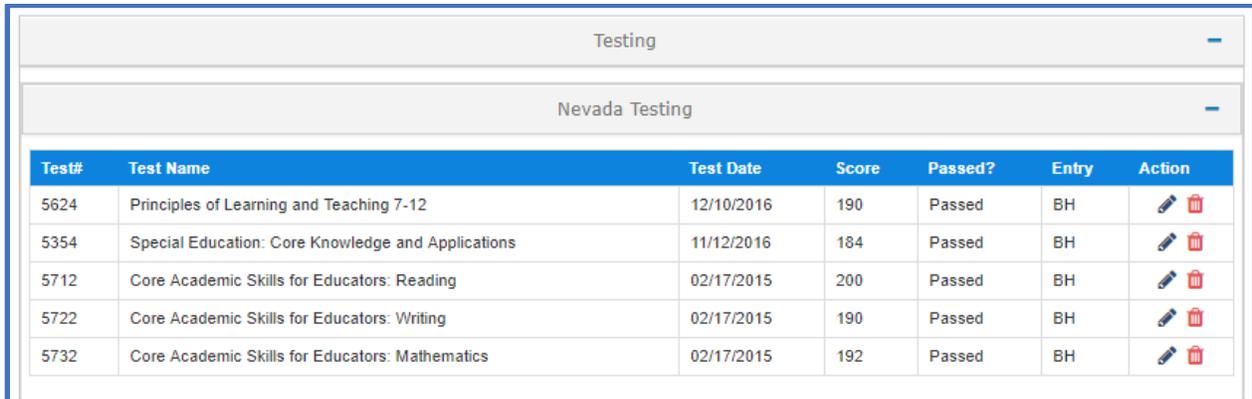
Test#	Test Name	Test Date	Score	Passed?	Entry	Action
	Testing					−
	Nevada Testing					−
5624	Principles of Learning and Teaching 7-12	12/10/2016	190	Passed	BH	✏ 🗑
5354	Special Education: Core Knowledge and Applications	11/12/2016	184	Passed	BH	✏ 🗑
5712	Core Academic Skills for Educators: Reading	02/17/2015	200	Passed	BH	✏ 🗑
5722	Core Academic Skills for Educators: Writing	02/17/2015	190	Passed	BH	✏ 🗑
5732	Core Academic Skills for Educators: Mathematics	02/17/2015	192	Passed	BH	✏ 🗑

Figure 10

Although other state tests are not automatically uploaded into the system, OPAL also allows individuals to enter, via the applicant web portal, documentation of tests taken in states other than Nevada.

Customizable Reporting Functions:

In addition to creating user-defined reports, OPAL allows Department users to create ad hoc reports using a built-in database query tool. As shown in Figure 11 below, staff can select information to report on (from tables and columns), determine which data to display based on various filter selection criteria, and group and sort the output within the query. Results are displayed on the screen, and with the click of a button can be exported to PDF, Excel or Word.
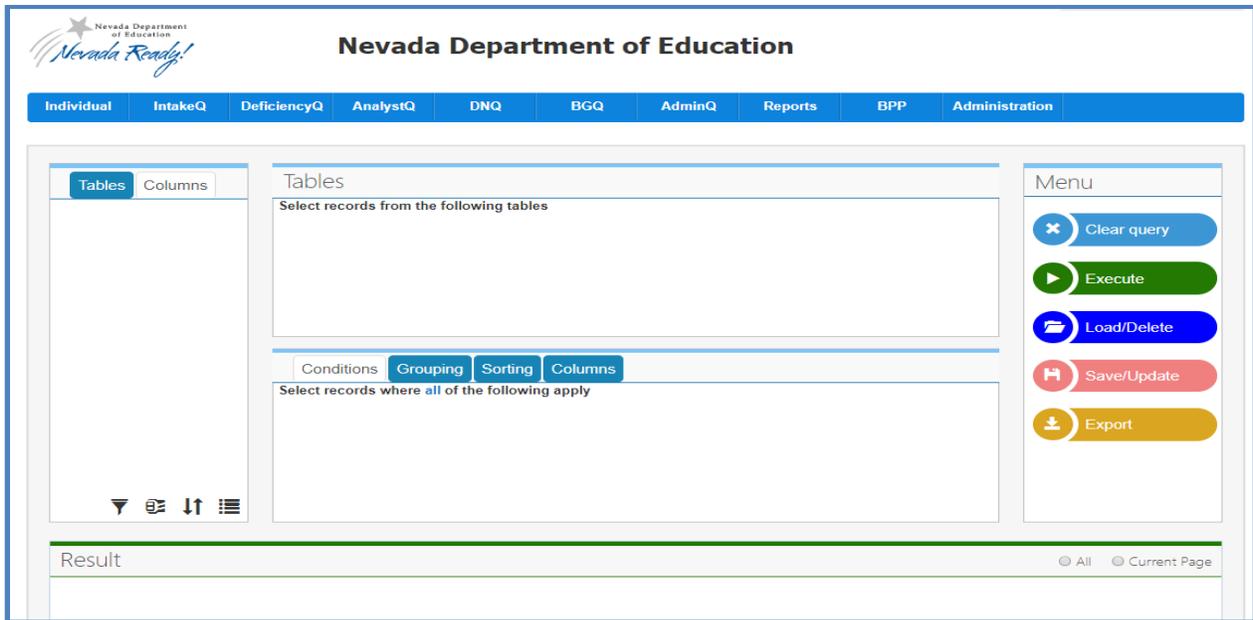
Figure 11

The query tool also allows users to:
- Save any query to be used again later
- Execute any saved query
- Update an existing query and resave it
- Make a copy of an existing query to modify and save as another query
- Manage saved queries

Audit Log:

OPAL has a built-in log and audit functionality. Whenever any action takes place within the system, that action is recorded and date/time stamped so that can be viewed or queried by authorized users at a later time. The audit log captures system generated actions (e.g. uploading of ETS test scores, archiving of an inactive application) as well as actions completed by both internal and external users.

Business Partner Portals (BPPs):

To make certain functions more efficient, provide for better data collection, and streamline annual reporting by school districts and educator preparation programs, three BPP's have been designed within OPAL for use by designated agencies in cooperation with the Department. The use of a BPP by fingerprinting vendors was discussed above. Similar portals for school districts and approved Nevada educator preparation institutions will permit efficient, real-time entry of data into OPAL by authorized users at these entities. The types of data which may be collected via these BPPs include, but may not be limited to:
- Program completion data for applicants enrolled in approved traditional or Alternative Route to Licensure (ARL) programs
- Educator salary and assignment data pursuant to NRS 391.120
- Federal and state mandated personnel reporting data pursuant to NRS 385A.220 (e.g. NEPF effectiveness and years of experience)
- Movement of educators between assignments and/or school sites during a school year or from year-to-year

- School and district vacancies

Each external user of a BPP must submit a request for access to the Department (done via the BPP); upon approval of that request, they will be provided login credentials. BPP users will have very limited, role-based access to data within OPAL contingent upon the specific agency they represent.

Educator Verification Portal:

In addition to providing Department staff with real-time, accurate data, OPAL incorporates a separate public portal that allows for searches and verification of licensee credentials, as well as other public information the Department is legally permitted to share. Figure 12 below illustrates the online interface in which a user can search using specific data fields:

Figure 12

When the query is executed (in this example, we searched for last names including "test"), the user is presented with a list of results linking to the corresponding license records. Only data and information deemed to be public record will be displayed in the detail view seen in Figure 13 below; this includes the licensee's name, areas of licensure, endorsements, provisions, license/endorsement issuance and expiration dates, current and prior school and district assignments, and salary schedule. Users may also run searches for an entire school district or for a specific school within a district. Such a search will return results showing all educators employed at the given district or school. While all of these data points were previously available to the public, this is the first time they have all been conveniently available in one place, which greatly contributes to increased transparency regarding licensed educators serving Nevada students across the state.

The Department receives a significant number of public information requests for data on licensed educators from the news media, elected officials, higher education institutions, school districts, community partner organizations, and other members of the public. Therefore it is the Department's intent to add several of the most requested data sets to the educator verification portal, which will make it easier and faster to access much of this data and will eliminate delays inherent in being required to submit official data requests to the Department. Additionally, data generated in these reports will be displayed in real time, reflecting educators' current assignments, license statuses, etc., rather than a once-a-year "snapshot" in time, as was done previously due to Bighorn system limitations.

Figure 13

End-User Configurable Rules:

To streamline operational changes, all system content should be managed directly by Department staff rather than by inLumon. Therefore, OPAL has been designed to be highly client-configurable. Licensing statutes and regulations change on a regular basis, so it makes sense to be able to update the system as necessary in response to these changes without having to utilize outside resources or incur additional expenses.

The settings which may be configured by Department staff include email and text message templates, dropdown menu values, automated notification rules, error messages that appear as a result of application validation routines, bulk email settings, document types and management rules, and all text and images appearing within the online application and user dashboard (see Figure 14). The system also allows OEL staff to perform certain "help desk" functions for applicants and licensees, which include managing user accounts and resetting user passwords upon request.
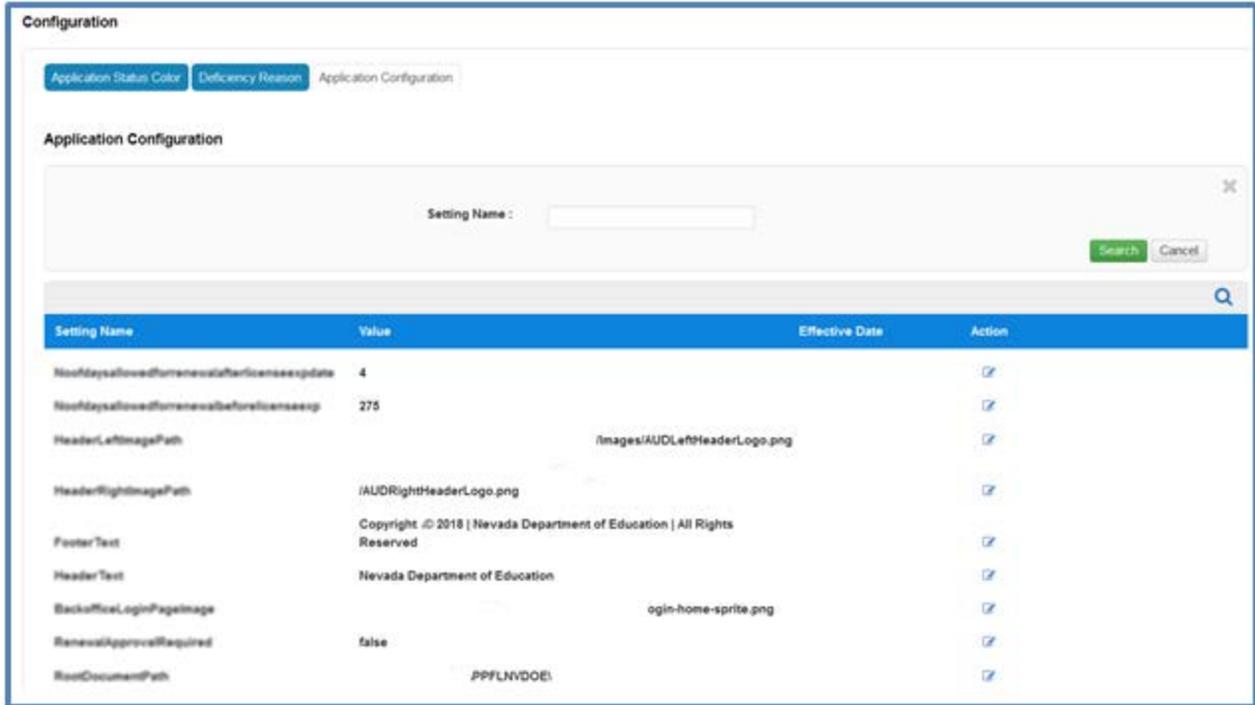
Figure 14

Access to configurable settings by authorized users is via an easily accessible menu contained in the system's administration area, as shown in Figure 15.

Figure 15

Educator Data:

In addition to being a licensure system, OPAL was also designed to function as an educator data system. As such, annual Nevada salary and assignment data is maintained for the preceding twenty years on every individual who has a record in the system (see Figure 16). OPAL also allows higher education degree information, prior out-of-state licensure, competency testing information, and out-of-state teaching experience to be maintained for each licensee. The ability to capture this data, and to query it using the built-in query tool described above, allows OPAL to generate timely and relevant informational reports about Nevada's educators in response to public information requests, legislative mandates, and Department or school district needs.

Figure 16

Secure Hosting, Maintenance and Support:

Ongoing support functions provided by inLumon include the following:
- Hosting the servers – physical as well as virtual server configurations, in two or more physical locations
- 24x7 system and network monitoring services
- Hardware diagnostics & replacement
- Network intrusion monitoring
- Manual OS reloads
- Proactive, bootless operating system security updates and patches
- Instant reactive remediation efforts during service or hardware failure
- Ongoing security audits
- Initial web host manager/cPanel setup using customer provided information
- Firewall configuration setup and monitoring
- Proactive malware scanning
- RAID monitoring
- Recovery assistance if needed
- Configuration changes (upon request)
- Virus and spam protection

System Security:

OPAL manages sensitive information. This sensitive information is identified and stored in the database as encrypted data, is carried through the application layers in an encrypted manner, and is decrypted only for a user with the appropriate role. Each viewing event regarding a licensee's sensitive information is logged in an audit log.

The system also implements the ability to override access controls based on a specific authorization (supervisor override). The supervisor override can be based on a combination of user name and password or a secure key that can be read with a barcode or entered by the supervisor.

Each control, operation, and menu option within OPAL is a resource that can have security permissions assigned to it. Each resource is uniquely identified and associated with a set of access rights in the authorization store. These access rights, including displayed information, layout, options and tools applicable to the particular job function or task, are associated with user roles. Internal users (Department staff) can be assigned multiple roles to help define their scope of work within OPAL.

The framework uses role-based authorization to correlate users and groups with the permissions that they require to do their jobs. When a user or group is added to a role, the user or group automatically inherits the associated security permissions, which could be to perform certain actions or to access various resources. The groups are used to determine user roles.

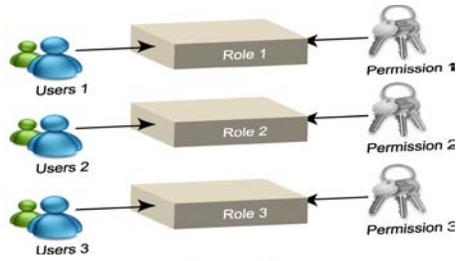Figure 17 below shows the relationship between roles and permissions in role-based authorization.

Figure 17

Implementing role-based authorizations can take a variety of forms, including the following:

- Simple role-based authorization – allows the user to access resources or services on a single system
- Multi-system role-based authorization – allows the user to access resources or services on multiple systems
- Multi-system, action-based or operation-based authorization – allows individuals in certain roles to access resources or services on multiple systems, based on the action or operation the role is requesting

Data Metrics

Table 1: Number of existing licensees creating an OPAL profile, by month since system implementation.* Shows how many existing license holders whose data was migrated from the old Bighorn system logged into OPAL each month and created a user profile.
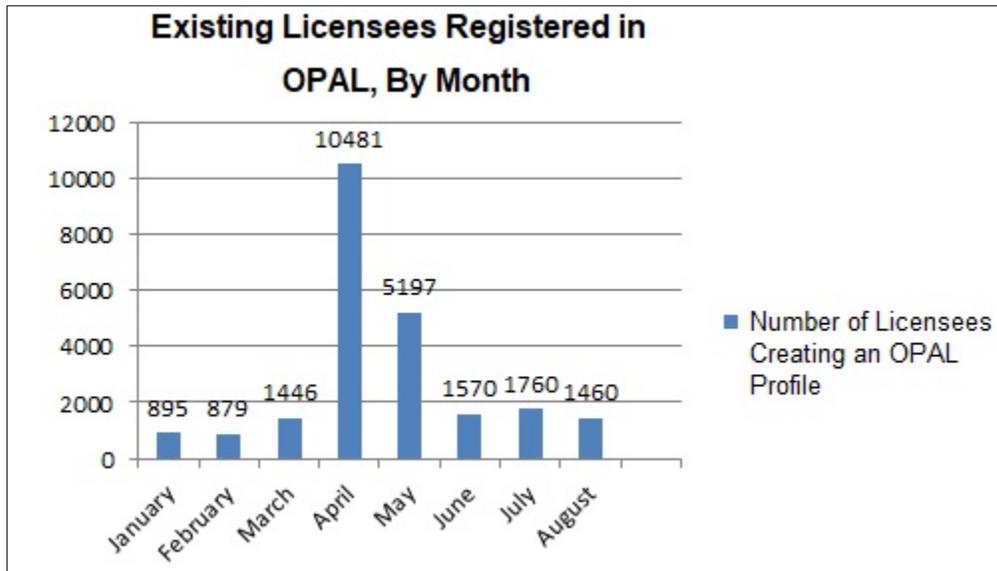

Table 1

Table 2: Number of new applicants creating an OPAL profile, by month since system implementation.* Shows how many new applicants (who never held an educator license in Nevada before) logged into OPAL each month and created a user profile.
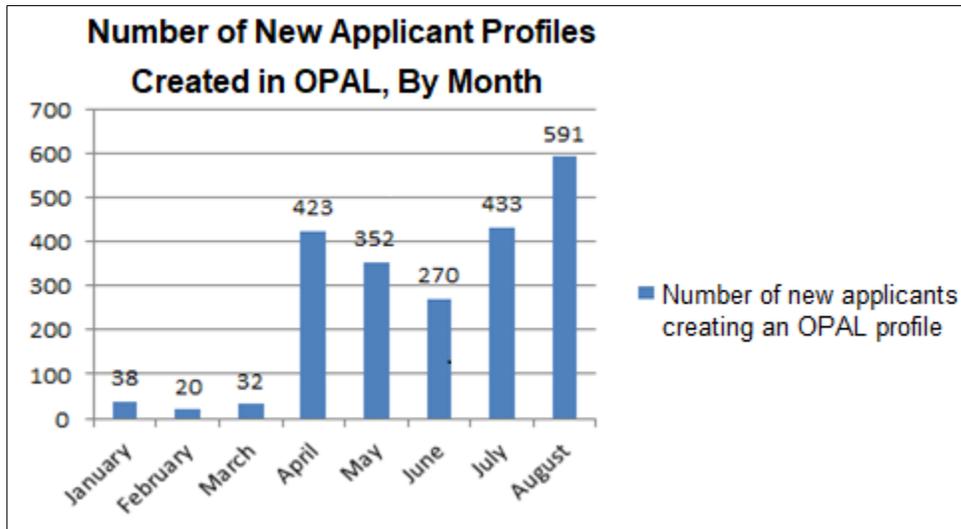

Table 2

*Although OPAL did not officially go live to the general public until April 4, 2018, OEL staff began using the system to process existing applications in January, and in the first three months of the year assisted a number of walk-in customers with creation of an OPAL profile.

Table 3: Revenue received by month since system implementation. Beginning in January 2018, all financial transactions for licensees and applicants were processed in OPAL.
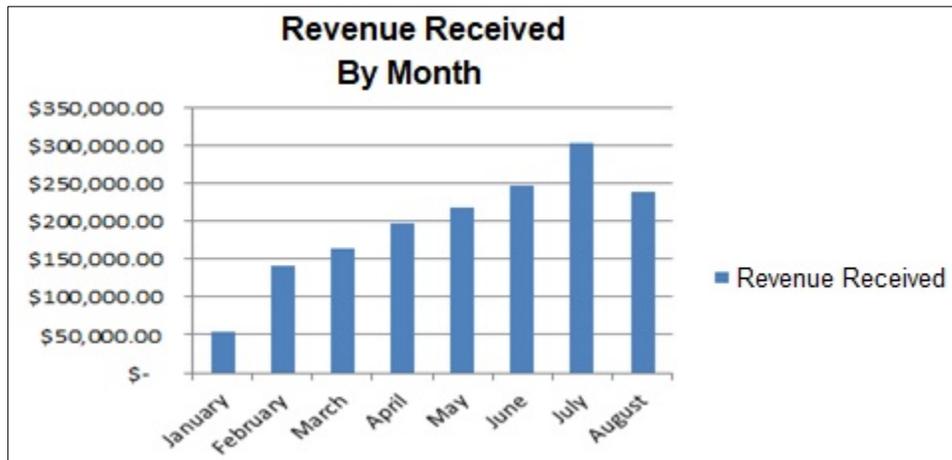

Table 3

Table 4: Number of applications entered into OPAL, by month since system implementation. These include all applications for initial licenses, renewals, and additional licenses or endorsements. Although OPAL did not officially go live to the general public until April 4, 2018, staff entered all paper applications received after January 22, 2018 into OPAL for processing. Additionally, a number of licensees throughout the state were selected to pilot the system prior to public go-live. After public go-live, staff have still entered a small number of applications via the staff portal in instances where applicants had difficulty using the online system and requested assistance.
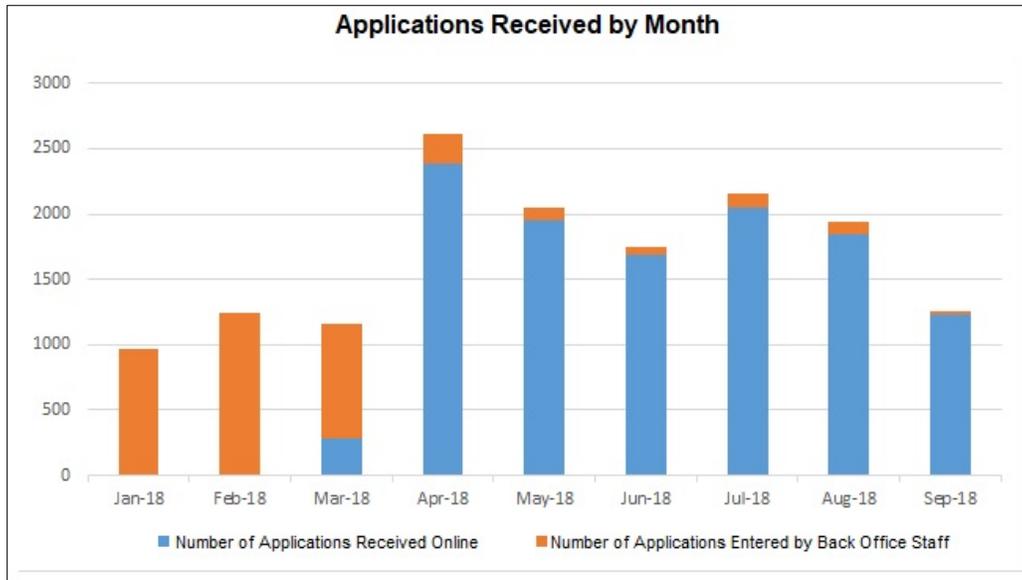

Table 4

Table 5: Number of applications approved, by month since system implementation. Note that the number of applications approved each month reflects work done by the OEL staff to review, evaluate, and issue licenses. It is not necessarily a subset of the number of applications received in a given month, as typically work on applications which have been in the system for several days.
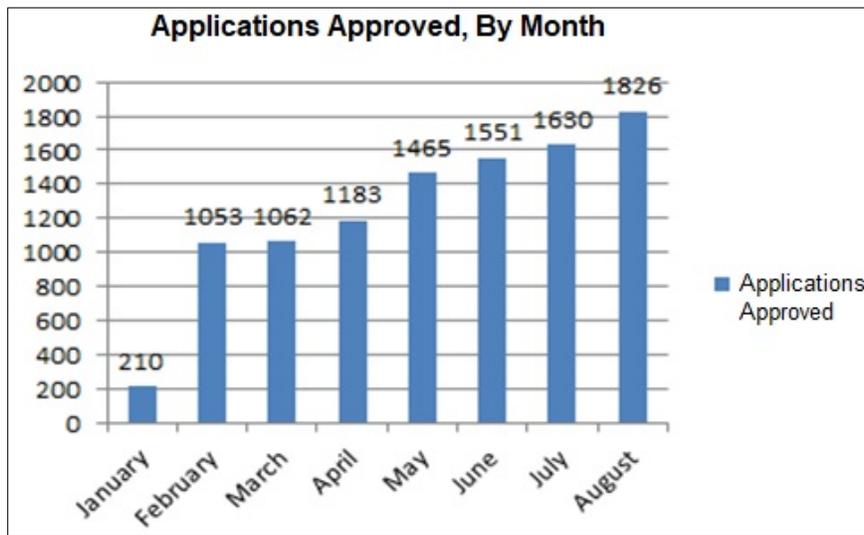

Table 5

Table 6: Number of applications denied, by month since system implementation. Reflects license denials for failure to meet the minimum academic qualifications for licensure, as specified in NRS and NAC. Note that the number of applications denied each month reflects work done by the OEL staff to review and evaluate these applications. It is not necessarily a subset of the number of applications received in a given month, as staff typically work on applications which have been in the system for several days.
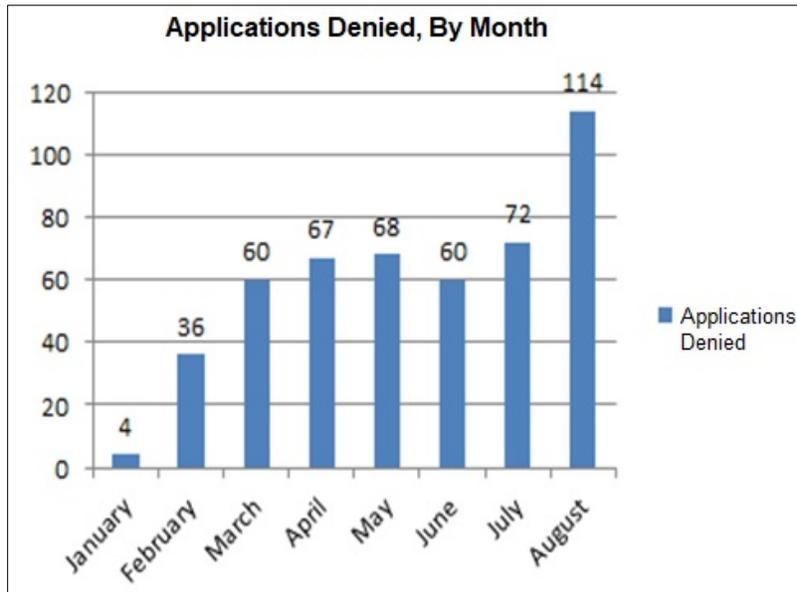

Table 6

Table 7: Average processing times, by application type, since system implementation. Average processing time for each type of application processed within OPAL, including name change requests, requests to omit a license or endorsement, and requests to remove a provision from a license. Numbers given represent the average number of days required to process and issue (or deny) an application of the given type, across all months from January 2018 through August 2018. Processing times incorporate all phases of license application review and analysis, including the initial review of an application for accuracy, the statutorily required applicant background check, and analysis of the applicant's academic qualifications for licensure.
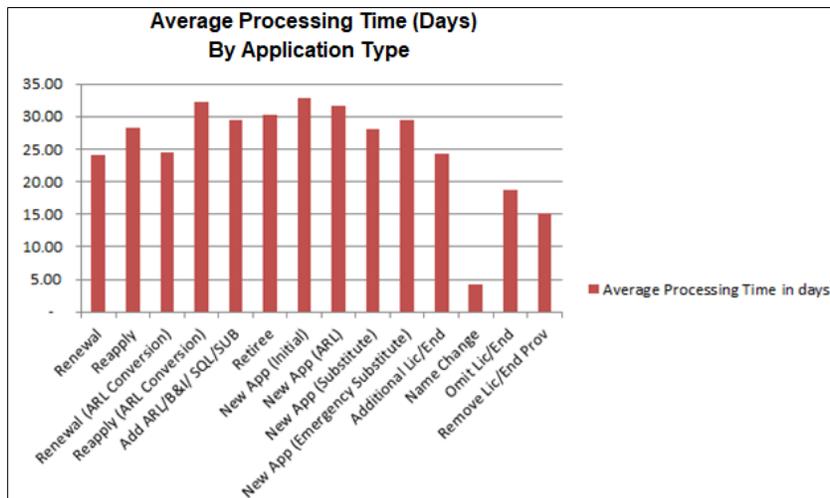

Table 7

Summary

In less than one year, the Department, in partnership with its contractor inLumon, was able to successfully configure, test, and implement a new, modern educator licensure system (OPAL) to replace the aging Bighorn system in use for the previous thirteen years. This new system serves not only as a license issuance platform, but is also designed to be utilized as a data storage and analysis tool, and incorporates built-in document storage which was previously handled via a separate third-party system.

The OPAL system has also introduced a number of efficiencies into the process of licensure application review and issuance. As a result, the Department processing times have been cut from an average of 50 days between application submission and license issuance throughout most of 2017, to an average of less than 35 days since system implementation in January 2018. This reduction in processing times has been accomplished with the same staffing levels that were in place previous to system implementation.

Moving forward, the Department will maintain close working relationships and communication with inLumon to identify additional efficiencies and system functions that can be developed and utilized in furtherance of Department and State goals of continuous improvement and customer satisfaction.