



ADOA-ASET

Project Investment Justification

Version 03.31.15

A Statewide Standard Document for Information Technology Projects

Project Title:

Education Central Server and ASPC-Lewis Hardware Installation

Agency Name:	Arizona Department of Corrections
Date:	May 8, 2015
Agency Contact Name:	Mark W. Jones
Agency Contact Phone:	
Agency Contact Email:	

[Hover for Instructions](#)

I. Project Investment Justification (PIJ) Type*

Yes No Is this document being provided for a Pre-PIJ / Assessment phase?

If Yes,

Identify any cost to be incurred during the Assessment phase.	\$
Based on research done to date, provide a high-level estimate or range of development costs anticipated for the full PIJ.	\$

Explain:

[Click here to enter text.](#)

Yes No Will a Request for Proposal (RFP) be issued as part of the Pre-PIJ or PIJ?
 Yes No Will utilize quotes for approved stated contracted vendors

II. Business Case

A. Business Problem*

Initial deployment of the ADC Curriculum A+ Project had a key objective of getting the program installed, configured, and managed as quickly as possible. At that time, it was determined that the best way to do this was to have a server set-up at each of the three prison pilot sites for the program. In the initial configuration, each pilot site has the A+ application installed onto a VMware server and the students use thin client terminals to connect to the application. The program has been set-up and is working acceptably, but requires a fair amount of effort to manage patching, updates, and security compliance.

This causes problems for multiple reasons, but most reasons branch off from one main issue: ease of management. With standalone satellite sites, it is difficult to move student information between complexes. The efficiency at which management of the backend is handled is a prime concern. Each site being standalone means that each site requires its own set of images. Dealing with the various problems between each site’s thin client image can be extremely time consuming. Administration of physical server hardware becomes problematic as more remote sites are added. Expansion is a problem as well. New server hardware would need to be purchased for each subsequent site. Having multiple sites with redundant hardware can drive up prices. Management from the teacher and administrative end is more involved as well, due to dealing with multiple sites that have different server addresses. The administrative issues increase greatly as more sites are added, as well as the cost.

B. Proposed Business Solution*

The proposed solution is to centralize the server infrastructure. Consolidating the majority of the server hardware within a central point in the state has several benefits. Less ground to cover for physical administration of hardware, which means faster reaction time to resolve problems and all students can be contained within a single database, for ease of management for the teachers. A single rack mounted server infrastructure will reduce cost in the long run. One image for all sites, rather than individual

images at each site, will improve the efficiency at which software can be managed on the thin clients. Adding new sites has reduced cost, as only network infrastructure and thin clients need to be purchased, as opposed to network infrastructure, thin clients, server hardware, and licenses.

The proposed technology will have a centralized server based at the 1601 W Jefferson St datacenter. This server will include the resources required to handle over 2000 endpoints throughout the state. This includes memory, compute and storage requirements, utilizing virtual machines for server software. A web farm will be generated, allowing the current web applications to be run from this central location throughout the state. This also allows new web applications to be easily implemented, with little or no management overhead. Prison complexes will have network connections for the student thin client devices on a separate VLAN from the ADC network, in order to ensure security. The applications will be hosted directly by ADC as in the case of A+ and Reading Horizons with the web farm through Internet Information Services (IIS), preventing any access to the internet or outside networks. In addition, 250 Dell Thin Clients will be installed at the Lewis complex once National Cabling Technologies finishes the IT cabling, wiring, and electrical installations.

C. Quantified Benefits*

<input checked="" type="checkbox"/>	Service enhancement
<input type="checkbox"/>	Increased revenue
<input checked="" type="checkbox"/>	Cost reduction
<input checked="" type="checkbox"/>	Problem avoidance
<input checked="" type="checkbox"/>	Risk avoidance

Explain:

This solution will serve the inmate students, as well as the education staff and IT support staff, by providing a homogenous, secure and straightforward environment to present the software. When implemented correctly, inmates at Lewis will have access to A+ High School and Reading Horizons curriculum offered in a simple, easy to use fashion.

Sites can continue to be added to the centralized infrastructure, simply by installing thin clients, and configuring the network connections with the correct VLAN back to Central Office. The reduction in cost is due to not needing to purchase Servers for each additional site. Only Thin Clients will need to be purchased. For sites with bandwidth that is severely limited, an existing server can be set up on site to handle transactions locally during the day, and transmit student info back to Central Office at low traffic periods. This would prevent performance issues at the site for both students and ADC staff.

By moving all education related technology services to a centralized server, ADC enhances the quality of educational services we can provide to inmates, and we can do this at a state wide level as opposed to individual server installations in ten prison complexes. This reduces duplication of technology and educational services with installation and utilization of centralized server.

By having a centralized server, a disaster recovery solution can be more easily implemented in the future, allowing for redundant server hardware at an off-site ADC location to be determined. Mission critical software would be replicated to the recovery site at a regular interval, to prevent data loss.

Inmates that meet mandatory literacy requirements will have the option of pursuing a high school diploma or general high school equivalency (GED). The A+ curriculum is aligned to high school standards for a diploma and provides computer instruction for the recently ADE adopted 2014 GED curriculum. Inmates will have both options from which to choose. At each prison complex site, COIV's and educational staff will determine inmate eligibility.

III. Technology Approach

A. Proposed Technology Solution*

The proposed technology solution is the Dell PowerEdge VRTX System, which will be installed at the ADC datacenter and will run the required educational software. 250 Dell Thin client PC's will also be purchased and installed in the ASPC-Lewis location and configured to access the new centralized server in order to administer the ADC curriculum.

B. Existing Technology Environment

During fiscal year 2014 IT cabling and electrical installations were completed at the Tucson, Perryville, and Yuma prison complexes. For fiscal year 2015 the Lewis complex IT cabling and electrical installation will be completed. Currently, NCT (National Cabling Technologies LLC) is scheduled to begin IT installations at Lewis units by the end of April 2015. This will allow for the proposed 250 Dell Thin Clients to be installed at the Lewis complex with the goal of provide Lewis inmates access to our centralized server for utilization of A+ and Reading Horizons curriculums. The existing servers are to be repurposed for sites that do not meet bandwidth requirements.

C. Selection Process

All vendors are on state contract. The Dell PowerEdge VRTX System was determined to be the best option based on performance of an all-in-one hyper integrated system solution, competitive pricing, and tech support for hardware.

ADC contacted both Matt West and BJ Dines from Backbone regarding the sites they listed. The two sites that most line up with what we are doing were High Desert State Prison (HDSP) in Susanville, CA, and Utah State Facilities. After speaking with the guys from Backbone, BJ gave me contact info for IT staff at both locations. Contacts were Margarita Posedel at Susanville, and Mark Holman at one of the county jails in Utah.

At Susanville, they are using standalone classrooms of 5-25 desktops with Windows XP installed. One of these desktops is upgraded to a server that will be the contact point for the rest of the desktops in the classroom. These devices have a specific image with Windows XP that is locked down for security reasons. They also have a policy that does not support inmate-based subnets, which is why there is no network access leading out of the classrooms. This means that each classroom is an island with its own server. Each server will need to be managed separately, which would involve a lot of walking time, as there is no way to remotely manage the servers. They are also locked in with Windows XP, and since Microsoft has stated that support has ended for XP, they are attempting to upgrade to Windows 7 on a massive scale, but this will reduce or eliminate the security policies they have designed on the desktops.

Utah uses a similar setup; however, their state facilities are broken up by county with standalone classrooms with approximately 15 clients per classroom. The classrooms do not have internet access, or network access to the outside, as this is against policy. The server is set up with the same IP scope as their main network, but the networks are kept separate, so that the inmates have no way of breaching security. There are approximately 17 servers spread throughout the counties, which would amount to a management nightmare.

ADC's solution is better for many reasons. Our classrooms will all be able to communicate with a single server, providing a shared database for all inmates. Management will be far simpler, with an option of remote management, but also only a single server in case we need to physically go to it. Our thin clients provide the locked down abilities of their Windows XP image, but using Windows 7 embedded.

IV. Project Approach

A. Project Schedule*

Project Start Date: 5/8/2015 **Project End Date:** 10/31/2015

B. Project Milestones

Major Milestones	Start Date	Finish Date
IT cabling, wiring, and electrical components will be installed at the Lewis prison complex.	5/8/2015	6/30/2105
250 Dell Thin Client laptops will be purchased and installed at eight Lewis units once IT installation is complete	5/8/2015	10/31/2015
Purchase of VMware Center Server and server operating system and installation that consists of the establishment of the web farm, VLAN, and database ETL.	5/8/2015	10/31/2015

C. Project Roles and Responsibilities

- Education Administrator – oversight of all the fiscal and programmatic functions for technology related education services.
- IT Education Staff (2 FTE) – provide technology related educational installations, security of systems, and oversight and maintenance of all education technology equipment and services.
- IT PMO Manager – provide project oversight.
- Correctional Education Program Supervisor – works with site operations in determining inmate eligibility and participation in education technology services.
- RED (Regional Education Director) – works with prison complex education staff to ensure that education related technology is aligned to ADC education department goals and objectives.

V. Risk Matrix, Areas of Impact, Itemized List, PIJ Financials

VI. Project Approvals

A. Agency CIO/ISO Review and Initials Required*

Key Management Information	Yes	No	Initials
1. Is this project for a mission-critical application system?	X		
2. Is this project referenced in your agency's Strategic IT Plan?	X		
3. Have you reviewed and is this project in compliance with all applicable Statewide policies and standards for network, security, platform, software/application, and/or data/information located at https://aset.az.gov/resources/psp ? If NO , explain in detail in section "VIII. Additional Information" below.	X		
4. Will any PII, PHI, or other Protected Information as defined in the 8110 Statewide Data Classification Policy located at https://aset.az.gov/resources/psp be transmitted, stored, or processed with this project? If YES, the Protected Data section under "VII. Security Controls" below will need to be completed.		X	
5. Will this project migrate, transmit, or store data outside of the agency's in-house environment or the State Data Center? If YES, the Hosted Data section under "VII. Security Controls" below will need to be completed.		X	
6. Is this project in compliance with the Arizona Revised Statutes and GRRC rules?	X		
7. Is this project in compliance with the Statewide policy regarding the accessibility to equipment and information technology for citizens with disabilities?	X		

B. Project Values*

The following table should be populated with summary information from other sections of the PIJ.

Description	Section	Number or Cost
Assessment Cost (if applicable for Pre-PIJ)	I. PIJ Type - Pre-PIJ Assessment Cost	\$0
Total Development Cost	V. PIJ Financials tab	\$255,648.86
Total Project Cost	V. PIJ Financials tab	\$255,648.86
FTE Hours	See Hover text for FTE Hours	456

C. Agency Approvals*

Approver	Printed Name	Signature	Email and Phone
Project Manager:	Laura Boden		
Agency Information Security Officer:	Randy Newman		
Agency CIO:	Dwight Cloud		
Project Sponsor:	Gail Rittenhouse, Support Services Division Director		
Agency Director:			

VII. Security Controls

Collaboration with the ADOA-ASET Security, Privacy and Risk (SPR) team may be needed to complete this section, which is only required for those projects that involve data that is Protected or Hosted outside of the Agency or State Data Center. Additional information can be found in the NIST FRAMEWORK section under RESOURCES at <https://aset.az.gov/resources/psp> or you may wish to contact ASET-SPR directly at secadm@azdoa.gov for assistance.

A. **Protected Data**

N/A

B. **Hosted Data**

Check here if the <https://aset.az.gov/arizona-baseline-security-controls-excel> spreadsheet is attached. Otherwise explain below what information/ support is needed to complete the spreadsheet and/or why no sheet is attached:

Not hosted offsite.

Check here if a Conceptual Design / Network Diagram is attached. Otherwise explain below what information/support is needed to complete the diagram and/or why no diagram is attached:

Not hosted offsite.

VIII. Additional Information

IX. Attachments

The following are examples of supporting documents that should be sent as email attachments when required:

- A. **Vendor Quotes (Attached)**
- B. *Arizona Baseline Security Controls spreadsheet*
- C. **Conceptual Design / Network Diagram (Attached)**
- D. *Other*

X. Glossary

Other Links:

[ADOA-ASET Website](#)

[ADOA-ASET Project Investment Justification Information Templates and Contacts](#)

Email Addresses:

[Strategic Oversight](#)

[ADOA-ASET_Webmaster@azdoa.gov](mailto:Webmaster@azdoa.gov)