Systems Integrator for Data Center Optimization RFP: SP-19-0025

Prepared for

STATE OF ARKANSAS
OFFICE OF STATE PROCUREMENT
1509 West 7th Street, Room 300
Little Rock, Arkansas 72201-4222
RFP: SP-19-0025
Ms. Tanya Freeman - Tel: 501-682-4140

Prepared by:

Victor A. Som, CSO
Mobile : 424 283 1620
Phone : 408 512 1620
Email : victor@emrcpr.com

48511 Warm Springs Blvd., suite 206
Fremont, CA 94539

Proposal Formatting and T-1 Contents

Prospective Contractor Response Sections

The Prospective Contractor should use the response sections listed below to provide specific details of the proposed approach to meeting ADFA and DIS requirements.

Template Section	Response No.	Response Template Section
1.0 Proposal Signature Page	1.1	Proposal Signature Page
2.0 Table of Contents	2.1	Table of Contents
3.0 Executive Summary	3.1	Executive Summary
4.0 Minimum Mandatory Qualifications	4.1	Minimum Mandatory Qualifications
5.0 Subcontractor Contact Information	5.1	Subcontractor Contact Information

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1.0 Proposal Signature Page

1.1 Proposal Signature Page

PROSPECTIVE CONTRACTOR'S INFORMATION					
Company:	EMR CPR LLC				
Address:	48511 Warm Springs Blvd., suite 206				
City:	Fremont	State:	CA	Zip Code:	94539
Business Designation*:*	☐ Individual ☐ Partnership ☐ Sole Proprietorship ☒ Corporation ☐ Public Service Corp ☐ Nonprofit				
Minority and Women-Owned Designation**:*	☐ Not Applicable ☐ American Indian ☐ Asian American ☐ Service Disabled Veteran ☐ African American ☒ Hispanic American ☐ Pacific Islander American ☐ Women-Owned				
	AR Certification #: __See Attached Certification___ * See *Minority and Women-Owned Business Policy*				

PROSPECTIVE CONTRACTOR CONTACT INFORMATION *Provide contact information to be used for solicitation related matters.*			
Contact Person:	VICTOR A SOM	Title:	CSO
Phone:	1 408 512 5730	Alternate Phone:	1 424 283 1620
Email:	VICTOR@EMRCPR.COM		

CONFIRMATION OF REDACTED COPY

☐ YES, a redacted copy of submission documents is enclosed.

☒ NO, a redacted copy of submission documents is not enclosed. I understand a full copy of non-redacted submission documents will be released if requested.

Note: If a redacted copy of the submission documents is not provided with Prospective Contractor's response packet, and neither box is checked, a copy of the non-redacted documents, with the exception of financial data (other than pricing), will be released in response to any request made under the Arkansas Freedom of Information Act (FOIA). See Solicitation for additional information.

ILLEGAL IMMIGRANT CONFIRMATION

By signing and submitting a response to this *Solicitation*, a Prospective Contractor agrees and certifies that they do not employ or contract with illegal immigrants. If selected, the Prospective Contractor certifies that they will not employ or contract with illegal immigrants during the aggregate term of a contract.

ISRAEL BOYCOTT RESTRICTION CONFIRMATION

By checking the box below, a Prospective Contractor agrees and certifies that they do not boycott Israel, and if selected, will not boycott Israel during the aggregate term of the contract.

☒ Prospective Contractor does not and will not boycott Israel.

An official authorized to bind the Prospective Contractor to a resultant contract shall sign below.

The signature below signifies agreement that any exception that conflicts with a Requirement of this *Solicitation* will cause the Prospective Contractor's proposal to be rejected.

Authorized Signature:_____ Title: CSO_____

Printed/Typed Name:____Victor A Som_____ Date: December 5th, 2018_____

2.0 Table of Contents

2.1 Table of Contents

TABLE OF CONTENTS

ATTACHMENT ID	ATTACHMENT NAME	ATTACHMENT PROVIDED?		REFERENCE TO PROPOSAL RESPONSE SECTION
001	Corporate Manual with Equal Opportunity	YES ☒	NO ☐	
002	DBE Certificate	YES ☒	NO ☐	
003	Financial Statements	YES ☒	NO ☐	
004	Team Resumes	YES ☒	NO ☐	
005	Migration Plan Deliverable Sample	YES ☒	NO ☐	
006	Addendum 1: Scope of Physical Migration	YES ☒	NO ☐	
007	Addendum 2: Rubrik Storage Solution	YES ☒	NO ☐	
008	VPAT_1194.21 & 1194.22 Sample	YES ☒	NO ☐	
009	Gartner_Rubrik Report	YES ☒	NO ☐	
		YES ☐	NO ☐	

3.0 Executive Summary

3.1 Executive Summary

CONTRACTOR & TEAM QUALIFICATIONS

EMR CPR:

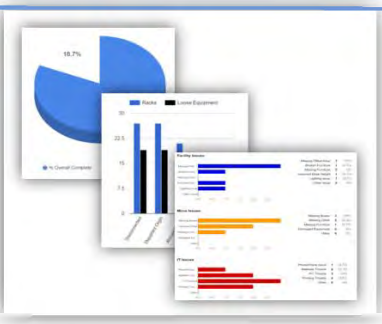
Your single source for Technology consolidation and upgrading critical IT resources safely and economically. From complicated merger and acquisitions, data center build outs, entire campus moves and managed services, EMR CPR will exceed your expectations.

Professional Services

EMR CPR Professional Services Team provides services to assess the needs of your business and organize your IT operations to enable maximum efficiency and growth in your business. EMR CPR provides innovative ideas with proven best practices to handle complex projects such as merging new technology solutions with existing IT infrastructures, upgrading critical applications or finding better ways to manage day to day Data Center and IT Operations.

JARVIS

JARVIS is EMR CPR's real time IT tracking platform which sets a new industry standard in real time IT project management. Real time technology transforms mergers and acquisitions and any other consolidation or upgrade into a streamlined responsive process performed on time and under budget.



Relocations

EMR CPR provides full turn-key relocation services. Let us help you take charge of the planning, consolidation, relocation and modification of equipment and facilities. EMR CPR reduces your project risk at the same time as managing complexity, costs and your schedule to meet your goals.

Professional Services

EMR CPR Professional Services Team provides services to assess the needs of your business and organize your IT operations to enable maximum efficiency and growth in your business. EMR CPR proves innovative ideas with proven best practices to handle complex projects such as merging new technology solutions with existing IT infrastructures, upgrading critical applications or finding better ways to manage day to day Data Center and IT Operations.

Data Center Management Services

EMR CPR makes it easy to keep your data center services and operations running smoothly. Our onsite team will ensure proper operation of a repository for storage, management and dissemination of data, hardware up and running, network services online and maintaining software. Not only can we help maintain your day to day operations driving performance improvement, we also integrate services to oversee data center infrastructure such as monitoring and maintaining HVAC, Power, Network and Fire Systems.

Managed Services

EMR CPR managed services allows you to have peace of mind, less downtime, fewer disruptions and predictable budgeting. We work to understand your business goals by optimizing the business processes driven by affected applications, freeing up time so people can do more, delivering stable IT platforms for new business applications and eliminating the annual cost of lost productivity.

With EMR CPR, you see your return on your investment with continuous improvement of services along with

100,000 Server Device Migration Team

weekly, monthly and annual reporting to show cost reduction, efficiency gains and technology advancement.

Other Services

E-waste Services

Let us help you reduce your carbon footprint. EMR CPR will come onsite, inventory, palletize, pickup and recycle your e-waste including providing a certificate of destruction for equipment with data.

Environmental Benefits

Plastic and electronics recovered in its purest form and are incorporated into new production chains. Landfills, health hazards, exploitation of raw materials, consumption of fossil fuels and generation of emissions are reduced.

Advanced Scanning Technology

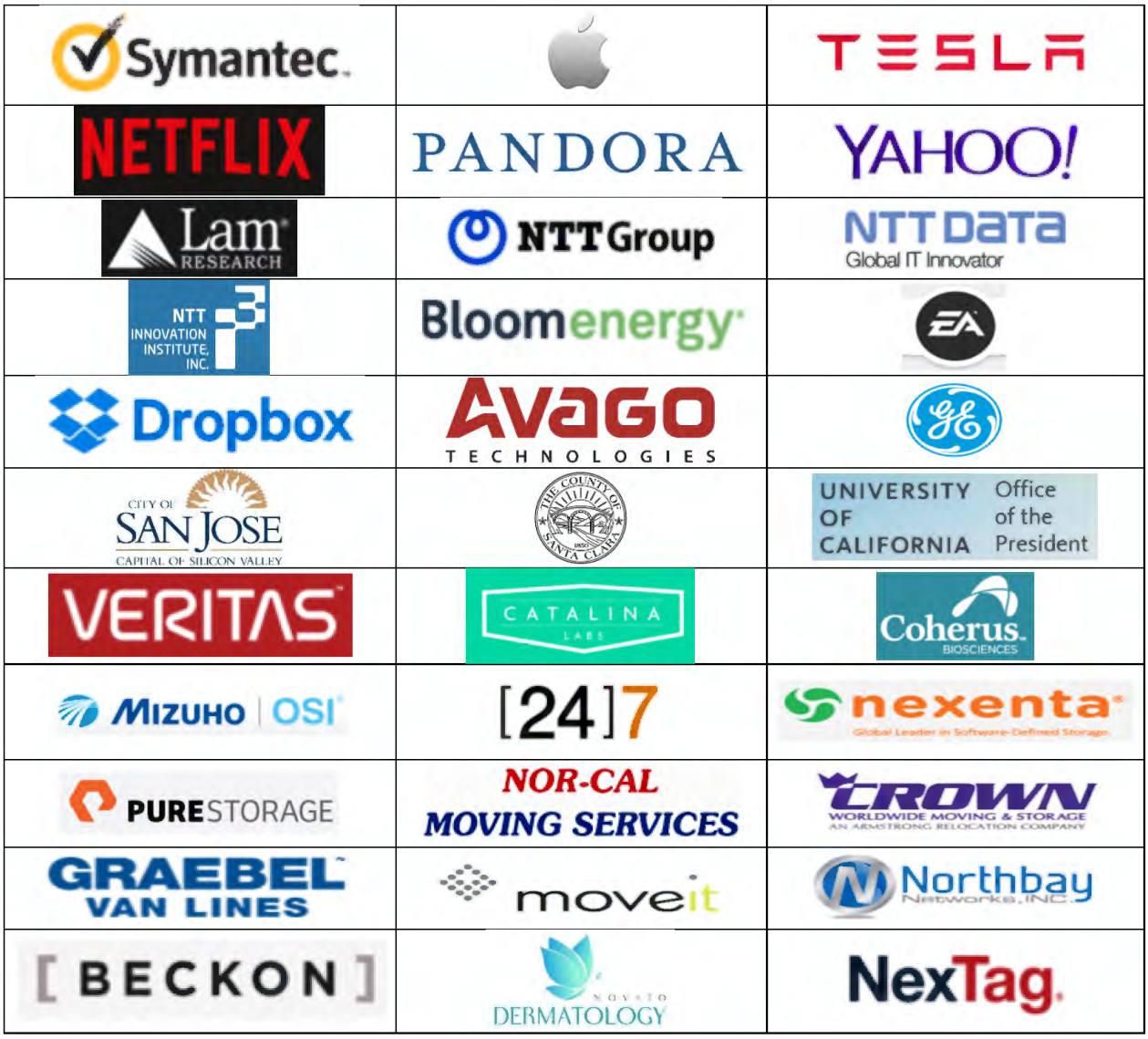
Additional Services

- IT Consultant (Migrations, Merger/Acquisitions/Campus Moves/Data Center Build Outs)
- Dedicated Account Manager
- Technology Growth Management Consultant
- Helpdesk Services Tier O, 1, 2, 3
- Call Center Services
- Managed Services
- Server Elevation Creation
- Project Management
- Software Deployments
- Hardware Deployments (I.E. Monitors, PCs, Laptops, etc.)
- EMR / EHR Transitions
- Practice Management (Healthcare)
- Data Center Infrastructure Support
- Data Center Operations Support
- Data Center Design
- Network Design, Install, Build, Ongoing Support, Maintenance
- Staff Augmentation
  - Project Coordinator / Space Planner
  - Project Lead
  - Server Technician
  - Desktop Technician
  - Inventory Technician
  - Senior Network Engineer
  - Network Engineer
  - System Administrator
  - Data Entry Administrator
  - Audio Visual Hardware Technician
  - Telecom Technician

Partners Ecosystem:

4.0 EMR CPR Clients

EMR CPR is one of the fastest growing companies in the bay area, CA. Below is a partial list of EMR CPR's clients for Professional Services.



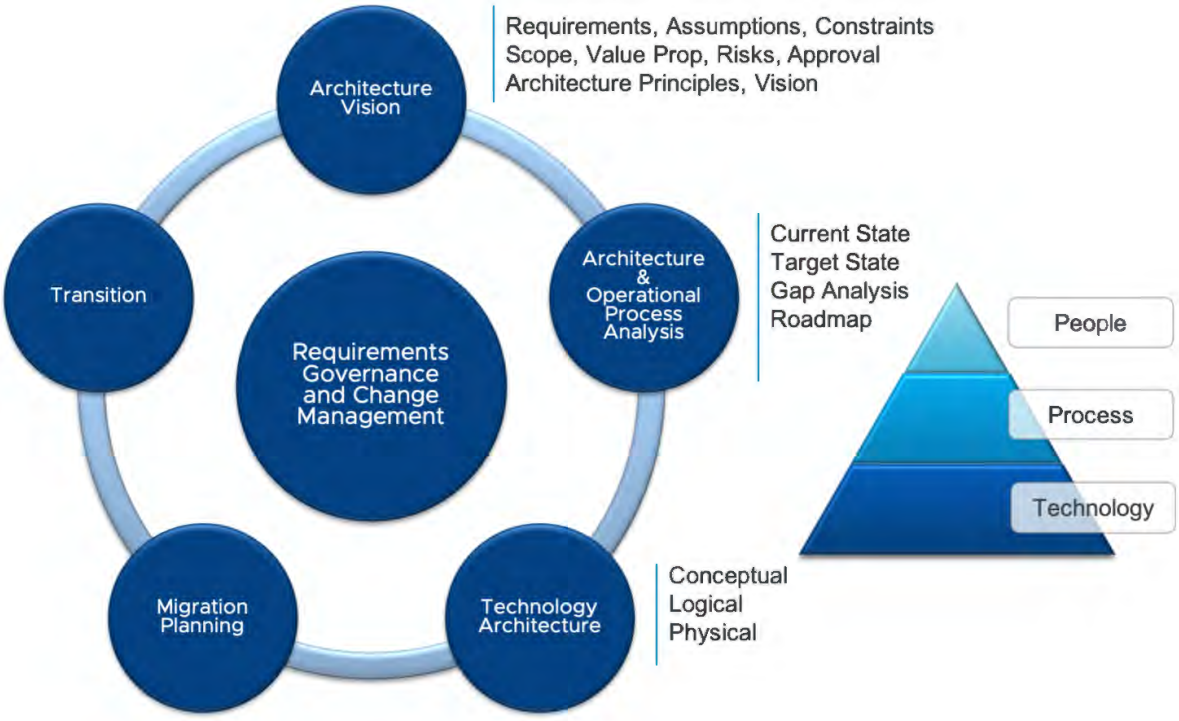
IONO:

IONO is a VMware Premier Partner headquartered in Silicon Valley, CA, since 2014. The founders of IONO are **alumni of VMware** have extensive experience in building cloud solutions. IONO has been providing hybrid cloud solutions to enterprises of all sizes, verticals and geographical region in US. IONO has delivered VMware based solutions to SLED community as well. These include VMware vSphere Core, build VMware-based IaaS and PaaS platforms on traditional and HCI hardware, End-user computing and Software Defined networking (NSX). In the hybrid cloud space, IONO has built deployments of workloads to public clouds from On-Premises single pane of control managed by I.T.

IONO as a company has been certified for building and delivering Hybrid Cloud solutions by VMware. IONO is one of a dozen companies to have achieved this certification. Here is the link to VMware's website https://www.vmware.com/solutions/software-defined-datacenter/validated-designs.html. Along with company certification, founders of IONO have received highest certifications for individuals from VMware. The link to this site is https://vcdx.vmware.com [Rupen Sheth #14) and Mahesh Rajani #5]. As part of our training and retention program, IONO encourages its employees to work towards their personal development and provides all help necessary reach personal goals, along with mentoring.

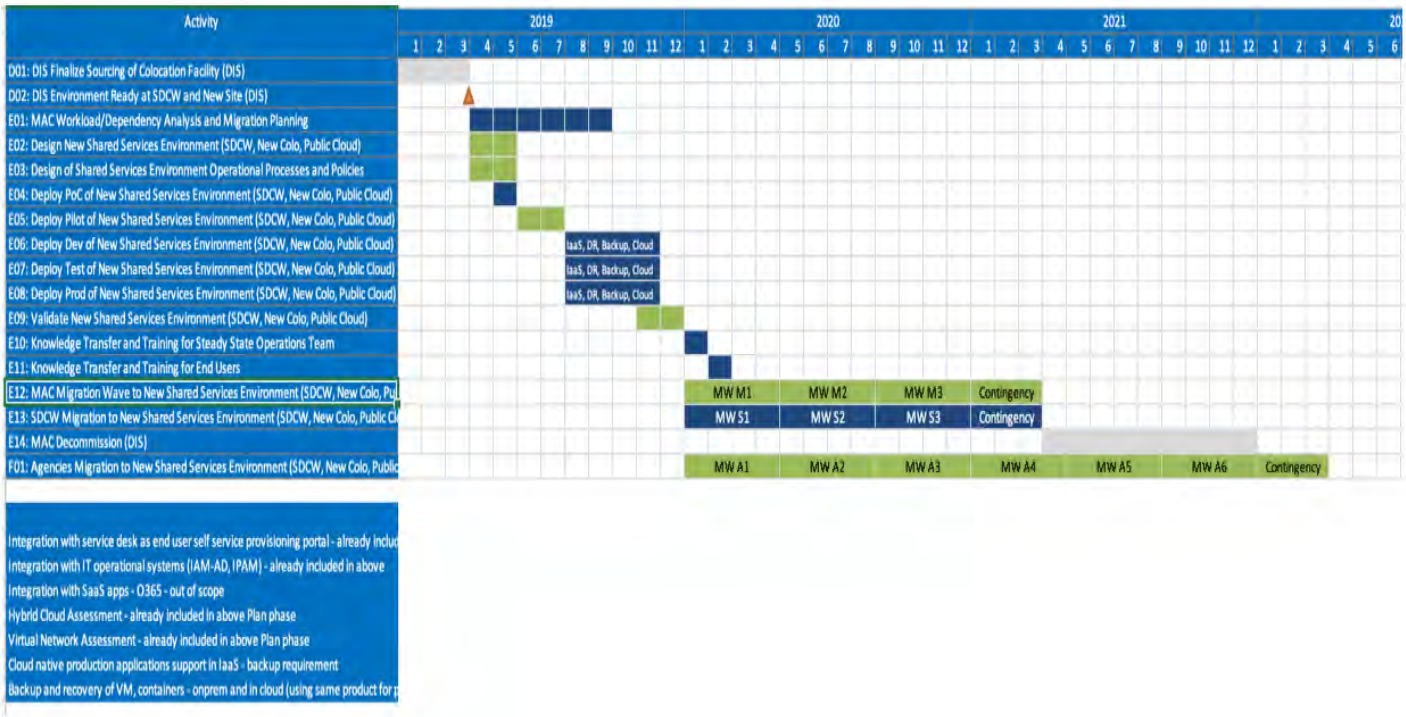
APPROACH TO DELIVERING SERVICES

IONO follows processes derived from industry standard TOGAF and ITIL. IONO has employed successfully the adapted approach in various projects.



TIME FRAME TO DELIVER

IONO has high level estimation of time line as shown in the following figure. These are based on the assumptions made and captured in a separate document.



BENEFITS to ADFA/DIS

An IONO validated design document is composed of a standardized, scalable architecture backed by IONO's technical expertise and a software Bill of Materials comprehensively tested for integration and interoperability that spans across compute, storage, networking and management. For instance, IONO's has reduced the deployment time of a standing up basic on-prem VMware-based cloud from 36 weeks to 8 weeks, an improvement by 300%. This translates into costs savings and increased productivity of resources.

4.0 Minimum Mandatory Qualifications

4.1 Minimum Mandatory Qualifications

Table 1: Minimum Mandatory Qualifications

#	QUALIFICATION ITEM	DOES THE PROSPECTIVE CONTRACTOR MEET QUALIFICATION ITEM?		REFERENCE TO PROPOSAL RESPONSE SECTION
1	The Prospective Contractor and Prospective Contractor's Subcontractors combined **must** have experience with three (3) U.S. Public Sector projects similar or greater in size, complexity and scope to this Project within the last seven (7) years. The State prefers the Prospective Contractor provide experience in the design of active-active enterprise data centers. (**Response Template T-2, Response No. 2.4 will be used to confirm this)**	**YES** ☒	**NO** ☐	

PROJECTS REFERENCE & SCOPE: [IONO]

- **California Department of General Services, Sacramento, CA**
  Design, deployment, management and operations of a multi-site VMware Software Defined Data Center transformation solution involving VMware vSphere, VMware NSX, VMware vRealize Network Insight, VMware vRealize Operations, VMware vRealize Automation, VMware Site Recovery Manager, VMware Cloud on AWS.
- **Orange County Public Schools, Orange, CA**
  Design and deployment of a cyber security solution involving network virtualization and micro-segmentation with VMware NSX
- **City of Orlando, Orlando, FL**
  Design and deployment of proactive performance, capacity and operations management of VMware infrastructure.
- **City of San Diego, San Diego, CA**
  Responsible for the deployment of a cloud foundation solution involving data center virtualization, infrastructure lifecycle management and hybrid cloud extensibility. The unified Software Defined Data Center platform for the hybrid cloud was based on VMware Cloud Foundation that included VMware vSphere, VMware VSAN, and VMware NSX.

- **City of Lubbock, Lubbock, TX**
  Deployment, validation and onboarding of a multi-site Software Defined Data Center solution using VMware Validated Design (VVD) which included VMware vSphere, VMware NSX, VMware Site Recovery Manager, VMware vRealize Operations, VMware vRealize Automation, and VMware vRealize Orchestrator.

- **City of Yonkers, Yonkers, NY**
  Optimization of existing VMware virtual infrastructure in order to address stability, availability, scalability, and performance issues.

- **City and County of San Francisco, San Francisco, CA**
  Design, deployment and onboarding of a multi-site Software Defined Data Center transformation with IaaS with VMware vRealize Automation, security and micro-segmentation with VMware NSX, and service continuity with VMware Site Recovery Manager

- **Federal Deposit Insurance Corporation, Washington, DC**
  Automated provisioning of applications using VMware vCloud Automation and Puppet

IONO has completed over 200 projects in the last 5 years. Among them they completed three projects that were of the scale of State of Arkansas RFP. Overall, IONO has taken the customer from various level of virtualization maturity to highly automated IaaS, PaaS and Dev Ops infrastructure solutions integrating with customer's business processes.

One example, IONO built an active-active enterprise data center for a technology company in Chicago area with requirements virtually matching those that of DIS State of Arkansas.

PROJECTS REFERENCE & SCOPE: [EMR CPR]

NTT INNOVATION INSTITUTE, INC.	**Contact Info:** Mayan Mathan CTO at NTTi3 415-265-7742 mayan@catalina.io

Project Name: CXC Build Out

- Create and maintain customer experience center for executive's events and meetings
- Video of completed CXC here: http://youtu.be/qbdfO67JHEI
- Program Manager Customer Experience Center
- $30 Million Project
- Coordinate catering, janitorial, meeting invitations and sponsored guest's needs
- Manage IT Technology and Demo's
- Manage Internal IT (Desktop Support, Operations, ISPs, Break fix, Data Center Operations)
- Manage Audio / Visual Technology
- Manage future technologies (Oblong, PQUBE, Cisco, Telepresence, Bluejean, etc.)
- Manage Customer Experience Center Operations (Briefings, Meetings, Receptionist, A/V Content, Meals, Customer Presentations, Technology Support Services)

Symantec.	**Contact Info:** **Geoff Lin,** Sr. Project Manager UCSF *FAS*| Real Estate Assets and Development 654 Minnesota Street, San Francisco, CA 94143 P: 415.502.5527 |C: 415.734.1860 I E: geoffrey.lin@ucsf.edu

Project Name: Symantec / Veritas Split

- Project Manage Lab splits, includes over 800 racks (30,000 devices) moving into various sites
- Work with Lab engineers to have daily onsite team to configure storage and network devices
- Move 25 Racks a day
- Coordinate all move activities, including loading docks, path of travel, events,
- Coordinate with teams regarding Migrations, Merger/Acquisitions/Campus Moves/Data Center Build Outs
- E-waste equipment

PANDORA	**Contact Info:** Kyle Almandmoss Sr. AV Systems Administrator 415.517.0181 kalmandmoss@pandora.com

Project Name: Conference room maintenance

- Test each conference room functionality and fix items which includes but not limited to
- Power from tables
- Conference room tables and chairs setup correctly
- Phone functional
- Test Audio bridge
- Input cables tested (VGA/HDMI)
- Audio functional
- Projector bulb life
- Life-size, Cisco, Chromebox, Polycom equipment functional

NETFLIX	**Contact Info:** Agim Kraja Client Technology Services Manager 408.402.1342 akraja@netflix.com

Project Name: Conference room maintenance and BLE Install

- Install Bluetooth low energy beacons in new buildings
- Test each conference room functionality and fix conference items, which includes but not limited to
- Power from tables
- Conference room tables and chairs setup correctly
- Phone functional
- Test Audio bridge

- Input cables tested (VGA/HDMI)
- Audio functional
- Projector bulb life
- Life-size, Cisco, Chromebox, Polycom equipment functional

OTHER PAST PROJECTS:

1) **NTT Innovation Institute, Inc.**

$30 million plan for 6 years - development of new start-up company for NTT Global

Scope
Develop, Execute and Monitor and Control IT, R&D and Cloud Projects including implementing business tools and techniques for automation and business intelligence efficiency

Dates of Engagement
2012 to 2014 (presently supporting their data centers)

Total Dollar Amount
$3 million to start build and plan year

Project Owner Contact Information
Mayan Mathan / mayan@catalina.io / 405-265-7742

Description of Projects
Develop, Execute and Monitor and Control IT, R&D and Cloud Projects including implementing business tools and techniques for automation and business intelligence efficiency

Fully implemented Cloud (SaaS, PaaS, IaaS) environment for organization to run on:
- SSO (Single Sign On)
- Okta integration
- O365 integration (Office, OneDrive, Sites, etc.)
- Evernote
- Quickbase
- Bluejeans

Program Manager Customer Experience Center
- Manage Internal IT (Desktop Support, Operations, ISPs, Break fix, Data Center Operations)
- Manage Audio / Visual Technology
- Manage future technologies (Oblong, PQUBE, Cisco, Telepresence, Bluejean, etc.)
- Manage Customer Experience Center Operations (Briefings, Meetings, Receptionist, A/V Content, Meals, Customer Presentations, Technology Support Services)

2) **Milestone Technologies**

- Multiple Clients such as Google, Yahoo, VISA, etc.

Scope
Program Management and maintain relationships with clientele (Google, Yahoo, VISA, Brocade, Cadence, Broadcom, EBay, Palm, etc.)

Manage relocations and deployments (Desktops, Server Rooms, Data Center and Lab Environments) - 15,000+ per weekend

Dates of Engagement

2013

Total Dollar Amount

$5M

Project Owner Contact Information

Lou Noble / loun@serviceglobal.com / 510-377-4637

Description of Projects

- Assess, consult, conceptualize, and develop solutions to customers for engineering or technology problems.
- GE Business Development for IT Facilities Managed Services
- Program management for global projects (i.e. technology advance, merger acquisitions, etc.)
- Specialization in data center and user relocations, hardware deployments, and managed services (IT help desk, logistical inventory, etc.)
- Creation and implementation of processes to execute organization's service lines, including development of organizational process assets (i.e. run books, procedure documentation, trainings, etc.)
- Development of university training programs (orientations, disconnect/reconnect technician trainings, project lead trainings, project manager trainings, etc.)

5.0 Prospective Subcontractor Contact Information

5.1 Subcontractor Contact Information

Table 2: Subcontractor Contact Information

COMPANY INFORMATION:	
Company Name:	IONO, Inc
Address:	830 Hillview Court #200
City, State & Zip Code:	Milpitas, CA 95035
Company Type (Check One):	☒Private ☐Public
Arkansas Economic Development Commission Minority Business Certification Number (if applicable)	
Services to be Provided	Systems Integration, Solutions Design & Architecture,

PRIMARY CONTACT INFORMATION:		
Name:	Rupen Sheth	Title: EVP
Address:	830 Hillview Court #200	
City, State & Zip Code:	Milpitas, CA 95035	
Phone:	408-375-1224	Fax:
E-mail:	rupen@IONOinc.com	

Proposal Formatting and T-2 Contents

Prospective Contractor Response Sections

The Prospective Contractor should use the response sections listed below to provide specific details of the proposed approach to meeting ADFA and DIS requirements.

Template Section	Response No.	Response Template Section
1.0 Corporate Background	1.1	Corporate Background
	1.2	Past Mergers and Acquisitions
	1.3	Financial Information
2.0 Relevant Experience	2.1	Understanding of Data Center Optimization Services
	2.2	Existing Business Relationships with the State of Arkansas
	2.3	Business Disputes
	2.4	Projects Completed in the Last Seven Years
	2.5	Quality Certifications
3.0 Assumptions	3.1	Assumptions

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6.0 Corporate Background

1.1 Corporate Background

OUR CORPORATE PROFILE:

The company has been formed by a group of professionals having vivid experience and wide exposure in Information Technology. People involved here are qualified business graduates and qualified engineers from the renowned universities across the world.

The resource personnel working in the company have been consistently providing reliable support services and consultancy to a wide variety of corporate houses either in the capacity of executive or as business partner or consultant. The company philosophy is building a long-term business partnership with its clients where interpersonal relationship, reliability, assured quality and targeted modern technology are the major building blocks.

It is a company where professionals from both technical and functional field group together with an objective of providing optimized and cost efficient business solutions. It realizes the importance of functional knowledge and its impact in developing business solutions. We constantly strive to be a leading technology firm with profound business and functional knowledge. The key to the company's success is the maintenance of a close working relationship with the clients through ensuring the best possible solutions to their needs; to establish and maintain a thorough knowledge and understanding of client's objective and help them maximize the benefits.

We want to establish ourselves as the best choice in Enterprise Information Technology Services, Consultancy and Development by offering a full spectrum of services in Infrastructure IT and Enterprise IT: Applications, Data & Cloud Practice.

OUR PARTNER SUBCONTRACTOR:

IONO is a VMware Premier Partner headquartered in Silicon Valley, CA, since 2014. The founders of IONO are alumni of VMware have extensive experience in building cloud solutions. IONO has been providing hybrid cloud solutions to enterprises of all sizes, verticals and geographical region in US. IONO has delivered VMware based solutions to SLED community as well. These include VMware vSphere Core, build VMware-based IaaS and PaaS platforms on traditional and HCI hardware, End-user computing and Software Defined networking (NSX). In the hybrid cloud space, IONO has built deployments of workloads to public clouds from On-Premises single pane of control managed by I.T.

IONO has completed over 200 projects in the last 5 years. Among them they completed three projects that were of the scale of State of Arkansas RFP. Overall, IONO has taken the customer from various level of virtualization maturity to highly automated IaaS, PaaS and Dev Ops infrastructure solutions integrating with customer’s business processes.

IONO built an active-active enterprise data center for a technology company in Chicago area with requirements virtually matching those that of DIS State of Arkansas. IONO built a DR ready data center for a mid-sized bank in Pittsburgh, PA to help them with the Federal stress test for banks. IONO architected a IaaS/PaaS/DevOps solution for a large retailer in Pacific Northwest.

1.2 Past Mergers and Acquisitions

NOT APPLICABLE FOR EMR CPR & IONO

1.3 Financial Information

See Attachment

7.0 Corporate Experience

2.1 Understanding of Data Center Optimization Services

IONO has delivered virtually a similar solution to large technology manufacturer in Chicago area. IONO built a two site with DR, moved workloads to newer hardware, built IaaS/PaaS infrastructure with capability to deploy workloads to public cloud from a single pane of glass. This case study was presented in a world-wide conference for model deployment.

IONO as a company has been certified by VMware to provide validated designs. IONO is one of only a dozen companies in the world to achieve this certification. Here is the link to VMware's website https://www.vmware.com/solutions/software-defined-datacenter/validated-designs.html.

Besides, architects and consultants have various proficiencies in the form of certifications and accolades received from the customers.

Following is a case study that matches State of Arkansas requirements.

Objective

Improve business agility and IT speed to drive higher hardware, software license sales and cloud adoption using software driven automated hybrid cloud enabled IT

Iono's Role

Participated in pre-sales, scoping, LoE estimation, and pricing of solution

Architect, design, implement and manage the hybrid cloud based solution

Environment

Cisco UCS, EMC Storage, NSX, vRealize Suite, Site Recovery Manager, Amazon Web Services and vCloud Air

Integrations with Infoblox, ServiceNow

Solution

Solution implementation on Converged infrastructure on Cisco UCS, Cisco Network and EMC storage. Production deployment benefits:

Rapid set up and deployment time

Easier end to end manageability of solution

Improved user productivity

Improved management for IT Operations

Improved governance, compliance and security

Improved service continuity with high availability and disaster recovery

2.2 Existing Business Relationships with the State of Arkansas

NONE WITH EMR CPR & IONO

2.3 Business Disputes

NONE WITH EMR CPR & IONO

2.4 Projects Completed in the Last Seven Years

Table 1: Projects Completed in the Last Seven Years

PROSPECTIVE CONTRACTOR INFORMATION	
Prospective Contractor Name: *IONO*	Prospective Contractor Contact Name: Rupen Sheth
Project Dates: August 2015 - July 2016	Prospective Contractor Contact Phone: 408-375-1224
U.S. PUBLIC SECTOR'S CUSTOMER INFORMATION	
Public Sector: YES ☐ NO ☒	
Customer Name: Zebra Technologies, Chicago IL (NASDAQ: ZBRA)	
Customer Contact Name: Scott Myers	
Customer Phone: 815-404-9717	
Customer Email: SMyers@zebra.com (No longer in Zebra)	
Customer Address: 3 Overlook Point, Lincolnshire IL 60069 1 847 634 6700	
PROJECT INFORMATION	
Total Prospective Contractor Staff Engaged: 7	
Project Objectives: Build a new data center based on VMware virtualization that will host the consolidated workloads of Zebra and acquired from Motorola. The hybrid cloud model should support DR.	
Project Description including Level of Transformation: IONO architected, designed, implemented DR enabled hybrid cloud powered by VMware technologies. Zebra	
Prospective Contractor Involvement (Role and Scope): Zebra had acquired Motorola from owned by Google. IONO was responsible for the building out the new cloud infrastructure. The workloads were moved from CSC owned facility to the new co-location facility that Zebra had built. IONO responsibilities included design, implementation, validation, knowledge transfer of the new cloud infrastructure.	
Project Benefits: Zebra was able to save over 75% of the costs of hosting their workloads. They also had a single pane of glass to deploy workloads either to on-prem VMware or public cloud AWS and Azure.	

PROSPECTIVE CONTRACTOR A KEY PERSONNEL ASSIGNED TO PROJECT	
Name: Rupen Sheth	Role: PM, Overall responsible for the project
Name: Mahesh Rajani	Role: Pre Sales, Cloud Architect
Name: Steve Koch	Role: Virtualization Architect

PROJECT MEASUREMENTS		
Operating Budget of Organization: $6M	# of Employees and External Users: 7	
Estimated Start & Completion Dates	From: Aug 2015	To: Aug 2016
Actual Start & Completion Dates	From: Aug 2015	To: Aug 2016
Reason(s) for Difference Between Estimated and Actual Dates:		

How were the planning and execution agreements contracted (separate or one)?
There were separate. PCRs were created to add more functionality thus increasing the scope.

If the Prospective Contractor performed the work as a subcontractor, the Prospective Contractor should describe the scope of subcontracted activities:
IONO was a sub-contractor to VMware.

PROSPECTIVE CONTRACTOR INFORMATION	
Prospective Contractor Name: *IONO*	Prospective Contractor Contact Name: Rupen Sheth
Project Dates: Mar 2015 – May 2018	Prospective Contractor Contact Phone: 408-375-1224

U.S. PUBLIC SECTOR'S CUSTOMER INFORMATION
Public Sector: YES ☒ NO ☐
Customer Name: California Department of General Services, Sacramento, CA
Customer Contact Name: Jeremy Palumbo
Customer Phone: 916-376-5356
Customer Email: Jeremy.Palumbo@dgs.ca.gov
Customer Address: Sacramento CA

PROJECT INFORMATION
Total Prospective Contractor Staff Engaged: 4
Project Objectives: Design and deployment of Software Defined Datacenter (SDDC)

Project Description including Level of Transformation: IONO modernized DGS' data center that automated many of the manual processes that caused delays into a self-service portal that delivered services on demand.
Prospective Contractor Involvement (Role and Scope): Design, deployment, management and operations of a multi-site VMware Software Defined Data Center transformation solution involving VMware vSphere, VMware NSX, VMware vRealize Network Insight, VMware vRealize Operations, VMware vRealize Automation, VMware Site Recovery Manager, VMware Cloud on AWS.
Project Benefits: DGS IT modernized their infrastructure to rapidly respond to end user needs.

PROSPECTIVE CONTRACTOR A KEY PERSONNEL ASSIGNED TO PROJECT	
Name: Rupen Sheth	Role: PM, Overall responsible for the project
Name: Shan Kaliyaperumal	Role: Architect
Name: Roshan Chavan	Role: Senior Consultant
Name: Satish Chandra	Role: Virtualization Consultant

PROJECT MEASUREMENTS	
Operating Budget of Organization: USD $2M	# of Employees and External Users: 4

Estimated Start & Completion Dates	From: March 2015	To: May 2018
Actual Start & Completion Dates	From: March 2015	To: May 2018

Reason(s) for Difference Between Estimated and Actual Dates:
How were the planning and execution agreements contracted (separate or one)? There were several smaller projects over the time period.
If the Prospective Contractor performed the work as a subcontractor, the Prospective Contractor should describe the scope of subcontracted activities: IONO was a sub-contractor to VMware.

PROSPECTIVE CONTRACTOR INFORMATION	
Prospective Contractor Name: *IONO*	Prospective Contractor Contact Name: Rupen Sheth
Project Dates: Oct 2016 – Sept 2017	Prospective Contractor Contact Phone: 408-375-1224

U.S. PUBLIC SECTOR'S CUSTOMER INFORMATION
Public Sector: YES ☐ NO ☒
Customer Name: CloudSimple
Customer Contact Name: Parmeet S. Chaddha
Customer Phone: (650) 464-2260
Customer Email: parmeet@cloudsimple.com
Customer Address: 2755 Great America Way, Suite 101, Santa Clara, CA 95054

PROJECT INFORMATION
Total Prospective Contractor Staff Engaged: 4
Project Objectives: Design and deployment of Software Defined Datacenter (SDDC)
Project Description including Level of Transformation: CloudSimple is a startup in Silicon Valley. They wanted to stand up a VMware based cloud for their product development.
Prospective Contractor Involvement (Role and Scope): Design, deployment, management and operations of a single-site VMware Software Defined Data Center transformation solution involving VMware vSphere, VMware NSX, VMware vRealize Network Insight, VMware vRealize Operations, VMware vRealize Automation.
Project Benefits: CloudSimple was able to develop products that integrated with VMware and Azure technologies

PROSPECTIVE CONTRACTOR A KEY PERSONNEL ASSIGNED TO PROJECT	
Name: Rupen Sheth	Role: PM, Overall responsible for the project
Name: Sri Kini	Role: Network Architect
Name: Rachit Srivatsava	Role: Architect
Name: Roshan Chavan	Role: Senior Consultant
Name: Sandeep Kumhbar	Role: Senior Consultant
Name: Satish Chandra	Role: VMware vR Ops Architect

PROJECT MEASUREMENTS	
Operating Budget of Organization: USD $500K	# of Employees and External Users: 5

Estimated Start & Completion Dates	From: Oct 2016	To: Sep 2017
Actual Start & Completion Dates	From: Oct 2016	To: Sep 2017
Reason(s) for Difference Between Estimated and Actual Dates:		

How were the planning and execution agreements contracted (separate or one)? There was one contract with objectives and outcome defined.
If the Prospective Contractor performed the work as a subcontractor, the Prospective Contractor should describe the scope of subcontracted activities: IONO was Prime on this contract.

PROSPECTIVE CONTRACTOR INFORMATION	
Prospective Contractor Name: *EMR CPR*	Prospective Contractor Contact Name: David O'Hara
Project Dates: Jan 2018 – May 2018	Prospective Contractor Contact Phone: 510-584-7178

U.S. PUBLIC SECTOR'S CUSTOMER INFORMATION
Public Sector: YES **NO**
Customer Name: Broadcom/Brocade
Customer Contact Name: Art Crimmins
Customer Phone: 916-420-4808
Customer Email: Art.Crimmins@arris.com (note, he is now at Arris Wireless and EMR CPR support him there too)
Customer Address: 1320 Ridder Park Dr, San Jose, CA 95131

PROJECT INFORMATION	
Total Prospective Contractor Staff Engaged:	$3,000,000 Project - 300+ Personal (1 Program Manager, 4 Project managers, 8 Project Coordinators, 10 Project Leads, 200+ Engineers, 50+ Network Resources)
Project Objectives: Broadcom acquired Brocade and need to move all Data Center and Lab Assets out of old buildings to new buildings because they are selling the old buildings. Migration of 2,000+ Racks (100,000+ Server Devices) to 2 different locations (Broomfield, Colorado and San Jose, CA). Provide minimal downtime with Engineering team to ensure bring up and configurations of all network and storage to turn over to customer(s) live in new environments.	
Project Description including Level of Transformation: Re-IP of Client Equipment, Re-IP of Rack Infrastructure equipment, Configuration of equipment to readiness and live status to turnover to client(s), High Density Fiber Trunk Cabling - Destination Installation, Removal of cable management, Additional Staff for Re-Racking before move, Re-rack to 42 RU racks where applicable, PM for move planning and logistics, Documentation of existing standards and policies, NEBU Asset Movement Security Checks, High Density Fiber Trunk Cabling - Source Removal, Cable Recertification, De-cable of client cabling, De-cable of cross rack patching, Removal of equipment during move to be placed in racks at destination, PDU Movement to front of the racks, Installation of equipment removed from racks at source, Re-cabling of rack infrastructure, Re-cabling of rack Client Equipment, including hypervisor and applications layers.	
Prospective Contractor Involvement (Role and Scope): Main Contractor to manage entire relocation start to finish in-tandem with multiple teams/vendors including Construction, Network, Engineers, etc. https://www.google.com/amp/s/mobile.reuters.com/article/amp/idUSKBN1DH1T9	

Project Benefits: EMR CPR enabled new client processes to increase efficiencies of the project and day to day routines, including implementation of Jarvis live tracking platform with advanced analytics and real up-to-date reporting.		
PROSPECTIVE CONTRACTOR A KEY PERSONNEL ASSIGNED TO PROJECT		
Name: David O'Hara	Role: Program Manager, Overall responsible for the project	
Name:Lydia Hultquist	Role: Project Manager, Overall for Broadcom Assets	
Name: Bryan Bolden	Role: Project Manager, Overall for non-Broadcom Assets (AT&T, Extreme Networks, Arris, Ruckus Wireless)	
Name:Luis Vega	Role: Director, IT Operations, Overall for ensuring correct assigned personal, vendors, teams on project, ensuring deliverables met on time, under budget within scope.	
PROJECT MEASUREMENTS		
Operating Budget of Organization: USD $	# of Employees and External Users: 300+ Internal W2 EMR CPR Employees,	
Estimated Start & Completion Dates	From: Feb 2018	To: July 2018
Actual Start & Completion Dates	From: Feb 2018	To: July 2018
Reason(s) for Difference Between Estimated and Actual Dates: N/A – finished with proposed schedule.		
How were the planning and execution agreements contracted (separate or one)? Executed in one contract, split into 3 Purchase Orders based on scope requirements and available budget.		
If the Prospective Contractor performed the work as a subcontractor, the Prospective Contractor should describe the scope of subcontracted activities: EMR CPR was the prime contractor.		

PROSPECTIVE CONTRACTOR INFORMATION	
Prospective Contractor Name: *EMR CPR*	Prospective Contractor Contact Name: David O'Hara
Project Dates: Jan 2018 – May 2018	Prospective Contractor Contact Phone: 510-584-7178
U.S. PUBLIC SECTOR'S CUSTOMER INFORMATION	

Public Sector: YES **NO**
Customer Name: Veritas
Customer Contact Name: Geoffrey Lin
Customer Phone: 415-517-0181
Customer Email: lingeoffrey@yahoo.com
Customer Address: 2625 Augustine Dr, Santa Clara, CA 95054

PROJECT INFORMATION	
Total Prospective Contractor Staff Engaged:	$2,500,000 Project - Multiple Projects, including 200+ Personal (1 Program Manager, 3 Project managers, 8 Project Coordinators, 10 Project Leads, 150+ Engineers)

Project Objectives: Symantec split into 2 companies (Symantec and Veritas). Requirement to separate all lab and data center assets at 86+ international locations and migrate majority of equipment into main co-location at Vantange Co-lo of 800 racks (80,000 devices). Provide Full-stack systems engineers to re-conifigure storage, compute, networking to work in new environments and support existing teams with increased workloads. More information here: https://www.channelweb.co.uk/crn-uk/news/2444418/veritas-completes-split-from-symantec
Project Description including Level of Transformation: All 86 international sites split entities and could no longer share the same buildings, locations. Migrated all equipment out of Symantec buildings into new/existing Veritas buildings globally, including but not limited to: Arkansas, Plano, Texas, Waltham, MA, Tel Aviv, Isreal, Russia, Copenhagen, Denmark, Dublin, Ireland, Retingen, Germany, Frankfurt, Germany and Mountain View, CA.
Prospective Contractor Involvement (Role and Scope): Main point of contact to lead and drive all relocation of Lab and Data Center equipment to new location and ensure operable to transition to day to day operations, including hypervisor and applications layers.
Project Benefits: EMR CPR consolidated all assets to obtain less physical space in co-locations to minimize electrical and cooling costs. EMR CPR created global standards for all equipment confirmations for easier maintenance and operating guidelines.

PROSPECTIVE CONTRACTOR A KEY PERSONNEL ASSIGNED TO PROJECT	
Name: David O'Hara	Role: Program Manager, Overall responsible for the project
Name: Luis Vega	Role: Project Manager, Responsible for all international sites
Name: Greg Grifith	Role: Project Manager, Responsible for all US Based sites
Name: Dan Lee	Role: Project Coordinator, Responsible for all staffing, scheduling, organizational process assets, training and scope transfer information.

PROJECT MEASUREMENTS	
Operating Budget of Organization: USD $	# of Employees and External Users: 200+ Internal W2 EMR CPR Employees and 30+ contracted employees

Estimated Start &	From: Jan 2016	To: Present

Completion Dates		
Actual Start & Completion Dates	From: Jan 2016	To: Present
Reason(s) for Difference Between Estimated and Actual Dates: N/A – projects completed on-time and under budget.		
How were the planning and execution agreements contracted (separate or one)? Agreements created per each physical region/location.		
If the Prospective Contractor performed the work as a subcontractor, the Prospective Contractor should describe the scope of subcontracted activities: EMR CPR was the prime contractor.		

2.5 Prospective Contractor Quality Certifications

Table 2: Quality Certifications

Prospective Contractor Quality Certifications			
Item #	**Certification**	**Certification Date (MM/DD/YY)**	**Comments – Include certifications appropriate for the proposed services**
1.	**Certified Partner Architects (IONO)**	**2017**	**IONO - VMware certified CPA**
2.	**VCPs, VCP-DCAs, VCDXs**	**2014-2018**	**All employees of IONO have several certifications from VMware**
3.	**PMP CERTIFICATION**	**01/03/2009**	
4.	**AWS CERTIFICATION CLOUD ARCHITECT**	**02/20/2018**	
5.			
6.			

8.0 Assumptions

3.1 Assumptions

Table 3: Assumptions

ITEM #	REFERENCE (Section, Page, Paragraph)	DESCRIPTION	RATIONALE
1.			
2.			
3.			

Proposal Formatting and T-3 Contents

Prospective Contractor Response Sections

The Prospective Contractor should use the response sections listed below to provide specific details of the proposed approach to meeting ADFA and DIS requirements.

Template Section	Response No.	Response Template Section
1.0 Contractor Project Staffing	1.1	Key Personnel
	1.2	Subcontractor Key Personnel (if applicable)
2.0 Prospective Contractor Project Organization and Staffing Plan	2.1	Project Organization and Staffing Plan
	2.2	Staff Management
	2.3	Training Policies and Procedures
	2.4	Staff Retention
	2.5	Work Location(s)
	2.6	Resumes
	2.7	Collaboration
	2.8	Governance
3.0 Assumptions	3.1	Assumptions

List of Tables

Project Organization and Staffing and Staff Experience

9.0 Contractor Project Staffing

1.1 Key Personnel

Prospective Contractor should identify Key Personnel for the Project, including:

- Name
- Position in Prospective Contractor organization
- Proposed role on Project
- Focus of work effort
- % of time dedicated to the Project
- Experience in the proposed role
- Qualifications for the proposed role
- Role in the last three (3) projects

Instructions: Complete the following Table 1 detailing the Key Personnel identified for this Project. Add rows as necessary. Do not change any of the completed cells. Any changes to the completed cells could lead to rejection of proposal.

Table 1: Prospective Contractor Key Personnel

NAME	POSITION IN ORGANIZATION	PROPOSED ROLE ON PROJECT	FOCUS OF WORK EFFORT	% OF TIME PROPOSED ON PROJECT	EXPERIENCE IN PROPOSED ROLE (Years)	QUALIFICATIONS FOR PROPOSED ROLE	ROLE IN LAST 3 PROJECTS
David O'Hara	COO	PM			15	PM	Project Management
Victor Som	CSO	Project Executive			15	Client Relation	Financial Control, Deliverables
Rupen Sheth	EVP	Enterprise Architect Migration	Scoping	20%	10	VMware Experience & Certifications	PreSales, Scoping, LOE, Validation
Mahesh Rajani	CTO	Enterprise Architect Virtualization	Scoping	20%	10	VMware Experience & Certifications	PreSales, Scoping, LOE, Validation
Luis Vega	Director	Migration Lead			12		Field Management
Matthew Aubel	PMO Lead	Scheduling			3		PMO migration lead
Jacqueline Covarrubia	Recruiting	Staff Recruiting			4		PMO Recruiting

1.2 Subcontractor Key Personnel

The Prospective Contractor should identify the Prospective Subcontractor Key Personnel for the Engagement including:

- Name
- Position in Prospective Subcontractor organization
- Proposed role on Engagement
- Focus of work effort
- % of time for that work effort
- Experience in the proposed role
- Qualifications for the proposed role
- Role in the last three (3) projects

This section should also detail the past work each listed person has had with the Prospective Contractor or their staff.

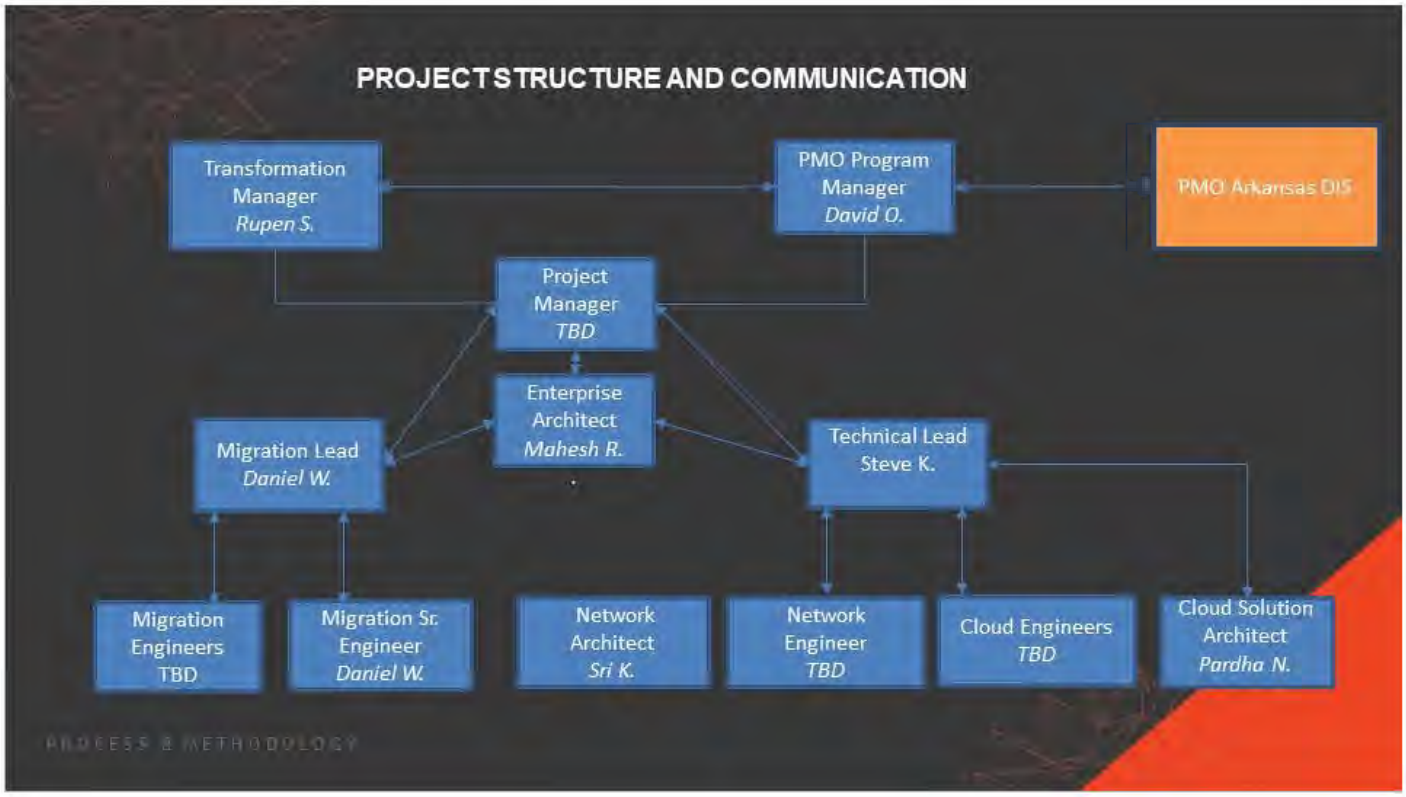
Instructions: Complete the following Table 2 detailing the Prospective Subcontractor Key Personnel identified for this Project. This Table should be replicated for each Prospective Subcontractor used. Add rows as necessary. Do not change any of the completed cells. Any changes to the completed cells could lead to rejection of proposal.

Table 2: Prospective Subcontractor Key Personnel

NAME	POSITION IN ORGANIZATION	PROPOSED ROLE ON PROJECT	FOCUS OF WORK EFFORT	% OF TIME PROPOSED ON PROJECT	EXPERIENCE IN PROPOSED ROLE (Years)	QUALIFICATIONS FOR PROPOSED ROLE	ROLE IN LAST 3 PROJECTS
Rupen Sheth	EVP	Transformation Manager		20%	10	Cloud Certifications	Stakeholder
Mahesh Rajani	CTO	Enterprise Solution Architect		20%	10	Cloud Certifications	Overall Architect
Steve Koch	Architect	VMware, Storage Architect		100%	8	Cloud Certifications	VM Architect
Pardha Nallan	Architect	Cloud Architect		50%	8	Cloud Certifications	Cloud Architect
Daniel Williams	Architect	VMware, BCDR EUC Architect		100%	8	Cloud Certifications	BCDR SRM Architect
Sri Kini	Architect	Network/Sec Architect		20%	10	Network Certifications	Net Sec Architect
TBD	PMO	Project Manager		100%	8	PMP	PM

10.0 Prospective Contractor Project Organization and Staffing Plan

2.1 Project Organization and Staffing Plan



2.2 Staff Management

Please refer to Attached **Corporate Manual** for HR and Employee Standards.

2.3 Training Policies and Procedures

Instructions: Describe Prospective Contractor's approach for training and education of its personnel, both initially and ongoing. Address how your organization keeps employees skills are current, relevant and applicable to emerging environments such as cloud, converged infrastructure.

The Architects and consultants are encouraged to take online training classes at least twice a year. These classes are aligned with their job description. They are currently trained in VMware suite of products, Nutanix, Networking, Storage and AWS. They also have peripheral expertise with the core skills. These include but not limited to Scripting in Linus Shell, Powershell, PowerCLI, Config Management tools like Chef and Puppet. Continuous integration tools like Jenkins.

IONO has a development and training labs build on state-of-the art VMware infrastructure to train employees, create POC use cases, environment for demo purposes, build and experiment with newer releases of software.

2.4 Staff Retention

The staff is paid competitive market salaries, with industry standard benefits. They are consistently challenged to come up with new ideas, solutions and methodology to automate and reduce errors in delivery. This translates to better outcomes of projects delivered to the customer. Having a small highly motivated team, challenges the members to pick up several skills there by reducing the overall costs and generating great value for the customer.

2.5 Work Location(s)

The Prospective Contractor Key Project Personnel associated with the Data Center Optimization Project **must** be available to perform relevant tasks during key phases of the project as scheduled by DIS during normal business hours. The Prospective Contractor Key Project Personnel will be allowed to work off-site during non-key phases of the project that do not require in-person meetings.

At no time **shall** the Prospective Contractor maintain, use, transmit, or cause to be transmitted information governed by privacy laws and regulations outside of the United States and its territories.

Instructions: Describe the off-site locations where the Prospective Contractor proposes performing work associated with this RFP during non-key phases of the project.

Specifically identify where the Key Project Personnel identified in the RFP will be physically located for the duration of the Contract.

For each of the deliverables identified in the RFP, provide the percentage of work to be done at DIS' provided facilities in Little Rock.

We maintain office in Milpitas, CA. A few of the staff member based out of home office in Dallas, TX. We expect that during the initial phases of the project all the architects will be onsite in Little Rock. Subsequently during the implementation, the architects and consultants will be working from their respective office. We expect the Architects to do most of the travel to be present onsite.

2.6 Resumes

Instructions: Provide a professional resume for each proposed Key Personnel. Each resume should demonstrate experience germane to the position proposed. The resume should include work on projects cited under the Prospective Contractor's corporate experience, and the specific functions performed on such projects.

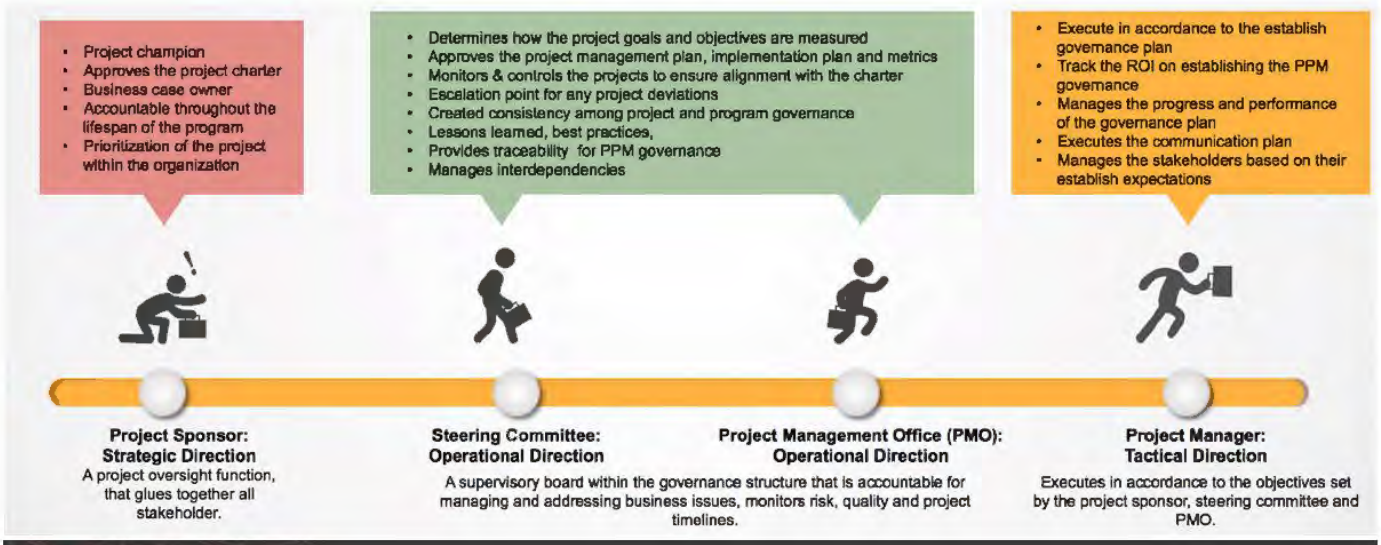
See Attachments

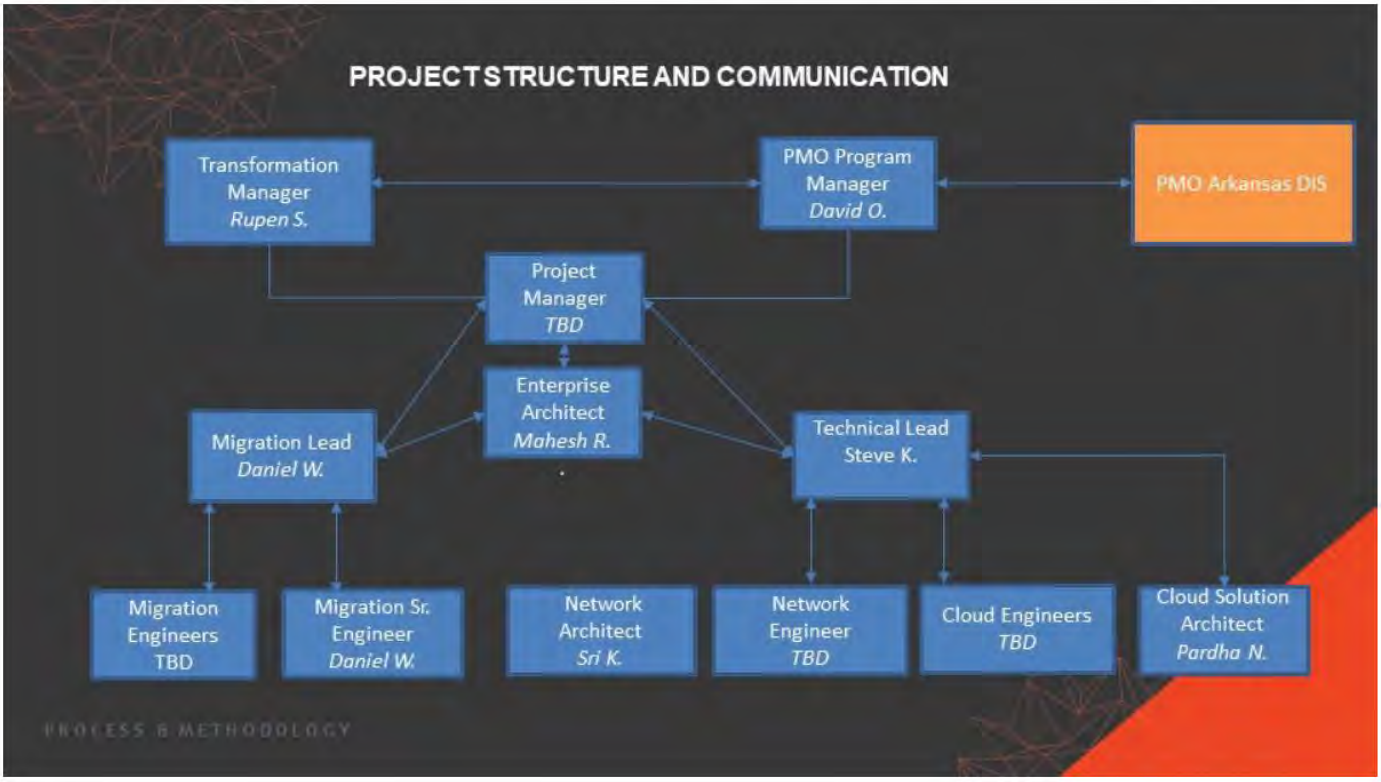
2.7 Collaboration

Instructions: Provide evidence that the Prospective Contractor's proposed team (including Prospective Subcontractor(s), if proposed) has a proven track record of successfully collaborating in a similar environment to the environment outlined in the RFP. This should include experiences working with a team to configure, implement, train and provide support. Describe how the Prospective Contractor (including Prospective Subcontractor(s)) will ensure that the proposed team will achieve the required team dynamics.

Briefly, in terms of size as the RFP, some members of the team have worked together in a regional bank in Pittsburgh, PA and technology manufacturer in Chicago. Apart from that there are dozens of the projects where two-member team has delivered to mid-size projects.

2.8 Governance





1. Steering Committee:

a. The Steering Committee will be comprised of senior executives from DIS and the Contractor (members to be determined) who shall meet on a monthly basis to discuss strategic and operational issues related to the Contract. The Steering Committee shall be responsible for providing strategic direction to the Project Management Office.

b. The Steering Committee shall have the following roles and responsibilities:

 Address relevant high-level issues appropriate for an executive level discussion.

 Review and approve the innovation processes to drive strategic transformation of the business.

 Address escalated problems, disputes, incidents and contract changes.

c. At least 5 working days prior to the Steering Committee meeting, the Parties shall agree on the location that will be provided by DIS, proposed meeting agenda, and suggested meeting attendees. The Contractor shall be responsible for any travel expenses incurred to attend these meetings.

2. Project Management Team:

a. For the data center transformation and migration activities defined in 3.1 (Target State Design and Build SoW), 3.2 (Data Center Migration Planning and Execution Services SoW) and 3.3 (Agencies Migration Planning Execution Statement of Work) a joint management team comprised of business and technology staff from DIS and the Contractor (the “Project Management Team”) shall be responsible for overseeing the day to day operation of the services.

b. The Project Management Team shall be chaired by the associated DIS PMO Manager. The team shall include the Contractor Transformation Lead for the associated service, plus any additional key members from either Party. Both parties shall agree to additional key team members as needed. Any additional temporary Contractor team members shall be agreed between the Parties in advance of the meetings.

c. The Project Management Team shall meet weekly or as agreed by the associated Contractor Transformation Manager and DIS PMO Transformation Manager, and have the following roles and responsibilities:

 Addressing operational or delivery issues or crises arising during the previous week, and adherence to performance targets.

 Reviewing Root Cause Analysis of any previous issues.

- Addressing outstanding or unresolved issues.
- Reviewing progress reports.
- Planning for future changes.
- Reviewing Contractor's compliance with the project milestones.
- Reviewing problems, disputes, incidents and change requests.
- Periodic review of the Project Risk Log.
- Addressing such other matters as one Party may bring to the other.

For each such meeting, the Parties shall agree upon the location that will be provided by DIS, proposed agenda and attendees for the meeting at least 5 days in advance. EMR CPR/IONO shall be responsible for any travel expenses incurred to attend these meetings

11.0 Assumptions

3.1 Assumptions

Instructions: Document all assumptions related to the response for Project Organization and Staffing and Staff Experience in the following Table 3. Add rows to the Table as necessary. Do not change any of the completed cells. Any changes to the completed cells could lead to rejection of proposal.

Table 3: Assumptions

ITEM #	REFERENCE (Section, Page, Paragraph)	DESCRIPTION	RATIONALE
1.			
2.			
3.			

Proposal Formatting and T-4 Contents

Prospective Contractor Response Sections

The Prospective Contractor should use the response sections listed below to provide specific details of the proposed approach to meeting ADFA and DIS requirements.

Template Section	Response No.	Response Template Section
1.0 Methodology	1.1	Planning and Migration
	1.2	Tools
	1.3	Quality
2.0 General Behavior Requirements	2.1	Overall Approach (Planning and Execution)
	2.2	Discovery and Information Gathering
	2.3	Transformation
	2.4	Readiness
	2.5	Information Risk
3.0 Service Level Requirements	3.1	Service Level Requirements
4.0 Assumptions	4.1	Assumptions

List of Tables

Methodology and Requirements Approach

1.0 Methodology

1.1 Planning and Migration

Instructions: Detail the planning and migration methodology you have used to:

(i) Migrate clients of similar size and complexity to the State of Arkansas DIS from their in-house data center(s) to a shared services environment in multiple data centers.

(ii) Deployment of a highly-virtualized and automated shared services environment with self-provisioning, cloud orchestration, metering and billing, high availability, Disaster Recovery (DR) and public cloud connectivity.

Also, describe the evolution of this methodology and how this methodology addresses challenges associated with data center migration.

1 Migration Assessment Overview

Since the introduction of virtualization over a decade ago, organizations have wanted to relocate applications and data assets from legacy platforms to new platforms. Several application relocation tools were developed over that time; but the challenge to a successful migration is in the logistics of what to migrate when, how long an outage will be, is an outage acceptable, what tool is appropriate, can it be rolled back, and what's the impact to costs and services during the migration. As with the majority of large projects; the secret of success is in the level of planning performed before the project begins.

With the addition of public clouds as a target for relocation, some additional considerations must be included in the process. Opportunities exist to optimize the applications migrated to the cloud. This might involve rework that ranges from basic repackaging for deployment through moderate refactoring, to complete redevelopment in selected cases. These changes can bring benefits, such as cloud portability and scaling, which might form part of the expected business value of migrating to cloud services.

In the migration assessment phase, a mix of interviews and technology is used to identify the current state of the environment. The assessment is not limited to just versions of software deployed but as an opportunity to gain an in-depth understanding of the business by speaking with project managers, IT professionals, end users, to gain valuable insight and potential opportunities.

The Migration Assessment activity is part of the overall MAC Workload/Dependency Analysis and Migration Planning phase of the project. This assessment provides the foundation for an organization to successfully migrate operating system instances (referred to as OSIs) from a source platform to a target platform and identifies applications that can benefit from degrees of rework. This service uses a combination of expertise in performance and capacity data interpretation, with a standardized process and with specialized tools, to deliver a detailed migration plan and the necessary configuration information required for the migration execution.

This activity typically involves the following:

- Thirty (30)-day collection of capacity and performance data from source OSIs.
- Discovery:
    - Multiple workshops led by a migration specialist focused on the following:
    - Infrastructure readiness.
    - Application readiness.
    - Communications and change management.
- Detailed migration plan, including estimated elapsed time, estimated effort, application migration logistics, OSI categorization, OSI migration order, migration tool capability functional specification, and source-to-target gap analysis.

Contractor collaborates with the Customer team to do the following:

- Conduct a migration assessment service overview workshop.
- Identify business and IT requirements through subsequent workshops.
- Design and deploy the migration assessment toolset.
- Analyze and interpret the data from the toolset.
- Develop a migration plan from the business and technical data.
- Deliver a migration plan workshop.
- Finalize and present the migration plan.

During the engagement, Contractor provides a set of deliverables as specified in the Deliverables sections. The resulting migration plan provides sufficient details to assist the organization in optimizing their return on investment from the migration project.

The Application Dependency Assessment analyzes traffic to and from an application and creates a comprehensive view of a business critical applications relationship to other applications, hosts, clients, and services that exist within Customer's network. This application dependency assessment can be used in addition to the main Migration Assessment activity when Customer wants to conduct a thorough assessment of business critical applications.

The Cloud Value Assessment includes additional workshops to review the business application architectures and identify those applications that will most benefit from levels of rework. This includes the development of an application plan; which provides a roadmap for applications and the expected benefits of investing in the application roadmap. This provides the information to determine whether Customer wants to pursue the investment to execute on the application roadmap in the application plan. This plan forms part of the *Migration Plan* document deliverable.

The Migration Assessment activity offers the option of additional activity modules that extend the information and analysis to help optimize a migration plan and Customer outcomes.

- Source OSI application dependency identification and application service definition to enable a service based migration plan – Application Dependency Assessment.
- Target OSI right-sizing recommendations and cost benefit – Workload Optimization.
- Estimated Cloud Cost forecasts – Workload Cost Assessment.

2 Migration Assessment – Assess Phase

For existing physical servers and the physical to virtual (P2V) and virtual to virtual (V2V) migrations, Contractor will develop the migration plan for the conversion of the physical hosts to the new virtual infrastructure, including task list, roles and responsibilities, project schedule and implementation constraints, sequencing of hosts, dependencies, and outage windows. This is done via workshops and interviews with various Customer stakeholders to elicit migration related requirements.

Contractor leads the following workshops:

- Infrastructure Readiness – Confirms the existing infrastructure has the prerequisites in place to support the Migration Assessment Tools. It then focuses on the target platform for the eventual migration. This workshop also considers where the target platform is in relation to source, composition of the target platform, technical, operational and business requirements, assumptions, and constraints.

- Application Readiness – Involves application owners and support team leads to help them understand the technical, operational, and business requirements, and the assumptions and constraints they have for the migration process and the subsequent target platform.
- Communications and Change Management – Helps the Contractor consultant understand Customer's organization procedures for change, and communication of change, so this can be considered and accounted for in the migration plan.
- Development of a Migration Assessment Toolset design that addresses the needs of the organization. Considers constraints, such as WAN bandwidth availability/latency, OSI location, and secured network locations and numbers.
- Deployment and configuration of the Migration Assessment Toolset in alignment with the design.
- Data collection oversight to verify that the source OSI information is being collected. Address any abnormalities so that adequate data is collected for analysis.

For the **Application Dependency Assessment**, the following additional workshops and deliverables are included:

- Network Security Readiness – Confirms whether the existing network and security construct and policy framework can accommodate the toolset within compliance standards. The workshop also considers deployment operations, including gathering, storing, and analyzing network information, troubleshooting, and decommissioning.
- Development of the toolset design that addresses the needs of the organization, considering constraints such as network port monitoring, LAN/WAN bandwidth availability/latency, and secured network locations and numbers.
- Deployment and configuration of the toolset in alignment with the design.
- Data collection oversight to verify that the source Application Service information is being collected. Address any abnormalities so that adequate data is collected for analysis.

For the Cloud Value Assessment Module, the following additional workshops and deliverables are provided:

- Application analysis scope is limited to the identified business applications in scope.
- Information gathering workshops on existing application architectures for applications in scope.

3 Migration Assessment – Design Phase

Contractor collates the previously gathered data and analyzes the information. This follows a defined, proven process so that the design considers the critical perspectives of business, operational and technical requirements, constraints, and assumptions.

This phase leverages the toolset to accelerate the formulation of the plan into its first iteration. Contractor interacts with key Customer personnel to finalize a second iteration of the plan and develop the Migration Plan document, including the detailed data previously mentioned, with an estimated duration, estimated elapsed time, and organization-specific business benefits of the proposed migration plan.

Contractor will create a draft plan and execution workbooks to be piloted on a pilot batch of servers and virtual machines. The migration plan and runbook will be optimized with the findings of the pilot, this will be baselined as the migration methodology to be used in migration phase.

Contractor uses the Application Dependency Toolset to technically determine and validate the application components that comprise an application service. Information gathered from the Application Dependency Assessment Toolset are integrated with the Migration Assessment Toolset to produce a comprehensive assessment report and migration plan.

The Migration Plan describes the migration strategy for the target physical hosts including outage windows, dependencies, collections, sequences and communications. It also identifies key internal IT processes that are commonly impacted by the transition from physical infrastructure to virtual infrastructure.

4 Migration Assessment – Validate Phase

The Validate phase provides an opportunity for both infrastructure and application owner teams to broadly review the proposed migration plan. At the end of this phase, Contractor provides a means for the technical teams to interactively modify the migration plan while the consultant articulates the impacts of the changes on the migration. This phase involves the following workshops:

- Migration Plan Technical Review Workshop.
- Migration Plan Application Owner Review Workshop.
- Application Dependency Review Workshop for business owners of applications.
- Application Re-Architecture Plan and Roadmap with application stakeholders.

5 Migration Assessment Methodology

The Migration Assessment uses a methodology to assess the current system endpoints to determine the most appropriate sequence of migration. The diagram below provides the high level overview of the methodology.

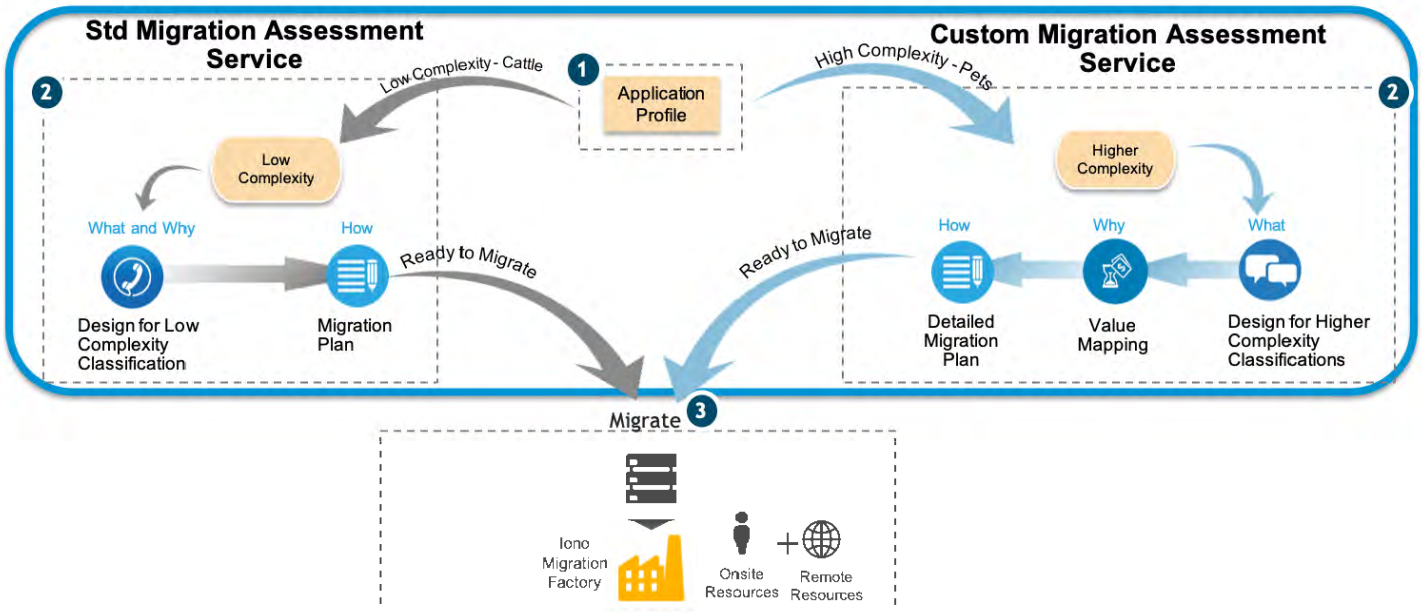


Figure 1. Migration Assessment Methodology

The Migration Assessment coarsely categorizes applications or workloads into two categories, **Pets or Cattle**.

- A *Pet* is a workload that the organization has invested interest in. It is cared for continuously, maintained, remediated to health, and relatively micromanaged.
- *Cattle* are considered as a commodity. When large scale changes occur, these applications are categorized into one bucket, and they are not micromanaged. They are reactively managed if something detrimental occurs to them.

To successfully deliver a migration project requires migration momentum to be maintained. This momentum is instantiated by the level of velocity of migrations. The Cattle workloads in the organization create the velocity and associated momentum.

Based on experience, Contractor generally expects that 80 percent or more of workloads in an organization's data center are considered Cattle. Pets comprise the remaining 20 percent of workloads. For example, out of 1,000 workloads, Contractor expects 10 Application Services and 200 workloads to fit into the Pet category.

After the first pass of categorization between Pets and Cattle has been achieved, the next step is to review the application dependencies for the Pets.

To determine whether a workload is Pet or Cattle

When a substantial change is planned at the infrastructure level in the data center, determine what Application Services owners and support units are always given change approval/review rights.

Is the workload a known element of one of the Application Services?

If *yes*, then it is a Pet. Otherwise, it is Cattle.

6 Application Dependency Identification

Application dependency identification is the process of identifying the workload elements outside the immediate scope of the Pet application that support or enable the Pet application. This identification can be achieved by:

- Tribal knowledge gathering through the Application Readiness Workshop conducted as part of this service, or
- In combination with a technology-driven discovery process to identify first-level dependencies

Assessment tools are utilized to identify dependencies between the virtualized workloads (VMware vSphere and Microsoft Hyper-V). For physical workloads or workloads located on hypervisors that are not from VMware or Microsoft, IONO leverages other assessment tools to determine the application dependencies. This information is then used to determine the appropriate sequence of migration for the Pets.

The following figure illustrates a sample dependency information discovered by the assessment tools.

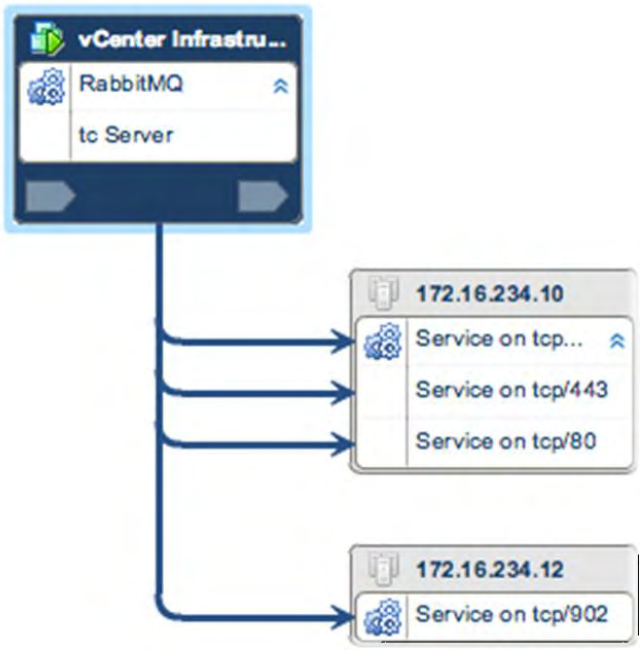


Figure 2. Sample Dependency Information

With respect to Cattle, IONO uses the tools to consume the discovered dependencies discovered to assign a migration complexity weighting and sequence Cattle in the migration plan.

Relevance of Incoming and Outgoing Connections and Cattle

The majority of workloads in a data center typically have a dependency on a set of shared data services. For example, in two-tier application, a load balancer that clients connect to is in place, and the load balancer is connected to multiple Web servers. There might be many different Web servers for many different applications, and they concentrate their connections on a small number of data services.

When Contractor considers a migration in this context, the migration of the data service to another location might create increased latency between the Web servers and the data layer will provide a consistent impact to performance of N (where N equals the RTT latency from the web server to the migrated data service). From the perspective of the data service, the N element of additional latency will affect all upstream-dependent application services to the same degree.

However, the Web server and the associated application likely leverage a number of data services located on different data provider servers. The movement or migration of one of these data provider servers does not create N times transactions in additional latency and performance impact to the application as a whole.

In summary, the migration of a workload with a large number of incoming connections will likely not impact the applications it is a component of to a full extent.

However, if the Web servers that provide the front end for the application are migrated to a location where the latency to all data provider servers is increased, the migration will drive an increase in latency of application response time directly related to the latency increase between the web servers and the data provider servers. This situation is further exacerbated by the serial transaction impact or vertical application impact. While the data provider servers provide an element of data for many applications, the Web servers provide the application experience for potentially one application. So potentially every outgoing transaction to any data provider server is increased in latency.

Due to this behavior, the Migration Assessment Service treats outgoing connections differently than incoming connections. The Migration Assessment Service then generates Migration Weightings against each Cattle classified workload. Cattle with a low Migration Weighting are candidates that should migrate first because they have the least incoming and outgoing connections.

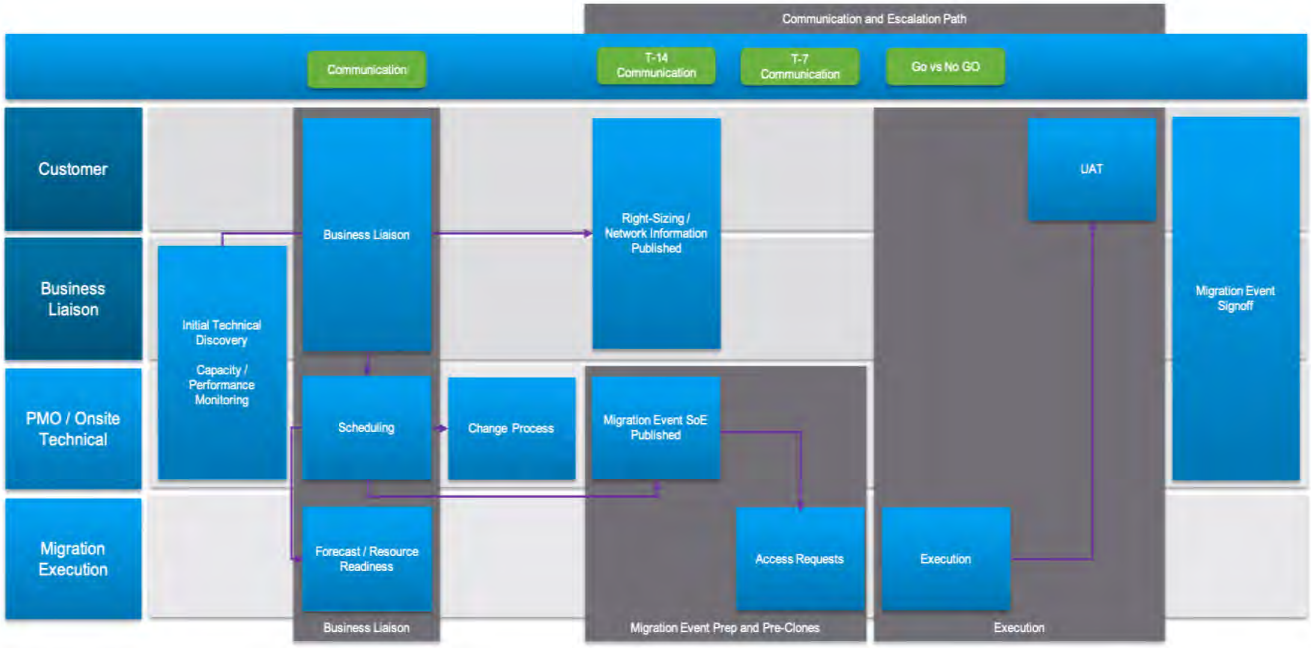


Figure 3. End to End Migration Model

7 Migration Strategies

1. Rehost (“lift and shift”)

In a large legacy migration scenario where the organization is looking to quickly implement its migration and scale to meet a business case, we find that the majority of applications are rehosted. Most rehosting can be automated with tools although you may prefer to do this manually as you learn how to apply your legacy systems to the new private/hybrid/public cloud.

You may also find that applications are easier to re-architect once they are already running in the cloud. This happens partly because your organization will have developed better skills to do so and partly because the hard part - migrating the application, data, and traffic - has already been accomplished.

2. Re-platform (“lift, tinker and shift”)

This entails making a few cloud optimizations in order to achieve some tangible benefit without changing the core architecture of the application. For example, you may be looking to reduce the amount of time you spend managing database instances by migrating to a managed relational database service such as Amazon Relational Database Service (RDS), or Azure Data platforms, or migrating your application to a fully managed platform like AWS Elastic Beanstalk.

Many common business workloads (such as Exchange or SharePoint) have equivalent SaaS offerings. Migrating to SaaS services offers an alternative to running application infrastructure in the cloud, typically with higher availability and lower TCO.

3. Repurchase (“drop and shop”)

This is a decision to move to a different product and likely means your organization is willing to change the existing licensing model you have been using. For workloads that can easily be upgraded to newer versions, this strategy might allow a feature set upgrade and smoother implementation.

4. **Refactor / Re-architect**

   Typically, this is driven by a strong business need to add features, scale, or performance that would otherwise be difficult to achieve in the application's existing environment. If your organization is looking to boost agility or improve business continuity by moving to a service-oriented architecture (SOA) this strategy may be worth pursuing - even though it is often the most expensive solution.

   Converting applications to a cloud native model using microservices and PaaS services offers significant advantages over a simple rehosting in IaaS virtual machines, due to the lower on-going management complexity and costs. However, this conversion may take longer and require greater technical skills, and the level of change— from minor refactoring to a complete application rewrite— will depend on the existing codebase and the choice of technologies adopted. As a result, while some applications may be re-architected as part of a migration project; more commonly they are first rehosted and then re-architected.

5. **Retire**

   Some applications may be end-of-life and more easily be retired than migrated. Identifying IT assets that are no longer useful and can be turned off will help boost your business case and direct your attention towards maintaining the resources that are widely used.

6. **Retain**

   You may want to retain portions of your IT portfolio because there are some applications that you are not ready to migrate and feel more comfortable keeping them on-premises, or you are not ready to prioritize an application that was recently upgraded and then make changes to it again.

   For some applications, continuing to run on-premises may be the only realistic option, for example where regulatory requirements require data to reside within the organization or within national borders.

8 MAC Migration Waves to New Shared Services Environment

In phase 2, Contractor deploys a team of migration specialists working under the direction of the Contractor project manager and working with Customer resources to migrate the physical servers and virtual machines from the target list. The Contractor project manager works with Customer project manager to schedule migrations. The first week of migrations is used to kick off the migration process, followed by a ramp towards full steady state migrations during subsequent weeks of migrations.

Additionally, the Contractor team will migrate existing virtual machines from the older virtual (VMware and Hyper-V) infrastructure to the newly built virtual infrastructure. During the migration process, the virtual machines can be right sized and hardware drivers and VMware tools upgraded to the latest version.

All migration activities executed in this phase are based on the migration methodology baselined in the planning and assessment phase. Any variation in migration methodology will be subject to review and the relevant project change control process.

Each migration wave includes the following:

a) Overall Project Management relating to the Contractor scope, resources, project schedule, and deliverables.

b) Migration kickoff meeting the Contractor delivery team and the Customer project sponsors and stakeholders to set expectations about the migration, the delivery approach and timelines, the amount of time and effort required from the participants, and the expected milestones and deliverables.

c) Review of the Migration Plan. This document describes the migration strategy for the target physical hosts including outage windows, dependencies, collections, sequences and communications. It also identifies key internal IT processes that are commonly impacted by the transition from physical infrastructure to virtual infrastructure.

d) Execute and test the migration plan including preparation, migration, and validation for each migration group. Record the results. Complete an after-action review to incorporate any lessons learned or opportunities for improvement into the migration process or plan.

e) Overview session and workshop for Customer representatives involved in the delivery and approval processes.

f) Coordinate with application and server owners through Customer to schedule each migration candidate for migration to the Shared Services Environment over the course of the project.

g) Conduct pre-migration, migration and post-migration tasks as defined in Contractor migration checklists agreed to and developed during migration planning leveraging the migration tools.

h) Receive the Go/No-go from the Customer for a migration batch/schedule.

i) Run migration tools to convert physical machines to virtual machines. Physical server clone operations shall be performed prior to the scheduled outage windows. Migrations shall be performed during the Customer-defined outage windows. The migrations operations can run 24/7 unless otherwise communicated to the Customer Program Management Office PMO. However, any change in the schedule agreed by the exception process, must be communicated at latest in 48 hours prior to the respective batch migration.

j) Onsite and remote migration consultants. Onsite migration consultant will provide support on migration related issues, if additional support is required a support escalation will be triggered to Contractor PM, vendor support services and/or Customer Subject Matter Experts (SMEs) for further investigation / remediation.

k) Align the migrated Virtual Machine (VM) to suit Customer’s target environment based on the migration inventory / specs provided for individual servers before the migration batch. For example, connecting the servers to designated VLANs/port-groups, moving the VMs into designated containers like clusters, datastores, vCenter folders, and the like.

l) Perform post-migration clean-ups (virtual hardware reconfiguration of the VM, unwanted software removal from the guest operating system, removal of non-pnp devices from the guest operating system, setting the Internet Protocol (IP) address stack on the guest operating system).

m) Work with Customer key stakeholders to support the check-out process.

n) Migration reporting and activity tracking.

o) Working with Customer to migrate up the targeted physical x86 servers located in MAC data center to the Shared Services Environment located in the SDCW or New Colo Data Center production sites in the same location using the agreed physical-to-virtual migration process (P2V).

p) Working with Customer to migrate up the targeted virtual machines located in MAC data center to the Shared Services Environment located in the SDCW or New Colo Data Center production sites in the same location using the agreed to virtual-to-virtual migration process (V2V).

9 Migration Customer Case Study

Business Driver: The merger of two financial institutions
Scope: **1700+** P2Vs across three global DCs
Outcome: Completed in less than **nine months** with **99% success** rate

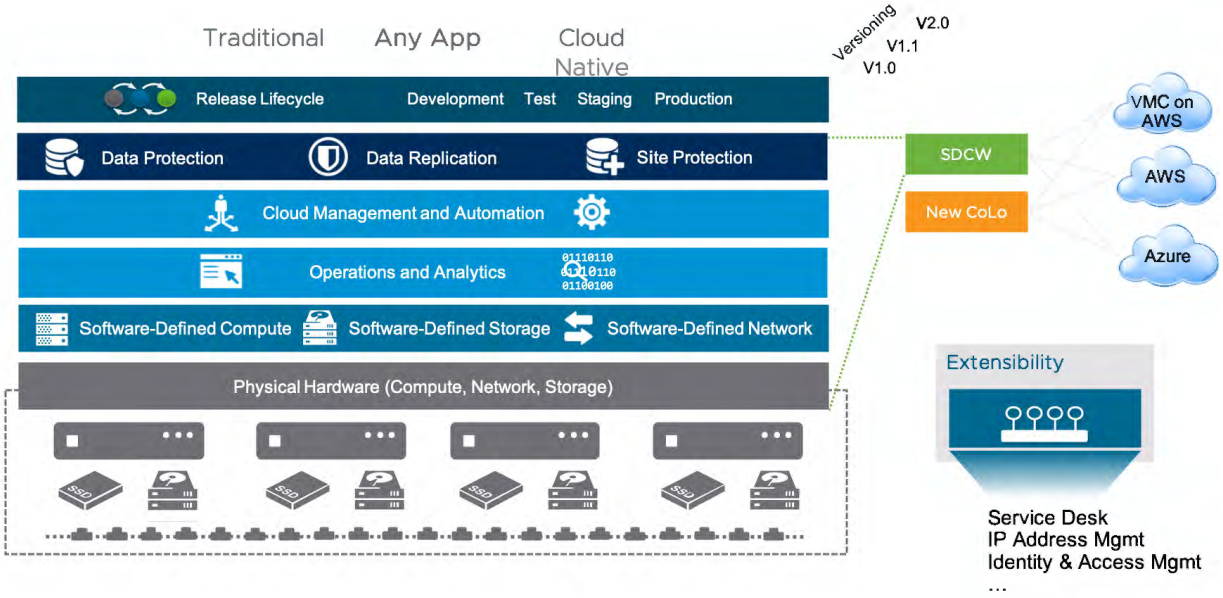
Issues / Constraints

- Aged estate:
  - OS's ranging back to Windows 2000
  - Out of support hardware failing on a daily basis
- Lack of consistency in OS patch levels
- Significant network latency due to migration over the WAN

Value

- Additional Services:
  - Update / remove hardware and software drivers
  - IP address changes
  - Server resizing and optimization
- Adjusted mode of operation with on-shore consultants supporting hardware and network issues
- Accelerated delivery schedule (60+ P2Vs per window)

10 Shared Services Environment



11 Shared Services Environment Deployment Methodology

The methodology used for deploying a new shared services environment that is active-active across two data centers and connected with multiple cloud providers uses a reference architecture that is engineered, validated and proven and delivers a highly-virtualized and automated shared services environment with self-provisioning, cloud orchestration, metering and

billing, performance and capacity management, lifecycle management, high availability, Disaster Recovery (DR) and public cloud connectivity.

In order to accelerate the time to value, Contractor will be using proven reference architecture, validated and certified designs, coupled with deployment automation in order to accelerate the deployment of the multi-site active-active shared services environment. This allows for ample time in addressing Customer's unique requirements, use cases, and configurations that deliver the Customer specific business and technical outcomes.

Contractor (IONO) is one of the few VMware solution provider partners that has a Certified Partner Architecture that is validated and certified by VMware (https://www.vmware.com/resources/compatibility/vcl/cpa.php). This certification designates that Contractor (IONO) has proven that they have followed the VMware design and best practices in planning, deploying and validating the solution – certified by VMware.

12 Shared Services Environment Deployment

The Shared Services Environment Deployment delivers a software-defined data center (SDDC) solution that expands the power of virtualization and automation to data center services in a production environment. The solution offers an integrated SDDC solution for the enterprise that includes recommended practices in a practical and scalable design that is holistic, cohesive, and modular. The services approach to achieve the desired target state includes technology transformation, people, process, and organizational transformation and a comprehensive methodology to deliver the solution in phases.

The Shared Services Environment solution delivers the following capabilities:

- SDDC Infrastructure – A foundational, comprehensive approach to platform virtualization:
    - Provides the foundational SDDC architecture delivered within each physical data center consisting of compute, storage, and network virtualization capabilities.
    - Provides a design that considers scalability and availability of management components, utilizing the underlying virtualization platform.
    - Provides Layer2/Layer3 logical connectivity between virtual machines.
    - Provides Layer3 connectivity between overlay network(s) and external networks.
    - Provides virtual storage capabilities to the management stack.
- SDDC Operations – A comprehensive monitoring for the SDDC solution.
    - Provides a foundational monitoring platform that delivers performance and capacity management dashboards for management components.
    - Provides optimized, consolidated, and operationalized process definition for monitoring, performance, and capacity management solutions for the SDDC Infrastructure.
    - Provides enhanced role, responsibility, and skillset enablement guidance.
- SDDC Automation – Expanding the software-defined data center with cloud computing capabilities:
    - Provides enterprise ready architecture for the delivery of Infrastructure as a Service (IaaS).
    - Provides a self-service portal for consumers to request and manage IaaS services.
    - Provides a service catalog with automation and approval workflows.

    - Provides optimized service lifecycle (service definition, design, development, release) and governance processes and supporting materials, based on recommended practices.
    - Provides service/tenant focused role, responsibility, and skillset enablement guidance.
    - Provides application service offerings for application consumption.
- BCDR – Delivers comprehensive business continuity and disaster recovery capabilities:
    - The backup and recovery of data stored either within a virtual machine or the whole virtual machine.
    - The recovery of business applications if a site failure occurs.
- Hybrid Cloud
    - Provides infrastructure service offerings for virtual machine consumption off-premises using Amazon Web Services (AWS), Microsoft Azure, and VMware Cloud on AWS.
- Cost Management
    - Provides infrastructure cost visibility to the provided services.
- Integration and Automation
    - Provides extensibility of the solution by integrating with operational systems and third party applications (e.g. IAM Active Directory and IPAM Infoblox) and SaaS services (e.g. ITSM ServiceNow)

Contractor consultants will work with your team to do the following:

- Conduct solution overview and enablement workshops.
- Identify business, operational and technical requirements and discuss use cases.
- Assess the current state and conduct gap analysis for both technical and operational aspects for the target state.
- Conduct solution design review workshops.
- Deploy the solution and validate the deployment.
- Optimize roles and skillsets.
- Enhance operational capabilities.
- Transition and onboard customer user groups to the target state.
- Conduct solution knowledge transfer sessions to administrators and operators.
- Validate the solution post transition.

At the conclusion of each phase, Contractor consultants create a set of documents as specified in the Deliverables section of that phase. The resulting SDDC solution from this engagement is an operational production infrastructure that delivers IT services to the users.

13 Shared Services Environment Deployment – Plan and Assess

Contractor will conduct a pre-engagement planning call with Customer. Topics to be discussed include the following:

- Review of project scope and objectives, timelines, scheduling, logistics, issue tracking and escalation.
- Identification of key Customer project team members with whom Contractor will work to accomplish the tasks.
- Review the phases, and use cases selected.
- Identify and agree to key Customer activity completion dates.
- Review the pre-requisites checklist and progress toward completing it.
- Availability of appropriate facilities, including meeting rooms, work locations, whiteboards, projectors, special access needs, any other pertinent information needed prior to Contractor consultant arriving onsite.
- Prerequisites and other preparation required before the project kickoff.

The Contractor project team will lead Customer project sponsors and stakeholders in a project kickoff meeting to review expectations, the delivery approach and timelines, the amount of time and effort required from the participants, and the expected activities and deliverables. The objectives of the meeting are:

- Introducing the Contractor team, roles, and responsibilities.
- Describing the project goals, phases and key dates.
- Explaining the expected project results and work products.
- Agreement on communication and reporting processes.
- Validating the project expectations and clarifying project roles and responsibilities.
- Confirming that all prerequisites listed in the checklist are met prior to start.
- Reviewing the project change control process and communication plans for escalations or scope changes.

The Contractor team will lead Customer's project team in a series of workshops to present the SDDC solution from both a technical and operational perspective. This is not a product enablement session. The objectives of the workshops are as follows:

- Present the SDDC solution overview to Customer project team. Expected representation of Customer roles include Customer stakeholders, project management, lead architects, service delivery, virtualization subject matter experts (SMEs), networking SMEs, storage SMEs, and security SMEs.
    - Describe the integrated components of the SDDC solution.
    - Present the high level architecture detail of the validated designs.
    - Present and review Customer use cases as the Contractor project team understands them.
    - Present the organizational model overview, role and skillset requirements, and organizational impact.

- Present the operational process model overview and adapted capabilities.

The Contractor team will lead Customer project team in a series of workshops to collect Customer-specific data that might have an impact on the SDDC solution described during the Solution Overview phase. These workshops will determine gaps between the validated design presented during the Solution Overview workshop and Customers preferred end state. The objectives of this phase are bound by the project scope along with additional objectives documented for each phase as follows:

- Perform a use case review / validation and identified gaps between Customer use cases for the SDDC solution.
- Perform requirements review for the SDDC solution.
- Perform data collection and analysis of the infrastructure and applications required to support the SDDC solution.
- Develop a conceptual design for the overall SDDC solution.
- **SDDC Infrastructure**
  - Gather and document technical requirements pertaining to the SDDC Infrastructure module of the SDDC solution.
  - Perform data collection of virtualization requirements relating specifically to target workloads, policy requirements for the workloads, and required testing for performance and failures.
- **SDDC Operations**
  - Gather and document technical requirements pertaining to the SDDC Operations module of the SDDC solution.
  - Perform data collection of people and process required to support the SDDC Operations module of the SDDC solution.
  - Perform operational gap analysis and document remediation recommendations.
  - Assist Customer's monitoring, event, incident, problem, and capacity management teams to identify the people and processes involved in their respective process areas.
  - Assist Customer's operations and support team(s) to identify the appropriate performance and capacity management use case objects for implementation.
- **SDDC Automation**
  - Gather and document technical requirements pertaining to the Infrastructure Service module of the SDDC solution.
  - Perform data collection for requirements, relating specifically to operating system, applications, services, tiers, dependencies, build and deployment processes, and scripts being used by Customer.
  - Perform data collection of people and processes required to support the Infrastructure Service module of the SDDC solution.
  - Gather and document service lifecycle management (service definition, design, development, release) requirements.
  - Gather current service focused roles, responsibilities, and skillsets.
  - Perform operational gap analysis and document remediation recommendations.

- **BCDR**
  - Gather and document technical requirements pertaining to the BCDR module of the SDDC solution.
  - Perform data collection of requirements relating specifically to business continuity and disaster recovery objectives, policies, and constraints that must be considered for the BCDR module of the SDDC solution.
- **Hybrid Cloud**
  - Gather and document technical requirements pertaining to the Hybrid Cloud module of the SDDC solution.
  - Perform data collection of requirements relating specifically to catalogs, templates, and connectivity to AWS, Azure, and VMware Cloud on AWS (or other other public cloud providers).
- **Cost Management**
  - Gather and document technical requirements pertaining to the Cost Management module of the SDDC solution.
  - Perform data collection of requirements relating specifically to cost drivers, pricing of blueprints, cost comparison, cost visibility and reporting.
- **Integration and Automation**
  - Gather and document technical requirements pertaining to the Integration and Automation module of the SDDC solution.
  - Perform data collection of requirements relating specifically to integration of SDDC solution with Identity and Access Management (IAM) (e.g. Microsoft Active Directory), IP Address Management (IPAM) (e.g. InfoBlox), IT Service Management (ITSM) (e.g. ServiceNow for user service entry, service catalog, CMDB, open/close/update service tickets).

14 Shared Services Environment Deployment – Design

The Contractor team will lead Customer project team in a series of design workshops that address Customer constraints and gaps identified during the Assess phase, and which require adjustments to the SDDC solution presented during the Solution Overview phase. The objectives of this phase are bound by the project scope along with additional objectives documented for each phase:

- Perform a design review workshop for infrastructure components.
- Develop and document the adapted validated architecture design documents.
- Develop and document architecture configuration workbooks providing detailed configuration parameters.
- Review the validation template for the module of the SDDC solution.
- Assist Customer with the development of use case validations based on the design.
- **SDDC Infrastructure**
  - Perform a design workshop for Software-Defined Networking components, including virtual network architecture, security architecture, workload connectivity requirements, logical switching and routing design, and edge gateway services.

- Perform a design workshop for determining the hardware selection and configuration requirements for use, including:
    - Selection of appropriate target solution.
    - Design of the appropriate policies.
    - Test criterion.

- **SDDC Operations**

- Develop and adapt a process design document.
- Develop education and certification plan.
- Develop collection and reporting of performance, capacity, and monitoring key performance indicators (KPIs).

- **SDDC Automation**

- Perform a design workshop for Infrastructure Service components, including tenants, reservations, business groups, and blueprints.
- Perform a design workshop for Application Service components, including blueprint design for the application use cases to include operating system, application, services, dependencies, application build procedures, and customer-provided scripts.
- Architecture design and configuration to support the environment sizing, availability, scalability, and business needs.
- Perform roles, responsibilities, and skills review workshop.
- Develop agreed to role definitions and responsibilities, RACI, and skills matrix.
- Develop organization awareness and communications plan.
- Develop service lifecycle management process diagrams and KPIs.
- Create service definitions for foundational use cases.

- **BCDR**

- Perform a design workshop for BCDR components, including recovery groups and recovery plans.

- **Hybrid Cloud**

- Perform a design workshop for Hybrid Cloud components, including reservations, reservation policies, public cloud endpoints, and catalog services.

- **Cost Management**

- Perform a design workshop for Cost Management components, including cost profiles, reservations and reservation policies, lease extension requests, database considerations, and external providers.

- **Integration and Automation**

- Perform a design workshop for Integration and automation components, including IAM, IPAM, and ITSM areas.

15 Shared Services Environment Deployment – Deploy

The Contractor project team will work with Customers project team to perform the installation and configuration of the SDDC solution at both sites (SDCW and new colo) for development, QA/test, and production environments. The objectives of this phase are bound by the project scope along with additional objectives documented for each phase:

- Implementation of the infrastructure components.
- Updates to the Configuration Workbook document where required.
- Perform validation of infrastructure components prior to customer validation testing.
- Updates to the Validation Workbook document based on Contractor validation.
- Updates to the Customer Use Case Validation workbook based on Contractor validation.
- **SDDC Infrastructure**
  - Determine that the environment is ready and capable to start the deployment.
  - Assist the Customer's team as they complete infrastructure readiness activities to implement the required hardware and software prerequisites, in addition to the network, storage, and security systems.
- **SDDC Operations**
  - Service roles, responsibilities, and skillset change workshop.
  - Operationalize vCenter Operations Management according to pre-defined use cases (implement dashboards, KPIs).
- **SDDC Automation**
  - Implementation of the agreed to IaaS and advanced services design blueprints.
  - Service roles, responsibilities, and skillset change workshop.
  - Implementation of the agreed to application blueprints.
  - Operationalize foundational VM provisioning service use case with pre-defined service lifecycle management process components.
- **BCDR**
  - Work with the Customer team to run a preliminary validation of the BCDR environment. This is to identify any remediation required prior to execution of the formal Customer validation and user acceptance testing (UAT).
- **Hybrid Cloud**
  - Configuration of connectivity between vRealize Automation and Customers public cloud service.
- **Cost Management**
  - Configuration of agreed to Customer cost data for IaaS service costing.
- **Integration and Automation**
  - Configuration of IAM (e.g. Microsoft AD), IPAM (e.g. Infoblox), ITSM (e.g. ServiceNow)

16 Shared Services Environment Deployment – Validate

The Contractor project team will work with Customers project team to oversee validation testing of the SDDC solution. The objectives of this phase are bound by the project scope along with additional objectives documented as follows:

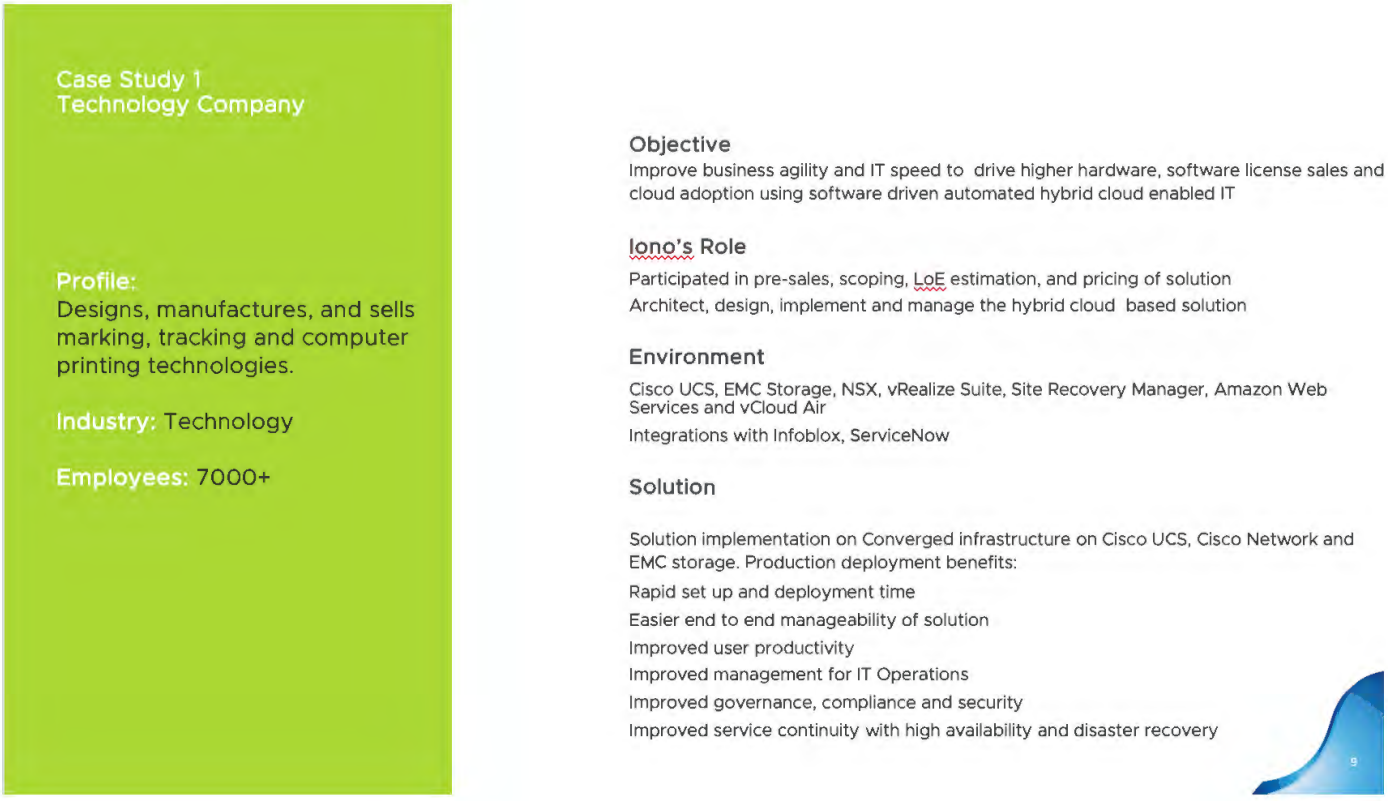
- Perform validation of infrastructure components.
- Perform validation of Customers use cases.
- **SDDC Infrastructure**
  - Test of connectivity between virtual machines running within the SDDC and external services/systems.
  - Work with Customer to make applicable configuration changes based on use case testing.
- **SDDC Operations**
  - Review recommended education and certification plans for the infrastructure operational roles.
  - Validate adapted performance, capacity, and monitoring operational changes.
- **SDDC Automation**
  - Validate service provisioning and lifecycle management processes.
  - Test the deployment of agreed to application service blueprints.
- **BCDR**
  - Testing that application services are restarted based on the defined policies for HA.
  - Backup and restore testing on a non-production test system with the backup solution.
  - Failover testing and validation for a subset of identified virtual machines (typically up to twenty-five) leveraging vCenter Site Recovery Manager non-disruptive test failover functionality (which does not affect production workloads).
- **Hybrid Cloud**
  - Testing the ability to provision IaaS blueprints to public cloud endpoints.
- **Cost Management**
  - Testing of cost reports based on agreed customer cost profiles.
- **Integration and Automation**
  - Testing of IP address and DNS management when a new virtual machine is requested or decommissioned.
  - Add or update a Configuration Item record in the ITSM (e.g. ServiceNow) configuration management database (CMDB) of type Virtual Machine Instance for each virtual machine that is provisioned, updated or decommissioned.
  - Service catalog update process validation.
  - Service request through ITSM (e.g. ServiceNow) for infrastructure provisioning.

17 Shared Services Environment Deployment – Knowledge Transfer

The Contractor project team will work with the Customers administrators and operators to conduct knowledge transfer sessions covering the design, deployment procedures, and operations procedures of the SDDC solution, and with the Customers users to conduct knowledge transfer sessions covering the end user usage/interaction with the SDDC solution. The objectives of this phase are bound by the project scope along with additional objectives documented in each phase:

- Technical knowledge transfer sessions for administrators and operators.
- End user knowledge transfer sessions for users.
- Checklist for reviews and continuous improvement.
- Review the recommended education and certification plans for the service operational roles.
- Review service provisioning and lifecycle management procedures.
- Checklist for reviews and continuous improvement.
- Adapted service lifecycle management process workshop.
- Providing appropriate technical and operational best practices knowledge transfer sessions**.**

18 Shared Services Environment Deployment – Customer Case Study



19 Methodology Evolution

The above described methodology and details for deploying a highly automated shared services environment across multiple sites and connected to public clouds – to create a hybrid cloud solution has been deployed successfully for a number of enterprise customers and state/local government agencies. Contractor (IONO) has worked with technology providers like VMware, AWS, and Microsoft and has developed a validated solution that has been certified by VMware. Using this validated design helps reduce risk, improve deployment speed and efficiency, while allowing for time incorporating specific Customer requirements and use cases, allowing Contractor to rapidly deliver the desired business outcomes. Similarly, the migration methodology and approach has been proven to successfully transition the customer from their current state and environment to the target state optimally and with reduced risk.

20 Future Initiatives

Although not a requirement in the RFP, IONO brings additional value to the solution in the form of security, automation, compliance and next generation of digital workspace.

In security, IONO provides end-point security to devices that connect to the DIS environment. The devices are authenticated and authorized on per device basis. For example, an HVAC unit may be authorized to connected to the internal LAN with secure certificates, which can be managed by SecOps from a central location.

In SIEM/SOAR category, IONO has implemented security solutions to proactively identify, isolate and remediate malware infecting the network or devices. The malware could be of the form of Ransomware, Compromised Credentials, DDOS, etc. The solution is based on AI/Machine Learning and Big Data implementation. Consequently, there is a reduction of over 95% of false positives, improving the productivity of the SEC Ops, containing the malware in near real-time. Reports may be generated on demand or scheduled to show the compliance like HIPAA, GDPR, KPIs on network, firewall and security postures.

In DevOps area, IONO has built numerous automation workflows and scripts in Continuous Integration and Continuous Delivery (CI/CD). These include integration with products like Jenkins, JIRA, Chef, Puppet, Ansible, GitHub, Docker and Kubernetes. The deployment may be hybrid cloud powered by VMware, or public cloud on AWS.

IONO has built unified Digital Workspace, to manage numerous applications across devices and the cloud, that is robust and secure platform with integrated identity, application and enterprise mobility management.

1.2 Tools

The following are some of the tools the Contractor has used in order to assess, deploy, and migrate other customers to a highly virtualized and automated shared services environment with self-provisioning, cloud orchestration, metering and billing, high availability, DR and public cloud connectivity setting.

Some of these tools are for Contractor services use only. Some of these tools may be used for assessment, migration, and deployment depending on the results of the migration assessment and requirements of the migration and deployment plan.

Choice of tools used for the migration varies depending on various factors such as size of the source server or virtual machine, amount of data, available bandwidth between source and destination, rate of change for the application data, outage window available, type of source (physical or virtual), type of target (physical, virtual, cloud), vendor for source and target, etc. Contractor has conducted online and offline migrations as required in order to achieve the results. Most of the migrations were performed online and in-band if the online migrations pre-requisites were met. A subset of the migrations were performed out of band and some offline in situations where the amount of data was large and the rate of change small providing an opportunity to do the migration offline and perform the final sync online.

Contractor has also performed data center relocation for VMware virtualization based workloads using technologies such as VMware Site Recovery Manager, which is typically used for disaster recovery solution, but can also be used for a one time data center relocation use case.

The migration plan outlined earlier includes a comprehensive contingency plan and procedures in order to address failed migrations, which includes re-attempt and analysis of the root cause for the failure to determine the appropriate next steps.

Sample Assessment and Migration Tools

- VMware Application Dependency Planner (Contractor use only)
- VMware vRealize Network Insight
- VMware vRealize Business
- VMware vRealize Operations Manager
- VMware Capacity Planner (Contractor use only)
- VMware vMotion
- VMware HCX
- VMware Converter
- VMware Site Recovery Manager
- Cloud Physics
- RISC Networks
- Turbonomic
- Microsoft Assessment and Planning Toolkit
- Microsoft Azure Migrate
- Microsoft Azure Site Recovery

- AWS Application Discovery Service
- AWS Snowball/Snowmobile
- AWS Cloud Data Migration
- AWS Server Migration Service
- Platespin
- CloudVelox
- RiverMeadow
- EMC RecoverPoint

Sample Deployment, Automation and Orchestration Tools

- VMware VVD Cloud Builder (Contractor use only)
- VMware VCF Cloud Builder
- VMware vRealize Orchestrator
- Power Shell, Power CLI
- Linux Shell Scripts
- Python
- CHEF
- Puppet
- Ansible

1.3 Quality

Quality is achieved through the use of

- automation, reducing human errors
- reference architecture based on a VMware validated design
    - Ensures that the design meets the design objectives
    - Reinforces standardization with justification and implications
    - Reduces risk by providing a baseline of standardization
    - Easy to follow checklist form and use of deployment automation
- reusable IP to drive efficiency and reduce risk
    - Repeatable discovery, planning, and evaluation methodology that streamlines the assessment process
    - Tools to more accurately and efficiently execute the assessment and migration
    - Library of templates, scripts and automation tools

- following a proven methodology for migration and deployments that include a well defined process with detailed data collection, planning, ensuring the necessary pre-requisites are in place prior to execution
- testing framework that speeds up the testing phase of the migration process, while also improving test quality and reducing migration risks
- close interaction and communications with Customer technical and business teams

Contractor might make reasonable assumptions for data/information that is missing or incomplete. In situations where there are errors in omission or errors in execution, the process allows for a root cause analysis to determine the cause of the errors in coordination with the Customer team. These can then be remediated in order to re-execute the procedures. In some situations, the issues can be tied to some 3rd party vendor or product issues. Contractor would work with the Customer technical teams and 3rd party vendor support teams in order to work with the 3rd party vendor to remediate the issues.

2.0 Approach to Deliver Requested Services

2.1 Overall Approach (Planning and Execution)

"The Contractor **shall** provide application and infrastructure disposition for possible decommission or evaluation to move workloads to the public cloud. "

21 Migration

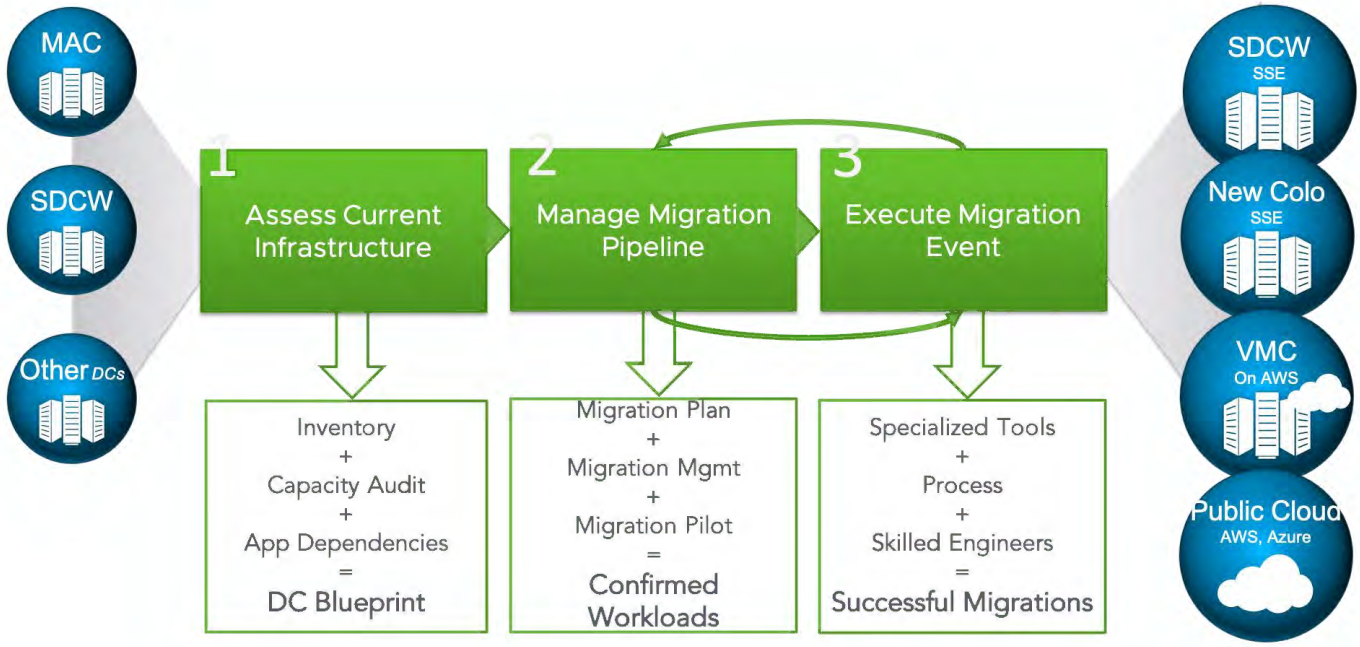


Figure 4. Overall Migration Approach

Contractor delivers the migration in two high level phases, with each phase having clearly defined deliverables and acceptance criteria for these deliverables:

- Phase 1 – Migration Planning and Workload Dependency Analysis

- Phase 2 – Migration Center Stand-Up and Execution

22 Phase 1 – Migration Planning

For existing physical servers and the physical to virtual (P2V) and virtual to virtual (V2V) migrations, Contractor develops the migration plan for the conversion of the physical hosts or migration of existing virtual machines to the new virtual infrastructure, including task list, roles and responsibilities, project schedule and implementation constraints, sequencing of hosts, dependencies, and outage windows.

This is done via workshops and interviews with various Customer stakeholders to elicit migration related requirements. Contractor will subsequently create a draft plan and execution workbooks to be piloted on a pilot batch of servers. The migration plan and runbook will be optimized with the findings of the pilot, this will be baselined as the migration methodology to be used in Phase 2.

The final migration plan that is a deliverable from the migration planning and workload dependency analysis will provide the necessary recommendations on the appropriate destination for the application workloads. The contractor has technical decision criteria which will be updated to include Customer's specific technical information about the new shared services environments (SDCW and New Colo) and the additional cloud endpoints (e.g. VMC on AWS, AWS native, Azure). The decision criteria will also take into account the necessary Customer business requirements in order to help determine the appropriate destination for the application workloads. Further, the new shared services environment solution that will be designed and built will allow for the relocation of the workloads in the event certain workloads need to be moved at a later time.

23 Phase 2 – Migration Center Stand-Up and Execution

In phase 2, Contractor deploys a team of migration specialists working under the direction of the Contractor project manager and working with Customer resources to migrate the physical servers and virtual machines from the target list. The Contractor project manager works with Customer project manager to schedule migrations. The first week of migrations is used to kick off the migration process, followed by a ramp towards full steady state migrations during subsequent weeks of migrations.

Additionally, the Contractor team will migrate existing virtual machines from the older virtual (VMware and Hyper-V) infrastructure to the newly built virtual infrastructure. During the migration process, the virtual machines can be right sized and hardware drivers and VMware tools upgraded to the latest version.

All migration activities executed in this phase are based on the migration methodology baselined in the planning and assessment phase. Any variation in migration methodology will be subject to review and the relevant project change control process.

Migration Assessment Deliverables

- Migration Assessment Toolset Implementation Plan document
- Migration Plan document
- Application Dependency Report document

Migration Deliverables

- P2V up to <x> physical hosts to virtual machines at target Shared Services Environment in SDCW or new colo

- V2V up to <x> virtual hosts to virtual machines at target Shared Services Environment in SDCW or new colo

24 Shared Services Environment Deployment

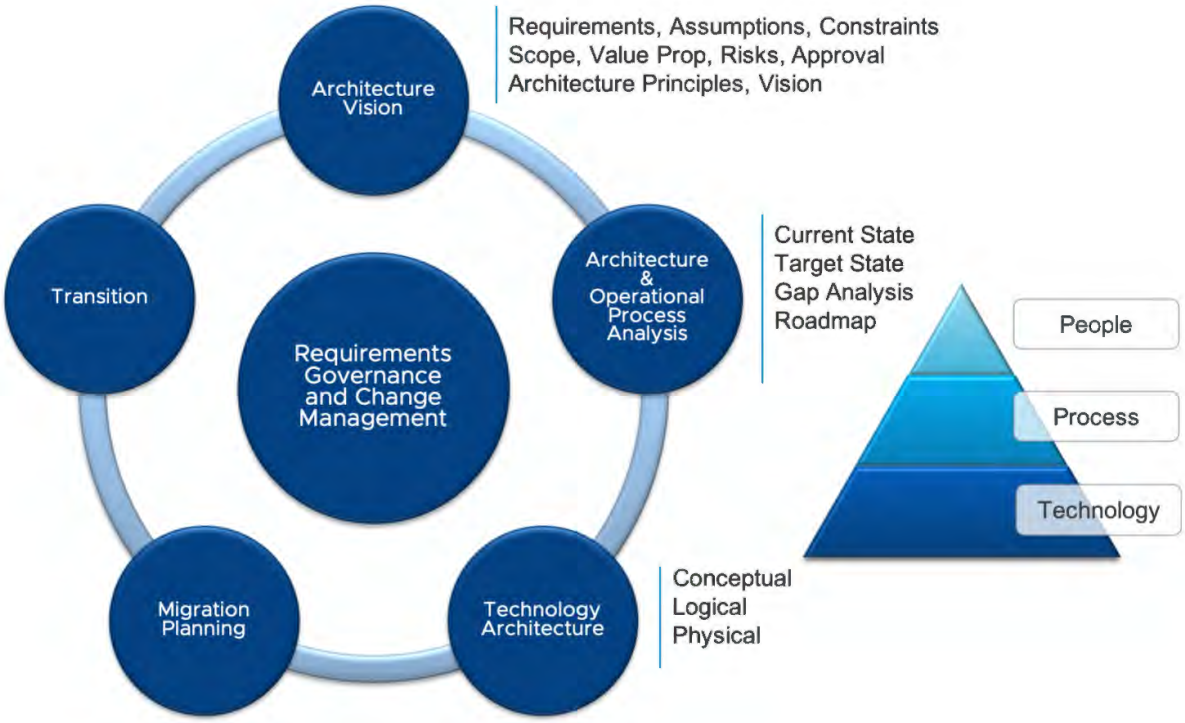


Figure 5. Overall Shared Services Environment Deployment Approach

The Shared Services Environment Deployment is delivered in the following phases, with each phase having clearly defined deliverables and acceptance criteria for these deliverables:

- Phase 1 – Plan and Assess
- Phase 2 – Design
- Phase 3 – Deploy
- Phase 4 – Validate
- Phase 5 – Knowledge Transfer

Details of the activities in each phase is described in the previous RFP Response section 1.1 above

Shared Services Environment Deployment Deliverables

- Service Pre-requisites Checklist document
- Kickoff presentation
- Solution overview workshop and presentation

- Solution Requirements workshop and document
- Technical Gap Analysis and Recommendations document
- Design document
- Configuration Workbook
- Validation Workbook
- Infrastructure Operations RACI document
- Service Definition document

2.2 Discovery and Information Gathering

25 Typical Cloud Migration Business Challenges

- **Organization**
  - Medium to large-sized organizations have inertia and complexity that need to be overcome or managed. Migration projects should be viewed as a change to the status quo and therefore managed as an organizational change
- **Communication and Education**
  - If the end-user organization communication is not clear, there is an opportunity for **F**ear **U**ncertainty and **D**oubt to play on decision makers' minds. A strong communication and education program is an effective way to address this
- **Acceptance**
  - It is important that everyone on the team be on board and that all issues and concerns are raised and addressed
- **Preparation**
  - A list of server names, while a good start, is not enough. Providing all required information for the migration pipeline reduces migration effort and risk
- **Change Control**
  - The task of migration scheduling, batching, and change control is key. Someone from the customer organization needs to fill the role of migration coordinator
- **Compliance**
  - Concerns over regulatory compliance: Requirements should be captured during the discovery phase and addressed in the proposed design. Assumptions and requirements should be reviewed carefully, since in some cases regulations may have been updated or misunderstood.
- **Security**
  - The proposed design should explicitly address security concerns and the technologies used to mitigate common threats. In some cases, and particularly when using aaS and cloud services, the security design of the solution may be based on a different approach than that used on premises, with which the customer is more familiar (for example, being more focused on access control and credentials and less focused on network-level protections). Addressing these concerns may require the customer to adopt new security models.

26 Other Migration Challenges

- Inventory is inaccurate and not up-to-date

- It's hard to get buy-in from the business and commitment to change windows
- Migration teams can handle only few servers each day so migrating entire workloads of servers will take longer
- IT cannot afford to dedicate our resources to migrations
- Scheduling off-peak migrations puts a strain on our IT staff
- Re-size or re-IP servers and install additional software during migration, then validate
- Overall transformation in not achieved in a timely fashion due to slow migration rates

27 Typical Migration Logistics Issues

- Migration pipeline
  - Difficulty getting candidates from application and business owners
  - Inability to fill migration slots
  - High drop-out rates (decommissioned, already virtualized)
  - Original candidate list originating from asset list, "ghost" candidates
- Change control
  - Dependency identification (firewall rules)
  - Change clash (outage during migration window)
- Technical
  - Migration tool(s) installation
  - Firewall rule changes to allow migration tool connectivity paths
  - Unsupported or obscure candidate system configurations
  - Limited or poorly optimized virtualization infrastructure

28 Contractor Migration Services – Key Features

- Fast, Turnkey Solution
  - End-to-end service includes planning, execution, communications, enablement, and project management
  - Robust and effective change management, PMO, and outreach programs to build internal support
  - Faster migration rates by leveraging automated management tools
- Cost-Effective
  - Lower costs than traditional and manual migration efforts
- Rapid and Scalable Delivery
  - Variety of delivery options, including multi-shift, onsite, remote, or hybrid options compress migration timelines
  - Global remote and local delivery capabilities to handle multiple data centers
- Proven Tools and Methodologies
  - Web-based management using cloud migration management tool provides collaboration platform, workbench, and dashboards for migration teams
  - Robust tools to enable remote migrations and accelerate rate of migrations

2.3 Transformation

It is quite common for Customers to have internal IT initiatives while Contractor deployment and migration efforts are underway. As part of the overall governance and change management teams, the program and project managers will remain in close touch with the Customer liaison in order to understand the details of the Customer IT initiatives. During the assess and plan phase of the project, Contractor will work with the Customer in order to identify the specific IT initiatives that have a dependency or impact to the migration or Shared Services Environment deployment activities. The resulting project plan will also list out these initiatives so that the execution of

migration or Shared Services Environment deployment is coordinated with the internal IT initiatives. If any of these internal IT initiatives will have an impact on the Contractor project timelines, this will be discussed with the Customer so that an agreeable change to the project plan can be made.

2.4 Readiness

Contractor will develop a detailed plan in order to conduct the assessment of the current infrastructure and applications. Additionally, data collection through interview sessions with the respective infrastructure and application owners will be necessary in order to understand the dependencies and develop a detailed migration plan. Timely access to the required infrastructure components, infrastructure and application personnel will be essential in order to make sure that there are no unnecessary delays impacting the schedule towards developing a detailed migration plan. The Customer provided project manager and liaison/coordinator with the customer teams will be responsible for making sure that Contractor is provided time access to the resources and people. An escalation plan will also be defined and put in place so that any issues, risks, and delays are proactively communicated and rectified in a timely manner.

2.5 Information Risk

Table 1: Information Risk

#	Question	Response
General		
1	Please provide where you store your electronic data	Laptop, Backup in the cloud, O365 SharePoint, O365 OneDrive
2	a) Are your employees required to sign a confidentiality agreement? If so, are they required to certify annually that they are bound by the policy?	Yes
	b) Does the confidentiality agreement provide for bonding or insurance of your employees as it relates to fraud, theft, modification, sale, etc. of State of Arkansas DIS data?	Yes
	c) Are all your employees bonded?	If contracts require bonding, yes.
3	Do you provide security awareness training relevant to individual's job roles?	Yes
	How often are employees required to take this training?	Every year.
4	Is personnel screening done prior to access, please describe?	Yes. Background check and reference check.

	Please describe your personnel termination procedures	Exit interview with multi prongs questionnaire, inventory of company properties, benefits, severance and other fiduciary responsibilities.
5	Will any of the services, for which the State of Arkansas DIS is contracting, be outsourced? Or, will any State of Arkansas, DIS data otherwise be accessible to third parties? If so, please describe, including how any transmitted data is protected.	If outsourced, will be approval of DIS subcontractor list. Data will NOT be available to third party. NDA will be enforced.
Application or System Data Security		
1	Describe your policies and procedures around the protection of State of Arkansas DIS confidential data (electronic and hard copy), including: a. Storing of data b. Handling of data c. Retention and disposal of the data d. Disposal/destruction of obsolete hardware (e.g. servers, hard drives)	Since we are a first time contractor with the State of Arkansas, we are open to following established Policies & Protocol inherent with the State of Arkansas in regards to confidential data (electronics & hard copy)
2	How do you and the State of Arkansas DIS exchange data (electronic transfer, mailing of tapes, etc.), and what protocols are used in this exchange (e.g. FTPS, HTTPS)? Is data encrypted during transfer? If so, what is used to encrypt the data? For data that is delivered on physical media, where are packages and mail received? Who is responsible for delivering them to the appropriate individual? Is this data encrypted?	Since we are a first time contractor with the State of Arkansas, we are open to following established Policies & Protocol inherent with the State of Arkansas
3	Are personnel able to save data to any mobile devices such as PC/laptop/handheld/PDAs/USBs, including through screen shots? If so, please describe how the data residing on each devices is protected (e.g. encryption).	Since we are a first time contractor with the State of Arkansas, we are open to following established Policies & Protocol inherent with the State of Arkansas
4	Describe how mobile devices are used by personnel, and the type of data kept on them. Describe processes/controls in place to protect data stored on mobile devices, or transmitted to/from them, including the following: ● Secure transmission ● Encryption ● Authentication controls ● Mobile device policies and procedures	Since we are a first time contractor with the State of Arkansas, we are open to following established Policies & Protocol inherent with the State of Arkansas

3.0 Service Level Requirements

3.1 Service Level Requirements

Instructions: The Contractor **must** meet the identified minimum service levels for the planning and migration phases. Complete the following tables with the recommended damages for each service level requirement.

Table 2: Delivery SLRs

Service Level	On time delivery	Proposed Damages
Description	Parameter used to measure the timeliness of deliverables identified jointly by DIS, and Contractor .	Negotiable upon award with fair value of proposed services & risk.
Formula	The number of deliverables delivered on time divided by total number of deliverables for the measurement period.	
Performance Requirement	On time delivery = 100%	
Measurement Interval	Sub-phases of the planning and migration phase	
Reporting Period	Reported Monthly	
Measurement Tool/Source Data	Per the project plan developed by Contractor and accepted by DIS	

Table 3: Service Quality SLRs

Service Level	Service Quality	Proposed Damages
Description	Parameter used to gauge quality of deliverables	Negotiable upon award with fair value of proposed services & risk.
Formula	The number of deliverables that do not have critical issues (e.g., missing dependencies; missing key assets [e.g., servers, storage, switches]; missing critical applications) divided by total number of deliverables per measurement period.	
Performance Requirement	Quality of deliverables = 100%	
Measurement Interval	Sub-phases of the planning and migration phase	
Reporting Period	Reported Monthly	
Measurement Tool/Source Data	Per the quality standards established by DIS and accepted by DIS and Contractor.	

4.0 Assumptions

4.1 Assumptions

Table 4: Assumptions

ITEM #	REFERENCE (Section, Page, Paragraph)	DESCRIPTION	RATIONALE
1.		Customer has the required software and licenses (e.g. VMware and Microsoft) for the migration to and deployment of the Shared Services Environment	
2.		Upgrade of the existing VMware vSphere and Microsoft Hyper-V is not included	
3.		Software license information will be provided, software costs are not included	
4.		Hardware specification will be provided, hardware costs are not included	
5.		Physical shared storage will be correctly configured with enough capacity to support the virtual infrastructure for the Shared Services Environment	
6.		Physical network will be correctly configured to support the virtual infrastructure for the Shared Services Environment	
7.		Customer will assist in the scheduling of migrations through their change control process and with application owners to ensure the agreed migration schedule is maintained	
8.		Provision of a minimal network speed of 100 (1000 recommended) Mbps connectivity between the source hosts and the target virtual infrastructure for migration	

9.		The minimum memory in the source hosts will not be below 1000 Mbytes of physical RAM	
10.		Contractor will support two primary migration paths for virtualized workloads; the first and preferred is a physical-to-virtual (P2V) migration that allows an imaging process to move an existing Windows/Linux server into a VM with no changes to the logical configuration of the application or Windows/Linux configuration. The second option is to build a new virtual machine, and allow the application owner to move/re-install their application to the new environment	
11.		This migration process can be used when the application/server owner wishes to use this migration to move to the latest Windows operating system used by Customer or prefer a clean server build. If the second option is required, Contractor will build the new VM to the operating system level from an existing template for the target OS and will require Customer technology resources to install and configure the application(s), recover the data and test that the system is ready for release to production	
12.		The customer will provide the required number of migration outage windows per week with an average of 8 hours per window	
13.		Inter application dependencies are the responsibility of the Customer	Customer is responsible for the application and it's existing dependencies
14.		Local Administrator access to the Source Physical Machines is required during the Conversion Job (this can be a domain user account or CMP local user account). All local user passwords are stored in a database with encryption. If this is a domain user account, the passwords	

		is not stored in the database and users are authenticated via LDAP	
15.		Administrator role access is required for vCenter Server - migration tool connections. All local passwords are stored in a database with encryption. If this is a domain user account, the passwords is not stored in the database and users are authenticated via LDAP	
16.		To use WMI audits with migration tools, Remote Registry, WMI, Workstation and Server services should be running and Default Admin shares enabled on the Source Physical Machines	
17.		Provide VPN/Jump Box connectivity to access environment and migration tools for basic remote troubleshooting	
18.		Application and OS Testing of migrated physical servers needs to performed in a timely manner by the Customer Application / IT Infra Teams	
19.		Contractor will provide all documentation in Contractor standard documentation format unless otherwise agreed. This will be agreed prior to commencement of the engagement	
20.		Identified Customer personnel will be required to participate and provide information and complete reviews during the Contractor project delivery. Customer personnel time allocation and scheduling will be determined at the project commencement. It is expected that this is minimal. The roles for Customer will be limited to approval and review of documentation, approving project change, and participation in decision requests and planning	

21.		Contractor might make reasonable assumptions for data/information that is missing or incomplete.	
22.		All deliverables are created to Contractor best practices unless otherwise agreed to as part of this SOW	
23.		Stakeholders including project and business sponsors will be available for attendance at workshops and interviews on the agreed to dates	
24.		Contractor will have access to details of all IT SLA commitments, service management process documentation, and organizational documentation in relation to current service roles and responsibilities	
25.		Contractor is not providing any third-party vendor software or equipment except tools used for the migration and deployment of the Shared Services Environment	
26.		Contractor might rely upon any standard operating procedures or practices of Customer and any direction or regulatory or other guidance provided by Customer	
27.		Any outage to complete the project defines in this RFP should be orchestrated by the Customer Change Control Orchestrator prior to outage times	
28.		Customer will provide remote connection (for example, VPN) for the Contractor remote team to perform the migration work	
29.		All cancellations or changes post the 2-week scheduling window must be approved by the exception process at least 48 hours in advance of the migration event window. The exception process will be defined and mutually agreed to by all parties at the project kickoff meeting	
30.		Server substitutions for approved cancelations or additions to the	

		migration event window will be done on a best efforts basis with input from the customer team. Due to the level of effort involved preparing servers for migration Contractor cannot guarantee substitutions will be available at short notice and no substitutions or additions to the migration event window 48 hours prior to the migration event	
31.		Any physical server not successfully cloned 48 hours prior to the migration window will be removed from that migration window and automatically re-scheduled for the following migration window	
32.		Customer server/application owners will be fully engaged during each cutover window and will have test plan ready to execute	
33.		The Customer PMO team can make available the relevant stakeholders to support the activities defined in this RFP	
34.		No application classification to re-define levels of service is part of the migration of these services - services are moved with the same service levels	
35.		Average change window will be at least 8 hours to host a migration event	
36.		At a mutually agreed timeframe before each event, Customer will provide completed server passports with sufficient details to allow Contractor to complete the migration planning deliverables. Upon handover of server passports in a locklist, all included severs are deemed to be locked into the event	
37.		Any dropoups from a locked list of servers can be substituted with a pool of reserve servers to be migrated if sufficient lead time for the change is allowed. Any dropouts without substitutions will be counted	

		towards the fulfillment of the migration milestones in the RFP	
38.		In support of the migration schedule, Customer change orchestration and process, and supporting technical team will verify that the Contractor migration team can process and test sufficient scheduled candidates every week to sustain the required migration run rate - which will be communicated and agreed between the Customer and Contractor	
39.		Customer will appropriately prioritize the migration of servers and/or data to meet the required migration velocity Any servers within the servers targeted for virtualization that are subsequently identified as being decommissions will be counted as a successful migration	
40.		Customer will complete all required change control processes prior to the migration date	
41.		Customer will be responsible for communicating and managing outages and changes with application owners and business units	
42.		Customer domains do not change as part of migration	
43.		IP changes to servers will occur. If required, Contractor will change the IP address within the operating system, using the capability of the migration toolset	
44.		Customer will be responsible for embedded static IP address changes that might be required	
45.		Hostnames will not change for the migration	
46.		Sufficient network and storage bandwidth is available and reserved so that the obligations in this RFP	

		can be fulfilled - for over the network migrations	
47.		Inter-application dependencies and firewall rule modifications are the responsibility of Customer	
48.		Customer will provide all physical infrastructure required for the migration and deployment of the new Shared Services Environment	
49.		Customer will have internal resources available to work on the project to provide insight and expertise on systems to be migrated	
50.		Contractor assumes sufficient CPU, network and storage capacity is in place to accept all virtualized machines during pre-migration cloning, the actual migration event and that contention for these resources will not be a factor in the migration project	
51.		If migrations fail due to the migration process or tools, and cannot be continued during the allotted migration event, Contractor will perform up to maximum one (1) attempt to re-migrate such failed servers at Contractor's cost. Such failed servers will only be reintroduced to the migration schedule after the cause of the failure is understood. Contractor will work with Customer to understand the cause of such failures	
52.		Application performance testing and functional testing will be conducted by Customer upon successful completion of each migration	
53.		Migration Assessment toolset will be hosted on ESX and Hyper-V infrastructure provided by Customer	
54.		Customer will provide the list of identification targets during project mobilization	
55.		Contractor Consultants require root (UNIX/Linux platforms) and/or	

		Administrator (Windows platforms) access, as applicable, to all servers where Contractor components are to be configured. User accounts that allow root or Administrator access must be created prior to Contractor arriving on site	
56.		Customer will configure all system management toolsets including backup agents for existing systems	
57.		Migrations will be carried out on a like-for-like basis, with no operating system transformation	
58.		Server/VM is pingable on all required and connected VLANs/IPs. Issues identified due to underlying physical / virtual network configuration will be considered out of bounds and will not affect the migration status if all other criteria are met	
59.		If any of the assumptions contained within this document change, are inaccurate, or invalid, Contractor reserves the right to renegotiate the price, schedule, and/or terms and conditions for this RFP and/or invoke the Change Order Process	

Proposal Formatting and T-5 Contents

Prospective Contractor Response Sections

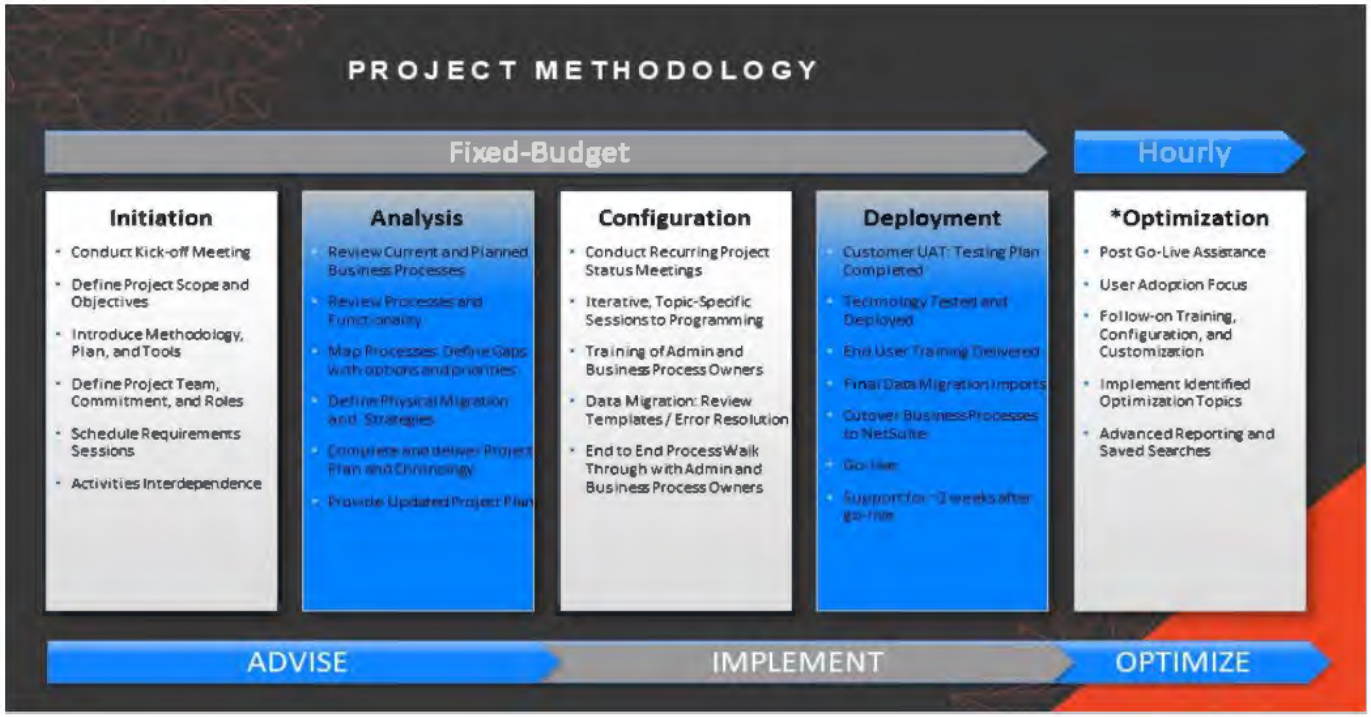
The Prospective Contractor should use the response sections listed below to provide specific details of the proposed approach to meeting ADFA and DIS requirements.

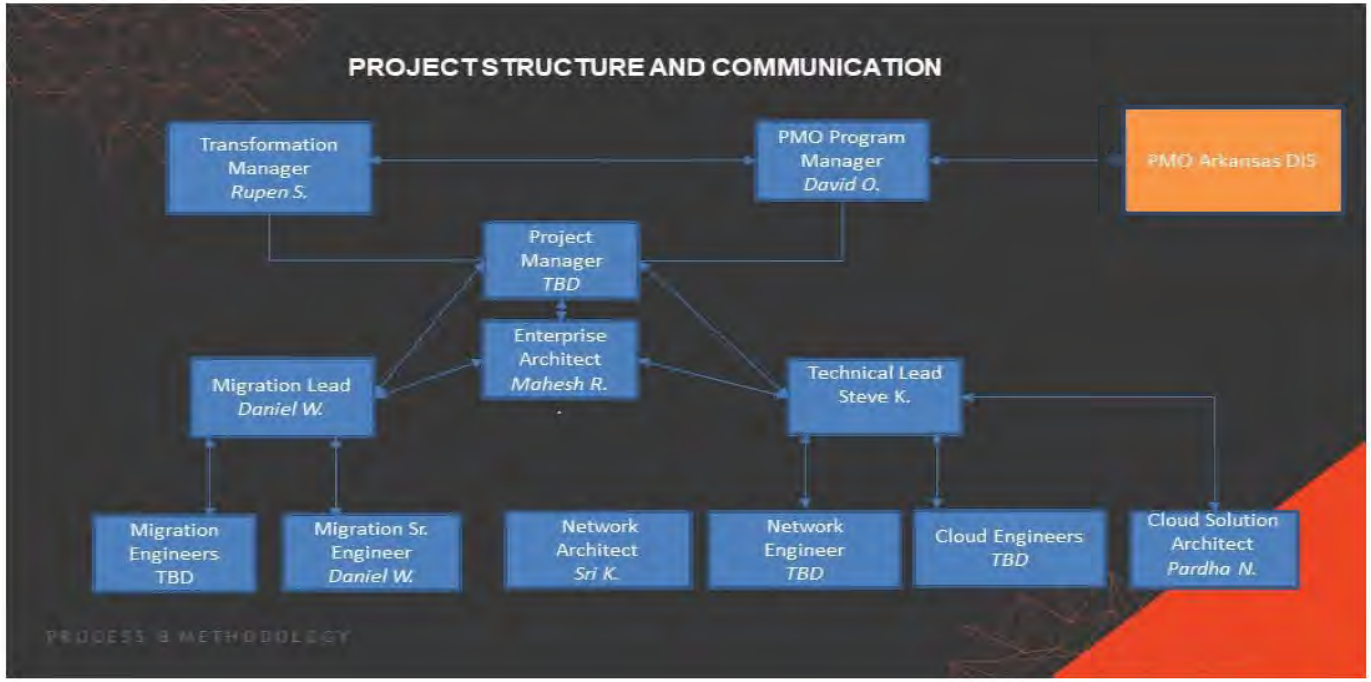
Template Section	Response No.	Response Template Section
1.0 Project Management	1.1	Project Management Methodology
2.0 Deliverables	2.1	Key Deliverables
3.0 Project Plan	3.1	Project Workplan
4.0 Assumptions	4.1	Assumptions

List of Tables

12.0 Project Management

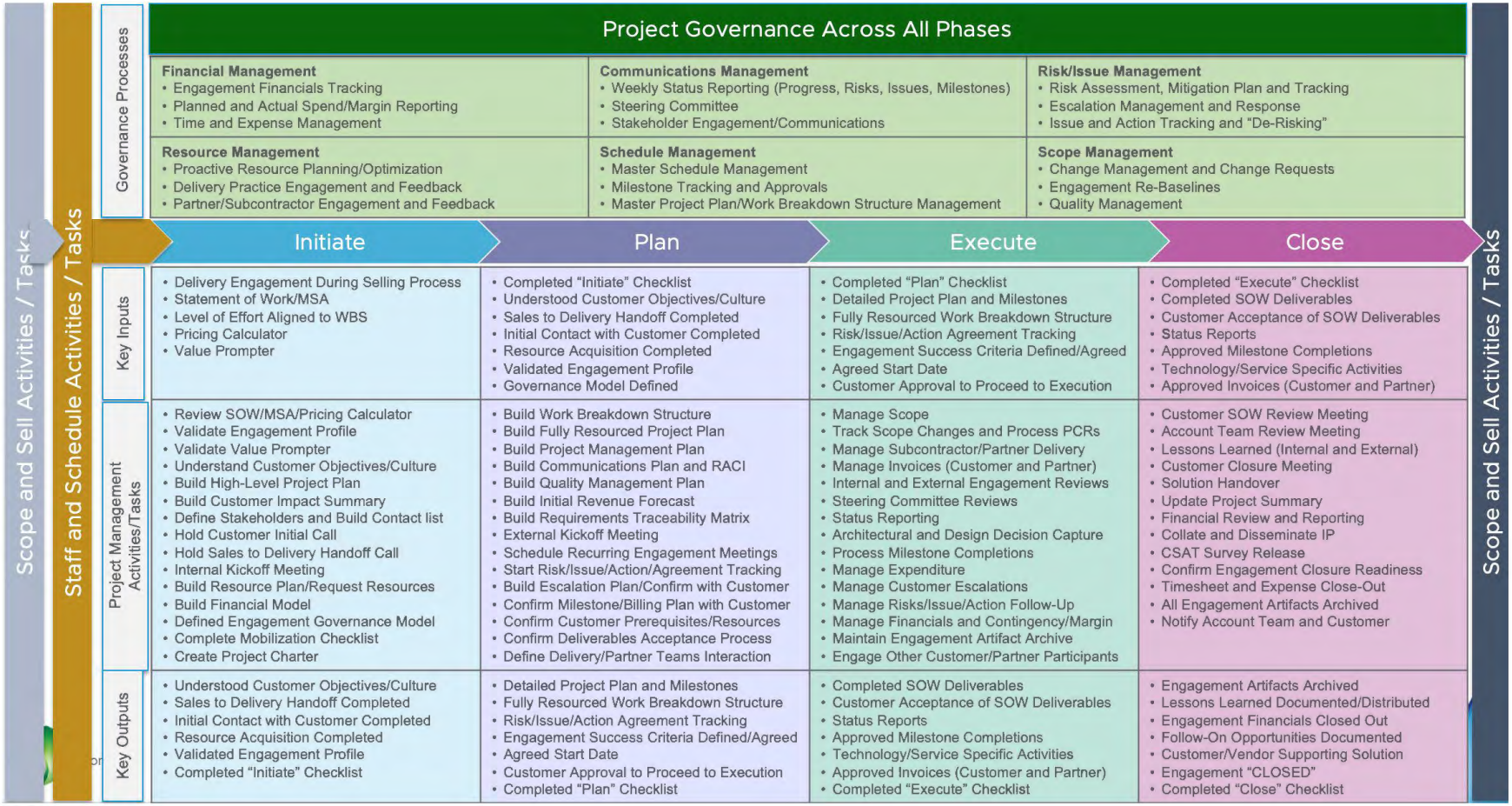
12.1 Project Management Methodology





EMR CPR to include their information and certified PM's etc.

The following is IONO's PM methodology framework that will be used for the migration and shared services environment deployment phases


Scope and Sell Activities / Tasks
Staff and Schedule Activities / Tasks
Governance Processes
Project Governance Across All Phases
Financial Management
• Engagement Financials Tracking
• Planned and Actual Spend/Margin Reporting
• Time and Expense Management
Communications Management
• Weekly Status Reporting (Progress, Risks, Issues, Milestones)
• Steering Committee
• Stakeholder Engagement/Communications
Risk/Issue Management
• Risk Assessment, Mitigation Plan and Tracking
• Escalation Management and Response
• Issue and Action Tracking and "De-Risking"
Resource Management
• Proactive Resource Planning/Optimization
• Delivery Practice Engagement and Feedback
• Partner/Subcontractor Engagement and Feedback
Schedule Management
• Master Schedule Management
• Milestone Tracking and Approvals
• Master Project Plan/Work Breakdown Structure Management
Scope Management
• Change Management and Change Requests
• Engagement Re-Baselines
• Quality Management
Initiate
Plan
Execute
Close
Key Inputs
• Delivery Engagement During Selling Process
• Statement of Work/MSA
• Level of Effort Aligned to WBS
• Pricing Calculator
• Value Prompter
• Completed "Initiate" Checklist
• Understood Customer Objectives/Culture
• Sales to Delivery Handoff Completed
• Initial Contact with Customer Completed
• Resource Acquisition Completed
• Validated Engagement Profile
• Governance Model Defined
• Completed "Plan" Checklist
• Detailed Project Plan and Milestones
• Fully Resourced Work Breakdown Structure
• Risk/Issue/Action Agreement Tracking
• Engagement Success Criteria Defined/Agreed
• Agreed Start Date
• Customer Approval to Proceed to Execution
• Completed "Execute" Checklist
• Completed SOW Deliverables
• Customer Acceptance of SOW Deliverables
• Status Reports
• Approved Milestone Completions
• Technology/Service Specific Activities
• Approved Invoices (Customer and Partner)
Project Management Activities/Tasks
• Review SOW/MSA/Pricing Calculator
• Validate Engagement Profile
• Validate Value Prompter
• Understand Customer Objectives/Culture
• Build High-Level Project Plan
• Build Customer Impact Summary
• Define Stakeholders and Build Contact list
• Hold Customer Initial Call
• Hold Sales to Delivery Handoff Call
• Internal Kickoff Meeting
• Build Resource Plan/Request Resources
• Build Financial Model
• Defined Engagement Governance Model
• Complete Mobilization Checklist
• Create Project Charter
• Build Work Breakdown Structure
• Build Fully Resourced Project Plan
• Build Project Management Plan
• Build Communications Plan and RACI
• Build Quality Management Plan
• Build Initial Revenue Forecast
• Build Requirements Traceability Matrix
• External Kickoff Meeting
• Schedule Recurring Engagement Meetings
• Start Risk/Issue/Action/Agreement Tracking
• Build Escalation Plan/Confirm with Customer
• Confirm Milestone/Billing Plan with Customer
• Confirm Customer Prerequisites/Resources
• Confirm Deliverables Acceptance Process
• Define Delivery/Partner Teams Interaction
• Manage Scope
• Track Scope Changes and Process PCRs
• Manage Subcontractor/Partner Delivery
• Manage Invoices (Customer and Partner)
• Internal and External Engagement Reviews
• Steering Committee Reviews
• Status Reporting
• Architectural and Design Decision Capture
• Process Milestone Completions
• Manage Expenditure
• Manage Customer Escalations
• Manage Risks/Issue/Action Follow-Up
• Manage Financials and Contingency/Margin
• Maintain Engagement Artifact Archive
• Engage Other Customer/Partner Participants
• Customer SOW Review Meeting
• Account Team Review Meeting
• Lessons Learned (Internal and External)
• Customer Closure Meeting
• Solution Handover
• Update Project Summary
• Financial Review and Reporting
• Collate and Disseminate IP
• CSAT Survey Release
• Confirm Engagement Closure Readiness
• Timesheet and Expense Close-Out
• All Engagement Artifacts Archived
• Notify Account Team and Customer
Key Outputs
• Understood Customer Objectives/Culture
• Sales to Delivery Handoff Completed
• Initial Contact with Customer Completed
• Resource Acquisition Completed
• Validated Engagement Profile
• Completed "Initiate" Checklist
• Detailed Project Plan and Milestones
• Fully Resourced Work Breakdown Structure
• Risk/Issue/Action Agreement Tracking
• Engagement Success Criteria Defined/Agreed
• Agreed Start Date
• Customer Approval to Proceed to Execution
• Completed "Plan" Checklist
• Completed SOW Deliverables
• Customer Acceptance of SOW Deliverables
• Status Reports
• Approved Milestone Completions
• Technology/Service Specific Activities
• Approved Invoices (Customer and Partner)
• Completed "Execute" Checklist
• Engagement Artifacts Archived
• Lessons Learned Documented/Distributed
• Engagement Financials Closed Out
• Follow-On Opportunities Documented
• Customer/Vendor Supporting Solution
• Engagement "CLOSED"
• Completed "Close" Checklist
Scope and Sell Activities / Tasks

13.0 Deliverables

13.1 Key Deliverables

All of the following deliverables are key, except the ones that are noted as non-key. A sample *Migration Plan Deliverable Sample* document is included with the RFP response submission.

Migration Assessment Deliverables

- Migration Assessment Toolset Implementation Plan document
- Migration Plan document
- Application Dependency Report document

Migration Deliverables

- P2V up to <x> physical hosts to virtual machines at target Shared Services Environment in SDCW or new colo
- V2V up to <x> virtual hosts to virtual machines at target Shared Services Environment in SDCW or new colo

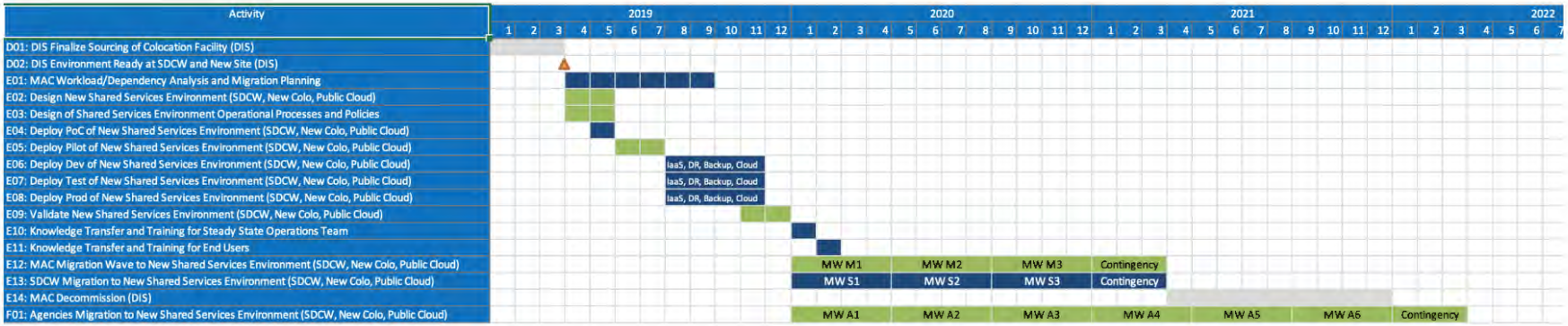
Shared Services Environment Deployment Deliverables

- Service Pre-requisites Checklist document
- Kickoff presentation (Non-key)
- Solution overview workshop and presentation
- Solution Requirements workshop and document
- Technical Gap Analysis and Recommendations document
- Hardware and Software Recommendations and Bill of Materials (some vendor specific, some vendor agnostic)
- Design document
- Configuration Workbook
- Validation Workbook
- Infrastructure Operations RACI document
- Operating Procedures document
- Service Definition document

14.0 Project Plan

14.1 Project Workplan

EMR CPR to include their information here. The following is Iono's high level project plan GANTT chart and milestones that will be used for the migration and shared services environment deployment phases



Integration with service desk as end user self service provisioning portal - already included in above
Integration with IT operational systems (IAM-AD, IPAM) - already included in above
Integration with SaaS apps - O365 - out of scope
Hybrid Cloud Assessment - already included in above Plan phase
Virtual Network Assessment - already included in above Plan phase
Cloud native production applications support in IaaS - backup requirement
Backup and recovery of VM, containers - onprem and in cloud (using same product for physical)

MW: Migration Wave Activities
MW1-A: Pre-migration prep
MW1-B: Plan, design and architecture
MW1-C: Build and data migration
MW1-D: Tesing and handover

Milestones
Kickoff design planning session
Complete workload assessment and analyses for the shared environment
Prepare draft architecture schema
Submit a PoC schedule
Submit use case pilot schedule
Finalize Bill of Materials for production environment
Finalize system engineering documents and implementation plan
Deployment of new production shared services at SDCW
Deployment of new production shared services at new colocation site
Final testing and commissioning and production readiness reports

Responsibilities

Contractor Responsibilities

Contractor will coordinate activities of all Contractor resources and will be providing Customer with Contractor resources that have the skills and expertise necessary to properly execute the requirements and services set forth in this RFP.

Customer Responsibilities

This section describes the responsibilities of Customer to Contractor with regard to this project.

- Customer is responsible for, and assumes any risk associated with any problems resulting from the content, completeness, accuracy and consistency of any data, materials and information supplied by Customer.
- Any change to the scope of work explicitly described in the Scope of Work section, and any associated additional fees, must be mutually agreed in writing by filling out a Project Change Request form.
- Customer will provide access to facilities and computer systems as required for Contractor team to perform tasks as outlined in this RFP.
- For engagement activities that need to occur at Customer work locations, Contractor expects Customer to make reasonable facilities accommodations for the Contractor project team at these locations. These accommodations will include a desk/cubicle, voice telephone, Internet connection (for Web browser access), permission to operate mobile telephone within customer work locations, and shared access to laser printer, copier, fax, and conference room facilities.
- Customer will provide a suitable environment for knowledge transfer session(s) (overhead projector and conference facilities).
- Customer will be solely responsible for procuring product support for all software to be used in connection with this RFP. Such product support will be in place and available no later than when Contractor consultants first arrive on site for this phase of the project.
- Customer will be solely responsible for procuring all the hardware to be used in connection with this RFP. Hardware product support will be in place and available no later than when Contractor consultants first arrive on site for this phase of the project.
- Customer is responsible for executing all items discussed in the *Service Checklist* prior to arrival of Contractor consultant onsite. Any additional time required of Contractor personnel to perform the duties of this RFP as a result of Customer's lack of completion of these checklist items will be considered billable time payable by Customer.
- Customer will have a fully installed and configured infrastructure as required and communicated in the *Service Checklist*.

15.0 Assumptions

4.1 Assumptions

Table 1: Assumptions

ITEM #	REFERENCE (Section, Page, Paragraph)	DESCRIPTION	RATIONALE
1.		Assumptions listed in T4 document also cover the PMO assumptions for this section	
2.			
3.			

Proposal Formatting and T-6 Contents

Prospective Contractor Response Sections

The Prospective Contractor should use the response sections listed below to provide specific details of the proposed approach to meeting ADFA and DIS requirements.

Template Section	Response No.	Response Template Section
1.0 Prospective Contractor Checklists	1.1	Prospective Contractor Response Checklists
	1.2	Prospective Contractor Additional Forms Checklist
	1.3	Prospective Contractor Attachments Checklist

List of Figures & Tables

16.0 Prospective Contractor Checklists

1.1 Prospective Contractor Response Checklists

Table 1: Prospective Contractor General Requirements Checklist

PROPOSAL RESPONSE ITEM	COMPLETED AND PROVIDED AS INSTRUCTED?	
Prospective Contractor 's proposal's stamped date meets Proposal Opening date and time	YES ☒	NO ☐
Proposal is sealed	YES ☒	NO ☐
Technical Proposal and Official Price Sheet are sealed in separate envelopes. Each envelope is clearly marked "Technical Proposal" or "Official Price Sheet"	YES ☒	NO ☐
Proposal includes redacted copy.	YES ☐	NO ☒
Minimum Mandatory Qualifications – The Prospective Contractor has documented proof that it meets the minimum mandatory qualifications outlined in Template T-1.	YES ☒	NO ☐

Table 2: Prospective Contractor Response Checklist

SECTION / TEMPLATE	PROPOSAL RESPONSE ITEM	COMPLETED AND PROVIDED AS INSTRUCTED?		REFERENCE TO PROPOSAL RESPONSE SECTION
T-1	Cover Letter and Executive Summary	YES ☒	NO ☐	
T-2	Corporate Background and Experience	YES ☒	NO ☐	
T-3	Project Organization and Staffing, and Staff Experience	YES ☒	NO ☐	
T-4	Requirements Plan	YES ☒	NO ☐	
T-5	Work Plan and Deliverables	YES ☒	NO ☐	
T-6	RFP Response Checklist	YES ☒	NO ☐	
C-1	Official Price Sheet	YES ☒	NO ☐	

1.2 Prospective Contractor Additional Forms Checklist

Instructions: Refer to RFP 1.8(A)(2). Prospective Contractor should complete the following and include in the original *Technical Proposal Response* only:

Table 3: Prospective Contractor Additional Forms Checklist

PROPOSAL RESPONSE ITEM	COMPLETED AND PROVIDED AS INSTRUCTED?	
EO 98-04 Disclosure Form. (See RFP *Standard Terms and Conditions, #27. Disclosure*): https://www.dfa.arkansas.gov/images/uploads/procurementOffice/contgrantform.pdf	YES ☒	NO ☐
Copy of Prospective Contractor's *Equal Opportunity Policy*. (See RFP *Equal Opportunity Policy*)	YES ☒	NO ☐
Voluntary Product Accessibility Template (VPAT) – (See RFP Technology Access): https://www.state.gov/documents/organization/126555.pdf *Note: Prospective Contractors are only required to respond to VPAT sections 1194.21 & 1194.22.*	YES ☒	NO ☐

1.3 Prospective Contractor Attachments Checklist

Instructions: The Prospective Contractor should identify all attachments that are part of the Technical or Cost Proposals. The Prospective Contractor should provide specific references to proposal locations (e.g., section and page numbers) for each attachment included. All attachments should be included in both soft and hard proposal copies. Add rows as necessary. Do not change any of the completed cells. Any changes to the completed cells could lead to rejection of proposal.

Table 4: Prospective Contractor Attachment Checklist

ATTACHMENT ID	ATTACHMENT NAME	ATTACHMENT PROVIDED?		REFERENCE TO PROPOSAL RESPONSE SECTION
001	Corporate Manual with Equal Opportunity	YES ☒	NO ☐	
002	DBE Certificate	YES ☒	NO ☐	
003	Financial Statements	YES ☒	NO ☐	
004	Team Resumes	YES ☒	NO ☐	
005	Migration Plan Deliverable Sample	YES ☒	NO ☐	
006	Addendum 1: Scope of Physical Migration	YES ☒	NO ☐	
007	Addendum 2: Rubrik Storage Solution	YES ☒	NO ☐	
008	VPAT_1194.21 & 1194.22 Sample	YES ☒	NO ☐	
009	Gartner_Rubrik Report	YES ☒	NO ☐	
		YES ☐	NO ☐	

ADDENDUM 1

1.0 Scope for Physical Migration.

Server Cable Diagram

- Validate each connection on cable diagram by physically tracing each cable
- Document each connection into spreadsheet
- Provide completed cable diagram of all connection
- Will capture all cable connections where physically possible to do so. For example, a cable may go in between buildings which we cannot trace, these will not be documented, but will be noted and brought to the client's attention.

Server Disconnect / Reconnect Services

- Label each server device the destination location
- Label each rail kit and peripheral components with destination location
- Validate each destination location and label comparted to move list
- At origin location:
    - De-cable cables
    - Place cables inside bag (if being re-used for servers)
    - Label server device, rail kits/shelf and bag of cables
    - Remove server device from rack
    - Uninstall rail kits
- At destination location
    - Install rail Kits
    - Re-rack server
    - Cable servers per cable diagram with new cables and color scheme provided by client
    - Pre-run cables where available to do so
    - Cable Manage Servers

Server - Cable Label

- Pre-print cable labels based on cable diagram
- Apply cable labels to each cable (2 per cable, one on each end)

Servers - E-waste – Inventory, Disconnect and Sort Equipment

- Document and provide spreadsheet with origin location, Asset# or Serial number of each device
- Unplug each device, sort cables by type
- De-rack each device
- Remove Rail Kits from racks
- Remove PDU's from racks
- Remove Shelves from racks
- Remove all other unneeded peripherals from racks
- Unbolt racks from floor
- Unbolt racks from other racks
- Screw in anchors on bottom of racks to make them mobile on the casters

- Sort all equipment types in same piles, example:
    - Equipment with Data (hard drives) in one pile
    - Equipment without Data in one pile
    - Cables sorted by type into separate piles
- Assume no post support needed
- Assume client has list of all devices showing the locations and each device to be e-wasted
- Assume client has powered off all devices

Physical Transportation

Provide movers and move equipment onsite to physically package and transport and move necessary server devices.

- Wrap Anti-static bubble wrap around each device
- Place each server device on moving cart or speed pack
- Wrap shrink wrap around moving cart or speed pack if applicable
- Secure moving carts or speed packs in moving truck
- Transport equipment to destination
- Deliver equipment inside building to destination location
- Un-package shrink wrap around moving cart or speed pack if applicable
- Un-package anti-static bubble wrap from server device
- Hand off server device to Server Technician onsite to rack equipment
- Client is responsible for determining valuation protection needs. EMR CPR provides, at no cost, Standard Valuation Coverage. Carrier Base Liability ($0.60 per pound, per article). If more coverage is required, you may choose to purchase Valuation Protection. The additional charge is $6.00 per $1000.00 of declared value. Please contact your salesperson for more information or to declare a protection value.

Inventory Services:

- Document Make, Model, Serial Number and Asset Tag # for each item required
- Live view of inventory information on Jarvis portal
- Documented inventory provided on Jarvis portal
- Documented inventory available to export to Excel format

7.0 Pricing

Equipment to SDCW (Estimated 800 devices)

Service	Quantity	Rate	Total
Jarvis (Live Project Tracking Platform with Pictures and more) …ask for a demo. No-one else has this. It's like UPS or Amazon on Steroids.	Included	Included	Included
Server Cable Diagram	800 Units	$25.00 per Server	$20,000.00
Server Disconnect / Reconnect Services	800 Units	$95.00 per Server	$76,000.00

-De-cable, De-rack, Rack, Cable, Cable Manager			
Server - Cable Label	800 Units	$25.00 per Server	$20,000.00
Relocation Project Manager	450 Hours	$160.00 per Hour	$72,000.00
Physical Transportation Remove servers from rack load into speed packs or machine carts and move them to the trucks. Transport them to the new location with in the city. We will then unload from the truck and move them to the new space in the new building and place in the new server rack. Price is based on doing the move during regular business hours. Estimated 3 days and we will also supply building protection and will take care of all COI.	1 Unit	$15,000.00	$15,000.00
Servers - E-waste – Inventory, Disconnect and Sort Equipment	TBD	TBD	TBD
Server – Post Move Support – Rack/Stack/Cabling Technician	TBD	$45.00 per Hour	TBD
Inventory Services	TBD	$45.00 per Hour	
Low Voltage Cabling Services (Data Cabling)	TBD	TBD	TBD
Total			**$203,000.00**

EQ to new Colo (Estimated 800 mirror image devices going to colocation >100 miles away)

Service	Quantity	Rate	Total
Jarvis (Live Project Tracking Platform with Pictures and more) …ask for a demo. No-one else has this. It's like UPS or Amazon on Steroids.	Included	Included	Included
Server Cable Diagram	800 Units	$25.00 per Server	$20,000.00
Server Disconnect / Reconnect Services -De-cable, De-rack, Rack, Cable, Cable Manager	800 Units	$95.00 per Server	$76,000.00
Server - Cable Label	800 Units	$25.00 per Server	$20,000.00
Relocation Project Manager	450 Hours	$160.00 per Hour	$72,000.00
Physical Transportation Remove them out of the building, transportation to our warehouse and palletizing them. Remove the servers from the rack, load them into speed	1 Unit	$44,045.00	$44,045.00

packs or machine carts, move to our trucks, transport them to our warehouse, unload them into the warehouse. Palletize the servers for transportation to another location 300 miles away. We will use corner guards, pallets, shrink wrap, and cardboard dividers. Price is based on doing the move during regular business hours. We will also supply building protection and will take care of all COI. I anticipate 52,000 lbs. of product requiring 2 tractor trailers for transportation. We will also need destination services for the delivery. These services would include the worst case scenario of delivering to the local partner agent, handling into storage, transferring out to 6 bobtails for delivery. Origin services, $17,775.00 Handling out of warehouse onto trailers for long haul, $3,250.00 Transport, 2 times =$4,770.00 Handling into warehouse 300 miles way, $3,250.00 Handling out into 6 bobtails for local delivery $3,250.00 Local delivery $11,750.00 Total = $44,045.00			
Servers - E-waste – Inventory, Disconnect and Sort Equipment	TBD	TBD	TBD
Server – Post Move Support – Rack/Stack/Cabling Technician	TBD	$45.00 per Hour	TBD
Inventory Services	TBD	$45.00 per Hour	
Low Voltage Cabling Services (Data Cabling)	TBD	TBD	TBD
Total			**$232,045.00**

***** Pricing Assumptions:

1. Prices quoted above are estimates only based on information provided by CLIENT. Any changes to the scope will result in changes to this quote.
2. Quoted amounts are valid for 30 days.
3. Delays due to circumstances beyond EMR CPR's control will be billed at $50.00 per hour per person. EMR CPR shall communicate any such delays in writing.
4. If applicable, any hours worked over 8 hours in a day will be billed at 1.5x the hourly rate per person per day and any hours worked over 12 hours in a day will be billed at 2x the hourly rate per person per day in accordance with California Law.
5. There is a 4-hour minimum per person per day. EMR CPR LLC will bill actual Units, Hours, Minimums, whichever is greater.

ADDENDUM 2

Rubrik Storage Solutions:

1.0 Corporate Background

1.1 Corporate Background

Due to customer confidentiality, Rubrik is unable to provide specific details about previous engagements, but it can count the following as customers: State of Vermont, State of Utah, State of Florida, State of Montana

1.2 Past Mergers and Acquisitions

2/6/2018 - Rubrik acquires Datos IO. This was done to expand our cloud offerings to include NoSQL database protection for critical cloud native applications

No name changes occurred as a result of this acquisition.

1.3 Financial Information

Upon acceptance of Rubrik as a solution, any additional financial information can be provided once appropriate MNDA agreements are in place.

2.0 Corporate Experience

2.1 Understanding of Data Center Optimization Services

It is our understanding that Arkansas DIS is in the process of overhauling their data protection, DR, and data center operations (Virtualization). Rubrik benefits this type of project for many reasons.

Rubrik is a purpose built next-gen backup/recovery and DR solution. We have been awarded the best in show at VMworld for 3 years in a row. We have been awarded as best in show for data protection as well as security for various product offerings. The youngest company to be placed into Gartner's Magic Quadrant and continuing to climb into the upper right quadrant as a leader in the market. here is what Gartner has to say about Rubrik

"Rubrik offers an integrated backup appliance with a scale-out architecture that offers global deduplication and ease of expansion. Despite being a new entrant to the market, Rubrik has generated heightened market awareness and rapid adoption by upper midsize to large enterprises, augmenting or completely replacing mainstream data center backup solutions. By using modern backup and recovery techniques and a distributed metadata and task scheduler, Rubrik's backup appliances remove dependency on external databases and storage controllers to manage backup and storage, drastically simplifying the backup software and hardware infrastructure. Its software instance can run in remote offices or in Amazon Web Services (AWS) and Microsoft Azure to back-up cloud-native data or serve as a replication target. Rubrik also simplified its pricing practices by offering two main options: all-in-one appliance licensing (with separate support) or subscription- based licensing (including support) for its software instances."

Key differentiators:

Converged approach. Consolidating the entire legacy architecture - software, servers, proxy servers, secondary storage, tape media - into a single scale out software. This is deployed on a 2U appliance for short term local storage and instant recoverability features. The cluster is a masterless cluster with a proprietary distributed file system. This allows Rubrik to scale on a web-scale architecture, eliminating costly forklift upgrades and silos of data.

Flash accelerated backup - leveraging an automated, job-less approach rooted in an API first architecture, we have redefined backup. Automation, Orchestration, and Machine learning significantly reduce the amount of time required to manage backup. Additionally leveraging parallel streams into each node over 10gig connections into a tier of flash, Rubrik has eliminated snapshot stun.

Instant recovery - Rubrik has the ability to present itself back to V-center and Hyper-V hosts as a tire of storage. You can run live-off of Rubrik and recover VMs and DBs (SQL and Oracle) instantly regardless of their size. Additionally, this feature allows the system to be used as a live test and dev system as well

Immutable file system - because we wrote our own proprietary file system we have gone beyond encryption for added security. We have encryption as rest and in flight. **Rubrik is FIPS 140-2 Certified. W**e also have encryption at rest in cloud environments. Our file system is immutable to ransomware and other malware attacks. We do not leverage an open storage protocol like other solutions. With Rubrik everything is written in a read only format that can only be read by Rubrik. The files are not accessible to outside access. This has allowed us to help customers recover from ransomware attacks in under and hour where it took days with other solutions.

Cloud enablement - fully indexed backups with instant predictive search enables customers to migrate to the cloud with ease. We interact at the API level with public cloud providers to continue automating the process. Recovery from cloud environments is a major differentiator because of our ability to do file level recovery from the cloud, saving customers time and money. Additionally we can convert backups into native cloud formats to run in the cloud for DR.