



STATEMENT OF WORK

Project Name:	Citrix Jumpstart	Seller Representative: Brian Donovan 6164642701 brian.donovan@cdw.com
Customer Name:	City of Ann Arbor (MI)	
CDW Affiliate:	CDW Government, LLC.	
Date Requested:	May 18, 2018	Solution Architect: Kevin Meccia _____
Seller Services Manager:	Beth Hill	
Version:	3	

This statement of work (“**Statement of Work**” or “**SOW**”) is made and entered into on the date this SOW is signed by both parties (the “**SOW Effective Date**”) by and between the undersigned, CDW Government, LLC. (“**Provider**”, “**Seller**” and “**we**”) and City of Ann Arbor (MI) (“**Customer**” and “**you**”).

PROJECT DESCRIPTION

PROJECT SCOPE

Seller will conduct a Citrix XenDesktop 7.x Standard Jumpstart and Microsoft SCCM engagement with Customer remotely. This engagement will include directed component overview and interactive workshops covering items critical to the Citrix XenDesktop 7.x Infrastructure, high-level instruction, hands-on guidance and installation services and will take up to 14 consecutive days. The engagement includes:

CITRIX XENDESKTOP PLANNING AND DESIGN

- Desktop Virtualization Platform
 - VMware vSphere 6.5 (Customers current Hypervisor environment)
- Host Infrastructure and Sizing
- Storage Considerations
- XenDesktop Architecture to identify use cases and deployment requirements to support VDI
- XenApp Architecture to identify use cases and deployment requirements to support server-based user application presentation
- Machine Catalog Considerations
- Delivery Group Considerations
- Licensing Architecture
- XenDesktop Database Considerations
 - SQL Clustering
 - SQL Mirroring
- Virtual Desktop Licensing Requirements
- Virtual Machine Configuration
- HDX-3D/GPU Pass Through Capabilities

- Virtual Desktop Provisioning
 - Manual
 - Machine Creation Services
 - Citrix Provisioning Services
- Virtual Desktop Availability Physical Desktop Connections
 - XenDesktop
 - Remote PC
- Active Directory Configuration
 - OU Structure
 - Group Policy Settings
 - Citrix Policy Settings
 - Special Considerations
- Windows Profile Environment Design with Citrix User Profile Manager
- Personal vDisk usage
- Client Access Methods
 - Internal
 - Secure Remote Access
 - Citrix Receiver
 - HTML 5
- Application Delivery
 - Existing XenApp Delivered
 - Application Layering
 - Installed on the Virtual Desktop
- Virtual Desktop Security
- XenDesktop Site Security
- XenDesktop Site Monitoring
- XenDesktop Management
 - Delivery Controllers
 - Image Management
- Testing and addressing of Citrix printing and related policies to support successful printing
- User Support and Monitoring
- Printing and Printing Policies
- Backup/DR strategies
- Virus Protection
- Administrative Tasks
- Discuss Training Options
- Secure Remote Access

CITRIX XENDESKTOP OPERATIONS

Preparation

- Standard operating procedures
 - Machine Catalogs
 - Desktop Groups
 - Desktop Image Creation
 - Virtual Desktop Provisioning

- Citrix Delivery Controller management
 - Virtualization Platform tasks
- Service level agreements
- Monitoring
- Reporting

SECURITY

Define and establish strategy

- Security authentication
- Group Policy
- Roles and privileges
- Compliance
- Networking
- Anti-virus

XENDESKTOP JUMPSTART

- Deploy the Citrix XenDesktop 7.x environment based on Design Workshop Sessions
- Installation and configuration of two (2) Citrix XenDesktop Delivery Controllers Installation
- Installation and configuration of two (2) Citrix Storefront Servers
- Installation and configuration of one (1) Citrix License Server
- Creation of XenDesktop Database on Customer SQL environment
 - Clustering suggestions
 - Mirroring assistance
- Installation and configuration of Citrix NetScaler ADC (Single instance protected in a HA cluster)
 - Configuration limited to one (1) NetScaler Gateway Virtual Server
 - Configuration limited to single factor authentication
 - AGEE configuration to include ICA Proxy
 - XenDesktop integration
 - Active Directory integration
- Usage of existing compatible hypervisor, or installation and configuration of Citrix XenServer for up to five (5) hosts
- Configuration of Windows Key Management Services (KMS)
- Creation of one of the following Provisioning Methods for XenApp 7.x Desktop Workloads
 - 1 Hypervisor template for persistent machines
 - Up to two (2) Physical machines
 - Up to two (2) Master VMs for use with Machine Creation Services
 - Up to two (2) base Citrix Provisioning Services vDisks for Provisioning XenApp 7.x Workloads
- Creation of one of the following Provisioning Methods for XenDesktop 7.x Workloads
 - Up to two (2) Physical machines for Remote PC
 - Up to two (2) Master VMs for use with Machine Creation Services
 - Up to two (2) base Citrix Provisioning Services vDisks for Provisioning XenDesktop 7.x Workloads
- Creation of up to two (2) Machine Catalogs including up to two (2) of the following
 - Pooled Random
 - Pooled Assigned

- PVS Streamed
- Pooled Assigned with Personal vDisk
- PVS Streamed with Personal vDisk
- Dedicated Desktops
- Hosted Desktop and Application Catalogs
- Application Layering Introduction
- GPU Pass Through and HDX 3D configuration where applicable
- Integration with current application delivery methods
- Creation of up to thirty (30) Windows 10 virtual machines per Desktop Catalog
- Explanation of Citrix XenDesktop Set up Wizard and Machine Creation Services processes
- Citrix Policy configuration
- Configuration of Citrix User Profile Manager and Redirected Folders
- Configuration of up to forty (40) Endpoints, including non-managed Thin Client configuration
- Interactive overview covering the Infrastructure procedures and processes

Note: A separate instructor-led class, which includes step-by-step labs as well as courseware, is required in order to take the Citrix Certified Associate (CCA) Exam. For more information please refer to www.citrixtraining.com.

MICROSOFT SYSTEM CENTER

- Review deployment for Citrix Receiver client to user devices
- Configure an application package for Citrix Receiver client in customer's existing System Center Configuration Manager (SCCM) environment, and test deployment in up to 5 machines that have the SCCM agent installed

TARGET AUDIENCE

- Desktop Engineers, System Engineers and Administrators new to Virtual Desktop Infrastructure and Citrix XenDesktop who intend on taking a Citrix Authorized Course for XenDesktop
- Customers who want to start the implementation of Hosted Virtual Desktops in their environment
- Customers who are already familiar with virtualization, and who want to deliver virtual desktops and applications to end-users would be interested in this workshop

AGENDA

The following items are included in this engagement and will be agreed upon with Customer. Additional tasks can be included upon request by Customer.

- Pre-Engagement Conference Call
 - Introduce key participants
 - Verify hardware/software specifications
 - Verify infrastructure dependencies
 - Review agenda
 - Review logistics
- Onsite Activities
 - Citrix XenDesktop Plan and Design Workshop
 - Citrix XenDesktop Jumpstart Overview
 - Citrix XenDesktop Overview
 - Windows Server and Citrix License Server Installation and Configuration
 - Windows Server and Citrix Storefront Server Installation and Configuration

- Windows Server and Citrix XenDesktop Delivery Controller Installation and Configuration
- Creation of Virtual Desktop Master VMs
- Citrix XenDesktop Endpoint Access Configuration
- Citrix NetScaler Gateway installation and configuration
- Citrix User Profile Manager configuration
- Basic Citrix Policy Configuration
- Active Directory Configuration
- Endpoint Configuration
- Troubleshooting
- Wrap-Up/High Level Overview of Processes and Procedures
- Review and Checklist presentation

CUSTOMER RESPONSIBILITIES

Customer is responsible for providing the following:

1. All Server Hardware or Server Virtualization components installed and ready if using ESXi, Hyper-V or XenServer.
 - a. All Hardware will be assembled and installed in Rack/Racks with all appropriate Power and Network runs completed prior to Seller resources coming on site.
 - b. Seller recommends at least four (4) gigabit, or two (2) 10 gigabit Ethernet runs per Virtual Host to a redundant network core. Additional Ethernet runs for out-of-band management adapters may also need to be run depending on client's environment.
 - c. Hyper-V has limited support for certain components of XenApp and XenDesktop, and may restrict the type of provisioning allowed, and increase the steps in building out the environment.
2. Hardware that meets or exceeds XenServer requirements and is on the XenServer HCL:
 - a. Multiple Socket/Multiple Core CPU server
 - b. 96-512 GB of RAM
 - c. <http://hcl.xensource.com>
3. Virtual Machine Resources or Physical Server resources that meet or exceed the Citrix XenDesktop Controller specifications: <http://support.citrix.com/proddocs/topic/xendesktop-7/cds-sys-requirements.html>
<http://docs.citrix.com/en-us/xenapp-and-xendesktop/7-7/system-requirements.html>
4. Virtual Machine Resources or Physical Server resources that meet or exceed the Citrix Storefront specifications: <https://docs.citrix.com/en-us/storefront/3/sf-system-requirements.html>
5. Virtual Machine Resources or Physical Server resources that meet or exceed the Citrix License Server specifications: <http://support.citrix.com/proddocs/topic/xendesktop-7/cds-sys-requirements.html>
<http://docs.citrix.com/en-us/licensing/11-13-1/lic-licensing-prerequisites.html>
6. If NetScaler Gateway VPX is used the following specifications must be met or exceeded:
<http://support.citrix.com/article/ctx121291>
7. Physical or virtual machine resources that meet or exceed the Microsoft SQL requirements for XenDesktop: <http://docs.citrix.com/en-us/xenapp-and-xendesktop/7-7/system-requirements.html>
8. Physical or virtual machine resources that meet or exceed the Citrix Provisioning Server hardware and database specifications: <http://support.citrix.com/proddocs/topic/provisioning-7/pvs-install-task1-plan-6-0.html>
<http://docs.citrix.com/en-us/provisioning/7-7/pvs-requirements.html>
9. Physical or virtual machine resources that meet or exceed the Citrix XenApp Specifications
 - a. 4 vcpu
 - b. 16 GB RAM

- c. Minimum 50 GB disk space (for physical machines, not needed for PVS)
- 10. Physical or virtual machine resources that meet or exceed the Citrix XenDesktop Workstation Specifications
 - a. 2 vcpu
 - b. 4 GB RAM (application usage may cause this to vary)
 - c. Minimum 50 GB disk space (for physical machines, not needed for PVS)
- 11. Customer has NFS storage available for use with Machine Creation Services for thin provisioning
- 12. Disk based writecache for Provisioning Services will require a minimum of 14 GB SAN storage per XenApp Virtual Server
- 13. Ram based writecache for Provisioning Services will require a minimum of 8GB of additional RAM per XenApp Virtual Server
- 14. Ram based with fallback to disk for Provisioning Services will require a minimum of 4GB of additional RAM, and 10GB of SAN storage per XenApp Virtual Server
- 15. Disk based writecache for Provisioning Services will require a minimum of 5 GB SAN storage per XenDesktop Workstation VM
- 16. Ram based writecache for Provisioning Services will require a minimum of 2 GB of additional RAM per XenDesktop Workstation VM
- 17. Ram based with fallback to disk for Provisioning Services will require a minimum of 1 GB of additional RAM, and 5GB of SAN storage per XenDesktop Workstation VM
- 18. Microsoft SQL Server installed and configured for use
- 19. SSL required for Citrix Storefront Services
 - a. Public SSL certificate preferred
 - b. If self-signed or internal CA is used more time may be needed to configure mobile devices
 - c. NetScaler SSL Offload is preferred method
- 20. Network Configuration
 - a. DNS is required to be functional and operating prior to implementation
 - b. Up to four (4) IP addresses for NetScaler Access Gateway functions
 - c. Seller highly recommend that appropriate Hostname records be setup in DNS prior to the commencement of this engagement
 - d. DHCP scopes for desktops
 - e. IP addresses defined for XenApp, License and Storefront Servers
 - f. Network topology information to determine routes needed
 - g. URL name defined for user access
 - h. Ability to open external firewall port 443
 - i. Ability to open internal firewall ports for XML, LDAP and ICA traffic
 - j. Ability to generate request for SSL certificate or use of existing wild card certificate
- 21. Customer will provide appropriate system access during product implementation. Seller recommends keeping participants separate from daily operations and support teams.
- 22. Customer is responsible for any backup procedures required for any infrastructure component
- 23. Customer will allow the installation and configuration of the Citrix XenDesktop Infrastructure components in their environment.
- 24. Customer will allow services to be performed remotely.
- 25. Customer's site will be secure. Seller is not responsible for lost or stolen equipment.
- 26. Customer will provide a conference room with projector and network access.
- 27. Customer must provide valid licenses for all operating systems and applications installed in Virtual Machines and Templates created by Seller.
- 28. If using MCS Customer has Microsoft Volume Licensing in order to use Key Management (KMS)

PROJECT ASSUMPTIONS

1. The environment is meant as a start for the XenDesktop environment and may not be the fully deployed solution.
2. Project management tasks will be performed remotely.
3. Customer has acquired all necessary hardware and software required to fulfill this project. Delays in hardware and software delivery may increase costs or change the project timeline.
4. Seller is not responsible for any direct or indirect disruption of network service during this assessment.
5. Customer has reviewed each vendor's policy for operating system and application virtualization and is responsible for license compliance.
6. Customer has obtained licensing from all OEM vendors and Customer has a Citrix account set up to be able to retrieve licensing.
7. Customer has an existing healthy SCCM environment.

Services not specified in this SOW are considered out of scope and will be addressed with a separate SOW or Change Order.

ITEM(S) PROVIDED TO CUSTOMER

The following will be provided to Customer by the completion of this project.

Table 1 – Item(s) Provided to Customer

Item	Description	Format
Documentation	Design Document	PDF
Documentation	Architecture Summary	PDF
Documentation	Visio Diagram	PDF
Documentation	Basic Build Documentation	PDF
Documentation	XenDesktop Process Documentation	PDF
Documentation	MCS Process Documentation	PDF

PROJECT SCHEDULING

Customer and Seller, who will jointly manage this project, will together develop timelines for an anticipated schedule (“**Anticipated Schedule**”) based on Seller's project management methodology. Any dates, deadlines, timelines or schedules contained in the Anticipated Schedule, in this SOW or otherwise, are estimates only, and the Parties will not rely on them for purposes other than initial planning.

TOTAL FEES

The total fees due and payable under this SOW (“**Total Fees**”) include both fees for Seller's performance of work (“**Service Fees**”) and any other related costs and fees specified in the Expenses section (“**Expenses**”). Unless otherwise specified, taxes will be invoiced but are not included in any numbers or calculations provided herein. Notwithstanding anything to the contrary herein, the Total Fees and expenses due and owing under this SOW shall

not exceed \$25,000 in any one year period (from July 1 to June 30) unless duly authorized by Customer as required by law.

Seller will invoice for the Total Fees.

SERVICES FEES

Services Fees will be calculated on a TIME AND MATERIALS basis.

The invoiced amount of Services Fees will equal the rate applicable for a unit of a service or resource (“**Unit Rate**”) multiplied by the number of units being provided (“**Billable Units**”) for each unit type provided by Seller (see Table 2).

The Total Estimated Services Fees of \$24,980.00 is merely an *estimate* and does not represent a *fixed fee*. Neither the Total Estimated Billable Units of 124 nor the Total Estimated Services Fees are intended to limit the bounds of what may be requested or required for performance of the Services.

Table 2 – Services Fees

Unit Type	Unit Rate	Billable Units	Subtotal
Senior Engineer VMware – Per Hour	\$215.00	92	\$19,780.00
Senior Engineer Microsoft – Per Hour	\$190.00	16	\$3,040.00
Project Manager – Per Hour	\$135.00	16	\$2,160.00
Estimated Totals		124	\$24,980.00

The rates presented in Table 2 apply to *scheduled* Services that are performed during Standard Business Hours (meaning 8:00 a.m. to 5:00 p.m. local time, Monday through Friday, excluding holidays). When Seller invoices for scheduled Services that are not performed during Standard Business Hours, Services Fees will be calculated at 150% of the Unit Rates. For any unscheduled (i.e., emergency) Services performed at any time of the day, Services Fees will be calculated at 200% of the Unit Rates.

Any non-Hourly Units will be measured in one (1) unit increments when Services are performed remotely or at any Customer-Designated Location(s) (as defined below).

EXPENSES

When Seller’s personnel are located more than 30 miles from the Customer-Designated location, travel charges will apply. Seller will invoice Customer for the time Seller’s personnel spend traveling to and/or from the Customer-Designated Location(s) (or otherwise, as necessary) at a rate of \$85/hour. Seller will make efforts to schedule appropriate personnel from Seller’s offices located nearest to the Customer-Designated Location(s) in order to minimize such expenses. Seller’s ability to do so may depend on various factors (e.g., specialized project skills needed, personnel availability, and changes to, or challenges inherent in, the Anticipated Schedule).

Seller will invoice Customer for Seller’s reasonable, direct costs incurred in performance of the Services. Direct expenses include, but may not be limited to: airfare, lodging, mileage, meals, shipping, lift rentals, photo copies, tolls and parking. Seller will charge actual costs for these expenses. Any projected expenses set forth in this SOW are estimates only.

Two (2) weeks' advance notice from Customer is required for any necessary travel by Seller personnel.

CUSTOMER-DESIGNATED LOCATIONS

Seller will provide Services benefiting the locations specified on the attached Exhibit ("**Customer-Designated Locations**").

PROJECT-SPECIFIC TERMS

1. Customer is responsible for providing all physical and communications access, privileges, environmental conditions, properly functioning hardware and software, qualified personnel, project details, material information, decisions/directions, and personnel and stakeholder interviews that are reasonably necessary to assist and accommodate Seller's performance of the Services ("Customer Components").
2. Seller is not responsible for delays in performance directly caused by the unavailability of the Customer Components and will have the right, with prior written notice and after a reasonable opportunity for Customer to correct the failure, to reassign Seller personnel to work unrelated to this SOW and the services hereunder or to invoice Customer for time Seller personnel are thereby idled if reassignment is not feasible.
3. Both parties will treat all employee personally identifiable information as confidential per the Agreement.
4. Customer will provide in advance and in writing, and Seller will follow, all applicable Customer safety and security rules and procedures.
5. Customer is responsible for security at all Customer-Designated Locations; Seller is not responsible for lost or stolen equipment.
6. This SOW can be terminated by either party without cause upon at least fourteen (14) days' advance written notice.

SOW TERMS AND CONDITIONS

CONTACT PERSON(S)

Each Party will appoint a person to act as that Party's point of contact ("**Contact Person**") as the time for performance nears and will communicate that person's name and information to the other Party's Contact Person.

The Customer Contact Person is authorized to approve materials and Services provided by Seller, and Seller may rely on the decisions and approvals made by the Customer Contact Person (except that Seller understands that Customer may require a different person to sign any Change Orders amending this SOW). The Customer Contact Person will manage all communications with Seller, and when Services are performed at a Customer-Designated Location, the Customer Contact Person will be present or available. The Parties' Contact Persons shall be authorized to approve changes in personnel and associated rates for Services under this SOW.

PAYMENT TERMS

Customer will pay invoices containing amounts authorized by this SOW within thirty (30) days of Customer's receipt of the invoice. Any objections to an invoice must be communicated to the Seller Contact Person within fifteen (15) days after receipt of the invoice.

EXPIRATION AND TERMINATION

This SOW expires and will be of no force or effect unless it is signed by Customer and Seller by July 15, 2018. The term of this SOW shall be for one year and Customer shall have the option to extend under the same terms and conditions for one additional year at Customers sole option.

CHANGE ORDERS

This SOW may be modified or amended only in a writing signed by both Customer and Seller, generally in the form provided by Seller ("**Change Order**").

In the event of a conflict between the terms and conditions set forth in a fully executed Change Order and those set forth in this SOW or a prior fully executed Change Order, the terms and conditions of the most recent fully executed Change Order shall prevail.

MISCELLANEOUS

This Statement of Work shall be governed by the Product Sales and Service Projects Agreement between the City of Ann Arbor and CDW dated May 8, 2018 (the "Agreement"). If there is a conflict between this SOW and the Agreement, then the Agreement will control, except as expressly amended in this SOW by specific reference to the Agreement. References in the Agreement to a SOW or a Work Order apply to this SOW. This SOW and any Change Order may be signed in separate counterparts, each of which shall be deemed an original and all of which together will be deemed to be one original. Electronic signatures on this SOW or on any Change Order (or copies of signatures sent via electronic means) are the equivalent of handwritten signatures.

SIGNATURES

In acknowledgement that the parties below have read and understood this Statement of Work and agree to be bound by it, each party has caused this Statement of Work to be signed and transferred by its respective authorized representative.

CDW Government, LLC.

City of Ann Arbor (MI)

By: _____
signature

By: _____
Signature

Name: _____

Name: _____

Date: _____

Date: _____

Mailing Address:

230 N. Milwaukee Avenue, Vernon Hills, IL. 60061

Mailing Address:

Street: _____

City/ST/ZIP: _____

- ☐ A purchase order for payment hereunder is attached.
- ☐ A purchase order is not required for payment hereunder.
- ☐ The following PSM has given approval:
Beth Hill

Billing Contact:

Street: _____

City/ST/ZIP: _____

EXHIBIT A.

CUSTOMER-DESIGNATED LOCATIONS

Seller will provide Services benefiting the following locations (“**Customer-Designated Locations**”).

Table 1 – Customer-Designated Locations

Location(s)	Service(s)		
CITY OF ANN ARBOR 301 E. Huron St, Ann Arbor MI 48104	<input type="checkbox"/> Assessment <input checked="" type="checkbox"/> Configuration <input checked="" type="checkbox"/> Design	<input checked="" type="checkbox"/> Implementation <input checked="" type="checkbox"/> Project Management <input type="checkbox"/> Staff Augmentation	<input type="checkbox"/> Support <input type="checkbox"/> Training <input type="checkbox"/> Custom Work