ADOA–ASET
Arizona Strategic Enterprise Technology

Project Change Request

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Project Title:

Server-Based Computing, Phase 3

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Server-based Computing Phase 3 Change Request

Background

In 2009, ADOT successfully completed Phase 1 of its Server-based Computing (SBC) Program by deploying a common, server-based desktop to 650 Motor Vehicle Division customer service representatives statewide. An additional 50 published desktops were introduced to the environment in 2011, in support of a diverse cross section of customers within ADOT's Equipment Services, IT Service Desk and MVD level one call centers. In conjunction with this phase 2 effort, complementary thin clients were also deployed to fully prove the viability of SBC in a production capacity. As a third and final step, ADOT hired Citrix professional services to conduct a Desktop Transformation Assessment in 2012. This in-depth engagement evaluated key SBC readiness factors including ADOT's applications, client device types, PC hardware demand profiles, mobility requirements, network capacity and others. Citrix's final DTA report included a recommendation to proceed with an additional 2,900 Citrix conversions, and validated confidence that the platform was a good fit and sound alternative to the department's distributed client computing model. Resolute and assured, the SBC Phase 3 team began executing the project, according to plan, immediately following ITAC approval in late April 2013.

Identified Issues

With the SBC 3 project underway and core Citrix infrastructure installed and configured by January 2014, the project team shifted its focus to deployment and testing of the hundreds of applications and software packages required by ADOT's diverse computer user community. Within several months, the outcome of this analysis produced a collective determination that the SBC, "one-size-fits-most" approach was not the best use of the technology for the following reasons.

Complexity and Additional Cost

In February 2014, the project team realized that while the original scope to convert 2,909 ADOT PC's to a server-based desktop was possible, the labor to perform complex application and commercial-off-the-shelf (COTS) software testing and packaging would produce significant and unexpected cost overruns.

Figure 1 below demonstrates this in terms of estimated effort and total cost:

Figure 1

ADOT Divisions	Division-specific Application Counts	Estimated Effort Hours				Total Avg Est Hours	Dev Contractor Hourly $	Estimated SBC 3 Application Deployment Cost
		Analysis and Presentation Method Iterations	Testing and Remediation	Pilots/UAT	Production Deployment			
		20	20	20	10	70	$ 65	
ASD	24					1,680		$ 109,200
Common/Shared	171					11,970		$ 778,050
ECD	4					280		$ 18,200
ITD	90					6,300		$ 409,500
MPD	5					350		$ 22,750
MVD	-					-		Completed, Phase 1
TOTAL -->	294					20,580		$ 1,337,700

Technical Support Risk

Since the departure of ADOT's Citrix Engineer in Sept 2013, the department has been continuously challenged with securing and retaining qualified Citrix technical resources. This knowledge area is in high demand, low supply and commands a premium for competent, experienced personnel with the know-how to design, construct and maintain a server-based desktop ecosystem. The introduction of nearly three hundred additional applications and software titles within ADOT's current, basic SBC infrastructure would dramatically increase complexity, and equally, the department's reliance on qualified technical support resources. Continuing as previously planned will, at best, burden the department with the high cost of ongoing technical support. At worst and without the benefit of immediate access to qualified engineers, the department will be exposed to the risk of high-impact, extended service outages.

Change Proposal

Independent of the SBC 3 project, ADOT's application development groups have already expended considerable time and effort on Windows 7 application testing and remediation for the 750 computer users currently running Windows XP, and *not* considered eligible for the migration to a SBC desktop. With this work nearly complete, the department is well positioned to move all 2,900 Citrix candidates to the Windows 7 operating system as well. By doing so, the department avoids schedule delays, added costs and technical support implications guaranteed by continuing with SBC 3 as originally scoped. Making this strategic shift away from server-based desktops not only solves the immediate project issues, it prevents the need to expend extra time and effort in the future, when acquiring or developing new applications for an environment comprised of multiple operating systems and a shared-user, virtual server architecture.

For these reasons, ADOT proposes the removal of 2,900 users and remaining $1,029,000 budget from the original project scope, and repurpose of the investments made in back-end infrastructure to address the business issues, and complementary, alternate deliverables described below.

Business Issues

Problems articulated in the original SBC 3 PIJ notwithstanding, ADOT faces several, immediate business issues that will require major IT investments to solve.

1. SBC desktops deployed in earlier program phases, and desktops/published applications incrementally delivered since then currently provide service to over 1,000 ADOT users and external business partners. These services are running on nearly 7 year old infrastructure, an unsupported version of Citrix that is three versions behind and Server 2003 operating system that Microsoft will retire in July 2015.
2. The Motor Vehicle Division's (MVD) 830 Authorized Third Party (ATP) providers do not have access to ADOT's OnBase document management system for digital scanning of, and online access to customer-related documentation. The process used by ATP's today is entirely paper-based, and is inefficient and costly for both the ATP's and ADOT. Although MVD has requested this service for all ATP's, a conversion to the existing MVD Citrix desktop is required first.
3. ADOT's current 1,000-user Nortel IPSec VPN system is 14 years old and no longer supported by the manufacturer. Client connection software is not offered for non-Windows systems and difficult to obtain when a new version of Windows is released by Microsoft.

Modified Use Case

Using the investments already purchased, installed and configured by the SBC 3 project team, ADOT's Information Technology Group (ITG) will solve all three of business issues above by applying the highest and best use of technology to:

1. Migrate ADOT's existing 1,000 SBC users from Citrix Presentation Server 4.5, to the new, fully supported XenApp 6.5 infrastructure running entirely on new hardware and Server 2008 R2 operating system.
2. Transition 830 ATP users to the new MVD CSR Citrix desktop infrastructure. With identical business processes and supporting application requirements, scaling out the XenApp 6.5 system for ATP's will be a simple and familiar procedure. Moving to the Citrix desktop will increase configuration consistency, security, availability and stability of the ATP operation, while reducing technical support overhead for both ATP businesses and ADOT's IT staff. This change will also enable ATP's to leverage ADOT's OnBase document management system, already fully deployed and available on MVD's Customer Service SBC desktop. When complete, a single, comprehensive desktop image will be consumed by all customer-facing MVD operations and eliminate the inefficient, paper-based document handling process used by ATP's and MVD today. The Quantified Benefits section of this document contains the annual, estimated cost-savings ADOT will realize, once all ATP's are using OnBase.
3. Migrate ADOT's existing 1,000 Nortel VPN customers to the Citrix NetScaler Appliances and backend XenApp infrastructure, for secure remote access to the Office 2010 productivity suite, internal web applications, Internet browsing, file shares, mainframe terminal emulator and other commonly used productivity software.

Quantified Benefits

X	Service enhancement
	Increased revenue
X	Cost reduction
	Problem avoidance
X	Risk avoidance

Explain:

Service Enhancements

Microsoft Systems Center Configuration Manager (SCCM) 2012

Efficiency savings declared in the original SBC3 Project PIJ will be achieved, in part, through the use of ADOT's SCCM 2012 infrastructure. SCCM affords a robust and reliable "deploy-once, deliver-to-many" capability, and will enable ADOT's IT staff to deploy:

- Critical Microsoft security patches and antivirus updates. SCCM has been in use by ADOT for many years to push security patches and antivirus updates. With SBC3's investment in and deployment of SCCM distribution point servers at every remote ADOT office, these updates can be received by all client computers in a matter of minutes or hours, instead of weeks regardless of wide area network performance.
- Operating system images instantly and automatically to all Windows-based employee computers, regardless of form factor (thin client/desktop/laptop) or office location. This feature enables employees to self-perform in-service hardware failure replacements without assistance from IT technicians.

- Pre-configured software packages to employees, on-demand, by simply adding user accounts to an appropriate Active Directory (AD) security group. Once authorized, the installation begins immediately from the local SCCM distribution point at LAN wire speed, all without technician touch time. Controlling software installs in this way also improves license compliance and remediation through simple AD group membership reporting.

AppSense Management Suite

Where SCCM automates operating system and software deployments, the AppSense software already purchased and deployed by ADOT streamlines user profile management and completes the product set required to realize all efficiency gains specified in the SBC 3 PIJ. These benefits apply to all computer users, whether their desktop is virtualized or resident on the local hardware.

With AppSense, user personalization such as desktop shortcuts, application settings, quick launch icons, wallpaper, favorites, screen resolution, accessibility options and keyboard/mouse settings, to name a few, are decoupled from the user's operating system and instead managed and streamed by the AppSense application, enabling independent management of user profiles while reducing the profiles' size, and eliminating corruption risks. All user configurations are stored in a centralized database allowing computers, applications and operating systems to be upgraded or swapped out with no impact to the user experience. Today, replacing a failed computer or upgrading to a newer operating system requires technician intervention and manual copy/stage/paste operations to salvage the user's profile.

Cost Reduction

Annual ADOT benefits associated with migration of Authorized Third Party providers to SBC desktop and OnBase document management system shown in Figure 2.

Figure 2

Hard Savings				
Shredding of documents	1	$ 13,600	$	13,600
Reduction in documents filming	8,200	$ 19	$	155,800
Transport cost	2,800	$0.445	$	1,246
Total Hard Savings:			**$**	**170,646**
Efficiency Savings	**Hours**	**Hourly Rate**		
TPMSU batch check in savings	1,092	$ 22	$	24,024
TPMSU staff review time	2,500	$ 22	$	55,000
Transport employee time	300	$ 22	$	6,600
Total Efficiency Savings:			**$**	**85,624**
Total Annual Savings:			**$**	**256,270**

Risk Avoidance

At present, each Authorized Third Party provider is responsible for the acquisition, installation and ongoing support of its respective desktop computers. ADOT provides security patching and antivirus services for these domain-joined PC's; however, the configuration state of each computer varies and data of any type may be stored on them, without contest. Moving the ATPs' to a standard MVD/SBC desktop and locked down, local computer with no ability to store files on the endpoint will eliminate the risk of data loss and improve ADOT's security posture.

Financial Impact

All computer hardware, communications equipment, professional services and facilities expenditures for the SBC3 project will be fully utilized by ADOT to accommodate the needs of these 2,830 basic SBC desktop users. The 650 users added in Phase 1 will take advantage of this new infrastructure; however, their previously purchased Citrix licenses are transferable and will not impact ADOT's net-new license obligation. As a result, 650 of the acquired 907 Citrix XenDesktop Platinum licenses will not be utilized within the new scope of the project. Of the $4.1M spent to date, the financial impact of this excess spend, including tax, is $134,454. Potential savings achieved by moving MVD ATP's to a SBC desktop with OnBase scanning total $256,270, for a positive financial offset of $121,816.