Solution Blueprint: Microsoft CRM 3.0 on LeftHand SAN/iQ & HP Proliant DL380

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Executive Summary

Microsoft, LeftHand Networks, Hewlett-Packard and Royer Systems Integration (Royer) have entered into a joint-venture agreement, hereinafter referred to as the "CRM Showcase Project", to serve as a solution blueprint for designing and deploying Microsoft Dynamics CRM 3.0 running LeftHand's SAN/ iQ on an HP Proliant DL380 platform. The purpose of this joint-venture initiative will be to stage a POC (Proof-of-Concept) lab with the end goal to produce a simplified solution blueprint to customers looking to adopt a CRM application deployed on iSCSI SAN (Storage Area Network) technology. In its completed state, the solution will be showcased as an integrated, turn-key solution available at the MTC (Microsoft Technology Center) located in Austin, Texas.

Business Opportunity

- Microsoft has embraced the value-proposition of a Microsoft Partner collaboration to co-develop/co-brand a solution blueprint on this turn-key offering
- First-to-market with an MS Dynamics CRM solution blueprint validated on IP SAN
- Further promote LeftHand's strategic alliance with HP using the DL380 server platform
- By using HP DL 380's running SAN i/Q the flexibility of both Left Hand's software and HP's hardware can be seen
- Showcase Microsoft business application ecosystem running on Left Hand IP SAN
- Build on LeftHand's previous success with Microsoft technology
- Extend on LeftHand's Simple SAN Certification running Exchange and SQL
- MS Dynamics CRM requires the full BackOffice/FrontOffice integration with Exchange, SQL, IIS and CRM to Outlook, Excel, Word, etc…
- Provide a showcase for Royer's implementation of Dynamics CRM on Left Hand SAN solution

Business Objectives

There are four objectives defined for undertaking this project:

1) Provide systems utilization and performance metrics for a CRM v3.0 instance in both a single server Windows 2003 SBS R2 configuration and a Windows 2003 multi-server configuration for a CRM deployment of 75, 250, 500, 750 and 1,000 sales force automation users performing a medium-heavy transaction mix while attached to an

IP-based SAN.

2) Provide infrastructure guidance for customers who want to successfully deploy Microsoft Dynamics CRM on an IP-based SAN under similar load usage and configurations.
3) Provide systems utilization and performance metrics while undergoing Business Continuity, Disaster Recovery or Storage Growth in an Left Hand IP SAN environment.
4) Provide a two phased test approach: First phase will test Dynamics CRM instances running in a traditional installation environment while the second phase will test Dynamics CRM instances running in a HMC v3.5 (Hosted Messaging and Collaboration) environment; both phases will include a Left Hand IP SAN infrastructure.

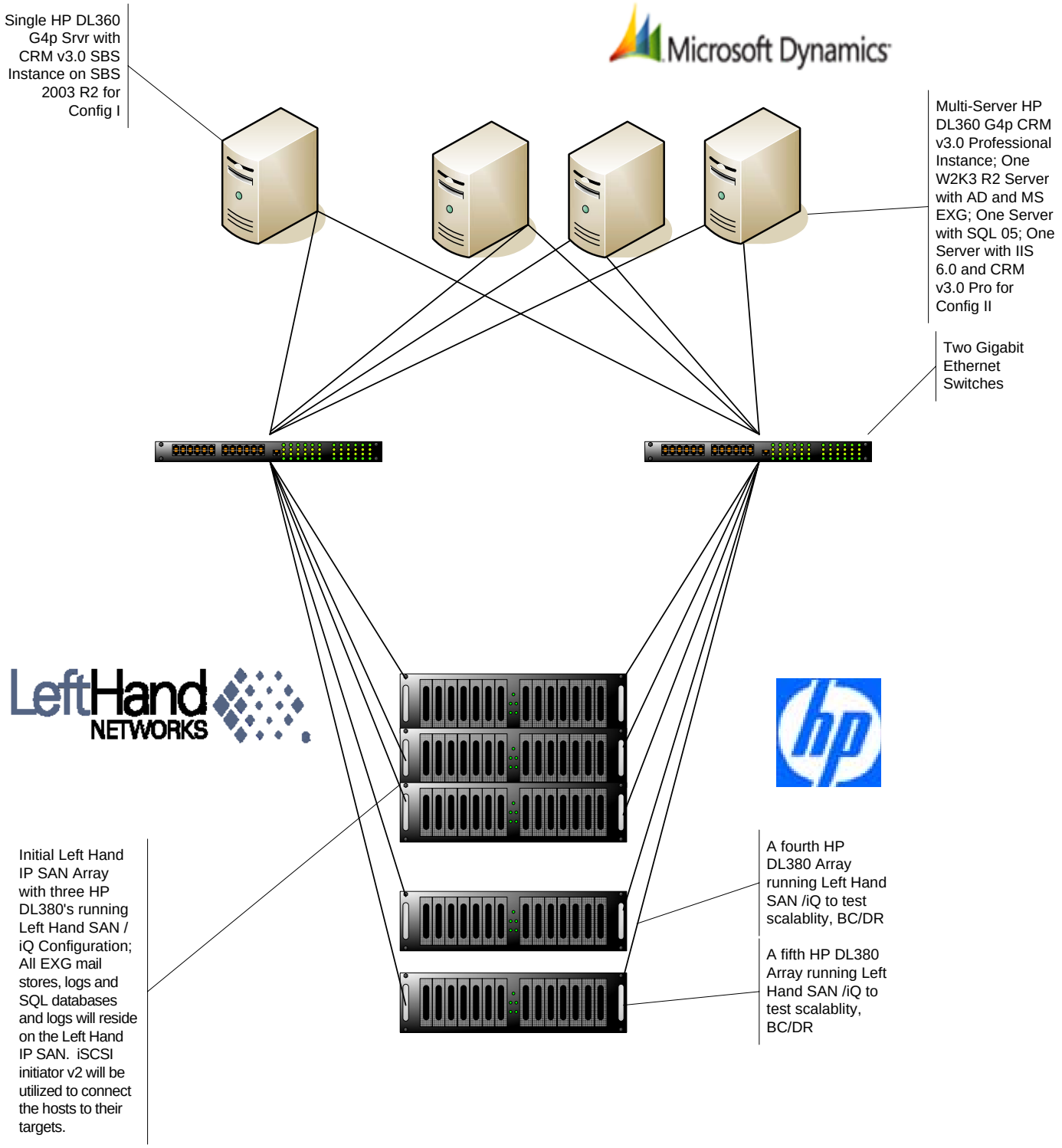
Proposed Solution / Design

Project Phase	Configuration Type	Server Platform	Software	Storage
Phase I – Configuration I	Single Server	❖ HP DL360 G4p server with Two Dual-Core Intel Xeon 2..8 Ghz processors ❖ Integrated Smart Array 6i RAID ctlr (128mb cache) running RAID 1 for the operating system ❖ U320 SCSI drives ❖ 3 gigabytes of RAM	❖ One SBS 2003 R2 Server ❖ One Instance of CRM v3.0 SBS	❖ Exchange 2003 (SvcPk2) mail stores and transaction logs as well as SQL 2005 databases and transaction logs residing on three HP DL380 G4 (876GB raw, 15K RPM) servers running Left Hand Networks SAN i/Q software configured for a one gigabit fabric infrastructure. iSCSI initiator v2 will be utilized to connect the hosts to their targets.
Phase I – Configuration II	Multi-Server	❖ Three HP DL360 G4p servers with Two Dual-Core Intel Xeon 2..8 Ghz processors ❖ Integrated Smart Array 6i RAID ctlr (128mb cache) running RAID 1 for the	❖ One Windows 2003 R2 Server with EXG 2003(SvcPk ❖ Second	❖ Exchange 2003 (SvcPk2) mail stores and transaction logs as well as SQL 2005 databases and transaction logs residing on five HP DL380 G4 (876GB raw, 15K RPM) servers

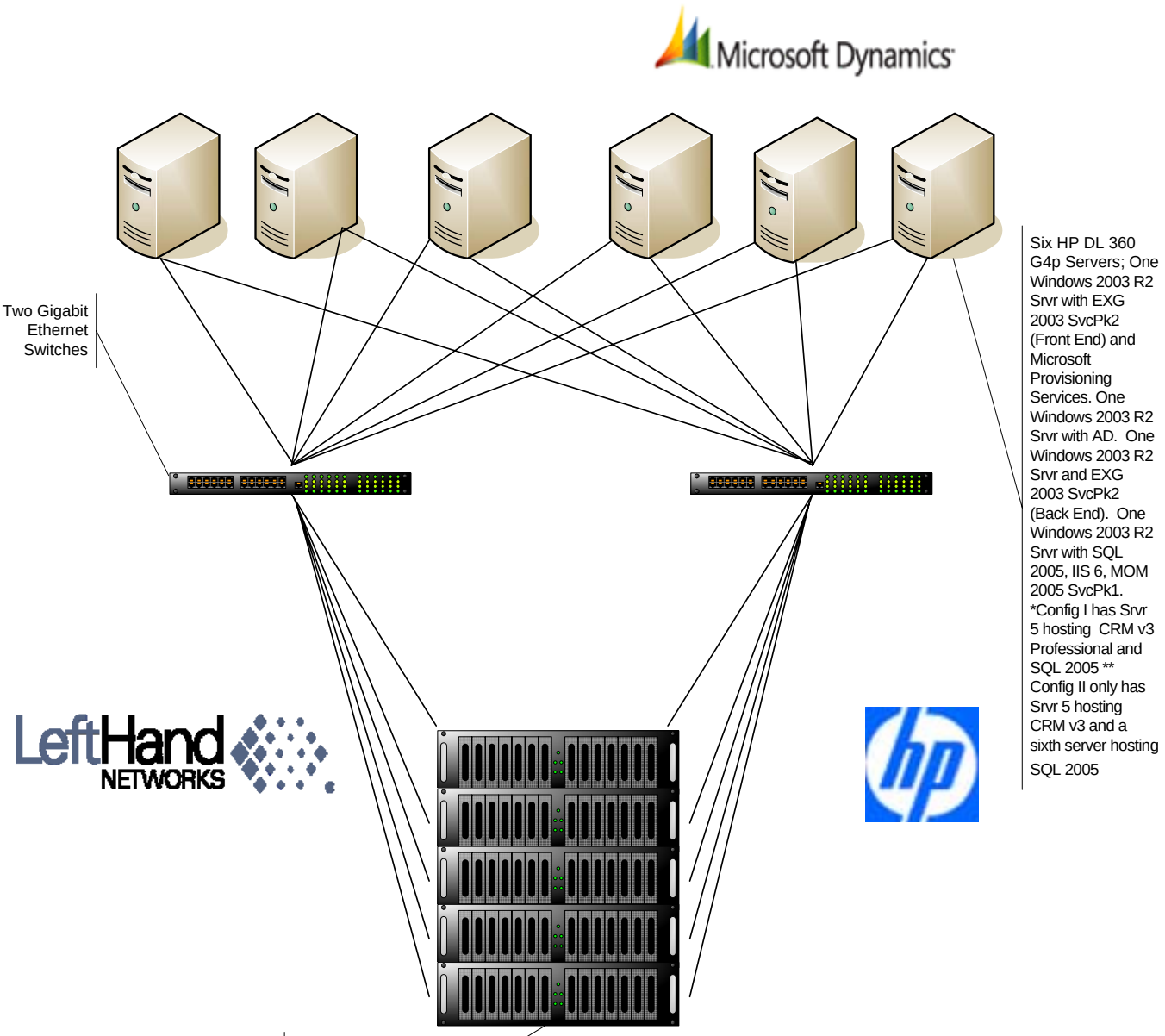
		operating system ❖ U320 SCSI drives ❖ 3 gigabytes of RAM	Windows 2003 R2 Server with SQL 2005 ❖ Third Windows 2003 R2 Server with CRM v3.0 Pro and IIS 6.0	running Left Hand Networks SAN i/Q software configured for a one gigabit fabric infrastructure. iSCSI initiator v2 will be utilized to connect the hosts to their targets.
Phase II – Configuration I	HMC v3.5 Consolidated Deployment / Single Server	❖ Six HP DL360 G4p servers with Two Dual-Core Intel Xeon 2..8 Ghz processors ❖ Integrated Smart Array 6i RAID ctlr (128mb cache) running RAID 1 for the operating system ❖ U320 SCSI drives ❖ 3 gigabytes of RAM	❖ One server running Windows 2003 R2, Exchange 2003 SvcPk2 (Front End) and Microsoft Provisioning Services. ❖ Second server running Windows 2003 R2 with Active Directory. ❖ Third server running Windows 2003 R2 and Exchange 2003 SvcPk2 (Back End) ❖ Fourth server running Windows 2003 R2, SQL 2005, IIS 6, MOM 2005	❖ Exchange 2003 (SvcPk2) mail stores and transaction logs as well as SQL 2005 databases and transaction logs residing on five HP DL380 G4 (876GB raw, 15K RPM) servers running Left Hand Networks SAN i/Q software configured for a one gigabit fabric infrastructure. iSCSI initiator v2 will be utilized to connect the hosts to their targets.

			SvcPk1 ❖ Fifth server will be the hosted server running CRM v3 Professional and SQL 2005.	
Phase II – Configuration II	HMC v3.5 Consolidated Deployment / Multi-Server	❖ Six HP DL360 G4p servers with Two Dual-Core Intel Xeon 2..8 Ghz processors ❖ Integrated Smart Array 6i RAID ctlr (128mb cache) running RAID 1 for the operating system ❖ U320 SCSI drives ❖ 3 gigabytes of RAM	❖ Same as Phase II Configuration I above with the fifth server only running hosted CRM v3.0 Pro ❖ Addition of sixth server will be running SQL 2005 for the hosted multi-server implementation.	❖ Exchange 2003 (SvcPk2) mail stores and transaction logs as well as SQL 2005 databases and transaction logs residing on five HP DL380 G4 (876GB raw, 15K RPM) servers running Left Hand Networks SAN i/Q software configured for a one gigabit fabric infrastructure. iSCSI initiator v2 will be utilized to connect the hosts to their targets.

Phase I – MS CRM on Left Hand Networks SAN /iQ & HP DL380



Phase II – MS CRM on Left Hand Networks SAN /iQ & HP DL380



Solution Phases

Test Phases	Milestones
I – Traditional Dynamics CRM instances running on Left Hand Networks IP SAN	❖ Baseline installation and configuration of test environment. ❖ Capture of baseline image for future use. ❖ Measure the effectiveness of various user workloads across a variety of hardware configurations. ❖ Measure the impact of Dual-Core Intel® Xeon™ processors on user transaction response times. ❖ Measure the impact of available memory that the Microsoft CRM database server has on the average user response time. ❖ Measure the impact that caching ad hoc query plans has on Microsoft CRM database server performance as reported by the average user response time. ❖ Measure Microsoft CRM Web server CPU utilization on Windows Server 2003. ❖ Measure the peak and distribution of response times across the various configurations. ❖ Measure the number of failed transactions. ❖ Measure performance during Business Continuity tests. ❖ Measure performance during Disaster Recovery tests. ❖ Measure performance of scaling the SAN by adding additional HP DL380's to the Cluster.
II – Hosted Dynamics CRM instances running in Microsoft HMC v3.5 environment on Left Hand Networks IP SAN	❖ Baseline installation and configuration of test environment. ❖ Capture of baseline image for future use. ❖ Measure the effectiveness of various user workloads across a variety of hardware configurations. ❖ Measure the impact of Dual-Core Intel® Xeon™ processors on user transaction response times. ❖ Measure the impact of available memory that the Microsoft CRM database

	server has on the average user response time. ❖ Measure the impact that caching ad hoc query plans has on Microsoft CRM database server performance as reported by the average user response time. ❖ Measure Microsoft CRM Web server CPU utilization on Windows Server 2003. ❖ Measure the peak and distribution of response times across the various configurations. ❖ Measure the number of failed transactions. ❖ Measure performance during Business Continuity tests. ❖ Measure performance during Disaster Recovery tests. ❖ Measure performance of scaling the SAN by adding additional HP DL380's to the Cluster.

Project Objectives

- Joint R&D proof-of-concept will produce a "white-paper" solution validating assumptions of a mission-critical CRM implementation on Left Hand IP SAN that outlines guidelines of system usage and performance statistics
- Proven Dynamics CRM solution on Left Hand IP SAN running in both a traditional and hosted environment that ties to Microsoft's "Choice" in flexibility of licensing and implementation models
- Baseline configuration image to use for future customer Technology showcase demonstrations

Consistency / Fit with Microsoft and Partner Strategies

- Microsoft has invested $ .5B in marketing initiatives to promote the MS Dynamics (formerly Business Solutions) product line in conjunction with the "People-Ready" campaign
- Microsoft revenue forecast predicts that the MS Dynamics Product Suite will be a $10 billion business in the next 5 years
- CRM market according to IDC is a $4 billion market thru 2008
- Microsoft Business Systems Architecture Division and Hosting Solutions Division will

be jointly supporting the "Choice" offering: On-Premise and Hosted CRM 3.0
- Extend on LeftHand's Simple SAN Certification running Exchange and SQL
- Follows LeftHand's strategy to have their technology displayed in the MTC
- Promote Royer's CRM implementation solution on IP SAN as a MS Dynamics and Left Hand partner

Anticipated Benefits

- Collaborative white paper validating Dynamics CRM on Left Hand IP SAN
- Proven showcase of the flexibility and synergy between Dynamics CRM and Left Hand IP SAN in both a traditional installed environment as well as a hosted environment
- Press release to promote Simple SAN configuration and performance around Dynamics CRM on Left Hand IP SAN solution
- Future technology showcase demonstration opportunities at the Austin MTC

Resource Estimate Summary

Resource Requirements by Company:

Royer Systems Integration

- **Personnel:** A resource for architecting and configuration of the testing environment as well as assist in running system usage and performance tests
- A resource as lead for Royer in working with the Project Mgmt team

Microsoft

- **Personnel:** A resource at the Austin MTC to capture a baseline image with abilities to redeploy it in the future as well as assist with initial hardware infrastructure setup
- A resource for technical writing of the white paper
- A resource as lead for Microsoft in working with the Project Mgmt team
- A resource to create a legal document to protect Intellectual Property rights of all parties involved
- A resource to assist with running ACT, testing scripts and performance monitor to capture all testing data
- **Hardware:** Two gigabit switches with enough available ports to support the testing SAN fabric environment and two desktop clients to run testing and collection software
- **Software:** Windows SBS 2003 R2 with 75 licenses, Windows 2003 R2 with licenses to support up to 1,000 users for testing, Exchange 2003 w/svcpk 2, SQL 2005 with multi-processor licenses, CRM v3 SBS with 75 licenses and CRM v3 Professional with licenses to support up to 1,000 users for testing, Windows XP w/svcpk 2, Visual Studio with ACT, ACT scripts for CRM testing, Database population tool for CRM and test data to the

equivalent of CRM v1.2 performance scaling test using approximately 1.2 million CRM entities and 1,000 users and a Sharepoint workspace to track project management activities

Left Hand Networks

- **Personnel:** A resource to assist/validate initial SAN configuration and run tests specific to Performance, Business Continuity, Disaster Recover and Scaling
- A resource as lead for Left Hand in working with Project Mgmt team
- A resource to lead preparation of Press Release upon completion of each Project Phase
- **Hardware:** 5 HP DL380 G4 (876GB raw, 15K RPM) servers running Left Hand Networks SAN i/Q software; 3 for baseline configuration and two additional to use for scaling tests, 6 HP DL360 G4p servers with Two Dual-Core Intel Xeon 2.8Ghz processors, integrated Smart Array 6i RAID ctlr (128mb cache) running RAID 1 on U320 SCSI drives for the operating system, 3 gigabytes of RAM
- **Software:** SAN i/Q software, Remote IP and licensing along with any additional Left Hand testing software

Risks

Risk Ratings at this point in a project are general estimates and need to be revised as more is learned during the Project Planning process and throughout Project Execution. At this point, best estimates are provided. In general:

- 5 indicates a very high risk – this risk is very likely to occur and will have a large impact.
- 4 indicates a medium- high risk – the risk may be likely to occur with a significant impact
- 3 indicates a medium risk – this risk is likely to occur and will impact project scope, schedule, cost, or quality.
- 2 indicates a low-medium risk – this risk may not be very likely but if it did occur would have a significant impact, or the risk is likely to occur but the impact would be more significant
- 1 indicates a very low risk – this risk is not likely to occur and if it did, impact would be minimal

At this point in the project life cycle, risk ratings are simply for comparison purposes in the project selection process to allow balancing of the project portfolio. Risks are continuously revisited and re-evaluated throughout a project.

Risk Category and Comments	Risk Rating (1 to 5)

Project Schedule Risk	1
Comments: There is flexibility at this point in the project schedule.	
Project Duration Risk	2
Comments: Duration will be controlled once testing scope is fully defined.	
Project Complexity Risk	4
Comments: Phase I has medium level complexity while Phase II is highly complex.	
Project Environment Risk	1
Comments: Austin MTC offers a very controlled environment for the proof-of-concept	
Project Management Risk	2
Comments: There needs to be well documented and controlled project management.	
Procurement Risk	2
Comments: Software, hardware and tools are being procured but would significantly affect the project's success if delayed or missing.	
Not Doing It Properly- Risk	2
Comments: The project must follow the outlined testing procedures utilizing experts from all parties involved to ensure all tests are accurate and outcomes are achieved.	
Security Risk	1
Comments: Austin MTC will secure all equipment and prepare legal documentation to protect Intellectual Property rights of all parties involved.	
Total Risk Rating (1 to 5):	**15**

Additional Assumptions

Assumptions:

- All software, hardware, tools and personnel resources will be allocated and available
- Proper time and access to resources will be allocated to project members at the Austin MTC
- Phase I of the project will be completed first followed by Phase II at a later specified time

Success Factors

- All software, hardware, tools and personnel resources will be available by the project start date
- Enough time will be slotted at the Austin MTC to complete the project scope
- All tests will be completed and data collected to allow for a white paper to be compiled that meets the project's objectives
- A re-deployable image will be captured and be able to be used for future technology showcases at the Austin MTC
- A successful completion of Phase I of the project will allow for a future date to be determined for Phase II of the project

Project Governance

Requirements:

- Designation of a CAB (Change Advisory Board) to include a representative from all parties
- Access for Project Team members to a Sharepoint workspace or equivalent to track project progress and change requests
- Weekly meeting to review project status and any change requests; additional meetings may be required and initiated by the Project Manager
- Majority approval for project change request acceptance