

EMC Technology Solutions

Capacity Upgrade for DMX19C and DMX20R

&

Deployment of 4 New DMX Arrays
(DMX21C, DMX21R, DMX22C, DMX22R)

Statement of Work Prepared for



Prepared for:

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Date: 27th September 2007

Version: 1.0

SOW Number: TBC

EMC PAS Number: TBC

The Terms and Conditions governing this *Statement of Work* are defined in the *Master Purchase and Maintenance Agreement Appendix D – Addendum for Professional Services* between EMC Corporation and Citigroup Technology, Inc. dated November 30, 2004 (the "Agreement").

This *Statement of Work* is the **Confidential Information** of EMC Corporation and Citigroup Technology Inc.



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1 Introduction

This *Statement of Work* ("SOW") sets forth the terms under which Citibank NA (referred to as Citigroup) has engaged EMC to provide the resident project consulting and implementation Services ("Consulting Services") described below.

This SOW is subject to the terms and conditions of the Master Purchase and Maintenance Agreement and Appendix D dated November 30, 2004 between EMC and Citigroup Technology, Inc. (the "Master Agreement") and the UK Addendum dated 31st March 2005 between Citigroup and EMC Computer Services (UK) Limited (the "Addendum"). The Master Agreement and the Addendum are collectively the "Agreement" which are attached and incorporated herein by reference.

2 Background and Requirements

EMC will work closely with Citigroup's personnel to deliver following SAN expansions in London SAN:

- Upgrade the storage capacity on DMX19C and DMX20R
- 2 pairs of new SRDF/S DMX storage arrays; DMX21C, DMX21R, DMX22C and DMX22R

These Consulting Services described in this SoW are over and above the standard installation services included in product pricing. The services have been developed over the years based on Citigroup requirements and standards during several SAN equipment deployment projects.

Important Note:

Please note that no prior site assesment with Citigroup is completed while scoping this SoW. As per Citigroup's request, this SoW is created based on the following assumptions:

- There is data centre location and site environmentals available for all new arrays
- There is sufficient Core director connectivity at thoses data centre locations for the arrays
- There is sufficient SRDF fabric connectivity for new SRDF arrays
- There is no additional host connectivity requirements at this stage
- No SAN topology changes are required to deploy the equipment mentioned in this SoW.

The location and the connectivity requirements for this capacity upgrade will be verified by Citigroup and have not been included in this SoW. There will be no SAN changes required during this deployment other than connecting the new arrays into the SAN.

2.1 Project Scope

The project scope consists of following tasks for EMC:

- Existing arrays DMX19C and DMX20R will be upgraded by adding new disks.
- New SRDF arrays DMX21C, DMX21R, DMX22C and DMX22R will be installed, configured and connected to the London SAN as per Citi planning.
- An EMC Project Manager will be appointed to manage all EMC resources from project inception through to project completion.
- The EMC project team will assist the workload planning for the weekend work plans and rollback plans.
- The EMC Solutions Architect will take on the SAN design pre-work and consultative design of the SAN expansion for the new storage arrays, new directors and capacity upgrades.
- EMC project team will ensure that the deployment is in alignment with the Citigroup global standards and certifications.
- EMC Solutions Architect will produce Citigroup specific BIN file configuration request documentation, and Citibank specific BIN file change request documentation for existing storage arrays to make sure the requirements are documented and agreed by project team.
- EMC Solutions Architect will produce Citigroup specific BIN file documentation that records and describes the detailed technical information for all new deployed and upgraded storage arrays as part of this project.
- EMC Solutions Architect will update the previous Citibank EMC SAN Configuration Guide to issue the latest version including the changes implemented during this project. This documentation update does not include an audit of the already in-use equipment.
- EMC Project team will assist the integration of the new capacity into the existing infrastructure, including the Citibank specific network security and support requirements.

2.2 Out of Scope

EMC is responsible to perform only the Consulting Services described in this SOW. Services outside the scope include:

- Installation, configuration, and support of electrical, network, telecommunications, cabling infrastructure and components
- Any server related work (installation or configuration)
- Back-up system work (installation or configuration) other than SAN connection/zoning
- Migration of data from existing systems or any related migration planning.
- Formal training (skills transfer is not a replacement for formal training).

- Any application or host system access that encompasses coding, scripting, application analysis, system performance, troubleshooting, or application logins outside of the tasks described in this Statement of Work
- EMC ControlCenter Solution Architecture or Implementation.
- EMC Business Continuity Solution Architecture or Implementation
- EMC Disaster Recovery Solution Architecture or Implementation
- Backup and Recovery solution architecture, or implementation
- Installation, configuration, and support of HBAs and associated firmware on the server
- Any additional host or SRDF fabric connectivity for the new arrays
- Any host connectivity and configuration, excluding the SAN Management work stations

2.3 Assumptions

Following assumptions were made during scoping of this project. If any of these assumptions change during delivery, EMC will notify Citigroup to review the scope of the project.

- Any weekend work and or outages required will be authorized by the Citigroup Change Control process prior to the scheduling of the work.
- Citigroup resources will be available during the data collection portion for the project
- Citigroup will provide EMC with information reasonably required pertaining to the network infrastructure, etc. for the Locations
- Citigroup already has the connectivity infrastructure for all of the arrays.
- There will be no SAN changes required during deployment of all mentioned arrays.
- There is no SRDF replication for DMX19C and DMX20R, but the configuration will include SRDF ports for future usage.
- All SAN components will be on a supported level of configuration from EMC.
- No major SAN changes are required to implement this upgrade. Citigroup will check and verify the connectivity of the new capacity into the SAN.
- Citigroup requires no additional connectivity in the SAN for the hosts.
- Citigroup has enough ports in the SRDF fabric to connect new arrays.

3 Project Approach and Organization

EMC will manage and implement the Consulting Services in accordance with the phased approach described below:

Phase 1: Planning and Design

Phase 2: Implementation

Phase 3: Documentation and Hand-over

3.1 Phase 1: Planning and Design

During the Planning and Design Phase, EMC shall work closely with Citibank's staff to conduct necessary meetings, and gather the necessary information to ensure the project's configuration design and implementation meet Citibank's business requirements. Deliverables during this phase are:

- Project Plan
- Design Overview
- Bin File Change and BIN file request Documents

3.2 Phase 2: Implementation

During the Implementation phase, EMC shall install and configure the storage arrays as per designed and agreed in Phase 1. Deliverables during this phase are:

- DMX19C and DMX20R HW upgrade completed and BIN file changed
- DMX21C/R and DMX22C/R hardware installation completed
- BIN files load completed
- Both arrays connected to the SAN as per Citigroup connectivity schedule
- New capacity is introduced to the SAN Management workstations

3.3 Phase 3: Documentation and Hand-Over

During the Documentation and Hand-over phase, EMC shall complete the Citigroup required documentation and hand-over the systems to Citigroup. Deliverables during this phase are:

- SAN Configuration Guide Update w/o prior assessment to include the changes only
- DMX19C BIN file documentation
- DMX20R BIN file documentation
- DMX21C and DMX21R BIN file documentation
- DMX22C and DMX22R BIN file documentation

3.4 Proposed WBS

Item	Activity Description	Resource Type	Estimated Days Effort
	Phase 1 – Planning and Design		
1	Project Delivery Management (Initiation, Planning, reporting, coordination, meetings)	Project Manager	8
2	High Level Design / Project Synopsis	Design	4
3	Citigroup specific BIN file request documents build and review	Design	3
	Phase 2 – Implementation		
4	Resource and workload planning. Scheduling control and assistance. Project delivery management	Project Manager	2
5	Installation and implementation of new HW on-site over 4 weekends	Implementation	2
	Phase 3 – Documentation and Hand-over		
6	Citigroup specific BIN file technical details document DMX19C	Design	4
7	Citigroup specific BIN file technical details document DMX20R	Design	5
8	Citigroup specific BIN file technical details document of SRDF pair DMX21C and DMX21R	Design	5
9	Citigroup specific BIN file technical details document of SRDF pair DMX22C and DMX22R	Design	5
10	Citigroup specific SAN Configuration documentation update	Design	5
11	Review of the project, Hand-over and closure	Project Manager	1
Totals			45 man/days

4 Terms and Conditions

The following paragraphs detail the Terms and Conditions of this SOW.

4.1 Fees, Acceptance and Invoicing

The total agreed fixed-fee for the Consulting Services (exclusive of travel and related expenses) identified in this SOW is £45,000. Travel and related expenses incurred by EMC in provision thereof are not included in the fee described above.

The following pricing shall apply provided EMC receives a purchase order or other written authorization from Citigroup, referencing this SOW, no more than thirty (30) calendar days after the Effective Date. Until receipt thereof, neither party shall have any obligation to the other. Upon receipt of the purchase order, EMC shall invoice Citigroup in accordance with the following schedule in Table 2.

Table 1. Event/Milestone Schedule

Event / Milestone	Amount due
Phase 1 completed	%30 of total
Phase 2 completed	%40 of total
Phase 3 completed	%30 of total
Total	%100 of total

The Consulting Services to be performed during each Phase and the deliverable, if any, associated with the Phase are described in section Project Approach and Organization above. The acceptance criteria for each Phase shall be successful completion of the applicable portion of the Consulting Services and presentation of a conforming deliverable. At the time EMC has, in its reasonable opinion, fulfilled the acceptance for each Phase, EMC shall send Citigroup a written notice that identifies the Phase and requests a written response from Citigroup.

Citigroup shall have seven (7) calendar days from receipt of such notice in which to respond that (i) EMC has successfully complied with the acceptance criteria; or (ii) EMC has not so complied and the specific basis for such non-compliance. If Citigroup indicates non-compliance, the parties shall promptly meet and use good faith to resolve difficulties.

If Citigroup indicates compliance with the Phase, or does not respond within such seven (7) day period, the Consulting Services for the applicable Phase shall be deemed to be accepted. EMC is authorized to issue the applicable invoice upon such acceptance. Payment is due within thirty (30) days after the date of the invoice.

The results, accuracy, and contents of EMC's deliverables are dependent upon the content and accuracy of information provided by Citigroup. Once a schedule has been mutually agreed upon, EMC shall make reasonable efforts to accommodate changes requested by Citigroup.

Citigroup shall send the EMC Project Manager notice of postponements or delays at least ten (10) business days in advance of the scheduled event. If EMC is not reasonably able to "work-around" the postponement or delay, especially in instances where the consulting and implementation services require participation by Citigroup personnel that become unavailable, EMC is authorized to charge Citigroup for time lost and additional expenses incurred due to such delays or postponements at EMC's then standard hourly rates.

Citigroup shall send all payments to:

EMC Computer Systems (UK) Limited
EMC Tower
Great West Road
Brentford TW8 9AN
England

4.2 Cancellation and Termination

In the absence of a breach by EMC of EMC's obligations, if Citigroup cancels the Consulting Services or if EMC terminates due to breach by Citigroup, EMC is authorized to invoice, and Citigroup shall pay EMC the following amounts, which are deemed liquidated damages, and not as a penalty: (i) all fees and expense reimbursements associated with the Phase in effect on the date of cancellation and all earlier Phases or agreed payment events (but only to the extent payment therefore has not yet been previously received by EMC at the time of such cancellation); and (ii) one-half of the fee associated with the Phase, if any, that next follows the Phase in effect in the date of such cancellation.

4.3 Customer Obligations

Citigroup shall afford EMC access to Citigroup staff at various times in the project but EMC is also aware that Citigroup's staff is dedicated to the daily operations of the facilities. EMC shall make every reasonable effort to limit the demands on these people but Citigroup contacts may have critical knowledge of the operations and the business itself. This knowledge must be made available to EMC in a timely fashion, and is invaluable to the project's success. In support of this project, Citigroup shall:

- Assign a Project Sponsor as the single point of contact for issue resolution, activity scheduling, interview scheduling, and information collection and dissemination. The Project Sponsor is responsible to ensure compliance with Citigroup's obligations.
- Provide at least one (1) technical contact with system administration responsibilities and appropriate levels of access privileges to systems and information necessary to perform this service.
- Make any system maintenance window available for EMC (or authorized agents) as needed to prepare equipment.
- Provide access to Citigroup's systems and network as necessary to perform the consulting and implementation services during normal business hours, or at mutually agreed upon timeframes.
- Respond to EMC's requests that Citigroup resources work on issues and tasks not directly stated in this Statement of Work, but have a direct impact on the successful completion of this project.
- Provide support from technical support teams for all vendors and third parties as necessary.

- Review and comment on all deliverables provided by EMC.
- Provide network connectivity and access, and assume all responsibility for network performance and network configuration issues.
- Verify the equipment location (work site) is ready to perform the consulting and implementation services.
- Ensure fully configured server(s) running the required operating system versions (including patches) as documented in the product guide are available to ensure successful project completion.
- Conform to the EMC Product Support Matrix requirements (server, NICs, HBAs, software, etc.), as directed by the EMC Services Implementation Specialist.
- Provide EMC with sufficient access to Citigroup's business resources to create/develop the design documentation.

4.4 Mutual Obligations

In support of this effort, both EMC Services and Citigroup shall:

- Conduct project review meetings at a mutually agreed upon time and location to discuss the project status, issues, new requirements, and overall project satisfaction.
- Support and provide representation at these meetings, which will review performance status update, schedule update, pending changes, open issues and action items.
- Support Project Issue and Tracking Resolution, by using the EMC Project Issue Report to track and review issues.
- Coordinate any change to this Statement of Work (whether cost impacting or not) with Citigroup's Project Sponsor in accordance with the EMC Project Change Request Form supplied in a separate document.
- Collaborate to adjust project schedules and re-deploy resources in an expeditious manner in the event of schedule delays beyond the control of either party.
- Meet at the project conclusion in person or via telephone to bring project closure and capture, discuss, and/or resolve any project issues that may have arisen since the implementation hand-off occurred.

4.5 Location

The Consulting Services shall be performed at Citigroup Centre in Canary Wharf and Riverdale Data Centre in Lewisham (the "Locations").

4.6 Scripts

When developing scripts or programs for a customer EMC provide these on the following understanding:

- They are not supported as part of EMC's product set and subsequently not covered under any maintenance agreement unless documented and agreed by both parties in advance
- Any future support and or maintenance of these will normally be chargeable
- There is no restriction on customer re-use of these scripts within their own organisation
- That the intellectual property rights (IPR) for these cannot be passed to the customer as the basic syntax of most scripts is already in use at EMC sites throughout the world.
- That any bespoke programs or scripts where the customer feels IPR should be transferred must be negotiated on an individual basis and documented and agreed by both parties in advance

4.7 Time Scales

EMC expects this project to be completed within 90 calendar days. Should this period be exceeded for an additional period of 21 calendar days, due to any actions or omissions of Citigroup or for any other reasons beyond EMC's control, then EMC's obligations to complete the project shall be subject to Change Control and agreement of the parties, such agreement, not to be unreasonably withheld or delayed by either party.

4.8 Primary EMC and Citigroup Contacts

Please find below the primary contacts for EMC and Citigroup.

Item	EMC Contact	Citigroup Contact
Name	TBC	Gary Battersby
Office phone		020 7500 3838
Mobile Phone		
E-mail address		Gary.battersby@citi.com

5 Change in Scope

Any deviation or change in the scope of the Consulting Services must be approved by Citigroup or an authorized designee thereof.

The EMC Primary Contact has overall responsibility for the change process. When a change is desired, the requestor (EMC or Citigroup) notifies the EMC Primary Contact who performs the following:

- Prepares a preliminary *Project Change Request Form* (attached in appendix A) to identify the nature of the requested change.
- Acknowledges receipt of the Change Request.
- Performs an initial Impact Assessment to determine the effect, if any, on the consulting and implementation service's schedule and the costs associated utilizing resources to perform a full Change Request analysis. If the Impact Assessment indicates using resources to analyze the Change Request affects the consulting and implementation services schedule or costs, the EMC Project Manager shall obtain Citigroup approval before performing the Change Request analysis.
- Reports the Change Request status in the Progress Reports.

If Citigroup approves a full Change Request analysis, the EMC Project Manager shall prepare a *Project Change Request Form* detailing the change and its justification for the change, directing the analysis effort to the appropriate resources. This analysis shall result in a final *Project Change Request Form* containing cost, schedule and resource requirements, technical feasibility, and recommended disposition such as:

- Implement without adjusting current cost or delivery schedule.
- Implement with impact to Citigroup cost or delivery schedule.
- Recommended as a follow-on project.
- If EMC finds the project not technically or economically feasible, an explanation will be provided detailing the reason.

The EMC Project Manager reviews the *Project Change Request Form* with Citigroup and it is marked as "accepted" or "withdrawn," and signed by both parties. If "accepted", consulting and implementation services are revised to include the agreed change(s) and the invoicing process is appropriately modified.

6 Agreement

This *Statement of Work* is the complete and exclusive agreement between EMC and Citigroup with regard to its subject matter, and supersede all prior oral or written proposals, agreements, representations and other communications between the parties with respect to the Consulting Services and shall prevail notwithstanding any different, conflicting or additional terms and conditions which may appear on any order or other document submitted by Citigroup.

IN WITNESS WHEREOF, the parties have caused the *Statement of Work* to be signed on the respective dates indicated below.

The Parties hereby acknowledge that they have read and do understand this Statement of Work and all attachments hereto, and agree to all terms and conditions stated herein.

Statement of Work Acceptance			
EMC		Citigroup	
Name:	T. STAPLES	Name:	E. JEFFERS
Title:	CSD	Title:	SOURCING SPECIALIST
Signature:		Signature:	
Date:	28 SEPTEMBER 07	Date:	05/10/07.

Attachment A – Change Control Form

PAS Number:		Request Date:	
Customer:		Project Manager:	
Change Request No:		Project Name:	
Requestor Name:		Requestor Job Title:	
SO Number:			
Description of Request:			
Justification:			
Date response required by:			

Specification

Impact:	☐ Cost ☐ Schedule ☐ Scope
Description:	

Endorsement

Name:		Position:		Signature:	
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Acceptance

EMC Computer Systems		Customer	
Name:		Name:	
Position:		Position:	
Signature:		Signature:	
Date:		Date:	

Attachment B – Acknowledgment of Milestone

1 - Change Information			
Project Number:		Request Date:	
Customer:		Project Manager:	
Change Request No:		Project Title:	
Requestor Name:		Requestor Job Title:	
EMC SO Number:			
Description of Request:			
Justification:			
Date response Required by:			

2 – Specification	
Impact:	
Cost/Schedule/Scope	
Description:	

4 – Acceptance	
EMC Computer Systems (UK) Limited	Customer
Signature:	Signature:
Printed Name:	Printed Name:
Title:	Title:
Date:	Date: