Annexure - 5			
Minimum Technical requirements for DR Automated Solution for Single Click Failover / Fail-back & Switchover / Switchback			
Sr.No.	**Technical Requirements**	**Bidder's Compliance (Yes/No)**	**Bidder Remarks, if any**
1	The proposed solution should be in the form of software		
2	The proposed solution must offer a workflow based management & monitoring and reporting capability for the real time monitoring of a DR solution parameters like RPO (at DB level), RTO, replication status and should provide alerts(including SMS and e-mail alerts) on any deviations. The proposed solution should able to conduct DR Drills from a centralized location		
3	The proposed solution should provide a single dashboard to track DR Readiness status of all the applications under DR		
4	The proposed solution should be capable of reporting important health parameters like disk space, password changes, file addition/deletion etc. to ensure DR readiness.		
5	The proposed solution should have inbuilt, ready to use library of recovery automation action for heterogeneous databases and replication environment. This must significantly reduce custom development of scripts and speedy deployment of DR solutions.		
6	The proposed solution should facilitate out-of-the-box, workflow based switchover and switchback for DR drills for standard applications based on industry best practices		
7	The proposed solution should be capable of doing pre-flight/Dryrun checks to ensure conditions are met to ensure a successful DR Drill.		
8	The proposed solution should facilitate workflows for bringing up the applications and all the components it depends on at DR while it is up at primary site without pausing/stopping the replication.		
9	The proposed solution should have replication capability as native feature		
10	The proposed solution should be able to manage hosts by either deploying agents or without deploying any agent and should not require any change in the existing environment.		
11	The proposed solution must support all major platforms including Linux, Windows, Solaris, HP-UX, and AIX with native high availability options. It must support both physical and virtual platforms.		
12	The proposed solution should have file level replication for associated application servers and DB log replication which is supported on the commonly used OS platforms and has inbuilt bandwidth compression.		
13	The proposed solution must have pre-packaged support for all popular databases Oracle, MSSQL, MYSQL, Sybase, PostGreSQL and DB2. It must support both physical and virtual platforms.		
14	The proposed solution should facilitate workflow based, single-click recovery mechanism for single or multiple applications.		
15	The proposed solution should be available in the Indian market for at least 5 years and having good track record , and support for the solution should be available for at least 5 years from the date of implementation/sign-off		
16	OEM to have at least 10 Bank implementations in live environments, with at least 3 of them to be PSU banks.		
17	The proposed solution should have good MIS system, especially it should have inbuilt Business level reports to ensure compliance to all types regulations including compliance report submitted to RBI.		
18	The proposed DR Automated Solution should integrate seamlessly with the existing setup without the need to reconfigure or remove existing application setup including clusters		
19	The proposed solution should cover all the functionalities mentioned in the specifications and all the required licenses should be provisioned.		
20	DR Automated Solution should be managing live environments with both 2-way and 3-way DR in large PSU/Private banks in India		
21	The proposed solution should Validate recovery for Bank's physical/virtual environments		
22	The solution should have facility for Policy-driven SLA Management. Tool should be capable to establish SLA policies by host, by business service or by business unit. The tool should monitor the configuration against those policies, and issue alerts if SLA violations are detected.		
23	Support databases, storage systems, servers , networks , virtual machines and replication solutions deployed by the Bank		

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Minimum Technical requirements for DR Automated Solution for Single Click Failover / Fail-back & Switchover / Switchback			
Sr.No.	**Technical Requirements**	**Bidder's Compliance (Yes/No)**	**Bidder Remarks, if any**
24	The tool should be able to interface systems across different sites DC and DR and Near site.		
25	Validate recovery for Bank's physical/virtual environments		
26	The solution should have facility for Policy-driven SLA Management. Tool should be capable to establish SLA policies by host, by business service or by business unit. The tool should monitor the configuration against those policies, and issue alerts if SLA violations are detected.		
27	The tool should have the capability to perform Day-to-day verification of important parameters which could impact DR and alert these changes to respective stakeholders.		
28	Provide real-time DR readiness validation.		
29	Tool should be able to capture, calculate and analyse Recovery Point and Recovery Time monitoring for various applications as per the policy of the Bank		
30	Provide Real time insight into application data loss and recovery time		
31	Identify causes of Recovery test failures		
32	Provide recovery workflows to meet service levels & RPO/RTO objectives		
33	Align DR infrastructure with Bank's Recovery Time and Recovery Point objectives.		
34	The tool should keep track of DR Health status on a real time basis. Any changes in the DR Health against different layers like application, database and storage replication should be alerted.		
35	Automate execution of DR Drills.		
36	Solution should provide a wide array of DR compliance reports that can be generated on demand to help assess and analyze current ability to maintain business continuity		
37	Provide Recovery audit reporting and documentation		
38	Have the capability to provide monitoring, reporting, and testing and workflow automation of complex IT infrastructure into a scalable		
39	The solution should be capable of providing DR Dash Board and alerts via e-mail/sms. The dashboard should provide immediate insight into the bank's disaster recovery readiness, service availability, and data protection status, as well as the potential impact on business operations.		
40	Facility of web based user interface should be available.		

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Minimum Technical requirements for DR Automated Solution for Single Click Failover / Fail-back & Switchover / Switchback				
Sr.No.	**Technical Requirements**	**Bidder's Compliance (Yes/No)**	**Bidder Remarks, if any**	
Sr.No.	**Technical Requirements**	**Scope of Work**	**Bidder's Compliance**	**Bidder Remarks, if any**
1	**DR Automated Solution Monitoring**			
1.1	Continuity dashboard	A single console to track all of the critical applications real-time recovery readiness. Provision of DR/IT operations manager saves on resources and time and has a 24x7 view of their application DR readiness.		
1.2	DR Solution Health monitoring	Monitor up/down status & alert on subsystem that are part of a DR solution.		
		Specific process, services, applications that DR is dependent on are monitored.		
		IT manager is alerted (including SMS and e-mail alerts) on adverse conditions that need immediate attention, eliminating potential delay in responding to situations		
1.3	RPO monitoring	Real-time monitoring of application level Recovery Point Objective		
		Alert when the current recovery point measurement exceeds business set objectives.		
		Show to management/auditors & regulators that critical applications are meeting their recovery SLA.		
1.4	Replication monitoring	Real-time monitoring and status alerts for replication		
		Single console to monitor replication and its impact on RPO.		
1.5	Primary - DR equivalence validation	For each supported DR solution signature, validate pre-build equivalent conditions that are required for successful recovery e.g. For Oracle log - over 40 conditions are validated		
		Deploy comprehensive DR solution with a few user interface interactions. Eliminate time and efforts required to design and deploy DR solution.		
1.6	Relationship mapping	Provide a mapping between primary and DR of applications, servers and replication entities		
		Map primary to DR assets at a glance, making asset management easy.		

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Minimum Technical requirements for DR Automated Solution for Single Click Failover / Fail-back & Switchover / Switchback				
Sr.No.	**Technical Requirements**	**Bidder's Compliance (Yes/No)**	**Bidder Remarks, if any**	
2	**DR Automated Solution Management**			
2.1	DR Drill manager	A central console to start, track and configure DR drills for each application.		
		Out-of-box workflows for switchover and switchback Details of each drill - including start and end times, status and execution details		
		Allow running of test while replication between primary and DR is ongoing (non-intrusive tests)		
		Ability to execute DR drill workflows on Dry-Run/simulation mode to ensure success of actual DR drill by verifying pre-requisites		
		Should integrate with native OS clusters for drills without the need to replace any of existing native OS clusters		
2.2	Recovery manager	A central web based console to start, stop and track recovery workflows for each application		
		Out-of-box workflows for normal copy and failover		
		Details of each recovery workflow execution detail		
		Ability to execute DR recovery workflows on Dry-Run/simulation mode to ensure success of actual Disaster Recovery by verifying pre-requisites		
		Ability to customize and add pre-flight/ dry run checks		
2.3	Workflow Engine	A DR aware, flexible and scalable engine to configure, monitor and manage workflows. Has capabilities such as: 1. Set environment variables at run time		
		2. Loop, delay, skip, forks & manual input options for workflow execution		
		3. Build/edit workflow using a UI		
		4. Support for parameter passing between actions		
		5. Execute workflow based on user specified schedule/calendar		
2.4	Recovery Automation Library	Recovery operations for popular databases, replications, networking, OS operations		
		Clear description of operation with settable input parameter values		
		No programming required to create a workflow		
2.5	Business Process Integration	Single console to manage integration of application backup & end-of-day process along with Business Continuity Operations.		
		Automation scripts and schedules to stop & resume Normal Copy operations before and after nightly backup.		
		Automation scripts and schedules to stop Normal Copy operations so that end-of-day processing can be done on the database		

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Sr.No.	**Technical Requirements**	**Bidder's Compliance (Yes/No)**	**Bidder Remarks, if any**	
3	**Reports**			
3.1	Out-of-box reports	For each application under software management, the following reports are available: 1. RPO deviation over time range		
		2. RTO deviation over time range		
		3. Workflow execution time for each instance		
		4. RBI mandated BCP/DR reports like BCP testing, DR readiness, application readiness, DR integrity etc		
		5. Replication over time range		
		6. Application summary – configuration & current state		
		7. Test summary report per application		
3.2	Custom Reports	Provides an exported view of data that can be a data source to popular business reporting engines:		
		Audit reports – captures all workflow operations		
4	**Event Management**			
4.1	Events	Four event categories – Incident, critical, normal, informational .Ability to associate policy to each event.		
		Ability to cancel-out polar events		
		Default notification policy for high severity events		
4.2	Custom Events	Meet end user specific monitoring needs by raising custom events		
		Define and register custom event		
		Raise custom event based on threshold or state conditions		
		Build powerful monitoring and policy response in conjunction with BPI		
4.3	Event UI	UI page to view and take action on occurred events		
		Sequence-of-events graph to help root-cause analysis		
4.4	Integration with Third party log management software	Ability to integrate and send logs to log management solution.(SIEM) RSA Envision		
5	**Discovery**			
5.1	Setup and discovery of DR solution subsystems	Based on server IP and DB instance id, auto discover configuration details about the database		
		Based on server IP and login details, auto discovery replication & storage details		
5.2	Recovery Management Data Base (RMDB)	Relationship map between primary and DR subsystems that make up application's DR solution		
		Map two and three tier application architecture dependencies		
5.3	DR Solution Signatures	Out-of-box industry best practices DR solutions for popular applications and databases		

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Sr.No.	**Technical Requirements**	**Bidder's Compliance (Yes/No)**	**Bidder Remarks, if any**	
6	**Administration**			
6.1	Role based Access	Support for user roles with different capabilities between operational and administrative role with ability to integrate with AD/LDAP in the environment to eliminate a separate identity management system		
6.2	Notification list	Create and manage user list that are to receive notification via email		
6.3	Help	Online & context sensitive help		
		First time user help wizard		
6.4	Security	The DR Management solution should be certified by Standardisation Testing and Quality Certification (STQC) Directorate or equivalent A2LA accredited organization to ensure that there are no security vulnerabilities which can be exploited		
6.5	Implementation	Implementation of the project to be monitored and conducted by OEM		
		The Disaster Drill should be non-intrusive		
		At least first 4 DR Drills to be conducted by OEM and training to be given to Bank staff.		
		There should not be any downtime for ATM and IB services during Switch over from DR to DC and switch back from Dr to DC.		
7	**Replication**			
7.1	File replication	Built in file replication software with the following capabilities: 1. File replication over IP networks		
		2. Replication from multiple sources to multiple destination files/folders		
		3. Replicate nested files & folders		
		4. Only replicate files that have changed since last replication instance		
		5. Preserves file attributes		
		6. Skip open files		
		7. Provides log of replicated file names, pending files and number of files to be replicated and statistics on throughput		
		8. Ability to specify replication from a point-in-time		
		9. Support replication for Unix symbolic links		
		10. File system analytics tool to give total file/directory count, typical scan time, number of open files, times of last replication for a file, file size and time stamp		
7.2	Large file support	Restart replication after a break from last successful replicated point		
		Replicate only portions of the file that have changed		
7.3	Replication optimizations	Specify file/folder names & extensions to include or exclude for replication		
		On-the-fly file compression for reduced bandwidth usage		
		Configurable number of processess to replicate in parallel		
7.4	Database Replication support	Storage based replication		
		Host Based replication		
		Data Guard		
		Delta resync towards zero data loss.		

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Sr.No.	**Technical Requirements**	**Bidder's Compliance (Yes/No)**	**Bidder Remarks, if any**	
8	**Support Requirements**			
8.1	The bidder should have back to back support arrangement with the OEM and provide highest premium support offering 24 * 7 for the solution during the contract period.			
9	**Compliance Requirements**			
9.1	The Solution should be IPv6 compliant			
9.2	The proposed solution should integrate with the Bank's Security Information & Event management (SIEM)			
9.3	The solution deployment should comply to the ISMS framework.			