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**Report of Successful Completion of Qualification Testing**

International Business Machines Corporation has successfully completed compatibility and interoperability testing of the IBM DS8910, DS8950, and DS8980 at code level R9.3 Bundle 89.30.68.0 in the following IBM z14, z15, and z16 environment (all-flash modes are included):

IBM hereby confirms that testing for the support of FICON® and FCP connectivity of the following has been successfully completed:

<b>CPU</b>	<b>IBM z14 3906 M02 Driver 36 Bundle S61a, IBM z15 8561 T01 Driver 41 Bundle S51a, and z16 3931 A01 Driver 51 Bundle S08c</b>
<b>OS&amp;GDPS®</b>	<b>z/OS V2.5</b>
	<b>GDPS 4.5</b>
<b>Functions</b>	<b>GDPS Metro HyperSwap Manager</b> <ul style="list-style-type: none"> <li>• <b>Freeze/run</b></li> <li>• <b>Planned HyperSwap</b></li> <li>• <b>Unplanned HyperSwap</b></li> <li>• <b>HyperSwap Failover/Failback</b></li> </ul>
	<b>GDPS Metro</b> <ul style="list-style-type: none"> <li>• <b>Freeze/run</b></li> <li>• <b>Planned HyperSwap</b></li> <li>• <b>Unplanned HyperSwap</b></li> <li>• <b>HyperSwap Failover/Failback</b></li> <li>• <b>FlashCopy V2, FlashCopy Space Efficient and Remote Pair FlashCopy</b></li> <li>• <b>Logical Corruption Protection including Safeguarded Copy</b></li> </ul>
<b>Storage Devices</b>	<b>IBM DS8980F</b> <ul style="list-style-type: none"> <li>• <b>PPRC volumes</b></li> <li>• <b>FlashCopy V2</b></li> <li>• <b>Safeguarded Copy</b></li> </ul>

More detailed testing results are available from IBM on request.

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## Attachment A -- Test Matrix

<b><u>GDPS Metro HyperSwap Manager</u></b>		
<b>Test Case Suite</b>	<b>Successfully Completed</b>	<b>Test Case Suite Description</b>
<ul style="list-style-type: none"> <li>• <b>Initial Tests</b></li> </ul>	✓	Basic remote copy operations using panels Basic Freeze tests (GO/STOP/COND)
<ul style="list-style-type: none"> <li>• <b>Planned Actions</b></li> </ul>	✓	Remote copy operations using HYPERSW command Simulate Site maintenance (Site 1) and (Site 2)
<ul style="list-style-type: none"> <li>• <b>Unplanned Actions</b></li> </ul>	✓	GDPS reacts to a failure, depending on the FREEZE option (GO / STOP / COND / SWAP&GO / SWAP & STOP) Test failures were generated by PPRC links unplug, Chpid unplug, DASD control Unit power off and elongated I/O response times
<ul style="list-style-type: none"> <li>• <b>Disruptive Testing (aka Config Testing)</b></li> </ul>	✓	GDPS reacts to a failure, depending on the FREEZE policy. Failures were generated by Control Unit Emergency power off and control unit internal failures
<ul style="list-style-type: none"> <li>• <b>HyperSwap Stress test</b></li> </ul>	✓	Run a planned HyperSwap, with the application systems and the controlling system having CPU contention
<ul style="list-style-type: none"> <li>• <b>Miscellaneous</b></li> </ul>	✓	HyperSwap extension (checking of secondary PPRC status – failure, XRC session, Concurrent Copy, etc.)

<b>GDPS Metro</b>		
<b>Test Case Suite</b>	<b>Successfully Completed</b>	<b>Test Case Suite Description</b>
<ul style="list-style-type: none"> <li>• <b>Initial Tests</b></li> </ul>	✓	Basic remote copy operations using panels Basic Freeze tests (GO/STOP/COND)
<ul style="list-style-type: none"> <li>• <b>Planned Actions</b></li> </ul>	✓	Remote copy operations using scripts (START/STOP SECONDARY, Flashcopy, HyperSwap (Resync & Suspend), etc.) Simulate Site maintenance (Site 1) and Site 2)
<ul style="list-style-type: none"> <li>• <b>Unplanned Actions</b></li> </ul>	✓	GDPS reacts to a failure, depending on the FREEZE option (GO / STOP / COND / SWAP&GO / SWAP & STOP) Failures were generated by PPRC links unplug, Chpid unplug, DASD control Unit power off and elongated I/O response times
<ul style="list-style-type: none"> <li>• <b>Disruptive Testing (aka Config Testing)</b></li> </ul>	✓	GDPS reacts to a failure, depending on the FREEZE policy. Failures were generated by Control Unit Emergency power off and control unit internal failures
<ul style="list-style-type: none"> <li>• <b>HyperSwap Stress test</b></li> </ul>	✓	Run a planned HyperSwap, with the application systems and the controlling system having CPU contention
<ul style="list-style-type: none"> <li>• <b>Miscellaneous</b></li> </ul>	✓	HyperSwap extension (checking of secondary PPRC status – failure, XRC session, Concurrent Copy, etc.)
<ul style="list-style-type: none"> <li>• <b>FlashCopy</b></li> </ul>	✓	Prior FlashCopy limitations (Space Efficient, Remote Pair) are removed. Note that the traditional FlashCopy testcases are executed as part of Planned Actions and Unplanned Actions.
<ul style="list-style-type: none"> <li>• <b>LCP (including Safeguarded Copy)</b></li> </ul>	✓	Basic LCP operations using panels and scripts