IBM

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International Business Machines Corporation (IBM®) and Cisco Systems, Inc. have successfully completed connectivity testing of the MDS family of switches (9222i, and 9134) and Directors (9506, 9509 and 9513) at code level 3.3(1c) and Cisco Fabric Manager 3.3(1c) in IBM.

Intended support is for the following environments:
FICON® attached to the IBM eServer™ zSeries® 900 (z900) at driver 3GF
FICON attached to the IBM eServer zSeries 890 and 990 (z890, z990) at driver 55K
FICON attached to the IBM System z9™ BC and EC at driver 67L including 4 Gbps FICON channel support
FICON attached to the IBM System z10™ at driver 73G including 4 Gbps FICON channel support
Fibre Channel Protocol (FCP) mode attached to z900, z990, z890 with Linux on System z (either Novell SuSE SLES9 and SLES10 or Red Hat RHEL3, 4 or 5) using the same driver levels as above.
Input/Output (I/O) attachment to the IBM TotalStorage® Enterprise Storage Server (ESS) 2105-800
I/O attachment to the IBM TotalStorage DS8000
I/O attachment to the IBM TotalStorage DS6000
I/O attachment to the IBM 3590 and 3592/J70 tape products
I/O attachment to the IBM 3592 C06
I/O attachment to the IBM TS-7740
FCP supporting IBM System Storage Metro Mirror (formerly PPRC) and FICON supporting IBM System Storage z/OS Global Mirror (formerly XRC)
It is also anticipated that the Cisco switches and directors could attach to any IBM System z server FICON supported device and other FICON devices that adhere to the FICON architecture.
It is also anticipated that the Cisco switches and directors will operate under IBM operating systems (OS) such as z/OS®, z/VM, z/VSE, and zTPF that currently support FICON on IBM System z servers.
Ficon Tape Acceleration with compression and encryption over FCIP links support up to 3000 Km for supported devices.
Optical (2, 4, and 10 Gbps) InterSwitch Links (ISLs) distances extended up to 300 km through DWDM
Optical 2 Gb Inter System Links (ISLs) distances extended up to 100Km through Coarse Wave Division Multiplexing (CWDM).
Optical 4 Gb Inter System Links (ISLs) distances extended up to 40Km through CWDM.
DWDM optics installed in the 9500 series switches and directors at distances up to 300 Km.

Notes:
Server environments mentioned previously should be at the latest release levels as of June 30th, 2008.
Cascading of directors and switches is limited to one hop for a FICON environment.

Results Summary
The identified Cisco directors and switches successfully passed IBM's connectivity testing for the following:
I/O attachment to IBM System z FICON supported devices listed below:
> I/O attachment to the IBM TotalStorage DS8000 (FICON and FCP 4 Gbps)
> I/O attachment to the IBM TotalStorage DS6000
> Fibre Channel Protocol (FCP) with Linux on System z Novell SuSE SLES9 and SLES10
FCP including N_Port Identifier Virtualization (NPIV)
IBM z/OS V1.9
IBM System Automation (SA) for OS/390® (In band management feature using Control Unit Port [CUP] device)
Intermix of FICON and FCP traffic in either a single switch or cascaded switch environment

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Considerations and Limitations
In rare cases when a downgrade from 3.3(1c) to older levels of SAN-OS, a module can become frozen in a state where it will not accept new port logins. This condition is worked around by doing a SUP switchover and reloading the affected module. For this reason, it is recommended that downgrades from 3.3(1c) to older SAN-OS levels be considered as disruptive. This condition has no impact on in-service upgrades.

Considerations and Limitations noted in previous qualification testing:
There is limited risk that InterFace Control Checks (IFCCs) may be seen on the FC/IP 14+2 blade when using encryption and port channels with both IP ports. This problem appears to be seen when only small packets are used under high stress conditions. This was not seen with z/OS, but with a test program.

Concurrent code load on the MDS-9509 is subject to problems if an error occurs while performing the code load. This is due to the current flash size being able to hold only one image at this time. A fix for this is targeted for the next release. Until then, it is suggested that the unit be taken out of service to perform code load.

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The following table contains the test cases run against the Cisco switches and directors during IBM's testing:

Test Case Name	Test Completed	Test Case Description
Concurrent Code Load	✓	Verify concurrent code load
FC/IP	✓	
Mixed Workload Test	✓	Combination of SAK and z/OS runs made in an LPAR environment with several partitions.
EXPING/INGCTV all configs		SAK exerciser for FTV (emulated I/O) which checks basic architecture.
SAK ITAPEX, ITAPE0, IFTAPE		SAK exerciser for tape.
SAK EXCTCP / IOCTCP		SAK exerciser for FiCon CTC.
All Applicable SAK EXDASD (IDASD0,IDSCAN,IDASDX)		Includes IDASD0, IDASDX, UDESSI all run to 2105-800/DS-8000/DS-6000 to maximize data transfer.
SAK OFCPIO		FCP I/O driver program under SAK.
PAWS (not SAK)		Stand alone FCP test program.
CHNLDRVR		zOS program to drive data on FiCon channels.
CEC IMLs	✓	Run processor IML, SYSRESET, and Activate/deactivate LPARs to verify all CHPIDs come up as online and working.
Serviceability	✓	
SAK IRNDUP Single LPAR, Multi-channel Path, Single Switch Partition, Multiple Copies, Split Port Range, and FAF	✓	SAK exerciser for switch CUP functions. A CU exerciser for the CUP. Run on 2 partitions with 2 paths from each (requires MULT parm).
I/O Ops (SA OS/390)	✓	In band management program that uses CUP.

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