What happens when I replace a failed controller? And what are PBCs?

The SANnet port architecture utilizes integrated Fibre Channel Port
Bypass Circuits (PBCs) for all external host and drive ports, which
makes them behave as if they were ports of a HUB. The HUBs (i.e. PBCs)
are controlled by hardware and firmware on the controller.

When a controller is inserted (see Note at bottom of this doc) there is
an immediate LIP on the drive channels causing I/O to the drives to be
interrupted. The running, or surviving controller will rescan all drive
channels and then resume I/O while the inserted controller completes
self-test.

Once self-test completes successfully the inserted controller will scan
the drive channels (i.e. channels 2 & 3 since their default is RCC +
Drive) then communicate to the survivor that the failback process can
begin.

This process includes copying information (i.e. cross-loading firmware
& configuration) from the survivor to the inserted controller along
with cached write-data. Once the failback process completes there are
LIPs generated on the host channels. This is done to relinquish the
port ID from the surviving controller and reacquire the ID on the
inserted controller. The resulting LIPs will disrupt the I/O by causing
any outstanding I/Os to be terminated and these I/Os need to be re-
issued by the host(s). Multiple hosts can increase the disruption
period due to multiple hosts participating in loop initialization and
completing the login process to the SANnetII.

The problem encountered could be the result of retry and timeout values
in the HBA. It could also be a result of the HBAs and/or the SANnetII
set to auto-negotiation instead of 2gb.

NOTE: It is VERY IMPORTANT that you replace a failed redundant controller WITH
POWER ON! Since, at power on, the controllers compare their internal serial numbers to
determine which will become Primary (HIGHER S/N = Primary), the replacement
controller needs to get its' configuration (and/or firmware) from the surviving controller.
IF the replacement controller has a higher S/N AND it was installed with power-off, then
the GOOD controller (i.e. survivor) will download the configuration & firmware of the
replacement controller and this is most likely to be default values! This means that you
could lose all of you LUN mappings, Partition sizes, WWN Filter Masks, etc!