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Faster recovery in Network Virtualized Environment During Failover/Failback

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ABSTRACT

On virtualized environment, when there is dual VIOS (Virtual IO Server) present, if any network failure happens it takes very long to recover from it. Dual VIOS environment is basically setup to have failover configuration to achieve relaiablity. One of the VIOS will be primary and will take care of communication to hosts outside. In case if there are any failures, other VIOS will take over and take care of the communication. In this paper, method to recover faster is being proposed in this draft.

Keywords: VIOS(Virtual IO Server), SEA(Shared Ethernet Adapter), NIC (Network Interface Card), LPAR (Logical PARtition)

1. INTRODUCTION

Dual VIOS setup is that it promotes redundancy, accessibility, and serviceability. It also offers load balancing capabilities for Multipath I/O (MPIO) and multiple shared Ethernet adapter configurations. When compared to a single VIOS setup, a dual VIOS setup has the following additional components: An additional VIOS partition. Each VIOS partition consists of an additionalvirtual Ethernet adapter, which is used as the control channel between the two shared Ethernet adapters. Setting the trunk priority
on the virtual Ethernet adapters that are used for bridging two physical adapters in a shared Ethernet adapter configuration.

Both VIOS partitions will be up and running. One of them will be primary and the other will be secondary. Both these partitions will be exchanging heart beats to know the availability of other VIOS. When there is no response for 3 retries, the other VIOS will know something happened to the other VIOS and takeover of primary.
The VIOS which is primary will take care of network communication from local partitions to the outside world and vice versa.Generally both VIOS will be connected to different network switches so that when there is problem with network infrastructures that also can be taken care. Connecting to single switch again might cause network failures.

2. PROBLEM STATEMENT

On virtualized environment, Dual VIOS is configured to achieve reliability and accessibility. Dual VIOS can be configured as backup mode. In this case both VIOS will be up and running. But only one VIOS will take care of network communication. The VIOS which takes care of communication is called primary VIOS. When there is failure detected, the secondary VIOS will become primary and take cares of the communication. The problem with this method is that, switch connected to first VIOS(that was primary earlier) will have MAC address and IP address mapping for all the LPARs. As a result communication from outside hosts will flow in from both the VIOSs(both switches). This will cause poor network throughput/loops. In this paper a new method will be discussed to avoid this problem.