



Root Cause Analysis

Event: 1/29/2009 Intermittent Network Performance from 0937 - 1117

Summary:

A Dell blade server enclosure was connected to the network via a management port that was designed to connect directly to another server enclosure, not to the network.

Detail:

Synopsis:

A request was submitted to run network cabling for a new Dell blade server enclosure that had recently been installed in the Butrovich Data Center. Cables were laid in the cabinet, and connected as indicated in the provided diagram. The default state of the blade server enclosure management interface is to attempt to connect to another bladed server management interface to establish enclosure-to-enclosure management traffic.

In this case, this management interface was mis-connected directly to the network switch in the cabinet. The traffic generated by the server enclosure in its attempt to locate adjacent server enclosures was transported on VLAN 1, the default management VLAN pre-configured on Cisco switching equipment. Traffic levels were high enough to significantly raise CPU levels on smaller edge switches, intermittently hindering their ability to pass traffic.

Pattern of increased CPU utilization was identified, individual switches exhibiting this behavior were isolated, and source of increased VLAN 1 traffic was pinpointed to being generated specifically by the switch ports directly connected to the server enclosure management interface. Upon turning down these switch ports, CPU utilization returned to normal operating levels, and network performance returned to normal.

Cause:

Connecting a blade server enclosure management interface directly to the network, rather than directly to another blade server enclosure management interface as designed. Traffic generated by blade enclosure effectively flooded portions of the network at the rate of 850 mbps +, making network resources intermittently unavailable.

Action Items:

1. Counsel technical staff on the importance of ensuring connections are made properly: COMPLETED – ITS/NO.
2. Review methods for cable installations and network connections, ensure technical staff are coordinating closely with customers to perform work as requested, documented, and designed: COMPLETED – ITS/NO.
3. Review and recommend new methods to configure and manage VLAN 1 architecture: In progress – ITS/NE.

Future Prevention:

Consistent communication with customers requiring new cable connections to ensure proper understanding of technical requirements, and that work is performed as requested, documented, and designed.