Intrado®

Enhanced 9-1-1 Board
State of Vermont
100 State Street
Montpelier, VT 05620-6501

August 22, 2014

RE: Vermont Service Disruption Investigation

Dear Mr. Tucker,

On Aug 6, 2014 Intrado's transport network experienced a geographic service disruption. Two redundant network transport elements, one each in [redacted] and [redacted], failed within seconds of each other. The network transport failure isolated Vermont incoming 9-1-1 calls from both Regional Co-Locations (RCLs) in [redacted] and [redacted] such that they could not be routed to the Vermont PSAPs via the A911 network.

Vermont's configuration has network transport in [redacted] and [redacted] to three separate geographic locations in [redacted] and [redacted] where the Intrado edge routers accept inbound 911 traffic. The network transport from [redacted] and [redacted] were configured for [redacted] and [redacted] where the simultaneous network transport routers failed. In addition, an attempt to utilize a tertiary route to [redacted] failed due to an incorrect route configuration.

The combination of the simultaneous network transport edge router failure in [redacted] and [redacted], along with the tertiary route configuration, was the cause for the service disruption.

What has been done to address the issue?

1.) Edge Transport Network Service Disruption

When the failure occurred, routers in [redacted] and [redacted] could no longer establish connections to the Vermont network. Within minutes, an Incident Command team was launched to troubleshoot, assess impact, and restore network transport.

Intrado immediately escalated the issue with executive management of the router manufacturer, who formed a Customer Action Team – the highest level of incident response team available. As previously communicated, we've had a lab configuration set up at the equipment manufacturer and were able to duplicate the condition and complete the root cause analysis.

Final analysis showed that the total available memory in both routers had quickly and unexpectedly been exhausted, although both had been operating normally and with no indication of any memory capacity problem. Further investigation determined that the memory exhaust condition in the routers was a direct result of the routing tables exceeding capacity.

As a result we have maximized memory in the routers and implemented route table filtering processes.

2.) Tertiary Route Configuration

The tertiary route configuration has been verified to be accurate and functional. If a similar dual equipment failure were to occur, the primary, secondary and tertiary back-up paths would function correctly. The State of Vermont has three levels of geographic network transport redundancy operational and verified.

3.) Call Back Number (CBN) Process

Our internal investigation showed that we followed our Incident Command process that prioritizes restoring the 911 service, determining the service impact, and then beginning the process of providing CBNs for the PSAPs affected by the service disruption.

On 8/6/14 at [redacted] EST, 911 service was restored and incident level network monitoring continued to ensure network stability. Also, the process of determining the service impact began. Once the incident commander determined network stability and service impact, the gathering of CBNs to release to the State for the welfare checks was started.

Wireline Carrier CBNs

Within minutes of restoring the 911 service and impact analysis, where it was identified that no Vermont 911 calls could ingress our A911 network, we were on the phone with [redacted] requesting log data.

On 8/6/14 at [redacted] EST, [redacted] supplied unformatted and unfiltered call logs from their selective routers to Intrado. As this was an issue with the network transport of the 911 calls into the Intrado A911 network, the 911 calls were never received into Intrado's systems, thus we had no record of the 911 calls or CBNs. This required outreach to [redacted] to provide the 911 call information from their selective routers.

On 8/6/14, [redacted] EST – Intrado provided the unformatted 911 Data to Vermont 911 Board.

The [redacted] information was an unformatted data file, so it was necessary for Intrado to determine (1) the carrier providing the 911 traffic, (2) class of service, (3) filtering of duplicates, and (4) formatting of the data so we could provide you with useable information.

On 8/6/14 at [redacted] EST, Intrado provided to Vermont the filtered and formatted Fairpoint data.

Wireless Carrier CBNs

On 8/6/14 at [redacted] EST, Intrado provided wireless PANI/CBNs that Intrado ingress 911 traffic for ([redacted] and [redacted].

The [redacted] delay in getting the wireless CBNs to the State of Vermont is due to restrictions on releasing private information without consent. Our investigation has determined that the current process of wireless CBN release to the PSAPs can be improved by instituting a preapproval process with the Carriers where Intrado can release the CBN

information in emergency situations. We are in the process implementing such changes, and we will keep the Vermont Emergency 911 Board apprised of our progress.

On 8/6/14 at [redacted] EST, [redacted] (which is not managed by Intrado) provided a Wireless CBN for one 911 caller and that number was provided to the State of Vermont.

VoIP Carrier CBNs

On 8/6/14 at [redacted] EST, Intrado determined that a block of VoIP PANIs were routed by [redacted] and not managed by Intrado. We have no contractual relationship with [redacted] and no ability to access their PANI or CBNs.

The VoIP 911 calls were for carriers that utilize [redacted] to route their 911 traffic. We called the [redacted] NOC, requested severity level 1 assistance and provided [redacted] with the PANI file. Their time estimate was next morning during business hours as they had no available resources that could retrieve the information. We attempted escalation with several subsequent calls with the [redacted] NOC (last one at [redacted] EST).

On 8/7/14 at [redacted] EST, VoIP PANI/CBNs were received from [redacted] to Intrado and provided to the State of Vermont. For reasons unknown to us, [redacted] provided the CBNs to the State prior to providing them to Intrado.

[redacted] PANI/CBN process – Our investigation also determined that for VoIP traffic the process for determining CBNs associated with the PANIs can be improved by having a bidirectional agreement between [redacted] and Intrado for emergency retrieval of CBN/PANIs.
Both Intrado and [redacted] route the majority of all Wireless and VoIP traffic and in a similar situation, either of us could have been called upon to provide this information depending on who is ingressing the wireless and VoIP 911 traffic. From the time Intrado opened the support ticket with [redacted] to receipt of the CBNs was approximately 15 hours. The General Manager of our Mobility Division is working directly with VP level operations personnel at [redacted] to implement a process for immediate action.

Intrado remains committed to Public Safety in the State of Vermont, and is continuing to work diligently to provide the level of reliability that the State of Vermont has received prior to this service disruption.

If there is a need, we can schedule a conference call, or we are willing to travel to the State for meetings and present the findings and answer any additional questions.

Sincerely,

Steve Lowe
VP/General Manager
Intrado

Cc: Sheriff Marcoux