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**BEFORE THE WASHINGTON UTILITIES  
AND TRANSPORTATION COMMISSION**

**WASHINGTON UTILITIES AND  
TRANSPORTATION COMMISSION,**

**DOCKET UT-190209**

**Complainant, v.**

**QWEST CORPORATION d/b/a  
CENTURYLINK QC,**

**Respondent.**

**PREFILED REBUTTAL TESTIMONY OF**

**RANDOM MILLS  
for  
CENTURYLINK**

**FEBRUARY 13, 2020**

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**I. INTRODUCTION**

**Q. Please state your name and job title.**

A. Random Mills, Senior Voice Engineer with Intrado Life & Safety, Inc. (fka West Safety Services, Inc.) (“Intrado”).

**Q. Have you previously filed testimony in this case?**

A. Yes, on January 9, 2020 I filed response testimony addressing the issues raised by Staff in its testimony and Investigation Report.

**II. SCOPE AND PURPOSE OF TESTIMONY**

**Q. What is the purpose of your rebuttal testimony?**

A. The purpose of my testimony is to respond to portions of Susan Baldwin’s testimony which was filed by Public Counsel on January 9, 2020.

**III. DISCUSSION**

**Q. Please describe your familiarity with the 911 interruption that occurred on July 12, 2017.**

A. I was personally involved in the maintenance event that led to this partial 911 interruption. I was the technician at Intrado that immediately noticed the incident and started rolling back the changes to resolve the 911 interruption. I also personally worked

1 with our switch vendor to identify the issue that caused the interruption and to find a  
2 solution. Additionally, I participated in drafting the Reason for Outage (RFO) document  
3 provided to CenturyLink.

4 **Q. Ms. Baldwin describes the reason for the outage as a “failed software update”**  
5 **(SMB-1CT, pp.6:20-7:7). Is this an accurate description of what caused the outage?**

6 A. No. As explained in my previously submitted testimony, the partial interruption on July  
7 12, 2017 resulted from a failed data import from the trunk provisioning server that  
8 maintained the trunk provisioning database for the Englewood, CO switch. There was no  
9 “software update” occurring on July 12, 2017 related to the interruption.

10 **Q. Ms. Baldwin discusses CenturyLink’s post-2014 management of the state’s 911**  
11 **system at page 20 of her testimony. Can you respond to that testimony?**

12 A. The Commission stated that it recognized that no system is foolproof, but that it expected  
13 CenturyLink to have *“adequate management and oversight systems in place to both*  
14 *reduce the risks of errors occurring and also to have systems in place to provide*  
15 *awareness of outages and to restore 911 service as rapidly as possible.”*

16 Ms. Baldwin’s testimony quotes a 2016 statement from the Commission that is fully  
17 consistent Intrado’s project management of its 911 system, switch upgrade project, and  
18 incident response to the interruption on July 12, 2017. Foremost, the Commission  
19 statement acknowledges that no system is foolproof and errors will inevitably occur, but  
20 what is important is adequate management and oversight to both reduce the risk of error  
21 occurrence and also to have systems in place for outage awareness and rapid service  
22 restoration. That aim is exactly what Intrado achieved in its management of the switch  
23 upgrade project and response to the July 12, 2017 interruption. Ms. Baldwin,

1 nevertheless, appears to ignore the Commission's stated expectation in 2016 by calling  
2 for a foolproof system in her testimony.

3 Although Ms. Baldwin is correct that Intrado experienced a previous outage in  
4 Washington on April 9-10, 2014, the 2014 and 2017 outages were very different in cause,  
5 duration, scope and impact. The 2014 outage lasted more than six hours, impeded over  
6 6,600 calls to 911 across multiple states with 5,684 of those calls in Washington, resulted  
7 from a trunk assignment counter exceeding its configured threshold, and was  
8 accompanied by deficient alarming and delayed root cause identification and service  
9 restoration. After the 2014 outage, Intrado implemented a multi-year project plan to  
10 improve process planning and incident response, change event management, methods of  
11 procedure, outage alarming, identification, response and recovery, network and hardware  
12 improvement, testing and probing, and repair. These steps vastly improved Intrado's  
13 management and oversight of its network and processes to both reduce the risk of error  
14 occurrence and advance outage awareness and rapid service restoration. I firmly believe  
15 that these improvements directly contributed to Intrado's detailed project planning and  
16 oversight of the switch upgrade event in 2017, which significantly reduced the duration  
17 and scope of the partial July 12, 2017 service interruption. These process and oversight  
18 improvements also directly contributed to Intrado's swift identification and service  
19 restoration for the July 12, 2017 interruption.

20 Unfortunately, as the Commission acknowledged in its 2016 statement quoted by Ms.  
21 Baldwin, no 911 system is foolproof and errors do occur like the unforeseeable server  
22 error that caused the 2017 interruption. What matters most is operator oversight and  
23 management of their systems to reduce the risks of errors and to provide rapid outage  
24 awareness and service restoration. By fulfilling these objectives in the 2017 switch

1 upgrade and interruption, Intrado was able to limit the scope of the July 2017 interruption  
2 to a partial outage with limited call impact compared to major, multi-state outages like  
3 the 2014 event. The July 2017 incident was the only service interruption during our  
4 entire year-long project implementation to upgrade our end-of-life voice switches. I  
5 believe this switch upgrade was critical for 911 network reliability and carriers should not  
6 be discouraged from such upgrades by unreasonable regulatory enforcement and  
7 penalties.

8 **Q. Can you elaborate on how the switch upgrade project was implemented so as to**  
9 **ensure adequate management and oversight systems were in place to reduce the**  
10 **risks of errors and to provide rapid awareness and restoral of the 2017 partial 911**  
11 **interruption?**

12 A. The underlying switch upgrade project connected to the July 12, 2017 incident was  
13 planned and implemented over a two-year period (a year of planning and a year of  
14 implementing). Intrado employed a number of managerial and oversight steps to reduce  
15 the risk of errors during the switch upgrade project and to provide rapid awareness and  
16 service restoral of the July 12, 2017 interruption.

17 First, the switch upgrade project was planned and implemented in methodical fashion  
18 with voice traffic migrating to the new switch in segments to minimize and isolate  
19 potential network impact. Intrado accomplished by using [REDACTED]

[REDACTED]  
[REDACTED]  
[REDACTED]. This feature also avoided the high risk and costly scenario of

23 originating carriers having to re-order their trunk groups with new points codes directed  
24 to Intrado.

1 Second, due to the large quantity of 911 calls in Washington, we intentionally planned  
2 the Washington migration at the end of our project timeline.

3 Third, traffic was selectively migrated in small segments during short, off-hour  
4 maintenance windows in the middle of the night in order to minimize and isolate  
5 potential network issues in accordance with the Intrado/CenturyLink service agreement.  
6 As a result, the interruption was both relatively short in duration and scope, with prompt  
7 root cause identification and only a small number migrated trunks affected by the  
8 incident.

9 Fourth, we applied two-stage data validation prior to all traffic migration, which included  
10 a check of all trunk data from the legacy switch and a check of all data after database  
11 conversions. These pre-validation steps did not reveal any errors in the database export  
12 and transfer.

13 Fifth, Intrado deployed appropriate network alarms during the switch project, which  
14 worked as designed by identifying the lack of ITG tags for the affected 911 calls during  
15 the partial interruption on July 12, 2017.

16 Sixth, during the service interruption, we correctly returned the affected calls to the  
17 originating service providers (OSPs) with the appropriate cause code 34. At that point,  
18 the OSPs were responsible for advance routing their 911 calls to our redundant switch in  
19 Miami, which was fully functional during the incident.

20 Lastly, Intrado identified and responded promptly to the July 12, 2017 incident, and  
21 internal fault management protocols were triggered. Intrado engaged in direct  
22 communication with CenturyLink – each company has a network operations center  
23 (NOC) and NOC-to-NOC communication was set up immediately. Intrado then forced a

1 busy condition on the affected trunks, which in turn forced 911 calls to automatically  
2 alternate route to our switch in Miami.

3 In sum, the relevant facts and circumstances demonstrate the switch upgrade project was  
4 implemented so as to ensure adequate management and oversight systems were in place  
5 to reduce the risks of errors and to provide rapid awareness and restoral of the 2017  
6 partial 911 interruption.

7 **Q. Was the upgrade project performed all at once or in phases?**

8 A. As mentioned, the upgrade was a two-year long project (a year of planning and a year of  
9 implementing) that Intrado rolled out methodically in phases across the country  
10 according to a detailed project plan.

11 **Q. When did the Washington portion of the upgrade start and finish?**

12 A. The Washington phase of the project started on May 24, 2017 and ended on August 2,  
13 2017, near the end of our project timeline. Again, in keeping with the methodical fashion  
14 of the project, the migration in Washington was broken into four phases, correlating with  
15 the four colocation points in Washington. We successfully completed the first two  
16 phases of the project by migrating the trunk groups in Liberty Lake and Yakima to our  
17 new switch. The next phase, involving the Seattle colocation, was scheduled to be  
18 implemented over two separate parts due to the large call volume associated with this  
19 colocation. The final phase of the Washington traffic migration to the new switch was  
20 the colocation point in Tukwila. The interruption on July 12, 2017 occurred during the  
21 first part of the Seattle colocation migration. After resolution of the service interruption  
22 on July 12, 2017, Intrado completed the remaining migration work for the switch upgrade  
23 project without incident.

1 **Q. Did other similar errors occur over the course of the upgrade project?**

2 A. No. Intrado is not aware of any other similar errors that occurred either before or after  
3 the interruption on July 12, 2017.

4 **Q. Does this conclude your testimony?**

5 A. Yes.