Exh. JDW-23C
Docket UT-181051
Witness: James D. Webber
REDACTED VERSION

BEFORE THE WASHINGTON
UTILITIES AND TRANSPORTATION COMMISSION

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION,	DOCKET UT-181051
Complainant,	
v.	
CENTURYLINK COMMUNICATIONS, LLC.,	
Respondent.	

EXHIBIT TO
TESTIMONY OF

JAMES D. WEBBER

ON BEHALF OF STAFF OF
WASHINGTON UTILITIES AND
TRANSPORTATION COMMISSION

TSYS Response to Staff Investigation Data Requests

December 15, 2021

CONFIDENTIAL PER PROTECTIVE ORDER - REDACTED VERSION

REDACTED VERSION
TSYS Response to UTC Staff Data Request Nos. RS-1 – RS-3

UTC STAFF DATA REQUEST NO. RS-1:
During the WA 911 outage period covering Dec. 27 – Dec. 28, 2018, what was the state of the PSAP migration project for the transitioning of CenturyLink PSAP service and management to TCSYS/Comtech PSAP service and management?

During the Washington 911 outage covering Dec. 27 – December 28, 2018 (the "Washington Outage"), forty-eight (48) of the sixty-six (66) PSAPs in Washington had transitioned to Telecommunication Systems, Inc. ("TSYS"). Specifically, during the Washington Outage, TSYS served the following PSAPs:

1. RiverCom 911
2. WHITCOM 911 Emergency Center
3. Columbia County Public Safety Communications
4. Lewis County 911
5. Okanogan County Sheriff's Office
6. Pend Oreille County 911
7. Lincoln County Sheriff's Office
8. Adams County Communications Center
9. Garfield County Sheriff's Office
10. University of Washington Police Department
11. Joint Base Lewis McChord (JBLM)
12. WSP - Wenatchee
13. Bothell Police Dept.
14. Issaquah Police Department
15. Enumclaw Police Department
16. Seattle Police Dept.
17. Skamania County Sheriff's Office
18. Redmond Police Dept.
19. Ferry County E911
20. WSP - Bellevue
21. WSP - Marysville
22. Kitsap County Central Communications (CENCOM)
23. San Juan County Sheriff's Office
24. Kittitas County 911 (KITTCOM)
25. Walla Walla Emergency Services Communications Center (WESCOM)
26. WSP - Spokane
27. South Sound 911
28. South Sound 911 (Eastside) - Virtual Primary ESNs only
29. Tacoma Fire Communications Center
30. Southeast Communications Center (SECOMM)
31. WSP - Yakima
32. Port of Seattle Police/Fire Communications
33. Skagit 911 Center

34. TCOMM 911
35. Clark Regional Emergency Services Agency
36. Wahkiakum County Sheriff's Office
37. Yakima Public Safety Communications Center (SUNCOM)
38. Seattle Fire Department
39. WSP - Vancouver
40. Cowlitz County 911 Center
41. WSP - Tacoma
42. Pacific County Sheriff's Office Communications
43. Grays Harbor E911 Communications
44. Peninsula Communications
45. JEFFCOM 911 Communications
46. Island County Emergency Services Communications Center (I-COM 911)
47. WSP - Bremerton
48. Mason County Emergency Communications (MACECOM)

UTC STAFF DATA REQUEST NO. RS-2:
Please report on which of the three phases of the migration project were each of the PSAPs in at the time of the outage (all WA PSAPs not just those migrating to TCSYS/Comtech).

At the time of the Washington Outage, the 48 above-listed PSAPs had completed Phase 1 of the migration project, meaning that they had fully migrated to the Comtech ESInet. All other active PSAPs in Washington at that time were preparing to complete Phase 1.

UTC STAFF DATA REQUEST NO. RS-3:
In response to request for information CP4, at page 2, the company responded:
During the Washington Outage, TCS observed an intermittent loss of circuit redundancy for all active Washington customers over a forty-nine (49) hours and thirty-two (32) minute period, starting at 0048 PT on December 27, 2018. More specifically, TCS's services were completely unavailable to receive 911 call traffic due to complete CenturyLink circuit failures during the following three time-periods

A. Were both primary and alternate networks and/or circuits between CenturyLink and the TCSYS/Comtech ESInet2 down or were the networks and/or circuits up and network services down that run on those networks and/or circuits?

During the Washington Outage, the SS7 signaling between TSYS's ESInet-2 and the CenturyLink Selective Router was impacted. The SS7 signaling was provided by Transaction Network Services (TNS), and TNS's SS7 connections failed where it relied on CenturyLink transport circuits.

Specifically, there were four (4) physically diverse circuits between TSYS and TNS data centers that supported the above-referenced SS7 services. CenturyLink provides TSYS and TNS

with transport for these circuits. CenturyLink's nationwide outage on Dec. 27 – 28, 2018 affected the availability of such circuits.
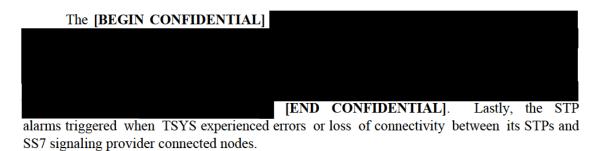
During the forty-nine hours and thirty-two minutes period when TSYS experienced intermittent loss of circuit redundancy, at least one of such SS7 circuits were down. In the three time-periods cited in TSYS's response to CP4, all four circuits were simultaneously down, resulting in the TSYS ESInet-2 becoming completely unavailable to receive 911 call traffic from the Selective Router during such time periods.

Please note that traffic on these circuits was evenly distributed and there was no "primary" or "alternative" network structure. When one or more circuits were down, SS7 traffic was automatically diverted to the operational one(s). The capacity of each link is enough to handle all SS7 traffic between TNS and TSYS in normal circumstances.

B. Based on the statement that "TCS observed an intermittent loss of circuit redundancy," please provide any detailed network level management information and/or process that was used to determine that CenturyLink circuit redundancy failed.

TSYS learned of the loss of connectivity through internal alarms and reports from PSAPs in the State of Washington. More specifically, during the CenturyLink outage, the following types of alarms generated on the TSYS network: **[BEGIN CONFIDENTIAL]** ███████ ████████████████████████ **[END CONFIDENTIAL]** and (c) alarms from TSYS's Signal Transfer Points (STPs) in Seattle and Phoenix.

The **[BEGIN CONFIDENTIAL]** ██████████████████████ ████████████████████████████████ ████████████████████████████████ ████████████████████████████████ ████████████████████████ **[END CONFIDENTIAL]**. Lastly, the STP alarms triggered when TSYS experienced errors or loss of connectivity between its STPs and SS7 signaling provider connected nodes.

C. Given that the actual (rather than potential or virtual) physical networks and circuits were in an 'up state' with only the services and actual call/data using those physical networks and circuits in a 'down state,' what methods and network management information did TCS use to determine a failure of circuit redundancy?

As discussed above, TSYS learned of the Washington Outage, which was a total loss of connectivity that resulted from CenturyLink's outage, through internal alarms and reports from Washington PSAPs. CenturyLink's outage affected enough of TSYS's SS7 links with TNS to cause TSYS not to receive 911 calls.

More specifically, CenturyLink's outage simultaneously affected the following TSYS and TNS SS7 connection: **[BEGIN CONFIDENTIAL]** ▮▮ **[END CONFIDENTIAL]** during the three outage periods.