

**Frontier 4 Northwest States
Operations Support Systems
Stand Up Report**

April 24, 2020

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1.0 Overview

On June 28, 2019, Northwest Fiber, LLC, Frontier and Frontier ILEC Holdings (collectively, "Joint Applicants") filed with the Washington Utilities and Transportation Commission ("Commission") a Joint Application requesting that the Commission approve the transaction involving the transfer of control of Frontier Communications Northwest, Inc. ("Frontier NW") from Frontier ILEC Holdings to Northwest Fiber ("Application"). On February 19, 2020, the Commission issued its approval of the Application and incorporated in its order the Joint Applicants settlement, which required Frontier to complete system testing and issue a report to the Commission validating that the operational support systems (OSS) are operational in accordance with the terms of the parties' purchase agreement at least five days prior to closing. The systems have been replicated and Frontier began utilizing them for operating the business in the four Northwest States, including Washington, on February 1, 2020. Frontier and more than 950 employees working in the four Northwest States, have been testing, monitoring and effectively utilizing the OSS for more than 60 days to perform business as usual functions and provide service to its customers. Frontier has tested and confirmed the successful stand up and operation of the OSS for more than 60 days and the Parties plan to close the transaction on April 30, 2020.

2.0 OSS Settlement Commitment

With respect to validating the successful stand up of its operations support systems, Frontier and Northwest Fiber agreed to the following:

- a. Frontier must replicate the existing Frontier operations support systems, both retail and wholesale, and use these replicated systems for up to sixty (60) days prior to the close date of this transaction.
- b. Prior to going into production mode on the replicated systems, Frontier must share with Commission Staff and Public Counsel: (i) the "Program Test Strategy" Plan to be used to review the replicated systems and (ii) results of pre-production functionality tests on the customer-affecting systems that serve retail telecommunications customers showing that any severity level 1 failures (defined as full service denials) have been resolved, along with validation by a third party reviewer that the results are accurate.
- c. A third-party reviewer of Washington results will be selected by Frontier and Northwest Fiber, LLC.
- d. Northwest Fiber, LLC will not close the transaction unless and until it has validated that the operational support systems ("OSS") are fully functioning and operational. Frontier must complete system testing and issue a report to the Commission validating that the OSS are operational in accordance with the terms of the purchase agreement at least five days prior to close. Frontier must provide retail service quality reports to Commission Staff at least five days prior to close on the following metrics:
 - i. Installation Commitments - Percent of Commitments Met;
 - ii. Network Trouble -Troubles per 100 Access Lines; and

iii. Repair - Percent of Out-of-Service Trouble Cleared in 48 Hours.

The reports must show that by the end of the production mode, there has been no material (i.e., of substantial import) degradation from benchmark quality of service data from twelve months prior to production mode on the replicated systems (using standard reporting procedures, including taking into account exogenous factors, such as weather or other natural disasters). Northwest Fiber, LLC will consider this data in the review that it performs to validate and confirm that the replicated systems are fully operational prior to closing.

Contemporaneous with the filing of this Operations Support Systems Report, Frontier is also filing the required retail service quality reports referenced in subpart (d) above, which confirm systems replication was successful as there has been no material degradation from benchmark quality of service data compared to the period twelve months prior to production mode on the replicated systems.

3.0 Preparation for OSS Replication and Stand Up

Over a period of nearly 9 months, Frontier undertook steps to ensure the successful replication and use of OSS. Specifically, beginning in June 2019, Frontier's IT and network teams dedicated dozens of employees and additional contractors ("System Replication Team") to separating the in-scope systems to be utilized to operate the business in the 4 states. Substantial planning and implementation work occurred beginning in June 2019 and continued through late 2019. Throughout this period, Frontier provided regular and detailed updates regarding the status of the system separation and stand up to Northwest Fiber.

Beginning in October 2019, the System Replication Team began to plan, in detail, the replication activities it would undertake including identifying systems needed replication, coordinating with subject matter expertise in IT, Network, Engineering, Customer Care, Field Operations, Dispatch Carrier, Commercial, Remittance Processing and other key functions to capture all aspects of required functionality, constituting a Test Team and test plan and otherwise preparing for and practicing the system replication through mock system stand ups.

By early December 2019, Frontier began providing NWF with weekly updates on the status of the system stand up and has continued to provide those weekly reports summarizing the status of the system stand up and the resolution of identified issues. In addition, Frontier and NWF identified specific system testing criteria (as reflected in the Program Test Strategy previously provided to the Commission) as well as certain Key Performance Indicators ("KPIs") that would report the levels of operation across a variety of business units once the business was being operated utilizing the replicated systems. These KPIs were measured prior to system stand up and compared to performance utilizing the replicated system, which began on February 1, 2020. These KPIs, along with other criteria or measures enabled both Frontier and Northwest Fiber to further evaluate the operations of the business on the separated systems consistent with the measures that Frontier utilizes to operate its business.

In addition to the Test Team, Frontier authorized and facilitated the embedding of approximately 30 Northwest Fiber employees and representatives into the Frontier business as part of the overall business transition project team process. Frontier also has undertaken extensive training of more than 100 Northwest Fiber employees on all aspects of the business including the operation and use of the separated systems.

On January 29, 2020, Frontier provided the Commission with the Program Test Strategy documentation which reflected the approximately 9 months of work planning and preparing for system separation and replication and provided the detailed plan Frontier used to validate that the OSS that support the 4 Northwest States had been successfully replicated. Successful execution of this plan was confirmed by an independent third party PA Consulting Group that reviewed the results of the OSS stand up and testing prior to Frontier going into production mode utilizing the separated systems. On January 29, 2020, Frontier provided to Commission staff the PA Consulting Group's Third Party Validation report, which confirmed that the functional testing of the system separation conducted by Frontier was comprehensive and any significant preproduction system stand up defects had been resolved.

Further, since February 1, 2020 when the system separation and stand up was completed, Frontier and the embedded Northwest Fiber employees have tested, monitored and utilized the replicated OSS to operate the business in the four states. Frontier has provided Northwest Fiber with the KPI and other data agreed upon by the parties, including hundreds of data points demonstrating operation of the separated systems. The data show that Frontier has been able to run the 4 Northwest States using the separated systems without any material deficiencies or interruptions. Included below in Section 6.0, are OSS-related KPIs reflecting successful systems replication and operation. The data show, among other things, that Frontier has been able to use the separated systems to: take, process and install customer service orders; respond to customer trouble tickets; dispatch employees and contractors; monitor the network performance and identify outages; bill customers for service and accept and track customer remittances. In addition, CLEC testing was completed in March, and no CLEC has identified or raised any issues indicating that the separated wholesale operations support systems are not operating as expected.

4.0 System Test Strategy

4.1 Overview

Frontier created a dedicated project team staffed with subject matter expert resources from IT, Network, Engineering, Customer Care, Field Operations, Dispatch, Carrier, Commercial, Remittance Processing and other key functions to complete testing and validation of the system stand up ("Test Team"). The Test Team has been undertaking testing activities since October 1, 2019. In addition to the Test Team, subject matter experts from the above groups have been actively engaged in UAT since the date of system stand up, February 1, 2020. The Test Team validated the successful stand-up of the OSS—IT Infrastructure, Applications, and Software—required to support the 4 Northwest States. The Test Team undertook the following:

- System Testing - The System Test is the process of evaluating overall operational stability of the applications and system, as well as when changes are made, and data migrations are executed. The team successfully validated the identified OSS functions, identified defects, and managed defect resolution.
- Data Migration Testing - The Data Migration Testing process confirmed that the data migrated according to expectations based on the operation of the business. Tested data included, for example, customer counts, accounts receivable amounts, aging buckets, and notes history data. The team reviewed and concluded that the data utilized by the business in the 4 Northwest States had been successfully migrated.
- End-To-End Testing - End to End Testing is the process of executing the entire business process (i.e. from order to installation) through multiple applications to validate that the business process/flow is behaving as expected. The team verified system dependencies and that data integrity was maintained in systems and processes and has confirmed that business process/flow operated consistently before and after the system separation and replication.
- Bill Comparison - The Test Team compared Frontier invoices for the 4 Northwest States to evaluate completeness and accuracy. The team successfully compared invoices for the Retail billing data in the pre-split and post-split environments and confirmed invoice integrity.

In addition, the Test Team undertook additional Quality Assurance actions to test and assess the quality of the loaded data and the functionality of systems and validated that the OSS had been effectively replicated and was available to provide consistent functionality following the replication. Moreover, UAT and KPIs associated with the operation of the 4 Northwest States further confirms the successful replication of OSS.

4.2 Test Plan Detail

Frontier's test plan included the following major areas:

- Business Support Systems (BSS) / Order Entry
- Pega Customer Relationship Management
- Digital Services
- Operations Support Systems (OSS) / Service Fulfillment
- Retail Billing and Wholesale Billing
- ERP
- Other (Corporate Systems) – Frontier.com and related

Frontier utilized test environments for stand-up validation in order to confirm successful system replication. In addition, the Test Team performed regression testing on IT applications and confirmed critical user functions worked properly.

4.3 Data Migration

The Test Team performed Data Migration testing to validate that the 4 Northwest States data was migrated successfully. This included performing data migration activities to provide Control Reporting metrics as well as checking database and application levels to validate data migrated successfully and users were able to perform business functions for the 4 Northwest States in the replicated systems. The Test Team also cross-referenced Frontier database and application levels to validate that the 4 Northwest States data migrated successfully. All testing confirmed that necessary and required data was migrated as intended and could be accessed and utilized to service customers via the replicated systems.

4.4 End to End

The Test Team validated that all major business processes from ordering → provisioning → billing could be successfully completed in the 4 Northwest States replicated systems. Further, these systems have been used since February 1, 2020 to service customers in the 4 Northwest States, which further demonstrates their successful replication.

The Test Team also confirmed continuity for comparable wholesale customer servicing processes accessed by CLEC's using the Virtual Front Office (VFO) graphical user interface (including those for entering and editing ASRs/LSRs and Trouble Tickets) through testing of the interface, carrier customer information, email notifications, scheduling and assigned due dates, among other things.

4.5 Bill Comparison

The Test Team reviewed Comparative Rating & Billing Reports for Retail Billing and Wholesale Billing to demonstrate that 4 Northwest States revenue was as expected following replication. The Test Team sampled bills and did other validation checks to ensure accuracy and completeness of system replication.

5.0 Operations Support Systems (OSS) Utilization

As noted above, in addition to the discrete systems testing the Test Team has undertaken both pre- and post- system replication, Frontier is currently servicing customers—and has been since February 1, 2020—utilizing the replicated OSS. Specifically, over 950 Frontier employees who are transitioning to Northwest Fiber on April 30, 2020 and the additional embedded Northwest Fiber employees and contractors are currently using the OSS applications to operate the business in the 4 Northwest States. Additionally, employees who will remain with Frontier are also using the replicated systems and applications to provide transition support in the 4 Northwest States. These employees and activities include:

- Customer care representatives using the Customer Relationship Management, Order Entry, and Billing applications; and
- Field Operations teams using the Assignment, Dispatch and Plant Inventory applications.
- Technical Service Operations using the Service Fulfillment, Trouble Shooting, and Trouble Management applications; and
- Engineering teams using the Network Inventory, Network Management applications.

These business teams continue to use daily metrics to manage operations in the 4 Northwest States in a manner consistent with their processes prior to the separation and replication of the applications and systems.

6.0 Key Performance Indicators

The following operational metrics—Key Performance Indicators or KPIs—demonstrate that the replicated operational support systems for the 4 Northwest States are being utilized to provide comparable levels of service and functionality to the service Frontier provided prior to the split out and replication of the OSS for the four Northwest States. The systems are fully functioning and operational following completion of Frontier’s system testing. Further, these KPIs as well as key retail service quality metrics that are being filed contemporaneous with this report, show that following system replications by the end of the production mode, there has been no material degradation from the service levels prior to production mode on the replicated systems.

KPI Description	Pre-Cut Benchmark			Post-Cut Actuals		FTR Comments
	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	
Service Order (SO) Completed	5,602	7,289	4,953	4,111	6,031	Volumes are consistent with pre-stack split and seasonality
Trouble Tickets (TT) Completed (less excl)	8,199	9,570	10,100	7,945	9,077	Volumes are consistent with pre-stack split and seasonality
Tickets Referred	1,700	1,987	2,101	1,668	1,920	Volumes are consistent with pre-stack split and seasonality
Total Dispatches	15,501	18,846	17,154	13,724	17,028	Volumes are consistent with pre-stack split and seasonality
Combined SO and TT % Appt Met	88.7%	84.9%	82.4%	88.2%	90.0%	Volumes are consistent with pre-stack split and seasonality
Consumer Order fallout corrected by first bill cycle (%)	97%	98%	99%	99%	99%	Demonstrates timely follow up
Commercial - ASR Processed within 24 hours of receipt	97%	98%	87%	94%	92%	Demonstrates timely processing of orders
Commercial - ASR Order Flow Thru	61%	60%	72%	60%	70%	Order flows through VFO from the vendor to FTR systems without manual intervention
Commercial - LSR FOC within 24 hours of receipt	90%	98%	98%	94%	96%	Order flows through VFO from the vendor to FTR systems without manual intervention
Consumer - Resi Install Rate	72.7%	73.3%	65.3%	77.7%	75.2%	Demonstrates consistent installation rates
Field Ops and Dispatch	8,320	8,636	6,205	8,953	9,052	Volumes are consistent with pre-stack split and seasonality

KPI Description	Pre-Cut Benchmark			Post-Cut Actuals		FTR Comments
	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	
Payments	322,928	349,591	345,761	323,331	353,313	Consistent volumes processed
Collections	10,265	12,159	11,253	10,034	11,305	Consistent volumes processed
Consumer Inbound Calls Answered	50,076	49,298	67,681	62,318	68,876	Demonstrates call center is taking calls and staffed to handle the volume of call. FTR used estimate of 7.3% of national numbers for Nov and Dec data
Consumer Inbound Sales Calls Answered	5,033	5,382	8,877	7,097	10,424	Demonstrates the TSO is receiving and processing calls. FTR used estimate of 7.3% of national numbers for Nov and Dec data
Consumer Inbound Sales AHT (sec)	548	593	594	617	655	Slightly higher handling time in March due to impacts of COVID-19.

7.0 Conclusion

The Commission’s order approving the planned Frontier and Northwest Fiber transaction required Frontier to complete system testing and issue a report to the Commission validating that the OSS are operational in accordance with the terms of the parties’ purchase agreement. Frontier has completed the required system testing and is submitting this validation report to the Commission to demonstrate that the OSS utilized to provide service to customers in Washington are operational. Frontier and more than 950 employees working in the four Northwest States, have been effectively utilizing the OSS for more than 60 days to perform business as usual functions and provide service to its customers. As the testing and KPIs demonstrate, operational measures of performance in the 4 Northwest States post-replication are consistent with pre-replication levels. The Parties plan to close the transaction on April 30, 2020.