

Emergency Services Network Outage

Presented by: Katie Smoak



PROPRIETARY AND CONFIDENTIAL

AGENDA

- 1 Outage Root Cause Analysis
- 2 Emergency Services Call Impact
- 3 Risk Mitigation Efforts
- 4 Q&A

EMERGENCY SERVICES MATTER

Alaska Communications recognizes the importance of providing a robust and reliable emergency response network. As Alaskans who live and work in our community, we personally and individually value the critical services the Municipality and its emergency responders provide on a daily basis.

OUTAGE ROOT CAUSE ANALYSIS

- December 28 at 12:41pm: Fiber cut in Seattle brings down portions of the Alaska Communications switching network
- Diverse routes should have kicked in to prevent problems from being visible to Alaska Communications' customers
- Equipment failure (previous to fiber cut and unknown to carrier) along diverse routes led to perfect storm of circumstances
- NG911 system experienced no issues throughout the outage, all issues were in the switching network
- Outages like this occur very infrequently in telephone networks

OUTAGE ROOT CAUSE ANALYSIS

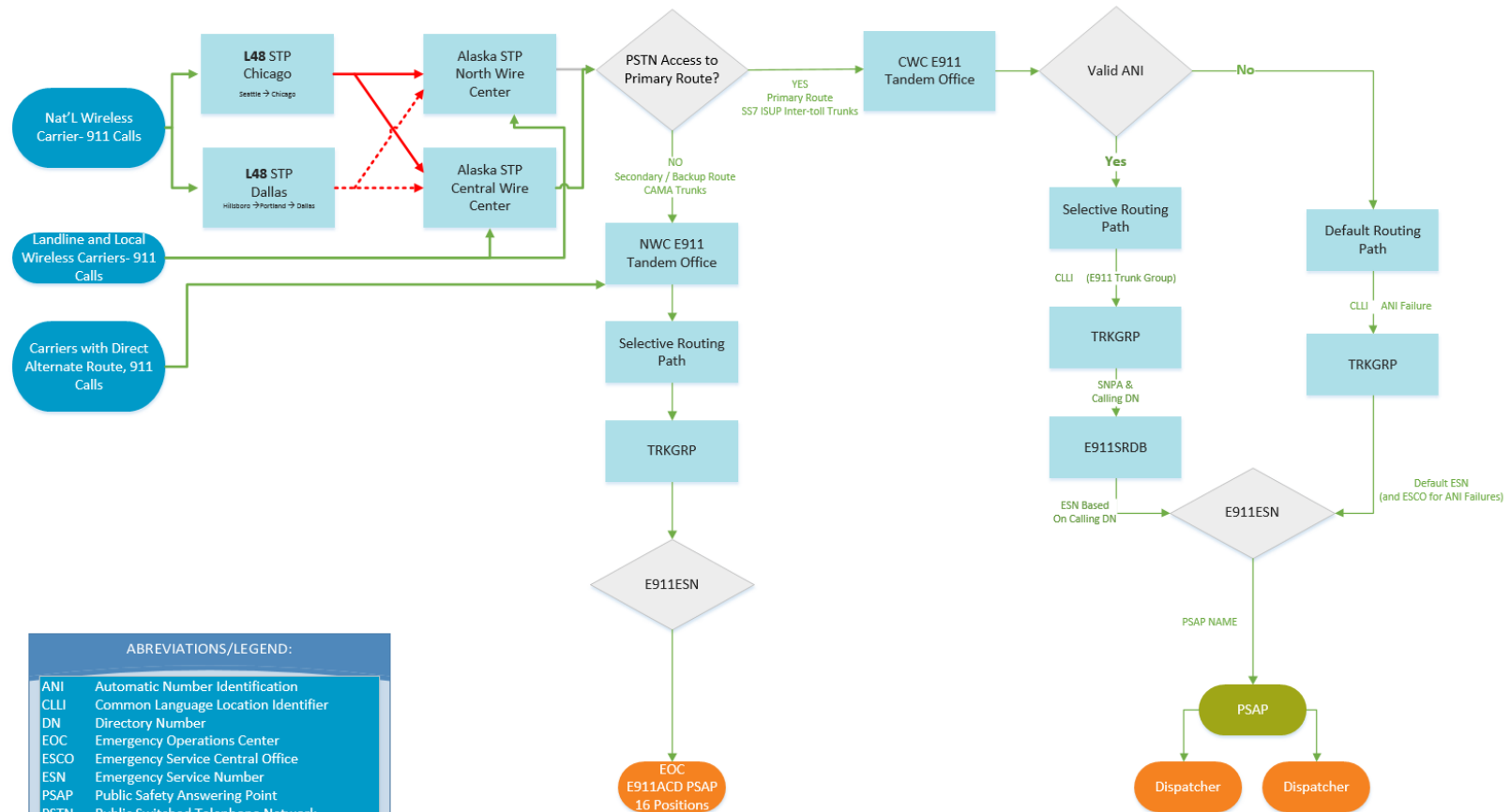
CONTINUED

- Length of outage partially due to confusion on secondary route failure (silent failure)
- December 29 at 7:54am: Restoration of the Alaska Communications switching network completed when traffic was re-routed through alternative paths in the L48
- Re-routing of traffic should have been instantaneous and transparent

EMERGENCY SERVICES CALL IMPACT

SUBSET OF 911 CALLS UNABLE TO COMPLETE

Wireless and Wireline E9-1-1 Logical Call Flow



ABREVIATIONS/LEGEND:

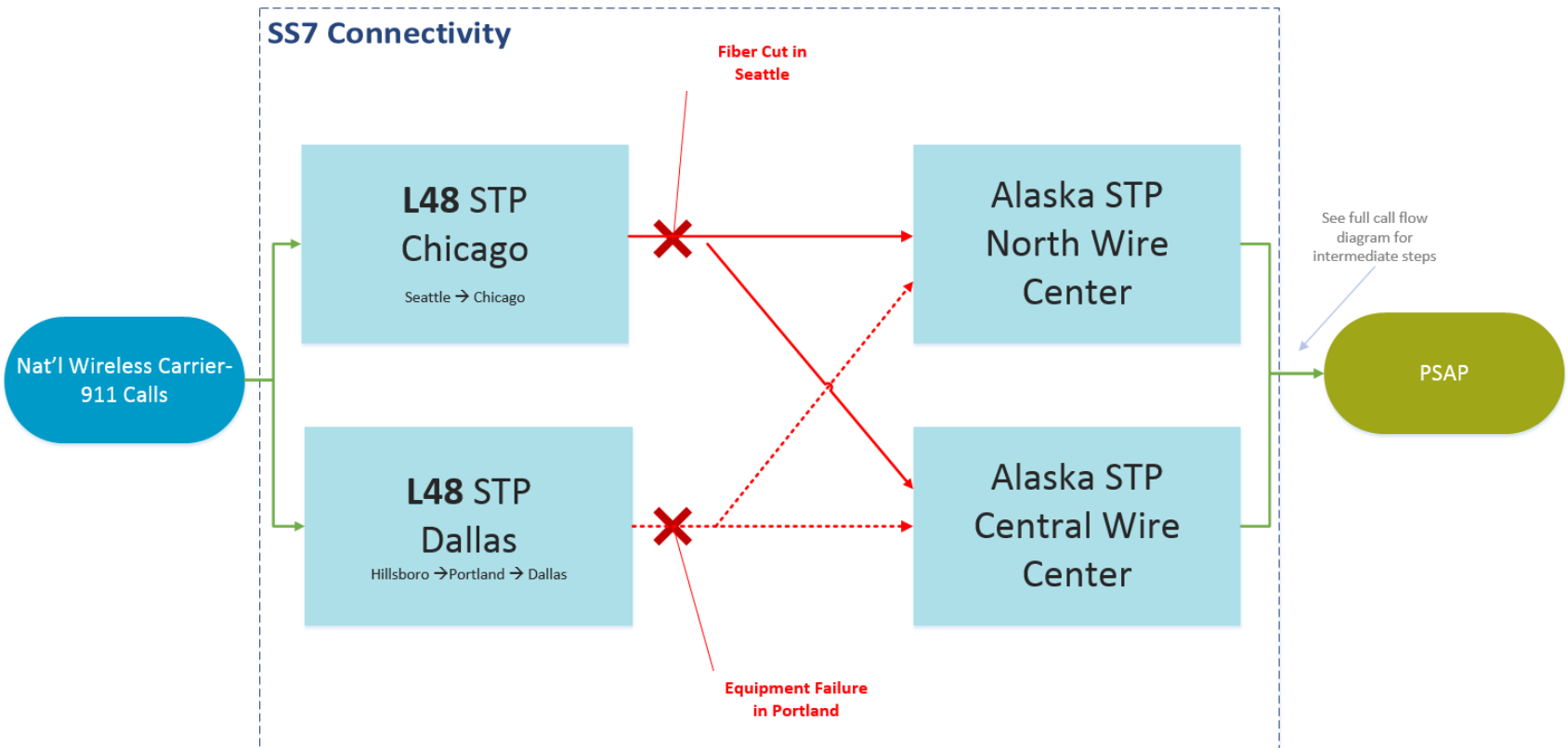
ANI	Automatic Number Identification
CLLI	Common Language Location Identifier
DN	Directory Number
EOC	Emergency Operations Center
ESCO	Emergency Service Central Office
ESN	Emergency Service Number
PSAP	Public Safety Answering Point
PSTN	Public Switched Telephone Network
SNPA	Serving Numbering Plan Area
SRDB	Selective Router Database
STP	Signal Transfer Point
TRKGRP	Trunk Group

PROPRIETARY AND CONFIDENTIAL

EMERGENCY SERVICES CALL IMPACT

SUBSET OF 911 CALLS UNABLE TO COMPLETE

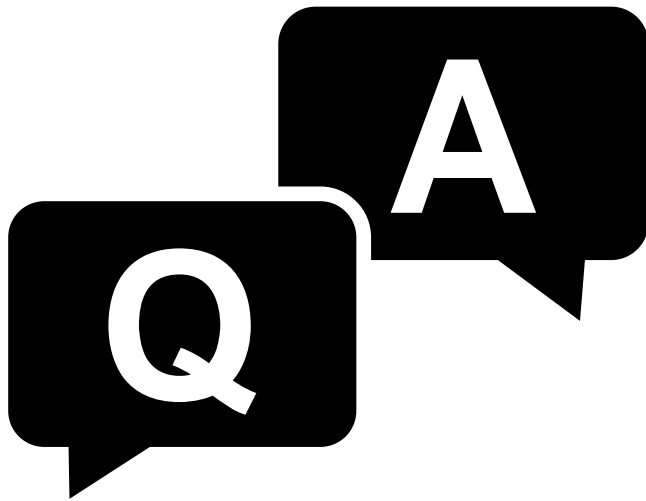
Wireless E9-1-1 Logical Call Flow- Consolidated



RISK MITIGATION EFFORTS

- Diverse route restoration- **Complete**
- Working with Syniverse to:
 - Ensure geographic diversity- **Complete**
 - Ensure network diversity- Scheduling Underway
 - Plan and schedule diverse route failover testing to ensure fix is valid- In Process
 - Coordinate with MOA prior to any testing

THANK YOU!



CONTACT INFORMATION

Katie Smoak

Manager, Network Engineering

907-564-1640

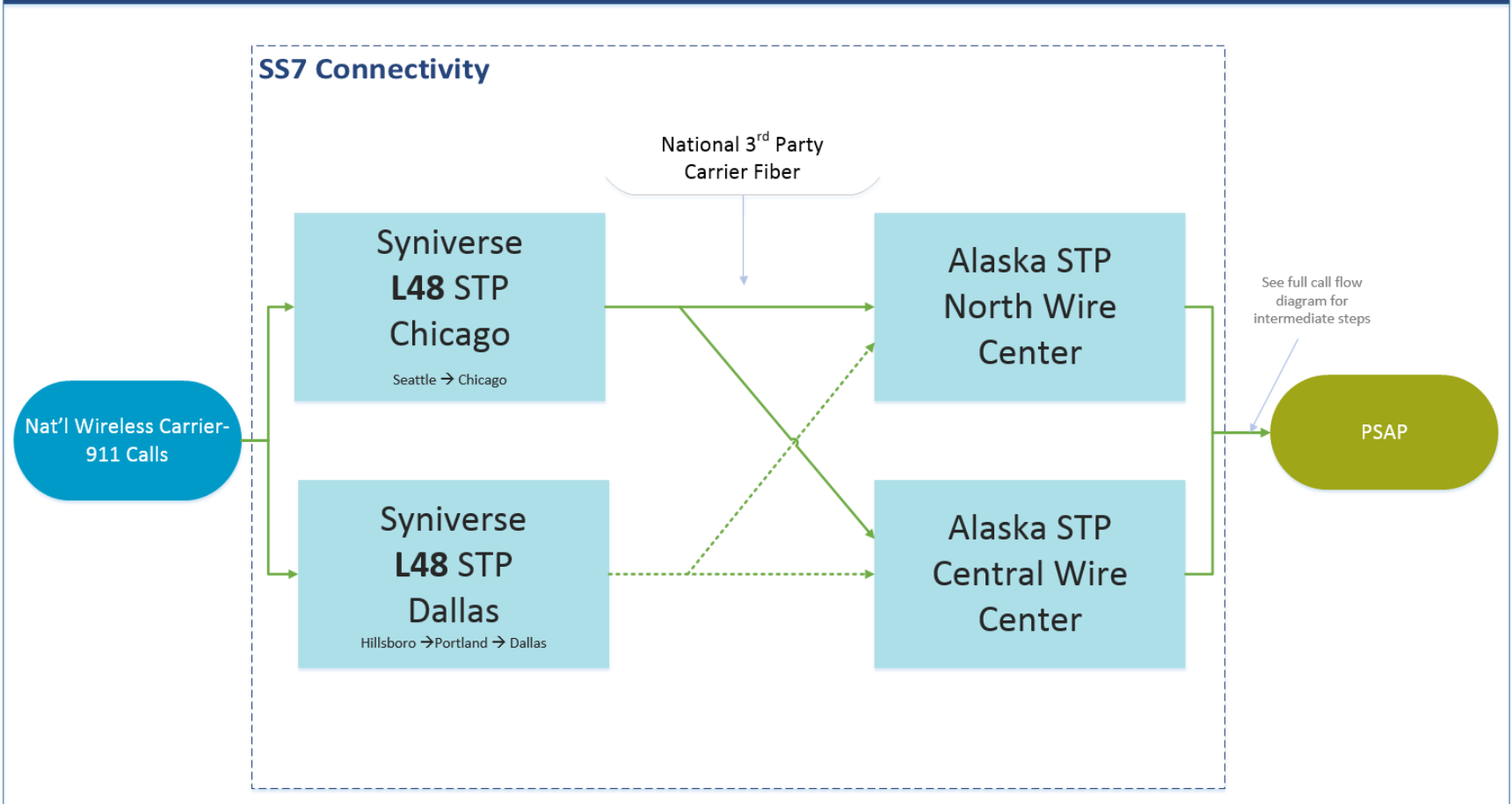
Katie.Smoak@acsalaska.com

To learn more, visit alaskacommunications.com/Business

APPENDIX 1: SS7 SIGNAL CONNECTIVITY FLOW

NORMAL OPERATIONS

SS7 Signal Connectivity Flow- Normal Operations



PROPRIETARY AND CONFIDENTIAL