Oct 2016 – Feb 2017

Comtech CTL Intrado WMD discuss IP v TDM interconnection
[Exs. CDK-1TC(4), BR-18C (3-4), SJH-5C (3-5), Comtech Resp. to Staff DR 3]

Spring 2017

TNS/Comtech deploy 2 SS7 links via existing CTL and 2 SS7 links via Sprint
[JDW-33CT (14)]

Oct 2017 – Jan 2018

TNS/Comtech slowly work to replace 2 Sprint circuits to be discontinued ~ Nov 2017

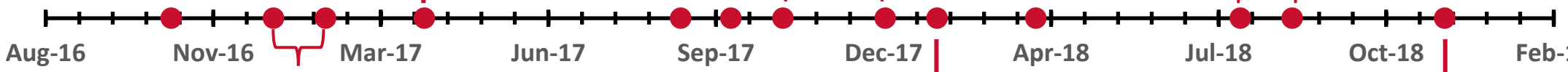
Comtech intends to replace 2 Sprint circuits with AT&T, but opts for CTL circuits due to cost; Comtech did not request diversity from CTL or identify purpose of circuits

TNS notes not a "wise choice at all" for all 4 DS1s from one carrier into Comtech STPs
[Ex. SJH-12C (12-20)]

Aug – Sept 2018

TNS offers Comtech to replace 2 CLC TDM circuits with (SIGTRAN) IPX Connectivity

Comtech recognizes that current design flawed, but rejects IPX due to cost (termination charges)
[Ex. SJH-12C (8-10)]



Jan – Feb 2017

Intrado/CTL propose SIP (ATIS standard) interconnection

Comtech rejects ATIS IP, recommends "using standard ISUP/TDM" interconnection, with basic SIP as second choice
[Ex. SJH-5C (3-5)]

Sep 2017

Comtech becomes aware Sprint discontinuing service; asks TNS to help replace "half of the SS7 connectivity for 911 traffic in WA

Contech acknowledges urgency
[Exs. JDW-34C (2-3)]

Feb 2018

Red Infinera network outage – no effect on 911 services

Root cause analysis reveals software v.16.2 allowed certain 64 byte packets to enter IGCC

Infinera scrubs all its Lumen networks and recommends IGCC closed on Red and Orange, but not Green (still on v.15.3.3, and thus effectively locked)
[Ex. JDW-5C]

Dec 2018

Green Infinera network outage (4 packets malformed, combined to be larger than 64 bytes and retained their header information, enter IGCC, leading to packet storm)

CTL-served PSAPs unaffected. Comtech-served PSAPs impaired; all 4 SS7 links on Green network (unknown to CTL)
[Exs. SJH-1TC (31-36), SJH-11C, CDK-3-4, SET-1TC (24-38), MDV-1TC (10-20), TJM-1C (8-10), JDW-4, 14C, 27C-30C]