

## **DRAFT BCN Service Analysis for August 2007**

The BCN Advisory Committee asked for a report on Norlight performance since the acquisition by KDL. There has been no change in performance and the NMC performs at a very high level of proficiency. Issues do arise and then we review them and implement an action plan to fix them. The following information is provided to substantiate this position as well as give you some idea of the magnitude of work done on the BCN network on a monthly basis.

The network is about to reach its first anniversary, we are still getting use to it and we continually assess it for planning and operational purposes.

The network is so large and there are so many different things happening and people involved on a daily basis we are getting a sense now about what is normal and what is not. For example we process an average of 30 orders a month adding, changing and removing sites. The number of sites is increasing slowly but we have more growth than with the legacy network.

Primary differences between BCN and the legacy networks are:

- Completely different technology platform
- Vendor manages the network and provides services
- Data and Video converge on one network
- The network is considerably larger than the legacy network
- We record all activity by site or case every day
- There are thousands of devices monitored vs. hundreds
- There is substantially more data and records to review every month

The purpose of this analysis is to look at the big picture concerning all activity on the BCN Network for a month.

- We wanted to look at every event, this includes:
  - Scheduled maintenance activity
  - Power outages
  - Cable/fiber cuts
  - Trouble cases
  - Customer caused outages
  - Unscheduled emergency maintenance
  - Miscellaneous
- Each event requires work and a record is generated and kept
- Events that are SLA eligible are reviewed on an individual basis
- Not every event is associated with SLAs such as a commercial power outage

August, 2007 was not a normal weather month so this analysis has even more value:

- The State experienced one week of continual thunderstorm activity. The intensity and duration of the storms resulted in several Wisconsin counties being declared Flood Emergency Areas
- The AT&T/WBAA team had to handle normal maintenance
- More cases of trouble than usual
- Work under unusual adversity and pressure

Early September DET conducted a 5 question network survey with state agencies:

- Customers state network performance is meeting expectations

- Repair services are exceeding expectations
- MTTR is just over one hour for the month

The WBAA Network Management Center, NMC, (KDL/Norlight) is a nerve center of this activity:

- Every service order is processed through the NMC
- TEACH users report troubles directly to the NMC
- Agencies contact the DET/ESD who contacts the NMC
- WiscNet contacts the NMC directly to assist their customers
- DET engineers may be involved in the trouble resolution process
- 50% or more of recorded events concerning a problem are proactively opened by the NMC
- Services are monitored 24X7X365 by a human being

To prepare the data to analyze the performance all the information was obtained from the BCN Web Portal:

- This portal also allows the user as well as DET to track the status of the trouble
- All notes are posted regularly by the technicians and engineers
- Records are permanently kept and can not be changed
- This includes trouble tickets and service orders
- This portal was developed by Norlight with AT&T and is located in the NMC

**316 August tickets were analyzed for 236 separate sites.**

- Some sites have multiple customers

There were 12 events that accounted for the 316 Tickets (Table 1).

- Power Outages and Fiber Cuts accounted for 45% of the total outages
- These are events we typically have no control to prevent
- It is important to understand the extent of power outages and cuts
- Only one cable cut in 2007 was attributed to a bad locate

**Table 1: Outage Tickets by Close Code (Ticket is opened for each site)**

Close Code	# of Tickets	% of Total Tickets	Comments
Power Outage	100	31.6%	
Fiber Cut	46	14.6%	All tickets were associated with one CenturyTel cut.
WBAA Transport	46	14.6%	33 tickets were from Wittenberg ML1000 card issue.
Other Network Components	32	10.1%	31 tickets were from Wittenberg ML1000 card issue
Scheduled Maintenance	36	11.4%	25 from CenturyTel Black River Falls event
WBAA Outside Cable/Fiber	25	7.9%	Actual trouble cases from mice damage to bad fiber
Came Clear	16	5.1%	Cause undeterminable
CPE Customer	6	1.9%	Customer caused problem
CE Device	4	1.3%	Telco equipment (demarc)
Smart Jack/SNI	3	0.9%	Telco equipment (demarc)
Extended Demarc	1	0.3%	Telco equipment (demarc)
Configuration error	1	0.3%	Fat finger programming
Total	316	100%	

When we remove:

- Power Outage
- Fiber Cuts
- Came Clear and CPE Customer caused troubles

**The total number of outages is 139 tickets (Table 2).**

96 of the 139 Network outages were due to three events:

- Ticket 7202:
  - 33 tickets associated with Wittenberg CO 4 minute outage closed as storm related.
- Ticket 7236:
  - 31 tickets associated with Wittenberg CO 19 minute outage closed when ML1000 card replaced.
- Ticket 7257:
  - 23 sites associated with unannounced planned maintenance. This is a situation where the vendor thought the maintenance that would be performed would not impact service but something went wrong and it did. We used this case to tighten up the maintenance notification process.

**Table 2: WBAA Network Related Outage Tickets**

<b>Close Code</b>	<b># of Tickets</b>	<b>% of Tickets</b>
WBAA Transport	46	33.1%
Other Network Components	32	23.0%
Scheduled Maintenance	27	19.4%
WBAA Outside Cable/Fiber	25	18.0%
CE Device	4	2.9%
SmartJack /SNI	3	2.2%
Extended Demarc	1	0.7%
Configuration Error	1	0.7%
Total	139	100%

Table 3 shows the duration for the WBAA-Related Outage Tickets:

- Only 10 sites exceed the MTTR of 8 hours
- 87.8% of all tickets fall in the 4 hour repair window for Managed Video, WAN and Internet Transport

**Table 3: WBAA Network Duration Report On Outage Tickets**

<b>Time Frame</b>	<b># of Tickets</b>	<b>% of Tickets</b>
Less than 1 hour	76	54.7%
1-4 hours	43	30.9%
4-8 hours	10	7.2%
8-20 hours	7	5.0%
20+ hours	2	1.4%
Unknown	1	

*All tickets rounded off to the closest minute.*

Table 4 shows the duration for the Non-WBAA Related Outage Tickets. This includes fiber and cable cuts, power outages. No sites exceed the MTTR of 8 hours. 96% of all tickets fall in the 4 hour repair window for Managed Video, WAN and Internet Transport.

**Table 4: Non-WBAA Related Duration Report On Outage Tickets**

<b>Time Frame</b>	<b># of Tickets</b>	<b>% of Tickets</b>
Less than 1 hour	97	54.8%
1-2 hours	57	32.2%
2-4 hours	16	9.0%
4-8 hours	4	2.3%
Undetermined	3	1.7%

*All tickets rounded off to the closest minute.*