LigoWave

LigoDLB 5GHz & 6GHz

CASE STUDY

Russia

Context

A WISP in Russia had a 5GHz PTMP network running as a last-mile solution. The network used 802.11n-based 1× LigoDLB 5 access point with an external sector antenna and 28× LigoDLB 5-15 and 5-20 CPE. It provided internet access to 28 clients in a remote village. The average distance between the access point and the CPE was around 2km.

Problem

The 5GHz band became very noisy over the years. A solution to this was necessary in order to avoid poor link quality and slow internet speeds. Besides that, more network capacity was needed because of the WISP's growing client base.

Solution

The solution was to migrate the entire network to the 6Hz band. All devices were set to operate on the less-crowded 6.090GHz frequency over a 20MHz channel width.

The wireless network was also modified for better performance: the 802.11n-based LigoDLB 5 access point was replaced by LigoDLB 6-90ac with 11ac support and 7× LigoDLB 6-15ac CPE were added to the network.

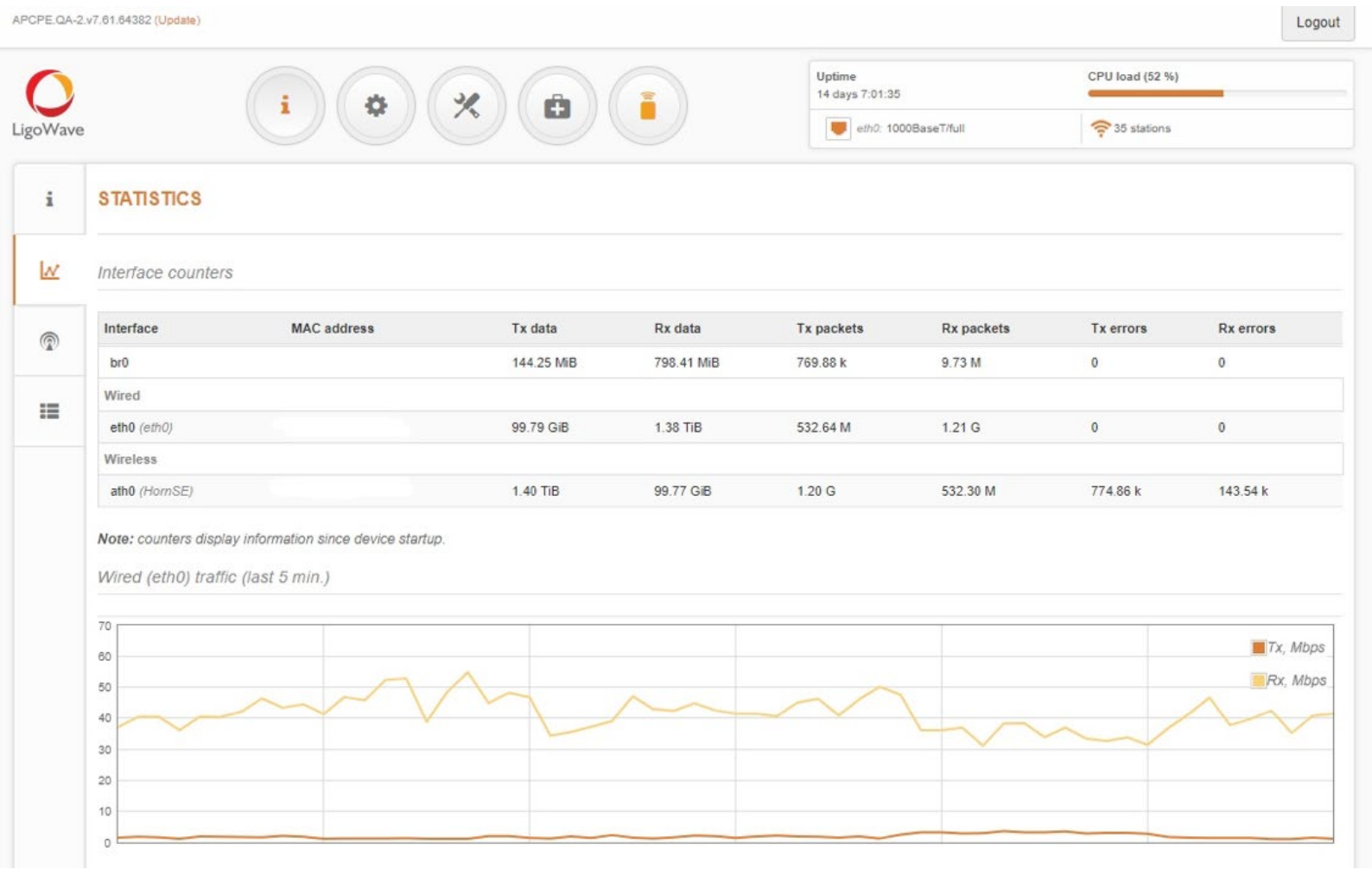
The network owner did not replace the LigoDLB CPE as all LigoWave 5GHz devices can work over frequencies up to 6.1GHz.

A map of LigoDLB 6-90ac AP and 7× 6-15ac CPE links.

Results

Since new and improved devices were added to the network, traffic over the access point increased from an average of 35Mbps to 50–60Mbps. The new access point supported 802.11ac and higher CPE counts, allowing the network to expand from 28 to 35 stations. Moreover, the 256-QAM support and improved signal levels allowed for more traffic through the DLB 6-90ac access point.

Aggregate traffic collected from 35 CPE going through the LigoDLB 6-90ac.



Because LigoWave 5GHz and 6GHz device frequency ranges overlap, it is possible to link devices made for different bands. Moreover, the iPoll 3 proprietary protocol makes sure all DLB devices communicate smoothly with each other. This meant that the client did not have to replace the entire infrastructure, saving them time and money.

The noise-free 6GHz band allowed for an average signal level of –56dBm. Devices operated efficiently at maximum modulations (>256-QAM) with up to 173Mbps data rates.

Link signal levels and Tx/Rx data rates.

Info | Counters | Other

s	Local Signal, dBm	Remote Signal, dBm	SNR, dB	Tx/Rx rate, Mbps	Link uptime
12	-57 / -59	-53 / -46	44 / 42	173 / 173	6 hours 18 min. 28 sec.
13	-56 / -58	-57 / -47	45 / 43	173 / 173	6 hours 18 min. 28 sec.
14	-59 / -58	-59 / -51	42 / 43	173 / 173	6 hours 18 min. 28 sec.
15	-51 / -55	-55 / -47	50 / 46	173 / 173	6 hours 18 min. 28 sec.
16	-56 / -57	-57 / -53	45 / 44	173 / 173	6 hours 18 min. 28 sec.
17	-53 / -53	-54 / -46	48 / 48	173 / 173	6 hours 18 min. 28 sec.
20	-73 / -73	-72 / -64	28 / 28	104 / 78	4 hours 11 min. 22 sec.
61	-61 / -61	-51 / -50	40 / 40	144 / 86	6 hours 18 min. 16 sec.
64	-72 / -71	-59 / -56	29 / 30	144 / 57	6 hours 18 min. 16 sec.
65	-54 / -54	-49 / -54	47 / 47	144 / 57	6 hours 18 min. 16 sec.
66	-56 / -54	-45 / -42	45 / 47	144 / 130	6 hours 12 min. 30 sec.
67	-70 / -68	-60 / -57	31 / 33	144 / 43	6 hours 18 min. 16 sec.
68	-70 / -65	-49 / -49	31 / 36	144 / 57	6 hours 18 min. 16 sec.
69	-60 / -59	-47 / -42	41 / 42	144 / 115	6 hours 18 min. 16 sec.
70	-70 / -69	-41 / -36	31 / 32	144 / 57	6 hours 12 min. 30 sec.
72	-67 / -66	-47 / -45	34 / 35	144 / 57	6 hours 12 min. 30 sec.
74	-58 / -56	-42 / -39	43 / 45	144 / 115	6 hours 12 min. 30 sec.
75	-64 / -64	-56 / -54	37 / 37	144 / 86	6 hours 12 min. 30 sec.
77	-68 / -68	-57 / -55	33 / 33	144 / 86	6 hours 12 min. 30 sec.

Considering the low noise levels, optimal signals, and proprietary PTMP technology, the network can be expanded from 35 to 60 CPE per access point. This would allow the WISP to serve more clients at reduced infrastructural and operational costs.

Contact Us

Need a 6GHz wireless network solution for your projects?
Get in touch: sales@ligowave.com

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