CASE STUDY: China Petroleum

Summary

China Petroleum is the largest oil and gas supplier in China and is the fourth – greatest crude producer in the world. Fully and efficiently allocated China's Petroleum resources are the result of constant investment to R&D and a strong focus to QA. By solving China's Petroleum technical challenges in their surveillance infrastructure LigoWave established a partnership with a serious player in oil and gas industry. LigoWave is a reliable partner and offers a strong Carrier – Grade product portfolio with emphasis on durability and reliability.

At the moment, the LigoWave equipment is used to surveil the oil extraction process on the middle - sized oil platforms' field of China Petroleum. The 1080P videos are streamed from the cameras to the center where all the data is managed. The cameras are installed directly on the oil field. The main requirement from the client was to ensure a smooth video streaming without any transmission loss or video lag.

The LigoBase 5 – 90 was installed as a base station together with an integrated 17dBi 90 degrees sector antenna. LigoSU 5-20 and LigoSU 5-23 were connected to the LigoBase. Every LigoSU was connected with a 1080P camera through an Ethernet port. The cameras were from Dahua (model: DH-SD-6A9226H-NHI) or Hikvision (model: DS-2DF5120IW). The distance from the LigoBase station to the LigoSUs was 2 – 4 km.

Stats

Firmware version	PTMP.MA-1
Mode	PTMP
Channel width	20 MHz
Devices	LigoBase 5-90 (Base Station Unit with an integrated 17dBi 90º sector antenna)
	LigoSU 5-20 (Subscriber Unit with an integrated 20 dBi directional antenna)
	LigoSU 5-23 (Subscriber Unit with an integrated 23 dBi directional antenna)
SUs distances	3 km
Cameras	Dahua (model: DH-SD-6A9226H-NHI)
	Hikvision (model: DS-2DF5120IW)
Customer service	Surveillance

工作模式: MASTER
最大传输数据速度, Mbps: 173.3 (256-QAM 3/4)
频率, MHz: 5215 (5205-5225)
信道宽度 , MHz: 20

发射功率, dBm: 26
天线增益, dBi: 23
噪声电平, dBm: -95/-95

Link ID: JYZ-TT

					远程站点	本地站点
远程设备	链路状态	发射功率, dBm	发送/接收数据速度, Mbps	噪声电平, dBm	信号强度, dBm	信号强度, dBm
STS3-X535 00:19:3B:09:	在线 21 min. 39 sec.	30	95/115	-95/-95	-68 -70	-62 -63
ST3S-P101 00:19:3B:09:	在线 21 min. 8 sec.	30	78/103	-95/-95	-63 -71	-56 -62
STS3-X506 00:19:3B:09:	在线 21 min. 39 sec.	30	161/173	-95/-95	-54 -56	-50 -52
STS311-X53 00:19:3B:09:	在线 0 min. 28 sec.	30	96/78	-95/-95	-58 -58	-56 -59
STS3-P128 00:19:3B:09:	在线 11 min. 20 sec.	26	71/104	-95/-95	-56 -58	-56 -59
ST3-7-222 00:19:3B:09:	在线 13 min. 49 sec.	30	166/104	-95/-95	-53 -51	-51 -51
STS3-X501 00:19:3B:09:	在线 21 min. 39 sec.	30	158/130	-95/-95	-56 -56	-51 -52
STS311X31 00:19:3B:09:	在线 12 min. 51 sec.	30	122/144	-95/-95	-59 -60	-55 -55
STS3-X575 00:19:3B:09:	在线 21 min. 39 sec.	30	116/130	-95/-95	-61 -63	-56 -57
STS3-X532 00:19:3B:09:	在线 14 min. 32 sec.	30	24/30	-95/-95	-75 -77	-67 -69
STS3-X548 00:19:3B:09:	在线 21 min. 39 sec.	26	150/144	-95/-95	-54 -54	-50 -51

*Statistical information of each LigoSU, on the LigoBase user interface*

This image is a screenshot of LigoBase's statistics window, where an administrator can view a real time performance data of each LigoSU connected to a base station. Data is provided in real time and parameters like signal levels, data rate and transmit power can be monitored. At that time the average data rate was 128/112 Mbps.

The signal strength for an individual LigoSU connected to a base station ranged from -51 dBm to -77 dBm. The signal strength is suitable for a reliable video streaming.

The average throughput per camera was 6Mbps, at the peak it jumped to 10Mbps.

The shot from the control center where all the video data was managed
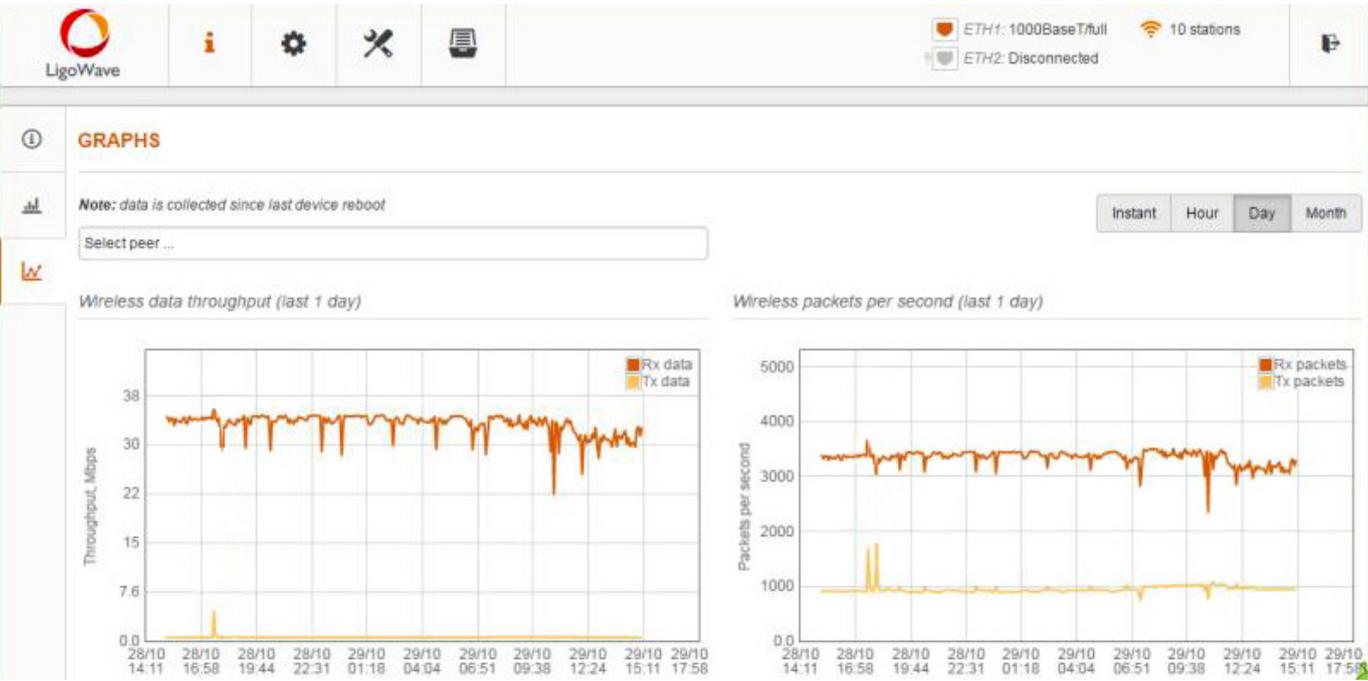
Throughput information on LigoBase GUI

The print screen above shows the throughput graph and the PPS transfer records from LigoBase for a 1 day period. The throughput during a one day period was stable, reaching above 30 Mbps on average of video data. It is a really good result considering the fact that the LigoBase was installed on a tower, which was heavily crowed with other devices. A noisy environment is always a challenge to sustain the stable throughput for video traffic, however the LigoWave proprietary W-Jet V protocol is an ideal solution for that kind of situation, since it is designed to maximize throughput and packets per second while at the same time it helps to minimize latency.

Deployment scenario

Base station

Subscriber unit

Camera