The upgrade of SarawakNet

SarawakNet underwent another round of technology upgrades recently, the third time since its first deployment in 1996.

Since it commenced operation 15 years ago, the numbers of applications and users have increased by leaps and bounds. SarawakNet is currently serving close to 20,000 users using over 150 applications across over 400 LANs, and to upgrade network equipment for the 400 sites is indeed a gargantuan task. The work was carried out mostly during weekends and after office hours to ensure minimum interruption to the network service. The upgrading exercise was finally completed in October 2011.

Mr. Daniel, comes to the office around 7:15 am. He logs onto the Internet as well as into his SarawakNet portal applications before he starts his routine office work. He experiences fast Internet surfing and uninterrupted downloading. Unfortunately, the speed of his Internet begins to degrade when peak hour traffic kicks in. Eventually, he is helplessly trapped in the spiraling vortex of the "World Wide Wait". The Internet pipe has been choked up and nothing can be done about it until bandwidth is increased. The lack of IT Budget in the past few years has resulted in a protracted Internet performance issue that has generated immense outcry from the affected Agencies.

Cik Shamina, an officer at the Sub District level, had no problem accessing SarawakNet e-Gov applications in 2007. However, by 2009 she found that the applications were getting slower and slower. The cause was the congested satellite link connecting her office to the Data Centre in Kuching. In the past she had had the whole link to herself. However, as time went on, more users were added to it and she was forced to compete for bandwidth. e-Gov applications are becoming richer and accessing these applications over a lean pipe can be a painful experience.

Encik Hafiz had no problem accessing e-Gov applications. However, as years went by, his office operation requirements and processes changed and so did his ICT requirements. He needed a secured and dedicated intranet environment, and he also required secured remote access outside of his office. When work needs to be done, it has to be done regardless of where you are; that is his motto.

Finally, in 2010, the State Government reviewed the state network infrastructure requirements with the aim of better supporting and serving the ever resource hungry and demanding applications as well as the users of the Agencies who are in need of more network resources. A major revamp in SarawakNet technology and bandwidth capacity began in the second half of 2010. The new SarawakNet infrastructure has the following capabilities and services to meet the operation requirements and processes of the government agencies:

Network Segmentation

- Allows an Agency to share data/information which will be strictly confined within the Agency's Intranet.
- Provides different classes of service offers and controls over the performance of multiple applications.
- Confines network traffic within an Agency to prevent it from affecting other Agencies.

Network Security and Management

- Detects any suspicious activity within the Data Centre network and proactively applies security policy rules, triggers alarms and solutions to counteract the problem.
- Performs self-defence and reduces the window of vulnerability so as to minimize the impact of attacks and improve overall infrastructure availability and reliability.
- Provides data encryption for remote users accessing data outside of the office.

Data Centre LAN

- Provides network segregation based on a customer's requirements such as secured, unsecured, trusted and distrusted server hosting environment.
- Provides network traffic management and control capabilities. Any traffic that is generated within a segment will be strictly confined within that segment to prevent it from affecting the entire LAN.

Apart from the technology upgrade, the network has been majorly revamped to increase the bandwidth of the links.

No	Description	Previous Bandwidth Capacity	Current Bandwidth Capacity
1.	**Trunk Links for Divisions** • Kuching to Sibu • Kuching to Miri • Miri to Sibu • Miri to Bintulu • Kuching to Samarahan • Kuching to Sri Aman • Sibu to Sarikei	6 Mbps	20 Mbps
2	**Trunk Links for Divisions** • Miri to Limbang • Sibu to Kapit	1 Mbps	20 Mbps
3	**Trunk Links for Divisions** • Sibu to Mukah • Sri Aman to Betong	2 Mbps	20 Mbps
4	**New Trunk Link for Divisions** • Sibu to Bintulu	Nil	20 Mbps
5	**Trunk Links for Districts** • Kuching to Bau • Kuching to Lundu • Samarahan to Serian • Sibu to Kanowit • Sibu to Julau • Sarikei to Saratok • Bintulu to Tatau • Sarikei to Meradong	2 Mbps	10 Mbps
6	**Trunk Links for Districts** • Mukah to Dalat • Sarikei to Daro • Miri to Marudi • Limbang to Lawas	32kbps/64kbps	10 Mbps
7	**Last Mile for Divisions**	64kbps, 128kbps, 512kbps, 2 Mbps	2, 4 Mbps - 10Mbps
8	**Last Mile for Districts**	64 kbps, 128kbps"	2 Mbps
9	**VSAT Links for Districts and sub Districts**	32 kbps/64 kbps 32 kbps/64 kbps 32 kbps/64 kbps	128kbps/256kbps 256kbps/512kbps 1 Mbps/2 Mbps
10	**Internet Gateway**	8 Mbps	45 Mbps