Study Committee D2

Information Systems and Telecommunication

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LEVERAGING SD-WAN FOR IMPROVING AVAILABILITY OF EGAT'S COMMUNICATION NETWORK

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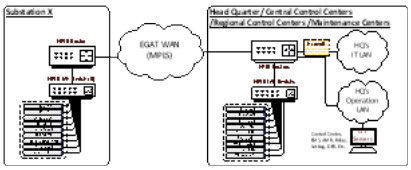
Motivation

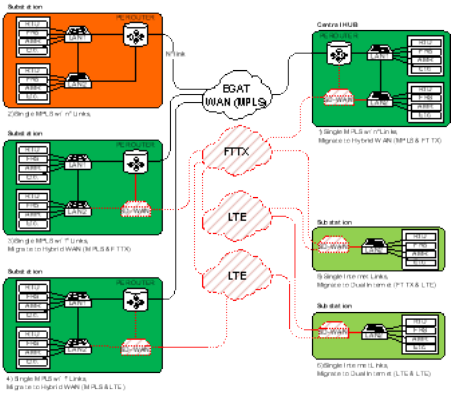
- **Extend coverage** to a station is not accessible with OPGW and EGAT's communication network: a construction site, mobility vehicle, etc.
- **Increase reliability & availability** to stations with one-channel EGAT's communication network by providing backup path to them.
- **Benefit of SD-WAN**: simplified operation, robust cybersecurity, link remediation

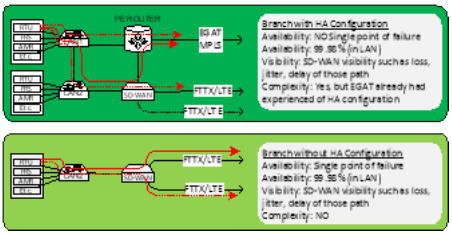
SD-WAN Pilot Project & Deployment

- **Existing Data Communication of EGAT**



- 17 substations with various types of branch deployment



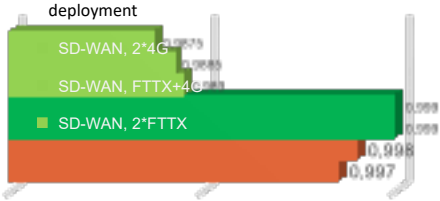


Findings

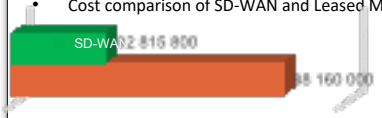
- Deployment process: comparison of MPLS VPN and SD-WAN

SD-WAN	SD-WAN	SD-WAN & MPLS:
• power-on & ZTP	• Automatically	• Manually configure VRRP
• MPLS: power-on	• MPLS: Manually	

- the network availability for each type of branch deployment



- Cost comparison of SD-WAN and Leased MPLS



SD-WAN Solution	Leased MPLS Solution
17 Sites	17 Sites
24 month	24 month
SD-WAN appliance (/w controller system) /w FTTX Internet link (100 Mbps) & 4G LTE link (10 Mbps) 6,900 baht per month per site	MPLS Ethernet (20 Mbps) 20,000 baht per month per site
Total cost (baht) = 17 x 6,900 x 24 = 2,815,200 baht	Total cost (baht) = 17 x 20,000 x 24 = 8,160,000 baht

Conclusion

SD-WAN enhance robustness of EGAT WAN

- Merging several communication technologies
- Directing traffic down a preferred path
- Integrating security
- Centralized network visibility
- Remote management

SD-WAN as a secondary path

- Cost-effective way for 2nd path.

MPLS as a primary path

- The Critical applications, that is very sensitive to packet loss and latency, required the link quality and reliability.

Integration of SD-WAN & MPLS

- Configuration and verification of complex routing and High Availability (HA): time-consuming at first

Fine-tune setting of SLAs

- The quality of each link in each location have to be surveyed for figuring out the appropriated value of the performance SLA threshold
- The characteristics and quality of the Internet link is depended on each ISP at specific region
- Fine-tune setting of SLAs and other feature: link steering & FEC
- The 4G LTE may be used as first commissioning, and then FTTX link