

WANO Case Studies For Banks

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What Banks are Facing:

Indonesia	Bank Papua	FTP/Portals (banking applications)
	BNI	CBS (core banking system)/VC/Net sharing/Soft-update
	MNC Bank	VSAT link/Bank app/Email/FTP
Malaysia	BSN	Exchange/CIFS/FTP/HTTP/Database
	Kenanga Investment Bank	Large file transmission
	RHB	BTX system
Myanmar	MOB	Large file transmission/Web application/core banking applications (Some internal developed applications and VMs)
	MAB	VSAT link/ Large file transmission
China	CMB	National Disaster Recovery Specifications of Information System/FTP/DC-DRC

Indonesia

Bank Papua

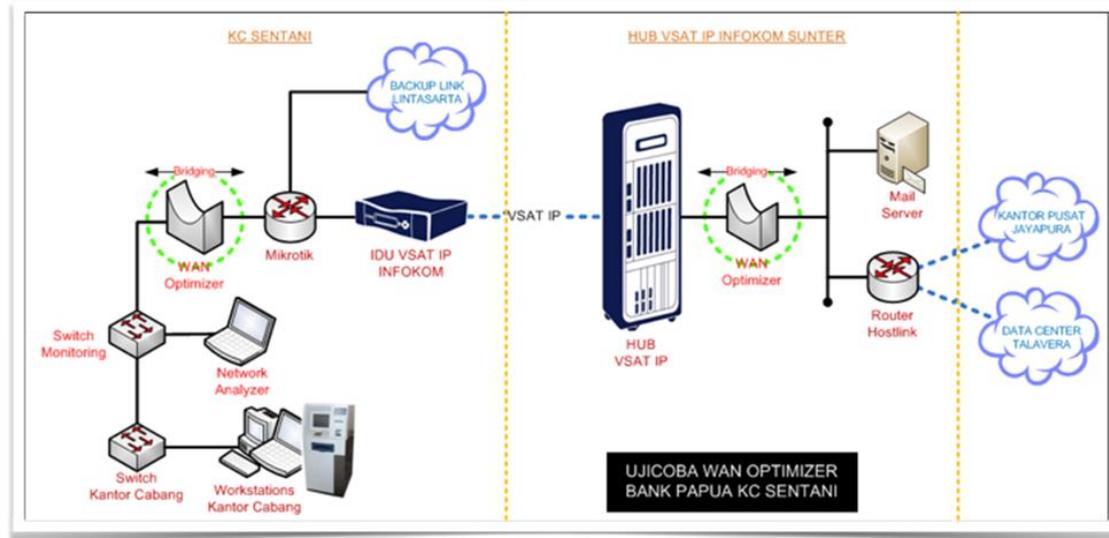


Bank Papua, formerly the Regional Development Bank Irian Jaya/BPD Irian Jaya, was established in 1966.

Challenges:

When using mail, FTP and portals (banking applications) across HQ and branches, customer felt network performance was far from ideal. Bandwidth was limited and VSAT link rental was expensive.

Solution:



1. WANO bridge mode is deployed, big changes in their original network have been avoided.
2. Use byte cache, compression and application proxy technology to reduce traffic between HQ and branches.
3. Use HTP technology to optimize TCP/UDP protocol and enhance the capacity of the bandwidth.
4. Use bandwidth management to guarantee core application traffic.

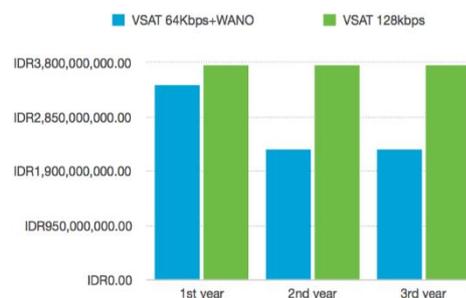
Result:

Redundant traffic is reduced by 75%; 3-year TCO is cut by 40%; speed is promoted obviously.

ROI Result

ROI Result

YEAR	VSAT 64KBPS+WANO	VSAT 128KBPS	ROI PER YEAR	ROI TOTAL
1st year	IDR3,414,264,000.00	IDR3,744,000,000.00	IDR329,736,000.00	IDR329,736,000.00
2nd year	IDR2,278,640,000.00	IDR3,744,000,000.00	IDR1,465,360,000.00	IDR1,795,096,000.00
3rd year	IDR2,278,640,000.00	IDR3,744,000,000.00	IDR1,465,360,000.00	IDR3,260,456,000.00



	Name	LAN Data	WAN Data	Reduced	Reduction Ratio
1	150.150.1.109	953,334 KB	123,287 KB	830,048 KB	87.07%
2	150.150.1.104	462,912 KB	59,962 KB	402,950 KB	87.05%
3	150.150.1.110	403,635 KB	68,753 KB	334,881 KB	82.97%
4	172.17.1.180	203,111 KB	103,523 KB	99,588 KB	49.03%
5	172.24.100.12	228,266 KB	145,137 KB	83,129 KB	36.42%
6	150.150.1.113	65,519 KB	11,241 KB	54,278 KB	82.84%
7	179.17.1.200	50,388 KB	9,428 KB	40,960 KB	81.29%
8	150.150.1.102	76,116 KB	46,216 KB	29,900 KB	39.28%
9	192.168.32.8	37,370 KB	15,117 KB	22,253 KB	59.55%
10	150.150.1.33	14,909 KB	7,507 KB	7,403 KB	49.65%
11	172.17.1.15	20,490 KB	15,119 KB	5,371 KB	26.21%
12	150.150.1.80	2,069 KB	492 KB	1,578 KB	76.24%
13	150.150.1.50	1,674 KB	1,137 KB	537 KB	32.08%
14	150.150.1.82	335 KB	194 KB	140 KB	41.91%
15	150.150.2.82	293 KB	200 KB	93 KB	31.81%
16	150.150.2.102	164 KB	133 KB	32 KB	19.25%
17	172.17.1.254	44 KB	24 KB	20 KB	45.41%
18	179.17.1.254	41 KB	40 KB	1 KB	2.58%
19	172.24.100.2	2 KB	2 KB	0 B	0.00%
20	179.17.1.53	4 KB	4 KB	0 B	0.00%
Total		2,461.60 MB	607,515 KB	1,868.32 MB	75.90%

Customer Evaluation:

“After the implementation of Sangfor WAN Optimization solution, we feel that using mail, FTP and portals have become faster and more stable. There is no obstacle in the validation of transaction and traffic between data center and ATM has been accelerated. Bandwidth is saved as a result and the security of data is guaranteed.”

BNI



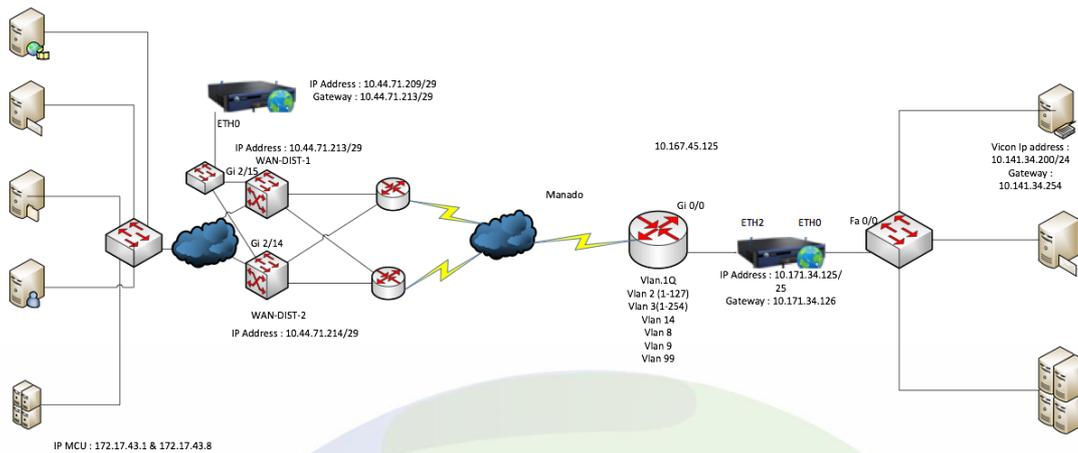
Bank Negara Indonesia is an Indonesian State Bank. It operates its business primarily in Indonesia, but it also has branches in Kuala Lumpur, Singapore, Hong Kong, Tokyo, London and New York. By 2006 it has

1000 branches and over 9 million customers. It is listed on the Indonesia Stock Exchange as "BBNI". Its market capitalization as of 12 March 2007 was 23.8 trillion rupiahs (approximately US\$2.6 billion). It is the 4th largest assets bank of Indonesia.

Challenges:

Productivity was affected as branch CBS (core banking system) access was slow with limited bandwidth. Besides, Video Conference suffered from mosaic and lag due to packet loss.

Solution:



1. Use application proxy to promote speed of CBS.
2. Reduce redundant traffic between HQ and branches.
3. Use bandwidth management to guarantee traffic for CBS and video conference, limiting other low priority application.
4. Use HTP/UDP to reduce the packets loss rate and optimize Video Conference.

Result:

Traffic of HTTP application is reduced by 67%, traffic of other applications is reduced by up to 90%. Video conference no longer has mosaic problem.

	Name	LAN Data	WAN Data	Reduced	Reduction Ratio
1	HTTP Application	6,553.37 MB	2,167.99 MB	4,385.38 MB	66.92%
2	Net Sharing	2,899.13 MB	925,422 KB	1,995.40 MB	68.83%
3	OA	344,309 KB	57,970 KB	286,340 KB	83.16%
4	Database	274,782 KB	25,734 KB	249,047 KB	90.63%
5	Soft-update	288,277 KB	40,375 KB	247,902 KB	85.99%
6	NET Protocol	364,514 KB	192,198 KB	172,316 KB	47.27%
7	Unknown	697,665 KB	587,059 KB	110,606 KB	15.85%
8	Mail	553,171 KB	514,380 KB	38,791 KB	7.01%
9	Download Tools	328,448 KB	291,120 KB	37,328 KB	11.37%
10	SSL	2,269.76 MB	2,258.81 MB	11,215 KB	0.48%
11	Streaming Media	916 KB	614 KB	303 KB	33.02%
12	ProxyTool	8,734 KB	8,670 KB	63 KB	0.73%
13	Remote Login	7,035 KB	7,000 KB	35 KB	0.49%
14	Net Meeting	754 KB	69,618 KB	-70516999 B	-9135.19%
	Total	14,523.64 MB	7,083.21 MB	7,440.43 MB	51.23%

MNC Bank



PT Bank MNC Internasional Tbk provides commercial banking services in Indonesia. Its deposit products include current accounts, demand deposits, saving deposits and time deposits. The company's loan product portfolio covers consumer loans (housing, car and other consumer loans), employee loans, working capital loans, investment loans, multi-purpose unsecured loans and syndicated loans. It also provides trade finance and foreign exchange services.

In addition, the company offers credit card, mobile banking, ATM, Internet banking and bill payment services. It operates through a network of 16 branch offices, 34 sub-branch offices, 40 cash offices, 2 payment points, as well as 76 automatic teller machines throughout the country. The company was formerly known as PT Bank ICB Bumiputera Tbk and changed its name to PT Bank MNC Internasional Tbk in April 2014. PT Bank MNC Internasional Tbk was founded in 1989 and is headquartered in Central Jakarta, Indonesia.

Challenges:

1. Expensive & slow VSAT link limited to 128KB.
2. Unified Internet outlet for all branches.
3. Slow access speed to email and intranet applications.

Solution:



Result:

After deploying Sangfor WANO in the headquarter and remote branches, the connection speed has increased a lot with the data reduction and application acceleration technologies.

MNC's remote branches are now enjoying a stable and faster connection to the headquarter and can now smoothly send emails, upload files and access banking applications. With Sangfor WANO, the overall productivity of MNC's branches is increased; moreover, with the integrated comprehensive & unified reporting tools, they can now check & analyze the network status of each branch and create specific network policies for them separately.

Malaysia

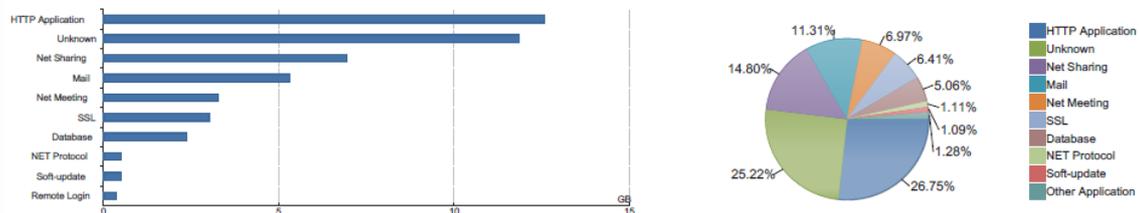
BSN



Being a government owned bank in Malaysia, BSN was incorporated on 1st December 1974 under the Ministry of Finance at that time, Tengku Razaleigh Hamzah. BSN has more than 5,100 employees and 382 branches nationwide and more than 7 million customers with savings worth more than RM 8 billion.

Challenges:

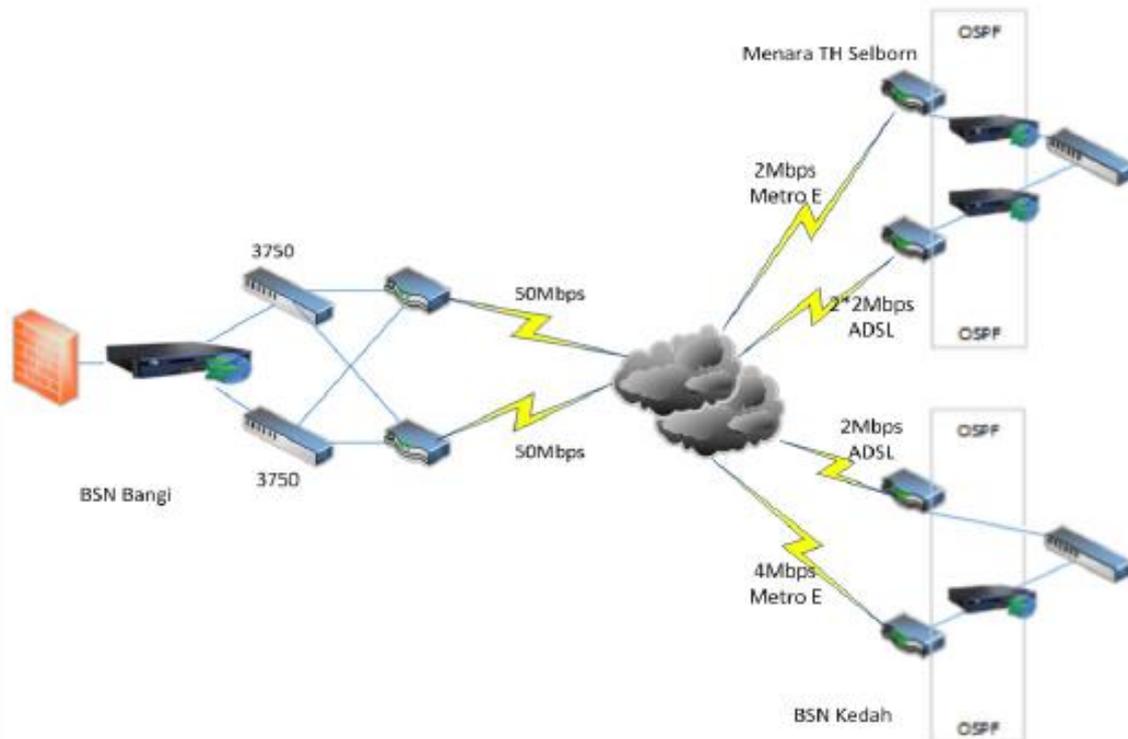
All business critical applications such as Exchange, CIFS (file transfer), Oracle, SQL and Polycom (video conference) had to go through the data center located in Bangi.



BSN had limited bandwidth at data center and branch offices (mostly less than 2Mbps). Many internal users were consuming the bandwidth for non-work related activities such as online video, which largely affected work productivity.

BSN also utilized video conference for business meetings, but the video and sound quality is poor due to unmanaged bandwidth.

Solution:

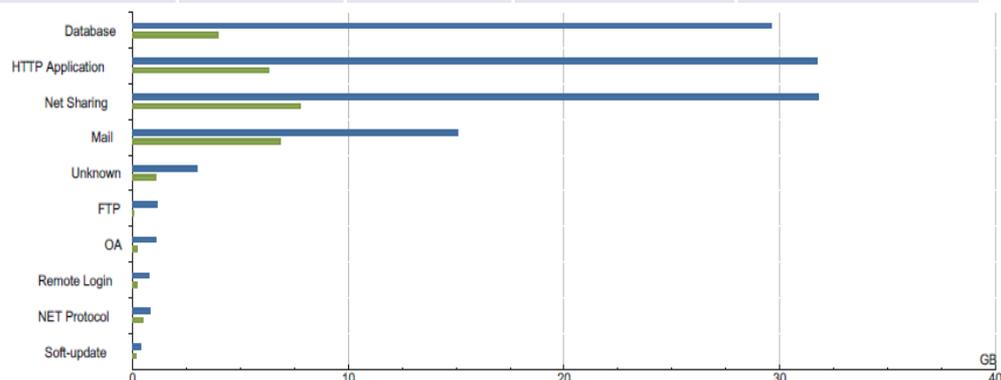


- 4 x M5900 for data center and HQ.
- 1 x M5400 for medium branches.
- 13 x M5100 for smaller branches.
- Whole network acceleration solution.

Result:

Traffic is reduced up to 74%, bringing higher speed for all applications in intranet. Network performance and work productivity are thus improved.

	Name	LAN Data	WAN Data	Reduced	Reduction Ratio
1	Database	30,354.33 MB	4,048.25 MB	26,306.08 MB	86.66%
2	HTTP Application	32,476.12 MB	6,467.31 MB	26,008.82 MB	80.09%
3	Net Sharing	32,563.83 MB	7,959.22 MB	24,604.60 MB	75.56%
4	Mail	15,427.28 MB	6,992.23 MB	8,435.05 MB	54.68%
5	Unknown	3,040.15 MB	1,100.87 MB	1,939.28 MB	63.79%
6	FTP	1,170.09 MB	47,090 KB	1,124.10 MB	96.07%
7	OA	1,089.42 MB	240,167 KB	875,395 KB	78.47%
8	Remote Login	815,549 KB	201,086 KB	614,463 KB	75.34%
9	NET Protocol	834,898 KB	499,872 KB	335,026 KB	40.13%
10	Soft-update	422,494 KB	187,563 KB	234,931 KB	55.61%
	Other Application	3,740.02 MB	3,577.08 MB	166,853 KB	4.36%
	Total	121,885.59 MB	31,293.18 MB	90,592.41 MB	74.33%



■ LAN Data ■ WAN Data

Kenanga Investment Bank

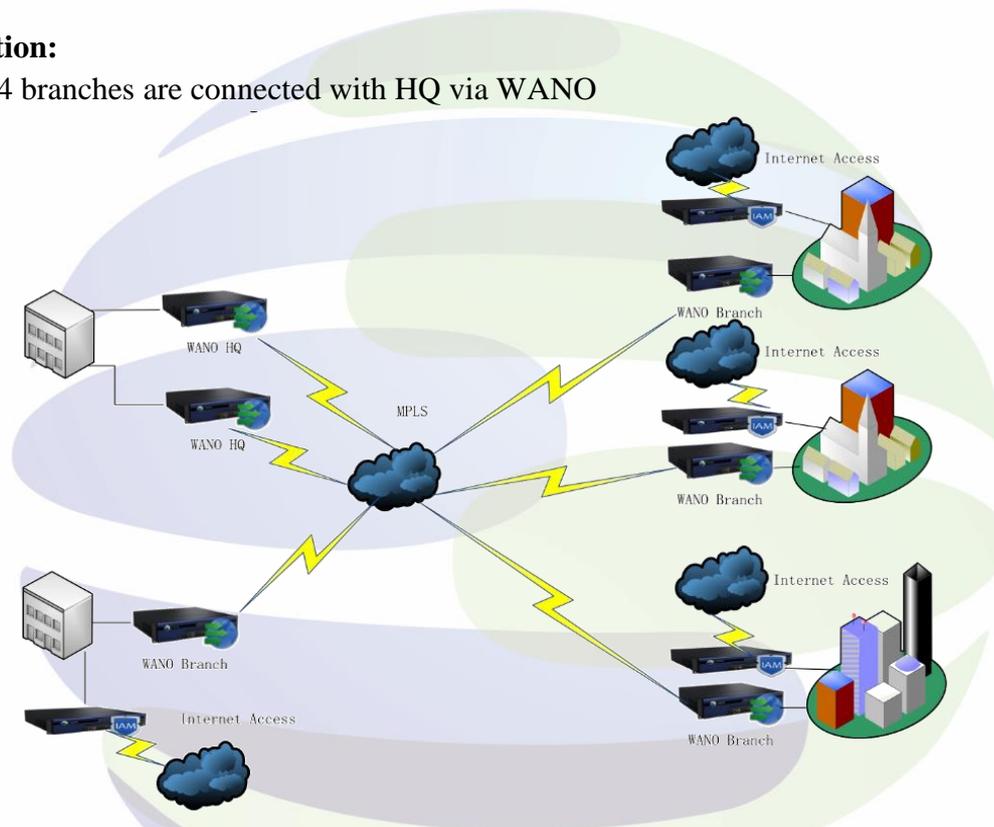
kenanga Kenanga Investment Bank Berhad is the No.1 Retail Broker in Malaysia named by Bursa Malaysia Berhad.

Challenges:

1. Transmission of large files.
2. Slow access to files in HQ.
3. Limited bandwidth.

Solution:

- 24 branches are connected with HQ via WANO



Result:

1. WAN is enabled to optimize & accelerate Exchange, Web applications and others.
2. 50% reduction rate for the flow (before/After).
3. The bandwidth network runs faster and holds more traffic flow for local users.
4. BM guarantees core application to run smoothly without interruption.

RHB



RHB Investment Bank Berhad

4th largest fully integrated financial services group in Malaysia. Main subsidiaries: RHB Bank Berhad / RHB Investment Bank Berhad / RHB Islamic Bank Berhad / RHB Insurance Berhad / RHB Asset Management Sdn Bhd / RHB Islamic International Asset Management Berhad. Coverage Area: Malaysia / Singapore / Thailand / Vietnam / Brunei / Cambodia / Indonesia / Hong Kong.

Challenges:

Branch faced problem with the operation speed of trading system, BTX hosted in Bursa Malaysia. For some branches with smaller bandwidth, it took more than 50 seconds to load the system. They needed to upgrade the line 4 times in order to get the loading speed to around 10 seconds.

Updating current market price is important for traders but their feed lagged almost 10 seconds behind due to bandwidth issue. The line upgrade solution costs too much. They had to look for an alternative solution for bandwidth upgrade for all 40 branches.

Solution:

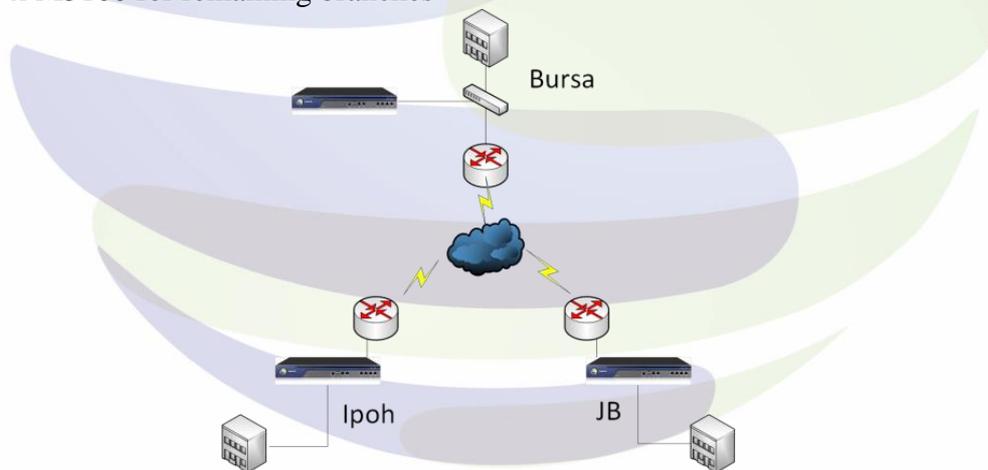
Sangfor WANO devices are installed at Bursa Malaysia Data Center, network performance of RHB Investment Bank branch offices has ever since been improved with work productivity elevated. Loading speed of BTX has improved around 10 seconds and market feed can now be updated within 2 seconds.

WANO that has already been deployed:

- 2 x M5600 for Bursa Malaysia
- 13 x M5100 for branches

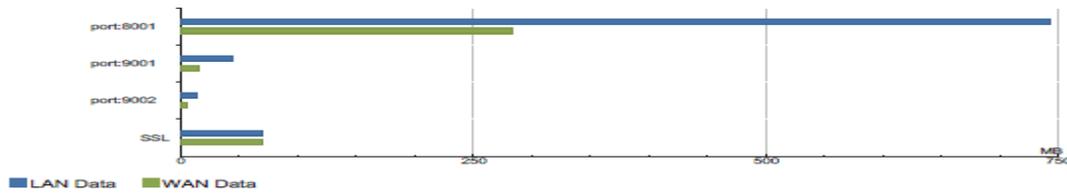
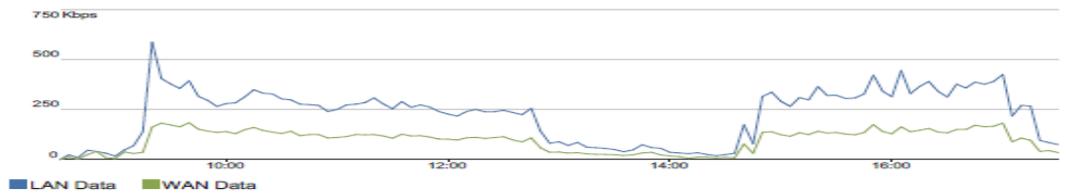
Future purchase:

- 27 x M5100 for remaining branches



Result:

Traffic is reduced by 57%; the speed of core application BTX system has improved obviously. Loading speed of BTX is increased to around 10s, which is 40-50s before.



	Name	LAN Data	WAN Data	Reduced	Reduction Ratio
1	port:8001	761,389 KB	290,408 KB	470,980 KB	61.86%
2	port:9001	45,536 KB	16,146 KB	29,391 KB	64.54%
3	port:9002	14,240 KB	5,371 KB	8,869 KB	62.28%
4	SSL	71,213 KB	71,451 KB	-243791 B	-0.33%
	Total	892,378 KB	383,376 KB	509,002 KB	57.04%

Other Regions

Myanmar-MOB



MOB BANK

မြန်မာ အင်္ကျီဆွေးမြို့ ဝန်ဆောင်မှု ဖွဲ့စည်း

Myanmar Oriental Bank (MOB) was founded on November 18, 1993 and it has till today over 30 branches in throughout the country. The bank is authorized to operate as an investment/development bank for the domestic market and approved banking activities include: Current/Fixed/Saving Deposits and Commercial Loans, etc. It is also one of the few banks that can has Currency Exchange Counter, as well as leader of Myanmar Payment Union (MPU).

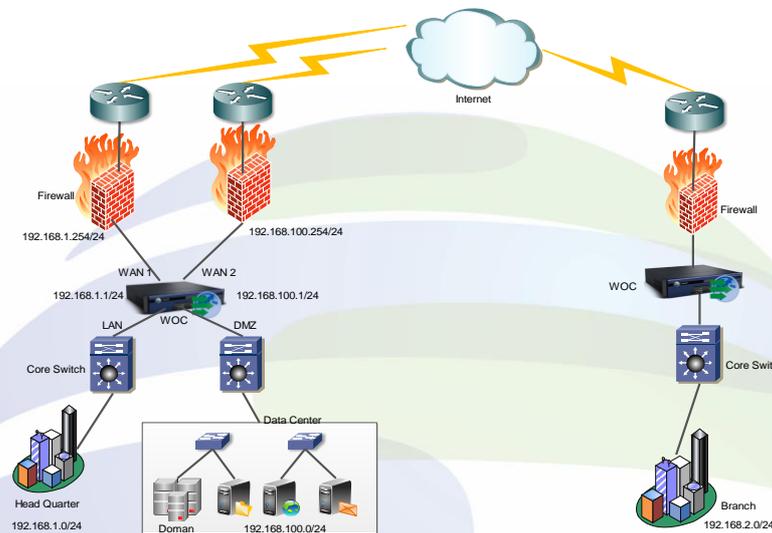
Challenges:

1. Transmission of large files/attachments between HQ and branches.
2. Slow access to files (especially the ones with customer information).
3. Applied guaranteed bandwidth to their core banking applications (some internal developed applications and VMs), thus limited bandwidth for others applications
4. Applied URL and app control as well.
5. Wanted to optimize the traffic between HQ and branches, especially files transmission.

Solution:

1. WANO M5000 is proposed for HQ and S4000 for branches.

2. The deployment is double bridge mode as they want to minimize network interruption and avoid big changes in their network. Double bridge mode is the most suitable solution for such scenario and accepted by the customer.
3. WANO is pre-configured and deployed after customer scheduled a short downtime for their HQ and branches. Simply plugged-in and the system is back online with no problem.



Result:

1. Web and other applications are optimized and accelerated.
2. Network runs faster and holds more traffic flow for local users.
3. Bandwidth management guarantees core applications running smoothly without interruption.

Myanmar-MAB



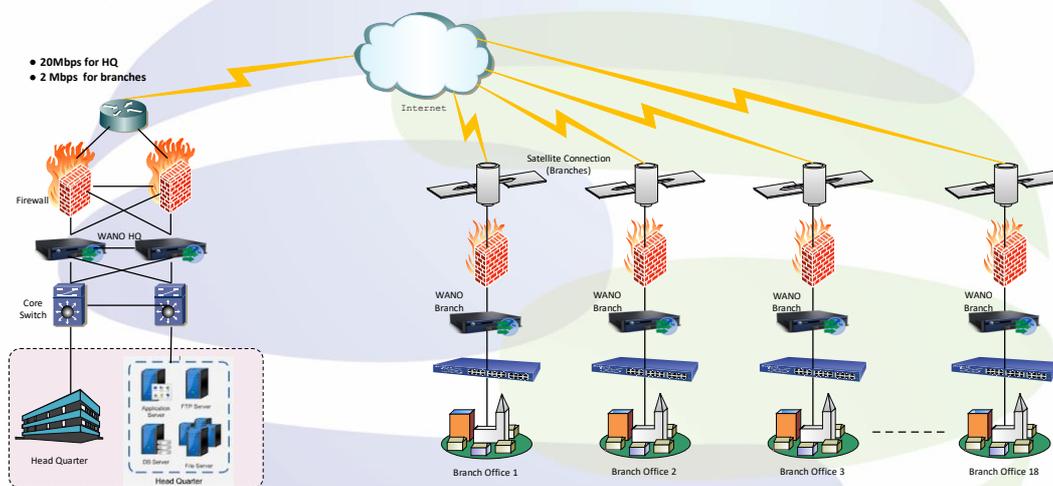
Myanmar Apex Bank Ltd (MAB) was incorporated on 2nd July, 2010 and opened its first branch office in Naypyitaw on 17th August, 2010. Since inception, they have extended their branch network steadily to facilitate commercial development and investment across all of Myanmar as well as to better serve their growing customer base through a larger banking network. Customer deposits have grown significantly since inception, due to their delivery of quality service, reliable performance, customer satisfaction and trust among the general public.

Challenges:

1. Transmission of large files/attachments.
2. Optimize the HQ - branch visit experience.

Solution:

1. WANO M5400-Q-1 for HQ and S5000-Q-1 for branches.
2. The deployment is Bridge Mode. As customer wants to optimize the HQ-branch visit experience while not changing their network topology.
3. WANO Double Bridge mode is deployed between router & switch, it can perform the acceleration without changing network topology and reduce traffic from HQ.
4. Traffic congestion and packet loss can be reduced with byte-cache technology.
5. WANO prevents repeated data transmission over WAN, eliminating redundant data which occupies up to 95% of WAN traffic. It can also deliver cached data at LAN speed.
6. Acceleration gateway uses GZIP and LZO high-speed flow compression algorithm with high efficiency.



Result:

1. Web applications and others are optimized and accelerated. Network can run faster and holds more traffic flow for local users. Link quality and transmission performance of applications are improved with HTP (High-Speed Transmission Protocol) technology, therefore ensures a better user experience.
2. Byte cache technology is utilized to ensure WAN data traffic is deduplicated and previously viewed data are served directly from the local cache to LAN. Shared cache among WANOs is also supported.
3. Dynamic compression technology (LZO, GZIP, Quick ZO) is utilized to boost efficiency.

China-CMB



Established in 1987 in Shenzhen, the forefront of China's reform and opening-up drive, China Merchants Bank ("CMB") is China's first joint-stock commercial bank and also the first bank to attend the national experiment for the promotion of China's banking industry reform driven by endeavors from outside the government.

Since its inception 24 years ago, CMB has grown with China's economic progress from a small bank with a capital of 100 million yuan, one branch and over thirty employees into a nationwide joint-stock commercial bank that has a total net capital of 140 billion yuan, a total asset of 2.6 trillion yuan, over 800 branches and over 50,000 employees, ranking it among the world's top 100 banks.

Challenges:

Data is extremely important for the banking industry. If a company loses its banking data, it will be very difficult for them to carry out business and even more importantly, that company will lose trust of its customers and as a result ceases to gain more market expansion. Serious loss of core data and interruption of business services may also cause the paralysis of the enterprise.

Therefore, a successful disaster recovery within a limited period of time should be a key component of the strategic plan for any financial or banking institution. Business continuity and data protection are becoming the keys to enhance core competitiveness in this industry.

Due to the rapid business growth of China Merchants Bank, the traffic of its core data is also significantly increasing. In response to the potential threats of disaster for the bank users and to comply with the requirements of the "Chinese National Disaster Recovery Specifications of Information System", as well as achieve data replication & data consistency between the source database of business system & the target database of backup system, CMB must fully protect the data security and ensure the high availability of business systems.

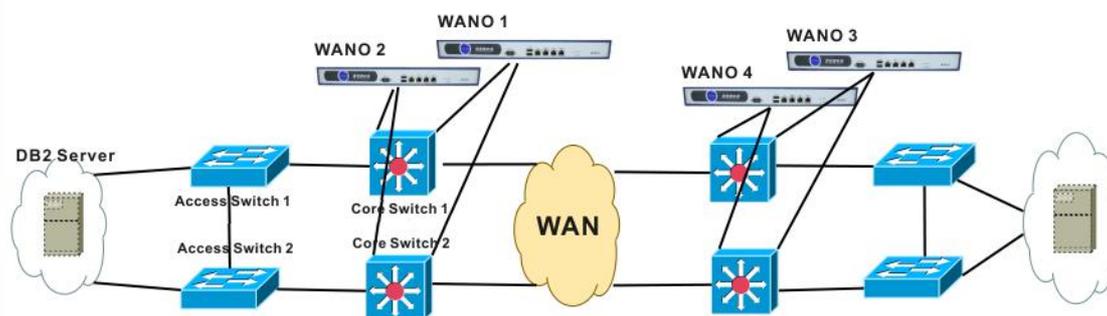
1. Limited bandwidth.
2. Must comply with local law for Disaster Recovery.
3. Lengthy & complicated backup of customers' data.

Solution:

Besides adopting Single Arm deployment for acceleration, we also use multi-devices stacked to increase the speed, superimposes WANO21 & WANO22, connect them to

the access switches and establishes a WCCP (Web Cache Communication Protocol) with the core switches.

1. WANO is deployed in the Headquarters and disaster recovery center of CMB in bypass mode.
2. Bypass mode deployment has a very small impact on the network structure. Based on the existing network structure, Sangfor's compression & cache optimization technology can greatly improve data transmission efficiency and reduce bandwidth occupancy of dedicated line.
3. The deployment of the entire solution is simple, flexible and easy to expand. The process of the entire operation is very simple and clear. More importantly, it doesn't need to change the network.



Result:

With Sangfor WANO in place, CMB is fully protected against network disasters and can realize quick & easy backup/restore of its data with the different data compression technologies integrated. CMB's can now concentrate on providing customers with the best financial products and services.

FTP

File No.	File Name	File Size	Compression Ratio
1	CARD20101228.DAT	19GB	90%
2	HDRDB.0.hdrinst1.NODE0000.CATN0000.20111027195225.001	4.1GB	40%

File No.	Transmission Time		Transmission Speed		Traffic Reduction		
	Before	After	Before	After	Before	After	Ratio
1	778s	272.6s	25MBps	73.3MBps	19GB	4.9GB	74.2%
2	167s	72.5s	20MBps	60.3MBps	4.1GB	2.1GB	51.2%

HADR

Application Type	Data Size	Before	After	Before Traffic Reduction	After Traffic Reduction	Ratio of Traffic Reduction
HADR Real-time synchronization	2.46GB *3 times	152s	127s	7.4GGB	0.9G	81%
HADR remote cache	2.2GB	136s	81s	2.2GB	0.25GB	89%