The technology behind the business

Dutch-Bangla Bank’s Information Technology Division was established at the time the bank entered operation. All the branches of the bank started operation with installation of a modern computerized system. However, they were not having the on-line, any branch, real-time banking facility until June, 2004. In 2004, the bank broke several milestones by providing the first truly on-line any time, any branch, real-time banking to its customers.

**On-line Core Banking Software**
To provide a world-class banking support, DBBL uses world-renowned Flexcube Core banking software developed by Oracle Financial Services Software (OFSS). The software was set up in a centralized data center in 2003 and all the then 17 branches were brought on-line banking services in June 2004. Since then it has been the core application of the bank.

Now the core banking system facilitates a customer to do all his banking transactions from any of our 111 branches. Since 2004, all new branches have opened with the standard online connectivity from the very first day of operation.

**Switching System**
DBBL’s switching system performs the following operations:

i) Production of Debit Cards which in addition, includes insertion of customer’s data into the system and storing the inserted data into a database

ii) Pre-authorization of on-us debit transactions (transactions made by bank’s own cardholders at bank’s own ATM/POS) or remote on-us debit transactions (transactions made by bank’s own cardholders at ATM/POS of another bank). Pre-authorization includes validation of Card Number, PIN, date of expiry and card status (normal, stolen, lost, blocked, hot etc.)

iii) Routing of on-us and remote on-us transactions to Core Banking System (if debit card) or Credit Card System (if credit card); off-us transactions (transactions made by cardholders of other banks at bank’s own ATM/POS) to a switch or credit card system of issuing bank or international payment network (MasterCard/VISA) for its authorization

iv) Fraud management

v) Health monitoring of all the connected ATM and POS terminals

vi) Settlement and reconciliation.

Dutch-Bangla Bank switching system was installed in 2004, which adheres to open system concepts and 3-tier architecture. The transaction processing engine resides on proven and robust UNIX platforms while the user and ATM device interfaces reside on Windows client workstations. System data is stored in Oracle.

The switching system provides support to the hosted ATM/POS terminal, an ISO8583 interface to the Core Banking System and also to other partner bank’s core banking system, and connectivity to international networks like MasterCard and Visa. Other interfaces include a host security module (HSM) for PIN verification, card personalization system for production of card, automated notification system for sending SMS to the cardholders and ancillary applications for credit card, Call center etc.

**Credit Card System**
DBBL’s Credit Card System is a Credit Card transaction processing and management system which performs the following:

i) Production of Credit Cards which in addition, includes insertion of customer’s data into the system, and storing the inserted data into a database

ii) Pre-authorization and final authorization of on-us credit transactions (transactions made by bank’s own cardholders at bank’s own ATM/POS) or remote on-us credit transactions (transactions made by bank’s own cardholders at ATM/POS of another bank). Pre-authorization includes validation of Card number, PIN, date of expiry and card status (normal, stolen, lost, blocked, hot etc.) and final authorization includes debiting card limit

iii) Routing of on-us and remote on-us debit transactions to Core Banking System via switching system; off-us transactions (transactions made by cardholders of issuing banks at bank’s own ATM/POS) to a switch or credit card system of another bank or international
payment network (MasterCard and VISA) for its authorization.

iv) Fraud management

v) Settlement and reconciliation.

**Internet Payment Gateway System**

This system installed by DBBL helps in authorizing payments for e-commerce transactions. It is equivalent of a physical POS terminal located in most retail outlets. Some of the main features of our payment gateway system include:

- Software application designed especially for e-commerce, although it can be used to authorize payments in traditional brick and mortar businesses.
- Encryption of payment and personal data.
- Communication between the financial institutions involved and the business and the customer.
- Authorization of payments.

Dutch-Bangla Bank has launched the country’s first internet payment gateway software in the brand name of “Nexus Gateway” on 3rd June, 2010. The Nexus Gateway accepts DBBL’s Nexus cards, debit and credit card suits of MasterCard and VISA (issued by any bank in the world).

**Mobile Banking System**


Dutch-Bangla Bank, for the first time in Bangladesh, started Mobile Banking services on 31 March, 2011.

**Network Infrastructure**

To support the on-line transactions with highest level of security, DBBL has a robust network infrastructure with scalable, secure, redundant and load balanced architecture. DBBL is using world renowned CISCO devices in its network infrastructure.

Connectivity to and from DBBL networks and external networks are carefully planned and controlled. DBBL IT staffs are strictly following security policies when designing new or upgrading existing networks taking into consideration for managing users, dividing networks into segments and restricting access to information based on different business and security policies.

**Network Segregation:** Groups of information services, users, and information systems are segregated on networks. In order to help mitigating the risk of unauthorized access to networked devices the following guidance is in place:

- Production, staging and development zones are established and physically and/or logically separated using firewalls;
- Network zones are implemented and managed in a manner that respects this segregation of environments;
- Firewalls are used to provide granular access control between the various network zones and only required communication ports, protocols, devices and servers are permitted;
- Users are only being granted access to those areas of the network and systems for which they are authorized.

Strict policies are in place for maintaining different network segregation to manage the network infrastructure like internet, intranet and extranet.
Internet: Through the internet, DBBL is connected with the outer world. DBBL is providing internet banking solution and other services to the customers through this network.

Extranet: Different service and solution providers are connected with this network. To provide mobile banking and SMS/alert services, DBBL is connected with different telecoms. Different banks are also connected with DBBL to receive ATM sharing services.

Intranet: Datacenter is connected with the head office and different branches all over the county through this network. All the branches are connected with the core router at the datacenter using fiber optic and/or radio link.

Mobile Banking: DBBL has a different network segment for our mobile banking solution. To provide a dedicated service to the customer DBBL has separated the mobile banking network from the main stream networks.

Wireless Network (WiFi): DBBL has installed secured wireless network connection for the internal users.

Redundancy: As per the business continuity plan of the bank, redundancy has been kept for all the devices installed in the datacenter as well as the branches.

Branch Level Redundancy: Link level redundancy as well as device level redundancy has been maintained for all branches to ensure maximum uptime and better services to the customers.

Datacenter Redundancy: Link and device level redundancy has been maintained in datacenter for different network devices like Core Router, Core Switch, Core Firewall and Distribution Switch.

Load balancing: Application control engine (NLB) has been used to provide load balancing facilities for our different banking application servers like core banking, mobile banking, switching, and e-commerce gateway.

Security: Network security remains essential to protecting data and privacy. Many services / devices have been installed to secure DBBL network such as firewalls, encryption, intrusion prevention and intrusion detection. By combining a few key security features and procedures, DBBL is maintaining the privacy of data, ensuring the safety and security of network, and preventing access to malicious hackers and non-authorized users by adopting latest technologies.

The objectives of the Network Security procedure are:

- To provide an overview of the risks associated with connectivity to external networks.
- To define the security and control requirements to protect the firm in relation the protection of the network perimeter.
- To provide security guidance to system administrators to ensure the continued secure management of network perimeter infrastructure as per our central bank’s security policy.

Security Controls: The security controls are properly applied to reduce the risks associated with connectivity to external/internal networks. The implementation of connectivity with external/internal networks is properly authorized, authenticated, monitored, encrypted and managed by IT staff members that are properly trained in networking technologies.

Firewalls: Firewalls are the primary line of defense between external networks and the DBBL internal network. The following procedures set about providing security benefits, and further boost the performance of the firewall infrastructure.

- To limit the number of applications that run on the firewall in order to let the firewall do what it’s best at doing. Consider running antivirus, content filtering, VPN, DHCP and authentication software on other dedicated systems behind the firewall.
- On the interface that connects the firewall with the choke router, drop all inbound packets whose source address originates from the DBBL internal network (in order to deter IP “spoofing”), and implement an access
filter that prohibits an intruder from logging onto the router in the event the proxy firewall is breached.

- To ensure that physical access to the firewall is controlled.
- Regularly monitor the firewall logs. Treat the logs as business records.

**Monitoring:** NMS system with a dedicated NOC team is in place for monitoring the DBBL network. DBBL has the technology to monitor and manage the network infrastructure.

Integrated Security Management System

**Access Control System:** DBBL can monitor and control the door access and for visitor management and perimeter monitoring. DBBL is equipped with a 32-bit Windows-based GUI point-and-click interface. This security interface animates whenever activity occurs on the security system, be it a door opening or a person entering the datacenter.

**CCTV System:** DBBL is using CCTV systems to monitor the building premises. Cameras and software are being used to monitor and record all type of activities.

**Building Management System**

DBBL’s Building Management System is managing the building site with and collects, organizes and distributes in real-time critical alerts, surveillance video and key information and provides a unified view of complex physical infrastructure environments from anywhere on the network. It covers company-wide multi-vendor physical infrastructure: racks, power, cooling, security, and environment. It can also detect water inside the datacenter and generates alarm.

**Disaster Recovery and Business Continuity Plan**

The continuity of the business and services are vital for both the customers and employees. It is acknowledged that disaster can happen. Keeping this in mind, our overall goals are to:

- Reduce the impact of any kind of disaster by having a contingency plan
- Be prepared to face and handle any imaginable and un-imaginable disasters
- Minimize the adverse effects of imaginable disasters by taking preventive measures
- Avoid chaos by creating awareness among key employees so that coordinated sets of actions are followed in the event of any disaster.

**Disaster Recovery Sites:** In view of the above goals and as a corporate policy and redundancy measure, DBBL is running parallel facilities in different locations. In the event of any adverse situation, ranging from natural calamities to Internet failure, critical data storage and associated data processing works are shifted to the DR site until the situation returns to normalcy.

Distributed Capacity in Multiple Locations: DBBL IT workforce and capacity is geographically distributed in multiple located in different neighborhoods (e.g. Dhanmondi R/A, Motijheel C/A and Uttara).

**Excess Capacity:** There is always an extension plan for excess space capacity for each facility.

Back-up Employees and Cross-Training: Workforce (from normal operators to senior managers) is trained in multiple projects. That is why job rotation in DBBL is part of the overall HRM policy.

**Succession of Management:** The Managing Director, the Deputy Managing Director and the Head of IT, three decision makers of DBBL, share the overall management responsibilities as well as share decision-makings. In order to minimize the risk of any disaster and minimize the impact of such situation:

- They are always aware of confidential information, banking / financial authorities.
- All major communications with clients, vendors, other stakeholders and 100% of Inter Office Communications / Memos are copied to all.
Multi-Vendors: As a corporate policy, a minimum of 2 vendors are appointed and alternately used, even if certain volume discounts are surrendered.

Partnership with Emergency Response Team: DBBL promotes partnerships with local emergency response groups—firefighters; police and emergency medical team to establish a good working relationship and familiarize them with our facilities and sites.

Disaster Recovery Measures: All critical information (that is allowed by the client to be) stored electronically are backed up on a routine basis to ensure its safety and availability in the event of a severe hardware interruption, software interruption, virus attack, or other natural disaster. Likewise, all critical operating software and application software necessary to access, recreate, or generate the information are also backed up. It is ensured that all networks are protected so that unauthorized intrusion cannot take place and there is a complete set of redundant network equipment. All servers and systems are protected through updated antivirus software. Full set of redundant system hardware are maintained with synced and updated database and software in DR site in a view to recover from an unwanted disaster.

**IT Monitoring Systems**

Dutch-Bangla Bank has a very strong IT systems and infrastructure monitoring system in place so that any problem can be arrested in a minimum effort and time which ultimately resulted in an uninterrupted customer service. Such monitoring systems are built using a number of sub-systems as under:

**DBBL Spectrum System:** DBBL uses the Spectrum System to avoid the risk of business-service interruptions and the cost of business service failures by integrating infrastructure-centric service management, fault isolation and root cause analysis, and network configuration and change management into a single tool to provide better IT service. The aim of use of this system is to resolve three common challenges—how to quickly gauge the impact of issues on users and customers, how to avoid time-consuming, labor-intensive incident resolution, and how to avoid the significantly large percentage of issues caused by incorrect configuration changes.

**DBBL Health System:** DBBL Health System can take corrective action before business processes are negatively impacted by collecting and analyzing key performance information across the IT infrastructure, providing both real-time and predictive performance analysis. This system provides flexibility to manage multi-vendor networks, systems, databases, and client/server applications with proactive, real-time analysis, distilling data from disparate sources across all technology silos into clear, predictive, and actionable information.

**DBBL IT Client System:** DBBL IT Client System can provide fully automated features that help us streamline the processes of:

- Maintaining and tracking comprehensive IT asset inventory of both physical and virtual assets
- Analyzing IT asset data
- Managing operating system deployment and installation
- Deploying software, updates, and patches to traditional and virtual systems
- Configuring and migrating machines
- Providing support for remote systems

**DBBL Service Desk System:** The DBBL Service Desk System has been installed to prevent service disruptions, better manage change risks, and provide a 360-degree view into our IT services. This system was implemented with an aim to build superior incident and problem management process that simplify change management, increase infrastructure visibility, deliver extensive self-service capabilities and provide timely data for accurate decision support. It improves the speed and accuracy with which issues are resolved, leading to better quality service and response times—all while reducing support costs.

**DBBL Network and Server System:** Increasing business dependence on IT in DBBL is making downtime more and more costly. This system was implemented to safeguard the critical business processes while reducing the cost and complexity of IT management. This system provides in-
depth systems management and performance reporting capabilities that scale to meet the needs of DBBL. It provides the foundation for a comprehensive service availability solution that can grow to manage and correlate a million events in a day, and manage thousands of system resources. In addition, it ensures the continuous health and performance of our entire infrastructure to meet ever-changing business demands.

**DBBL Database Management System:** This system proactively manages and alert on database performance across the IT infrastructure, regardless of whether the database is located within physical, virtual, or cloud environments. The benefits are as under:

- Identify and resolve performance issues quickly with the ability to monitor and triage different databases without necessarily being an expert on each one
- Help us reduce risk to services by accommodating site-specific requirements needed to monitor within specialized environments
- Effectively collaborate with our IT operations for fast problem resolution-right information, in the right context

**Bangladesh Automated Clearing House (BACH)**

This is one of the revolutionary projects of Bangladesh Bank, the central bank of Bangladesh. There are two components of the project-Bangladesh Automated Cheque Processing System (BACPS) and Bangladesh Electronic Funds Transfer Network (BEFTN). To provide the benefit of this electronic clearing, DBBL has installed MICR (Magnetic Ink Character Recognition) scanners in all of its 60 participating branches. This ensures the clearing of funds against an instrument deposited (for another bank) by noon in any of the 60 branches in Dhaka, Chittagong, Sylhet, Khulna, Barisal, Bogra, Rangpur and Narayanganj areas within end of business of the same day. Another 30 branches are in the process of bringing under BACPS umbrella as per Bangladesh Bank’s rollout plan.

BEFTN is the other part of the project which enables an account holder of Bank-A to transfer funds from his account to one or more accounts in Bank-B’s branches. Dutch-Bangla Bank is proud to initiate BEFTN transactions as first Bank in Bangladesh on the opening day of BEFTN. The BEFTN is getting very popular gradually as a secure, fast and cost effective tool to do the following:

- Individual Funds Transfer between two or more branches of two or more banks
- Corporate funds transfer between banks as trade finance
- Payment of remittance (foreign or local)
- Payment of govt. or other organizations’ salaries
- Payment of pensions, other allowances
- Payment of Refund warrants, dividend warrants
- Realization of loan installments, insurance premium, utility bills etc.

**New initiatives in 2011**

The bank has successfully introduced or upgraded some important projects in the year 2011.

**Remittance Software** - To transfer the hard earned foreign remittance sent by our expatriates’ to their near and dear ones at home, DBBL has developed a Remittance system which ensures a fast transfer of money from the remitter to the beneficiary.

**New Data Center** - Keeping in view the large number of accounts and customers, the bank has started to setup a new Data Center with state-of-the-art design, security & robustness. The leading servers from IBM & Sun, network equipments and accessories from Cisco have been used in the new Data Center.

**Switching Software** - In line with the bank’s continued expansion of ATM network, DBBL is in the process of upgrading its Switching Software. In 2011, the switching software has been upgraded with more robust, flexible and more dependable features.

**Green IT:** The Govt. of Bangladesh and the Bangladesh Bank are encouraging Green banking in the country. Bangladesh Bank has issued guidelines on green banking and Environmental Risk Management (ERM). In line with this, DBBL has automated all the internal correspondences, circular, MIS, reporting, loan origination and assessment systems. DBBL has also sent the half yearly balance confirmation to its valued customers electronically and/or emails which has saved printing of a huge quantity of papers thereby contributing substantially to the environment.
DBBL from the very beginning is promoting the use of debit and credit cards for payments of goods and services and at the e-commerce site for online shopping. These processes have also eliminated use of bank officials and paper in banking services.

**Conclusion**

DBBL will keep its expansion of strong IT infrastructure in the days ahead. DBBL believes that with a strong technology driven setup it shall be able to extend world-class banking services to the valued customers. DBBL is striving to introduce all the latest technologies being adopted in this sector worldwide. The bank has never hesitated to invest on this sector to keep the interest of the customer secure, safe and yet affordable. This endeavor will continue in future with all co-operations from the respected clients.