

ICT ASSESSMENT DETAILS

Lebanon Water Project – ICT Activity for the North Lebanon Water Establishment

GENERAL

PROGRAM COMPONENT AND ACTIVITY UNDER WHICH GRANT/IT ASSISTANCE WILL BE PROVIDED

A.1.2 – Fully Implement the Enterprise Resource Planning and Cost Tariff Analysis Model

North Lebanon Water Establishment and branches.

Description:

Microsoft Dynamics NAV is an enterprise resource planning (ERP) software suite for mid-sized organizations. It offers applications for financial management, human resources management, manufacturing, multiple and international sites, project management, sales and marketing, service management, supply chain management and business intelligence. The system is known for being highly customizable and partners have developed a long list of industry-specific configurations to serve various vertical markets. The NAV solution is compliant with IAS/IFRS. Microsoft Dynamics NAV is available with 43 official localizations and several unofficial ones (provided by local partners). It uses a concurrent user licensing model Only.

Microsoft Dynamics NAV deploys on the Windows operating system and Microsoft SQL Server, and is developed in the .NET framework, all of which are core Microsoft platform technologies. This offers customers a tightly integrated stack from infrastructure to application.

Microsoft Dynamics NAV delivers integrated functionality to provide support for:

Financial management

Supply chain management

Manufacturing

Distribution

Customer relationship management

Sales and marketing

Service management

Human resource management

Project & Resource management

Warehouse management

LWP is installing the NAV 2017 version. It will be implementing the following modules: Procurement, Inventory, Budgeting, Accounting, HR and Payroll, Billing and Collection, Customer Service.

WHAT IS THE PURPOSE, GOAL AND EXPECTED RESULTS OF THE IT ASSISTANCE?

The problem:

LWP is developing a new ERP system for NLWE. The current ICT environment is not up to the standards and cannot host the ERP System.

The purpose of this IT assistance is to prepare a new ICT environment with the latest technology to host the new ERP NAV system developed by LWP.

Main objective of this project:

- Prepare a new server room (cabinet, cooling system, surveillance system, access control...)
- Upgrade networking infrastructure (Switches, Cabling, ...)
- Migrate servers (Physical to VM)
- Build new servers
- Replace computer equipment and peripherals
- Upgrade and configure new communication equipment

Following the implementation completion, if servers are up and running, branches communicating with the HQ, DC/DHCP/DNS providing required services for all the workstations and backup procedures tested this project can be marked as successful.

KEY DEPARTMENTS THAT WE ARE SUPPORTING AND EQUIPMENT/SOFTWARE

- Total number of staff in organization: _171_
- Total number of staff in the location/building where DAI is implementing this IT project: NLWE HQ and offices: _95_
- NLWE Branches: 4 in each branch: 4 x 8: _32_
- Key users assisted / Total number of staff in department (s) that we are supporting (per department)
- Key users assisted: IT Department
- Total number of staff assisted 75 (ERP Staff)

Which specific positions (staff) within each department will be assisted and what are their duties (what will the equipment/software be used for - purpose):

<i>Equipment/Software</i>	<i>Qty</i>	<i>Department</i>	<i>Number of staff</i>	<i>Purpose/ Duties</i>
<i>Server (Physical)</i>	<i>2</i>	<i>IT Department</i>	<i>3</i>	<i>IT</i>
<i>Server (VM)</i>	<i>9</i>	<i>IT Department</i>	<i>3</i>	<i>IT</i>
<i>Desktops and monitors</i>	<i>75</i>	<i>All departments</i>	<i>75</i>	<i>Mainly ERP</i>

LOCATION INFORMATION

- *The ICT activity includes the NLWE HQ and NLWE four offices (Hallab, Behsas, Masafi and Manar) in Tripoli.*

It also includes the 8 Branches located in Batroun, Koura, Zgharta, Bcharre, Dennieh, Minieh, Halba and Kobayat – But the main IT activity in these branches is replacing the communication equipment

Each Branch have at least one warehouse.

Three branches have warehouses located in the same building and five branches have warehouses located in another location.

- *Connection between NLWE HQ and the four offices:*

NLWE HQ & Hallab office is through microwave connection.

NLWE HQ & Manar office no connection to HQ

NLWE HQ & Masafi office no connection to HQ

NLWE HQ & Behsas office no connection to HQ

- *Connection between NLWE HQ and all branches can be made through VPN Connection*

The VPN connection available Remote access VPN

Connection between Branches and separated warehouses is not available.

- *NLWE HQ have 3 HDSL subscriptions each 2 Mb/s*

NLWE Masafi office have an ADSL subscription of 2 Mb/s

NLWE Manar office have an ADSL subscription of 2 Mb/s

Seven Branches have each an HDSL connection of 2Mb/s

One Branch Bsharre has an ADSL connection of 1Mb/s

CURRENT NETWORK INFRASTRUCTURE

WIRING

The building consists of 11 Floors, while NLWE is located in the ground, forth, seventh, ninth, tenth and

eleventh floor. The server room is located in the tenth floor.

- *Current wiring for NLWE HQ:*

Cables: UTP Cables Cat5e, Category B

Ground Floor network points are connected to an unmanaged switch located in a cabinet

All other floors are connected directly to the server room switches

Two switches are used to connect the users

One switch is used to connect the servers

Wiring is enclosed in Cache fill with wall plates and jacks. Network is tested and working.

Recommendations:

- *Re-Wiring for the NLWE office in Hallab building – Second Floor*

- *Wiring for the new two offices in the ninth and tenth floor:*

Agreement with NLWE to split the scope of work related to the new offices:

Phase 1: NLWE will perform the wiring with patching in the end point. (Cache fill, wall plates, 3 sockets - Data Rj45, Telephone RJ11, Electricity socket)

Phase 2: LWP will perform the patching in the center point (Cabinet, Switch, Patching).

- *Re-Wiring for the Ground Floor – Data only*

- *Each floor should have its own managed switch located in the floor's small mezzanine.*

Each switch will be connected to the Core switch in the server room

Vertical/Backbone Wiring between switches to be a Fiber optic cable if possible and UTP Cat6

New Cables to run from network end points to switches: Cat6 / Category B

- *Wiring will be accessible between the floors for switches, a central mezzanine is easy to access and can be used to connect the floors.*

Wiring will be accessible inside each floor, a small mezzanine is available connecting all rooms.

SERVER ROOM AND POWER SUPPORT

Current Server Room:

- *Server room size: 3.6 m x 1.6 m / The room was originally a balcony for the kitchen.*

Cooling in the server room is available

UPS for servers available and located in the server room and generators for the entire building is available.

Access to the server room is tied to an access control machine, but anyone in the kitchen can see

the server room through an easy to break glass doors.

- *Servers: Five physical servers are located in a standard cabinet. Servers age exceeds 5 years.*

The specs are as follow:

Server1 - server name: X7 Role: X7 Server application

Server2 - server name: EELN-01 Role: Domain Controller – Exchange server – DHCP - DNS

Server3 - server name: EELN-02 Role: GLPI App – X7 Billing - PIMS

Server4 - server name: EELN-03 Role: Forefront & Antivirus services (Outdated – No license)

Server5 - server name: EELN-07 Role: Delphi database

Storage: NAS Storage – Lenovo NAS File server

Recommendations:

- *Moving to a new server room is required due to the state and location of the current room. After the site visit, I recommended a new room located in the same floor that is available for use. The size of the room is 4.15 x 3.6 meters consisting of 1 door and 1 window that can be closed. Server Room should be monitored by surveillance cameras*

Server Room should be restricted to authorized staff by installing an access control device

Cabinets inside the Server room should have two keys – One is kept with the IT staff and the other in a safe located inside the IT manager office.

Environmental Monitoring Probe

Server Room should be equipped with Smoke/fire, flood/water and digital temperature sensors.

Servers should be migrated to Virtual machines:

- *Server 1 -> VM1*
- *Server 2 (DHCP/DNS/DC) -> VM2*
- *Server 2 (Exchange) -> VM3*
- *Server 3 -> VM4*
- *Server 4 -> VM5*
- *Server 5 -> Should be decommissioned*

New Servers VM should be created:

- *VM6: DHCP, DNS and DC Replica*
- *VM7: ERP SQL Server node 1 (Principal instance)*
- *VM8: ERP NAV Application*
- *VM9: ERP SQL Server node 2 (Mirrored instance and Witness instance)*

Breakdown of needs (list needed items):

- *New server's cabinet with accessories including Fans, Light, drawer and KVM Console.*

Two physical rack-able servers to host virtual machines discussed in details in another section.

Rack-able UPS for Servers with Rack-able Battery

Rack-able NAS storage

Access control Device and Surveillance cameras

2 Air conditioners

COMMUNICATION EQUIPMENT

Current equipment:

- *Internet connection: Three HDSL Subscriptions on three different lines. Each subscription is a 2Mb/s providing a total of 6Mb/s*
- *Routers: Three HDSL Modem Routers*
- *Firewall: Fortinet for VPN services – Cyberoam for web filtering and security rules.*
- *Switches: Three switches, all located in the server room - one located in the server cabinet and the two remaining are located in a small cabinet.*
- *Mikrotik Access point connected to a microwave*

Recommendations:

- *Internet connection:
Dedicated Microwave link up to 8 Mb/s with unlimited traffic and a subnet of fixed IP Addresses*
- *New networking devices*

Breakdown of needs (list needed items):

- *Routers: in case the microwave link is provided, the ISP will provide the microwave and access point equipment, no need for a router, the Firewall or UTM can fulfil the gateway role by connecting the cable running from the ISP's AP to the WAN port in the new UTM.*
- *UTM1: VPN Server – Web filtering and Traffic shaping*
- *UTM2: Backup for the UTM 1*
- *Switches:*
 - *Core switch(1): One to connect all the managed switches*
 - *Managed switch (10): One managed switch for the servers located in the server's cabinet
Nine managed switch for each floor*
- *Microwave: Microwave with access points to connect HQ to the offices in Tripoli.*

NETWORK DIAGRAMS

Network diagrams:

- *NLWE has two network diagrams for the two new offices in the 9th and 10th floor.*
- *For the ground, fourth, seventh, tenths and eleventh floor, LWP asked for a floor plan and developed the network diagram after the survey in the department. Same goes for the Hallab department.*
- *All floor plans and network diagrams can be found attached.*

Add/replace Components:

- *All details are shown in the network diagram attached.*

LAN SERVICES

Network Services

- *AD, DNS, DHCP: Provided by the EELN-01 Server hosting window server 2008*
- *File and print sharing: None – Only the Lenovo NAS providing couple of shares*
- *Internet connection sharing (type and speed): Three HDSL subscriptions – 2Mb/s each with public IPs.*
- *Email services (type): Exchange – local - Internal use only*
- *Antivirus services (type and version): Symantec Endpoint Protection licenses for a small number of users only. The remaining users are out of protection.*
- *Backup services (hardware and software used): Manual Disk-2-Disk Backup.*

Recommendations:

- *File and print sharing should be served by windows server File Server role.*
- *AD, DHCP and DNS to be replicated*
- *Antivirus: Implement a new managed antivirus*
- *Backup Services: Tape drive and automated Disk-2-Disk backup*

Breakdown of needs (list needed items):

- *Antivirus: Kaspersky for business*
- *Backup: Tape drive included in the new HP Server – Need of new software similar to ArcServe
Disk-2-Disk – Batch file with logging to copy data from the servers to the File Server.*

DISASTER RECOVERY

No disaster recovery plan is implemented

Recommendations & Breakdown of needs (list needed items):

Disaster recovery plan will be prepared during the installation phase – Major points will include location of backup tapes – intervention during emergencies – additional devices for quick replacement in case of failure

SYSTEM SECURITY

Physical security:

- *Locked rooms:*
 - *Server room is locked with an access control device – but its locked in the kitchen's balcony and the door is an easy to break glass.*
 - *IT manager room is locked with an access control device*
- *Laptop locks – None all equipment are desktops.*
- *Power situation / availability and reliability of power: Power available but is lost randomly*
Generators is available for the building
UPS is available for the servers.
All workstations have a small UPS but the condition is unhealthy

Logical security:

- *Windows credentials*

Network security:

- *Antivirus: Symantec endpoint protection but does not cover all the users*
- *Routers: One router*
- *Backup:*
- *Security of data*
- *Application security:*

Recommendations:

Breakdown of needs (list needed items):

CLIENT EQUIPMENT AND PERIPHERALS

- *Servers:*
 - *Server1:*
Server name: X7
Model: IBM Xseries 3400
Age: More than 5 years
 - *Server2:*
Server name: EELN-01
Model: HP DL180
Age: More than 5 years
 - *Server3:*
Server name: EELN-02
Model: HP DL180
Age: More than 5 years
 - *Server4:*
Server name: EELN-03
Model: HP DL180
Age: More than 5 years

 - *Server5:*
Server name: EELN-07
Model: HP DL180
Age: More than 5 years
 - *File Server:*
Server name: File Server
Model: Lenovo EMC PX12-400r
Age: 2 years

- *Computers:*
Model: HP & Lenovo's – Age: more than 4 years – CPU: Core 2 duo and Core i3s – RAM: 2GB – Status: Should be replaced

- *Monitors:*
Model: HP & Lenovo's – Most of the monitors are CRT – should be replaced

- *Printers:*
 - *Photocopier:*
Models are old and bad status – Should be replaced

Breakdown of needs (list needed items):

- Servers: Two new servers
 - Server1:
Brand: HP – ProLiant series preferred
RAM: 64GB
Space: 3 TB Total
RAID: Raid 5 enabled
Processor: Intel Xeon E5 with 25mb cache
Redundant power supply
 - Server2: Similar to Server 1

- Desktops: (New workstations with the following specifications)
RAM: 4 or 6GB Ram
CPU: Core i5
Hard Drive: HDD 1TB
Quantity: 75

- Monitors:
Screen size: 21"
Type: LED
Quantity: 75

- Bar code reader
Quantity: 20

- Printers:
 - Photocopiers:
Type: Color printer
Size: A4/A3
Quantity: 1
 - ID Card printer:
Quantity: 2

- Dot Matrix Printer:
Quantity: 20

SOFTWARE LICENSING

Servers:

- *Operating system: Windows server 2003 on X7 Server*
Windows server 2008 on EELN01, EELN02 and EELN03 Servers
Windows server 2008R2 on EELN07 Server
- *Antivirus: Symantec – License period remaining is one year it does not cover all the clients*

Desktops:

- *Operating system: Windows xp running on 30 desktops*
Windows 7 running on 50 desktops
Windows 8 running on 11 desktops
- *Office: Microsoft office 2007, 2010*
- *Antivirus: most of the computers are out of license. Since the license implemented on the server currently does not cover enough users.*

Do they have legal software, software licenses for existing equipment?

Yes, they have legal licenses

Fortigate UTM is out of license

Cyberroam UTM is in running a license

Recommendations:

Described in the breakdown of needs

Breakdown of needs (list needed items):

Windows 7 Pro – Quantity 75

Microsoft office 2013 for Business – Quantity 75

Window server 2012 Datacenter license – Quantity 2

SQL Server 2014 Standard license – Quantity 2

Visual studio 2014 license – Quantity 1

Managed Antivirus license for 75 users – Quantity 1

Backup software license – Quantity 1

HQ UTM appliance (VPN license) – Quantity 2

Braches UTM appliance (VPN License) – Quantity 8

EXISTING IT POLICIES AND PROCEDURES AND ICT STRATEGY

Established IT policies and procedures are necessary to drive the proper use, management and maintenance of shared resources on the network. The strategy provides direction in system expansion and development as well as facilitates IT budgeting on annual basis.

Does beneficiary have established IT policies and procedures and ICT strategy?

Yes, and we will work on upgrading the policies following the solution implementation completion.

ICT CAPACITY AND LITERACY

Organizational position of IT team? The team consist of 3 members

Member 1: Issam Zok the head of IT department – Specialty networking and system

Member 2: Halim – Specialty software development

Member 3: TBD – Specialty ERP system

BUSINESS PROCESSES AND SERVICES

Business processes and services are part of the ERP solution.

This project is only for implementing an ICT solution that can host the ERP solution

IMPLEMENTATION PLAN

Implementation Schedule / Project Schedule and Project implementation resources

Implementation Plan document can be found attached.

RACI Matrix for responsibilities can be found attached

NLWE IT Department and LWP will provide acceptance

Maintenance and support

1- How will equipment/software be maintained and by whom?

NLWE IT Department & Selected Vendor

2- How do you plan to ensure software updates and patch management?

NLWE IT Department will be managing the IT infrastructure

3- Will support and service centers be available locally (in the area or in-house)?

In-house NLWE IT Department with the support of the selected vendor

4- If vendor is in charge of maintenance, provide SLA (Service Level Agreement, response time, priority, type of support onsite or off site, etc)

Vendor shall offer an SLA

Training

1- Is any training planned and/or needed for users or IT staff? (If yes, provide details)?

Yes, topics covered: UTM configuration and monitoring, Wireless communication equipment, Managed antivirus and Backup solution

How many trainees? 3 trainees from NLWE IT Department

RECOMMENDED EQUIPMENT, SOFTWARE AND SERVICES

What is the overall available budget for this activity? ██████████

BOQ File attached