STATISTICS DENMARK

Statistisk sentralbyrå
Statistics Norway

Statistiska centralbyrån
Statistics Sweden

MZ:2007:11

# Mission Report
from a short-term mission on

Windows 2003 Migration follow up and maintenance

15 – 26 October 2007

TA for the Scandinavian Support Program to Strengthen the Institutional Capacity of the National Statistics, Mozambique

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Table of contents

List of abbreviations

DBA	Database Administrator
CO	Scanstat Coordination Office in Statistics Denmark
Danida	Danish International Development Assistance
DKK	Danish Kroner
DSt	Statistics Denmark
EUR	European Euro
INE	Instituto Nacional de Estatística, Mozambique
INE-P	Instituto Nacional de Estatística, Portugal
IIS	Internet Information Server (A Microsoft product)
LTA	Long Term Advisors
STA	Short Term Advisors
MZM	Mozambique Meticais
NOK	Norwegian Kroner
PX	Family of Software produced by Statistics Sweden
Scanstat	Consortium between Statistics Denmark, Statistics Norway and Statistics Sweden
SCB	Statistics Sweden
SDMX	Statistical Data and Meta data exchange
SEK	Swedish Kronor
SSB	Statistics Norway
SQL	Structured Query Language
USD	US Dollars
XML	Extendable Mark up Language
ZAR	South African Rand

1 EXECUTIVE SUMMARY

Scope of the mission

The mission follows up on the missions in January 2004 and December 2005 about consolidation of network administration and Windows 2003 migration. This mission report is of highly technical in its form.

Since the mission in December 2005 the network staff has successfully completed the migration from Windows Nt 4.0 to Windows Server 2003.

Training in using Windows Server 2003 and in general security issues was discussed during the mission.

One of the main concerns was to ensure functionality of the antivirus software and updates from Microsoft. Changes where made to the Exchange server (e-mail) and a series of recommendations was given to ensure a more stable e-mail service.

Recommendations

It is recommended that INE in the future works on standardizing the IT architecture at the local offices. This will simplify training and maintenance.
Use of Group Policy will ease the daily administrative work.

Some of the servers at INE are becoming old (up to 7 years) and must therefore be replaced in the near future. INE should therefore set aside the necessary the budget and prepare a plane for replacing the servers.
The network implementation on the Census site was reviewed and initiatives to make identical security environment was started.

During the mission the consultants and INE staff worked through the recommendations from the two earlier missions.

And new list of recommendations was prepared and is included in this mission report.

The Network staff at INE should use the new list of recommendations as a list of prioritized task in the coming year. Attentions must be paid to the recruitment and retention of relevant staff members.

Follow up

A comparable external review of network security and general architecture should be considered every 12 month.

2 Introduction

The mission was carried out 15 – 26 October 2007.

The mission follows up on the missions in January 2004 and December 2005 about consolidation of network administration and Windows 2003 migration. This mission report is of highly technical in its form.

Since the mission in December 2005 the network staff has successfully completed the migration from Windows Nt 4.0 to Windows Server 2003.

Training in using Windows Server 2003 and in general security issues was discussed during the mission.

One of the main concerns was to ensure functionality of the antivirus software and updates from Microsoft. And to work on improving the email services through server and network optimization.

As some key staff members has left INE since the December 2005 mission a significant amount of hands on training was provided in the mission.

The Terms of reference for the mission is included as appendix 3.

Thanks to all at INE

We would like to express our thanks to all officials and individuals meet during the mission. They all provided us with the necessary information in a kind and open atmosphere which greatly facilitated our work in Mozambique. But specially, we would like to thank Mr. Lars Carlsson for being an excellent host and for a very constructive sharing of his thoughts on the project.

Our best personal professional opinion

It should be noted that this report contains our best personal professional opinions as consultants, and that they therefore do not necessarily correspond to the views of Statistics Denmark, Danida or INE.

3 Observations and recommendations

The migration from Windows Nt 4.0 to Windows Server 2003 is completed. All domain controllers and Microsoft Exchange Server is running Windows Server 2003 R2. A part of the servers is still running older Windows versions than Windows Server 2003 R2, but the Windows domain is upgraded. If there are good reasons for upgrading servers to Windows Server 2003 R2 this should be considered.

Use of Windows Group Policy (GPO) can reduce some of the manual daily tasks in the network administration. GPO is also a good way to make a more secure network and computer environment. During the mission, client configuration of Windows Update and Internet Explorer proxy settings was configured as examples on how to use the GPO technology.

The maximum size of the Exchange database has been increased in Exchange 2003 SP2 to 75 GB. At INE the size is limited by the size of the disk where the database is stored. During the mission the limit was changed from 18 go 29 GB. This gives more space to mailboxes. It should be considered to set limits on the user's mailboxes.

Most of the network staff are using their primary resources / working time on the Census project. Contemporary with Mr. Pedro Miambo has left INE to work in another company this means that resources on INE are limited. This is a problem for daily administrative tasks, and further development of the network infrastructure. Training of new staff is necessary.

INE has many sites (DPINE) in the provinces, Census administration, Census typing, and of course INE. There is an increasing need for inter communication between the sites. In the present situation there is a major need for communication from the Census typing site to exchange information with INE and Census administration site. Census administration already has an internet connection, but the Census typing site has no connections to the surrounding world.
The need to exchange documents and copy's of typed questionnaires is present. An internet connection with a VPN connection to INE and/or Census administration site can help on this subject.

Similar network environment on the different sites will be an advantage relating to the network staff resources. It requires less people and education when the environments are as similar as possible. Use identical systems for the same tasks at all sites, where this is needed and possible. This can be systems like firewall, antivirus and file sharing.

When connections to the province offices are made, it is important to develop a standard environment for all the local offices. When all sites have the same infrastructure the need of administration and support will be less complicated. It is important to ensure the network traffic between sites is encrypted with a VPN technology. By doing this it is possible to use the internet as transport media to exchange and share information and data.
When the Govnet can offer 1 Mbit connections it is supposed to be the best supplier available for network connectivity. INE is already connected to the Govnet and when province offices are connected as well, then secure connections can be established.

The existing WatchGuard firewall was replaced with Microsoft ISA server 2004 during the mission. The ISA server 2004 can be used both as firewall and proxy server. The set of rules was modified in a more restrictive way so client computers can not access the internet directly. The Census site already had an ISA server 2004 and now the configuration on both INE and Census are as similar as possible.

There have been problems with the antivirus software on client computers at INE. The TrendMicro software did not manage to communicate between clients and management software. The network staff did not have an overview of the antivirus status on client computers, and could not be sure that all had the newest antivirus pattern and engine. This was not an optimal situation for INE, and was exposed for virus attack. During the mission a lot of time was used to solve this problem. The solution is now running on both INE and Census site.

The process of updating computers with updates from Microsoft has been changed during the mission. Earlier every computer downloaded updates directly from Microsoft over the internet. Now a single server is downloading the Microsoft updates and all other computers get the updates from that server. This saves a lot of traffic on the internet connection and by that also money. The network staff can see the status of every computer in the network.

There still seems to be a problem with people storing non INE relevant data on the file servers. Movies, pictures and music files take up a lot of space on the servers. In Windows Server 2003 R2 the possibilities of controlling the content of the file shares has been improved. There are technologies for reporting and blocking on specified file types. The first report showed that 15% of the disk space on a random selected server was movie and music files. The network staff both got hands on training and manuals on how to use these technologies

4 RECOMMENDATIONS

4.1 Follow up on recommendations from January 2004

ID:	Description	Comments	Status
JAN-REC-01	Modernize old workstations	Almost all the workstations are now running Windows Xp or Windows 2000. The last 2 will be upgraded soon.	Implemented
JAN-REC-02	Add more backup tapes	New tapes are still missing. *New tapes are still missing. The tapes are 4 years old and should be replaced and more tapes should be added The tapes are ordered from a local supplier.*	Not Implemented
JAN-REC-03	Only store INE relevant data at INE equipment	The content of the fileservers are unknown. When Windows Server 2003 R2 is implemented, it will be possibility to control content by file extensions. The technique allows to ban etc. music and video files, and the users will not be able to store this kind of files. *Use of file screening in Windows Server 2003 R2 is recommended on the file servers to avoid storing specified file types. Not all file servers are running Windows Server 2003 R2.*	Not Implemented
JAN-REC-04	Upgrade physical network	The physical network is upgraded to switches. All hubs replaced with D-Link switches.	Implemented
JAN-REC-05	Add knowledge about Microsoft Exchange	Mr. Pedro and Mr. Bruno have been on the official Microsoft courses in India. *Mr. Pedro has left INE for a new job in an other company. It is recommended to add Microsoft Exchange knowledge to new member of network staff.*	Implemented
JAN-REC-06	Centralize software installation	The user still have local administrator on their workstations. Only network administration staff should install software. It is also a security risk when the users have administrative rights on the workstations. Virus, worms and spyware have better conditions. When Windows Server 2003 is implemented, the use of group policy can install software on workstations.	Not Implemented
JAN-REC-07	Establish local network at Maputo Cidad as a pilot	Local network is implemented at Maputo Cidad with a wireless solution. The personal can access web mail at INE on the modem based internet connection.	Implemented
JAN-REC-08	Analyze possible ISPs	The present ISP, TV Cabo, seems to be the most economic solution according to the INE staff. The	Wating

		other providers may have better solutions, but INE can not afford the prise of these solutions. Next year a governmental network infrastructure in part of Mozambique will be ready. INE can join the network at low cost. In a near future the first DPINE's can join the same network. *The Govnet network is established with a limited bandwidth of 128 Kbit. In 2008 the bandwidth is expected to be 1 Mbit, and by then the TV Cabo connection can be removed.*	
JAN-REC-09	Add procedures for managing the user accounts.	Procedures for managing the user accounts when employees are hired, move from one part to another inside INI, or leave INE are not implemented. There should be procedures for these tasks. Human resources must provide the network administration with this information. The technical procedures for managing user accounts should be automated by use of scripts or templates. A yearly check for consistency between the user account database and lists of employees from human resources is recommended.	Not Implemented
JAN-REC-10	Use personal normal and administrative accounts for daily work	The network administrators should have two accounts. One for daily work, and one for when administrative rights is needed. This can be implemented without any cost.	Not Implemented
JAN-REC-11	Implement password policy	Password length of 6 characters and retention period implemented. Complex password will not be implemented. Complex passwords are difficult to remember, and users might write the password one a little note on the screen.	Implemented
JAN-REC-12	Log access to systems	In Windows Server 2003 logon and logoff attempts are logged in the system log. It is recommended to install procedure for exporting the security log to file on a weekly or monthly basis. *After migration to Windows Server 2003 R2 it is now possible to save the logon/logoff activity.*	Not Implemented
JAN-REC-13	UPS capacity should be increased	A new UPS system is implemented with capacity of 2 hours.	Implemented
JAN-REC-14	Removable media should be disabled on workstations	The security policy first has to be applied by president.	Not Implemented
JAN-REC-15	Store central files in a structured way	Will be refined when the migrating of the file servers to Windows Server 2003 take place.	Implemented
JAN-REC-16	Update operation manual and prepare maintenance documentation for all systems.	Fill out information in the documentation template will give a good basis in a disaster recovery situation. The information should be updates regularly, printed and places in a safe place. This can be the same place as the backup tapes. *As the infrastructure gets more and more complex, the need of documentation increases. INE will be less depending on knowledge by individuals. There are*	Not Implemented

		existing plans on having a logbook where changes are documented.	
JAN-REC-17	Store important data centrally	The network administration presumes that most data is stored on the file servers. As long as the users have administrative rights on the workstations, they can store data locally.	(Implemented)
JAN-REC-18	Sets of backup media should be stored offsite in order to facilitate recovery after a disaster	The best solution is to have an offside location, for example in a bank box. An alternative can be a fireproof box located at a lower floor in INE. *Backup media from INE site is stored at the Census site and visa versa.*	*Implemented*
JAN-REC-19	Physical access to server room	It is recommended to find a solution as soon as possible. The ideal solution is to have a powerful door with a card reader based lock. Today 5 people have a key to the door. *There has been implemented a magnetic lock with numeric code. Today 6 persons has the code to the door. There seems to be a problem with the lock when unlocking the door from the inside. This should be solved.*	*Implemented*

4.2 Follow up on recommendations from December 2005

ID:	Description	Comments	Status
DEC01	Windows Server R2	Microsoft is releasing the new version of Windows Server 2003 in December 2005. The version is called Windows Server 2003 R2 and is binary identical to Windows Server 2003 SP1, but there is many new functions INE can use. Particularly about storage management Microsoft has made many improvements. It is recommended that INE install this version of Windows.	*Implemented*
DEC02	Update systems before migration	Implement any service packs and security updates to the Windows Server 2003 systems before start of the migration.	*Implemented*
DEC03	Windows time service	Implement Windows time service. Logging on a Windows Active Directory is depending on Kerberos. The clock on the domain controllers must match the clock on the workstations within 5 minute otherwise the users can not log on the system. A domain controller can download the correct from at time source on the internet, and the other servers and the client can get the correct time form this domain controller.	*Implemented*
DEC04	2 DNS servers	Implement 2 DNS servers. Active directory is depending on the DNS service and the entire infrastructure will not be working properly if the DNS server is unavailable. For this reason there	*Implemented*

		should be 2 DNS servers in the infrastructure. The DNS can be configured to forward DNS enquiries to an external DNS server on the internet. This will allow internal services to look-up ip addresses of external servers. This is useful for example time service. *DNS is only installed on one of the domain controllers. Second DNS server installed during the mission.*	
DEC05	2 DHCP servers	Implement 2 DHCP servers in the network infrastructure. The infrastructure can function for some days without at DHCP server, but new workstations will not be able to obtain an ip address. The DHCP service is part of the operating system, and for no extra cost, this service can be duplicated in the infrastructure. In case of disaster of one DHCP server, the other server can still maintain the service for the clients. *DHCP is only installed on one of the domain controllers. Second DHCP server installed during the mission.*	*Implemented*
DEC06	2 WINS servers	Implement 2 WINS servers. Older applications can depend on the WINS service. For this reason it is recommended to install the WINS service in the network infrastructure. The WINS service must also be duplicated like the DHCP service. *There may not be any need of WINS at all.*	*Implemented*
DEC07	Front-end mail server in DMZ	Set up a front-end web mail server in the DMZ zone. The employees at INE can read mail from a browser over the internet. To avoid direct access from the internet to the Exchange server it is recommended to implement a front end web mail server. This server then forwards mail user request to the Exchange server on the internal network. *The front-end mail server is running directly on the internal Exchange server*	*Not Implemented*
DEC08	Group policy	It is recommended to configure the windows environment and specially the security on the servers and workstation by use of group policy. When ever possible configure configuration changes by use of group policy.	*Not Implemented*
DEC09	FSMO roles	Place all Flexible Single Master Operation (FSMO) roles on a domain controller with a tape device. Windows Server 2003 has 5 FSMO roles: Schema master, Domain naming master, PDC emulator, RID master and Infrastructure master. As a general rule, the infrastructure master should be located on a non global catalog server, but in a single domain forest it is not an issue. Both domain controllers should be global catalog servers.	*Not Implemented*

DEC10		In a transitional period some servers will be in the new Windows Server 2003 domain and some servers will still be in the old Windows NT 4.0 domain. In this period permissions must be reflected to service users from both domains.	*Implemented*
DEC11	Deploy security updates.	Every second Tuesday a month Microsoft releases new security updates. Particularly the portal server but also internal servers and workstations ought to be patches on regular basis. With use of Windows Server Update Server (WSUS) this process can be simplified. INE computers can contact a central WSUS server, instead of Microsoft. This will reduce the usage of the internet connection. *Implemented during the mission..*	*Implemented*
DEC12	Assign permissions using group nesting	It is recommended to assign file permissions using group nesting. Domain local group are assigned rights on objects. Every user should have a global user group account. This group can be added to the domain local group when permissions are needed.	*Not Implemented*
DEC13	New physical firewalls	The production network is protected by an old firewall and the portal server is protected by a software firewall directly on the server. It is recommended to invest in new firewalls for better protection of the internal servers and the portal server. It is important to buy equipment that is well-known on the market, and well documented by the supplier. This may be at firewall/router from Watchguard, Cisco or some other well-known supplier. *ISA server 2004 implemented during the mission.*	*Implemented*
DEC14	Only allow needed traffic through the firewall	The traffic that passes the firewall should only be allowed if it is necessary. If possible allow traffic to and from specific hosts. A recommended firewall configuration is produced and sent to the network administration. *The firewall set of rules did not block for internet traffic from clients. It means e.g. the client computers could browse the internet without using the proxy server. A more restrictive set of rules was implemented at the ISA server 2004 during the mission.*	*Implemented*
DEC15	Portal server connected to internal network	The portal server is of course connected to the internet, but where is also a connection directly to the internal network. If a hacker can manage to get control of the portal server, he will have access to the internal network. It is recommended to move the internal network connection to the DMZ LAN. The traffic from the internal network can be routed through the WatchGuard firewall. *The portal server was connected to the internal network when developers are updating the content of*	*Implemented*

		the server. During the mission the connection between the portal server and the internal network was redesigned. Now the traffic is protected by the ISA server 2004.	
DEC16	Only browse for INE relevant information on the internet.	It is recommended that only INE relevant information is downloaded from the internet. Internet radio, video, music etc. should be banned. This can be implemented by configuration changes on the Squid proxy server.	*Not Implemented*
DEC17	Knowledge of Linux and open source	It is recommended to get basic knowledge of Linux for testing purpose. It is possible that part of the environment in the future can run on Linux. It will be advisable to get experience on this platform already now. Also look at open source software. There are many open source application that runs on the Windows platform. For example the Open Office maybe an alternative to Microsoft Office for some users.	*Not Implemented*

4.3 New recommendations concerning INE

ID:	Description	Comments
OCT01	Educate new network staff.	After Mr. Pedro Miambo has left INE there is need for educating the new member of the network staff, Mr. Edson Laisse. Search for possible providers of Microsoft courses.
OCT02	Human resources at network administration	The main resources from the network administration staff is used at the Census project. It is recommended to add more resources to the network administration staff at INE, in order to carry out the daily administrative tasks.
OCT03	Govnet network	As soon as the Govnet can offer a faster connections it is recommended to move the traffic from the TV Cabo to Govnet. By now the Govnet connection is for free, but the bandwidth is too small. Govnet will also cover the provinces and can be used to connect offices in the provinces to INE.
OCT04	Reorganize server room	There has been a situation where water has entered the server room. This could have forced a lot of damages on the hardware. It is recommended that no hardware is placed directly on the floor. It should be placed at least 10 cm off the floor. There should not be any cables on the floor as well. Only equipment in use should be located in the server room. Cardboard and other fireable stuff should not be located in the server room as well.
OCT05	Mail quota	The Exchange has limited resources for storing mails in the database. This has caused INE a lot of problems in the past. All though the size during the mission was increased to 30 GB, it is recommended to implement mailbox limitations. It is possible to have different limits on different mailboxes.
OCT06	Backup	Backup of data and Exchange is done manually by the network staff. There is no backup of the Operative Systems or databases on the servers. Data is not copied to tape on a daily basis. The needs of file, database and OS backup should be considered on

		every server. There must be a backup plan for every server and the backup tasks should be automated. The tape drives is running the LTO1 technology witch means there can be up to 80 GB on one tape. The network staff has to change tapes when running backup on large file shares. The backup takes up to 24 hours. It is recommended to invest in a new tape device e.g. LTO3 or LTO4 and of course matching tapes. All backup can be run from one server. Backup of OS can be taken to a fileshare and from here it can be copied to tape.
OCT07	Replacement of server hardware	The server farm at INE is getting older. The newest servers are over 3 years old and the oldest must be at least 7 years old. It is recommended to smoothly replace a server every year to keep hardware more up to date. By replacing one or two servers per year the costs can be kept at an acceptable level.

4.4 Recommendations concerning the Census administrative site

ID:	Description	Comments
OCT08	Backup	2 data directories are copied to a CD-ROM and move to the INE location on regular basis. This is the only backup. It is recommended to implement backup of all data and systems. There is an existent plan to implement a tape drive in one of the servers. Meanwhile backup to disk can be a solution.
OCT09	Antivirus	TrendMicro OfficeScan is installed instead of the Symantic antivirus. It must be ensured that the old antivirus software is uninstalled and replaced by the TrendMicro OfficeScan software. The license expires may 31 2008, and must be renewed before this day. Alternatively INE can consider another provider of antivirus software if the TrendMicro license is too expensive. The license covers both INE and Census sites.
OCT10	Access to server room	The server room is protected with a normal door with a key. Access to the room where voip server is located is restricted with a magnetic lock with numeric code. It is recommended that all servers are located in this room with better protection.
OCT11	Microsoft Group Policy	Servers and clients are all running in the same Microsoft Windows 2003 domain. By use of Windows group policy the network administrator can enforce security settings on servers and clients. E.g. Windows update, Windows firewall and proxy settings in Internet Explorer.
OCT12	Deploy security updates.	Client should get Microsoft updates from local Windows Server Update Service server as it is done at INE.

APPENDIX 1 List of persons met

INE
Mr. Tomas Bernardo
Ms. Anastasia Honwana

Mr. Salomão Muianga
Mr. Bruno Couto de Abreu
Mr. Edson Laisse
Mr. Anselmo Nhane

Scanstat Consortium:
Mr. Lars Carlsson, Team Leader
Mrs. Julia Cravo, LTA on Business Statistics
Mr. Søren Netterstrøm, STA Statistics Denmark

Govnet

Mr. Joaquim Gershane Tomás
Mr. Flavio

5 APPENDIX 2 List of Literature

All mission reports from the Scandinavian programme are available online on: *www.dst.dk/mozambique*

For this mission we would also like to refer to the earlier reports:

MZ-2004-04: Report from a short-term Mission on Consolidation of Network Administration by Bo Guldager Clausen and Niels Jespersen

MZ:2005:20; Win03 and Migration by Bo Guldager Clausen (English version)

APPENDIX 3 Terms of Reference

TERMS OF REFERENCE

for a short-term mission
on
Windows 2003 Migration

15 October – 25 October 2007

within the Scandinavian Assistance to Strengthen the Institutional Capacity of INE/Mozambique

Consultants: Bo Guldager and Niels Poulin
Counterparts: Tomas Bernardo, Anastácia Judas Honwana, Salomão Muianga, Pedro Miambo, Bruno Couto de Abreu

DRAFT

Background
In 2005 INE planed a migration of it's IT environment from Windows NT to the Windows 2003 environment. As part of the Scandinavian assistance to INE network administrative staff has received training in India and had made extensive planning and preparations for the migrations. It was originally hoped and planed to conduct the migration in late 2005 – however this proved not to be possible do to late arrival of the final licenses from Microsoft. It was then recommended by INE that the Consultant Mr. Bo Guldager should return after the actual migration and conduct an audit of the migration.

As INE develops the institution will be more and more depended on a well functioning network and more and more data critical data will be stored on the network. For institutions like INE which plays an important part in the functioning of Mozambique and it's government it is important to plane for the foreseeable unforeseeable in the form of both physical and logical threats to INE's network and data.

Communication through email plays are becoming more and more important if is not already the primary means of communications. It's is therefore also important to take steps to ensure the continued smooth and efficient running of INE's mailsystem. The running of the mailsystem is closely related to and integrated into the network environment but also requires a different set of knowledge Mr. Guldager will therefore be accompanied by Mr. Poulin. E-mail and data transfers will be even more important in the future as INE in the 2008-12 working plan expects to expand the activities of it's regional offices (DPINES).

Objective

The objective of this mission is to follow up on the mission conducted by Bo Guldager Clausen from the 28th of November to 9th December 2005 regarding win 2003 migration. The 2005 mission has a large number of recommendations regarding the day to day running of the IT-infrastructure. Some are critical and others are not so critical, however it's is important to follow up on these recommendations and to make additional recommendations regarding new developments in the Win 2003 environment.

New and old security issues should be carefully discussed and andressed. Attention should be made both to physical (fire / water / theft) and logical threats (vira and denial of services attacks) to data and the network. Methods of remote updating of servers and workstations should be discussed in order to improve efficiency.

The present stat of the email solution should be reviewed and recommendations made regarding general improvements of it.

Expected results

- A more secure and reliable IT environment
- Increased confidence in the IT staff regarding disaster recovery
- Improved skill's in the efficient running of the Network and WIN 2003 installation
- Recommendations for future improvements and investments in the Network
- Recommendations for future improvements and investments in the Mail solution

Activities

- A meeting with the counterparts to clarify the objectives and expectations of the mission.
- Verification of the conducted migration to win 2003
- Review outstanding recommendations from January 2004
- Review outstanding recommendations from December 2005
- Review the firewall settings and configuration and related antivirus protection
- Conduct a comprehensive review of the present state of the IT environment
- Test and verification of the present disaster recovery plans
- Prepare recommendations for future work on improving network stability and security
- Review the present mail solution
- Prepare recommendations for future work on the e-mail system
- A meeting towards the end of the mission with Counterparts to present and discuss the results and recommendations

Tasks to be done by INE to facilitate the mission

- Elaborate ToR for the mission

- Prepare and supply the consultants with necessary documents and information, such as mission reports, strategies, plans etc.
- Supply good working conditions for the consultant

Consultants and Counterpart
Consultants: Bo Guldager and Niels Poulin from Statistics Denmark

Main counterparts: Anastácia Honwana, Salomão Muianga, Bruno Couto de Abreu

Timing of the mission

Two weeks in the period 15 October - 26 October 2007

Report
The consultants will prepare a draft report to be discussed with INE before leaving Maputo. They will submit a final draft to INE for final comments within one week of the experts have returned to work. Statistics Denmark as Lead Party will print the final version within 3+ weeks of the end of the mission. The structure of the report should be according to Danida format.

The Counterpart has to ensure that the final printed report has at least a summary in Portuguese if the main report is in English – or vice versa.

These Terms of Reference were prepared by

Day / / ....

Approved by/in the name of the President of INE

Day / / ....

Prepared by:

APPENDIX 4 ACTIVITIES DURING THE MISSION

The following activities where conduct during the mission:

Monday 15 October Startup meeting with Mr. Salomão Muianga and Mr. Lars Carlsson.

Visit the census administrative, registration and warehouse site to get an overview of the network infrastructure.

Tuesday 16 October Windows file screening hands on training.

Windows file reporting hands on training.

Windows disk quota hands on training.

Exchange mail quota hands on training.

Change of maximum Exchange database size from 18 to 30 GB.

Wednesday 17 October Follow up on recommendations from 2004 and 2005 missions.

Meeting with Mr. Joaquim Gershane Tomás and Mr. Flavio from Govnet.

Test of Govnet connection.

Installation of Windows Server Update Service 3 and related documentation.

Windows Group Policy hands on training.

Thursday 18 October Hands on training on Windows Server Update Service.

Deletion of log files on Squid proxy and TrendMicro mail gateway server.

Second DNS server installed.

Second DHCP server installed. The DNS scope option change to reflect new and existing DNS environment.

Friday 19 October Initial firewall review.

Monday 22 October Reconfiguration of internal network access to portal server.

Logical and physical network infrastructure overview.

Installation of Microsoft SQL Server 2005 Express on server PRINTSRV. Mr. Søren Netterstrøm needed this database for his mission.

Tuesday 23 October Change configuration of TrendMicro mail gateway to solve mail communication problems, primary to the Norwegian embassy.

Installation, configuration and implementation of Windows ISA 2004 Server to replace the old firewall.

Wednesday 24 October Hands on training on Windows ISA 2004 Server.
Increase the maximum database limit on Windows Exchange Server from 18 to 29 GB.

Thursday 25 October TrendMicro OfficeScan server configured with the right license, so clients are able to update in a correct way from the server.

Clients configured to contact OfficeScan server to get updates.

Hands on training on TrendMicro OfficeScan server.

Hands on training on Windows Group Policy.

Review of backup situation at INE.

Friday 26 October TrendMicro OfficeScan server upgraded from 7.0 to 7.3 patch 3.

Installation and configuration of TrendMicro OfficeScan antivirus software at Census site.

Review of firewall policy at Census site. The firewall policy was reconfigured to be more restrictive.

Web mail was configured at Census site.

Proxy configuration of client computers via Windows Group Policy.