Acknowledgment

At the beginning of this research, I held the opinion that this research would be too easy to finish it by myself without the help of others, but later the I realized that it was not so, and that every human being needs the help of others as well as that human being should help others in order to live in harmony and satisfied with this life.

It was found that this research needed beside the researcher's effort, the appropriate help of those who supervise, support, and encourage him to come up with a fruitful conclusion.

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ABSTRACT

Many Information Technology Departments in both large and small organizations use more than one operating system. Sudan University use Microsoft windows server for domain control as centralized identity management. License cost and client access one of the major problems of Microsoft server. In addition to this durability and batches require a reboot which made additional problem to the service.

This research use open-source software and non-commercial technologies in order to implement reliable solution which offers benefits of high availability. This research employed network of integrated (Light weight Directory Access Protocol LDAP as back end to centralized identity management, Samba as file and printer sharing, and Kerberos as authentication service).

By developing secure domain control, the licensing costs and management overhead has been reduced, in addition to that security performance and scalability has been improved

فـي كـثير مـن شـعب تكنولوجيـا المعلومـات فـي المؤسسـات الكـبيرة والصغيرة يسـتخدم اكـثر مـن نظـام تشـغيل. تسـتخدم جامعـة السـودان للعلوم والتكنلوجيـا مخـدمات مايكروسـوفت وينـدوز للتحكـم فـي مجـال وحدة الادارة المركزية.ان تكاليف الترخيص و تكلفة ادخال اي زبـون هـي واحدة من اهم المشاكل في مخدمات مايكروسفت.بالاضافة الي اعــادة تشغيل النظام عند اضافة برامج جديدة مما يؤدي الي عدم استقراريته.

لحل هذه المشاكل تم استخدام برامج مفتوحـة المصـدر وتكنولوجيـا غيـر تجارية بتطبيق حل يمكن الاعتماد عليه بطريقة متاحة وذات كفائة عاليــة. تم استخدام شـبكة مـن المخـدمات(بروتوكـول الـدليل سـريع الوصـول باعتباره كوحدة ادارة مركزية,السـامبا فـي مشـاركة الملفـات وبروتكـول التحقق كيربيروز(.

بالتحول الي مجال التحكم الامن المطور.حصلنا علي تقليـل فـي التكلفـة وادارة موحـدة لمسـتخدمي الشـبكة.بالاضـافة الـي تحسـين فـي طريقـة الوصول مع سرية في بيانات الشبكة.

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LIST OF ABBREVIATIONS

ADSI *Active Directory Service Interface*

AFS *Andrew File System*

API *Application Programming Interface*

AS *Authentication Server*

ASN.1 *Abstract Syntax Notation One*

BDB	*Berkley database*
CAL	*Client Access License*
CBC	*Cipher Block Chaining*
CRL	*Certificate Revocation List*
DC	*distinct common*
DCE	*Distributed Computing Environment*
DES	*Data Encryption Standard*
EDU	*Education*
FTP	*File Transfer Protocol*
GID	*Group ID*
GSSAPI	*Generic Security Services Application Programming Interface*
HTTP	*Hyper Text Terminal Protocol*
IBM	*International Business Machine*
ID	*Identity*
IETF	*Internet Engineering Task Force*
JNDI	*Java Naming and Directory Interface*
KDC	*key distribution center*
KRB	*Kerberos*
LDAP	*Lightweight Directory Access Protocol*
MIT	*Ministry of Information Technology*
NFS	*New Technology File System*
NSS	*Name Services Switch*
OS	*Operating System*
OTP	*one-time passwords*
PACs	*Programmable Automation Controls*
PAM	*Pluggable authentication modules*
PDC	*Primary Domain Control*
PGP	*Pretty Good Privacy*

PKI	*Public Key Infrastructure*
PKIX	*Public-Key Infrastructure (X.509)*
RFC	*Request for Comments*
RTGS	*Remote Ticket Granting Service*
SASL	*Simple Authentication and Security Layer*
SDSI	*Simple Distributed Security Infrastructure*
SESAME	*Secure European System for Applications in a Multi-vendor Environment*
SID	*Windows identity*
SMB	*Server Message Block*
SOLGSS	*GSS-API Programming Guide*
SPKI	*Simple Public Key Infrastructure*
SQL	*Structured Query Language*
SUST	*Sudan University of Science and Technology*
TCO	*Total cost of ownership*
TGS	*Ticket Granting Service*
UID	*Unique ID*
X.509	*is an ITU-T standard for a (PKI) and Privilege Management Infrastructure (PMI)*