NameFLOW-Paradise X.500(93) Test Report - Phase Two

JH(97)001

Introduction

This is the test report from the NameFLOW-Paradise X.500(93) pilot (abbreviated to NP-93 in this document) testing that took place between 21st May and end of June 1997. A full description of the test plan can be found at http://www.dante.net/np/93pilot/phase2-plan.html. The actual tests performed were based on modified versions of the EuroSInet X.500(93) and LDAP Interoperability Test suites to make them more appropriate for the NP-93 environment.

The test suites are available in Word 6 and postscript formats:

X.500(93)	http://www.dante.net/np/93pilot/np-x500(93)-tests.doc
	http://www.dante.net/np/93pilot/np-x500(93)-tests.ps
LDAP	http://www.dante.net/np/93pilot/np-ldap-tests.doc
	http://www.dante.net/np/93pilot/np-ldap-tests.ps

Originally the testing was only intended to last for one week, but due to a slow start and the interest generated, testing effectively went on for over a month.

The first part of this document gives a general description of the findings. The second part gives a summary of the problems reported and the issues raised.

In an attempt to make this report as vendor neutral as possible, the names of the products are not mentioned. For further information you are advised to consult vendors or participants.

Overall Summary

In General the testing carried out was much more successful than during Phase 1 in 1996. All participants managed to get DAP and DSP working successfully. LDAP testing was also included this time around, which was also very successful. This all shows that the products have made a definite step forward during the past year.

The problems entering T.61 characters still seem to be present. The problems associated with configuring access control schemes, even relatively simple ones, seem to be quite large. It would appear major user interface improvements are required to allow administrators to enter Access Control Information (ACI) easily in an error-free fashion.

Only two participants attempted the shadowing tests and nobody attempted the ACI tests on shadowed data.

No significant improvements appear to have been made in support for Root Context and a definite commitment (including timescales) is sought from the vendors in this area.

DAP , LDAP and DSP

As with the Phase 1 testing carried out in 1996 (http://www.dante.net/np/93pilot/phase1-results.html), there were no real problems with DAP and DSP testing. LDAP testing was officially included this time around, which also seemed to go well. There were a few minor problems experienced with authentication and chaining, but the vendors concerned have already issued patches for these problems.

No explicit X.500(88) -> X.500(93) interworking was carried out. However, TU Chemnitz-Zwickau used an `88 DSA for mastering its information.

DISP (Directory Information Shadowing Protocol)

SWITCH and Technische Universität Chemnitz-Zwickau attempted the shadowing tests, which seemed to work with only a couple of problems, noted below.

At this time it is unclear as to why so little DISP testing was performed, it may be that people ran short of time due problems generated by other tests. Only complete naming context shadowing with complete update was being attempted, so it *should* have been a lot easier than in the Phase 1 testing.

Root Context

Currently as far as can be ascertained, no vendor's product supports the RFC 2120 proposal on the Root Naming Context and as such it was very difficult to validate the workability of this proposal. Root context operation was attempted by the root DSA and also by two country level DSAs.

As was noted in Phase 1, First Level DSA (FLDSA) single level search operation did not provide the outcome sought by NP-93 participants. NP-93 requires the FLDSA just to return the list of sub-ordinate DSAs and **not** for the DSA to chain to all the sub-ordinate DSAs, as it worked in the Quipu model.

Access Control Information (ACI)

Some ACI testing was carried out after some initial configuration problems, there still seems to be difficulty in participants being able to correctly configure all the relatively simple ACIs required. To quote one participant: "...ACI configuration is very tricky...".

No ACI tests were performed on shadowed data, presumably because only two participants managed to get shadowing to work, most people had problems with the un-shadowed ACI tests.

Better tools are required for administrators to be able to configure `sensible' ACIs quickly and without errors. If the experts involved in this testing have problems with the complexity of the current tools provided so will most other users.

DSA Management

In general the tools do not appear to have improved significantly over last year. The main problem seems to relate to the difficulty discussed in section 6 about the lack of good interfaces for configuring ACIs. It is difficult to come to any conclusions on the state of shadowing management as so little testing was done.

Although it is known that more advanced DSA management tools exist these were not made available for testing.

Product Stability

DSA stability is still somewhat worse than `88-Quipu', but maybe this is an unfair comparison as this was used in a largely single vendor environment.

There were a few occurrences of DSAs crashing but these were all fixed by software updates.

User Testing versus Vendor Testing

Since the Phase 1 testing performed last year there have been two EuroSInet workshops, one in Copenhagen and another in Munich (see http://www.eurosinet.org/workshops/ for more information), both of which seemed to get tests involving quite complex ACIs (not the same ones tested by NP-93) and shadowing to work.

As an aside, one must remember that the participants at these events are often the software developers or people with direct access to the software developers. They still experienced problems configuring their DSAs for ACI tests and getting the shadowing tests to run. Admittedly, the EuroSInet tests are more complex than those used for NP-93 testing, but one assumes that if developers are having problems in such a multi-user environment so will most users. To be fair, most of the problems that occurred during the EuroSInet workshops were resolved at the testing events or shortly afterwards, showing the effectiveness of these activities.

Results

Test Reports

The following organisations submitted test reports:

Organisation	DSA(s)
Brunel University	@c=GB@o= Brunel University
TU-Chemnitz-Zwickau	@c=DE
	@c=DE@o=Technische Universitaet
DANTE	@c=GB@o=DANTE
TU Delft	@c=NL@o=Technische Universiteit Delft
Uniwersytet Mikolaja Kopernika w Toruniu	@c=PL
	@c=PL@o=Uniwersytet Mikolaja Kopernika w Toruniu
Telecom PTT	@c=CH@o=Telecom PTT
SWITCH	@c=CH
	@c=CH@o=SWITCH
Universiteit Twente	@c=NL
[On behalf of SURFnet]	@c=NL@o=Universiteit Twente

Root DSA

@c=GB

Issues for future testing

1. It would be useful to investigate the possibility of distributing a text file, with the required test entries in an appropriate format for `bulk-loading' into DSAs. Typographical errors in test DITs were a problem, using a `pre-configured' DIT should help avoid this type of problem and significantly expedite testing.

2. A partner assignment matrix should be displayed on the NameFLOW web pages. This would keep participants up to date on what is happening and possibly encourage more testing.

3. Complete participant information should be available on the NameFLOW web site in addition to spread sheet and `root file' information on the FTP server.

4. Production of a `cheat sheet' to help new participants over some of the common pitfalls of testing.

5. Not all participants submitted test reports and those that were received could have captured more information. This situation might be solved by better form design and easier result submission by improved use of the web in addition to existing mechanisms.

6. Clarity of the DIT configuration in the test suites could be better. This could be reviewed as part of any test suite revision.

7. There were some problems confirming that referrals had worked. (Suggested fix: showentry -nocache -dontusecopy -nochain "@c=xx@o=xxx@ou=NP-93@cn=Person One")

8. FLDSAs should not have a superior DSA configured -- their only relation to the root DSA should be through their shadowing agreements with it.

9. There is a very minor issue concerning the entry for the root DSA itself. The DSA implementation running as root may require an entry in its local DIT for itself. If so, this should be prevented from being shadowed to FLDSAs by extending the chopBefore part of RFC 2120 section 4.3 to exclude the DSA entry. This isn't for security, simply to stop the DSA DN showing up in a list at the top level. This assumes that the FLDSA implementations do not need an entry in their local DIT for their shadow supplier. If this information *is* required, then it might just have to be lived with, relying on DUAs filtering it out, as indeed people do now.

General Testing Problems

1. Vendors do not appear to be committed to genuine multi-vendor interoperability. Possibly for very good commercial reasons, many seem to unofficially perceive that there is no money to be made

expending too much effort working on multi-vendor interoperability. This is backed up by the fact that most X.500 directory products are being sold into homogeneous environments where interoperability is not an issue.

2. None of the products tested conform with RFC 2120, although several vendors say they will in a future release, but will not give a timescale.

3. Products are not easy to configure, especially as far as Access Controls and Shadowing Agreements are concerned. This caused quite a few tests to fail as the ACIs were incorrectly configured.

4. There were some problems with the use of T.61 characters. Largely to do with inconsistent/ confusing data entry methods. Again this caused quite a few tests to initially fail before the errors were corrected.

5. There were problems in the test suite with the incorrect use of slashes in textEncodedORaddress.

Overall Conclusions and Way Forward

Two major conclusions can be drawn as a result of the testing that took place:

1. X.500 is perceived to be too complex to install and maintain for the needs of the NP-93 community.

2. There is lack of significant improvement in the quality of the software provided by the vendors for testing.

As a result the NP-93 community need to investigate alternatives to pure X.500. These might take the form of LDAP only, employing some kind of `Root LDAP' referral server or a hybrid X.500/LDAP solution.

These issues need to be discussed as soon as possible and a way forward developed

Appendix A - Compendium of Specific Testing Problems

Number:	1
Problem Type:	First Level DSA Configuration.
Detailed Description:	Performing a search at country level for sub-ordinate DSAa causes all the sub-ordinate DSAs to be contacted.
Solution:	This is currently a `feature' of X.500(93) and this behaviour will not change until RFC 2120 is implemented by vendors. See X.518 19.3.1.2.1 step 3 and 19.3.2.2.1 step 7 for further information.

Number:	2
Problem Type:	Entering Hexadecimal values in presentation address.
Detailed Description:	There is standard way of describing presentation address. Various syntaxes are described in different places: ISO, IETF, EuroSInet, vendors and so on. Hence how to enter the desired presentation address is unclear.
Solution:	A somewhat counter-intuitive solution was supplied by the vendor.

Number:	3
Problem Type:	RFC 2120 `fast-track solution' Clarity.
Detailed Description:	It is not clear from reading RFC 2120, exactly what information a FLDSA should store to allow this functionality to work.
Solution:	Seek clarification from David Chadwick.

Number:	4
Problem Type:	DSA stability problems
Detailed Description:	DSA losing information when restarted.
Solution:	Needs further investigation with Vendor.

Number:	5
Problem Type:	Use of labeledURIObject and labeledURI.
Detailed Description:	Not displaying correct object and attribute names, but correct OIDs are used.
Solution:	System administrator was inadvertently using beta oidtables from the previous NP-93 testing.

Number:	6
Problem Type:	DUA bind with incorrect credentials.
Detailed Description:	DSA accepts the bind but downgrades access to `unauthenticated' without any error message.
Solution:	Fixed in later version of software.

Number:	7
Problem Type:	Chaining.
Detailed Description:	Time out when running chaining tests.
Solution:	Specify `no-timelimit' option. Also investigate system clocks not being in close enough synchronisation.

Number:	8
Problem Type:	DSA instability.
Detailed Description:	Chained search causing DSA to crash.
Solution:	Fixed by patch from vendor.

Number:	9
Problem Type:	DUA bind problems
Detailed Description:	When trying to bind with DUA error message "problem with DSA" or "Error received : Service unavailable".
Solution:	Not enough information to form a conclusion. Further investigation required.

Number:	10
Problem Type:	Reading operational attributes
Detailed Description:	Operational Attributes are not accessible by anyone (test 9.4.4)
Solution:	Further investigation required.

Number:	11
Problem Type:	Shadow update
Detailed Description:	It is not possible to configure the DSA for updates every five minutes (Only on change, once an hour, once a day, once a week, consumer initiated). Update once an hour works properly (test 9.4.10).
Solution:	The five minute update cycle was chosen as a convenience for testing. This is unlikely to be a realistic time for most live systems. This issue needs to be brought to the attention of the vendor.

Number:	12
Problem Type:	DSA Instability.
Detailed Description:	SLDSA crashes when a DSP search is initiated by the FLDSA (test 7.4.8). This problem also occurred with another DSA from the same vendor.
Solution:	Patch from vendor fixes the problem

Number:	13
Problem Type:	Displaying wrong object class and attribute names.
Detailed Description:	Certain objectClass and attribute type names used in the testing document were replaced by different ones in the output display.

Solution: This problems is a product of primary and secondary naming of OIDs in the DUA oidtable files. This is not a problems as such. Users just need to be aware of it when they get unexpected names displayed. Presumably the oidtables could be altered as required.

Number:	14
Problem Type:	Problems installing DSA.
Detailed Description:	Software would only install correctly in the default directory .
Solution:	A somewhat messy work-a-round was developed using symbolic links.