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# **Arabic Domain Name System (ADNS)**

Thesis Submitted in-partial Fulfillment of the Requirement of  
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## **Abstract**

There have been several attempts aimed at developing an *Arabic Domain Name System* (ADNS) using Arabic characters in an Arabic-language coherent fashion. In the beginning of the second quarter of 2003, an *Arabic Domain Name Task Force* (ADNTF) was formed under the auspices of United Nations Economic and Social Commission for Western Asia (ESCWA), and the guidance of *Multilingual Internet Names Consortium* (MINC) one of its main objectives was to help define standards for ADNS.

This research trying to resolve the linguistic issues, by developing ADNS server which allows the client to enter Arabic addresses in to the (URI) and then to load a website from the web server.

To achieve the research goal several software tools were used such as VMware software to install the operating systems in the server and the client devices, and Apache Server was used to host Arabic websites, also the DNS and HTTP services are reconfigured to support Arabic URLs. After the ADNS configuration was applied and used arabic URL, the webpage had been loaded successfully.

## المستخلص

لقد كانت هناك محاولات عديدة تهدف إلى تطوير نظام اسماء نطاقات عربية (ADNS) باستخدام الأحرف العربية بطريقة متصلة باللغة العربية. في بداية الربع الثاني من عام 2003، تم تشكيل فرقة عمل اسم النطاقات العربية (ADNTF) تحت رعاية الأمم المتحدة – اللجنة الاقتصادية والاجتماعية لغربي آسيا (ESCWA) - ، وتوجيه من اتحاد أسماء الإنترنت متعددة اللغات (MINC). إن من الأهداف الرئيسية لفرقة عمل اسم النطاقات العربية هو المساعدة على تحديد معايير لاسماء النطاقات العربية ADNS.

ان هذا البحث يحاول حل المشكلة اللغوية لأسماء النطاق، من خلال تطوير نظام لاسماء نطاقات عربية (ADNS) يسمح للعميل بادخال عنوان باللغة العربية في مربع العناوين (URI) ومن ثم ليقوم بتحميل موقع من خادم الويب.

لتحقيق هدف البحث تم استخدام العديد من الأدوات البرمجية مثل برنامج (VMware) لتثبيت أنظمة التشغيل في اجهزة المخدم والعميل، وتم استخدام خادم ويب (Apache Server)، لاستضافة مواقع عربية، أيضا تمت إعادة تهيئة خدمتي DNS و HTTP لتدعم عناوين المواقع العربية.



## **1.1 Introduction**

The Arab region suffers from a digital divide that is mostly manifested in the form of the lowest regional Internet usage rate in the world. Language is identified to be one of the main barriers to widespread Internet usage. Along with the attempts to increase the volume of Arabic content on the Internet, there have been also several attempts aiming at the Arabization of Domain Names themselves. These attempts, when completely successful, will create the thrust for a second wave of Internet spread across the Arab region. The future of Arabic Internet names is imminent; there is substantial market and user demand for Arabic Domain Names.

To satisfy this demand, the entire environment will need to be developed to take into account technology standardization, policy and administrative arrangements, as well as new applications. The significance of these efforts should not be underestimated, as it is part of a far nobler goal: the ongoing internationalization of the Internet. The IDN Standards issued by the IETF solve the generic domain name access issue for scripts beyond the limitation of the existing ASCII character set. Localized implementations are to be drawn from this set of standards. This draft provides specific guidelines for the use of Arabic language and provides a foundation for other documents encompassing languages that use similar scripts (e.g. Urdu, Farsi). The ADNTF will cooperate with experts from the Urdu and Farsi speaking Internet community in order to cover these languages and address other organizational and policy issues in an interoperable manner.

## **1.2 Research Problem**

The major problems of this research are:

- Current ASCII-based DNS are incapable of representing Arabic characters.
- Difficulty to reach Arabic sites using English DNS (pronunciation and spelling problems).

## **1.3 Objectives**

The objectives of this research are:

- To establish and implement Arabic Domain Names System (ADNS).
- To increase the Internet use in the Arab world by making the Internet easier to use for native Arabic speakers.

## **1.4 Methodology and Tools**

In this research the concept of the Domain Name Server (DNS) is reviewed, and also the main types and operations of DNS are studied. So an analytical and an experimental methodology was adopted.

The following tools are used:

- VMware software program was used to install RedHat Enterprise Linux (version 4) operating system into the server, and also to install Windows XP into the client.
- In the side server the web service and the DNS service configuration were applied and we reconfigure the DNS service to be able to deal with ADNS, also in the client side we installed Mozilla Firefox Browser software program to display the requested website.

## **1.5 Research Layout**

The thesis consists of six chapters, in addition to the list of references. Chapter two consider a general overview of the Domain Names System (DNS). Chapter three gives a general overview of Domain Names that includes the operations of the Domain Names, and the types of the Domain Names. Chapter four concerns with the Zone Files that used in the Domain Names System. Chapter Five dedicated for Development of the Arabic Domain Names System (ADNS). Finally, Chapter six present research conclusion and recommendations for future work.

