

# **Domain Notation is Backwards Another Unnoticed Engineering Mis-Design**

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## **Contents**

**1 Work In Progress**

**1**

## **List of Tables**

# 1 Work In Progress

Here are the raw email notes that relate to this topic.

Revisiting The DNS Notation Backwardsness Problem and Multiple Parallel Root Server Clusters

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* To: "Stephen Sprunk" <ssprunk at cisco.com>
* Subject: Revisiting The DNS Notation Backwardsness Problem and Multiple Parallel Root Server Clusters
* From: Mohsen BANAN <public at mohsen.banan.1.byname.net>
* Date: 07 Aug 2002 19:20:50 -0700
* Cc: "Internet Technical Community" <ietf at ietf.org>, <public at mohsen.banan.1.byname.net>
* In-reply-to: <075e01c23d85$d3316690$dd876540@amer.cisco.com>
* References: <20020806134223.1611.qmail@submit8.mail.intra> <075e01c23d85$d3316690$dd876540@amer.cisco.com>
* Sender: owner-ietf at ietf.org
* User-agent: Gnus/5.0808 (Gnus v5.8.8) XEmacs/21.4 (Common Lisp)
```

>>>> On Tue, 6 Aug 2002 15:13:58 -0500, "Stephen Sprunk" <ssprunk at cisco.com> said:

>> Most notably, The DNS Notation Backwardsness.

Stephen> You'll note that JANET originally used the notation you refer to as "forwards"  
Stephen> and it was decided that was a bad idea, and they joined the "backwards" notation  
Stephen> crowd.

I spent a fair amount of time in early 1999 and educated IETF cult's chiefs about

The DNS Notation Backwardsness Problem

The conclusion of that thread was that indeed we have a genuine architectural DNS Notation Backwardsness Problem. I included samples of acknowledgement of the problem in my previous message. Was hoping by now that would be enough.

Perhaps you have not been around long.

I don't feel like leading that educational process on this list again. However, I am attaching to this message a summary from the January 1999 thread which adequately describes the problem.

My thinking now, as it was in 1999, is that those who insist on denying real problems can be left behind.

The key point now is that the effort that Stef is now leading towards the natural parallel server clusters

evolution provides a unique opportunity towards fixing the notation problem as well.

As we consider raising the DNS name space roof we have an opportunity to deal with other aspects of the DNS notation.

Despite previous failures of the IETF in dealing with architectural problems, I'd like to think that the clear nature of this opportunity to fix the notational problem may resonate with some in the Internet Technical Community and result into a movement towards a solution ... Perhaps along the lines that I suggested.

--- Original Jan 21 1999 DNS Backwards Notation Problem Description Follows ---

From: Mohsen BANAN <mohsen at neda.com>  
To: Brian E Carpenter <brian at hursley.ibm.com>  
Cc: ietf at ietf.org  
Subject: Re: Now: Next Generation Domains and DNS -- Was: Re: No More Central Authority: Not NSI/ICAN! Not  
Date: Thu, 21 Jan 1999 22:41:13 -0800 (PST)

[This is a summary response which in addition to Brian's message addresses others' related comments.]

>>>> On Thu, 21 Jan 1999 16:24:12 +0000, Brian E Carpenter <brian at hursley.ibm.com> said:

Brian> What I meant, and I think conveyed very accurately, is that  
Brian> both computers and humans can parse strings in either direction,  
Brian> so there is no "right" and "wrong". That being so, there is no  
Brian> reason to change anything and introduce confusion.

>>>> On Thu, 21 Jan 1999 21:20:14 +0400, Peter Dawson <peterdd at gto.net.om> said:

Peter> no doubt that computers parse in either directions..zats  
Peter> because people programmed them to. ...

This is not about parsing of strings.

It is about a fundamental architectural design decision. Based on what we have learned over the past 15 years, the "right" and the "wrong" are quite clear now.

Key architectural attributes for "right" and "wrong" are consistency, uniformity, cohesion, fitness in bigger pictures, usability, ...

These are not any "strings". Naming and addressing are an integral part of the architecture of any network. One of the reasons why X.400 died is because its addressing design was unworkable.

With a variety of methods, even in an evolutionary way, we have an opportunity to improve on the current Domain Notation situation.

Yes, we have a problem. Our notation for Domains \*IS\* backwards. The first step is to recognize and acknowledge that.

Brian, the fact that you, the Chair of Internet Architecture Board, is denying the existence of this architectural problem -- and consider it a string parsing issue -- is quite disturbing to me.

Let me try again and make the existence of the problem more clear.

Right now Internet Domains don't fit right with numbers and the rest of the user's integrated environment.

Any time that numbers and Domains have to work together, it becomes un-natural, inconsistent and backwards. I call that "wrong".

Examples:

IP Addresses:  
-----

To find the name corresponding to the IP address of your nameserver which is: 194.196.110.155

I have to enter it backwards (wrong).

155.110.196.194.in-addr.arpa name = sp2tr5.hursley.ibm.com

In that case the natural (right) could have been.

arpa.in-addr.194.196.110.155

Fax Numbers:

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To send a fax to +1.888.555.2222 using say  
tcp.int:

I have to put the numbers in backwards.

remote-printing.Name at 2.2.2.2.5.5.5.8.8.8.1.tpc.int

Phone Numbers:

-----

If the Domains were straight I could imaging  
doing stuff like:

Call net.ByNumber.1.888.555.3333:voiceOverIP:"collect"

Can't do that with today's Domain Notation.

Let's go beyond numbers now.

Any time that anyone tries to use a consistent  
mechanism for "completion", network objects  
fail.

The file system guys got it right. The OS guys  
got it right. The language guys got it  
right. Us, the network guys, got it backwards!

I can't even try to use completion for URLs, I  
can't use completion for email addresses,  
can't ...

To me, "completion" is the ultimate test of  
designing naming and addressing machinery.

Before people come back and say,

"Oh, this is not a network or a protocol

problem it is just a User Interface problem."

Let me say: If the protocol gets it wrong, in practice the User Interface can't fix it. There is no reason for not also fixing it at the protocol level (evolutionary of course).

For example, the fact that no nslookup program (that I know of) over the years have provided a "straight" User Interface for in-addr says something ...

As for the merits of mimicing the US Postal Service. First let me point out that the "backwardsness" problem goes beyond email addresses and currently touches all service identifiers.

More importantly to the extent that the production of addresses on USPS envelopes do not involve a machine, for obvious reasons, the drivers are human-to-human factors. Even then, the human is expected to assist the machine (in the US) with ZIP+4 numbers. ZIP+4 is the man-machine part of the address. Now, ZIP+4 has the "right" order characteristics.

For example, my ZIP+4 is: 98008-5765. The left most digits "98" correspond to the State Of Washington. What is on the left is the larger entity.

Now, if I want to use the Domain Notation to set up a Physical Delivery Access Unit, then the address would become something like:

Mohsen.Banan at 5765.98008.ByZipCode.us

Again backwards!

You see, the USPS doesn't have much of a problem here. Not much needs fixing there ...

To move the Internet forward, our Domain Notation can benefit from some improvement.

Now, after all of this if there was to be an acknowledgment that there is an architectural problem here and that this is not a "strings parsing" issue which can go either way, then may be we can work on solutions ....

Or, we can just sweep known problems under the rug.

Your Call!

us.ByZipCode.98008.5765 at Mohsen.Banan

\* Follow-Ups:

- o Re: Revisiting The DNS Notation Backwardsness Problem and Multiple Parallel Root Server Clusters  
+ From: Stephen Sprunk
- o PTR records and software support (was Re: Revisiting DNS Notation  
+ From: Valdis . Kletnieks
- o Re: Revisiting The DNS Notation Backwardsness Problem and Multiple Parallel Root Server Clusters  
+ From: Dave Crocker

\* References:

- o Revisiting - Re: Now: Next Generation Domains and DNS -- Was: Re: No More Central Authority: No  
+ From: Mohsen BANAN
- o Re: Revisiting - Re: Now: Next Generation Domains and DNS -- Was: Re: No More Central Authority: No  
+ From: Stephen Sprunk

\* Prev by Date: RE: [Feedback] Word Template

\* Next by Date: Re: Revisiting The DNS Notation Backwardsness Problem and Multiple Parallel Root Servers

\* Previous by thread: Re: Revisiting - Re: Now: Next Generation Domains and DNS -- Was: Re: No More Central Authority: No

\* Next by thread: Re: Revisiting The DNS Notation Backwardsness Problem and Multiple Parallel Root Servers

\* Index(es):

- o Date
- o Thread

Note: Messages sent to this list are the opinions of the senders and do not imply endorsement by the IETF.

## References