

***Juniper Networks, Inc. v.
Monarch Networking Solutions LLC***

**IPR2024-00485
U.S. Patent No. 8,451,844**

Hearing: May 7, 2025

Summary: Grounds

Grounds	Claims Challenged
1. Li + Li-2	1-10
2. Li	1-10
3. Li + Wu	1-10

Summary: Disputed Points

Ground	Disputed Points	Claims
All	Patent Owner asserts that Li's Figure 7 is not an <i>inter</i> -domain network even though Figure 7 is included in a section titled "Extensions to Inter-Domain Environment" and uses protocols that are specific to inter-domain routing.	1-10
1	Patent Owner argues that Li-2 is not prior art even though it is dated before the priority date and existed for over 15 years in a staging folder known to POSITAs.	1-10
2	Patent Owner contends that Petitioner's simultaneous-invention evidence does not teach every limitation of the claims, even though the simultaneous-invention evidence is only "additional, although unnecessary, evidence" that is not needed to invalidate the claims. <i>In re Merck & Co.</i>, 800 F.2d 1091, 1098 (Fed. Cir. 1986). Patent Owner also fails to show that the case law requires petitioners to show that simultaneous-invention evidence teach every claim. Even if that were required, the simultaneous-invention evidence does teach all limitations.	1-10
3	Patent Owner makes multiple discrete attacks on the combination of Li and Wu that suffer from the same defect: they misunderstand the proposed combination and incorrectly suggest that a POSITA would need to incorporate disclosures in Wu that are not relevant to the proposed combination.	1-10

'844 Patent Overview

The Patent Discloses Creating IPv6 Packets from IPv4 Packets

“The invention improves upon the above situation by means of a method of receiving a data packet coming from an IPv4 domain in an IPv6 domain. According to the invention, said data packet includes an IPv4 destination address and a destination port number and said method includes the following steps:

constructing an IPv6 destination address by concatenating an operator prefix, said IPv4 address, and the destination port number;

generating an IPv6 data packet from the IPv6 constructed destination address and the received IPv4 data packet; and

routing the generated IPv6 data packet”

Ex. 1001 ('844 Patent) at 2:59-3:8; Petition 8-9.

Example Claim from the '844 Patent

1. A method of receiving a data packet from an IPv4 domain in an IPv6 domain, said data packet comprising an IPv4 destination address and a destination port number, said method comprising the following steps:

constructing an IPv6 destination address by concatenating an operator prefix, said IPv4 destination address, and the destination port number;

generating an IPv6 data packet from the IPv6 constructed destination address and the received IPv4 packet; and

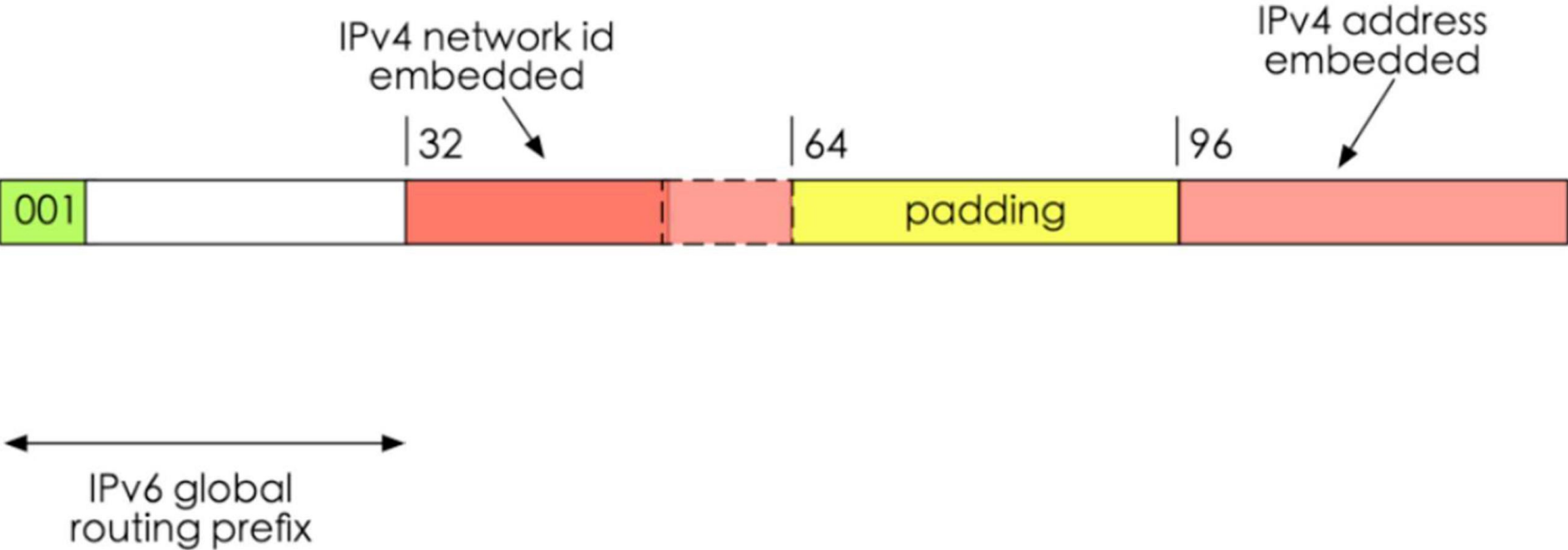
routing the generated IPv6 data packet in the IPv6 domain using the IPv6 constructed destination address, said constructed address belonging to a range of IPv6 addresses routable to an interconnection equipment of the IPv6 domain with the IPv4 destination address.

Ex. 1001 ('844 Patent) at Claim 1.

Summary of Prior Art

Li Teaches Mapping IPv4 Packets into IPv6 Packets (and Vice Versa)

“In this paper, a new technique of forwarding IPv4 traffics in pure IPv6 backbone is proposed. In order to provide a transparent environment for users to run their IPv4 applications and to have accesses to the existing IPv4 content services, *IPv4 packets are mapped into IPv6 (or vice versa)* automatically at the edge of the IPv6 backbone, with the help of BGP routing tables.”



Ex. 1037 (Li) at 1, 3; Petition 15, 18.

Li Teaches Mapping IPv4 Addresses into IPv6 Addresses (Example)

TABLE I. SOME ADDRESS MAPPING EXAMPLES

IPv4 prefix/address	IPv6 prefix/address
202.112.0.0/13	2001:da8:ca70::/45
166.111.0.0/16	2001:da8:a66f::/48
166.111.172.1	2001:da8:a66f:ac01::a66f:ac01



IPv6 Prefix



IPv4 Address



Unused Padding

Ex. 1037 (Li) at 3; Petition 18-19.

Li-2 Extends Li to Include Port Numbers in the Constructed IPv6 Address

“To future increase the utilization ratio of the public IPv4 address; the port multiplexing *inside* the ISP(i)’s /32 can be deployed [RFC2766]. This is to say that a single borrowed IPv4 address (IVI4(i)) can be used for multiple IVI6(i) addresses. The mapping scheme is to use the *least significant bits* in the IVI6(i) to define the multiple mapping and combine the transport-layer port number to uniquely perform the mapping from IVI4(i) to IVI6(i).”

Ex. 1038 (Li-2) at 14; Petition 23-24.

	IPv6 PREFIX	IPv4 ADDRESS	PORT NUMBER
202.38.108.2#81 -->	IVI61=2001:250:	ffca:266c:0200::	81#81
202.38.108.2#82 -->	IVI61=2001:250:	ffca:266c:0200::	82#82
202.38.108.2#83 -->	IVI61=2001:250:	ffca:266c:0200::	83#83
202.38.108.2#84 -->	IVI61=2001:250:	ffca:266c:0200::	84#84

Ex. 1028 at 22; Petition 24.

Wu Also Teaches Including a Port Number in an IPv6 Address

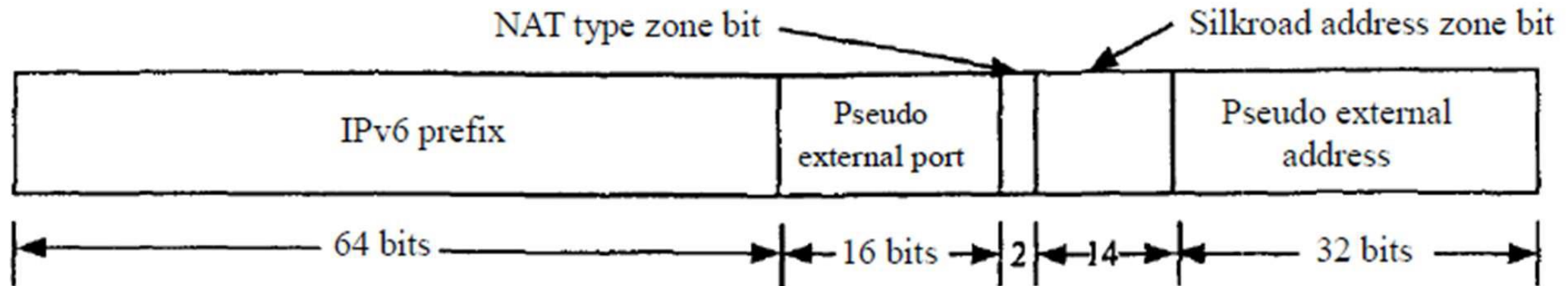


Fig. 1

“The first 64 bits of the constructed IPv6 address correspond to an IPv6 prefix. *Id.*, 11. The next 16 bits correspond to the external **port number**. *Id.*; see EX1003, ¶206. The next 2 bits indicate the type of NAT used in the network. EX1039, 11. The next 14 bits are padded with 0s, reserved for a ‘Silkroad address.’ *Id.* And the final 32 bits correspond to the external IPv4 address. *Id.*, 12; EX1003, ¶206.”

Petition 68; Ex. 1039 (Wu) at Figure 1.

Claim Construction and Level of Skill in the Art

Level of Skill in the Art: Undisputed

“A person of ordinary skill in the art (“POSITA”) in June 2008 would have had a Bachelor of Science degree in electrical engineering, computer engineering, computer science, or a related subject, and three years of work experience in computer networking, including experience with the IPv4 and IPv6 protocols, or a related field. EX1003, ¶¶53-55. Lack of professional experience can be remedied by additional education, and vice versa. *Id.*”

Petition 10.

“For purposes of this proceeding, Patent Owner does not contest Petitioner’s recitation of the level of skill in the art”

Patent Owner Response 19.

Claim Construction: The Parties Dispute the Meaning of “Domain”

“Patent Owner did not seek a construction of the term ‘domain’ in the prior litigation against Cisco, and the court did not construe the term. EX1036. However, Patent Owner has previously argued in an IPR that the ‘domain’ should be construed to mean ‘a network or subnetwork and its address space that are under common control.’ EX1034, 20-21. Patent Owner further argued that two networks that are controlled by the same entity cannot be separate domains under the ’844 patent’s use of the term. *Id.*, 27-29. Patent Owner’s previously offered construction and arguments regarding the term ‘domain’ are incorrect. EX1003, ¶90.”

Petition 31.

“Petitioner additionally argues that ‘domain’ should be construed as ‘[a] telecommunications network administered by an operator.’ See Pet. at 31. For the reasons set forth below, Patent Owner proposes a different construction of ‘domain’ that better captures the scope of the term.”

Patent Owner Response 20.

All Grounds: Li's Figures, Including Figure 7, Teach Inter-Domain Environments

The Board Already Rejected Monarch's Argument Regarding "Domains"

“Patent Owner contends that ‘the networks identified by Petitioner as purported separate domains are instead all part of a single provider domain.’ . . . On this record, Patent Owner’s argument is unavailing. Li’s Figure 1 depicts a ‘basic scheme’ for ‘[i]ntra-domain IPv4-overIPv6 transition.’ And Figure 1 labels the IPv4 networks as ‘IPv4 [s]ubnet[s].’ In contrast, Li’s Figure 7 depicts an extension of the basic scheme ‘to fit the requirements of forwarding IPv4 traffic in an *inter-domain* environment.’ Consistent with this distinction, Figure 7 includes IPv4 ‘access networks’ with ‘independent AS numbers,’ rather than IPv4 subnets. Thus, the evidence of record indicates that Li’s Figure 7 depicts IPv4 access networks that are separate domains from the IPv6 provider.”

Institution Decision 11 (citations omitted).

The Board Was Correct: Figure 1 Teaches an Intra-Domain Environment

“On this record, Patent Owner’s argument is unavailing. Li’s Figure 1 depicts a ‘basic scheme’ for ‘[i]ntra-domain IPv4-overIPv6 transition.’ And Figure 1 labels the IPv4 networks as ‘IPv4 [s]ubnet[s].’”

Institution Decision 11 (citations omitted).

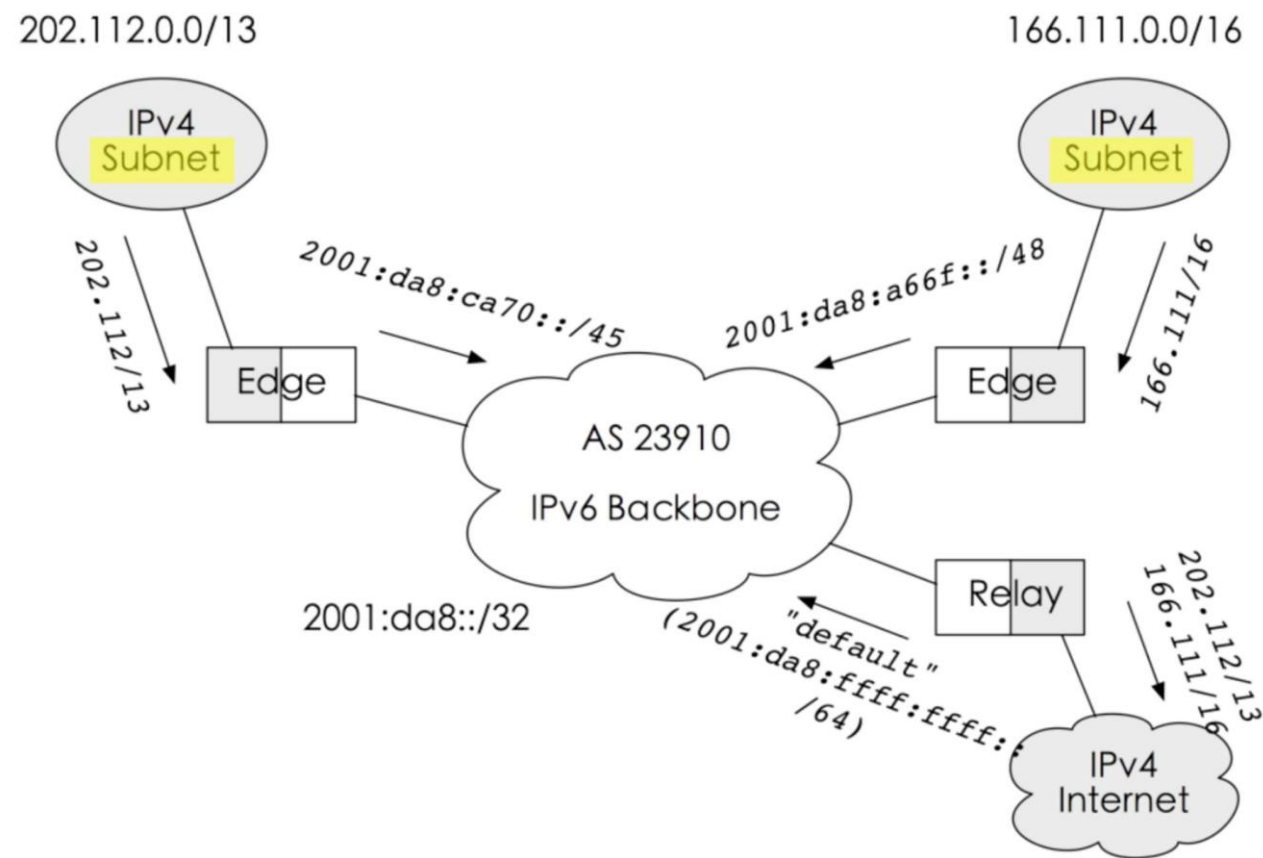


Figure 1. Intra-domain IPv4-over-IPv6 transition

Ex. 1037 (Li) at 3 (highlighting added); Reply 5.

The Board Was Correct: Figure 7 Teaches an *Inter*-Domain Environment

“On this record, Patent Owner’s argument is unavailing. . . . In contrast, Li’s Figure 7 depicts an extension of the basic scheme ‘to fit the requirements of forwarding IPv4 traffic in an *inter-domain* environment.’ Consistent with this distinction, Figure 7 includes IPv4 ‘access networks’ with ‘independent AS numbers,’ rather than IPv4 subnets.

Institution Decision 11 (citations omitted).

IV. EXTENSIONS TO INTER-DOMAIN ENVIRONMENT

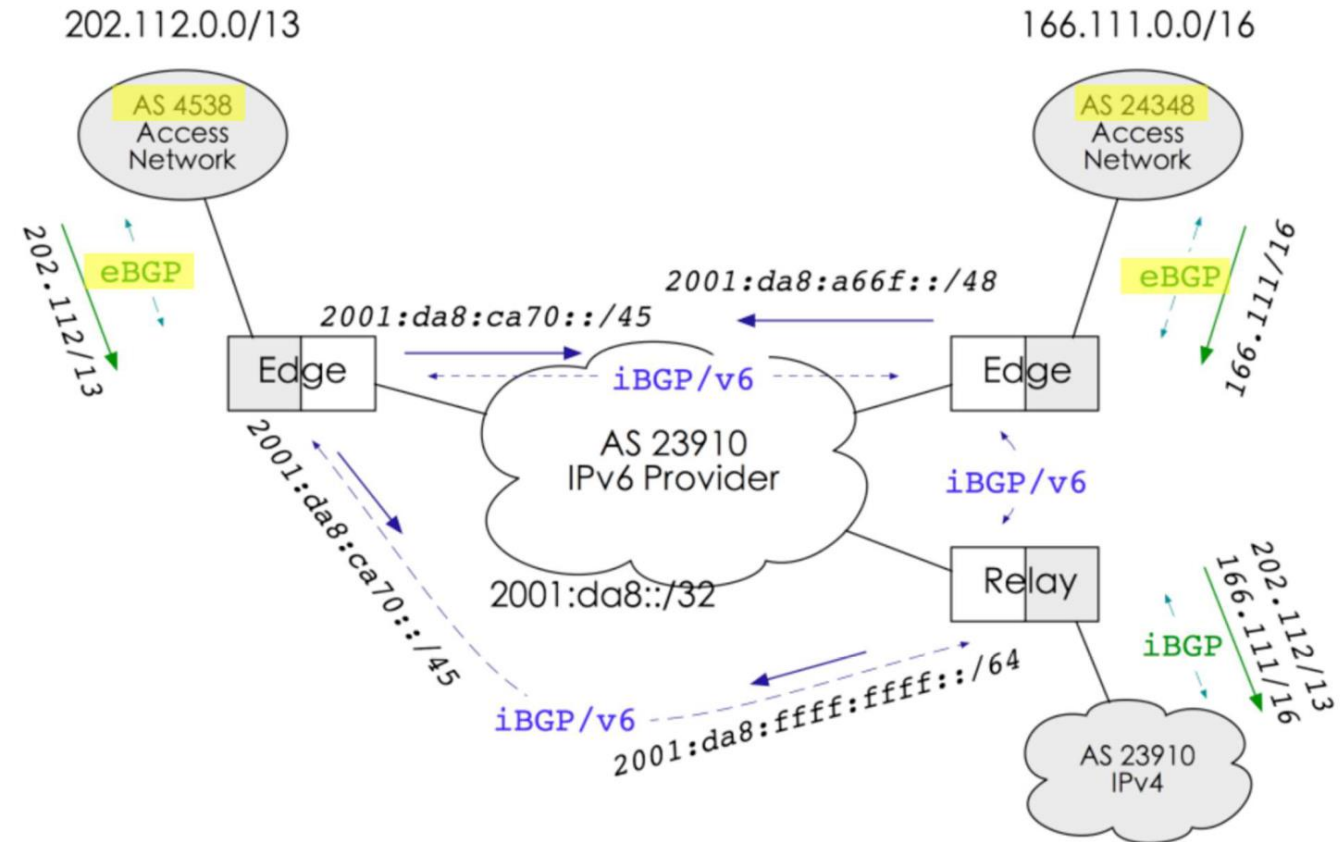


Figure 7. IPv4-over-IPv6 transition for access networks

Ex. 1037 (Li) at 6-7 (highlighting added); Petition 32; Reply 6.

The Record Has Only Gotten Stronger Since Institution: BGP

“BGP is in fact the primary *interdomain* routing protocol, and has been in use since the commercialization of the Internet.”

Ex. 1058 at 13; Reply 6.

“[W]hile EGPs or the *inter-domain* protocols are responsible for the exchange of reachability information between different ASes. The only *inter-domain* protocol currently employed on the Internet is the Border Gateway Protocol (BGP).”

Ex. 1060 at 1; Reply 6.

“BGP-4 provides a new set of mechanisms for supporting classless *interdomain* routing.”

Ex. 1061 at 2; Reply 6.

IV. EXTENSIONS TO INTER-DOMAIN ENVIRONMENT

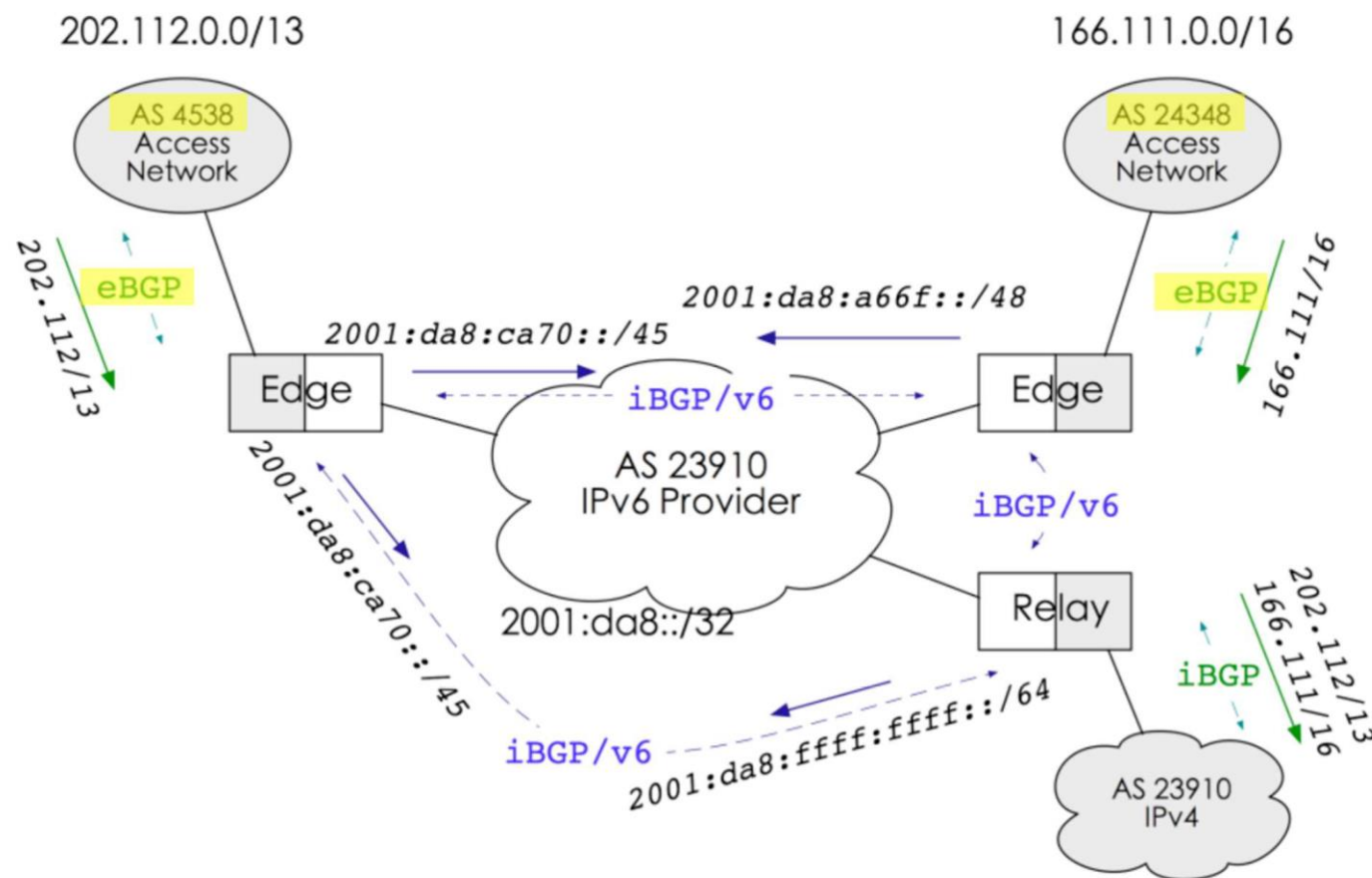


Figure 7. IPv4-over-IPv6 transition for access networks

Ex. 1037 (Li) at 6-7 (highlighting added).

The Record Has Only Gotten Stronger Since Institution: ASes

“The collection of routers, computers, and other components within a single administrative **domain** is known as an **autonomous system (AS)**.”

Ex. 1058 at 13; Reply 6.

“Internet routing is implemented using a distributed system composed of many routers, grouped into administrative **domains** called **Autonomous Systems (ASes)**.”

Ex. 1059 at 1; Reply 6.

IV. EXTENSIONS TO INTER-DOMAIN ENVIRONMENT

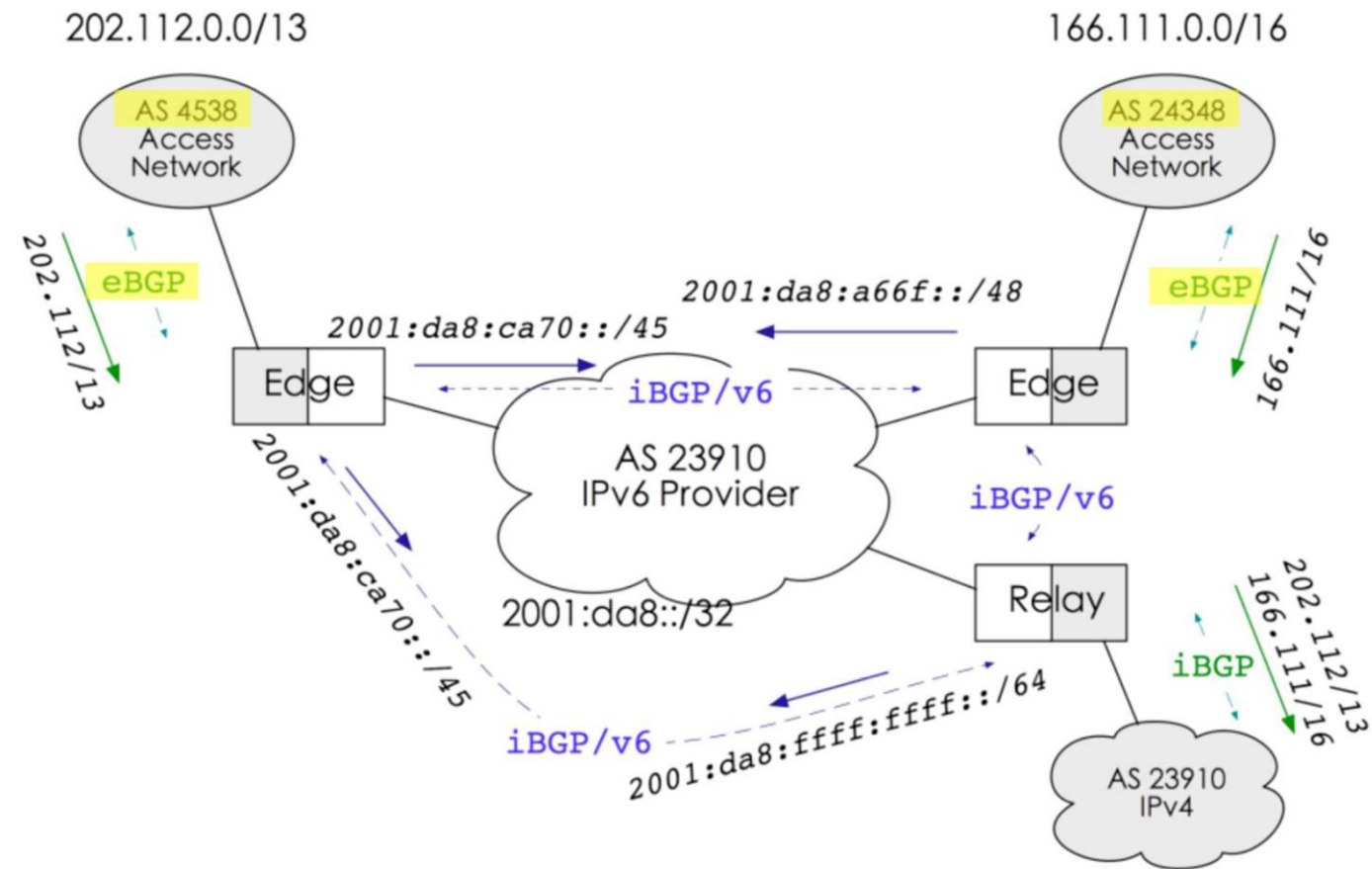


Figure 7. IPv4-over-IPv6 transition for access networks

Ex. 1037 (Li) at 6-7 (highlighting added).

Instead, Patent Owner Re-Hashes Arguments the Board Already Rejected

“Patent Owner contends that ‘the networks identified by Petitioner as purported separate domains are instead all part of a single provider domain.’ . . . On this record, Patent Owner’s argument is unavailing.”

Institution Decision 11.

“Under the proper construction of ‘domain’ (*see supra* Section IV.A), Petitioner fails to demonstrate that Li discloses separate IPv4 and IPv6 domains, as required by the claim language. EX2015 ¶67-76. First, Li teaches that the networks identified by Petitioner as purported separate domains are instead all part of a single provider domain. *Id.* ¶67.”

Patent Owner Response 23.

PO's Attempt to Distinguish Li Actually Confirms That Li Teaches Domains

“In this regard, the specification highlights the difference between a private domain (a network that is controlled or administered by a *homeowner or business entity*), and a domain operated by a service provider.”

Patent Owner Response 20.

“In this section, we extend the scheme in two models: 1) stub autonomous systems are connected to an IPv6 backbone, *as customer networks* of the latter, and only have accesses to IPv4 hosts within the scope controlled by the provider;”

Ex. 1037 (Li) at 6; Petition 50; Reply 7.

PO's Attempt to Distinguish Li Actually Confirms That Li Teaches Domains

“A telecommunications network administered by an operator is also referred to as a domain.”

Ex. 1001 ('844 Patent) at 1:30-31.

“In some circumstances, said service provider is also the telecommunications network operator.”

Ex. 1001 ('844 Patent) at 1:35-39.

“According to another aspect of the invention, the IPv4 domain is a private network and the access equipment is a home gateway adapted to connect user terminals of the private network to the IPv6 domain.

By private network is meant any type of home or business network.”

Ex. 1001 ('844 Patent) at 4:59-64.

Extrinsic Evidence Does Not Support Patent Owner's Construction

- Extrinsic evidence cannot override lexicography in the patent
- Even if it could, the extrinsic evidence does not support Patent Owner's construction

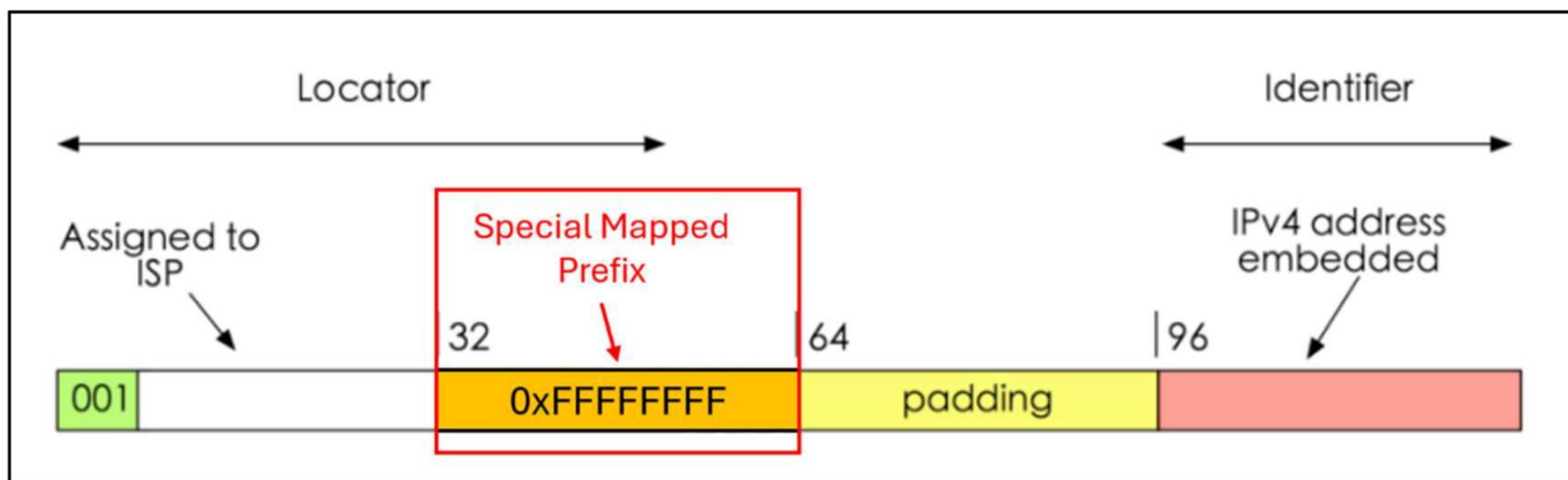
“**Domain** The part of a computer network in which the data processing resources are under common control. That’s the formal technical definition. But when the Internet came along, the definition got a little looser. . . .

Some people think of a domain as a group of computers on a network that share something in common, such as the job they do, the organization type they belong to, or their location.”

Ex. 2003 at 3-4; Reply 3-4.

PO Admits That Other Figures in Li Teach “Domains”

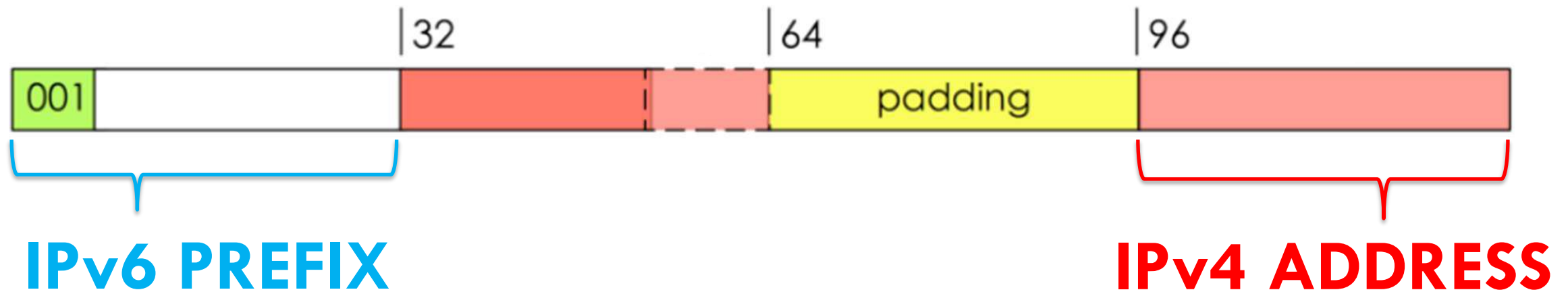
- Patent Owner admits that Li’s other figures teach inter-domain networks
- Patent Owner concedes that Li’s invention operates the same in these other figures as it does in Figure 7



“That Figures 1 and 7 illustrate an intra-domain solution is further confirmed by Figures 8, 10, and 11, which illustrate inter-domain deployments. For instance, Figure 8 depicts an inter-domain environment in which ‘two providers are interconnected by native IPv6 link’ EX1037 at 8.”

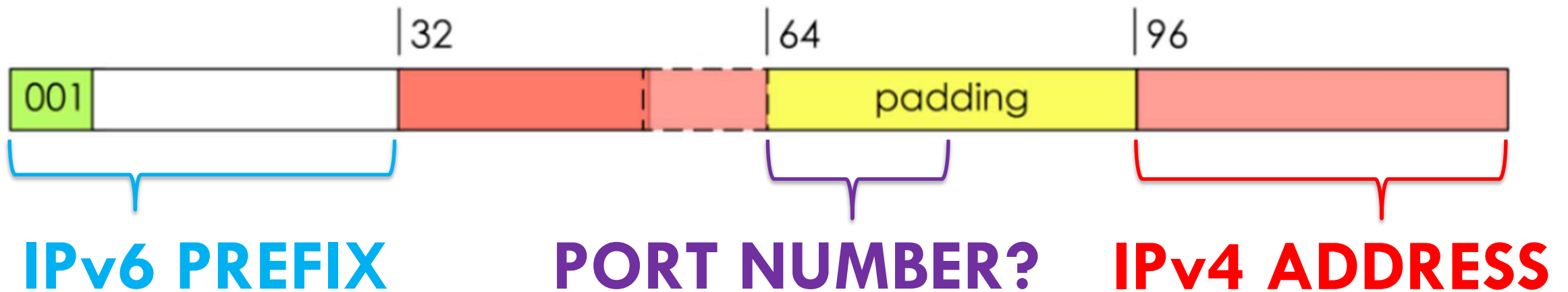
Patent Owner Response 14, 27; see also Reply 7-8.

Thus, the Only Claim Element Missing from Li Is a Port Number



Petition 34-36, 64-65.

Thus, the Only Claim Element Missing from Li Is a Port Number



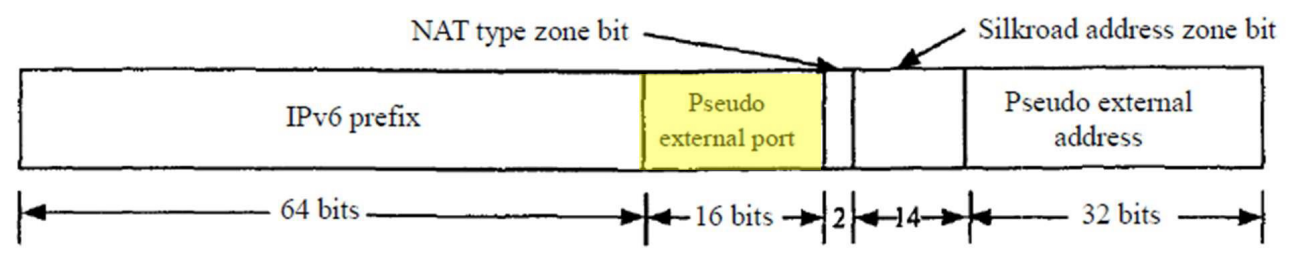
Petition 34-36, 64-65.

It Was Common to Include Port Numbers in Constructed IPv6 Addresses

The Teredo addresses are composed of 5 components:



Ex. 1032 at 9; Petition 8; Ex. 1003 ¶48.



Ex. 1039 (Wu) at Figure 1; Petition 68.



Ex. 1030 (Huitema) ¶55; Petition 8, 78-79; Ex. 1003 ¶47.

“As such, if you consider a host to be the <IP address, port> pair, then because there are approximately 65,000 possible ports, *it is possible to multiplex many hosts on one IP address*. This has become quite popular in the marketplace, from large organizations all the way down to small home installations.”

Ex. 1022 at 9; Petition 7-8; Reply 13; Ex. 1003 ¶¶41-43.

“There is a *long history* of treating port numbers as part of the network address. It was considered as part of the design of TCP/IP. In the same time frame, Pup and the Xerox Network System architecture included the “socket number” as part of an address; the other two parts were a network number and a -bit host number. However, only the network number was used for routing. Later, Bellovin and colleagues made suggestions that embedded the service in the IP address.”

Ex. 1029 at 4 (citations omitted); Reply 13.

“To further increase the utilization ratio of the public IPv4 addresses, the port multiplexing inside the ISP(i)’s /32 can be deployed.”

Ex. 1038 (Li-2) at 14-15; Petition 23-24.

Ground 2: Li Alone Would Have Rendered the '844 Claims Obvious

Petitioner's Motivations to Modify Are Undisputed

“A POSITA would have been motivated to modify the teachings of Li and would have had a reasonable expectation of success of doing so for much of the same reasons described in ground 1.”

Petition 64.

“First, the prior art includes express teachings that would have led a POSITA to combine Li and Li-2. EX1003, ¶79. Several prior art documents expressed a need to not only make IPv4 domains interoperable with IPv6 domains in order to smooth the transition from IPv4 to IPv6, but also a need to slow IPv4 address exhaustion by sharing a single public IPv4 address among multiple hosts. See §IV.B. Based on the information in the prior art, a POSITA would have known that (1) IPv4 addresses could be converted into IPv6 addresses to allow for IPv4-IPv6 interoperability, (see §IV.B.1); and (2) port numbers could be used to share a single public IPv4 address among multiple hosts, (see §IV.B.2).”

Petition 25.

Petitioner's Expert Walked Through the State of the Art in Detail

1. Port numbers can be used to prevent IPv4 address exhaustion

Ex. 1021 at 4; Ex. 1022 at 9; Ex. 1023 at 2; Ex. 1024 (King) at 3:42-47; Ex. 1025 (Biswas) at 2:23-31.

2. IPv4 addresses can be converted into IPv6 addresses to allow inter-protocol communications

Ex. 1019 (Samprathi) at 6:56-66; Ex. 1020 at 11, 15; Ex. 1030 (Huitema) ¶55; Ex. 1032 at 9.

3. The above two ideas can be combined to (1) prevent IPv4 address exhaustion while (2) enabling IPv4-to-IPv6 communications

Ex. 1029 at 4; Ex. 1030 (Huitema) ¶55; Ex. 1032 at 9.

Petition 7-8; Ex. 1003 (Bhattacharjee Declaration) ¶¶ 35-48.

Patent Owner's Only Responses to Ground 2 Are Non-Substantive

- Patent Owner does not dispute the substance of ground 2 or Petitioner's motivations to modify Li
- Instead, Patent Owner makes two non-substantive arguments:

1

Certain references that Petitioner uses to show the general knowledge of the art are allegedly not prior art

2

Petitioner did not do a limitation-by-limitation analysis of the simultaneous-invention evidence

Patent Owner Response 42-44, 46-51.

Patent Owner's First Argument Is Inconsequential

1

Certain references that Petitioner uses to show the general knowledge of the art are allegedly not prior art

Patent Owner Response 42-44.

- Even if the Board accepts Patent Owner's first argument, there are still multiple other prior art references that show the general knowledge of the art

Reply 13.

Patent Owner's First Argument Is Inconsequential

1. Port numbers can be used to prevent IPv4 address exhaustion

Ex. 1021 at 4; Ex. 1022 at 9; ~~Ex. 1023 at 2~~; Ex. 1024 (King) at 3:42-47; Ex. 1025 (Biswas) at 2:23-31.

2. IPv4 addresses can be converted into IPv6 addresses to allow inter-protocol communications

Ex. 1019 (Samprathi) at 6:56-66; ~~Ex. 1020 at 11, 15~~; Ex. 1030 (Huitema) ¶155; Ex. 1032 at 9.

3. The above two ideas can be combined to (1) prevent IPv4 address exhaustion while (2) enabling IPv4-to-IPv6 communications

Ex. 1029 at 4; Ex. 1030 (Huitema) ¶155; Ex. 1032 at 9; .

It Is Undisputed That Multiple References Include Port Numbers in IPv6 Addresses



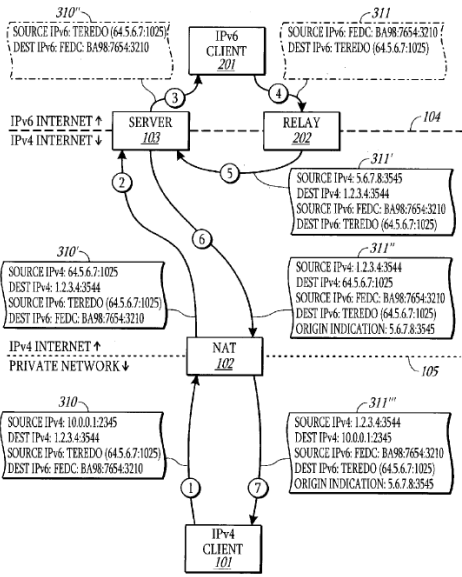
(19) **United States**
(12) **Patent Application Publication** (10) **Pub. No.: US 2004/0190549 A1**
Huitema (43) **Pub. Date: Sep. 30, 2004**

(54) **ALLOWING IPV4 CLIENTS TO COMMUNICATE OVER AN IPV6 NETWORK WHEN BEHIND A NETWORK ADDRESS TRANSLATOR WITH REDUCED SERVER WORKLOAD**
(51) **Int. Cl.7** **H04L 12/28**
(52) **U.S. CL** **370/466; 370/401**
(57) **ABSTRACT**

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(22) **Filed:** Mar. 27, 2003



PREF:102:304::FBFE:BFFA:F9F8

IPv6 PREFIX

PORT NUMBER

IPv4 ADDRESS

Ex. 1030 (Huitema) ¶55; Petition 8, 78-79; Ex. 1003 (Bhattacharjee Declaration) ¶47.

It Is Undisputed That Multiple References Include Port Numbers in IPv6 Addresses

INTERNET DRAFT
<draft-ietf-ngtrans-shipworm-08.txt>
Expires March 17, 2003

C. Huitema
Microsoft
September 17, 2002

Teredo: Tunneling IPv6 over UDP through NATs

Status of this memo

This document is an Internet-Draft and is in full conformance with all provisions of Section 10 of RFC2026.

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The list of current Internet-Drafts can be accessed at <http://www.ietf.org/ietf/lid-abstracts.txt>.

The list of Internet-Draft Shadow Directories can be accessed at <http://www.ietf.org/shadow.html>.

Abstract

We propose here a service that enables nodes located behind one several IPv4 NATs to obtain IPv6 connectivity by tunneling packets over UDP; we call this the Teredo service. Running the service requires the help of "Teredo servers" and "Teredo relays"; the Teredo servers are stateless, and only have to manage a small fraction of the traffic between Teredo clients; the Teredo relay act as IPv6 routers between the Teredo service and the "native" Internet.

1 Introduction

Classic tunneling methods envisaged for IPv6 transition operate sending IPv6 packets as payload of IPv4 packets; the 6to4 proposal [RFC3056] proposes automatic discovery in this context. A problem with these methods is that they don't work when the IPv6 candidate node is isolated behind a Network Address Translator (NAT) device. NATs are typically not programmed to allow the transmission of arbitrary payload types; even when they are, the local address cannot be used in a 6to4 scheme. 6to4 will work with a NAT if the NAT and 6to4 router functions are in the same box; we want to cover the relatively frequent case when the NAT cannot be readily upgraded to provide a 6to4 router function.

A possible way to solve the problem is to rely on a set of "tunnel brokers." There are however limits to any solution that is based on

Huitema [Page 1]

The Teredo addresses are composed of 5 components:



Ex. 1032 at 9; Petition 8; Ex. 1003 (Bhattacharjee Declaration) ¶48.

It Is Undisputed That Multiple References Include Port Numbers in IPv6 Addresses

A Better Approach than Carrier-Grade-NAT

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Technical Report CUCS-041-08

ABSTRACT

We are facing the exhaustion of newly assignable IPv4 addresses. Unfortunately, IPv6 is not yet deployed widely enough to fully replace IPv4, and it is unrealistic to expect that this is going to change before we run out of IPv4 addresses. Letting hosts seamlessly communicate in an IPv4-world without assigning a unique globally routable IPv4 address to each of them is a challenging problem, for which many solutions have been proposed. Some prominent ones target towards carrier-grade-NATs (CGN), e.g. [1], which we feel is a bad idea. Instead, we propose using specialized NATs at the edge that treat some of the port number bits as part of the address.

1. INTRODUCTION

It appears inevitable that the Internet will become a polymorphic architecture, many different technologies will have to co-exist in the future. This becomes obvious when looking at IPv4 exhaustion, while there is only marginal IPv6 deployment. Operators are getting worried about extremely large routing tables, an Internet core that does not really want to know about all those bright traffic engineering ideas from the edge, and the increased mobility of end-devices. This names but a few of the issues the IRTF Routing Research Group (RRG)¹ is trying to tackle.

The looming exhaustion of the free IANA IPv4 pool creates even more urgent problems. Many large Internet Service Providers (ISPs) face the problem, that their networks' customer edges are so large that, even giving the "front" of each customer premises equipment (CPE) only one single IPv4 address, they need two to five /8s of IPv4 space [2]. However, it is highly unlikely that they would be allocated that much public IPv4 address space. Therefore ISPs have to come-up with something more ingenious. Deploying a NAT is a direct consequence of the design of a new protocol which is incompatible on the wire, there is not the slightest compatibility mode. We may not like this, and we certainly do not, but NATs are inevitable.

The approach ISPs are testing is being called Carrier Grade NAT (CGN). It is essentially a number of IPv4 NATs in the core of their networks and various tunneling and transla-

¹<http://www.irtf.org/charter?group=rrg&group=rrg>

tion techniques [1]. If the CPE has dual stack, traffic where source and destination is IPv6 would not have to be NATted, but IPv4 would be heavily NATted. We can contrast this to, for example, NAT-PT [3, 4] on the CPE, which would probably scale to the needs of even a large non-consumer backbone. But, as we noted above, very large broadband consumer providers would need far too much IPv4 space for the NAT-PT front ends for their large consumer networks.

Our main concern is that the imminent IPv4 address exhaustion is leading operators to deploy extremely damaging technology.

1.1 Why Carrier-Grade-NATs are

We have taken up a desperate search for alternative reasons are simple:

"Carrier grade" is a euphemism for central mantics move to the core of the network. This of itself. Net-heads call it "telco-think" because model of smarts in the core as opposed to the of a simple, just forward packets, core and sm

With the smarts at the edges, e.g. NAT-PT, field new protocols between consenting end-tweaking the NATs at the consenting CPEs, application layer gateways (ALGs) if needed. He do not build an Internet walled garden at the build it by restricting the core.

With NAT in the core, if a customer wants, tion protocol which requires cooperation from get to beg help from the broadband providers' lawyers, and all other users of carrier grade the ultimate horror the NAT-haters fear, and t that wrong.

One broadband provider has recently received press for just this, though we know that the very far from those responsible. This show application protocols have to go through the lawyers to be allowed to be handled by the core. Today's NATs are typically mitigated which the customer has some degree of control, e.g. port forwarding or UPnP. However, this is not expected to work anymore with CGN's. CGN proposals admit that it is not expected that applications that require specific port assignment or port mapping from the NAT box will keep working [1].

“There is a *long history* of treating port numbers as part of the network address. It was considered as part of the design of TCP/IP [10]. In the same time frame, Pup [11] and the Xerox Network System architecture [12] included the “socket number” as part of an address; the other two parts were a network number and a -bit host number. However, only the network number was used for routing. Later, Bellovin and colleagues made suggestions that embedded the service in the IP address; see [13] and [14].”

Ex. 1029 at 4; Reply 13.

Patent Owner's Second Argument Is Not Supported by Law

2

Petitioner did not do a limitation-by-limitation analysis of the simultaneous-invention evidence

Patent Owner Response 46-51.

- Patent Owner cites to no case holding that a petitioner must do a limitation-by-limitation analysis for simultaneous-invention evidence
- At most, petitioners much show that the claim is the product of ordinary skill in view of “all of the circumstances”
- Petitioner adequately explains why adding a port number to an IPv6 address would have been the produce of only ordinary skill

Reply 15-17.

Simultaneous Invention Confirms the Modification Would Have Been Simple

“It is well-established that independently made, simultaneous inventions, made within a comparatively short space of time, are **persuasive evidence that the claimed apparatus was the product only of *ordinary* mechanical or *engineering skill***. *Geo. M. Martin Co. v. All. Mach. Sys. Int’l LLC*, 618 F.3d 1294, 1305 (Fed. Cir. 2010). Here, evidence of simultaneous invention further indicates that a POSITA would have been motivated to modify Li to form an IPv6 address that includes the destination port number. EX1003, ¶164.”

Petition 62 (cleaned up).

IVI References and Bush Show Simultaneous Invention of All Limitations

**1

```
pre]
```**: “A method of receiving a data packet from an IPv4 domain in an IPv6 domain, said data packet comprising an IPv4 destination address and a destination port number, said method comprising the following steps:

IVI References

IVI Routing

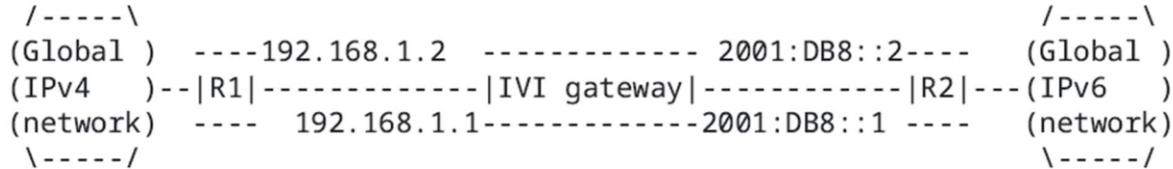


Figure 3

Ex. 1027 at 9; Reply 17-18; Ex. 1003 ¶¶16-21.

Bush

IPv6 Encap Toward CPE

- BR receives IPv4 packet w/ src/dest
- Encapsulates in IPv6 packet
 - src = WKP+src
 - dest = WKP+dest
- But note that dest is A+P
- It routes normally within ISP core

2008.10.26 A+P

21

Ex. 1041 at 21 (annotations added); Reply 20-21; Ex. 1003 ¶¶43-48.

IVI References and Bush Show Simultaneous Invention of All Limitations

1[a]: “constructing an IPv6 destination address by concatenating an operator prefix, said IPv4 destination address, and the destination port number;”

IVI References

| | IPv6 PREFIX | IPv4 ADDRESS | PORT NUMBER |
|---------------------|-----------------|------------------|-------------|
| 202.38.108.2#81 --> | IVI61=2001:250: | ffca:266c:0200:: | 81#81 |
| 202.38.108.2#82 --> | IVI61=2001:250: | ffca:266c:0200:: | 82#82 |
| 202.38.108.2#83 --> | IVI61=2001:250: | ffca:266c:0200:: | 83#83 |
| 202.38.108.2#84 --> | IVI61=2001:250: | ffca:266c:0200:: | 84#84 |

Ex. 1028, at 22; Petition 23-24, 33-36; Reply 18; Ex. 1003 ¶¶22-26.

Bush

IPv6 Encap Toward CPE

- BR receives IPv4 packet w/ src/dest
- Encapsulates in IPv6 packet
 - src = WKP+src
 - dest = WKP+dest
- But note that dest is A+P
- It routes normally within ISP core

2008.10.26 A+P

21

Ex. 1041 at 21 (annotations added); Reply 21; Ex. 1003 ¶¶49-51.

IVI References and Bush Show Simultaneous Invention of All Limitations

1[b]: “generating an IPv6 data packet from the IPv6 constructed destination address and the received IPv4 packet; and”

IVI References

IPv4 to IPv6 Header translation based on IVI scheme

| IPv4 Field | Translated to IPv6 |
|---------------------|---|
| Version (0x4) | Version (0x6) |
| IHL | discarded |
| Type of Service | discarded |
| Total Length | Payload Length = Total Length - IHL * 4 |
| Identification | discarded |
| Flags | discarded |
| Offset | discarded |
| Time to Live | Hop Limit |
| Protocol | Next Header |
| Header Checksum | discarded |
| Source Address | IVI address mapping |
| Destination Address | IVI address mapping |
| Options | discarded |

Figure 8

Ex. 1027 at 14; Reply 18-19; Ex. 1003 ¶¶27-28.

Bush

IPv6 Encap Toward CPE

- BR receives IPv4 packet w/ src/dest
- Encapsulates in IPv6 packet
 - src = WKP+src
 - dest = WKP+dest
- But note that dest is A+P
- It routes normally within ISP core

2008.10.26 A+P

21

Ex. 1041 at 21 (annotations added); Reply 21; Ex. 1003 ¶¶52-53.

IVI References and Bush Show Simultaneous Invention of All Limitations

1[c]: “routing the generated IPv6 data packet in the IPv6 domain using the IPv6 constructed destination address, said constructed address belonging to a range of IPv6 addresses routable to an interconnection equipment of the IPv6 domain with the IPv4 destination address.”

IVI References

“[T]he packets generated from the special IPv6 addresses and sent to the global IPv4 addresses **are routed** to the IPv6 interface of the IVI gateway via the IPv6 routing protocol.”

Ex. 1028 at 7; Reply 20; Ex. 1003 ¶¶29-30.

Bush

IPv6 Encap Toward CPE

- BR receives IPv4 packet w/ src/dest
- Encapsulates in IPv6 packet
 - src = WKP+src
 - dest = WKP+dest
- But note that dest is A+P
- It routes normally within ISP core

2008.10.26 A+P

21

Ex. 1041 at 21 (annotations added); Reply 21; Ex. 1003 ¶¶54-56.

IVI References and Bush Show Simultaneous Invention of All Limitations

**3

```
pre]
```**: “A method of sending a data packet from an IPv6 domain to a destination address of an IPv4 domain, said packet comprising an IPv6 destination address of the packet constructed by concatenating an operator prefix, the IPv4 destination address, and a destination port number, said method executing the following steps on reception of the data packet:”

IVI References

IVI Routing

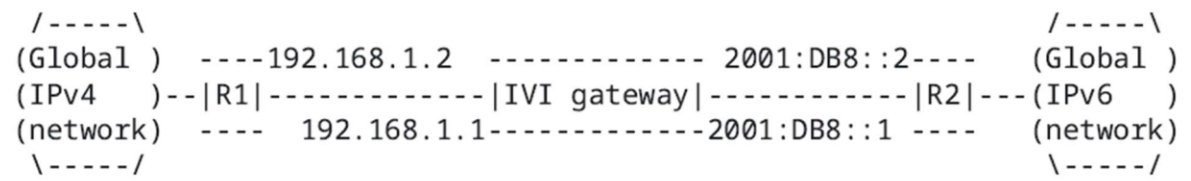
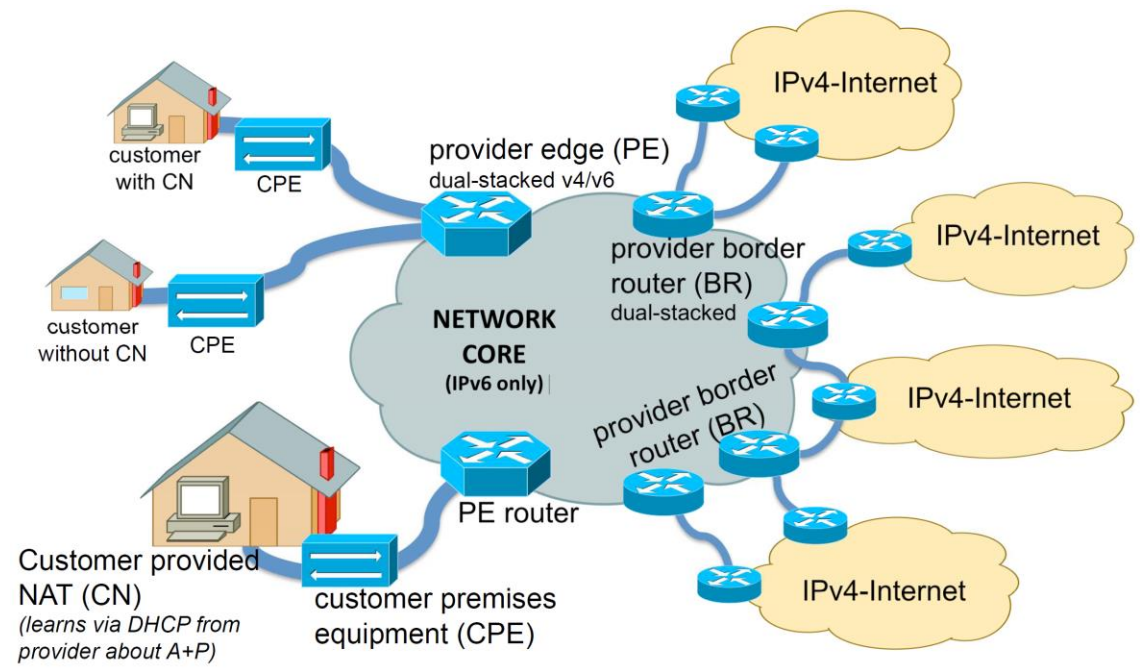


Figure 3

Ex. 1027 at 9; Reply 17-18; Ex. 1003 ¶¶31-36.

Bush



Ex. 1029 at 2; Reply 20-21; Ex. 1003 ¶¶57-59.

IVI References and Bush Show Simultaneous Invention of All Limitations

3[a]: “extracting the IPv4 destination address and the destination port number from the IPv6 destination address;”

IVI References

IPv6 to IPv4 Header translation based on IVI scheme

| IPv6 Field | Translated to IPv4 Header |
|---------------------|------------------------------------|
| Version (0x6) | Version (0x4) |
| Traffic Class | discarded |
| Flow Label | discarded |
| Payload Length | Total Length = Payload Length + 20 |
| Next Header | Protocol |
| Hop Limit | TTL |
| Source Address | IVI address mapping |
| Destination Address | IVI address mapping |
| - | IHL = 5 |
| - | Header Checksum recalculated |

Figure 9

Ex. 1027 at 15 (highlighting added); Reply 17-18; Ex. 1003 ¶37.

Bush

IPv6 Encap from CPE

- WKP = well known prefix, 4666::0/64
- Source of v6 packet is WKP+A+P
- Dest address of v6 packet
 - WKP+v4dest
- Border (BR) makes global v4 packet
 - source = A+P
 - dest = v4dest

2008.10.26 A+P

19

Ex. 1041 at 19 (annotations added); Reply 20-21; Ex. 1003 ¶60.

IVI References and Bush Show Simultaneous Invention of All Limitations

3[b]: “generating an IPv4 data packet from the IPv6 data packet, said packet including said IPv4 destination address and said destination port number; and”

IVI References

IPv6 to IPv4 Header translation based on IVI scheme

| IPv6 Field | Translated to IPv4 Header |
|---------------------|------------------------------------|
| Version (0x6) | Version (0x4) |
| Traffic Class | discarded |
| Flow Label | discarded |
| Payload Length | Total Length = Payload Length + 20 |
| Next Header | Protocol |
| Hop Limit | TTL |
| Source Address | IVI address mapping |
| Destination Address | IVI address mapping |
| - | IHL = 5 |
| - | Header Checksum recalculated |

Figure 9

Ex. 1027 at 15; Reply 17-18; Ex. 1003 ¶¶38-39.

Bush

IPv6 Encap from CPE

- WKP = well known prefix, 4666::0/64
- Source of v6 packet is WKP+A+P
- Dest address of v6 packet
 - WKP+v4dest
- Border (BR) makes global v4 packet
 - source = A+P
 - dest = v4dest

2008.10.26 A+P

19

Ex. 1041 at 19; Reply 20-21; Ex. 1003 ¶61.

IVI References and Bush Show Simultaneous Invention of All Limitations

3[c]: “routing the IPv4 data packet to its IPv4 destination.”

IVI References

“The packets generated from the global IPv4 addresses and sent to the special IPv6 addresses **are routed** to the IPv4 interface of the IVI gateway via the IPv4 routing protocol”

Ex. 1027 at 7; Reply 17-18; Ex. 1003 ¶40.

Bush

A+P in One Slide

- Do the work at the CPE so that the **customer may control their fate**
- 'Steal' bits from the port number to extend the IPv4 Address
- Encapsulate in IPv6 in the ISP core and use normal routing to the edge
- Border Routers also en/decapsulate

2008.10.26 A+P

15

Ex. 1041 at 15 (annotations added); Reply 20-21; Ex. 1003 ¶62.

Simultaneous Invention Is Not Needed to Invalidate the Claims Under Ground 2



“As we have said earlier, the teachings of the prior art references in combination adequately support the Board’s conclusion. However, the **additional, although unnecessary**, evidence of contemporaneous invention is probative of ‘the level of knowledge in the art at the time the invention was made.’ *In re Farrenkopf*, 713 F.2d 714, 720, 219 USPQ 1, 6 (Fed. Cir. 1983).”

In re Merck & Co., Inc., 800 F.2d 1091, (Fed. Cir. 1986);
Reply 15.

Ground 3: Wu Teaches Constructing an IPv6 Address Comprising a Port Number

Wu Teaches Including a Port Number in an IPv6 Address

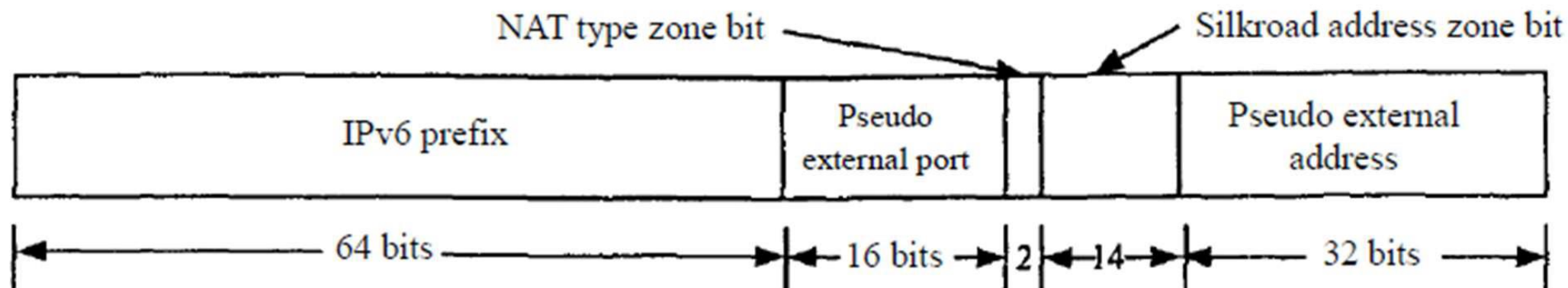


Fig. 1

“The first 64 bits of the constructed IPv6 address correspond to an IPv6 prefix. *Id.*, 11. The next 16 bits correspond to the external **port number**. *Id.*; see EX1003, ¶206. The next 2 bits indicate the type of NAT used in the network. EX1039, 11. The next 14 bits are padded with 0s, reserved for a ‘Silkroad address.’ *Id.* And the final 32 bits correspond to the external IPv4 address. *Id.*, 12; EX1003, ¶206.”

Petition 68; Ex. 1039 (Wu) at Figure 1.

PO Has Three Responses to This Ground

1

Li and Wu disclose different system architectures and therefore cannot be combined

2

Li, a stateless system, cannot be combined with Wu, a stateful system, because doing so would destroy Li's benefits

3

Wu does not teach including a destination port number in the constructed IPv6 address

Patent Owner Response 51-59.

All of PO's Arguments Misconstrue the Proposed Combination

“In the Li-Wu combination, Li teaches the general network structure and the steps of receiving a data packet from an IPv4 domain in an IPv6 domain and constructing an IPv6 address by concatenating an IPv6 prefix, an IPv4 address, and padding. EX1003, ¶207. Wu supplements Li's disclosures by teaching **replacing 16 bits of the 32-bit zero padding with a destination port number** in order to uniquely identify hosts and mitigate IPv4 address exhaustion. *Id.*”

Petition 68-69.

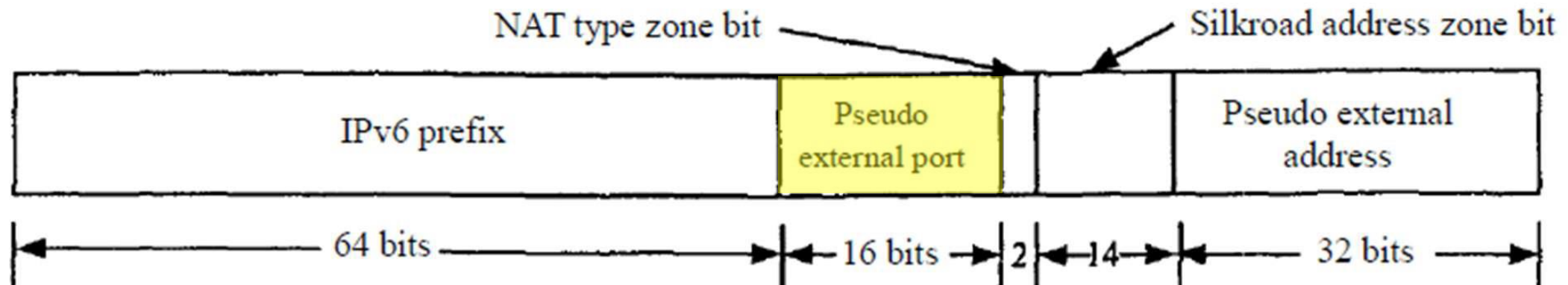


Fig. 1

Ex. 1039 (Wu) at Figure 1; Petition 68.

A POSITA Would Not Bodily Incorporate Wu into Li

“Wu, however, addresses the inverse of the problem in Li—the problem of allowing IPv6 hosts within a network to communicate with other IPv6 hosts across an IPv4 network. *See supra* Section I.C.3. Additionally, Wu is focused on the particular problem of traversing the NAT field (different types of NAT) within the IPv4 network across which communications are sent.”

Patent Owner Response 51-52.



“The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference.”

In re Mouttet, 686 F.3d 1322, 1332 (Fed. Cir. 2012);
Reply 24-25.

Patent Owner Asserts That Li and Wu Disclose Different Architectures

1

Li and Wu disclose different system architectures and therefore cannot be combined

2

Li, a stateless system, cannot be combined with Wu, a stateful system, because doing so would destroy Li's benefits

3

Wu does not teach including a destination port number in the constructed IPv6 address

Patent Owner Response 51-59.

The Board Already Rejected This Argument

“Li and Wu address unrelated communications problems.”

Patent Owner Response 51.

“On this record, Patent Owner’s argument is unavailing. First, the evidence of record indicates that Li and Wu are analogous art. For example, the ’844 patent, Li, and Wu are all directed to the same field of endeavor, namely, computer networking and routing data packets. Second, the evidence of record indicates that a person of ordinary skill in the art would have had a reasonable expectation of success in combining the cited teachings of Li and Wu. As discussed above, Petitioner relies on Wu’s teaching that an IPv6 destination address includes a destination port number. Even if Patent Owner is correct that Li and Wu address the interoperability of IPv4 and IPv6 networks from different perspectives, a person of ordinary skill in the art would have reasonably expected that Wu’s destination port number could be incorporated into the unused padding in Li’s IPv6 destination address.”

Institution Decision 14-15 (citations omitted).

Patent Owner Asserts That Wu Is Stateful and Thus Incompatible with Li

1

Li and Wu disclose different system architectures and therefore cannot be combined

2

Li, a stateless system, cannot be combined with Wu, a stateful system, because doing so would destroy Li's benefits

3

Wu does not teach including a destination port number in the constructed IPv6 address

Patent Owner Response 51-59.

Wu Teaches Statelessly Constructing an IPv6 Address, like the Patent

“For the router advertisement message received according to Step 2, Step 4 or Step 6, the client end **constructs a SilkRoad address** as per the following:”

“After receiving this packet, **Server 2 extracts the external address and external port** from the destination IPv6 address, and sends to Client end 2 after encapsulating this packet in UDP.”

Ex. 1039 (Wu) at 5-6; Reply 25-26.

“This step proposes **assigning the same IPv4 address** to a plurality of gateways, which is advantageous and further makes it possible to economies on IPv4 addresses. To distinguish between home gateways sharing the same IPv4 address: **a range of authorized source ports is assigned each gateway** (or other equipments in context other than home internet access) for outgoing calls;”

“The general principle of the invention relies on **constructing an IPv6 address** from an IPv4 address, a predetermined operator prefix, and a port number.”

Ex. 1001 ('844 patent) at 6:13-15, 13:57-63; Reply 25-26.

PO Conflates Stateful Routing with Stateless Address Construction

“As for **routing packets**, Wu explains it relies on stateful techniques.”

Patent Owner Sur-Reply 21.

- Whether the **routing process** in Wu is stateful is irrelevant to whether the **address construction** in Wu is stateful
- Wu statelessly constructs addresses, and it further teaches additional steps (that are not pertinent here) to overcome potential obstacles caused by stateful intermediary hardware, like NATs

The Combination Stands Even If Wu Were Stateful

“Thus, a POSITA would not look to Wu to improve Li. Even if Li and Wu could be combined, **doing so would eliminate *any advantages*** of Li’s stateless technique. EX2015 ¶104.”

Patent Owner Response 55.

“A solution based on NAT-PT that is not stateless is **not to be *recommended***.”

Ex. 1001 ('844 Patent) at 13:43-44; Reply 27.

“Since the one-to-many mapping lost the feature of stateless and may lost the end-to-end address transparency, **the proper use of the one-to-many mapping is the *balancing of tradeoffs*** [RFC4966].”

Ex. 1038 (Li-2) at 14; Reply 27.

Patent Owner Argues That Wu Does Not Teach Destination Ports

1

Li and Wu disclose different system architectures and therefore cannot be combined

2

Li, a stateless system, cannot be combined with Wu, a stateful system, because doing so would destroy Li's benefits

3

Wu does not teach including a destination port number in the constructed IPv6 address

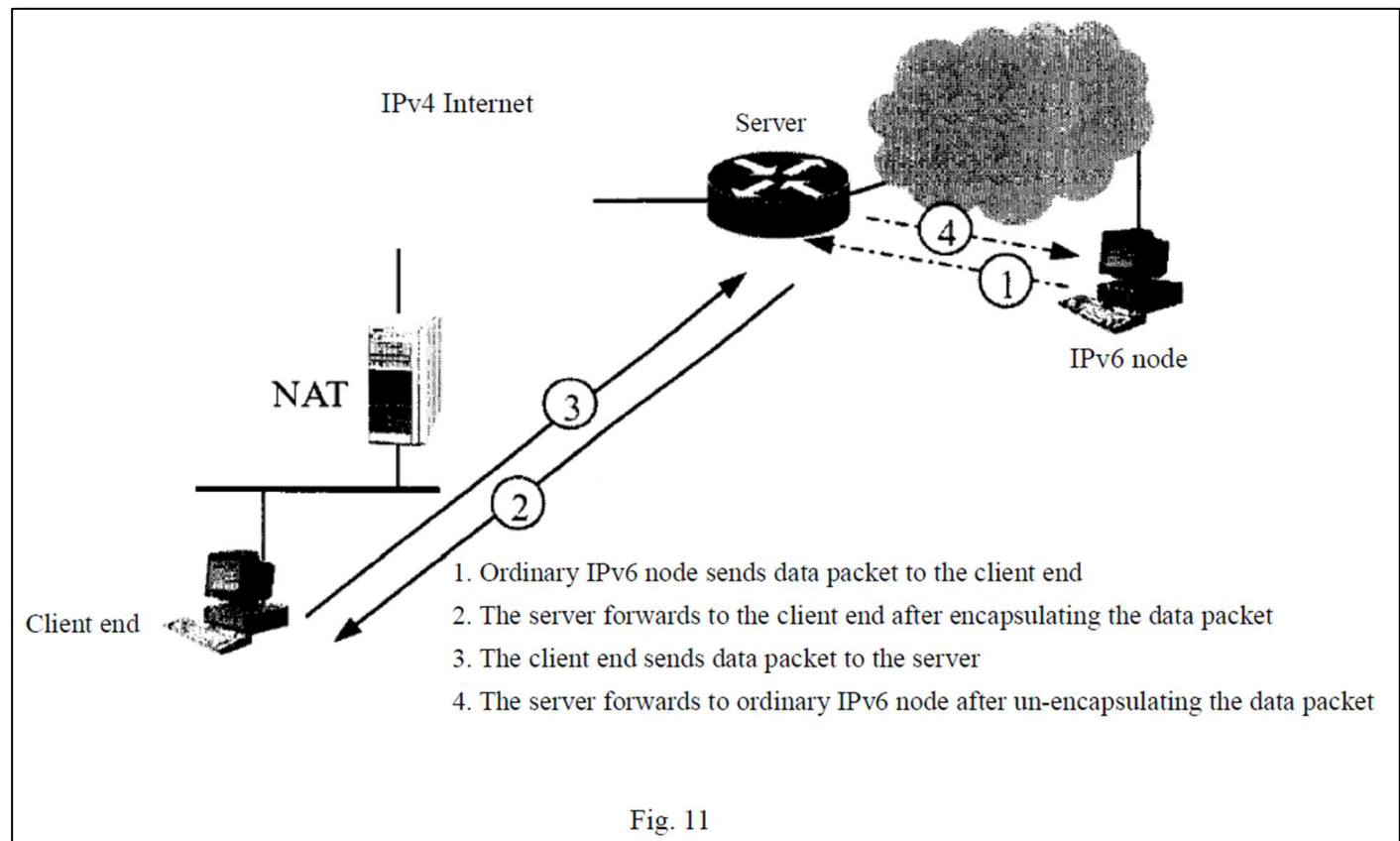
Patent Owner Response 51-59.

Wu Discloses Destination Ports, Not Just Source Ports

“The pseudo port field in Figure 1 is at best the source port of the client, not a destination port.
EX2015 ¶107.”

Patent Owner Response 57.

- The port number in the IPv6 address serves as a destination port number on the way back to the IPv4 host
- In fact, Wu describes this very process



Ex. 1039 (Wu) at 21; Reply 28.

Patent Owner Misrepresents a Typo to Argue Otherwise

“The Figure 11 embodiment addresses a packet sent from an ‘ordinary IPv6 node to the client end,’ i.e., the packet is sent from an IPv6 network to an IPv4 network. EX1039, 15. In this embodiment, the SilkRoad address does not include a destination port number. **Instead, in the packet sent from the IPv6 node to the IPv4 client end, ‘the destination *port* is the extracted external *address*.’** *Id.* at 16; see also POR 57-58. In fact, in every instance of transmitting a packet from an IPv6 node to an IPv4 end client, “the destination port is the extracted external address.” EX1039, 7, 16.”

Patent Owner Sur-Reply 19.

“The translation at this line says that ‘the destination port is the extracted external *address*’ instead of *port*, but **a POSITA would have recognized this to be a clerical error** since an address cannot serve as a port and because the rest of Wu consistently explains that the destination port is the extracted external port.”

Ex. 1057 (Bhattacharjee Supplemental Declaration) ¶¶72 n.2; Reply 29.

Wu Repeatedly Says the Pseudo External Port Is a Destination Port

“Based on the definition in Wu, a POSITA would not necessarily understand a ‘pseudo external port’ to even be a port number, much less understand from Wu how a destination port number should be used when constructing an IPv6 destination address.”

Patent Owner Response 58.

“After receiving this packet, Server 2 extracts the external address and external port from the destination IPv6 address, and sends to Client end 2 after encapsulating this packet in UDP, the destination port of UDP is *the extracted external port*, the source port is 5188, the source address of IPv4 header is the IPv4 address of Server 2, the destination address is the extracted external address.”

Ex. 1039 (Wu) at 6; Reply 29;

see also Ex. 1057 ¶72 (quoting the 11 other times that Wu says the external port is a destination port)

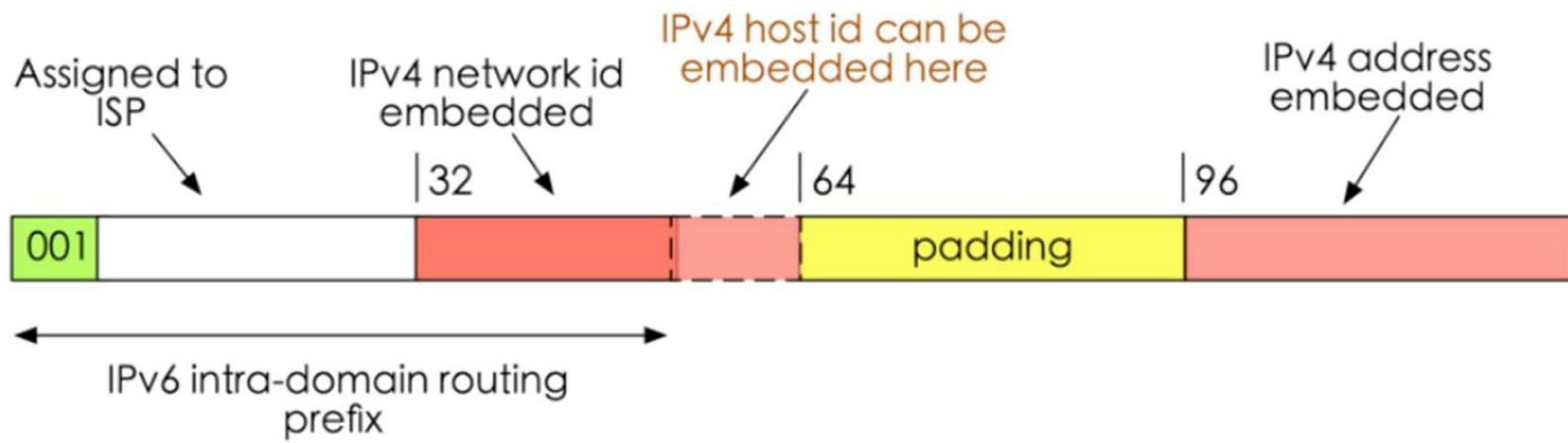
A POSITA Would Have Understood That Any Additional Operations Are Unnecessary

“Further, a POSITA would have recognized that there is no need to perform the additional operations on the original port number described in Wu—like ANDing the port number with 0xFFFF—when combining Wu’s teachings with Li. EX1057 ¶¶69-71, 73.”

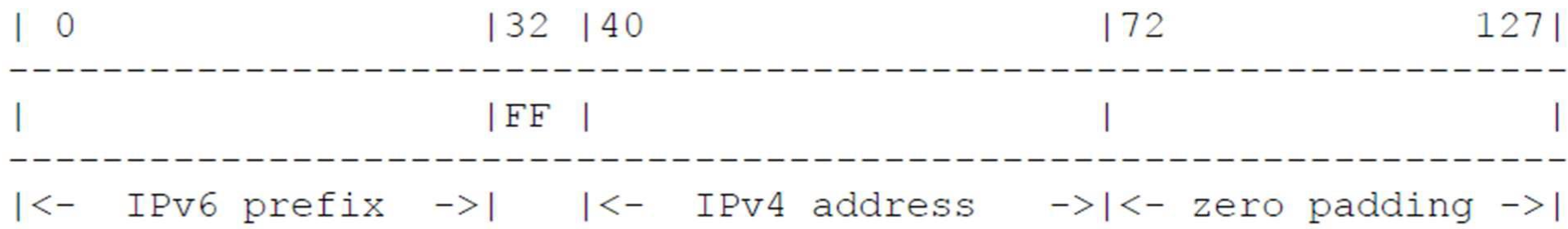
Reply 29; Ex. 1057 (Bhattacharjee Supplemental Declaration) ¶¶69-71, 73.

Ground 1: Li-2 Extends Li to Further Include a Port Number in the IPv6 Address

Li and Li-2 Teach IPv4-to-IPv6 Address Mapping



Ex. 1037 (Li) at 3; Petition 18.



Ex. 1038 (Li-2) at 6; Petition 23.

Li-2 Further Teaches Including Port Numbers in the Address

“To future increase the utilization ratio of the public IPv4 address; the port multiplexing *inside* the ISP(i)’s /32 can be deployed [RFC2766]. This is to say that a single borrowed IPv4 address (IVI4(i)) can be used for multiple IVI6(i) addresses. The mapping scheme is to use the *least significant bits* in the IVI6(i) to define the multiple mapping and combine the transport-layer port number to uniquely perform the mapping from IVI4(i) to IVI6(i).”

Ex. 1038 (Li-2) at 14; Petition 23-24.

| | IPv6 PREFIX | IPv4 ADDRESS | PORT NUMBER |
|---------------------|-----------------|-----------------|-------------|
| 202.38.108.2#81 --> | IVI61=2001:250: | ffca:266c:0200: | :81#81 |
| 202.38.108.2#82 --> | IVI61=2001:250: | ffca:266c:0200: | :82#82 |
| 202.38.108.2#83 --> | IVI61=2001:250: | ffca:266c:0200: | :83#83 |
| 202.38.108.2#84 --> | IVI61=2001:250: | ffca:266c:0200: | :84#84 |

Ex. 1028 at 22; Petition 24.

Li-2 Was Accessible in a Staging Folder for 15 Years

“Q: Okay. So when that document that’s referred to in Exhibit 10 of your declaration, which we’ve also called Li-2 during this deposition -- when that document was submitted, it landed in the staging directory, and it was accessible by *anyone in the world* through the URL to the staging directory, correct?

...

A: Okay. Yes, the URL was accessible. It was not advertised, but it was accessible.”

Ex. 2016 (Morris Deposition Transcript) at 33:15-34:4; Reply 8.

Li-2 Was Accessible in a Staging Folder for 15 Years

“Q: Now, the document you referred to in paragraph 10 of your declaration, which, again, we referred to as Li-2, do you know how long that document existed inside the IETF’s staging folder?

A: I believe *it existed from the date it was submitted in 2008 until sometime earlier this year* when the -- when there were major reorganizations to the infrastructure of the tooling.

Q: So your belief is that the Li-2 document existed in the staging folder *for over 15 years*?

...

A: I do not know for sure, but *I think that is true.*”

Ex. 2016 (Morris Deposition Transcript) at 34:19-35:6; Reply 8.



POSITAs Were Well Aware of the Staging Folder

“A POSITA would have been aware of the IETF’s staging folder. . . . Indeed, when POSITAs, as authors, uploaded documents to the IETF, the IETF would send a confirmation email that linked to the staging folder. See EX1055, 1-2. Moreover, the staging folder was mentioned multiple times in e-mails that POSITAs sent to each other, for example e-mails that POSITAs sent to IETF mailing lists and working groups comprising other POSITAs. The record is replete with such e-mails. EXS1046-1055. In fact, I was a POSITA and IETF participant at the time and was aware of and had accessed the IETF staging folder by June of 2008.”

Ex. 1008 (Bonica Declaration) ¶¶9; Petition 20-22.

POSITAs Were Well Aware of the Staging Folder

“Dear all,

I submitted a new version of "NETCONF over TLS" that (Staging URL: <http://www3.ietf.org/proceedings/staging/draft-badra-tls-netconf-04.txt>):”

Ex. 1046 at 1; Petition 21.

Acceleration Bay Is Distinguishable



“It found the website allowed a user to view a list of technical reports indexed only by author or year and that there was no evidence as to how many reports were in the Library’s database in 1999. The Board determined that at best, Blizzard’s evidence ‘suggests that an artisan might have located Lin by skimming through potentially hundreds of titles in the same year, **with most containing unrelated subject matter**, or by viewing all titles in the database listed by author, **when the authors were not particularly well known**.’”

Acceleration Bay, LLC v. Activision Blizzard Inc., 908 F.3d 765, 773 (Fed. Cir. 2018);
Sur-Reply 11-13.

POSITAs Did Not Have to Skim the Staging Folder



“It found the website allowed a user to view a list of technical reports indexed only by author or year and that there was no evidence as to how many reports were in the Library’s database in 1999. The Board determined that at best, Blizzard’s evidence ‘suggests that an artisan might have located Lin by **skimming through** potentially hundreds of titles in the same year, with most containing unrelated subject matter, or by viewing all titles in the database listed by author, when the authors were not particularly well known.’”

Acceleration Bay, LLC v. Activision Blizzard Inc., 908 F.3d 765, 773 (Fed. Cir. 2018);
Sur-Reply 11-13.

“Moreover, once a draft is uploaded to the IETF—even before it is officially converted into an Internet Draft—it is added to the IETF Datatracker, which is a sophisticated tool that allows users to search drafts by several criteria, including working group, author, and technical area.”

Ex. 1008 ¶ 11 (Bonica Declaration); Petition 22.

A screenshot of the IETF I-D Tracker search interface. At the top is the IETF logo, which consists of a stylized diamond shape made of smaller diamonds, with the letters "I E T F" below it. Below the logo is the text "IETF I-D TRACKER". Underneath is a section titled "I-D - Search Criteria". This section contains several search fields: "Shepherding AD:" with a dropdown menu showing "--All/Any", "WG Acronym:" with a text input field, "Status:" with a dropdown menu showing "--All", "Document State:" with a dropdown menu showing "--All/Any", "sub state:" with a dropdown menu showing "--All Substates", "Filename:" with a text input field, "RFC Number:" with a text input field, and "Area Acronym:" with a dropdown menu showing "--All/Any". At the bottom of the search criteria section are two buttons: "SEARCH" and "Clear Fields".

Ex. 1056; Petition 22.

The Documents in the Staging Folder Were Not “Unrelated”



“It found the website allowed a user to view a list of technical reports indexed only by author or year and that there was no evidence as to how many reports were in the Library’s database in 1999. The Board determined that at best, Blizzard’s evidence ‘suggests that an artisan might have located Lin by skimming through potentially hundreds of titles in the same year, **with most containing unrelated subject matter**, or by viewing all titles in the database listed by author, when the authors were not particularly well known.’”

Acceleration Bay, LLC v. Activision Blizzard Inc., 908 F.3d 765, 773 (Fed. Cir. 2018);
Sur-Reply 11-13.

A screenshot of the IETF I-D TRACKER search interface. At the top is the IETF logo, which consists of a stylized diamond pattern with a yellow line running through it, and the letters "I E T F" below it. Below the logo is the title "IETF I-D TRACKER". Underneath is the "I-D - Search Criteria" section, which contains several search filters: "Shepherding AD:" with a dropdown menu set to "--All/Any", "WG Acronym:" with a text input field, "Status:" with a dropdown menu set to "--All", "Document State:" with a dropdown menu set to "--All/Any", "sub state:" with a dropdown menu set to "--All Substates", "Filename:" with a text input field, "RFC Number:" with a text input field, and "Area Acronym:" with a dropdown menu set to "--All/Any". At the bottom of the search criteria section are two buttons: "SEARCH" and "Clear Fields".

Ex. 1056; Petition 22.

Dr. Li Was a “Particularly Well Known” Author



“It found the website allowed a user to view a list of technical reports indexed only by author or year and that there was no evidence as to how many reports were in the Library’s database in 1999. The Board determined that at best, Blizzard’s evidence ‘suggests that an artisan might have located Lin by skimming through potentially hundreds of titles in the same year, with most containing unrelated subject matter, or by viewing all titles in the database listed by author, **when the authors were not particularly well known.**’”

Acceleration Bay, LLC v. Activision Blizzard Inc., 908 F.3d 765, 773 (Fed. Cir. 2018);
Sur-Reply 11-13.

“Thus, POSITAs would have either monitored the IETF’s staging folder for new document uploads or would have browsed the staging folder for documents relevant to the specific field of networking that the POSITA was interested in. For example, Li-2 is titled ‘draft-xli-ivi-00-7431-cancelled.txt.’ A POSITA would have recognized that ‘xli’ represents the primary author’s name, X. Li or Dr. Xing Li. A POSITA would have recognized Dr. Li’s name, as he **had authored numerous influential networking papers at the time**, including papers on IPv4 and IPv6 and the transition between the two protocols.”

Ex. 1008 (Bonica Declaration) ¶¶10; Petition 21.

Patent Owner's Other Arguments Are Unavailing

1 Li and Li-2 Address the Same Communication Problem

2 Li-2 Is an Extension of Li

3 All of Juniper's Assertions Are Supported by Prior Art

4 Juniper Proved That the Combination Is "Suitable"

Patent Owner Response 39-45; Reply 11-14.

Li and Li-2 Are Both Directed to IPv4-and-IPv6 Interoperability

1

Li and Li-2 Address the Same Communication Problem

Patent Owner Response 39-41; Reply 11.

“Transition is one of the most significant problems in deploying an emerging network technology. Since the IP plays the role of engine in the Internet architecture, migrating networks from IPv4 to IPv6 is very difficult and complicated.”

Ex. 1037 (Li) at 1; Petition 27-28.

“The experiences for the IPv6 deployment in the past 10 years strongly indicate that for a successful transition, the IPv6 hosts need to communicate with the global IPv4 networks [JJI07]. However, the current transition methods do not fully support this requirement [RFC4213].”

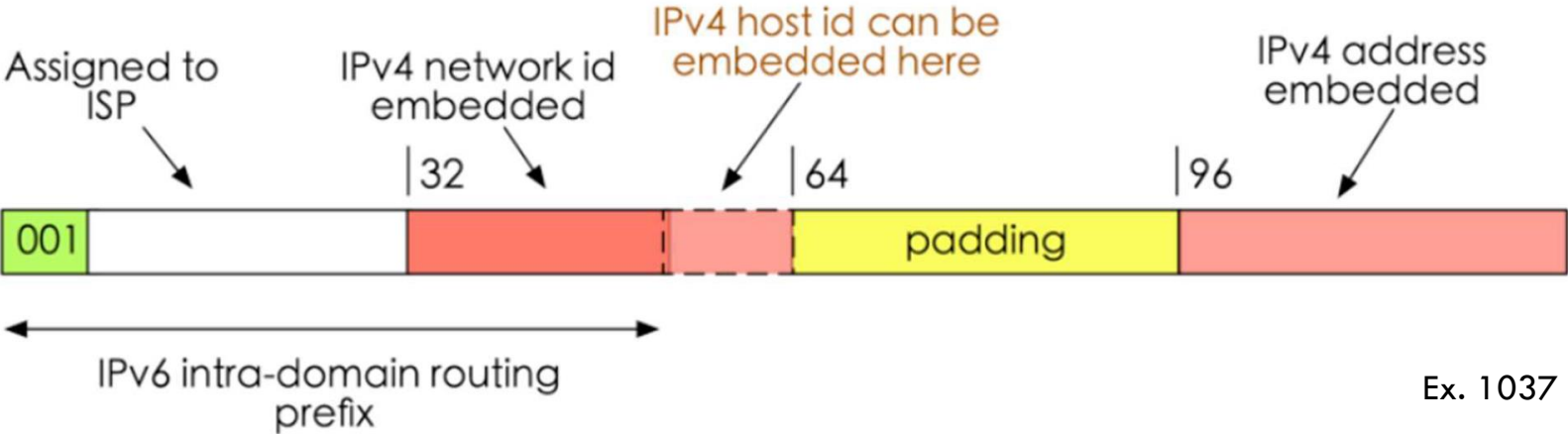
Ex. 1038 (Li-2) at 4; Petition 27-28.

Li-2 Expands on Li's Constructed IPv6 Address

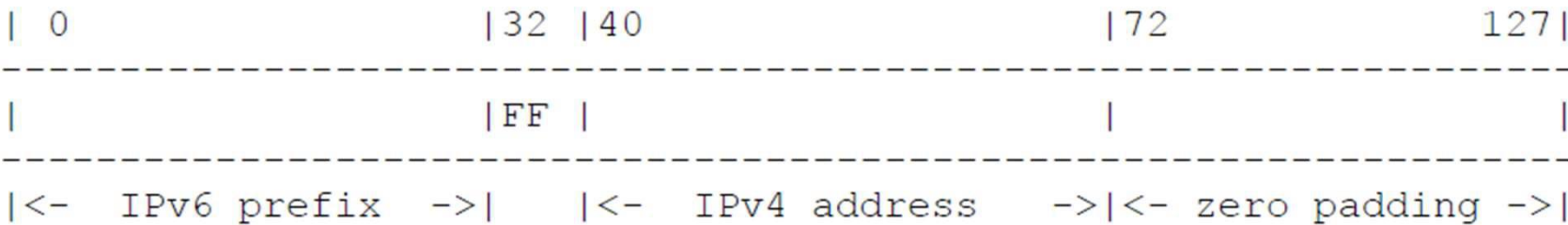
2

Li-2 Is an Extension of Li

Patent Owner Response 41-42; Reply 12.



Ex. 1037 (Li) at 3.



Ex. 1038 (Li-2) at 6.

Record Evidence Overwhelmingly Supports Juniper's Arguments

3

All of Juniper's Assertions Are Supported by Prior Art

Patent Owner Response 39-41; Reply 13.

1. IPv4 addresses can be converted into IPv6 addresses to allow inter-protocol communications

Ex. 1019 (Samprathi) at 6:56-66; ~~Ex. 1020 at 11, 15~~; Ex. 1030 (Huitema) ¶155; Ex. 1032 at 9.

2. Port numbers can be used to prevent IPv4 address exhaustion

Ex. 1021 at 4; Ex. 1022 at 9; ~~Ex. 1023 at 2~~; Ex. 1024 (King) at 3:42-47; Ex. 1025 (Biswas) at 2:23-31.

3. The above two ideas can be combined to (1) enable IPv4-to-IPv6 communications while (2) preventing IPv4 address exhaustion

Ex. 1030 (Huitema) ¶155; Ex. 1032 at 9.

Juniper Does Not Need to Show That the Combination Is The “Best” Option

4

Juniper Proved That the Combination Is “Suitable”

Patent Owner Response 44-45; Reply 14-15.

“Petitioner provides no motivation to deviate from this known solution [of using a NAT] and form IPv6 addresses in the manner claimed by the ’844 Patent.”

Patent Owner Response 45.



“Par also argues that there were better methods available to address the viscosity and interpatient variability concerns with Megace OS. Our precedent, however, does not require that the motivation be the *best* option, ***only that it be a suitable option*** from which the prior art did not teach away.”

PAR Pharm., Inc. v. TWI Pharms., Inc., 773 F.3d 1186, 1197-98 (Fed. Cir. 2014);
Reply 14-15.