EXHIBIT 4

REDACTED VERSION OF DOCUMENT SOUGHT TO BE SEALED

UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

SAN JOSE DIVISION

IN RE PERSONAL WEB TECHNOLOGIES LLC, ET AL., PATENT LITIGATION	CASE NO. 5:18-MD-02834-BLF
AMAZON.COM, INC., et al., Plaintiffs, V. PERSONAL WEB TECHNOLOGIES, LLC, et al., Defendants.	CASE NO. 5:18-cv-00767-BLF
PERSONAL WEB TECHNOLOGIES, LLC and LEVEL 3 COMMUNICATIONS, LLC, Counterclaimants, V. AMAZON.COM, INC. And AMAZON WEB SERVICES, INC., Counterdefendants.	

CONFIDENTIAL - FOR ATTORNEYS' EYES ONLY
VIDEOTAPED 30(B)(6) DEPOSITION UPON ORAL EXAMINATION
OF SETH WILLIAM MARKLE

9:23 A.M.
DECEMBER 5, 2018
FENWICK AND WEST LLP
1191 SECOND AVENUE
10TH FLOOR
SEATTLE, WASHINGTON

REPORTED BY: JUDY BONICELLI, CCR 2322

A. C-o-t-t-o-n.

Q. Okay. And to your knowledge, is there a head of product management at AWS for CloudFront?

MR. HAACK: Same objection, sorry.

Go ahead.

THE WITNESS: I don't know.

BY MR. SHERMAN:

Q. Is Craig Cotton, to your knowledge, a director of product management?

MR. HAACK: Objection. Scope.

THE WITNESS: I believe so. He's a director of product management. Yeah.

THE REPORTER: Product?

THE WITNESS: Management. I don't know what his formal job title is.

BY MR. SHERMAN:

Q. So as far as CloudFront is concerned, a potential user of CloudFront could sign up with Amazon for CloudFront and not for S3; is that correct?

MR. HAACK: Objection. Scope and --

Go ahead.

THE WITNESS: Can you define "sign up"?

BY MR. SHERMAN:

Q. Become a customer.

A. Yes, I believe so.

Q. So members of the public are offered the opportunity to become customers of S3; fair?

A. Yes.

Q. Members of the public are offered the opportunity to become customers of CloudFront?

A. Yes.

Q. And the way that the S3 technology is presented and organized, you do not have to become a customer of S3 in order to become a customer and utilize CloudFront, true?

MR. HAACK: Objection. Sorry. Objection. Scope and compound.

THE WITNESS: I believe that is true, you do not have to be an S3 customer to be a CloudFront customer.

BY MR. SHERMAN:

Q. Now, multi-part upload, you're familiar with those?

A. Yes.

Q. A multi-part upload involves the uploading of data in S3, correct?

A. It involves the uploading of data to S3.

Q. To S3, thank you. And it's limited to uploading data to S3?

A. What do you mean by "limited to"?

Q. No other features other than it's used to upload data to S3?

A. Yes.

Q. It's not used for any other functionality or feature to your knowledge?

A. The "it" here is the multi-load upload API?

Q. Yes.

A. Okay, yes.

Q. And so let me see if I can get a cleaner Q and A on this. Multi-part upload functionality, multi-part upload features, are not used for any purpose other than the uploading of data to S3, correct?

MR. HAACK: Objection. Compound. Vague.

Go ahead.

THE WITNESS: You can download the data you've uploaded via multi-part.

BY MR. SHERMAN:

Q. And when you say "you," can download, the "you" would be the customer that is doing or has done the upload?

A. That's right.

Q. And those are the only persons or entities

authorized to download the data on the multi-part upload?

A. Customers can allow other customers to download data. You don't have to be the uploader to download data necessarily.

Q. Now when you say "necessarily," why do you choose that qualifier?

A. S3 has a permissions model, and I can designate my objects as publicly readable, for example, which would give the opportunity for anybody to download my data if I want it as a customer. I have that choice as a customer.

Q. And to your knowledge, in what circumstances is that feature utilized? In what circumstances do customers make that choice?

MR. HAACK: Objection. Vague. Compound.

Go ahead.

THE WITNESS: The choice specifically for public? That was a for instance.

THE REPORTER: I'm sorry, I didn't get your answer.

BY MR. SHERMAN:

Q. Public readability. I'm sorry. Let's back up. Clarify Judy's question.

A. So I was asking a clarifying question

about whether he was asking specifically about customer use cases for publicly readable data. If customers, for instance, want to broadly share the data that they have.

Q. In circumstances where customers want to broadly share the data -- strike that.

When you say "to broadly share the data they have," you mean the data they uploaded using the multi-part upload process?

A. Yes.

Q. Do Amazon customers use S3 interfaces to upload data?

MR. HAACK: Objection. Vague.

THE WITNESS: What do you mean by "interface"?

BY MR. SHERMAN:

Q. Customized applications that Amazon has created.

A. Yeah, yes.

Q. And these interfaces, these customized interfaces, those use command messages that are customized to S3, correct?

MR. HAACK: Objection. Vague.

THE WITNESS: What is a "command message"?

BY MR. SHERMAN:

Q. Okay.

A. I think I would have to speculate how successful Amazon would be without the existence every web browsers.

Q. Okay, fair enough. So when you indicated there are customers of S3 and there are web browsers, Amazon -- in order to become a customer of S3, a person or a business entity would need to get onboarded in some fashion, sign a contract and terms of use and things of that nature, right?

MR. HAACK: Objection. Scope.

THE WITNESS: I believe there is a terms of service that you agree to --

BY MR. SHERMAN:

Q. Okay.

A. -- when you decide to use Amazon as a product.

Q. Okay. That is one thing that a customer would need to get onboarded on, correct?

A. Yes.

Q. Now, to go back to that big picture division I was talking about earlier, when you said, sure, there are customers of S3 and there are web browsers, to your knowledge, there is no

precondition that in order to operate as a web browser one has to be an S3 customer, correct?

A. Correct. There is no precondition.

Q. There is no precondition?

A. That's right.

Q. Okay. Web browsers -- Amazon presumptively knows or has the ability to know each of its customers as part of the on boarding process, terms of service, and the like, correct?

MR. HAACK: Objection. Scope.

THE WITNESS: What do you mean by "know"?

BY MR. SHERMAN:

Q. Has a terms of service executed, have a credit card on file, have a payment history, have software developers work with REST interfaces and API applications, things of that nature.

A. I don't know if every customer has a credit card on file.

Q. Okay. But in order to be a web browser that is receiving the service of downloads from S3, one does not need to have a terms of use with Amazon, correct?

A. That's right, you don't need to.

Q. Okay. Can I refer to those -- will you understand if from time to time today I refer to

those web browsers as anonymous browsers?

A. Okay.

Q. Okay?

A. Uh-huh.

Q. I realize there's probably a bunch of different ways of doing it, but that's one fair way.

A. Okay.

Q. So going back to the REST API, do anonymous browsers accessing S3 objects use the REST API?

A. Use S3 as REST API, is that the question?

Q. Yes.

A. Sometimes.

Q. Okay. In what circumstances?

A. If there is an object that is publicly available and then it can be presented as a URL that can be accessed by a web browser, by an anonymous web browser.

Q. Are anonymous web browsers capable of accessing S3 parts using the REST API?

MR. HAACK: Objection. Vague.

THE WITNESS: What do you mean by "apart," in this case?

BY MR. SHERMAN:

Q. As its defined in the multi-part upload

API.

A. Anonymous browsers can access the bytes contained in a multi-part part, yes.

Q. How?

A. Via a range request on the object that the part belongs to. Actually, let me ask a clarifying question. You're talking about after the upload has completed in the --

Q. No, no.

A. During the upload?

Q. Yes.

A. So the question is, for an in-flight upload can an anonymous browser access the contents of a part that has previously been uploaded?

Q. Yes. May I consult the API here?

A. Sure. I don't think there is a way to download a part in full while the multi-part upload is in progress.

Can I dog-ear this?

MR. HAACK: Yes, that's fine.

THE WITNESS: Okay.

BY MR. SHERMAN:

Q. So you used the phrase "in-flight upload" a few moments --

A. In flight multi-part upload.

Q. Yeah.

A. Yeah.

Q. Okay. So for an in-flight multi-part upload, can Amazon's customer access the contents of a part that has previously been uploaded?

A. No, I don't think so.

Q. Does a part have a URL associated with it?

MR. HAACK: Objection. Vague.

THE WITNESS: A URL like in terms of a standard of URL?

BY MR. SHERMAN:

Q. Yes.

A. I don't think so. Let me check. I don't think there is any URL associated with a part after it's been uploaded.

Q. Now, are you familiar with the term "namespace"?

A. Yeah.

Q. What is namespace?

A. Namespace is typically a label assigned to a collection of entities, resources, et cetera, often to disambiquate other resources with the same name but that are unrelated.

Q. And this collection of entities and resources would be kept in what Amazon refers to as

between objects and parts?

[redacted]

Q. And so is it fair to say that as far as S3 is concerned, the significance of parts is their usefulness in multi-part upload?

MR. HAACK: Objection. Vague.

MR. SHERMAN: I'll rephrase.

BY MR. SHERMAN:

Q. What else, if anything, within S3 are parts used for?

A. Parts are used for multi-part uploads.

Q. Right. Anything else?

A. No.

Q. So in terms of -- excuse me.

A. Sorry, I'm getting some glare off the table. Can I put a piece of blank paper right there.

Q. Sure. Are you talking about right there?

A. Right by your laptop is that right triangle. That would be great.

Q. Is that good?

A. Yes, that might have to move as the sun

moves.

Q. Sure. So what needs to happen to configure a bucket to serve files as portions of web pages?

MR. HAACK: Objection. Vague.

THE WITNESS: Sorry, directly? So the anonymous browser talks to S3 directly?

BY MR. SHERMAN:

Q. Yes.

A. When you say "serve files as portions of web pages" --

Q. Let me back up. What needs to happen from the standpoint of the customer to configure a bucket to serve files as portions of web pages?

MR. HAACK: Same objection. Vague.

THE WITNESS: So just to be clear what you mean by a file as a portion of a web page, you're referring to things like images that might be embedded in the web page?

BY MR. SHERMAN:

Q. Yeah, I'm talking about any type of data, video, audio, text, databases.

A. Okay. The data would need to -- these are anonymous browsers that you're referring to?

Q. No, I'm talking about from the standpoint

of the customer.

A. To be served as web pages to anonymous browsers?

Q. Correct.

A. The -- if we're talking about embedded content like you described, then the object would have to be readable by anonymous browsers, which would involve setting up permissions on the object that permitted access without authentication and authorization.

Q. S3 customers don't have to use S3 to serve their web page assets, correct?

MR. HAACK: Objection. Vague.

THE WITNESS: Is there an assumption there that S3 customers have web pages?

BY MR. SHERMAN:

Q. Yes.

A. So you're saying if someone is an S3 customer and they have a web page, must they use S3 for that?

Q. Yes. Correct.

A. No.

Q. They can use Cloudflare, they could use Akamai, they could use the customer's own server?

A. They --

THE REPORTER: I'm sorry. "They can use Cloudflare, they can use" --

BY MR. SHERMAN:

Q. Akamai, they could use the customer's own server, correct?

A. Yes.

Q. And what was Raspberry Pi?

A. A computer in their house. It's a type of computer.

Q. Oh, okay. In order for an S3 customer with a web page that wishes to serve -- to use S3 to serve its web page assets, that customer would need to take certain affirmative steps, correct?

A. Yes.

Q. They'd need to configure their buckets in a particular way, right?

A. Yes.

Q. How?

A. There is, I think, two types of configurations that customers would want to hear. If we're talking about these sorts of embedded assets, images, videos, et cetera, then those objects need to be accessible publicly. S3 also offers a feature that they call Websites which allows you to run your website off of S3. There is

Q. In what instances, to your knowledge?

A. I'm one. I'm one.

Q. Oh, okay. And those customers that are S3 customers that do not have Websites, what is your understanding of those customers' business purposes, generally, in being an S3 customer but yet not possessing, utilizing, serving a website?

MR. HAACK: Objection. Scope. Compound. Vague.

THE WITNESS: I do not know of customers other than myself. I use it for backups.

BY MR. SHERMAN:

Q. Is it your understanding that using S3 for backups is a prominent feature of S3?

MR. HAACK: Objection. Scope and vague.

THE WITNESS: I wouldn't call it a feature as much as a use case.

BY MR. SHERMAN:

Q. As much as -- what do you mean when you say, "as a use case"?

A. It's like saying is going to Starbucks a feature of your car.

THE REPORTER: I'm sorry. You'll have to go back. "It's like saying going to Starbucks is a feature of your car."

THE WITNESS: Right. It's something you use your car for, and your car is probably really well-suited to that, but it's not a feature of the car.

BY MR. SHERMAN:

Q. Okay, well --

A. So it's something that a lot of customers use S3 for. And S3 is well-suited for that case.

Q. For backup?

A. For backup.

Q. What other use cases is S3 suited for?

MR. HAACK: Objection. Scope, but go ahead.

THE WITNESS: S3 is well-suited for backup, archival, big data use cases, so something -- this is another buzzword -- data lake we call it internally.

THE REPORTER: Lake?

BY MR. SHERMAN:

Q. Data lake? L-a-k-e?

A. L-a-k-e. To allow customers to analyze their datasets. Some customers use it for media distribution. Some customers use S3 as a queue. Some customers use S3 as a file system, some -- with varying success.

Q. And serving assets that are part of a web page is also a use case?

A. Yes. Yes.

Q. What are the steps in configuring a bucket to serve a web page file on S3?

MR. HAACK: Objection. Vague.

THE WITNESS: Are you asking about our Website feature that we discussed or an embedded piece of content like a JPEG that can appear in a web page?

BY MR. SHERMAN:

Q. The former.

A. I'm going to consult the developer guide. So there are a couple ways to do it. You can do it via the SDK or you can do it via the console. Would you like me to describe the steps through the console?

Q. Yes. Yes.

A. Okay, so through the console -- so, I mean, the first thing you would do is create a website configuration for your bucket which specifies a number of resources that are useful when serving websites. So oftentimes when you visit a website, www.example.com, what you're actually viewing is the contents of a file called index.html.

THE REPORTER: Called?

THE WITNESS: Index.html, but that wouldn't appear in your URL, right? The web server knows what the index page is. And so you would specify the name of your object that represents the index page. When you try to access a page that doesn't exist, you would have a page that shows up that indicates that the page you tried to access isn't present. So that could be called like an error page or it's sometimes called the 404 page, which is an issue 3 response code. It looks like you can specify subdomains that you want to allow to route to your web page. So www.example.com and example.com can both be treated similarly.

And it looks like there is a configuration for some redirects. So if one file is accessed, they can serve another one in its place. And so it's that sort of configuration to configure like how you want S3 to behave as a kind of web server in that case for a browser.

BY MR. SHERMAN:

Q. Are you familiar with the phrase "web page base file"?

A. No, no. "Base file"?

Q. Yes.

[redacted]

Q. Does this API have any material that is not expressly contained in the HTTP spec?

A. What do you mean by "material"?

Q. Any functionality, any performance.

MR. HAACK: Objection. Compound.

THE WITNESS: I think you're asking if someone read the HTTP spec if they would be surprised with some of the behavior with S3. The answer is I don't know.

BY MR. SHERMAN:

Q. I'm not talking about surprise. I'm talking about whether the HTTP spec contains all the information that's resident in this API.

MR. HAACK: Objection. Vague.

Go ahead.

THE WITNESS: No.

BY MR. SHERMAN:

Q. Okay. What's not? What's not in it?

A. There is a lot of things that aren't necessarily specified in the HTTP spec that S3 has

added when communicating with S3. Do you want me to give a concrete example?

Q. Yes.

A. I'm going to go pull up the documentation for PUT. So, for example, there is headers that you can put on certain requests to elicit certain behavior with your storage. The example I've turned to here is on an object upload. You can specify via a header which storage class you wish that object to reside in.

That storage class indicates certain properties of the storage that are beneficial for various use cases, might have different price points, and so that particular upload will be resident in that particular storage class. So the fact that there is a header is within the HTTP spec but the particulars of the header are an extension.

Q. Well, is this a customization of the HTTP protocol?

MR. HAACK: Objection. Vague.

THE WITNESS: What do you mean by "customization"?

BY MR. SHERMAN:

Q. In addition to, more than.

A. It's an extension.

Amazon's position on the difference between an extension versus custom protocol that I've been asking you about, where Amazon's representative said "like a mega header where know web browser would know even how to parse what is coming across the wire." Amazon's representative's words, right?

A. Yes.

Q. So then would an anonymous browser know how to parse what is coming across the wire on these multi-part response elements? Same way Amazon's representatives used that phrase.

A. So first, this is a mutation operation that we're talking about, initiating a multi-part upload versus a read-only operation, right? That is not a common operation to have an anonymous actor doing. And it is not a common operation to be doing anonymously from a web browser. The web browser, in this particular case, I believe, would parse the response and render the XML that you see in the response. It might not be the intended behavior that is expected but the browser would parse this response and show this XML to the user, most browsers.

Q. What's the very next topic in the manual you have in front of you?

A. After the "Initiate"?
Q. Yes.
A. Says upload part is the header.
Q. And we're still in the multi-part upload, correct?
A. Yeah.
Q. Okay. And then the section after that, upload part-copy, correct?
A. Yes.
Q. Now there are requests, syntax. Yeah, there are a number of headers. If I could just sort of point to where I'm going with this, I suspect it's the same.
A. Okay.
Q. Yeah. So request, syntax, we're on page -- of this document, page 310, page 1540 of the Bates page, so it requests syntax PUT/object name, and it goes down with X-AMZ-copy, et cetera. You see that box there, correct?
A. I do.
Q. So as to the commands in this box -- as to the headers in this box, are any of these headers defined in HTTP?
A. No -- well, sorry. Host, date, I think authorization.

Q. Okay.
A. Right.
Q. I actually figured that one out too.
A. Okay.
Q. Okay. So other than host, date, and authorization?
A. The ones prefixed with X-AMZ- are not in the HTTP specification.
Q. Okay. And on the next page, there is a chart showing conditional headers with a header beginning with X-AMZ-copy-source-it-match. Do you see that?
A. Yes.
Q. Okay. And that box begins with, "the following conditional headers are based on the object that the X-AMZ-copy-source header specifies"; correct?
A. That precedes the box, yes.
Q. Okay. Now, there is a column captioned "Description." Do you see that?
A. Yes.
Q. And that column captioned Description describes what, the functionality of these commands?
A. Yes. Yes. Sorry, of these headers.
Q. Of these headers, excuse me.

This functionality has nothing to do with HTTP, correct?

MR. HAACK: Objection. Vague.

BY MR. SHERMAN:

Q. I'll rephrase. This functionality is not found in or defined in HTTP, correct?

MR. HAACK: Objection, vague.

THE WITNESS: The reason I'm hesitating here, so HTTP does define if match/if none match, but in the context of copy source, I believe the answer would be yeah, it's not in the HTTP.

BY MR. SHERMAN:

Q. And the headers that we were just talking about, the X-AMZ-copy-source-it-match and the ones that follow --

A. Uh-huh.

Q. -- those commands, those headers, excuse me, are not used in downloading, correct?

A. I think so. I mean.

Q. You agree with me?

A. Yeah, I would -- well, do you want me to go through and look at every GET command in here to see if --

Q. Let me make it easier. These commands are used in uploading not in downloading, right?

A. Yes. Sorry, let me caveat that. They are used when creating a multi-part object, in these cases, copy source, the object is already uploaded so the user is not -- depending on your definition of upload -- is not actively transferring bytes to S3 but rather copying data that is already present.

Q. As part of the uploading process?

A. As part of the uploading process, but I'm not transferring those bytes again because they're already in S3.

Q. It has nothing to do with the downloading process, correct?

A. Correct.

Q. The multi-part upload process is not defined in HTTP, is it?

A. I don't believe so.

Q. Do you agree?

A. Yes.

Q. Now, what are the ways in which a customer communicates with S3 to do a multi-part upload, other than potentially using the multi-part upload API?

A. So the question is whether you can interact with a multi-part upload in some fashion other than what is documented in these set of

sections that we're looking at?

Q. Let me try it differently. Multi-part upload, the use of a multi-part upload API is one method for an Amazon customer to perform a multi-part upload, correct?

A. Yes.

Q. Use of the S3 console is one way for an Amazon customer to perform a multi-part upload, correct?

A. So the first thing you said was the API, the second thing you said was the console, right?

Q. Yes.

A. So the console uses the API so it's just layers on top of the same thing. The SDK uses the API, the CLI uses the API. So these are all things -- like the API is the entry point for S3. These other access mechanisms are layers on top of that that customers use to simplify their lives.

Q. I think you've saved us both a few more questions on it when you say that these other access mechanisms are layers on top of that that customers use to simplify their lives.

A. Most customers, some customers.

Q. Sure, but this has nothing to do with anonymous browser usage, correct?

MR. HAACK: Objection, vague.

THE WITNESS: Correct.

BY MR. SHERMAN:

Q. I want to ask you some questions as part of the multi-part upload process on assembling parts.

A. Okay.

Q. Okay? The effect of the assembly of parts as part of the multi-part upload is to -- results in an uploaded object, correct?

MR. HAACK: Objection, vague.

THE WITNESS: Should we talk about the definition of an unloaded object?

BY MR. SHERMAN:

Q. Go ahead, please.

A. I would call an uploaded object an object that a customer can later perform a GET on and see as in a list result.

Q. And see --

A. In a list result, the list -- I think in the API it would be called GET bucket but it's a list objects call.

So the question was -- sorry, can you repeat the actual question?

Q. Right. The effect of the assembly of

fashion they were uploaded.

Q. Are the ETags of the parts that are used in connection with the hoped-for successful multi-part upload object used from conditional GETS?

MR. HAACK: Objection. Vague.

THE WITNESS: No. The ETags of each individual part you're referring to?

BY MR. SHERMAN:

Q. Yes.

A. No. The answer is no.

MR. SHERMAN: Can we go off the record?

MR. HAACK: Yeah. Do you want to break for lunch?

THE VIDEOGRAPHER: The time is 12:07, and we're going off the record.

(Recess taken 12:07 p.m. to 1:14 p.m.)

THE VIDEOGRAPHER: The time is 1314. We're back on the record. Please continue.

BY MR. SHERMAN:

Q. Mr. Markle, today is Wednesday, December 5.

A. Yes.

Q. I want you to go back a few days. I want you to go back to Friday, November 30th.

A. Okay.

fashion they were uploaded.

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MR. HAACK: Objection. Vague.

THE WITNESS: No. The ETags of each individual part you're referring to?

BY MR. SHERMAN:

Q. Yes.

A. No. The answer is no.

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Q. Mr. Markle, today is Wednesday, December 5.

A. Yes.

Q. I want you to go back a few days. I want you to go back to Friday, November 30th.

A. Okay.

MR. HAACK: Objection. Scope.

THE WITNESS: -- no idea who that is. Sorry.

MR. HAACK: It's okay.

BY MR. SHERMAN:

Q. What are the names of the other principal software development engineers for S3?

MR. HAACK: Objection. Scope.

THE WITNESS: I don't know if I know how to spell all of their names. There is myself, there is Tim Harris.

BY MR. SHERMAN:

Q. H-a-r-r-i-s?

A. Yes. And I don't know if it's Tim or Timothy. There is Tim Deegan, D-e-e-g-a-n. There is Shawn Davis, there is Chris Stevens, there's Drew Schlite, I think is how you pronounce it, and Leon Thrane, I believe is how you pronounce it. Might be "TRA-NAY".

Q. Is that it?

A. Those are the seven.

Q. And again, apologies if this specific question was asked. It's not my intention.

A. Uh-huh.

Q. Is there some area -- without regard to

any particular project that any one of you is doing at any one particular time, is there some delineation or division of responsibilities where, say, you have greater experience in a particular aspect of S3?

A. Yes.

Q. And others have greater experience in different --

A. Yes.

Q. How does that work?

MR. HAACK: Objection. Scope.

Go ahead.

THE WITNESS: How does that work, like how does it come to be?

BY MR. SHERMAN:

Q. How does it manifest itself?

A. It manifests itself in terms of the projects that we tend to focus on or the sub components of S3 that we tend to focus on.

Q. Which projects? Keep it on a broad level.

MR. HAACK: Objection. Scope.

THE WITNESS: For me or in general?

BY MR. SHERMAN:

Q. In general amongst the seven of you.

A. So there are projects related to S3's

feature set, S3's scale, S3's operations, S3's cost, S3's availability, S3's durability, S3's security.

Q. Amongst the seven of you, is there a specialist or a person who tends to be more involved in multi-part upload?

A. It's a feature that hasn't changed a lot recently so -- there is one today that would probably be closest to it.

Q. And who is that?

A. Chris Stevens.

Q. Are you familiar with the software developer kit for Ruby?

MR. HAACK: Objection. Vague and scope.

BY MR. SHERMAN:

Q. Yeah, let me rephrase it.

Are you familiar with the Amazon software developer kit for Ruby on Rails?

MR. HAACK: Same objection.

THE WITNESS: No.

BY MR. SHERMAN:

Q. Amongst the seven of you, do you know who does, if anyone?

A. I don't know.

Q. Is Ruby considered in any way part of or related to S3?

upload, you would have certain dimensions on your bill related to that usage.

Q. Well, is there a charge for using multi-part upload?

A. There is a charge for uploading parts. There is a charge for downloading any object. There is a charge per month for retaining storage in S3.

Q. Okay, I'm not talking about storage.

A. Okay.

Q. And I'm not talking about service or downloading.

A. You said, "service or downloading." What is service?

Q. As in serving a website.

A. In the context of a download?

Q. Yes.

A. So you're talking about upload?

Q. Yeah.

A. Okay.

Q. Yeah. Is there any charge that Amazon charges customers for uploading multi-part upload?

MR. HAACK: Objection. Vague.

THE WITNESS: Yes.

BY MR. SHERMAN:

Q. What are the charges? How are they

assessed?

A. I don't know the dollar amounts off the top of my head or the penny amounts, as it were. There is a transactional charge for every PUT part. There is a transactional charge for complete. I don't know if there is a transactional charge for abort.

THE REPORTER: Abort, a-b-o-r-t?

THE WITNESS: A-b-o-r-t. There could be bandwidth charges if you are accessing S3 outside of EC2.

BY MR. SHERMAN:

Q. Well, if I am an S3 customer, and I choose to put a large amount of data into my S3 storage, utilizing the multi-part upload procedures, forgetting about the storage once I get it up there --

A. Okay.

Q. -- forgetting about the service or downloading or streaming or whatever I may do with it once I have it up there --

A. Okay.

Q. -- will I, as an Amazon customer, be charged, just for that process of uploading?

MR. HAACK: Objection. Vague.

THE WITNESS: Yes.

BY MR. SHERMAN:

Q. And how are those charges assessed?

A. Can you rephrase the question?

Q. What formula or formula -- I forgot what the plural of formula is. Let's call it formulas.

A. Okay.

Q. What formula or formulas exist in the calculation of charges for uploading?

A. Again, it's a per-request charge for the PUT parts. There is a per-request charge, I believe, for the completion of the upload because that is a separate request, and I believe there is bandwidth charge if you are not putting from EC2 for the actual transmission of the bytes.

Q. And are the -- is the formula or are the formulas for storing data that's been assembled into multi-part upload objects different than the formula or formulas for uploading?

A. Yes.

Q. Are the -- do you know how they differ?

A. Yes.

Q. How?

A. After the upload has occurred, you are then billed per what we call gigabyte --

Q. Yes.
A. -- if your monthly gigabyte fee --
Q. Sure, per gigabyte would be higher.
A. Not necessarily.
Q. Okay. Are those different formula present on the public websites, to your knowledge.
A. Yes.
Q. Now, in terms of serving or downloading multi-part uploads, are the -- are the formula different than uploading?
A. Yes.
Q. Are they different than storage?
A. Yes.
Q. Does multi-part upload, internal at Amazon, of course, have its own profit and loss generated?
MR. HAACK: Objection. Scope.
THE WITNESS: You're asking me if we track it individually?
BY MR. SHERMAN:
Q. Well, let's make sure our nomenclature is being used consistently. Sometimes businesses will refer to an operation or a series of operations as a P&L center. Have you heard that?
A. Yes.

A. I've not heard those words in that order.
Q. Do you know what that means?
A. What do you mean by it?
Q. I'm asking a question. Do you know -- do you have some understanding --
A. I could interpret it that particular way.
Q. How would you interpret or construe that?
A. The request sent by the customer to complete a multi-part upload.
Q. Signifying that it's been completed?
A. Signifying that they wish for it to be completed.
Q. Okay. And then after that post has been sent, what is the next sequence?
MR. HAACK: Objection. Vague.
BY MR. SHERMAN:
Q. What's the next step?
A. Our web server would receive the request. We would authenticate the request. If that customer has permission to perform that operation -- should I continue?
Q. Yeah, of course.
A. Then, we would validate the contents of the request. The customer expresses the part numbers and the ETags of those parts that they wish

to be assembled into the final object. [redacted]

[redacted]

Q. So in your notebook for the API version --

A. Yeah.

Q. -- I believe you have a chapter or section table of contents, complete multi-part upload?

A. I do.

Q. And again, you're looking at the more recent version than we have in front of us.

MR. HAACK: That's more recent.

THE WITNESS: I don't know whose is more recent.

MR. SHERMAN: Oh, we now have the same? Okay. Good. Over lunch we got it.

BY MR. SHERMAN:

Q. So why don't you turn, then, to page 318. It's lower right-hand corner, it's Bates range 1548.

A. Okay.

Q. Is that the directions and the sequencing for the complete multi-part upload?

A. Sequencing?

Q. Directions?
A. This is a description of the API, yes.
Q. And the syntax with the box "Post/Object Name", do you see that?
A. Yes.
Q. Okay. So this reference to "post backslash object name question mark upload," do you see that first line there?
A. Yes.
Q. What do you call that right there, that line?
A. I don't know.
Q. What do you call the box? Make it easier.
A. The whole box?
Q. Yeah.
A. I would call that the request, the complete multi-part upload request.
Q. And after that complete multi-part upload request had been processed --
A. Uh-huh.
Q. -- at that point, would an anonymous browser be able to retrieve that completed post of that assembled object without anything more occurring?
A. Usually.

A. You're talking about the assembled object?
Q. Yes.
A. And an asset would be an image or an HTML file or anything like that?
Q. Yes.
A. Yes.
Q. Is that a common use case for a multi-part upload?
MR. HAACK: Objection. Scope.
THE WITNESS: Can you define "common"?
BY MR. SHERMAN:
Q. Common Merriam Webster, regular dictionary definition.
A. Can you read to me the dictionary definition of the word "common"?
Q. Sure. Just go off of Google search here. Occurring, found, or done often, prevalent.
A. So the question is, is it the prevalent use case of multi-part upload for the resultant object to be served to anonymous browsers?
Q. Yes.
A. No, I don't think so.
Q. Do you know why not?
MR. HAACK: Objection. Scope.
THE WITNESS: I think there are other use

cases that are more prevalent.
BY MR. SHERMAN:
Q. Such as?
MR. HAACK: Objection. Scope.
THE WITNESS: Customers uploading their data without the intent of exposing it publicly for use either as their own backups or data analysis where they don't intend on having data publicly accessible.
BY MR. SHERMAN:
Q. Are completed multi-part upload files commonly -- we've just gone over that -- cached at browsers?
MR. HAACK: Objection. Scope.
THE WITNESS: Do you mean of the ones that are accessed by browsers or of the whole corpus of multi-part objects?
BY MR. SHERMAN:
Q. The ones accessed.
A. I don't know.
Q. Isn't a completed multi-part upload typically too big for a browser cache?
MR. HAACK: Objection. Scope.
THE WITNESS: I'm not familiar with the size distribution of multi-part uploads nor am I

familiar with the size limitations in browser caches.

BY MR. SHERMAN:

Q. The multi-part upload's use of an ETag is different than its use in a conditional GET, isn't it?

MR. HAACK: Objection. Vague.

THE WITNESS: Sorry, when you say "the multi-part upload's use of an ETag," what are you referring to?

BY MR. SHERMAN:

Q. The party tag.

A. During the completion operation.

Q. Yes, yes -- you know what, let's back up.

A. Okay.

Q. Isn't it accurate to say that a multi-part upload's use of ETags in a completed multi-part upload is different than the use of an ETag as a conditional GET?

A. I'm sorry. You said the use of an ETag in a completed multi-part upload. Is that the question, like the upload is complete?

Q. I'm talking about the complete multi-part upload process?

A. Okay.

Q. And in that context and in that circumstance, is the use of ETags different than the use of ETags in a conditional GET?

A. The operations have different intent, one retrieves the data and one is assembling an object together.

Q. And when you say "the operations have different intent," I mean, operations don't have intent. Software developers have intent, right?

A. No, I don't agree that operations don't have intent.

Q. They think?

A. An operation is constructed with intent.

Q. By?

A. By a software developer.

Q. Okay. So going back to the -- you're talking about the retrieval of data and then you also talk about assembling an object together. Assembling an object together is related to the multi-part upload process that I've been asking you questions about, correct?

A. Yes.

Q. And there the ETag use is for the effective assistance in properly assembling the object, correct?

there is a reference to key differences between the Amazon website and the REST API endpoint.

Do you see that?

A. I do.

Q. And there is a chart, and that chart has a column -- actually three columns, key difference, REST API endpoint, and then website endpoint.

Do you see that?

A. Yes.

Q. Okay. So what does this mean?

A. Can I flip back one page and read?

Q. Sure, of course.

A. Okay. So sorry, what was the question?

Q. So we've been going through these various reference guides that you have in front of you. Do you know what website endpoints are?

A. Yes, now I do.

Q. What are website endpoints?

A. Website endpoints are another S3 end point, like a sibling to the REST endpoint, where it requests through the endpoint behave differently in some cases then if they have gone through the REST API endpoint.

Q. Now, when you say "differently in some cases than if they had gone through the REST API

endpoint," in what way do behaviors potentially differ?

A. As I described earlier, S3 is capable of recognizing what you might call the index document or root document like index HTML for your website. And so, for example, requests that don't specify this would be redirected to that. You could have custom error documents that are served in the cases of certain error conditions. These would work if you accessed S3 through the website endpoint versus the REST endpoint.

MR. SHERMAN: Why don't we -- you indicated you waned to go off the record.

MR. HAACK: Yes.

THE VIDEOGRAPHER: The time is 1421, and we're going off the record.

(Recess taken 2:21 p.m. to 2:46 p.m.)

THE VIDEOGRAPHER: The time is 1446. We're back on the record. Please continue.

(Exhibit No. 1 marked for identification.)

BY MR. SHERMAN:

Q. Okay. Now, I've had marked as Exhibit 1 Amazon Simple Storage Device Developer Guide API, version 2006-03-01 as Exhibit 1, beginning with Bates-number 000278 through 703.

MR. HAACK: Objection. Vague.

THE WITNESS: I mean, are we assuming that an anonymous browser isn't the uploader here?

QUESTION: Yes.

ANSWER: Then, yes.

QUESTION: I mean, on the multi-part upload process, can an anonymous browser that's not an Amazon customer upload?

ANSWER: Yes.

QUESTION: How?

ANSWER: Through post requests, as long as they can be authorized.")

MR. SHERMAN: Thank you.

BY MR. SHERMAN:

Q. Do you have that Q and A in mind right now?

A. Yes, yes, I do.

Q. Is there anything you want to correct?

A. No, I still think it's correct. I just had misremembered the specific context.

Q. Now, in an instance where an anonymous browser is capable of uploading, they would be able to do that through post requests as long as they can be authorized correct?

A. As long as the request passes

authorization, yes.

Q. Okay, and in order for the request to pass authorization, what needs to occur?

A. Either the bucket has to be configured to allow anonymous uploads, or, through the credentials maintained by the bucket's account owner, the upload would need to be signed and that signature would need to be submitted by the browser.

Q. So the credentials maintained by the bucket's account owner, that's typically the customer, the Amazon customer, right?

A. That is typically the customer.

Q. So, put another way, aside from instances where buckets are configured to allow anonymous uploads, the only other way that an anonymous browser could perform that function is if the anonymous browser received specific code, credentials, from the customer, right?

A. Either received the signing credentials or somehow had that customer sign for them.

Q. Okay. There would be some element of customer participation/consent?

A. Yes.

Q. Okay. Now back to REST endpoints and website end points, sir.

A. Okay.

Q. Are REST endpoints different than website endpoint?

A. Yes.

Q. And how do they differ?

A. Can I refer to that chart? There is a comparison chart in the developer guide.

Q. Sure, go ahead.

A. I don't know what page it is going to be on in this one.

MR. HAACK: You can use whichever one you want.

MR. SHERMAN: Yes, I'd ask that you use the one that was in effect in the period for which we're alleging infringement.

MR. HAACK: I think these are as well. These are from the same period. They're not the same version, but they're from that same period, aren't they?

MR. THOMPSON: In the back, the release date is 2016 on those.

MR. SHERMAN: The ones that we've handed the witness?

MR. THOMPSON: No, no. The ones in the notebook.

MR. SHERMAN: Oh, the ones in the notebook, 2016.

MR. THOMPSON: Were expired already.

MR. HAACK: You guys have alleged that the infringement period includes 2016.

MR. THOMPSON: Yeah.

MR. HAACK: That's fine.

MR. SHERMAN: Let's use Exhibits 1 and 2.

MR. HAACK: I just want to be clear about the ones we gave you in case there is confusion about that.

THE WITNESS: I'm just looking at this one to get a sense of what section it was in.

BY MR. SHERMAN:

Q. I'm going to try to give you a hint on the earlier one that we've handed you. I think it's around page 335.

A. 335. I think that's right. Okay, I'm looking at Page 339.

Q. Okay. And this chart reflects some of the key differences between REST endpoints and website endpoints?

A. Yes.

Q. And if you want to store web page data, do you have to go through a different process than if

you were storing data that you had as a backup of your data on your computer?

A. To store the data, no.

Q. What about serve web page data, do you have to go through a different process?

A. Yes.

Q. Describe the different process involving REST endpoints versus website endpoints.

A. The website endpoints require the customer to have specified a configuration to allow the website endpoint to operate as a website endpoint.

Q. And, in fact, there is at least one chapter in this developer guide, I think it's page 336, for setting up a website so you can configure a bucket to serve website endpoints from S3; isn't that right?

A. Yes.

Q. How does a customer configure an Amazon S3 bucket for website hosting?

A. Either through the console or through the SDK -- sorry, through the console or -- yeah, through the SDK. I don't know which is more common.

Q. So what specific steps?

A. They would go to the console and specify various pieces of configuration if they were using

the console for this, for example, the index document, which we discussed earlier, is the kind of primary HTML file that gets served, if the customer is -- if the customer's website is accessed via just the raw dominion.

There are error documents that get specified so that custom 404 pages can show up. There is work to make the content of the buckets publicly readable so that browsers can access it. And then you would actually want content to access.

Q. Is there an endpoint associated with uploading objects to S3 using the multi-part upload functionality?

A. Is there an endpoint distinct to that functionalistic or is there an endpoint you would use that may be used for other reasons?

Q. Let's start with distinct.

A. No.

Q. Okay, then let's go to associated.

A. Yeah, the REST endpoint.

Q. In configuring an Amazon S3 bucket for website hosting, must a customer authorize public read access to that bucket?

A. I don't think the entire bucket has to be marked as such.

Q. Most portions?

A. The portions that you would like to serve to customers.

Q. Okay, so with no public read access authorized, then there would not be any public service?

A. Right.

Q. And would a -- would the service of that S3 bucket be specifically from a region-specific website endpoint?

A. Not entirely sure.

Q. In an instance where a GET request to a website endpoint bucket only includes the URL and a slash, what would S3 return?

A. This is for an website endpoint access?

Q. Yes.

A. We would return the contents of the file that has been marked as the index document, I think is the terminology. The index document.

Q. Are Amazon customers given the freedom to choose their own cash control parameters?

A. Yes.

Q. And what are those parameters?

A. The cash control parameters would be a time to live and an absolute date after which the

content is not to be cached.

Q. And what about a max age value, is that also within the optionality of an Amazon end customer?

A. Max age. I would need to reference the guide.

Q. Okay.

A. Shall I?

Q. Yes.

A. Is it okay if I use the binded one? I don't think it's changed. I just want to find the page number.

Q. Okay.

A. This one is easier. I would need to look up the syntax of the cache control header, which is referred to here in the RNC, but from the AWS S3 API, you can specify either a cache control header or an expired header which would indicate a date after which the object is not cacheable.

Q. I want to turn back now to CloudFront. I know I had asked you some questions about that earlier today.

A. Yes.

Q. It's a different product than S3?

A. Correct.

Q. Does that mean in certain circumstances that the retrievers may or may not be S3 customers?

A. Yes.

Q. Do you know what CloudFront customers primarily use CloudFront for?

MR. HAACK: Objection. Scope.

THE WITNESS: No.

BY MR. SHERMAN:

Q. Do you know whether CloudFront is used as a CDN?

A. Yes; and yes, it is.

Q. And what is CDN?

A. CDN is a content distribution network which typically caches content that tends to be accessed and reaccessed frequently where latency and potentially throughput might be a concern, and the customers would benefit from having the data physically close to where they are residing.

Q. Geographically?

A. Geographically.

Q. And so one can be a CloudFront customer and not be an S3 customer?

A. Correct.

Q. When and under what circumstances does data stored on S3 get transferred to CloudFront?

as I can for now.

A. Okay.

Q. Okay? Now, focusing on data stored on servers outside of -- outside of S3 when in instances where CloudFront has made GET requests to S3; does that occur from time to time?

A. Sorry, the question is effectively, does CloudFront store the data they retrieve?

Q. No, no, I don't believe that is my question at all.

Does -- CloudFront makes requests of S3 for data?

A. Yes.

Q. CloudFront -- and this is data that S3 stores?

A. Yes.

Q. But does CloudFront also make requests of S3 for data that S3 then needs to get from other locations outside of S3 storage?

A. No.

Q. Does CloudFront serve GET requests where the origin is not S3?

A. Yes.

Q. In what circumstance or circumstances?

MR. HAACK: Objection. Scope.

priced separately than the service -- third time will be the charm.

Is the service of data to CloudFront from S3 priced differently, to your knowledge, than the service of data to CloudFront from origins other than S3?

MR. HAACK: Objection. Scope.

THE WITNESS: Sorry the question is, does CloudFront charge differently?

BY MR. SHERMAN:

Q. Yes.

A. I don't know.

Q. Okay. And now focusing on service of data from CloudFront --

A. Okay.

Q. -- is data service from CloudFront priced separately than when the data has been served from S3?

MR. HAACK: Objection. Scope.

THE WITNESS: Is the question whether if a customer uses CloudFront or S3 directly if they're going to experience two different prices?

BY MR. SHERMAN:

Q. We'll start there.

A. I believe so. I believe CloudFront has a

different fee structure than S3 does.

Q. Let's take an example where CloudFront served certain data to an anonymous browser --

A. Okay.

Q. -- and that data was obtained by CloudFront from S3.

A. Okay.

Q. In that instance, would the Amazon customer be charged for both S3's service of data to CloudFront and CloudFront's service of the anonymous browser's request?

A. Yes.

Q. How does a CloudFront customer place content on CloudFront?

A. So I don't know if this is exclusive, but through GET requests to CloudFront, CloudFront will retrieve content from the origin and then the result is that the data lives in CloudFront or is cached in CloudFront.

Q. Well, but what about -- does -- are CloudFront customers able to upload data into CloudFront?

A. I don't know.

Q. If you wanted to find out the answer to that question, who would you ask?

BY MR. SHERMAN:

Q. So, Mr. Markle, you were about to say something, and I said, "Hold on, wait until we get back on the record."

[redacted]

Q. What is an inode?

BY MR. SHERMAN:

Q. So what different -- strike that.

And so I take it that you have no knowledge about anything related to the circumstance -- circumstances under which Amazon has purportedly provided indemnification to any of its customers as it may relate to this litigation?

MR. HAACK: Objection. Scope.

THE WITNESS: I have no knowledge.

MR. SHERMAN: And we're not going to have any witness on that, right?

MR. HAACK: I believe that's been the position that was conveyed to counsel, yeah.

BY MR. SHERMAN:

Q. Okay. Okay. What different services does S3 provide?

A. So earlier you used the word "service" to describe downloads specifically, but are you referring to -- what do you mean by "service"?

Q. Okay. What different products, features, does S3 provide?

A. There are a number of them. I probably won't articulate all of them just because there are so many, but the core S3 offering is to hold data on behalf of customers in a way that is both secure,

durable, and available. Do you want me to list more?

Q. List as many products and features that S3 provides.

A. S3 allows you to retrieve that data, S3 allows you to have it encrypted server side, S3 allows you to enumerate the keys you've assigned to your data. S3 allows you to set policies on certain actions against your data. For example, you can specify that data older than 30 days gets deleted. You can tag your data. You can set policies on those tags. You can delete your data, you can upload your data and have S3 try to emulate a web server, as we've discussed earlier via the website feature. What else can you do? You can set access permissions on your data. You can have your data replicated to other regions. You can have your data moved into Glacier.

Q. What is Glacier?

A. Glacier is a product sibling to S3 that stores data more cheaply but has a far longer latency for access.

Q. What is a "product sibling"? I don't understand?

A. It's an object store like S3. It has an

API and objects you've uploaded into Glacier are stored similar to S3 for far cheaper than S3. And when you download the object, you have to wait sometimes hours for the object to be retrieved.

Q. And the products and features that you've identified in that prior more lengthy answer that you just gave a moment ago, fair to say that those services and features are in many instances priced differently according to different formula?

MR. HAACK: Objection. Vague.

THE WITNESS: Priced differently from each other?

BY MR. SHERMAN:

Q. Yeah.

A. Yeah, there is different pricing dimensions that would vary across some of those.

Q. And among the products and features, S3 allows you to upload data in a variety of different transactions, variety of different ways?

MR. HAACK: Objection. Vague.

THE WITNESS: There are -- there is more than one mechanism for uploading data.

BY MR. SHERMAN:

Q. And those different mechanisms for uploading data, the different mechanisms involve

different commands?

A. Yes.

Q. And to your knowledge, is anything that is uploaded to S3 automatically configured for service as a web page file?

MR. HAACK: Objection. Vague.

THE WITNESS: No, anything uploaded to S3 is not automatically configured to serve as a web page file.

BY MR. SHERMAN:

Q. Within Amazon Web Services, are there different individuals who have different technical leadership responsibility for these different services and features that you've been identifying?

MR. HAACK: Objection. Vague. Misstates testimony. Scope.

THE WITNESS: Can you rephrase?

BY MR. SHERMAN:

Q. Well, you're part of a team of seven principal engineers?

A. Sorry, S3 has seven principal engineers.

Q. Okay. Do the seven of you have technical responsibilities over each of these features that you've identified?

MR. HAACK: Objection to scope.

THE WITNESS: Yes.

BY MR. SHERMAN:

Q. Are you familiar with what a root request is?

MR. HAACK: Objection. Scope and vague.

THE WITNESS: Root is spelled r-o-o-t?

BY MR. SHERMAN:

Q. Yes.

A. No.

Q. Let me try it differently. Are you familiar with what a root GET request is?

A. I may be by different terms. If you want to explain what you mean by an --

Q. Well, a request ending with a slash not seeking a specific object?

A. A request here is what --

Q. GET request?

A. So a GET request ending with a slash?

Q. Yes.

A. So I believe you're are referring to not a GET request ending with a slash but rather a GET request that has no resources specified but rather just a domain name.

Q. Yes.

A. Yes.

Q. Okay, and what would you call that?

A. I don't know what I would have, but I'll probably start calling it a root request now.

Q. So in an instance when a root request is made to a REST API endpoint, how would that differ from requesting an index file?

A. So when you say "a REST API endpoint," you're referring to S3's REST API endpoint?

Q. Yes.

A. And you said the REST API and not the website API endpoint?

Q. Yes.

A. So the root request to the REST API endpoint would, I believe, act like a list request. You're effectively asking it to list your bucket at that point versus a request directly to the index that HTML file, if that's what you've named your object which, assuming authentication passes and all that, would retrieve the contents of that file.

Q. What is, at a very general level, EC2?

A. EC2 is --

MR. HAACK: Objection. Scope.

THE WITNESS: EC2 is the -- what does it stand for? Elastic compute cluster, I think. It is a collection of servers, including Linux and Windows

A. Customers are charged an amount based on the number of requests and the request types that they make.

Q. When you say a request in this instance, what are you referring to?

A. A GET, a PUT, a POST, a DELETE, a HEAD.

Q. Those are HTTP requests?

A. Those are HTTP requests.

Q. And does the price charged for one of those HTTP requests vary based on what the GET, PUT, POST, et cetera, what resource it is accessing?

A. Yes.

Q. In what sense?

A. A GET request for an object is charged differently than a PUT request for an object and a GET request for a bucket, which is a listing, effectively, is charged differently than either of those two.

Q. Okay. And is that the per-request charge that is different for those?

A. That's right.

Q. And was that the case in 2016?

A. Yes.

Q. And you mentioned -- we mentioned the SHR is for on a per-request basis. What else does S3

those to be customized for S3?

A. The semantics are customized for S3. The syntax is not.

Q. And is a conditional GET request used in making a multi-part upload?

A. Is a conditional GET request used by the customer?

Q. Yes.

A. No.

Q. And I was asking you some questions and then your counsel was asking some questions about root requests.

A. Uh-huh.

Q. Can a GET forward slash, like a root request for a REST endpoint, return an HTML file composed by an Amazon web service customer?

A. For the REST endpoint, you said?

Q. Yes.

A. No.

MR. SHERMAN: No further questions.

MR. HAACK: If we're all done, we'll reserve signature.

MR. SHERMAN: That's fine, except for as I indicated earlier, I have no further questions right now, and we will be taking up these issues with the