

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

HEADWATER RESEARCH, LLC., (CAUSE NO. 2:23-CV-352-JRG
)
Plaintiff, ()
vs. ()
CELLCO PARTNERSHIP, D/B/A ()
VERIZON WIRELESS, et al.,) MARSHALL, TEXAS
(JULY 17, 2025
Defendants.) 8:30 A.M.

VOLUME 2

TRIAL ON THE MERITS

BEFORE THE HONORABLE RODNEY GILSTRAP
UNITED STATES CHIEF DISTRICT JUDGE
and a jury

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1 what QCI value is available -- or what QCI value is being
2 referenced for the UE, it could be based upon the quality of
3 service and the scheduler making the decisions about what is
4 available and when during that time.

10:53 5 Q. Do you agree that RAN spectrum is one of Verizon's most
6 precious resources?

7 A. I agree that Verizon's RAN spectrum is a -- is an asset
8 that we invest heavily in and allows us to differentiate our
9 network.

10:53 10 Q. Would you say that, on a nationwide view, the C-band
11 currently is underutilized?

12 A. From this data point, assuming that it is an average
13 across the nation of what is currently deployed on a daily
14 basis, I would say this C-band utilization on a scale of
15 one -- of 0 to 100 is being utilized -- is -- has low
10:54 16 utilization.

17 THE COURT: Does that complete this witness by
18 deposition?

19 MS. FAIR: Yes, Your Honor.

20 THE COURT: Call your next witness, please.

21 MS. FAIR: At this time the Plaintiff calls Mr.
22 Ammyth Yamasani. He is a senior software engineer at Google,
23 corporate designee for Google about technical aspects of
24 Android operating system.

25 This clip is 19 minutes, of which 7 minutes, 53 seconds,

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10:54 1 is the Plaintiff's, and 11 minutes, 7 seconds, is the
2 Defendants'.

3 THE COURT: All right. Ladies and gentlemen, before
4 this deposition video is played, the parties have agreed that
5 I should remind you that Mr. Yamasani is a Google employee and
6 that Google has a financial interest in this case through its
7 relationship with Verizon.

8 Let's proceed with this witness by deposition, please.

10:55 9 Q. But the user's interaction with the phone is not limited
10 to direct touching. Fair?

11 A. Yes. There are other modes of input.

12 Q. And the user can interact with the phone and the phone,
13 obviously, can interact with the user. Fair?

14 A. Yes.

15 Q. For example, when the Spotify music player is played
16 using foreground services, the user, if it's within the -- the
17 hearing range of -- of his or her phone, would be able to
10:55 18 listen to the music through the speakers of the phone. Fair?

19 A. I wouldn't characterize it that way.

20 Q. How would you characterize it --

21 A. 'Cause it's not an interaction at that point; it's
22 passive.

23 Q. What's it -- in your sentence, when you say "it's
10:56 24 passive"...

25 A. The act of hearing the audio is passive. It is not

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1 interactive at that point.

2 Q. We, I think, agreed, based on your testimony a few

3 moments ago, that at least the phone would be interacting with

4 the user by playing music through this speaker, though. Fair?

5 A. Not in all cases of the speaker doing something. I was

10:56 6 thinking more in terms of back-and-forth communication.

7 Q. What do -- what do you mean by back-and forth

8 communication?

9 A. Like an interactive voice assistant.

10 Q. Network Policy impacts whether data can be sent over a

11 cellular network, or it can impact whether data can be sent

12 over a cellular network. Fair?

13 A. Yes.

10:57 14 Q. Let's -- let me ask you this. According to the Data

15 Saver feature, the Android operating system can apply certain

16 network restrictions to certain apps. Correct?

10:57 17 A. Data Saver is a user feature. If the user chooses to

18 turn on Data Saver, then the OS will restrict some apps from

19 using the network.

20 Q. And part of the process which the OS will restrict some

21 apps from using the network can be based on the process state

22 classification of the app. Fair?

10:58 23 A. It uses that as one of the signals. The OS uses the Data

24 Saver flag as one of the signals to make a decision.

25 Q. And so if I understand your testimony, the OS uses the

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1 proc state of an app as one of the signals in order to decide
10:58 2 whether to restrict -- to apply network restrictions or not to
3 the app. Fair?
4 A. The process state does play a role in making that
5 decision to restrict network to an app.
6 Q. With respect to the App Standby feature, the Android
7 operating system can apply certain network restrictions to
8 certain apps. Correct?
10:59 9 A. Depending on the -- the specific standby bucket the
10 application is, it can affect the -- the Network Policy, yes.
11 Q. So I'll ask a different question then. When the OS
12 decides whether to apply certain network restrictions
13 according to the App Standby feature, it can use as a signal
14 the process state of the app at that time. Correct?
10:59 15 A. Yes, it can use the process state to override the standby
16 bucket state.
17 Q. Going back to Data Saver, are you familiar with the
18 concept of whitelisting an app?
19 A. For which purpose?
20 Q. For exempting it from a network restriction that
21 otherwise may be applied by a feature.
11:00 22 A. It might be different based on whether it's for cellular
23 network or WiFi network or other types.
24 Q. According to your understanding, the Android operating
25 system, when applying Data Saver, can exempt certain apps from

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11:00 1 having Data Saver restrict their network access. Correct?

2 A. I believe there is code to that effect. I don't know if

3 it -- if and how that is activated.

4 Q. With respect to App Standby, Android operating system has

5 the capability of providing the user with a UI that allows the

11:01 6 user to exempt certain applications from having their network

7 access restricted. Correct?

8 A. With respect to App Standby, the user control is about

9 allowing the app to do what App Standby restricts them from

10 doing, which is mostly about the capabilities for each bucket.

11 It may or may not imply network restrictions.

11:02 12 Q. When it does imply network restrictions, the user may

13 have the capability of exempting certain apps from those

14 network restrictions. Correct?

15 A. The user can prevent the app from going into a low

11:02 16 standby bucket, which looks on -- low standby buckets present

17 network access. So if you don't let the app go into the low

18 standby bucket, then if all other conditions are met, then the

19 application might be able to access the network.

20 Q. What user interface can the user use to prevent the

21 application from going into the low standby bucket?

11:03 22 A. On Pixel devices, there is a battery settings page where

23 you can put the application in an unrestricted state. That

24 will prevent the app from going into a low standby bucket.

25 Q. According to that option, a user can select certain apps

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11:03 1 and prevent them from going into that state while not
2 exempting other apps. Fair? Or is it an all-or-nothing
3 option?
4 A. The user can choose on a per-app basis to exempt from
5 standby buckets.

11:03 6 Q. And ConnectivityManager, for each such application, would
7 know and classify whether that's using a cellular network or a
8 WiFi network or both. Do I understand that right?
9 A. I think it is part of the policies that it transmits
10 where it tells the ConnectivityManager. By "it", I mean
11 Network Policy Manager tells the ConnectivityManager what
11:04 12 kinds of networks are allowed for a particular application and
13 whether or not it's allowed at all to access the network.
14 Q. Regardless of how it specifically translates those
15 policies, I was just noting that the ConnectivityManager would
16 know whether the applicable network is WiFi or cellular, or it
17 might be metered or unmetered. Correct?

11:05 18 A. The ConnectivityManager's aware of what network is
19 available, and it's aware of the policies that the Network
20 Policy Manager tells it. I don't know whether it has a
21 one-to-one correspondence.
22 Q. And your prior answer, that's true no matter what feature
23 we're talking about, whether it's Doze or App Standby or Data
11:05 24 Saver or Battery Saver. Correct?
25 A. That's correct.

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1 Q. Just a couple of more questions on this topic.

2 We discussed previously that an application would attempt
3 to make a network connection by transmitting some form of data
4 through an API to the operating system. Correct?

11:05 5 A. I wouldn't say it is necessarily transmitting data; it is
6 making an API call which can have some response back from the
7 operating system. The first step is usually to initiate a
8 connection, not to try to transmit data. If the connection
9 successfully is initiated, then it can try to transmit data.

10 Q. Thank you. That's helpful.

11:06 11 So an app can attempt to initiate a network connection by
12 making an API call to the OS, or it could actually be
13 attempting to transmit data but -- to or through a network by
14 making some API calls to the OS. Do I have that correct?

15 A. It needs to initially establish that connection before it
11:06 16 can try to transmit data through that network connection.

17 Q. We discussed a moment ago that when an app attempts to
18 initiate a network connection, it makes an API call to the OS.
19 Correct?

20 A. Correct.

21 Q. And when an app, after successfully initiating a network
22 connection, attempts to transmit data through a network
23 through that connection, it also has to make some kind of API
24 call. Correct?

25 A. Correct.

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11:07 1 Q. And making an API call requires some form of application
2 interface message or request. Correct?

3 A. No. It is -- it is just calling a subroutine and passing
11:07 4 some parameters to the subroutine. That's the way I would
5 characterize it.

6 Q. And after it has restricted an application's network
7 access, how is the -- conceptually, the firewall elements used
8 to restrict or block that access of data transfer?

11:08 9 A. I don't know the exact details of how it restricts it.
10 One way is it invalidates the connection object that was
11 handed back. So any further calls using that connection
12 object will result in an error.

13 Q. One of the error messages, to be clear, is that the data
14 transfer was blocked through that part of the network layer.
15 Fair?

16 A. It would be the data transfer failed to happen for some
17 reason.

11:09 18 Q. And one of those reasons can be that it was blocked by
19 the operating system through the conceptual use of the
20 firewall, though. Fair?

21 A. It means that the policy set on the firewall prevents
22 that data transfer from completing.

23 Q. My question was a little different. You may not know all
24 of the error messages, but one of the -- one of the example
25 error messages that may be used is that it was blocked. Fair?

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11:09 1 A. I think it's most likely going to be something like an
2 EPERM, which is a message -- an error code that says no
3 permission to -- to do that transaction.

4 Q. So what I want to talk about is specifically the API
5 calls we were discussing between an application and
6 ConnectivityManager to set up a network connection. Do you
11:09 7 recall that discussion?

8 A. Yes.

9 Q. And I think when we were discussing that, there was sort
10 of a distinction drawn between the API messages that were
11 involved in setting up the network connection and then the
12 subsequent data transmission over that network connection. Do
13 you remember that?

14 A. Yes.

15 Q. Okay. So I want to talk first about the API messages to
11:10 16 set up the network connection, the sort of first step.

17 So with that withdrawn, maybe to set the table, that
18 setup series of API calls I think you testified would happen
19 before any data transmission would occur. Is that correct?

11:10 20 A. Yes. The connection request to open a socket has to
21 happen before a data transfer.

22 Q. Okay. So in the event it does send that message, it
23 would go to the ConnectivityManager, though. Correct?

24 A. That's right.

25 Q. And I believe you mentioned earlier that it is best

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1 practices for application developers to ask the
2 ConnectivityManager when they are trying to set up a network
11:11 3 connection and abide by the responses they get from
4 ConnectivityManager. Is that fair?
5 A. I believe that is the best practice, yes.
6 Q. When determining whether or not to permit an application
7 to establish a connection to a network, do you know whether
8 ConnectivityManager looks at the particular activity that the
11:11 9 application is trying to perform?
10 A. I don't believe so.
11 Q. Apologies. I was referring to that request. So when
12 the application sends the request for network state or
13 availability through some API interface to
11:12 14 ConnectivityManager, is there any circumstance where that API
15 request would not make it to ConnectivityManager when
16 everything is operating normally within Android?
17 A. No, I don't see why it wouldn't complete that API
18 transaction.
19 Q. Okay. And sort of a similar question. When
20 ConnectivityManager provides the response to that request
11:12 21 back to the application, is there any reason, in the ordinary
22 operation of Android, that that response would not make it
23 back to the application?
24 A. No. Unless the application was killed in the meantime
25 before the response, there's no reason why it shouldn't

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1 receive the response.

2 Q. Got it. And so, just to be clear, there's no other part
3 of Android that would be intercepting or canceling those API
4 messages between the application and ConnectivityManager.

5 Right?

11:13 6 A. No, nothing gets in between the two.

7 Q. Great. You can put that document away.

8 So over the course of today, we've discussed four
9 features named Data Saver, Doze Mode, Battery Saver, and App
10 Standby. Correct?

11 A. Yes.

12 Q. To your knowledge, did Google receive any input from
13 Verizon in developing any of those features?

11:13 14 A. Not that I'm aware of.

15 THE COURT: Does that complete this witness by
16 deposition?

17 MS. FAIR: Yes, Your Honor.

18 THE COURT: Call your next witness, please.

19 MS. FAIR: Your Honor, at this time the Plaintiff
11:14 20 calls Mr. Michael Schiksnis. He's the chief of staff at
21 Samsung's Mobile Network Operators. He was Samsung's
22 corporate designee for Android code related to the relevant
23 features, including Doze Mode.

24 This clip is 46 seconds, and at Samsung's request we ask
25 that the courtroom be sealed for this.

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12:46 1 Two things, ladies and gentlemen, while the witness is
2 getting seated. As indicated by Plaintiff's counsel, he's
3 being called adversely. That simply means that the Plaintiff
4 has the ability to lead the witness with leading questions
5 because he's in a posture that's adverse to the Plaintiff. So
6 it's treated almost like a cross examination from the
7 beginning.

12:46 8 Secondly, before counsel begins with the questions, the
9 parties have agreed that I should remind you that this
10 gentleman is an Apple employee and that Apple has a financial
11 interest in this case through its relationship with Verizon.

12 So with that, Mr. Mirzaie, you may proceed with direct
13 examination.

14 MR. MIRZAIE: Thank you, Your Honor.

15 Good afternoon, ladies and gentlemen of the jury.

16 KARTIK VENKATRAMAN,

17 having been first duly sworn, testified under oath as follows:

18 DIRECT EXAMINATION

19 BY MR. MIRZAIE:

12:47 20 Q. Good afternoon, Mr. Venkatraman. We've never met before.
21 Correct?

22 A. Correct.

23 Q. Good to meet you. I know that Verizon is calling you as
24 their witness, but you had some scheduling conflicts next week
25 so we wanted to accommodate those by having you testify today.

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1 Sir, to give the jury a bit of background about you,
2 you've been at Apple since October 2014. Correct?
3 A. That's correct.
4 Q. And you're an engineering manager at Apple. Right?
5 A. That's right.
6 Q. Apple pays your salary and has the whole time. Right?
7 A. Right.
12:47 8 Q. And Apple products are products that are accused of
9 infringement in this case. Correct?
10 A. That's right.
11 Q. So as an employee of Apple, you're here as a fact
12 witness. Correct?
13 A. Right.
14 Q. And you're in court yesterday I noticed. Right?
15 A. Right.
16 Q. And so you know that only expert witnesses can give
17 testimony comparing claim language to the products for
18 purposes of infringement. Did you see that?
19 A. I understand that.
20 Q. And you're not here to provide any opinions about whether
21 the Apple products infringe. Correct?
12:48 22 A. No, I'm not here to provide that.
23 THE COURT: Could you speak up a little bit, please,
24 sir. Thank you.
25 Go ahead, counsel.

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1 Q. (BY MR. MIRZAIE) And you're not here to -- strike that.
2 You've never met Dr. Raleigh before this case. Correct?
3 A. I have not.
4 Q. And so you're not here to contradict his testimony about
5 the patents. Correct?
6 A. No.
7 Q. And you're not here to contradict his discussion of
8 meetings with Apple in 2012. Correct?
9 A. I don't know of any such meetings.
12:48 10 Q. And the jury heard from Mr. Chan earlier today, too. You
11 know him. Right?
12 A. I do.
13 Q. And he was the directly responsible individual for the
14 initial design of BAR in 2013. Correct?
15 A. That's correct.
16 Q. And you're not here to contradict him, are you?
17 A. No, I don't believe so.
18 Q. Nevertheless, for your part, you do have technical
19 familiarity with the operation and functionality of Background
20 App Refresh and related iOS functionality. Correct?
21 A. I do.
12:49 22 Q. And, briefly, the goal of Background App Refresh is to
23 provide additional run times to applications that are in the
24 background that they otherwise wouldn't have had. Correct?
25 A. That's correct.

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12:49

1 Q. And that's the key feature in the Apple set accused of
2 infringement so let's just get right into it. But before we
3 do, I wanted to get one thing out of the way. According to
4 Apple's Worldwide Developer Conference presentations before
5 this lawsuit, the Background App Refresh switch defaults to
6 on. Correct?

7 A. That's right.

8 Q. So the default is that the BAR refresh is on when a user
9 purchases a phone. Correct?

10 A. That's right.

11 Q. So any suggestion that BAR is off by default would just
12 be untrue. Correct?

13 A. That's correct.

12:50

14 MR. MIRZAIE: Can I have the slide deck? Thank you.

15 Q. (BY MR. MIRZAIE) Now, yesterday you were here for
16 opening statements. Right?

17 A. I was.

18 Q. And Mr. Krevitt told the jury that Verizon requires phone
19 makers to have the features off by default. Did you see that?

20 A. I saw that.

21 Q. And -- but it's true that for BAR, it's on by default.
22 Correct?

23 A. Background App Refresh is on by default. That's right.

12:50

24 Q. And Verizon's never told Apple or you not to use the
25 feature. Correct?

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1 A. That's correct.

2 Q. Now, before we jump into some of the other functionality,
3 I wanted to discuss background and foreground. You're
4 familiar with those terms. Right?

5 A. I am.

6 Q. Now, users have many apps on their phones, hundreds
7 sometimes. Correct?

8 A. Sometimes, yes.

9 Q. You yourself on your phone I'm sure have over a hundred.
10 Right?

12:51 11 A. I don't know exact number but a lot.

12 Q. And at any point in time a user can launch an app into
13 the foreground. Right?

14 A. That's right.

15 Q. And this is a very basic question, so apologies, but the
16 phone obviously has a UI, or user interface. Right?

17 A. That's right.

18 Q. And the user can use that UI in order to launch the app
19 into the foreground. Correct?

20 A. That's right.

21 Q. And the way to do that is to interact with the icon
12:51 22 through a finger tap which can animate the app into the
23 foreground. Correct?

24 A. That's right. That's one of the ways it can launch.

25 Q. And a previously-launched app can also be in the

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1 background. Right?

2 A. It can be.

3 Q. And, sir, you're familiar with the developer.apple.com
4 website. Correct?

5 A. I am.

6 Q. And that houses all of Apple's communication and
7 documentation to developers about Apple's platform. True?

8 A. That's right.

12:52 9 Q. And obviously if Apple were to ever spot something that
10 is inaccurate, Apple would try to work with the responsible
11 Apple teams to update it on the developer site. Correct?

12 A. That's right.

13 Q. Now, this is a document labeled JX 83. It's Exhibit JX
14 83 from the Apple developer documentation website. Do you see
15 that?

16 A. I see that.

17 Q. And I actually have a blow-out of it here, and I'll just
12:52 18 go ahead --

19 MR. MIRZAIE: May I approach the easel, Your Honor.

20 THE COURT: You may.

21 Q. (BY MR. MIRZAIE) So we have it on the slides but also
22 have it up here. Do you see that board? It's a little
23 crooked so apologies for that. It's also on your screen,
24 though.

25 Now, according to the developer page, the current state

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1 of your app determines what it can and can't do at any time.
2 Right?
12:53 3 A. Yeah, it says that there, yeah.
4 Q. For example, a foreground app has someone's attention.
5 Right?
6 A. It says that, yeah.
7 Q. And it's because it's visible and usable on the phone's
8 user interface. Correct?
9 A. That's right.
10 Q. And at launch developers, are told to use app transitions
11 to initialize the app's data structures and user interface.
12 Correct?
12:54 13 A. I see that, yes.
14 Q. And at activation, that transitions to help finish
15 configuring your UI and prepare it to interact with the user.
16 Do you see that?
17 A. I see that.
18 Q. And so -- and the jury can take down this exhibit number
19 here as JX 83. It says here, when transitioning to the
12:54 20 foreground active state, configure your UI and prepare to
21 interact with a person or the user. Correct?
22 A. Correct.
23 Q. And for app transitions, it also says, it reminds the
24 developers that at activation, finish configuring your UI and
25 prepare to interact with the person. Right?

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1 A. Yeah.

2 Q. And in both places, it is citing prepare your UI to run
3 in the foreground. Correct?

4 A. It is.

12:55 5 Q. And the accused products have -- strike that.
6 In order to do that, the accused products draw a user
7 interface on the phone's display, correct, in order to help
8 the foreground app interact with the user? Correct?

9 A. Could you repeat the question?

10 Q. Sure. In order to assist in this process of configuring
11 the user interface to prepare to interact with the user, the
12:55 12 iOS would draw the app into the foreground on the display.
13 Correct?

14 A. Correct. The application is drawn, yes.

15 Q. And in iOS, you're familiar with a component called
16 SpringBoard. Right?

17 A. I am.

18 Q. And that can determine which apps are in the foreground.
19 Agreed?

20 A. It's not quite the way I'd put it.

21 Q. In any event, in iOS when the user taps on an application
22 icon and animates it to the foreground, SpringBoard will mark
12:55 23 it as being in the foreground state. Correct?

24 A. That's roughly true, yes.

25 Q. Thanks. And there's a data structure, to be clear, named

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1 foreground apps that represents something the operating system
2 can see to know what the apps are in the foreground. Right?
3 A. Can you clarify the data structure you're referring to?
4 Q. Yeah. Foreground or foregrounded apps?
5 A. Do you mean in a particular scenario?
12:56 6 Q. Let me ask you a different question. When a user selects
7 a new app to go in the foreground, the app that was previously
8 in the foreground will later enter into a background state.
9 Right?
10 A. That's correct.
11 Q. And there could be many background apps while the user is
12 using the phone. Correct?
13 A. That's correct.
14 Q. But when the feature -- strike that.
15 When the app is in the background, there's a data
16 structure called backgrounded apps. Correct?
12:56 17 A. Are you referring to a specific component?
18 Q. Yeah. Component related to SpringBoard. And let me ask
19 you a more specific question here. In contrast to foreground,
20 when Apple uses the term 'background', it's referring to work
21 that is happening in the application that is not currently in
22 the foreground. Isn't that right?
23 A. Sorry. Could you repeat the question?
24 Q. Sure. In contrast to foreground, when Apple uses a term
25 'background', it is referring to work that is happening in the

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12:57 1 application that is not currently in the foreground. Right?

2 A. Yes.

3 Q. And according to JX 83, upon deactivation of the app, the

4 transitions can help save data and quiet the app's behavior

5 before entering the background state. Right?

6 A. That is right.

7 Q. And when the app goes to the background, it's no longer

8 in -- taking up the full display of the screen. Right?

9 A. That's right.

10 Q. And so we can agree that when the app is in the

12:58 11 background, the user isn't interacting, touching the app,

12 reading from the app's contents, because it's not on the

13 screen at that time. Correct?

14 A. That's right. They can't see the application.

15 Q. And that goes for all apps in the background. Right?

16 A. Not quite.

17 Q. Now, if the user did interact with the app in the

18 background, then that would bring that app into the

19 foreground. Correct?

20 A. Not always.

12:58 21 Q. By -- and specifically with a finger tap on the icon to

22 bring it into the foreground, with that interaction, that

23 would bring it into the foreground. Correct?

24 A. That interaction would bring it into the foreground.

25 Q. Now let's talk about BAR, or Background App Refresh, uses

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1 these background and foreground states. Would that be okay?

2 A. Sure.

12:58 3 Q. And BAR -- by the way, BAR, obviously it stands for

4 Background App Refresh. Correct?

5 A. Yes.

6 Q. It operates on background apps or apps that are in the

7 background. Right?

8 A. It operates on all applications.

9 Q. Right. Operates on applications that are in the

10 foreground and background. Correct?

11 A. It's applies to all applications. That's right.

12 Q. Yep. And it has a set of rules or policies that apply to

13 Background App Refresh tasks. Correct?

14 A. Yeah, that's right.

12:59 15 Q. And a task, by the way, is another term for a stand-alone

16 activity by Apple's parlance in the developer documentation.

17 Right?

18 A. Yeah, that's right.

19 Q. Now, generally speaking, before Background App Refresh

20 was introduced in 2013, iOS generally prohibited background

21 activities by applications. Right?

22 A. Generally, yes. There were limited exceptions.

23 Q. And that's because at that time -- at the time the

12:59 24 Background App Refresh was developed, there were fairly

25 limited set of ways that developers could have background

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1 runtime. Right?

2 A. That's right.

3 Q. So the feature is about getting a little extra runtime to

4 applications so they can display the most up-to-date content

5 for the user when the user interacts with the app. Correct?

6 A. It's not quite the way I'd put it.

7 Q. But you would say that before BAR, or Background App

01:00 8 Refresh, it was potentially very common for a user to go to an

9 application and see stale content.

10 A. That's right.

11 Q. And so Background App Refresh was meant to fix that for

12 user preferences and also developer preferences. Correct?

13 A. That's right.

14 Q. Now, with Background App Refresh, when an app developer

15 participates in -- in BAR, the operating system will grant

16 additional runtime for that app when it's in the background.

17 Right?

01:00 18 A. That's right.

19 Q. And, in fact, the runtime interval is limited to only 30

20 seconds. Correct?

21 A. That's right.

22 Q. And the app can execute whatever activity developer

23 programmed into it in that 30-second time interval. Right?

24 A. That's right.

25 Q. Now, foreground apps don't that have that time interval

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1 for activities. Fair?

2 A. That's correct.

01:01 3 Q. And so even in this way, Background App Refresh limits
4 the length of activity that can be used in the intervals.
5 Correct?

6 A. That's right.

7 Q. And there's a lot of examples of apps using Background
8 App Refresh. Right?

9 A. There are.

10 Q. A calendar app, for example, may use Background App
11 Refresh to fetch from its local database for the most current
12 events or reminders while that app is in the background.
13 Right?

14 A. That's a possibility, yes.

01:01 15 Q. And you're familiar with the concept of usage patterns as
16 it's used in Background App Refresh. Right?

17 A. I am.

18 Q. And that's one of the factors that it takes into account
19 when deciding which app or activity gets runtime. Right?

20 A. That's right.

21 Q. And the BG task refresh activity are the ones that the
22 user, all other things being equal, use more frequently or
23 interact with more frequently. Correct?

01:02 24 A. They can be, yes.

25 Q. And by the way, Background App Refresh is built right

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1 into the operating system. Right? It's not external to the
2 operating system.

3 A. That's right.

4 Q. Now, you'd agree that a task -- strike that.

5 Would you agree that a task is an activity and activities
6 have unique identifiers. Fair?

01:02 7 A. Is this related to this document?

8 Q. Yes. Apologies for that. We can move on to the next
9 document here, and this is on slide 40. See this is JX 69.
10 And this is also from the Apple developer documentation. Do
11 you see that on your screen?

12 A. I do.

13 Q. Now, at JX 69, it says, as we agreed previously, a task
14 such as Background App Refresh is a stand-alone activity that
15 an app performs. Fair?

01:03 16 A. Yeah, it says that here.

17 Q. And BAR enables developers to create a list of unique
18 identifiers for each task. Right?

19 A. That's right.

20 Q. You wouldn't -- you're not telling the jury that there's
21 no unique identifier for the BAR refresh tasks, are you?

01:03 22 A. I'm -- no. I am saying that there's a unique identifier
23 for the app refresh task, and -- yeah.

24 Q. And each BG app refresher task activity has a unique
25 identifier. Correct?

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1 A. Yes.

2 Q. At least some do?

3 A. It's an identifier that's unique for the developer.

4 Q. Any suggestion that the BG app refresher task activity
5 did not have a unique way of identifying itself would be
6 untrue. Fair?

01:04 7 A. It's not quite right.

8 Q. Now, the BG app refresher task, do you have that in mind?
9 You know what that is. Right?

10 A. BG --

11 Q. App refresh task?

12 A. Yes.

13 Q. Yeah. And the B stands for background. Right, the BG.
14 Right?

15 A. That's correct.

16 Q. And this document actually gives an example here. Do you
01:04 17 see that colorfeed.refresh there?

18 A. I see that.

19 Q. And that's an example where the app would have to
20 communicate with a server to update its UI. Correct?

21 A. It may have to, yes.

22 Q. And in fact, for many apps, the refresh would require
23 communicating with a network in order to do the refresh
24 update. Agreed?

25 A. Yes, for many apps.

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01:05 1 Q. And the most common refresh is one that has to
2 communicate with a network. Correct?
3 A. I don't know about most common.
4 Q. It's a very common one. You'll agree with that much.
5 Right?
6 A. It happens.
7 Q. You'll agree that it's a very common one for the refresh
8 to use a network in order to get the refresh. Correct?
9 A. It does happen, yes.
10 Q. Okay.
11 MR. MIRZAIE: Now, Your Honor, I think we'll have to
12 get into source code, so we probably have to seal the court
13 for the next portion of testimony.
14 THE COURT: All right. Based on that request from
01:06 15 counsel and to protect confidential information, I'll order
16 the courtroom sealed.
17 I'll direct that all persons present who are not subject
18 to the protective order entered in this case should excuse
19 themselves and remain outside the courtroom until it is
20 reopened and unsealed.
21 MR. ROSENTHAL: Your Honor, I believe Apple
22 personnel may be permitted?
23 THE COURT: If it's Apple source code, Apple
24 personnel can remain.
01:06 25 Anyone else not subject to the protective order should

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1 I HEREBY CERTIFY THAT THE FOREGOING IS A
2 CORRECT TRANSCRIPT FROM THE RECORD OF
3 PROCEEDINGS IN THE ABOVE-ENTITLED MATTER.
4 I FURTHER CERTIFY THAT THE TRANSCRIPT FEES
5 FORMAT COMPLY WITH THOSE PRESCRIBED BY THE
6 COURT AND THE JUDICIAL CONFERENCE OF THE
7 UNITED STATES.

8
9 S/Shawn McRoberts

07/17/2025

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