

Exhibit 8

Infringement of US Patent 8,332,454 by Targeted Advertising and Events

Claim 1	Facebook Targeted Advertising and Events
A method of creating a projection of a situational network, the method comprising:	A method of creating a projection (“Graph API,” FN1; “Marketing API,” FN2; “Ad Targeting,” FN3; “Advertising your event,” FN4) of a situational network (“Facebook,” FN1, FN2), the method comprising: Overview The Graph API is the primary way to get data into and out of the Facebook platform. It's an HTTP-based API that apps can use to programmatically query data, post new stories, manage ads, upload photos, and perform a wide variety of other tasks. The Graph API is named after the idea of a “social graph” — a representation of the information on Facebook. It's composed of nodes, edges, and fields. Typically you use nodes to get data about a specific object, use edges to get collections of objects on a single object, and use fields to get data about a single object or each object in a collection. Throughout our documentation, we may refer to both a node and edge as an “endpoint”. For example, “send a <code>GET</code> request to the User endpoint”. Overview The Marketing API is an HTTP-based API that you can use to programmatically query data, create and manage ads, and perform a wide variety of other tasks. This section covers general information on the Marketing APIs, access, versioning, and more. Since the API is HTTP-based, it works with any language or software that supports HTTP, including cURL and almost all modern web browsers. The Marketing API is build on top of Facebook's Graph API, so almost all requests should be passed to the <code>graph.facebook.com</code> host URL. Basic Concepts Concepts you should understand to better use the Marketing API: Ad Campaign Structure Facebook organizes ads in a structure with three levels: campaign, ad set and ad. In the API, developers have access to a fourth level called creative.

¹ Exhibit 36, <https://developers.facebook.com/docs/graph-api/overview> (retrieved July 18, 2023).

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Claim 1	Facebook Targeted Advertising and Events
	© Meta Ads Audience ad targeting How to find people most likely to respond to your ad. 3 296 views After you set up your Facebook event, use these best practices to help your event ad reach your preferred audience. • Create an event engagement custom audience. To reach people who have shown interest in your events on Facebook, you can create an event engagement custom audience. You can include or exclude people who've responded to events or expressed interest in purchasing tickets. • Use a custom audience from previous events. Use Meta Ads Manager to upload a list of people who've purchased tickets for your events in the past, then create a custom audience to reach those people again. You can make sure to reach previous attendees who may not have seen your current event on Facebook. • Use a lookalike audience to find people similar to your attendees. Use Ads Manager to upload a list of people from email lists or people who have purchased tickets for your events in the past. When you create a lookalike audience, we'll find similar people based on their Facebook data and browsing history. • Use your connections. To reach people who have responded to an event from your Page and their friends, use the Connections field when you create your ad. • Choose the right location. Focus your audience on the people who are most likely to attend the event in a specific location. For local events, choose the city and set your audience to reach people within a certain radius. If you host similar events in multiple locations, we recommend that you create a separate event for each location. 4 Facebook uses the Marketing API and Graph API to create a projection in a situational network, e.g., to deliver targeted ads for Facebook Events.

² Exhibit 24, <https://developers.facebook.com/docs/marketing-apis/get-started> (retrieved July 18, 2023).

³ Exhibit 28, <https://www.facebook.com/help/1761941604022087> (retrieved July 18, 2023).

⁴ Exhibit 48, <https://www.facebook.com/business/help/2141169069528148?id=300360584271273> (retrieved July 21, 2023).

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Claim 1	Facebook Targeted Advertising and Events
(a) creating, by an event node server, an event node in a multi-dimensional personal information network, the event node corresponding to a situation;	(a) creating, by an event node server ("graph.facebook.com," FN5; "Official Events API," FN6), an event node ("{"id_of_then_new_event}", FN5; https://www.facebook.com/events/758639635402691, FN8) in a multi-dimensional personal information network ("Facebook," FN1, FN2), the event node corresponding to a situation ("name": "Get Started with Ticketing," FN5; "April 8th show," FN7); This will create the event and return the event id. Example Request and Response <pre> Http Method: POST URL: /v2.0/official_events Request Body: { "name": "Get Started with Ticketing", "description": "This is the best place to buy your first ticket", "access_token": "{access_token}", "place_id": "{place_id}", "cover": { "source": "{hosted_image_url}", "offset_x": 0, "offset_y": 0 }, "category": "FAMILY_EVENT", "timezones": "US/Pacific", "start_time": "2012-03-04 17:45:12" (rel:20120304T17:45:12", "notes": [{"page_id": "{EVENT_PAGE_ID}"} } Response Body: { "id": "{id_of_the_new_event}" } </pre>

⁵ Exhibit 49, <https://developers.facebook.com/docs/pages/official-events/> (retrieved July 21, 2023).

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Claim 1	Facebook Targeted Advertising and Events
	Official Events API An API for creating and updating official events on behalf of Pages. The Official Events API allows your app to create and update events on behalf of Pages, requiring no action from Page owners. Having one "official" event consolidates engagement and reduces the risk of participants accidentally creating duplicate events that might end up causing confusion. 6

⁶ Exhibit 49, <https://developers.facebook.com/docs/pages/official-events/> (retrieved July 21, 2023).

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⁷ Facebook App for iOS.

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Claim 1	Facebook Targeted Advertising and Events
	 The screenshot shows a Facebook event page. The URL in the browser bar is facebook.com/events/758639635402691. The event poster features a QR code, the text 'Hosted By: KEVIN LEPKA', and 'Feature Acts: HALF & HALF RACHEL LENIHAN'. The event is scheduled for SATURDAY, APRIL 8, 2023 AT 7 PM - 10:30 PM. The title is 'Apr 8th - Scranton Comedy Club Show w/ Headliner JOHNNY WATSON' and the location is 'Holiday Inn Scranton East - Dunmore'. A small number '8' is visible in the bottom right corner of the screenshot area.

⁸ Exhibit 50, <https://www.facebook.com/events/758639635402691> (retrieved July 21, 2023).

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Claim 1	Facebook Targeted Advertising and Events
	(a) creating, by an event node server ("graph.facebook.com," FN5), an event node ("/v16.0/act_<AD_ACCOUNT_ID>/campaigns," FN5) in a multi-dimensional personal information network ("Facebook," FN1, FN2), the event node corresponding to a situation (marketing opportunity and corresponding ad campaign FN5, FN10 Ad objectives,"FN11; "LINK_CLICKS," FN5); Step 1: Create a Campaign Start the process creating a new campaign object from the class <code>Campaign</code>. At this stage, you need to set an objective for your ads, which is the overall goal of your campaign. We recommend that you create a <code>PAUSED</code> campaign initially, so you do not get billed while testing. cURLNode.js Business SDKPHP Business SDKPython Business SDKJava Business SDKRuby Business SDK <pre>curl -X POST \ -F 'name="My campaign"' \ -F 'objective="LINK_CLICKS"' \ -F 'status="PAUSED"' \ -F 'special_ad_categories=[]' \ -F 'access_token=<ACCESS_TOKEN>' \ https://graph.facebook.com/v16.0/act_<AD_ACCOUNT_ID>/campaigns</pre>

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⁹ Exhibit 24, <https://developers.facebook.com/docs/marketing-apis/get-started> (retrieved July 18, 2023).

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Claim 1	Facebook Targeted Advertising and Events														
	 <table border="1"> <thead> <tr> <th>Node</th><th>Description</th></tr> </thead> <tbody> <tr> <td><code>/ad_account/{ad_account_id}</code></td><td>Someone on Facebook who creates ads. Each ad user can have a role on several ad accounts.</td></tr> <tr> <td><code>/act/{ad_account_id}</code></td><td>Represents the business entity managing ads.</td></tr> <tr> <td><code>/ad/{ad_id}</code></td><td>Contains information for an ad, such as creative elements and measurement information.</td></tr> <tr> <td><code>/ad_creative/{ad_creative_id}</code></td><td>Format for your image, carousel, collection, or video ad.</td></tr> <tr> <td><code>/ad_set/{ad_set_id}</code></td><td>Contains ad sets that share the same budget, schedule, bid, and targeting.</td></tr> <tr> <td><code>/ad_campaign/{ad_campaign_id}</code></td><td>Defines your ad campaign's objective. Contains one or more ad sets.</td></tr> </tbody> </table>	Node	Description	<code>/ad_account/{ad_account_id}</code>	Someone on Facebook who creates ads. Each ad user can have a role on several ad accounts.	<code>/act/{ad_account_id}</code>	Represents the business entity managing ads.	<code>/ad/{ad_id}</code>	Contains information for an ad, such as creative elements and measurement information.	<code>/ad_creative/{ad_creative_id}</code>	Format for your image, carousel, collection, or video ad.	<code>/ad_set/{ad_set_id}</code>	Contains ad sets that share the same budget, schedule, bid, and targeting.	<code>/ad_campaign/{ad_campaign_id}</code>	Defines your ad campaign's objective. Contains one or more ad sets.
Node	Description														
<code>/ad_account/{ad_account_id}</code>	Someone on Facebook who creates ads. Each ad user can have a role on several ad accounts.														
<code>/act/{ad_account_id}</code>	Represents the business entity managing ads.														
<code>/ad/{ad_id}</code>	Contains information for an ad, such as creative elements and measurement information.														
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¹⁰ Exhibit 39, <https://developers.facebook.com/docs/marketing-api/reference/v16.0> (retrieved July 18, 2023).

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	<table><tr><th>Ad objective</th><th>Your business goal is to:</th><th>Previous ad objective</th></tr><tr><td>Awareness</td><td> Create awareness of your business. This objective will help you reach the largest number of people who are most likely to remember your ad. For example, if your business is brand new or has been recently renamed, awareness may help potential customers become more familiar with your business. </td><td> Brand awareness Reach Video views Store traffic </td></tr><tr><td>Traffic</td><td> Increase traffic to an online destination of your choice. Send people to a destination, like your Facebook or Instagram shop, website or app. For example, if you're having a flash sale in your shop or want to send potential customers to a web page that describes your services, this may help drive traffic to those destinations. </td><td> Traffic </td></tr><tr><td>Engagement</td><td> Find people more likely to engage with your business online, send a message or take desired actions on your ad or Page. For example, if you want people who are interested in your products or services to start a conversation via Messenger, this objective can reach potential customers more likely to do so. </td><td> Engagement Video views Messages Conversions </td></tr><tr><td>Leads</td><td> Collect leads for your business or brand via messages, phone calls or signups. For example, if you want potential customers to sign up for a monthly newsletter, this objective can help you reach people willing to share their information with you to learn more about your business. </td><td> Lead generation Messages Conversions </td></tr></table>	Ad objective	Your business goal is to:	Previous ad objective	Awareness	Create awareness of your business. This objective will help you reach the largest number of people who are most likely to remember your ad. For example, if your business is brand new or has been recently renamed, awareness may help potential customers become more familiar with your business.	Brand awareness Reach Video views Store traffic	Traffic	Increase traffic to an online destination of your choice. Send people to a destination, like your Facebook or Instagram shop, website or app. For example, if you're having a flash sale in your shop or want to send potential customers to a web page that describes your services, this may help drive traffic to those destinations.	Traffic	Engagement	Find people more likely to engage with your business online, send a message or take desired actions on your ad or Page. For example, if you want people who are interested in your products or services to start a conversation via Messenger, this objective can reach potential customers more likely to do so.	Engagement Video views Messages Conversions	Leads	Collect leads for your business or brand via messages, phone calls or signups. For example, if you want potential customers to sign up for a monthly newsletter, this objective can help you reach people willing to share their information with you to learn more about your business.	Lead generation Messages Conversions
Ad objective	Your business goal is to:	Previous ad objective														
Awareness	Create awareness of your business. This objective will help you reach the largest number of people who are most likely to remember your ad. For example, if your business is brand new or has been recently renamed, awareness may help potential customers become more familiar with your business.	Brand awareness Reach Video views Store traffic														
Traffic	Increase traffic to an online destination of your choice. Send people to a destination, like your Facebook or Instagram shop, website or app. For example, if you're having a flash sale in your shop or want to send potential customers to a web page that describes your services, this may help drive traffic to those destinations.	Traffic														
Engagement	Find people more likely to engage with your business online, send a message or take desired actions on your ad or Page. For example, if you want people who are interested in your products or services to start a conversation via Messenger, this objective can reach potential customers more likely to do so.	Engagement Video views Messages Conversions														
Leads	Collect leads for your business or brand via messages, phone calls or signups. For example, if you want potential customers to sign up for a monthly newsletter, this objective can help you reach people willing to share their information with you to learn more about your business.	Lead generation Messages Conversions														

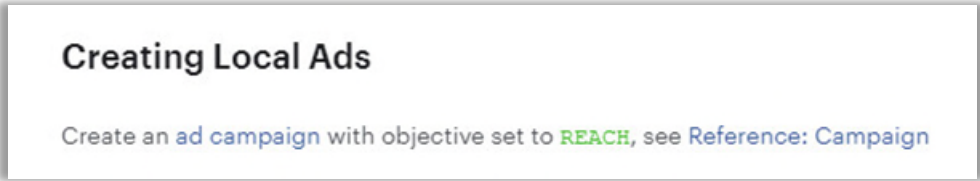
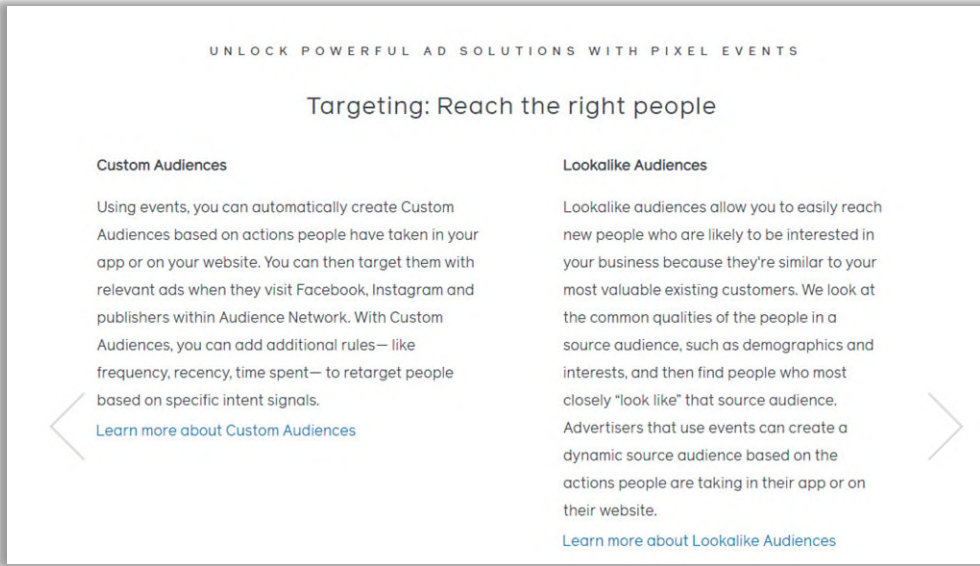
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¹¹ Exhibit 38, <https://www.facebook.com/business/help/1438417719786914> (retrieved July 18, 2023).

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Claim 1	Facebook Targeted Advertising and Events
(b) forming a projection of nodes of the situational network using geographic locations of a plurality of devices corresponding to nodes in the multi-dimensional personal information network;	(b) forming a projection of nodes of the situational network (“creating local ads,” FN12; “Reach the right people, Lookalike Audiences,” FN13, “The number of Accounts Center accounts that saw your ads,” “Reach,” FN14) using geographic locations of a plurality of devices corresponding to nodes in the multi-dimensional personal information network (“your location influences your ads,” FN15, “your primary location,” FN15);  12  13

¹² Exhibit 51, <https://developers.facebook.com/docs/marketing-api/guides/event-ads> (retrieved July 21, 2023).

¹³ Exhibit 52, <https://www.facebook.com/business/m/one-sheets/fb-facebook-pixel-events> (retrieved July 21, 2023).

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Claim 1	Facebook Targeted Advertising and Events
	The number of Accounts Center accounts that saw your ads at least once. Reach is different from impressions, which may include multiple views of your ads by the same Accounts Center accounts. Audience This ad reached 2,085 people in your audience. People Placements Locations Mobile app Feed 1485 Marketplace mobile 246 Mobile suggested videos feed 109 Desktop Feed 82

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¹⁴ Screenshots of Facebook running on Windows browser.

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Claim 1	Facebook Targeted Advertising and Events
	7:44 < Only you can see this Your location influences your ads Advertisers can choose to reach people who might enjoy their ads based on location. Your location is the United States based on: - The current city you entered on your profile - Connection information, such as the IP address of your device - Activity on Meta technologies, such as check-ins - Precise device location if you've allowed it What you can do - Update your location settings Was this information useful? Yes No 7:44 < Only you can see this Advertiser choices Advertisers want to connect with people they think will enjoy their products, so they make choices about who to show their ads to. How this works Kevin Lepka's Scranton Comedy Club wants to show ads to people who may have: - Shown interest in Stand-up comedy (comedy) or Comedy Central (television network) - Set their age to 18 and older - A primary location in the United States What you can do - Hide all ads from this advertiser Was this information useful? Yes No
	Meta's Marketing delivers targeted ads through lookalike audiences. The Marketing API allows forming a projection of nodes using geographic location of a plurality of devices. Doing so requires creating an Ad Set linked to the Ad Campaign node.

¹⁵ Facebook App for iOS.

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Claim 1	Facebook Targeted Advertising and Events
	(b) forming a projection of nodes of the situational network (“Audience ad targeting,” FN16, “Targeting: Reach the right people,” FN17, relevant nodes in the Facebook database identified by one or more queries via the TAO interface, FN19) © Meta Ads Audience ad targeting How to find people most likely to respond to your ad. 16

¹⁶ Exhibit 53, <https://www.facebook.com/business/ads/ad-targeting> (retrieved July 21, 2023).

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Claim 1	Facebook Targeted Advertising and Events
	UNLOCK POWERFUL AD SOLUTIONS WITH PIXEL EVENTS Targeting: Reach the right people Custom Audiences Using events, you can automatically create Custom Audiences based on actions people have taken in your app or on your website. You can then target them with relevant ads when they visit Facebook, Instagram and publishers within Audience Network. With Custom Audiences, you can add additional rules— like frequency, recency, time spent— to retarget people based on specific intent signals. Learn more about Custom Audiences Lookalike Audiences Lookalike audiences allow you to easily reach new people who are likely to be interested in your business because they're similar to your most valuable existing customers. We look at the common qualities of the people in a source audience, such as demographics and interests, and then find people who most closely "look like" that source audience. Advertisers that use events can create a dynamic source audience based on the actions people are taking in their app or on their website. Learn more about Lookalike Audiences 17 using geographic locations of a plurality of devices corresponding to nodes in the multi-dimensional personal information network ("Creating Local Ads," FN18 "your location influences your ads," FN20, "your primary location," FN20); Creating Local Ads Create an ad campaign with objective set to REACH, see Reference: Campaign 18

¹⁷ Exhibit 52, <https://www.facebook.com/business/m/one-sheeters/facebook-pixel-events> (retrieved July 21, 2023).

¹⁸ Exhibit 51, <https://developers.facebook.com/docs/marketing-api/guides/event-ads> (retrieved July 21, 2023).

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Claim 1	Facebook Targeted Advertising and Events
	3.1 Objects and Associations TAO <i>objects</i> are typed nodes, and TAO <i>associations</i> are typed directed edges between objects. Objects are identified by a 64-bit integer (<i>id</i>) that is unique across all objects, regardless of object type (<i>otype</i>). Associations are identified by the source object (<i>id1</i>), association type (<i>atype</i>) and destination object (<i>id2</i>). At most one association of a given type can exist between any two objects. Both objects and associations may contain data as key→value pairs. A per-type schema lists the possible keys, the value type, and a default value. Each association has a 32-bit time field, which plays a central role in queries¹. Object: (<i>id</i>) → (<i>otype</i>, (key → value)*) Assoc.: (<i>id1</i>, <i>atype</i>, <i>id2</i>) → (time, (key → value)*) 3.4 Association Query API The starting point for any TAO association query is an originating object and an association type. This is the natural result of searching for a specific type of information about a particular object. Consider the example in Figure 1. In order to display the CHECKIN object, the application needs to enumerate all tagged users and the most recently added comments. 19

¹⁹ Exhibit 33, TAO: Facebook’s Distributed Data Store for the Social Graph, available at <https://research.facebook.com/publications/tao-facebooks-distributed-data-store-for-the-social-graph/> (retrieved July 18, 2023).

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Claim 1	Facebook Targeted Advertising and Events
	7:44 Only you can see this Your location influences your ads Advertisers can choose to reach people who might enjoy their ads based on location. Your location is the United States based on: The current city you entered on your profile Connection information, such as the IP address of your device Activity on Meta technologies, such as check-ins Precise device location if you've allowed it What you can do Update your location settings Was this information useful? Yes No 7:44 Only you can see this Advertiser choices Advertisers want to connect with people they think will enjoy their products, so they make choices about who to show their ads to. How this works Kevin Lepka's Scranton Comedy Club wants to show ads to people who may have: Shown interest in Stand-up comedy (comedy) or Comedy Central (television network) Set their age to 18 and older A primary location in the United States What you can do Hide all ads from this advertiser Was this information useful? Yes No

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²⁰ Facebook App for iOS.

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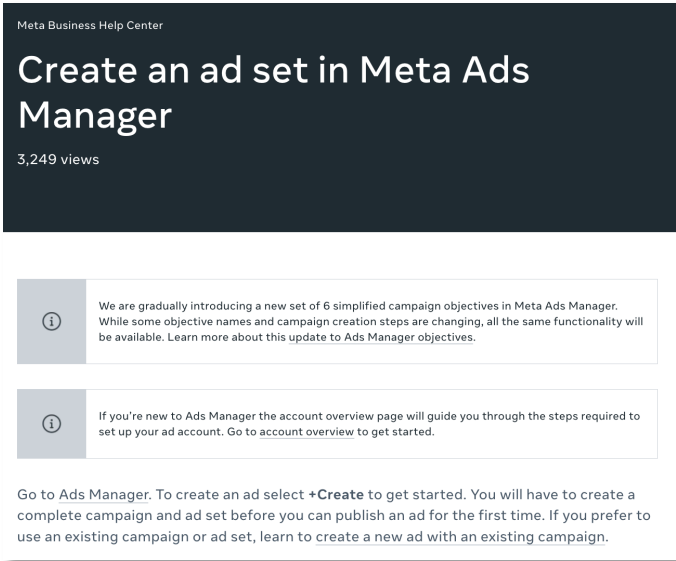
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Claim 1	Facebook Targeted Advertising and Events
(c) transmitting an invitation to establish a link with the event node server to the devices corresponding to each node in the projection formed in step (b);	(c) transmitting an invitation to establish a link (e.g., sponsored post from Kevin Lepka's Scranton Comedy Club, FN21) with the event node server ("graph.facebook.com," FN5) to the devices corresponding to each node in the projection formed in step (b) ("Based on people who engaged with your content," "with a list of people who already engaged with your page," FN22);  21 Engagement Custom Audiences Build audiences based on people who engaged with your content on Facebook or Instagram. Currently supported audience types include Page, Instagram business profile, Lead ads, Instant Experience ads, and Shopping. This guide describes the API by using Page engagement audiences as an example. Facebook updates your custom audience for page engagements by continuously adding people that engage with your page. When you first create this audience, Facebook prefills it with a list of people who already engaged with your page in the given retention period. 22

²¹ Facebook App for iOS.

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Claim 1	Facebook Targeted Advertising and Events
	(c) transmitting an invitation to establish a link (transmitted ad from within Ad Set, FN23, e.g., sponsored post from Kevin Lepka's Scranton Comedy Club, FN21) with the event node server ("graph.facebook.com," FN5) to the devices corresponding to each node in the projection formed in step (b) ("Targeting: Reach the right people, FN13 "creating local ads," FN12)   23 24

²² Exhibit 54, <https://developers.facebook.com/docs/marketing-api/audiences/guides/engagement-custom-audiences> (retrieved July 21, 2023).

²³ Exhibit 55, <https://www.facebook.com/business/help/1022916918124488?id=649869995454285> (retrieved July 21, 2023).

²⁴ Facebook App for iOS.

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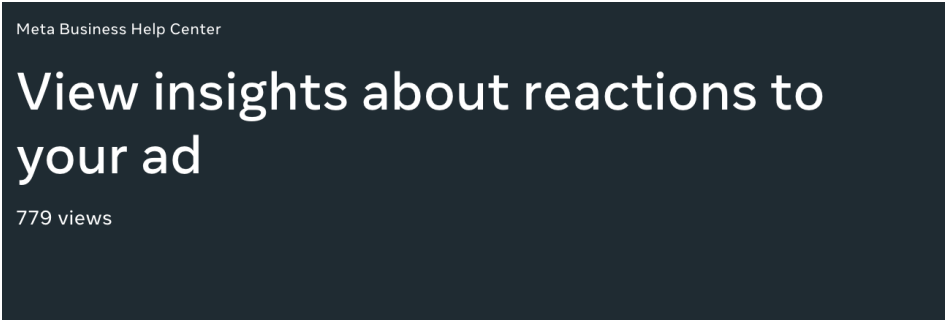
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Claim 1	Facebook Targeted Advertising and Events
(d) receiving a response from at least one of the devices from step (c) accepting the invitation to establish a link with the event node server; and	(d) receiving a response from at least one of the devices from step (c) (e.g., when the user taps on “Buy tickets,” FN25) accepting the invitation (“Buy tickets,” FN25) to establish a link with the event node server (e.g., directed to a page to purchase tickets, FN25); and 

²⁵ Facebook App for iOS.

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Claim 1	Facebook Targeted Advertising and Events
	(d) receiving a response from at least one of the devices from step (c) accepting the invitation (user-ad interaction, e.g., when the user taps on “Buy tickets,” FN25) to establish a link with the event node server (“Post reactions,” “people’s reaction to your post or ad,” FN26. e.g., interacting with “Buy Tickets,” FN27 and directed to a page to purchase tickets, FN28); and  The screenshot shows a dark-themed article header from the Meta Business Help Center. The title is 'View insights about reactions to your ad' in large white font. Below the title, it says '779 views'. You can view insights about reactions to your ads in Meta Ads Manager or from your Page Insights. View insights about reactions in Ads Manager 1. Go to Ads Manager. 2. Check the box next to the campaign you want to view reactions insights. 3. Click the Columns dropdown and then select Customize columns. 4. In the search bar, type Post reactions. A result for Post reactions should appear, check the box next to it and click Apply. 5. Next, click Breakdown > By action > Post reaction type. 6. You should now see a breakdown of people's reactions to your post or ad.

²⁶ Exhibit 56, <https://www.facebook.com/business/help/1809041869340451> (retrieved July 21, 2023).

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²⁷ Facebook App for iOS.

²⁸ Facebook App for iOS.

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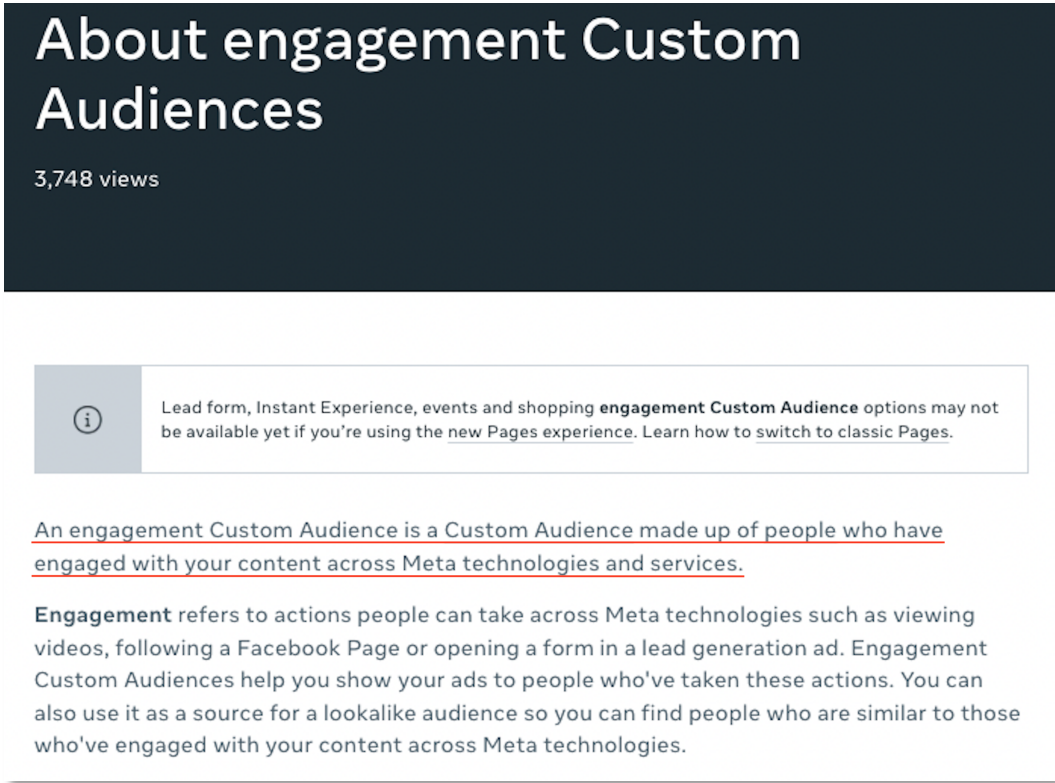
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(e) establishing a link with each device accepting the invitation.	(e) establishing a link with each device accepting the invitation (e.g., directed to a page for the user to “get tickets,” FN29 and recording that the user clicked on the link).  The screenshot shows a mobile application interface for Eventbrite. At the top, the status bar shows the time 10:09 and signal strength. Below the status bar, there's a navigation bar with a back arrow, the text 'Scranton Co...' and 'www.eventbri...', and a bookmark icon. The main content area features the Eventbrite logo, a search icon, and a 'Menu' button. Below this is a large banner for 'SCRANTON COMEDY CLUB' with a cartoon character. Under the banner, it says 'Apr 8', 'Scranton Comedy Club', 'Apr 8th Show - Headliner: JOHNNY WATSON'. Further down, it says 'Scranton Comedy Club - Apr 8th: Headliner - JOHNNY WATSON Tickets: 2 for \$20 Doors open at 7PM. Show Starts at 8PM.' At the bottom of the main content area is an orange button labeled 'Get tickets'. Below the button are three icons: a share icon, a refresh icon, and a more options icon (three dots). The bottom of the screen shows the iOS home indicator bar.

²⁹ Facebook App for iOS.

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Claim 1	Facebook Targeted Advertising and Events
	(e) establishing a link with each device accepting the invitation (recording of the interaction in the Facebook database, e.g. “An engagement Custom Audience is a Custom Audience made up of people who have engaged with your content across Meta technologies and services,” FN30, FN31 Facebook Pixel Events, FN32, “this code shows you how people react to your Facebook Ads and keeps track of the interactions your customers have with your websites,” FN33). 

³⁰ Exhibit 57, <https://www.facebook.com/business/help/1090330204367211?id=2469097953376494> (retrieved July 21, 2023).

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Claim 1	Facebook Targeted Advertising and Events
	Engagement Custom Audiences Build audiences based on people who engaged with your content on Facebook or Instagram. Currently supported audience types include Page, Instagram business profile, Lead ads, Instant Experience ads, and Shopping. This guide describes the API by using Page engagement audiences as an example. Facebook updates your custom audience for page engagements by continuously adding people that engage with your page. When you first create this audience, Facebook prefills it with a list of people who already engaged with your page in the given retention period. Facebook Pixel Events To help businesses better understand their customer's path to purchase and market accordingly, Facebook offers standard event tracking via the Facebook pixel, the Facebook SDK with App Events, and the ability to upload offline conversion data. Standard events are the language that our machine learning model understands and uses to unlock powerful ad targeting, optimization, measurement and insights.

³¹ Exhibit 54, <https://developers.facebook.com/docs/marketing-api/audiences/guides/engagement-custom-audiences> (retrieved July 21, 2023).

³² Exhibit 52, <https://www.facebook.com/business/m/one-sheeters/facebook-pixel-events> (retrieved July 21, 2023).

Exhibit 8
Infringement of US Patent 8,332,454 by Targeted Advertising and Events

Claim 1	Facebook Targeted Advertising and Events
	Put simply, a Facebook Pixel (now officially known as a Meta Pixel) is a bit of code that can be inserted into your business' website. Once installed, this code shows you how people react to your Facebook Ads and keeps track of the interactions your customers/prospective customers have with your websites, such as buying a product on your site. You can then use this information to target your ads toward the prospective customers that are more likely to be interested in your ads and your products in the future. 33

³³ Exhibit 58, <https://www.digitaltrends.com/social-media/what-is-a-facebook-pixel/> (retrieved July 21, 2023).

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Infringement of US Patent 8,332,454 by Targeted Advertising and Events

Claim 4	Facebook Targeted Advertising and Events
The method of claim 1, further comprising: (f) providing a first set of information about the situation to each device corresponding to the nodes in the projection that has established a link with the event node server.	The method of claim 1, further comprising: (f) providing a first set of information (“Scranton Comedy Club Apr 8th Show” FN34) about the situation (“name”: “Get Started with Ticketing,” FN5; “April 8th show,” FN7);to each device corresponding to the nodes in the projection that has established a link with the event node server (Facebook devices that have received the ad, FN25, FN29, FN34).  34

³⁴ Facebook App for iOS.

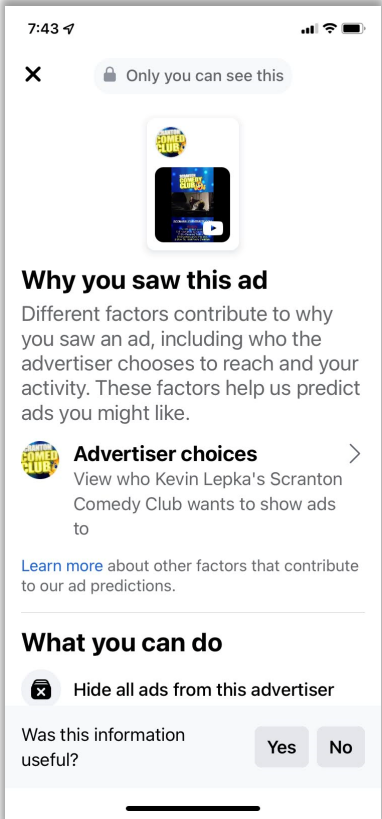
Exhibit 8
Infringement of US Patent 8,332,454 by Targeted Advertising and Events

	The method of claim 1, further comprising: (f) providing a first set of information (subsequent ads or information) about the situation (marketing opportunity and corresponding ad campaign FN5, FN10 Ad objectives,"FN11; "LINK_CLICKS," FN5) to each device corresponding to the nodes in the projection that has established a link with the event node server (Facebook devices that have interacted with the ad (e.g. gone to the "buy tickets page" FN34) and are in the engagement Custom Audience FN35). Engagement Custom Audiences Build audiences based on people who engaged with your content on Facebook or Instagram. Currently supported audience types include Page, Instagram business profile, Lead ads, Instant Experience ads, and Shopping. This guide describes the API by using Page engagement audiences as an example. Facebook updates your custom audience for page engagements by continuously adding people that engage with your page. When you first create this audience, Facebook prefills it with a list of people who already engaged with your page in the given retention period. 35
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³⁵ Exhibit 54, <https://developers.facebook.com/docs/marketing-api/audiences/guides/engagement-custom-audiences> (retrieved July 21, 2023).

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Infringement of US Patent 8,332,454 by Targeted Advertising and Events

Claim 5	Facebook Targeted Advertising and Events
The method of claim 4, wherein the first set of information in step (f) includes targeted advertisements.	The method of claim 4, wherein the first set of information in step (f) ("Scranton Comedy Club Apr 8th Show" FN34) includes targeted advertisements ("Why you saw this ad," FN36). 

³⁶ Facebook App for iOS.

Exhibit 8

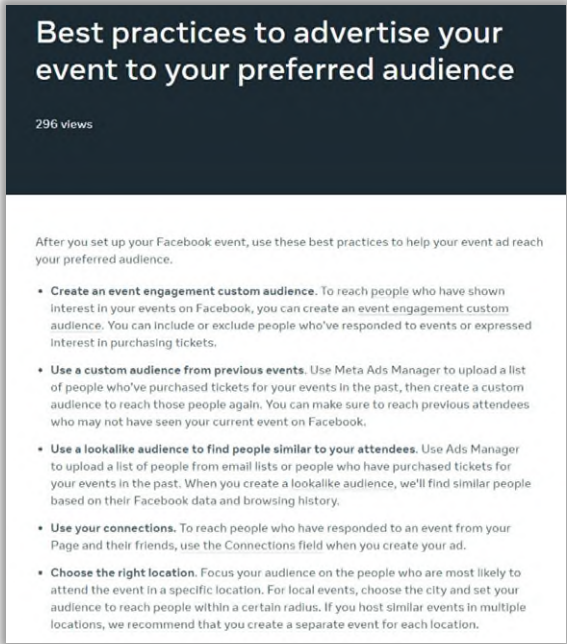
Infringement of US Patent 8,332,454 by Targeted Advertising and Events

Claim 20	Facebook Targeted Advertising and Events
A system for creating a projection of a situational network, the system comprising:	A system for creating a projection (“Graph API,” FN37; “Marketing API,” FN38; “Ad Targeting,” FN39; “advertise your event,” FN40) of a situational network (“Facebook,” FN37, FN38), the system comprising: Overview The Graph API is the primary way to get data into and out of the Facebook platform. It's an HTTP-based API that apps can use to programmatically query data, post new stories, manage ads, upload photos, and perform a wide variety of other tasks. The Graph API is named after the idea of a “social graph” — a representation of the information on Facebook. It's composed of nodes, edges, and fields. Typically you use nodes to get data about a specific object, use edges to get collections of objects on a single object, and use fields to get data about a single object or each object in a collection. Throughout our documentation, we may refer to both a node and edge as an “endpoint”. For example, “send a <code>GET</code> request to the User endpoint”. 37 Overview The Marketing API is an HTTP-based API that you can use to programmatically query data, create and manage ads, and perform a wide variety of other tasks. This section covers general information on the Marketing APIs, access, versioning, and more. Since the API is HTTP-based, it works with any language or software that supports HTTP, including cURL and almost all modern web browsers. The Marketing API is build on top of Facebook's Graph API, so almost all requests should be passed to the <code>graph.facebook.com</code> host URL. Basic Concepts Concepts you should understand to better use the Marketing API: Ad Campaign Structure Facebook organizes ads in a structure with three levels: campaign, ad set and ad. In the API, developers have access to a fourth level called creative. 38

³⁷ Exhibit 36, <https://developers.facebook.com/docs/graph-api/overview> (retrieved July 18, 2023).

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Claim 20	Facebook Targeted Advertising and Events
	 © Meta Ads Audience ad targeting How to find people most likely to respond to your ad. 39  Best practices to advertise your event to your preferred audience 296 views After you set up your Facebook event, use these best practices to help your event ad reach your preferred audience. • Create an event engagement custom audience. To reach people who have shown interest in your events on Facebook, you can create an event engagement custom audience. You can include or exclude people who've responded to events or expressed interest in purchasing tickets. • Use a custom audience from previous events. Use Meta Ads Manager to upload a list of people who've purchased tickets for your events in the past, then create a custom audience to reach those people again. You can make sure to reach previous attendees who may not have seen your current event on Facebook. • Use a lookalike audience to find people similar to your attendees. Use Ads Manager to upload a list of people from email lists or people who have purchased tickets for your events in the past. When you create a lookalike audience, we'll find similar people based on their Facebook data and browsing history. • Use your connections. To reach people who have responded to an event from your Page and their friends, use the Connections field when you create your ad. • Choose the right location. Focus your audience on the people who are most likely to attend the event in a specific location. For local events, choose the city and set your audience to reach people within a certain radius. If you host similar events in multiple locations, we recommend that you create a separate event for each location. 40

³⁸ Exhibit 28, <https://www.facebook.com/help/1761941604022087> (retrieved July 18, 2023); Exhibit 36, <https://developers.facebook.com/docs/graph-api/overview> (retrieved July 18, 2023).

³⁹ Exhibit 53, <https://www.facebook.com/business/ads/ad-targeting> (retrieved July 21, 2023).

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Infringement of US Patent 8,332,454 by Targeted Advertising and Events

Claim 20	Facebook Targeted Advertising and Events
	3.1 Objects and Associations TAO <i>objects</i> are typed nodes, and TAO <i>associations</i> are typed directed edges between objects. Objects are identified by a 64-bit integer (id) that is unique across all objects, regardless of object type (otype). Associations are identified by the source object (id1), association type (atype) and destination object (id2). At most one association of a given type can exist between any two objects. Both objects and associations may contain data as key→value pairs. A per-type schema lists the possible keys, the value type, and a default value. Each association has a 32-bit time field, which plays a central role in queries¹. Object: (id) → (otype, (key → value)*) Assoc.: (id1, atype, id2) → (time, (key → value)*) 3.4 Association Query API The starting point for any TAO association query is an originating object and an association type. This is the natural result of searching for a specific type of information about a particular object. Consider the example in Figure 1. In order to display the CHECKIN object, the application needs to enumerate all tagged users and the most recently added comments. 41
an event node server, corresponding to a situation authority, configured to create an event node in a multi-dimensional personal information network, the event node corresponding to a situation, form a projection of nodes of the situational network using geographic locations of a plurality of devices corresponding to nodes in the multi-dimensional personal information network, transmit an invitation to establish a link with the event node server to the device corresponding to each node in the projection, receive a response from at least one of the devices accepting the invitation to establish a link with the event node server, and establish a link	an event node server ("graph.facebook.com," FN42), corresponding to a situation authority ("Facebook" FN37, FN38), configured to create an event node ("id_of_then_new_event" FN42; "https://www.facebook.com/events/758639635402691" FN45) in a multi-dimensional network ("Facebook" FN37, FN38), the event node corresponding to a situation ("name:" "Get Started with Ticketing," FN42; "April 8th show," FN46)

⁴⁰ Exhibit 48, <https://www.facebook.com/business/help/2141169069528148?id=300360584271273> (retrieved July 21, 2023).

⁴¹ Exhibit 33, TAO: Facebook's Distributed Data Store for the Social Graph, available at <https://research.facebook.com/publications/tao-facebooks-distributed-data-store-for-the-social-graph/> (retrieved July 18, 2023).

Exhibit 8

Infringement of US Patent 8,332,454 by Targeted Advertising and Events

Claim 20	Facebook Targeted Advertising and Events
with each device accepting the invitation; and	This will create the event and return the event id. Example Request and Response <pre>Http Method: POST URL: /v2.0/official_events Request Body: { "name": "Get Started with Ticketing", "description": "This is the best place to buy your first ticket", "access_token": "[access_token]", "place_id": "[place_id]", "cover": { "source": "[hosted_image_url]", "offset_x": 0, "offset_y": 0 }, "category": "FAMILY_EVENT", "timezone": "US/Pacific", "start_time": "2012-03-24 17:40:12" (GMT-08:00:00), "roles": [{"page_id": "[EVENT_ROLE]"}] }</pre> Response Body: <pre>{ "id": "[id_of_the_new_event]" }</pre> Official Events API An API for creating and updating official events on behalf of Pages. The Official Events API allows your app to create and update events on behalf of Pages, requiring no action from Page owners. Having one "official" event consolidates engagement and reduces the risk of participants accidentally creating duplicate events that might end up causing confusion.

⁴² Exhibit 49, <https://developers.facebook.com/docs/pages/official-events/> (retrieved July 21, 2023).

⁴³ Exhibit 49, <https://developers.facebook.com/docs/pages/official-events/> (retrieved July 21, 2023).

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Infringement of US Patent 8,332,454 by Targeted Advertising and Events

Claim 20	Facebook Targeted Advertising and Events
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⁴⁴ Facebook App for iOS.

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Infringement of US Patent 8,332,454 by Targeted Advertising and Events

Claim 20	Facebook Targeted Advertising and Events
	 The screenshot shows a Facebook event page. The URL in the browser bar is facebook.com/events/758639635402691. The event poster features a yellow background with a sunburst pattern. At the top, it says 'HEADLINER: JOHNNY WATSON'. Below that, it lists 'Hosted By: KEVIN LEPKA' and 'Feature Acts: HALF & HALF' and 'RACHEL LENIHAN'. There are three photos of the performers. The event is scheduled for 'SATURDAY, APRIL 8, 2023 AT 7 PM - 10:30 PM'. The title of the event is 'Apr 8th - Scranton Comedy Club Show w/ Headliner JOHNNY WATSON'. The location is 'Holiday Inn Scranton East - Dunmore'. On the left side of the page, there is a sidebar with a search bar, a 'Create new event' button, and a list of events. 45

⁴⁵ Exhibit 50, <https://www.facebook.com/events/758639635402691> (retrieved July 21, 2023).

Exhibit 8

Infringement of US Patent 8,332,454 by Targeted Advertising and Events

Claim 20	Facebook Targeted Advertising and Events
	form a projection of nodes of the situational network (“creating local ads,” FN46; “Reach the right people, Lookalike Audiences,” FN47) using geographic locations of a plurality of devices corresponding to nodes in the multi-dimensional personal information network using geographic locations of a plurality of devices corresponding to nodes in the multi-dimensional personal information network (“your location influences your ads,” FN48, “your primary location,” FN48); Creating Local Ads Create an ad campaign with objective set to REACH, see Reference: Campaign 46 UNLOCK POWERFUL AD SOLUTIONS WITH PIXEL EVENTS Targeting: Reach the right people Custom Audiences Using events, you can automatically create Custom Audiences based on actions people have taken in your app or on your website. You can then target them with relevant ads when they visit Facebook, Instagram and publishers within Audience Network. With Custom Audiences, you can add additional rules— like frequency, recency, time spent— to retarget people based on specific intent signals. Learn more about Custom Audiences Lookalike Audiences Lookalike audiences allow you to easily reach new people who are likely to be interested in your business because they're similar to your most valuable existing customers. We look at the common qualities of the people in a source audience, such as demographics and interests, and then find people who most closely "look like" that source audience. Advertisers that use events can create a dynamic source audience based on the actions people are taking in their app or on their website. Learn more about Lookalike Audiences 47

⁴⁶ Exhibit 51, <https://developers.facebook.com/docs/marketing-api/guides/event-ads> (retrieved July 21, 2023).

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Claim 20	Facebook Targeted Advertising and Events
	7:44 Only you can see this Your location influences your ads Advertisers can choose to reach people who might enjoy their ads based on location. Your location is the United States based on: The current city you entered on your profile Connection information, such as the IP address of your device Activity on Meta technologies, such as check-ins Precise device location if you've allowed it What you can do Update your location settings Was this information useful? Yes No 7:44 Only you can see this Advertiser choices Advertisers want to connect with people they think will enjoy their products, so they make choices about who to show their ads to. How this works Kevin Lepka's Scranton Comedy Club wants to show ads to people who may have: Shown interest in Stand-up comedy (comedy) or Comedy Central (television network) Set their age to 18 and older A primary location in the United States What you can do Hide all ads from this advertiser Was this information useful? Yes No 48 Meta's Marketing delivers targeted ads through lookalike audiences, using Pixel Events. The Marketing API allows forming a projection of nodes using geographic location of a plurality of devices. Doing so requires creating an Ad Set linked to the Ad Campaign node.

⁴⁷ Exhibit 52, <https://www.facebook.com/business/m/one-sheets/facebook-pixel-events> (retrieved July 21, 2023).

⁴⁸ Facebook App for iOS.

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Infringement of US Patent 8,332,454 by Targeted Advertising and Events

Claim 20	Facebook Targeted Advertising and Events
	transmit an invitation to establish a link (e.g., sponsored post from Kevin Lepka’s Scranton Comedy Club, FN49) with the event node server (“graph.facebook.com,” FN5) to the device corresponding to each node in the projection (“Based on people who engaged with your content,” “with a list of people who already engaged with your page,” FN50);  49

⁴⁹ Facebook App for iOS.

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Infringement of US Patent 8,332,454 by Targeted Advertising and Events

Claim 20	Facebook Targeted Advertising and Events
	Engagement Custom Audiences Build audiences based on people who engaged with your content on Facebook or Instagram. Currently supported audience types include Page, Instagram business profile, Lead ads, Instant Experience ads, and Shopping. This guide describes the API by using Page engagement audiences as an example. Facebook updates your custom audience for page engagements by continuously adding people that engage with your page. When you first create this audience, Facebook prefills it with a list of people who already engaged with your page in the given retention period. 50 receive a response from at least one of the devices (e.g., when the user taps on “Buy tickets,” FN51) accepting the invitation (“Buy tickets,” FN51) to establish a link with the event node server (e.g., directed to a page to purchase tickets, FN51),

⁵⁰ Exhibit 54, <https://developers.facebook.com/docs/marketing-api/audiences/guides/engagement-custom-audiences> (retrieved July 21, 2023).

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Infringement of US Patent 8,332,454 by Targeted Advertising and Events

Claim 20	Facebook Targeted Advertising and Events
	 51 and establish a link with each device accepting the invitation (e.g., directed to a page for the user to “get tickets,” FN52); and

⁵¹ Facebook App for iOS.

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Infringement of US Patent 8,332,454 by Targeted Advertising and Events

Claim 20	Facebook Targeted Advertising and Events
	 52 an event node server (“graph.facebook.com,” FN53), corresponding to a situation authority

⁵² Facebook App for iOS.

Exhibit 8

Infringement of US Patent 8,332,454 by Targeted Advertising and Events

Claim 20	Facebook Targeted Advertising and Events														
	(“Facebook” FN37, FN38), configured to create an event node (“/v16.0/act_<AD_ACCOUNT_ID>/campaigns,” FN53) in a multi-dimensional network (“Facebook” FN37, FN38), the event node corresponding to a situation (marketing opportunity and corresponding ad campaign FN53, FN54, Ad objectives,”FN55; “LINK_CLICKS,” FN53), Step 1: Create a Campaign Start the process creating a new campaign object from the class <code>Campaign</code>. At this stage, you need to set an objective for your ads, which is the overall goal of your campaign. We recommend that you create a <code>PAUSED</code> campaign initially, so you do not get billed while testing. cURLNode.js Business SDKPHP Business SDKPython Business SDKJava Business SDKRuby Business SDK <pre>curl -X POST \ -F 'name="My campaign"' \ -F 'objective="LINK_CLICKS"' \ -F 'status="PAUSED"' \ -F 'special_ad_categories=[]' \ -F 'access_token=<ACCESS_TOKEN>' \ https://graph.facebook.com/v16.0/act_<AD_ACCOUNT_ID>/campaigns</pre> Marketing API Reference Marketing API Root Nodes This is a full list of root nodes for the Facebook Marketing API with links to reference docs for each. For background on the API's architecture how to call root nodes and their edges, see Using the Graph API. To access all reference information you will need to be logged in to Facebook. <table><thead><tr><th>Node</th><th>Description</th></tr></thead><tbody><tr><td>/(<AD_ACCOUNT_USER_ID>)</td><td>Someone on Facebook who creates ads. Each ad user can have a role on several ad accounts.</td></tr><tr><td>/act_(<AD_ACCOUNT_ID>)</td><td>Represents the business entity managing ads.</td></tr><tr><td>/(<AD_ID>)</td><td>Contains information for an ad, such as creative elements and measurement information.</td></tr><tr><td>/(<AD_CREATIVE_ID>)</td><td>Format for your image, carousel, collection, or video ad.</td></tr><tr><td>/(<AD_SET_ID>)</td><td>Contains all ads that share the same budget, schedule, bid, and targeting.</td></tr><tr><td>/(<AD_CAMPAIGN_ID>)</td><td>Defines your ad campaign's objective. Contains one or more ad set.</td></tr></tbody></table>	Node	Description	/(<AD_ACCOUNT_USER_ID>)	Someone on Facebook who creates ads. Each ad user can have a role on several ad accounts.	/act_(<AD_ACCOUNT_ID>)	Represents the business entity managing ads.	/(<AD_ID>)	Contains information for an ad, such as creative elements and measurement information.	/(<AD_CREATIVE_ID>)	Format for your image, carousel, collection, or video ad.	/(<AD_SET_ID>)	Contains all ads that share the same budget, schedule, bid, and targeting.	/(<AD_CAMPAIGN_ID>)	Defines your ad campaign's objective. Contains one or more ad set.
Node	Description														
/(<AD_ACCOUNT_USER_ID>)	Someone on Facebook who creates ads. Each ad user can have a role on several ad accounts.														
/act_(<AD_ACCOUNT_ID>)	Represents the business entity managing ads.														
/(<AD_ID>)	Contains information for an ad, such as creative elements and measurement information.														
/(<AD_CREATIVE_ID>)	Format for your image, carousel, collection, or video ad.														
/(<AD_SET_ID>)	Contains all ads that share the same budget, schedule, bid, and targeting.														
/(<AD_CAMPAIGN_ID>)	Defines your ad campaign's objective. Contains one or more ad set.														

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⁵³ Exhibit 24, <https://developers.facebook.com/docs/marketing-apis/get-started> (retrieved July 18, 2023).

⁵⁴ Exhibit 39, <https://developers.facebook.com/docs/marketing-api/reference/v16.0> (retrieved July 18, 2023).

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Infringement of US Patent 8,332,454 by Targeted Advertising and Events

Claim 20	Facebook Targeted Advertising and Events															
	<table><tr><th>Ad objective</th><th>Your business goal is to:</th><th>Previous ad objective</th></tr><tr><td>Awareness</td><td> Create awareness of your business. This objective will help you reach the largest number of people who are most likely to remember your ad. For example, if your business is brand new or has been recently renamed, awareness may help potential customers become more familiar with your business. </td><td> Brand awareness Reach Video views Store traffic </td></tr><tr><td>Traffic</td><td> Increase traffic to an online destination of your choice. Send people to a destination, like your Facebook or Instagram shop, website or app. For example, if you're having a flash sale in your shop or want to send potential customers to a web page that describes your services, this may help drive traffic to those destinations. </td><td> Traffic </td></tr><tr><td>Engagement</td><td> Find people more likely to engage with your business online, send a message or take desired actions on your ad or Page. For example, if you want people who are interested in your products or services to start a conversation via Messenger, this objective can reach potential customers more likely to do so. </td><td> Engagement Video views Messages Conversions </td></tr><tr><td>Leads</td><td> Collect leads for your business or brand via messages, phone calls or signups. For example, if you want potential customers to sign up for a monthly newsletter, this objective can help you reach people willing to share their information with you to learn more about your business. </td><td> Lead generation Messages Conversions </td></tr></table>	Ad objective	Your business goal is to:	Previous ad objective	Awareness	Create awareness of your business. This objective will help you reach the largest number of people who are most likely to remember your ad. For example, if your business is brand new or has been recently renamed, awareness may help potential customers become more familiar with your business.	Brand awareness Reach Video views Store traffic	Traffic	Increase traffic to an online destination of your choice. Send people to a destination, like your Facebook or Instagram shop, website or app. For example, if you're having a flash sale in your shop or want to send potential customers to a web page that describes your services, this may help drive traffic to those destinations.	Traffic	Engagement	Find people more likely to engage with your business online, send a message or take desired actions on your ad or Page. For example, if you want people who are interested in your products or services to start a conversation via Messenger, this objective can reach potential customers more likely to do so.	Engagement Video views Messages Conversions	Leads	Collect leads for your business or brand via messages, phone calls or signups. For example, if you want potential customers to sign up for a monthly newsletter, this objective can help you reach people willing to share their information with you to learn more about your business.	Lead generation Messages Conversions
Ad objective	Your business goal is to:	Previous ad objective														
Awareness	Create awareness of your business. This objective will help you reach the largest number of people who are most likely to remember your ad. For example, if your business is brand new or has been recently renamed, awareness may help potential customers become more familiar with your business.	Brand awareness Reach Video views Store traffic														
Traffic	Increase traffic to an online destination of your choice. Send people to a destination, like your Facebook or Instagram shop, website or app. For example, if you're having a flash sale in your shop or want to send potential customers to a web page that describes your services, this may help drive traffic to those destinations.	Traffic														
Engagement	Find people more likely to engage with your business online, send a message or take desired actions on your ad or Page. For example, if you want people who are interested in your products or services to start a conversation via Messenger, this objective can reach potential customers more likely to do so.	Engagement Video views Messages Conversions														
Leads	Collect leads for your business or brand via messages, phone calls or signups. For example, if you want potential customers to sign up for a monthly newsletter, this objective can help you reach people willing to share their information with you to learn more about your business.	Lead generation Messages Conversions														

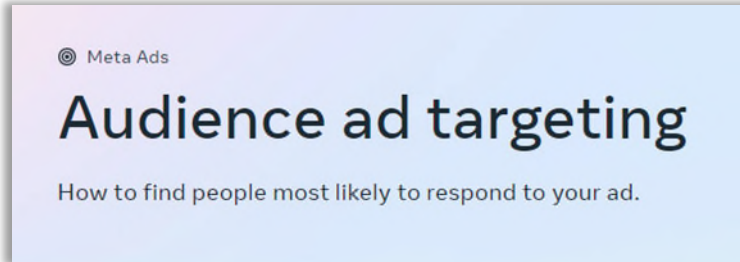
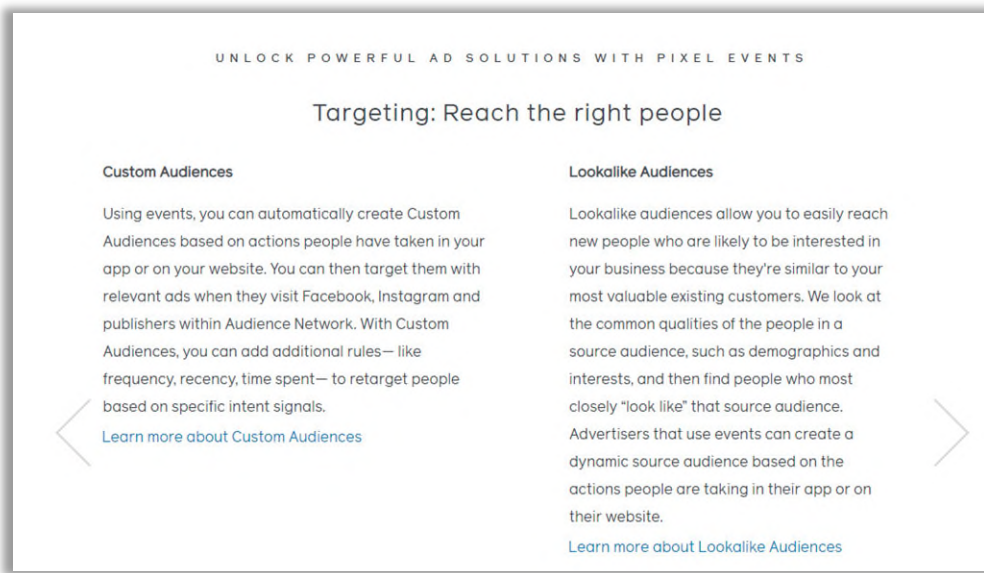
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⁵⁵ Exhibit 38, <https://www.facebook.com/business/help/1438417719786914> (retrieved July 18, 2023).

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Infringement of US Patent 8,332,454 by Targeted Advertising and Events

Claim 20	Facebook Targeted Advertising and Events
	form a projection of nodes (“Audience ad targeting,” FN56 “Targeting: Reach the right people,” FN47) of the situational network (“Facebook targeted advertising,” FN37, FN38)  © Meta Ads Audience ad targeting How to find people most likely to respond to your ad. 56  UNLOCK POWERFUL AD SOLUTIONS WITH PIXEL EVENTS Targeting: Reach the right people Custom Audiences Using events, you can automatically create Custom Audiences based on actions people have taken in your app or on your website. You can then target them with relevant ads when they visit Facebook, Instagram and publishers within Audience Network. With Custom Audiences, you can add additional rules— like frequency, recency, time spent— to retarget people based on specific intent signals. Learn more about Custom Audiences Lookalike Audiences Lookalike audiences allow you to easily reach new people who are likely to be interested in your business because they're similar to your most valuable existing customers. We look at the common qualities of the people in a source audience, such as demographics and interests, and then find people who most closely “look like” that source audience. Advertisers that use events can create a dynamic source audience based on the actions people are taking in their app or on their website. Learn more about Lookalike Audiences 57

⁵⁶ Exhibit 53, <https://www.facebook.com/business/ads/ad-targeting> (retrieved July 21, 2023).

⁵⁷ Exhibit 52, <https://www.facebook.com/business/m/one-sheets/facebook-pixel-events> (retrieved July 21, 2023).

Exhibit 8
Infringement of US Patent 8,332,454 by Targeted Advertising and Events

Claim 20	Facebook Targeted Advertising and Events
	using geographic locations of a plurality of devices ("Your location, FN48) corresponding to nodes in the multi-dimensional personal information network ("Facebook" FN37, FN38) using geographic locations of a plurality of devices ("Creating Local Ads," FN47, "your location influences your ads," FN48, "your primary location," FN48), corresponding to nodes in the multi-dimensional personal information network ("Facebook" FN37, FN38), Creating Local Ads Create an ad campaign with objective set to REACH, see Reference: Campaign 58

⁵⁸ Exhibit 51, <https://developers.facebook.com/docs/marketing-api/guides/event-ads> (retrieved July 21, 2023).

Exhibit 8

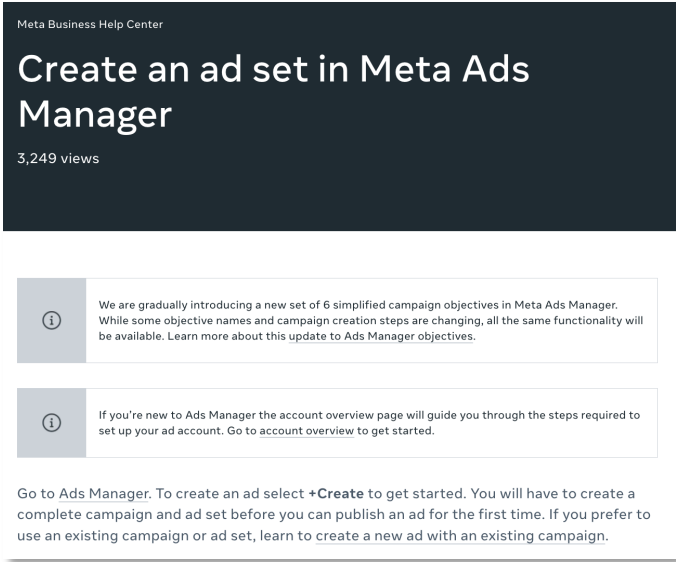
Infringement of US Patent 8,332,454 by Targeted Advertising and Events

Claim 20	Facebook Targeted Advertising and Events
	7:44 Only you can see this Your location influences your ads Advertisers can choose to reach people who might enjoy their ads based on location. Your location is the United States based on: The current city you entered on your profile Connection information, such as the IP address of your device Activity on Meta technologies, such as check-ins Precise device location if you've allowed it What you can do Update your location settings Was this information useful? Yes No 7:44 Only you can see this Advertiser choices Advertisers want to connect with people they think will enjoy their products, so they make choices about who to show their ads to. How this works Kevin Lepka's Scranton Comedy Club wants to show ads to people who may have: Shown interest in Stand-up comedy (comedy) or Comedy Central (television network) Set their age to 18 and older A primary location in the United States What you can do Hide all ads from this advertiser Was this information useful? Yes No 59 transmit an invitation to establish a link (transmitted ad from within Ad Set, FN60, e.g., sponsored post from Kevin Lepka's Scranton Comedy Club, FN61) with the event node server ("graph.facebook.com," FN53) to the device corresponding to each node in the projection ("Targeting: Reach the right people, FN47 "creating local ads," FN46),

⁵⁹ Facebook App for iOS.

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Infringement of US Patent 8,332,454 by Targeted Advertising and Events

Claim 20	Facebook Targeted Advertising and Events
	  60 61 receive a response from at least one of the devices accepting the invitation (user-ad interaction, e.g., when the user taps on “Buy tickets,” FN63) to establish a link with the event node server, (“Post reactions,” “people’s reaction to your post or ad,” FN62. e.g., interacting with “Buy

⁶⁰ Exhibit 55, <https://www.facebook.com/business/help/1022916918124488?id=649869995454285> (retrieved July 21, 2023).

⁶¹ Facebook App for iOS.

Exhibit 8

Infringement of US Patent 8,332,454 by Targeted Advertising and Events

Claim 20	Facebook Targeted Advertising and Events
	Tickets,” FN63 and directed to a page to purchase tickets, FN64) Meta Business Help Center View insights about reactions to your ad 779 views You can view insights about reactions to your ads in Meta Ads Manager or from your Page Insights. View insights about reactions in Ads Manager 1. Go to Ads Manager. 2. Check the box next to the campaign you want to view reactions insights. 3. Click the Columns dropdown and then select Customize columns. 4. In the search bar, <u>type Post reactions</u>. A result for Post reactions should appear, check the box next to it and click Apply. 5. Next, click Breakdown > By action > Post reaction type. 6. You should now see a breakdown of <u>people's reactions to your post or ad</u>. 62

⁶² Exhibit 56, <https://www.facebook.com/business/help/1809041869340451> (retrieved July 21, 2023).

Exhibit 8

Infringement of US Patent 8,332,454 by Targeted Advertising and Events

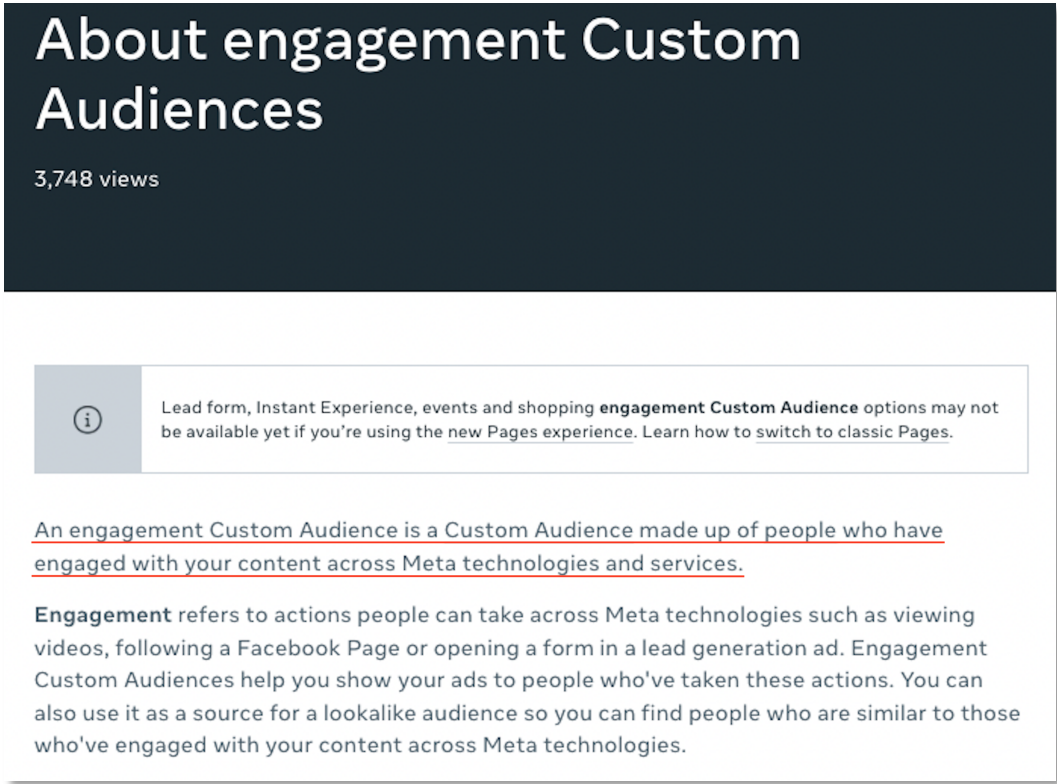
Claim 20	Facebook Targeted Advertising and Events
	 63  64

⁶³ Facebook App for iOS.

⁶⁴ Facebook App for iOS.

Exhibit 8

Infringement of US Patent 8,332,454 by Targeted Advertising and Events

Claim 20	Facebook Targeted Advertising and Events
	and establish a link with each device accepting the invitation (recording of the interaction in the Facebook database, e.g. “An engagement Custom Audience is a Custom Audience made up of people who have engaged with your content across Meta technologies and services,” FN65, Facebook Pixel Events, FN67, “this code shows you how people react to your Facebook Ads and keeps track of the interactions your customers have with your websites,” FN68).;  About engagement Custom Audiences 3,748 views Lead form, Instant Experience, events and shopping engagement Custom Audience options may not be available yet if you're using the new Pages experience. Learn how to switch to classic Pages. <u>An engagement Custom Audience is a Custom Audience made up of people who have engaged with your content across Meta technologies and services.</u> Engagement refers to actions people can take across Meta technologies such as viewing videos, following a Facebook Page or opening a form in a lead generation ad. Engagement Custom Audiences help you show your ads to people who've taken these actions. You can also use it as a source for a lookalike audience so you can find people who are similar to those who've engaged with your content across Meta technologies.

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⁶⁵ Exhibit 57, <https://www.facebook.com/business/help/1090330204367211?id=2469097953376494> (retrieved July 21, 2023).

Exhibit 8

Infringement of US Patent 8,332,454 by Targeted Advertising and Events

Claim 20	Facebook Targeted Advertising and Events
	Engagement Custom Audiences Build audiences based on people who engaged with your content on Facebook or Instagram. Currently supported audience types include Page, Instagram business profile, Lead ads, Instant Experience ads, and Shopping. This guide describes the API by using Page engagement audiences as an example. Facebook updates your custom audience for page engagements by continuously adding people that engage with your page. When you first create this audience, Facebook prefills it with a <u>list of people who already engaged with your page</u> in the given retention period. Facebook Pixel Events To help businesses better understand their customer's path to purchase and market accordingly, Facebook offers standard event tracking via the Facebook pixel, the Facebook SDK with App Events, and the ability to upload offline conversion data. Standard events are the language that our machine learning model understands and uses to unlock powerful ad targeting, optimization, measurement and insights.

⁶⁶ Exhibit 54, <https://developers.facebook.com/docs/marketing-api/audiences/guides/engagement-custom-audiences> (retrieved July 21, 2023).

⁶⁷ Exhibit 52, <https://www.facebook.com/business/m/one-sheeters/facebook-pixel-events> (retrieved July 21, 2023).

Exhibit 8
Infringement of US Patent 8,332,454 by Targeted Advertising and Events

Claim 20	Facebook Targeted Advertising and Events
	Put simply, a Facebook Pixel (now officially known as a Meta Pixel) is a bit of code that can be inserted into your business' website. Once installed, this code shows you how people react to your Facebook Ads and keeps track of the interactions your customers/prospective customers have with your websites, such as buying a product on your site. You can then use this information to target your ads toward the prospective customers that are more likely to be interested in your ads and your products in the future. 68

⁶⁸ Exhibit 58, <https://www.digitaltrends.com/social-media/what-is-a-facebook-pixel/> (retrieved July 21, 2023).

Exhibit 8

Infringement of US Patent 8,332,454 by Targeted Advertising and Events

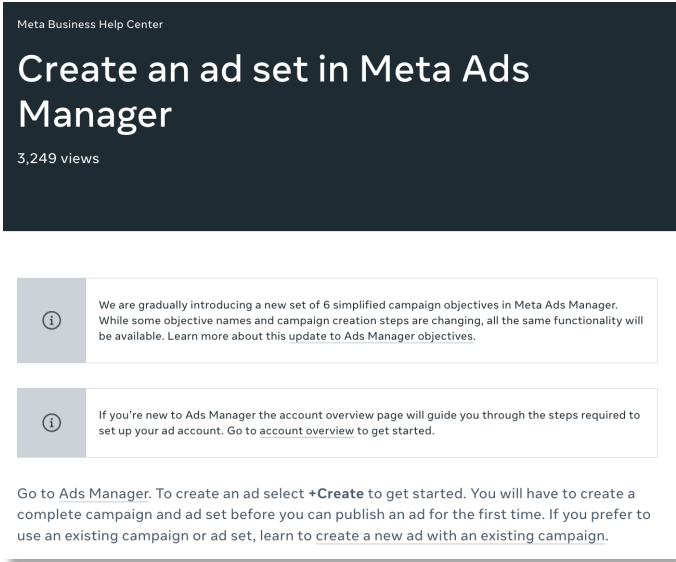
Claim 20	Facebook Targeted Advertising and Events
	and a plurality of devices ("Mobile app Feed, Desktop Feed," FN77) configured to receive an invitation to establish a link (transmitted ad from within Ad Set, FN70, e.g., sponsored post from Kevin Lepka's Scranton Comedy Club, FN71) with an event node server ("graph.facebook.com," FN53) in response being included in a projection of nodes ("Targeting: Reach the right people, FN47 "creating local ads," FN46) of the multi-dimensional personal information network ("Facebook" FN37, FN38), The number of Accounts Center accounts that saw your ads at least once. Reach is different from impressions, which may include multiple views of your ads by the same Accounts Center accounts. Audience This ad reached 2,085 people in your audience. People Placements Locations Mobile app Feed 1485 Marketplace mobile 246 Mobile suggested videos feed 109 Desktop Feed 82 Meta distributes a family of apps including Facebook, Instagram, Messenger and WhatsApp. Each of these Apps is user specific. Accordingly, when downloaded and installed these apps create a plurality of devices wherein each device corresponds to an individual connected to the situational network. Targeting may be controlled to particular devices by modifying the ad placement parameters.

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⁶⁹ Screenshots of Facebook running on Windows browser.

Exhibit 8

Infringement of US Patent 8,332,454 by Targeted Advertising and Events

Claim 20	Facebook Targeted Advertising and Events
	 Meta Business Help Center Create an ad set in Meta Ads Manager 3,249 views We are gradually introducing a new set of 6 simplified campaign objectives in Meta Ads Manager. While some objective names and campaign creation steps are changing, all the same functionality will be available. Learn more about this update to Ads Manager objectives. If you're new to Ads Manager the account overview page will guide you through the steps required to set up your ad account. Go to account overview to get started. Go to Ads Manager. To create an ad select +Create to get started. You will have to create a complete campaign and ad set before you can publish an ad for the first time. If you prefer to use an existing campaign or ad set, learn to create a new ad with an existing campaign. 

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⁷⁰ Exhibit 55, <https://www.facebook.com/business/help/1022916918124488?id=649869995454285> (retrieved July 21, 2023).

⁷¹ Facebook App for iOS.

Exhibit 8

Infringement of US Patent 8,332,454 by Targeted Advertising and Events

Claim 20	Facebook Targeted Advertising and Events
	transmit a response accepting the invitation (user-ad interaction, e.g., when the user taps on “Buy tickets,” FN63) to establish a link with the event node server (“Post reactions,” “people’s reaction to your post or ad,” FN72. e.g., interacting with “Buy Tickets,” FN73; and directed to a page to purchase tickets, FN74), The image is a screenshot of a Meta Business Help Center article. At the top, it says 'Meta Business Help Center'. Below that, the title 'View insights about reactions to your ad' is displayed in large white text on a dark background. Under the title, it says '779 views'. Below the dark header, the text continues on a white background: 'You can view insights about reactions to your ads in Meta Ads Manager or from your Page Insights.' followed by 'View insights about reactions in Ads Manager'. Then there is a numbered list of 6 steps: 1. Go to <u>Ads Manager</u>. 2. Check the box next to the campaign you want to view reactions insights. 3. Click the Columns dropdown and then select Customize columns. 4. In the search bar, <u>type Post reactions. A result for Post reactions should appear, check the box next to it and click Apply.</u> 5. Next, click Breakdown > By action > Post reaction type. 6. You should now see a breakdown of <u>people's reactions to your post or ad.</u> 72

⁷² Exhibit 56, <https://www.facebook.com/business/help/1809041869340451> (retrieved July 21, 2023).

Exhibit 8

Infringement of US Patent 8,332,454 by Targeted Advertising and Events

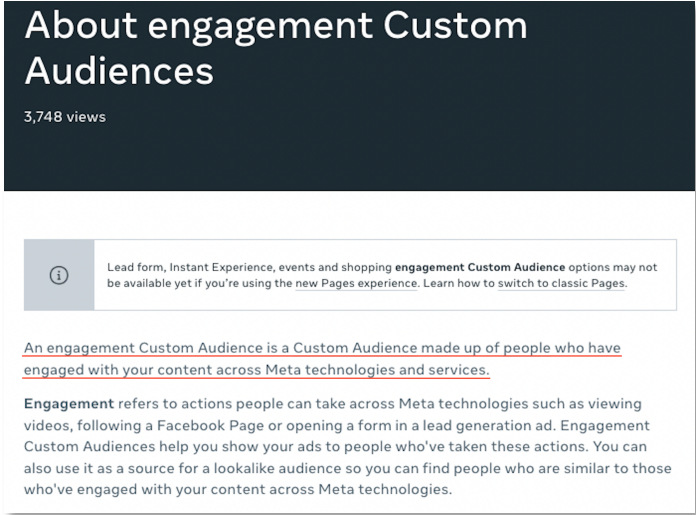
Claim 20	Facebook Targeted Advertising and Events
	 73  74

⁷³ Facebook App for iOS.

⁷⁴ Facebook App for iOS.

Exhibit 8

Infringement of US Patent 8,332,454 by Targeted Advertising and Events

Claim 20	Facebook Targeted Advertising and Events
	and receive information about the situation (subsequent ads or information, “ad targeting,” FN75; “engagement Custom Audience, FN76”) from the event node server (“graph.facebook.com,” FN53).  75  76 Facebook uses engagement custom Audiences to send subsequent targeted ads to

⁷⁵ Exhibit 53, <https://www.facebook.com/business/ads/ad-targeting> (retrieved July 21, 2023).

⁷⁶ Exhibit 57, <https://www.facebook.com/business/help/1090330204367211?id=2469097953376494> (retrieved July 21, 2023).

Exhibit 8

Infringement of US Patent 8,332,454 by Targeted Advertising and Events

Claim 20	Facebook Targeted Advertising and Events
	devices that have previously accepted invitations to establish a link, i.e., engaged with your content.
A plurality of devices configured to receive an invitation to establish a link with an event node server in response being included in a projection of nodes of the multi-dimensional personal information network, transmit a response accepting the invitation to establish a link with the event node server, and receive information about the situation from the event node server.	A plurality of devices ("Mobile app Feed, Desktop Feed," FN77) configured to receive an invitation to establish a link with an event node server ("Buy Tickets," FN78) in response being included in a projection of nodes ("Ad targeting," FN79, "The number of Accounts Center accounts that saw your ads," "Reach, FN77) of the multi-dimensional personal information network ("Facebook," FN37, FN38),

Exhibit 8

Infringement of US Patent 8,332,454 by Targeted Advertising and Events

Claim 20	Facebook Targeted Advertising and Events
	The number of Accounts Center accounts that saw your ads at least once. Reach is different from impressions, which may include multiple views of your ads by the same Accounts Center accounts. Audience This ad reached 2,085 people in your audience. People Placements Locations Mobile app Feed 1485 Marketplace mobile 246 Mobile suggested videos feed 109 Desktop Feed 82 Meta distributes a family of apps including Facebook, Instagram, Messenger and WhatsApp. Each of these Apps is user specific. Accordingly, when downloaded and installed these apps create a plurality of devices wherein each device corresponds to an individual connected to the situational network. Targeting may be controlled to particular devices by modifying the ad placement parameters.

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⁷⁷ Screenshots of Facebook running on Windows browser.

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Infringement of US Patent 8,332,454 by Targeted Advertising and Events

Claim 20	Facebook Targeted Advertising and Events
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⁷⁸ Facebook App for iOS.

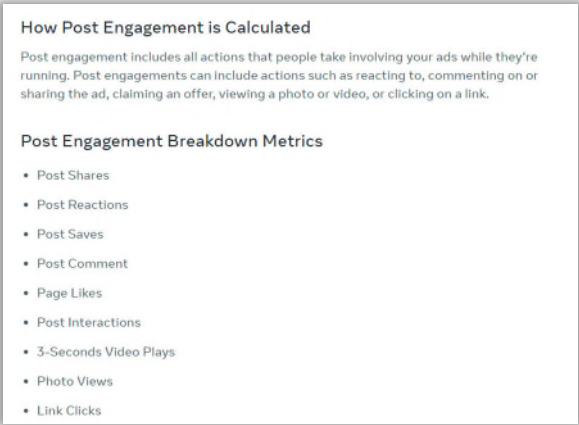
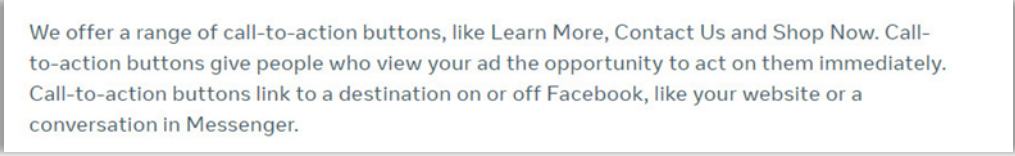
Exhibit 8
Infringement of US Patent 8,332,454 by Targeted Advertising and Events

Claim 20	Facebook Targeted Advertising and Events
	© Meta Ads Audience ad targeting How to find people most likely to respond to your ad. 79

⁷⁹ Exhibit 53, <https://www.facebook.com/business/ads/ad-targeting> (retrieved July 21, 2023).

Exhibit 8

Infringement of US Patent 8,332,454 by Targeted Advertising and Events

Claim 20	Facebook Targeted Advertising and Events
	transmit a response (user selects “Buy tickets,” FN80; “Post Engagement,” FN81 accepting the invitation to establish a link with the event node server (“Buy tickets,” FN80,  80  81  82

⁸⁰ Facebook App for iOS.

⁸¹ Exhibit 59, <https://www.facebook.com/business/help/735720159834389> (retrieved July 21, 2023).

Exhibit 8
Infringement of US Patent 8,332,454 by Targeted Advertising and Events

Claim 20	Facebook Targeted Advertising and Events
	and receive information about the situation (Scranton Comedy Club," Get tickets," FN83) from the event node server ("graph.facebook.com," FN83.).  83

⁸² Exhibit 60, <https://www.facebook.com/business/help/450688792208401> (retrieved July 21, 2023).

⁸³ Facebook App for iOS.