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# Your Game + YouTube = Instant Community

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# Your Game + YouTube = Instant Community



Hashtags: #io2011 #YouTube  
Feedback: <http://goo.gl/bYTHR>



# Agenda

- Introductions
- Why integrate YouTube?
- How to integrate with YouTube?
- Call of Duty : Black Ops
- Q&A

The screenshot shows a YouTube channel page for 'CODblackopsXBOX'. At the top, there are social media links for Twitter and Facebook, and a banner for 'CALL OF DUTY BLACK OPS 11.09.10'. Below the banner, the channel name 'CODblackopsXBOX's Channel' is displayed with a 'Subscribe' button and navigation tabs for 'All', 'Uploads', and 'Favorites'. The main content area features a video player showing a game clip. To the right of the video player, there is a list of uploads with titles like 'nuuskapoika - Black Ops Game Clip', 'LeeBekkS - Black Ops Game Clip', and 'x iD R o iD z - Black Ops Game Clip'. Below the video player, there are options for 'Info', 'Favorite', 'Share', 'Playlists', and 'Flag'. The video title 'nuuskapoika - Black Ops Game Clip' is displayed below the player, along with the channel name and upload date.

# Quiz



# Quiz

- Number of YouTube views per day?



# Quiz

- Number of YouTube views per day?
  - Over 2 billion

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- Number of YouTube views per day?
  - Over 2 billion
- Number of mobile YouTube views per day?

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- Number of YouTube views per day?
  - Over 2 billion
- Number of mobile YouTube views per day?
  - Over 200 million
- How much video is uploaded each minute?
  - Over 35 hours

# Why integrate your game with YouTube ?

- Hundreds of millions of users, 70% traffic outside of US
- Gaming is one of the top verticals
- Gamers flock to see real gameplay footage on YouTube
- Gamers are among the most engaged (create/share/watch)
- Promote, monetize, analyze, grow community

# How to integrate your game with YouTube ?

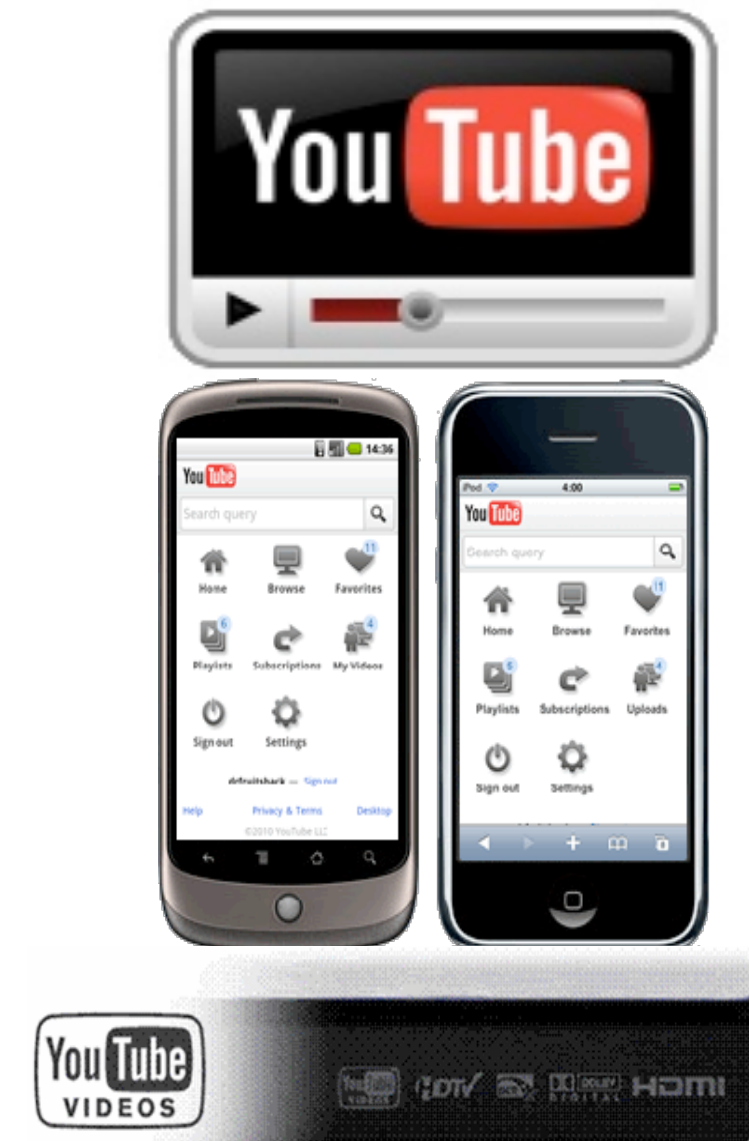
1. WebM/H.264 (Encode)

web▶m

2. Google Data APIs (Upload)



3. Player APIs (Playback)







# WebM / H.264 (Encode)



# Video encoding with WebM - VP8

<http://www.webmproject.org>



- Designed for the unique requirements of \*Web\* video
- Highly efficient compression
  - Low bandwidth requirements
  - Great quality 360p video at 280Kbps, 720p at 1.5Mbit
- Performs very well even w/o hardware offloading
- Open Source
- Works great with Ogg Vorbis (libvorbis) codec in ffmpeg for audio



# Google Data APIs (Upload)



# Google Data APIs



- Protocol
  - REST-based
  - ATOM syndication format (RFC 4287)
  - ATOM publishing protocol (RFC 5023)
  - support for XML-based ATOM (default), JSON, JSON-C, RSS
- Feeds
  - Standard feeds (Top Rated, Most Viewed, ...)
  - User's playlists, subscriptions, uploads feeds
  - User's comments, profile, contacts feed
- YouTube applications interact with the feeds using the Google Data APIs

# Feed example : Top Rated

[http://gdata.youtube.com/feeds/api/standardfeeds/top\\_rated](http://gdata.youtube.com/feeds/api/standardfeeds/top_rated)

```
<?xml version='1.0' encoding='UTF-8'?>
<feed xmlns='http://www.w3.org/2005/Atom' [...] >
  <updated>2008-07-18T05:00:49.000-07:00</updated>
  <title>Top Rated</title>
  <openSearch:totalResults>100</openSearch:totalResults>
  <entry gd:etag='W/&quot;C0AMRw.&quot;'>
    <media:group>
      <media:title type='plain'>Shopping for Coats</media:title>
      <yt:videoid>ZTUVgYoeN_b</yt:videoid>
      <media:content
        url='http://www.youtube.com/v/ZTUVgYoeN_b?f=gdata_standard...'
        type='application/x-shockwave-flash' medium='video'
        [...] duration='215' yt:format='5' />
      <media:thumbnail url='http://img.youtube.com/vi/ZTUVgYoeN_b/2.jpg'
        height='97' width='130' time='00:00:03.500' />
    </media:group>
  </entry>
  <entry>
    [...]
  </entry>
</feed>
```

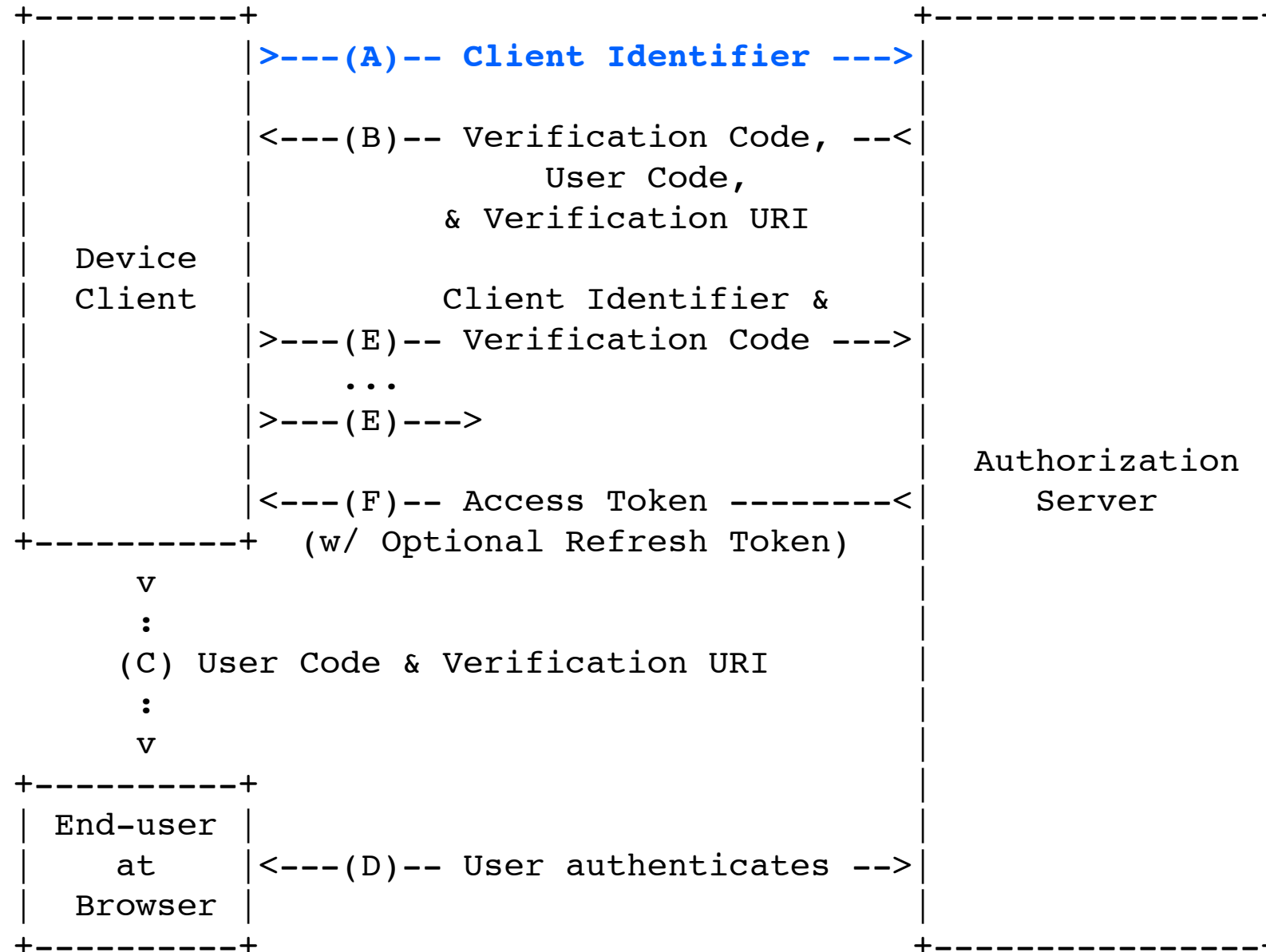
# Uploading from the Game

- YouTube Upload API
  - ~~Browser Based~~
  - Direct
  - Direct Resumable
- Authentication
  - ClientLogin #FAIL
  - AuthSub, OAuth 1.0
  - OAuth 2.0
  - OAuth 2.0 Device Profile (*Beta*)



# OAuth 2.0 Device Profile

## draft-recordon-oauth-v2-device-XX

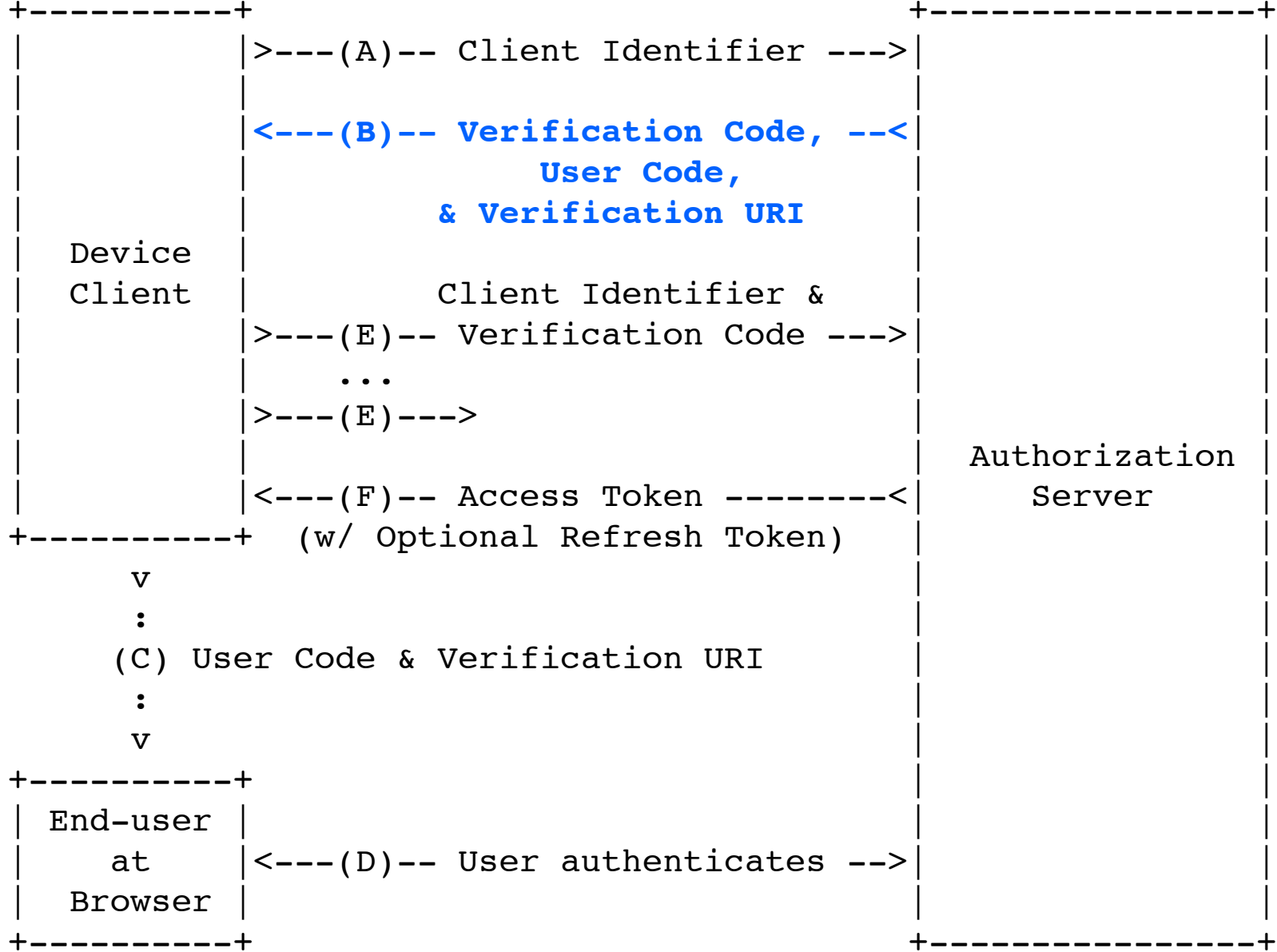


- Optimized for devices without a browser (e.g. game console)
- Authorization happens off-device (D)
- Device polls the server (E) for access token (F)



# OAuth 2.0 Device Profile

draft-recordon-oauth-v2-device-XX

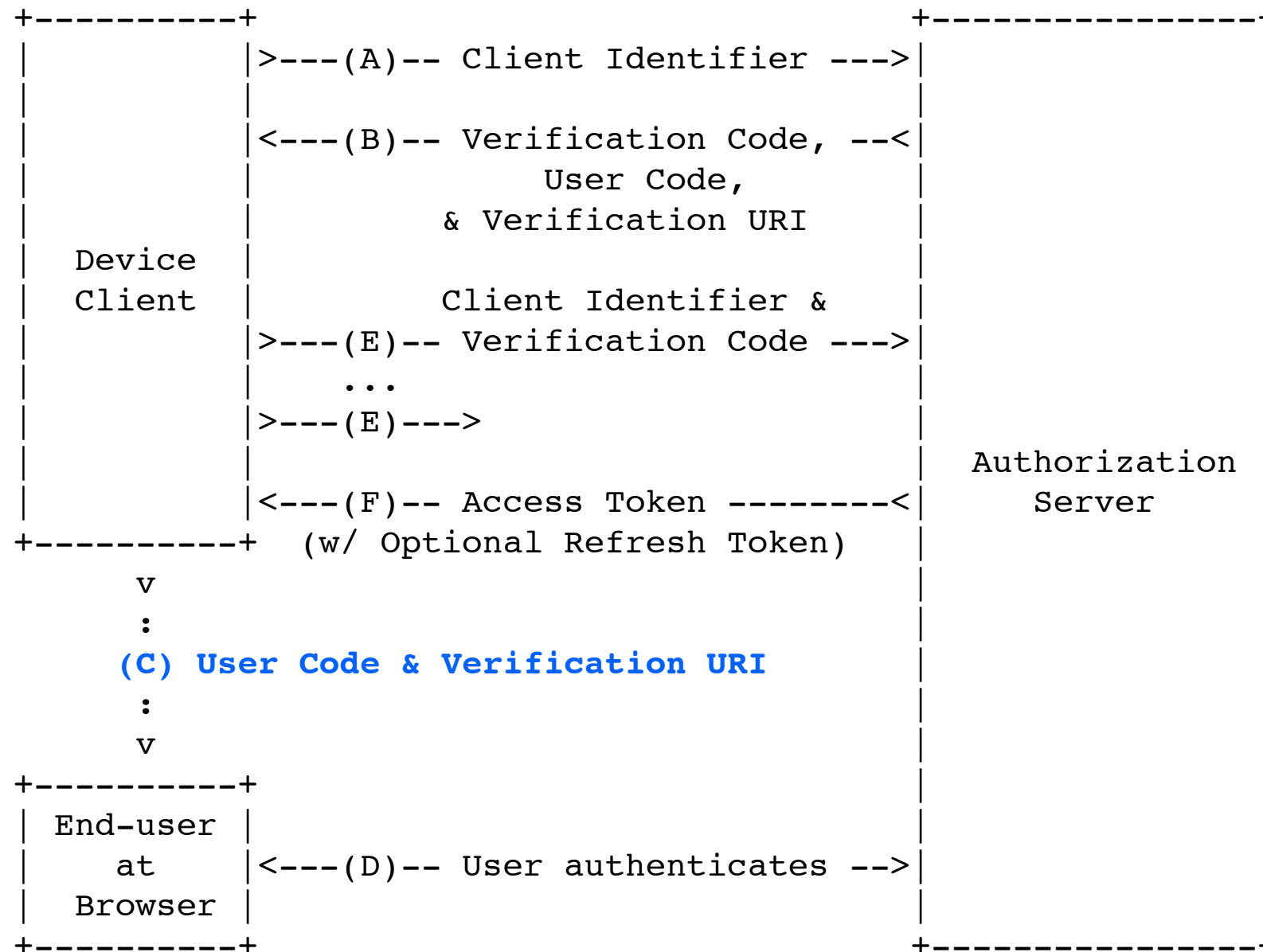


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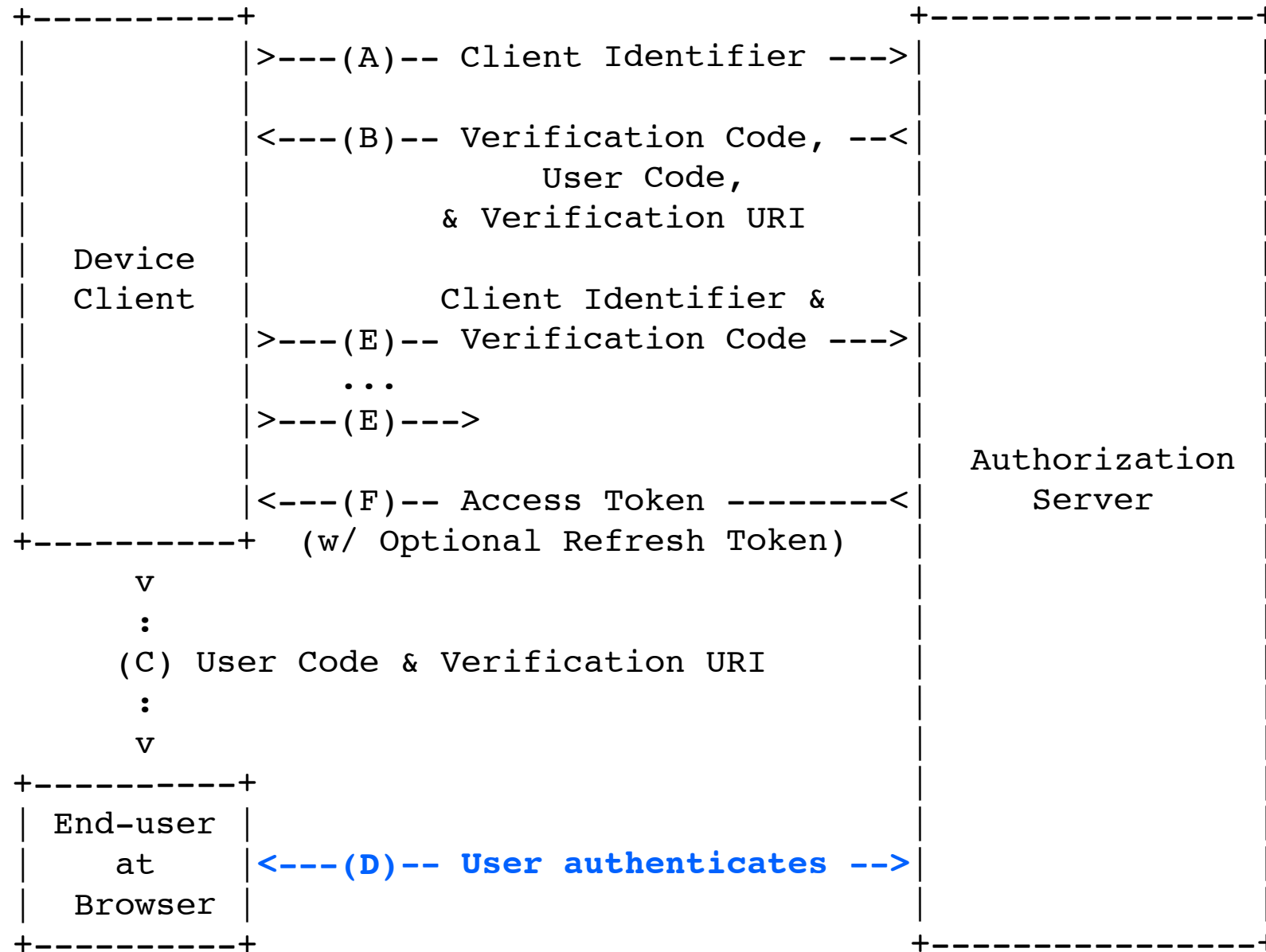
## draft-recordon-oauth-v2-device-XX



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# OAuth 2.0 Device Profile

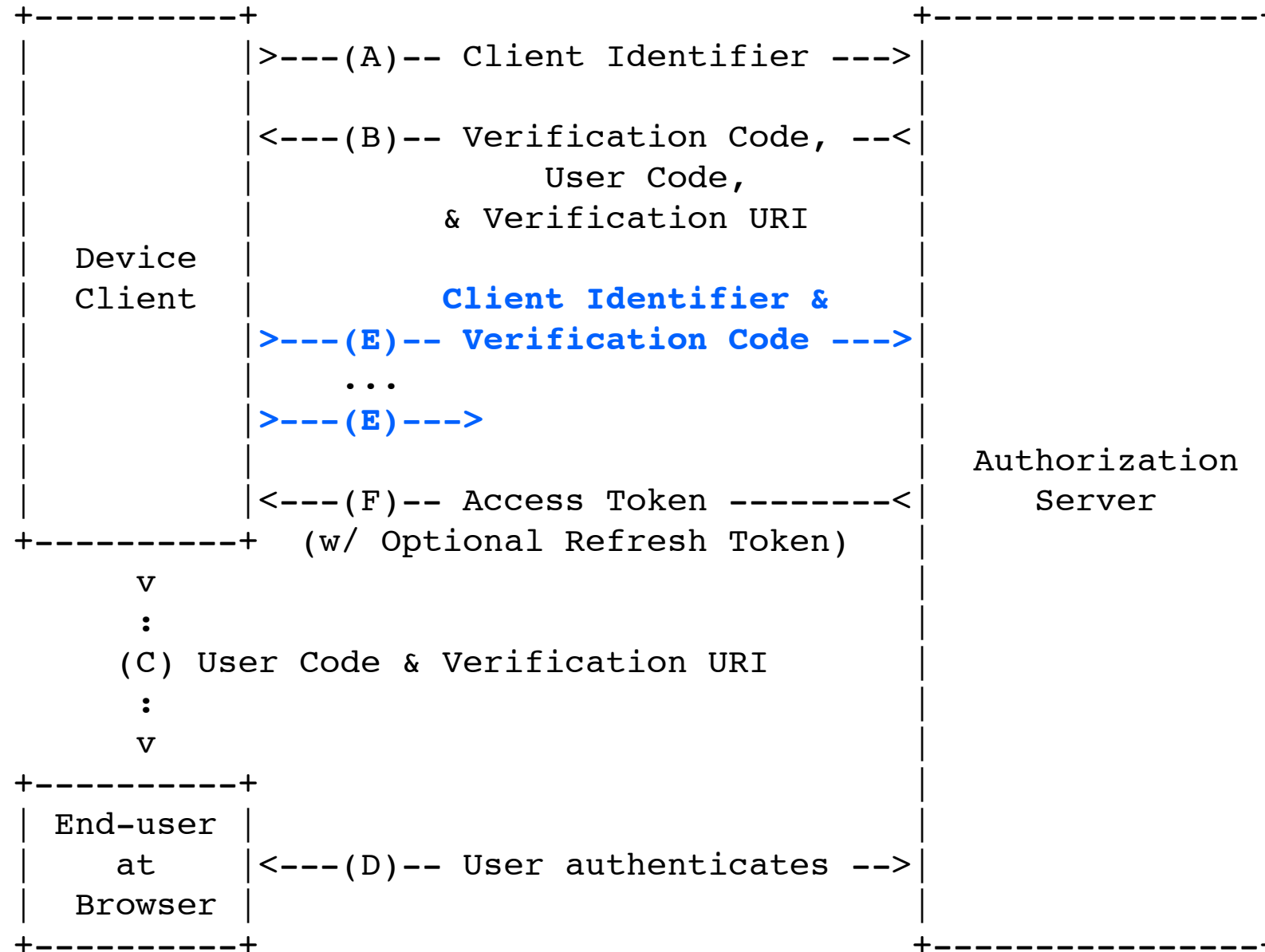
## draft-recordon-oauth-v2-device-XX



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# OAuth 2.0 Device Profile

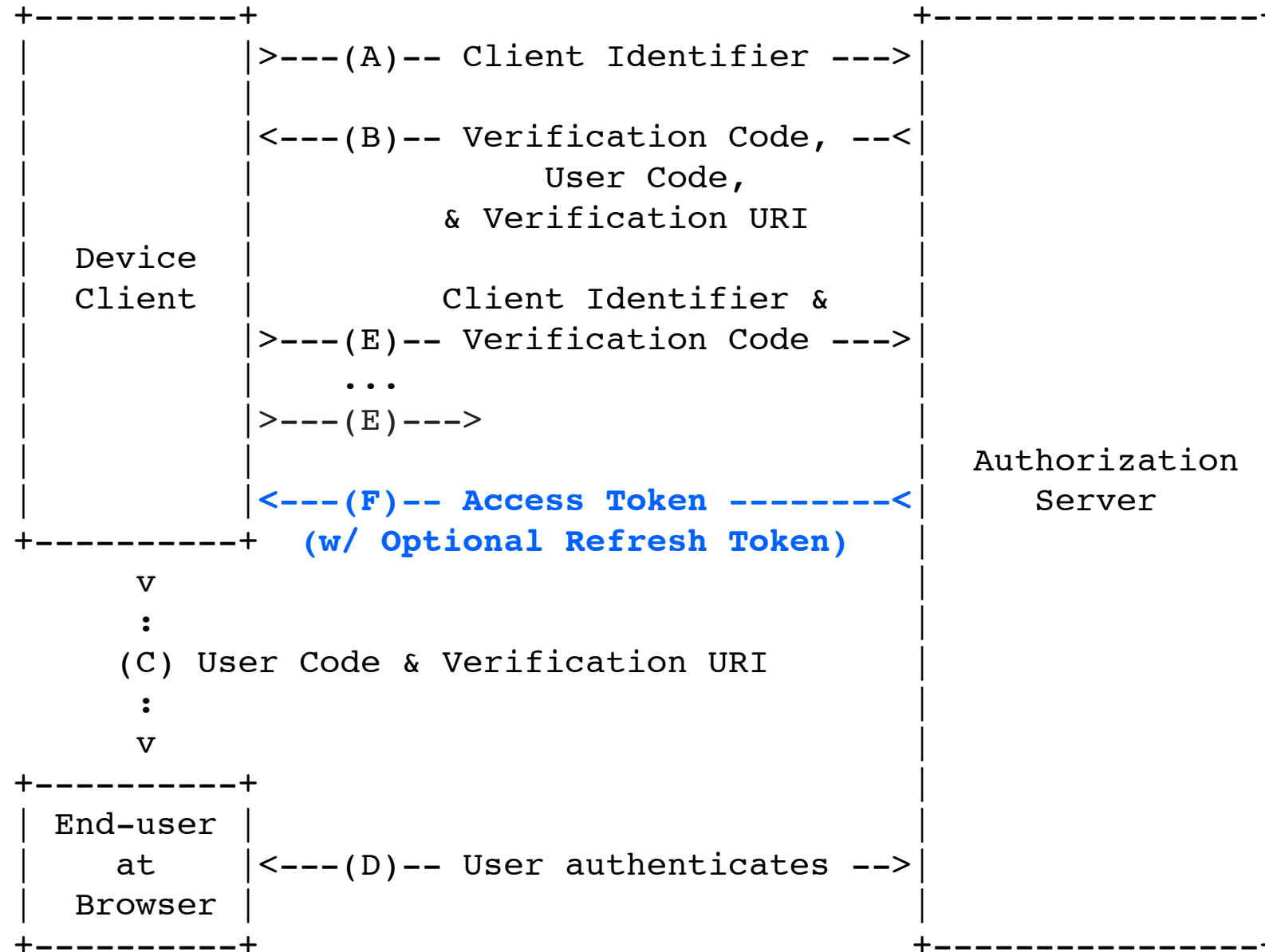
## draft-recordon-oauth-v2-device-XX



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# OAuth 2.0 Device Profile

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# OAuth 2.0 Device Profile + Resumable Upload Demo





# Demo

```
Terminal — java — 122x34
Attempting to receive verification code from :https://sandbox.google.com/o/oauth2/device/code
Received verification code. Expires in :1800 seconds.
Please visit verification URL :https://sandbox.google.com/o/oauth2/device/usercode/q2myscvb
Sleeping for : 5 secs...done.
D'oh! Will keep trying for another :1795 seconds.
Please visit verification URL :https://sandbox.google.com/o/oauth2/device/usercode/q2myscvb
Sleeping for : 5 secs...done.
D'oh! Will keep trying for another :1790 seconds.
Please visit verification URL :https://sandbox.google.com/o/oauth2/device/usercode/q2myscvb
Sleeping for : 5 secs...done.
D'oh! Will keep trying for another :1785 seconds.
Please visit verification URL :https://sandbox.google.com/o/oauth2/device/usercode/q2myscvb
Sleeping for : 5 secs...done.
D'oh! Will keep trying for another :1780 seconds.
Please visit verification URL :https://sandbox.google.com/o/oauth2/device/usercode/q2myscvb
Sleeping for : 5 secs...done.
Sucesfully received access token. Expires in :3600 seconds.
```

```
Choose one of the following demo options:
  1) Upload new video
  0) Exit
1
First, type in the path to the movie file:
/Users/jarekw/Movies/jarek-test-3.mov
What is the MIME type of this file? (ex. 'video/quicktime' for .mov)
video/quicktime
What should I call this video?
test resumable upload with OAuth 2 device profile token
  0%
 100%
 100%
 100%
Upload Completed
```

## Google accounts

A device is requesting permission to connect with your account.

Enter the code displayed by your device:

After clicking continue, you'll have a chance to approve or deny the request.

Continue



Jarek's Black Ops Test is requesting permission to:

+ Manage your Youtube account

+ More info

Allow access

No thanks







# Player APIs (Playback)



# Player APIs

- Control the Player from your Web front-end
- URI parameters
- JavaScript API
- ActionScript API (Flash)



# Player Parameters

```
<object width="425" height="344">  
<param name="movie" value="http://www.youtube.com/v/u1zgFlCw8Aw?fs=0"</param>  
<param name="allowFullScreen" value="true"></param>  
<param name="allowScriptAccess" value="always"></param>  
<embed src="http://www.youtube.com/v/u1zgFlCw8Aw?fs=0"  
  type="application/x-shockwave-flash"  
  allowfullscreen="true"  
  allowscriptaccess="always"  
  width="425" height="344">  
</embed>  
</object>
```

```
<iframe class="youtube-player" type="text/html" width="640" height="385"  
src="http://www.youtube.com/embed/VIDEO_ID?autoplay=1" frameborder="0">  
</iframe>
```

# Player JavaScript API : play for 15 seconds

```
function onYouTubePlayerAPIReady() {
  player = new YT.Player('player', {
    height: '390',
    width: '640',
    videoId: 'OPTOVQFRggI',
    events: {
      'onReady': onPlayerReady,
      'onStateChange': onPlayerStateChange
    }
  });
}

function onPlayerReady(evt) {
  evt.target.playVideo();
}

function onPlayerStateChange(evt) {
  if (evt.data == YT.PlayerState.PLAYING && !done){
    setTimeout(stopVideo, 1000*15);
    done = true;
  }
}

function stopVideo() {
  player.stopVideo();
}
```





# Call of Duty Black Ops









# What were our goals?

- Make it easy for users to upload & share cool moments
- Serve existing Call of Duty audience
- Expose Call of Duty to new audience
- Reporting, Engagement, and Upload analysis
- We don't want to build YouTube!





# Uploading Process: User Experience



The image shows the main menu of the video game Call of Duty: Modern Warfare 2. The menu is displayed on a screen in a dimly lit room with a red wall and a television in the background. The menu options are: CAMPAIGN, MULTIPLAYER, ZOMBIES, and OPTIONS. The MULTIPLAYER option is highlighted with a white bar.

CAMPAIGN

MULTIPLAYER

ZOMBIES

OPTIONS

Step 4:

- Turn on Xbox 360 / PS3
- Multiplayer, then Theater

# How did we get here?

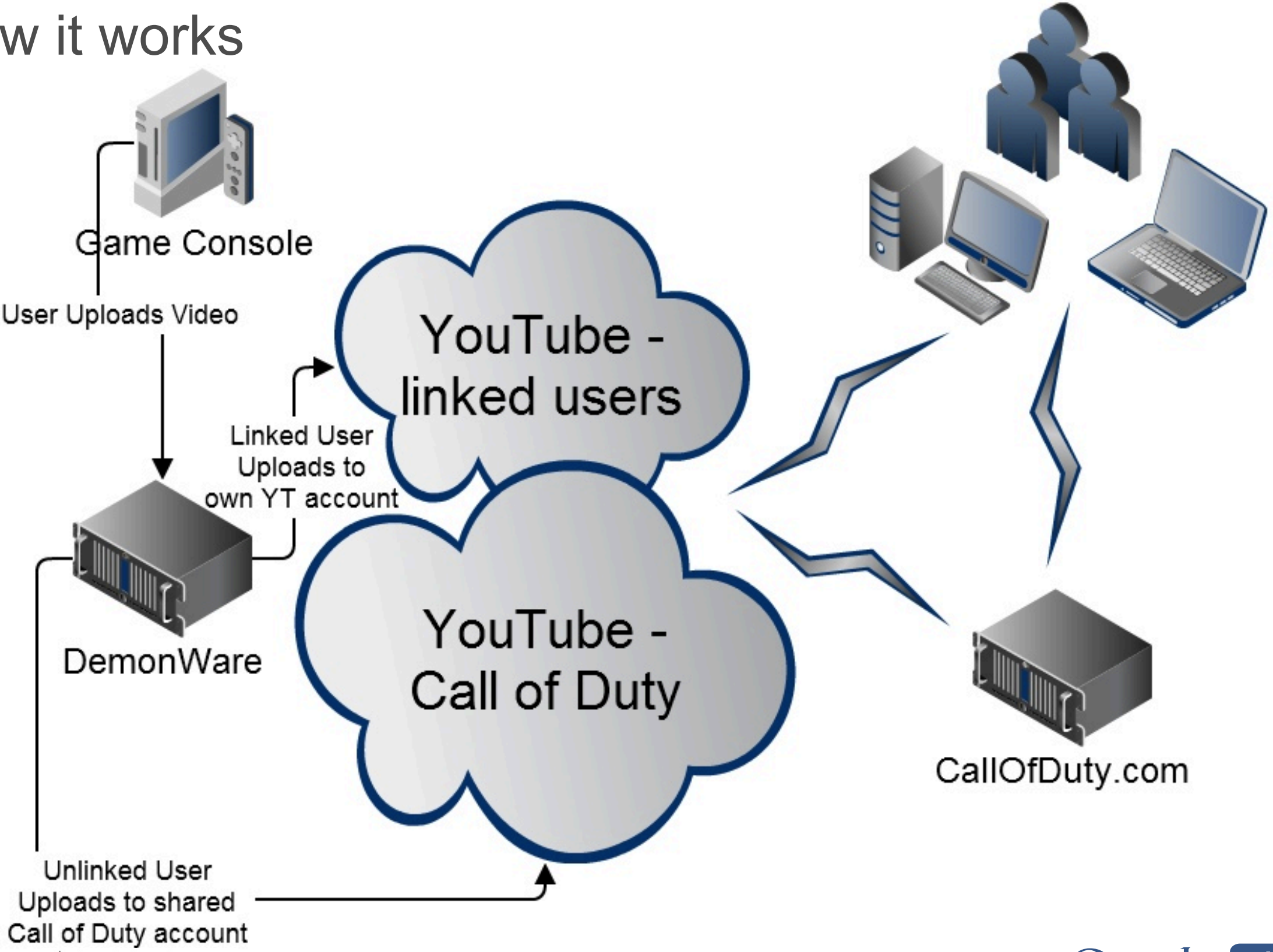
- Original plan was to store one rendered clip per user, and allow users to download
  - Subsequent clips would overwrite
  - This kind of sucks
- So we decided to stream the rendered videos from CallOfDuty.com
  - We have to transcode, since we can't stream MJPEG
  - Uhh, how much video are we talking about
  - Isn't there someone who already does this pretty well?
- YouTube!

# Working with YouTube

- Since we came to YouTube so late, we couldn't link your YouTube account in game
- Since we couldn't link your account in game, we had to come up with something for unlinked users
- After talking with YouTube, we decided on per-platform "Call of Duty" YouTube accounts that could take videos from unlinked users



# Here's how it works



# What are the benefits of integrating?

- **ROI:** Revenue to date has already paid for the resource investment and more
- **User engagement:** 3.6 million+ user uploads
- **Reach:** Over 69 million total video views
- **Marketing:** UGC videos become authentic grassroots campaign
- **Data:** Marketing insight data on user uploads Demographic & Geographic
- **PR & Community Buzz**



# Key Insights



## Date Range

11/15/10 - 4/25/11

## Top Playback Locations

60.3% from YouTube Watch Page  
19.9% from YouTube Channel Page  
13.7% from Mobile Devices  
6% from Embedded player on other websites

## Demographics

94% Male  
6% Female

## Total Uploads

3,634,834

## Total views

69,444,353

## Traffic Sources

47,575,340 Views from YouTube  
3,426,623 Views outside YouTube  
18,442,378 Views from Unknown Sources

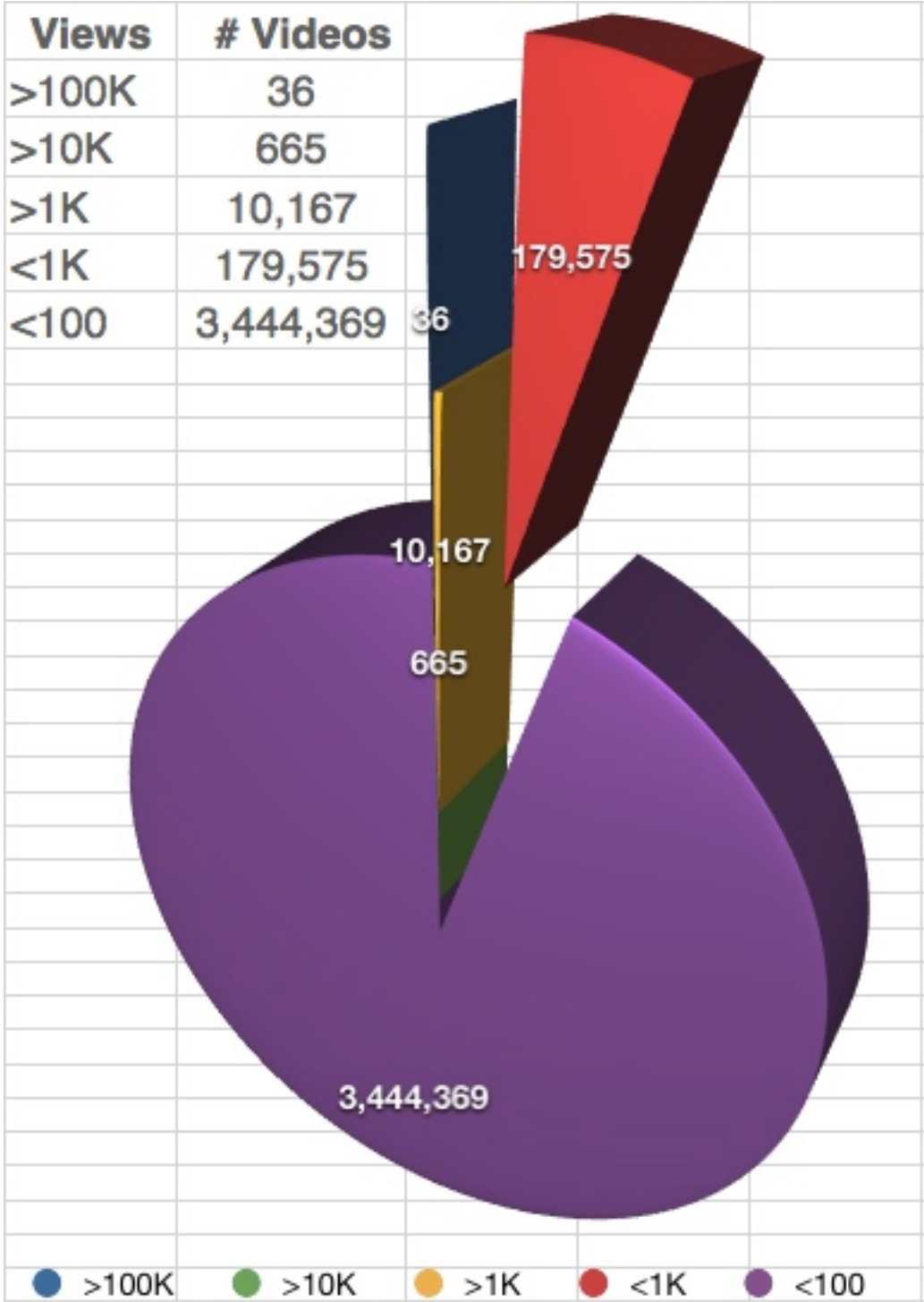
## Player behavior

Over 580,000 players have uploaded videos  
~320,000 players have uploaded multiple videos  
Almost 80,000 players have uploaded more than 10 videos  
Our most prolific user has uploaded over 500 videos (since 11/9/10 - that's about 3 a day)

# Key Insights

## Top Videos

1. CoD Black Ops: Really Weird Glitch on Nuketown 672,616
2. NUKETOWN GLITCH! 246,290
3. Call of Duty- Black Ops: Zombies in Nuketown? Theory 197,740
4. How to obtain Wunderwaffe in Ascension Black Ops (in description) 193,659
5. The Luckiest RC-XD in Black Ops - IamNicelikeRice 177,974
6. Black ops - Nuketown Strafe Jump(secret ledge) 167,472
7. I no scoped Chris Smoove? 160,934
8. Black Ops, FUNNIEST final kill cam EVER! 137,177
9. Call of Duty: Black Ops- Ballistic Knife to the mouth 131,263
10. CoD: Black Ops | Crazy Tomahawk Kill NON RANDOM [WMD] 123,864



# What went right

- Short implementation turn around time
- Technical support from the YouTube side
  - API documentation <http://code.google.com/apis/youtube/overview.html>
  - public forums <http://code.google.com/apis/youtube/forum/>
  - direct support
- Minimum support needed post launch – it just worked

# What went wrong

- Decision to use YouTube was made very late
  - No time to do proper YouTube integration in game
  - OAuth/AuthSub account linking is awkward
- No official codec support on XBOX
  - We used MJPEG for performance reasons
  - Added WebM support after initial launch
  - Large files forced us to limit clips to 30s – not a YouTube limitation

# Post Launch learning

- Have somebody ready to engage community on YouTube channels
- Establish branding on API channels early
- Educate users how to upload to YouTube
- Develop a PR story earlier



# YouTube User Generated Content Examples







HQ offline in: 0:52

25 XxS...X

- [MS]suldemon654  
Lightweight Pro
- Steady Aim Pro
- Marathon Pro

11:00

HEADQUARTERS  
0  
40

Olympia  
2 / 18





NCAKamel-100-69 [Small yellow arrow icon] [Small white icon]

# Q&A



<http://code.google.com/apis/youtube@googleapis>



# Q&A



[@googleapis](http://code.google.com/apis/youtube)

Hashtags: #io2011 #YouTube  
Feedback: <http://goo.gl/bYTHR>



# Backup Slides



# Resources

- Get the YouTube API developer key and start hacking!
- Links
  - <http://code.google.com/apis/youtube/dashboard/gwt>
  - <http://code.google.com/apis/youtube> (docs)
  - <http://apiblog.youtube.com> (blog)
  - <http://code.google.com/apis/youtube/forum> (forum)

# ToS

- YouTube API Terms of Service

- <http://code.google.com/apis/youtube/terms.html>

- Monetization Guide

- [http://code.google.com/apis/youtube/creating\\_monetizable\\_applications.html](http://code.google.com/apis/youtube/creating_monetizable_applications.html)

- Branding Guide

- <http://code.google.com/apis/youtube/branding.html>



[1]

[1] Photo by sub\_lime79 / Misty <http://www.flickr.com/photos/mistybushell/2303555607/>