Capturing video and screenshots from game highlights without lifting a finger!

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NVIDIA

GDC 17

SHADOWPLAY

CAPTURE YOUR BEST GAMING MOMENTS

200M
videos per year

2x
year over year growth

Boss Key's experiments with ShadowPlay

"In games today it's all about bragging rights and owning your moment.

Years ago we used ShadowPlay to a very unique way to capture players awesome gravity-defying clips and share them on social media.

Since, we've been collaborating with NVIDIA to turn this into a major feature and are excited about ShadowPlay Highlights, coming to LawBreakers first."

CLIFF BLESZINSKI

CEO, Founder / Boss Key Productions

Desired functionality

Convenience

- I’m busy playing; my fingers and brain aren’t free to hit the record hot-key
- Can you just do it automatically for me?
- Plus, if I’m going to share something, I want it to be dead simple

Auto-curation

- I can’t waste time looking for the good stuff in a two hour recording
- Can you just record the cool moments and show them to me?

So we designed a highlights feature together...

Leveraging GeForce Experience's Recording tech

- When something interesting happens, the game tells GeForce Experience to save a specific portion of gameplay as video or screenshot

Leveraging GeForce Experience's Overlay

- After a session, game can tell GeForce Experience to display a summary of highlights for that session for the user to review and potentially share

...and made it non-invasive

User can

- Control the type of highlights recorded per-game
- Review highlights *after the game* session or from the Gallery
- Elect to enter or skip summary via *game UI*
- Specify the amount of disk space devoted to highlights

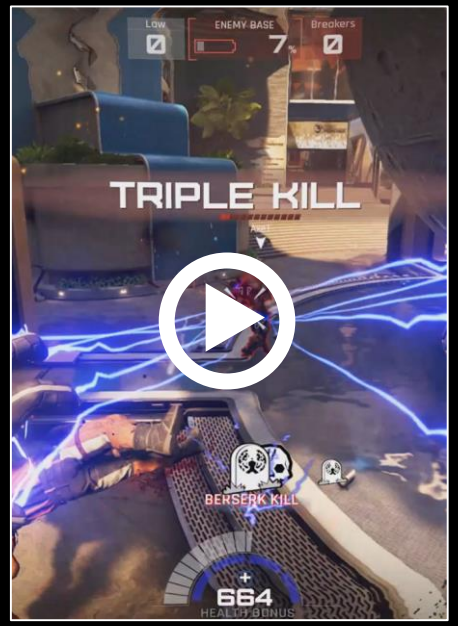
Capture is low impact

- No game FPS drops
- Minimal system resource use

SHADOWPLAY HIGHLIGHTS

Shadowplay Highlights Features

VIDEO

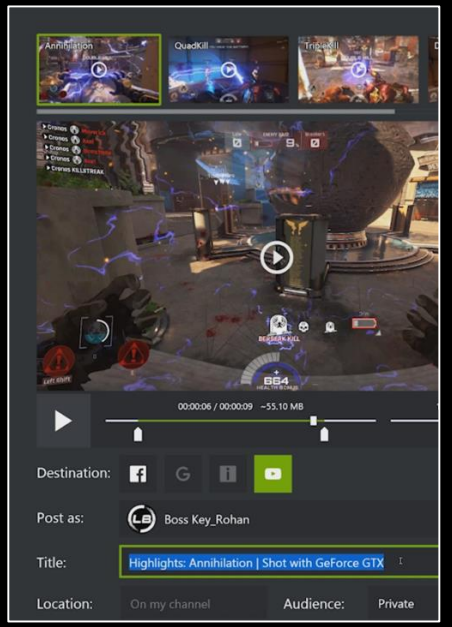


4K 60 FPS H.264
No impact to gameplay

SCREENSHOTS

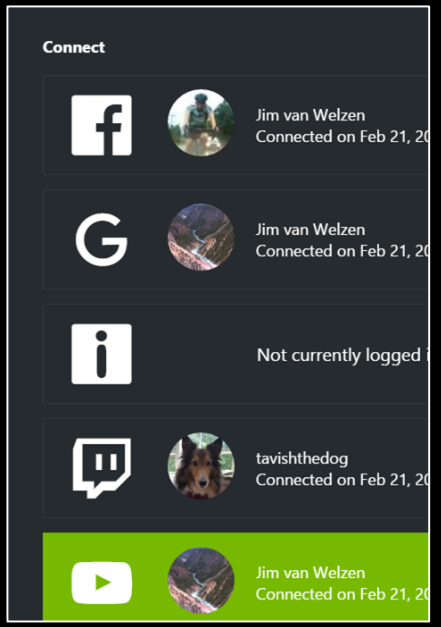
4K PNG Images
No impact to gameplay

PREVIEW



In-game overlay
Review, trim, upload

SHARE

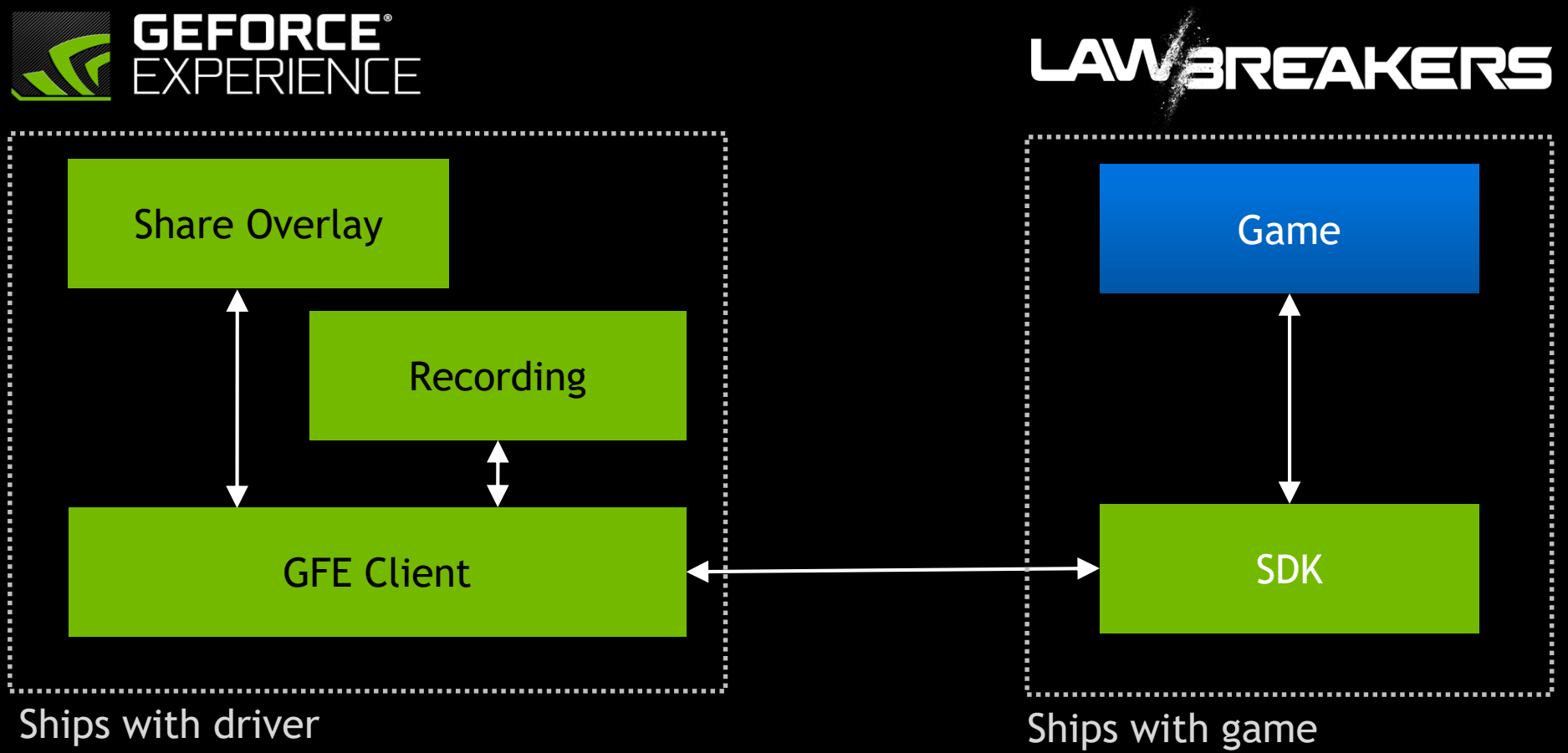


Facebook
YouTube
Google+
Imgur

USER CONTROL

Video settings
Highlights settings
Notifications settings
Disk space settings
Feature enable/disable

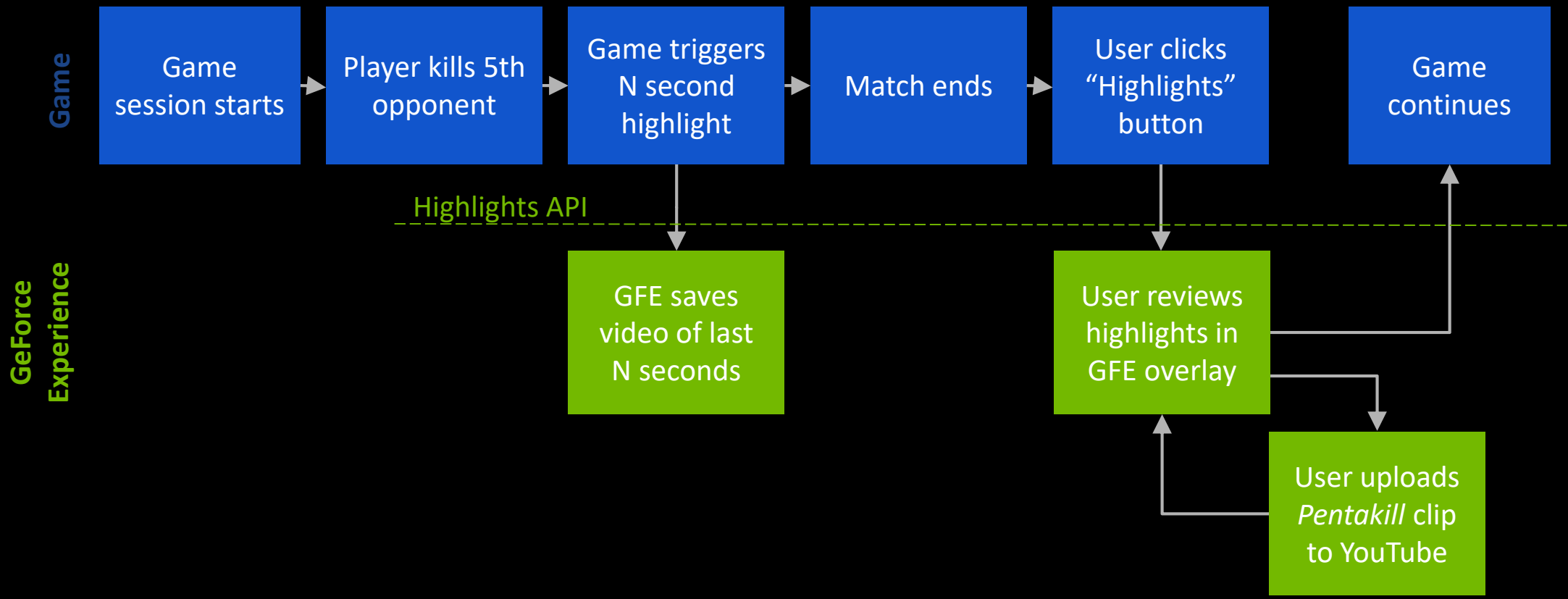
ShadowPlay Highlights Architecture



API

NVGSDK_**Create**	// Construct the main SDK interface.
NVGSDK_Highlights_**Configure**	// Provide a list of possible highlight types to GFE
NVGSDK_Highlights_**StartSession**	// Begin a session which groups several highlights together
NVGSDK_Highlights_**SetScreenshotHighlight**	// Captures a screenshot highlight of given type for current session
NVGSDK_Highlights_**SetVideoHighlight**	// Captures a video highlight of given type for current session
NVGSDK_Highlights_**StopSession**	// Stop a session which groups several moments together
NVGSDK_Highlights_**OpenSessionSummary**	// Ask GFE to display summary for all highlights in the last session
NVGSDK_**Release**	// Release the main SDK interface

Example ShadowPlay Highlights Flow



Highlights Table

- Linchpin of coordination
- Table of type NVGSDK_Highlight
- Defines each game's possible events

- Game passes table to GFE on Configure
- GFE presents to user (by name) for opt in/out
- GFE only captures opted-in highlights
- Metadata available for filtering in summary

Highlight Structure

```
typedef struct _NVGSDK_Highlight
{
    char*                          name;
    uint8_t                        userInterest;
    NVGSDK_HighlightType           momentTags;
    NVGSDK_HighlightSignificance   significance;
    NVGSDK_Bitmap                  icon;
} NVGSDK_Highlight;
```

Field		Description
Name (string)		Unique name for the game event.
User interest (boolean)		True if user is interested in event, false if user is not.
Type (enumeration)	milestone	event material to game completion
	achievement	challenge not material to game completion
	incident	event not material to game completion
	state change	player state change trigger by the player or externally
Significance (integer)	-3	extremely bad
	-2	very bad
	-1	bad
	0	neither good nor bad
	+1	good
	+2	very good
	+3	extremely good
Icon (bitmap)		icon to display in UI associated with highlight

Setting a Highlight

```
NVGSDK_Highlights_SetVideoHighlight

    ( hSDK, “5v5Fight”, {“kill”, startDelta = -4000, endDelta = -1000} );
```

Putting it all together:
Annihilation Highlight captured in a game session

Cronos Maverick
Cronos Axel
Cronos Bomchelle
Cronos Axel
Cronos KILLSTREAK
Low
ENEMY BASE
8%
Breakers
BETA v 128110
ANNIHILATION
QUAD KILL
Q
E
Left Shift
664
HEALTH BONUS
BETA FOOTAGE

Cronos Maverick
Cronos Axel
Cronos Bomchelle
Cronos Axel
Cronos KILLSTREAK
Low
ENEMY BASE
9 %
Breakers
Highlight saved to Gallery!
34m
BERSERK KILL
+
664
Left Shift
Q
E
BETA FOOTAGE

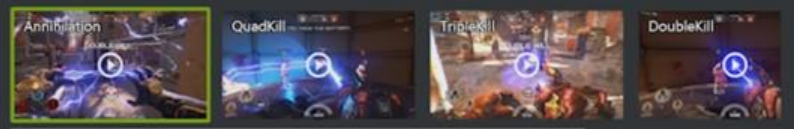
Highlight saved to Gallery!
VICTORY
BETA
FOOTAGE

PERSONAL RESULTS
ALL ROLES
LB
Cronos
SCORE 525
KILLS 4
DEATHS 0
ASSISTS 0
OBJECTIVES 0
TOTAL DAMAGE DONE 0
TOTAL PLAYTIME 26M 5S
7 NEW HIGHLIGHTS
CONTINUE TO LOBBY
NEXT MATCH STARTS IN: 00:52
OVERCHARGE / PROMENADE
PRESS ESC TO RETURN TO THE LOBBY
BETA FOOTAGE

GeForce Experience

PERSONAL RESULTS

Highlights



00:00:08 / 00:00:11 ~64.68 MB

100%

Destination:

Post as: Boss Key_Rohan

Title: Highlights: Annihilation | Shot with GeForce GTX 46/100

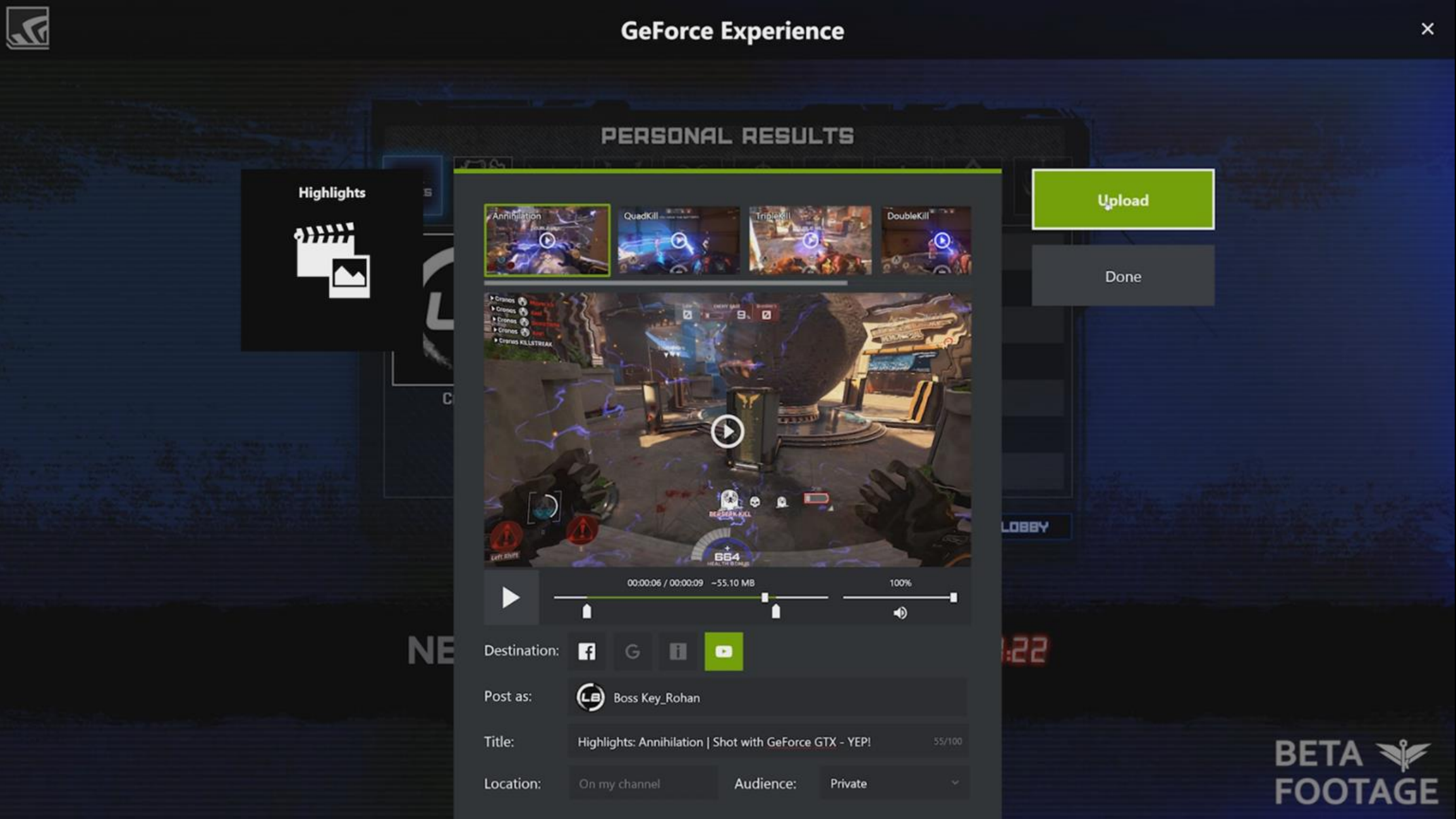
Location: On my channel

Audience: Private

Upload

Done

BETA FOOTAGE


GeForce Experience
PERSONAL RESULTS
Highlights
Annihilation
QuadKill
TripleKill
DoubleKill
Upload
Done
00:00:06 / 00:00:09 ~55.10 MB
100%
Destination:
Post as:
Boss Key_Rohan
Title:
Highlights: Annihilation | Shot with GeForce GTX - YEP!
55/100
Location:
On my channel
Audience:
Private
BETA FOOTAGE

Why you should integrate ShadowPlay Highlights

- Capture your players' best gaming moments automatically
- Frictionless sharing to social media
- No game modification required
- Optionally add UI element for access to highlights within game
- Technology works equally well with single- and multiplayer games
- Rolling your own solution is a large investment
- Sign up for SDK: https://developer.nvidia.com/shadowplay-highlights