



**LA POST | PRODUCTION
CONFERENCE**



Future Media Concepts

Training a New Generation of Digital Artists®

Practical Video Compression in a Post Youtube World

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Master Instructor - FMC Training

J Greenberg Consulting . com



JGreenberg Consulting

Session Overview

- **What it means to be in a post YouTube world**
- **What are they doing?**
- **How do I get my video to look its best?**
- **Your compression tool**
- **Online host best practice suggestions**

Housekeeping

HOUSEKEEPING

- **Ask anything you want!**
- **URL of Notes @ J Greenberg Consulting.com**
- **my email @ end**

Survey Compression tool?

Adobe Media Encoder

Apple Compressor

Sorenson Squeeze

Telestream Episode

MPEG Streamclip

What else?

Why this session?

I want my stuff to look as **good** as possible online

I want my stuff to look as **bad** as possible online

I have **no idea** why my stuff looks good or bad

Compression is a **dark painful place** in my life

Cool Tip

DamnVid

<https://code.google.com/p/damnvid/>

Post YouTube World?

11 Month Old Twins Dancing to Daddy's Guitar – YouTube

www.youtube.com/watch?v=to7ulG8KYhg

YouTube twin babies dancing with daddy

Browse Movies Upload Jeff Greenberg +

11 Month Old Twins Dancing to Daddy's Guitar

Brovadere + Subscribe 1 video



0:20 / 0:45

Like Add to Share Download 10,526,655 76,614 likes, 986 dislikes

Published on Aug 8, 2012 by Brovadere

My identical twin girls get so excited whenever I play the guitar! * OFFICIAL VIDEO *

Thank you all for the wonderful comments about the girls! We are thrilled to

Show more

Top Comments

00:14 This is my favorite part, when they look at each other immediately upon hearing the music. It says so much about their love of music, but even more, it says a lot about the connections twins have – this is obviously totally a shared experience! Also, it looks to me like it won't be long before they rock in unison, and they could well pick up on actual rhythm sooner than

The Sims 3 Supernatural by TheSims 104,155 views Ad

BFFs Trailer (OFFICIAL) by YOMYOMF 634,123 views FEATURED

11 month old Twins Wrestling by tamhod1974 580,304 views

Twins Merle and St by 57

Nelson Twins - Australia's Got Talent by nana443 367,145 views

Hey Ya by choynina 5,603,742 views

Top 10 Funny Baby Videos! by BestTVvideo 72,880,126 views

Who's Your Favourite? by PowSound 5,543,657 views

Hosting your video yourself?

- **No way!**
- **10 people sharing simultaneously kills most in house Internet connections.**

Who are you hosting with?

- **Youtube**
- **Vimeo**
- **BrightCove**
- **?????**

What are they doing?

**Everyone
Recompresses**

**Recompression is
generally a sin in the
workflow chain**

FFMPEG

- **Handbrake? VLCPlayer?**
- **Command line utility**
- **FFMPEG.org**
- **Run on Linux Boxes**
- **Free/opensource***

**How do I get my video
to look its best?**

What's the best format?

**Least compressed
version possible....
or h.264**

Quick and dirty answer

Large data rate
2 pass VBR
@ original size & FPS
= decent quality

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Understanding Data Rates

- **Measurement of how much data per second the video receives**
- **Larger is generally better**
- **Uh...oh....numbers**

**Math doesn't have
to be scary**

4 numbers to understand

1

25

125

880

4 numbers to understand

1

480i SD

Uncompressed

125 Megabits/sec

1 min ~ 1 gig

1 hr ~ 60 gigs

25

880

4 numbers to understand

1

**Mini DV
DV25**

25 Megabits/Sec

5 min ~ 1 gig

1 hr ~ 12 gig

480i SD

Uncompressed

125 Megabits/sec

1 min ~ 1 gig

1 hr ~ 60 gigs

880

4 numbers to understand

1

Mini DV
DV25

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5 min ~ 1 gig

1 hr ~ 12 gig

480i SD

Uncompressed

125 Megabits/sec

1 min ~ 1 gig

1 hr ~ 60 gigs

1080 HD

Uncompressed

880 Megabits/Sec

1 min ~6 gigs

1 hr ~ 600 gigs

4 numbers to understand

Youtube SD

640x360

1 megabits/sec

2 hrs ~ 1 gig

1hr ~ 500 megs

Mini DV

DV25

25 Megabits/Sec

5 min ~ 1 gig

1 hr ~ 12 gig

480i SD

Uncompressed

125 Megabits/sec

1 min ~ 1 gig

1 hr ~ 60 gigs

1080 HD

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1 hr ~ 12 gig

480i SD

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Uncompressed

880 Megabits/Sec

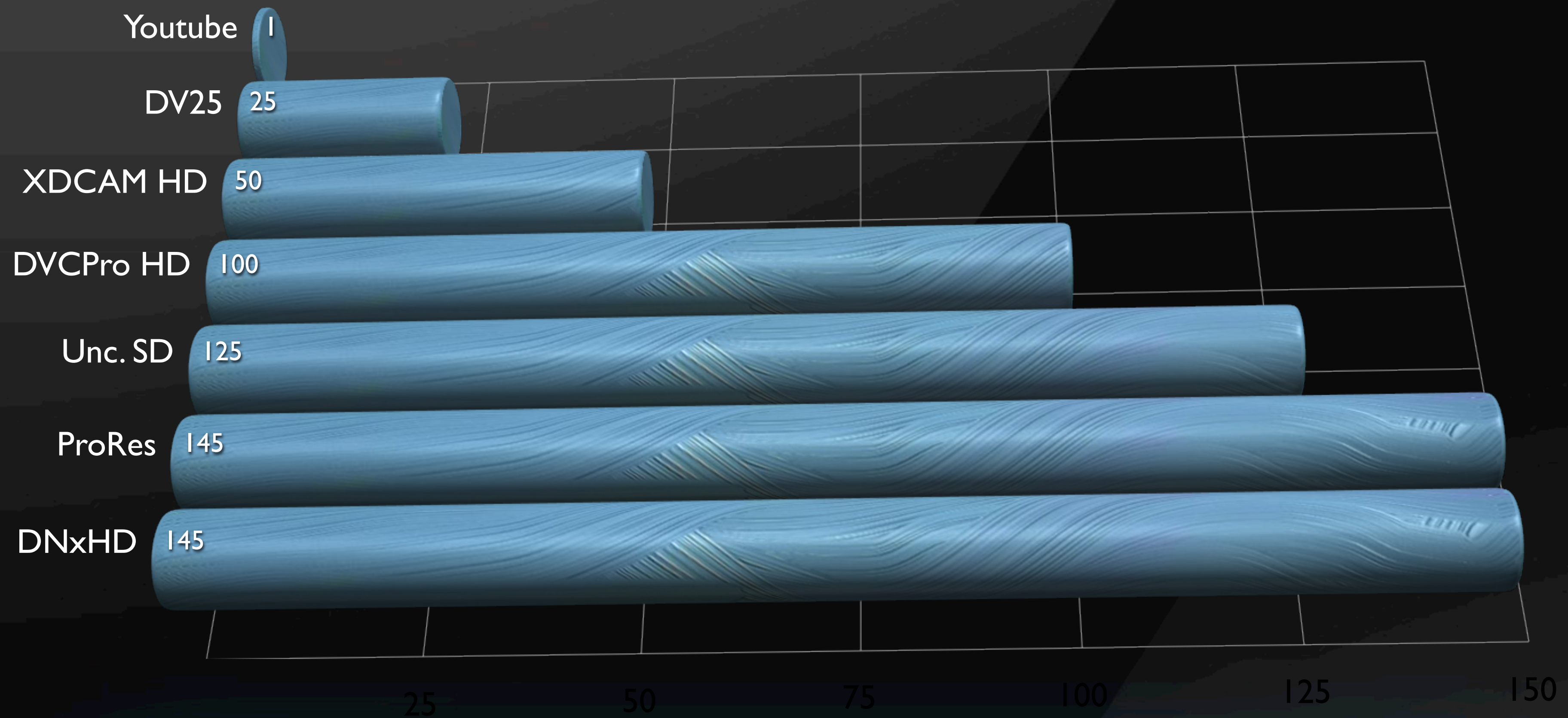
1 min ~ 5 gigs

1 hr ~ 600 gigs

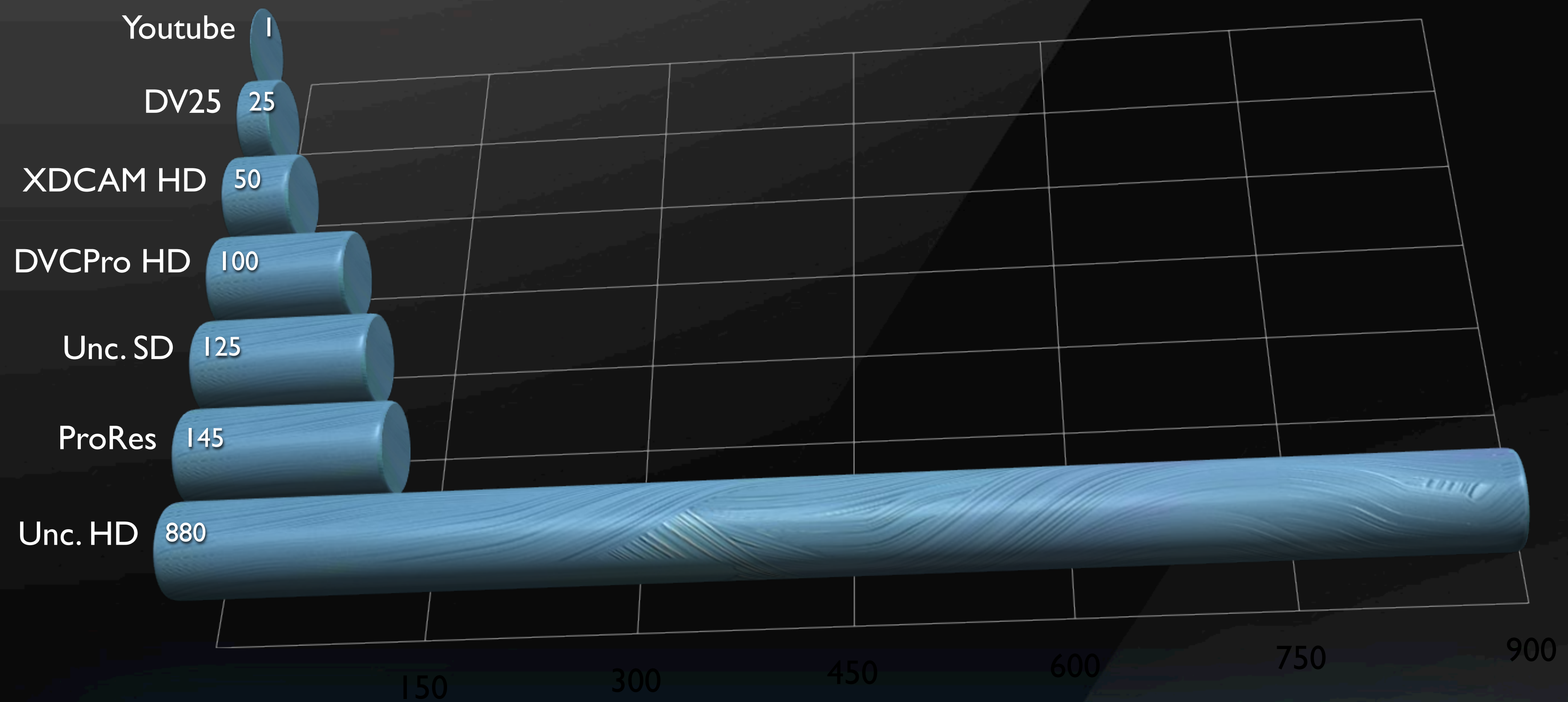
**Don't be scared by
numbers**

dialup	0.058 Mb/s	
youtube	0.6	30:1
cable	4 Mb/s	
p-jpeg offline		30:1
15:1s		30:1
miniDV	25 Mb/s	5:1
HDV	25 Mb/s	30:1
Most DSLRs	17/45 Mb/s	
XDCam HD	25/35/50	
DVCPro 50	50 Mb/s	2.5:1
802.11g	54 Mb/s	
Ethernet	100 Mb/s	
AVC Intraframe	100 Mb/s	
DVCPro HD	100 Mb/s	6:1
UNC SD	125 Mb/s	1:1
ProRes	35/100/145/220/330 Mb/s	4:1 or less
FireWire	400/800 Mb/s	
DNxHD	145/220 Mb/s	4:1 or less
Red One	224/288/336	12:1 or less
UNC HD	880 Mb/s	1:1
Ethernet	1000 Mb/s	

Graphs mean more



Unc. HD is huge



4 numbers to understand

1

25

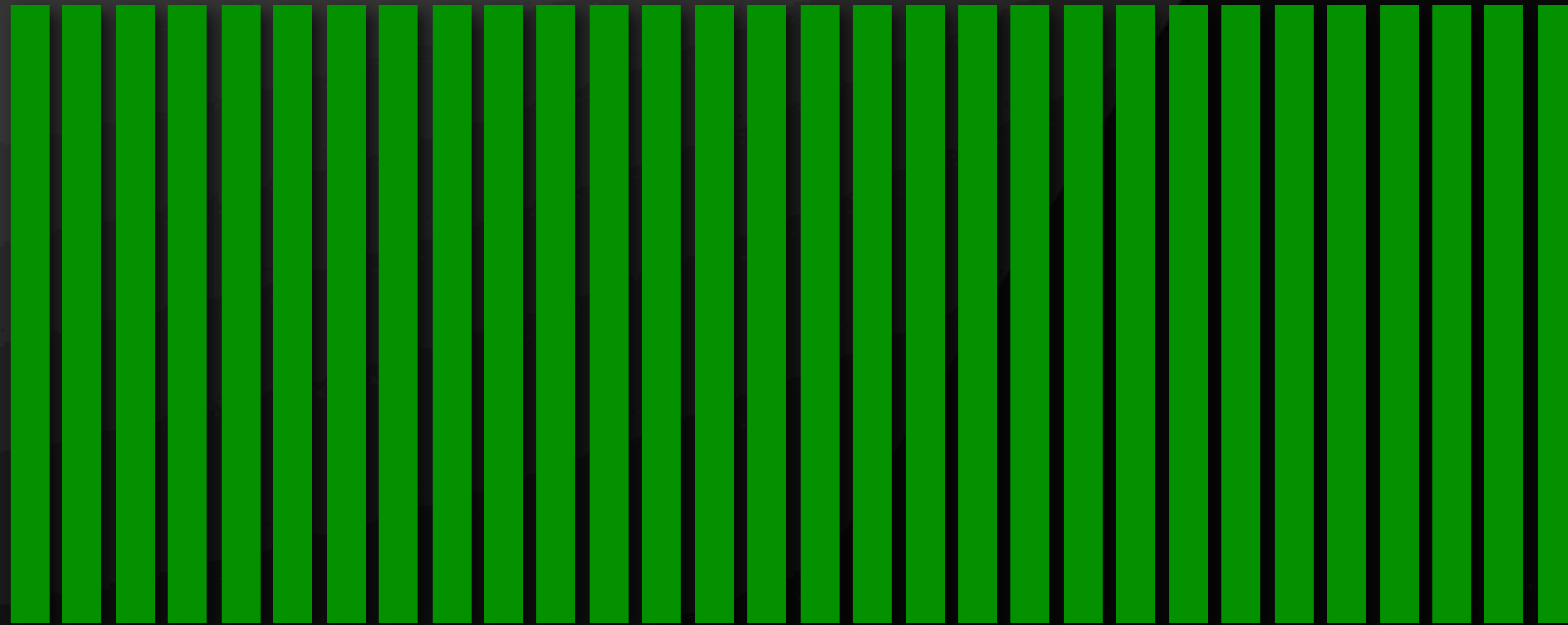
125

880

Large data rate
2 pass VBR
@ original size & FPS
= decent quality

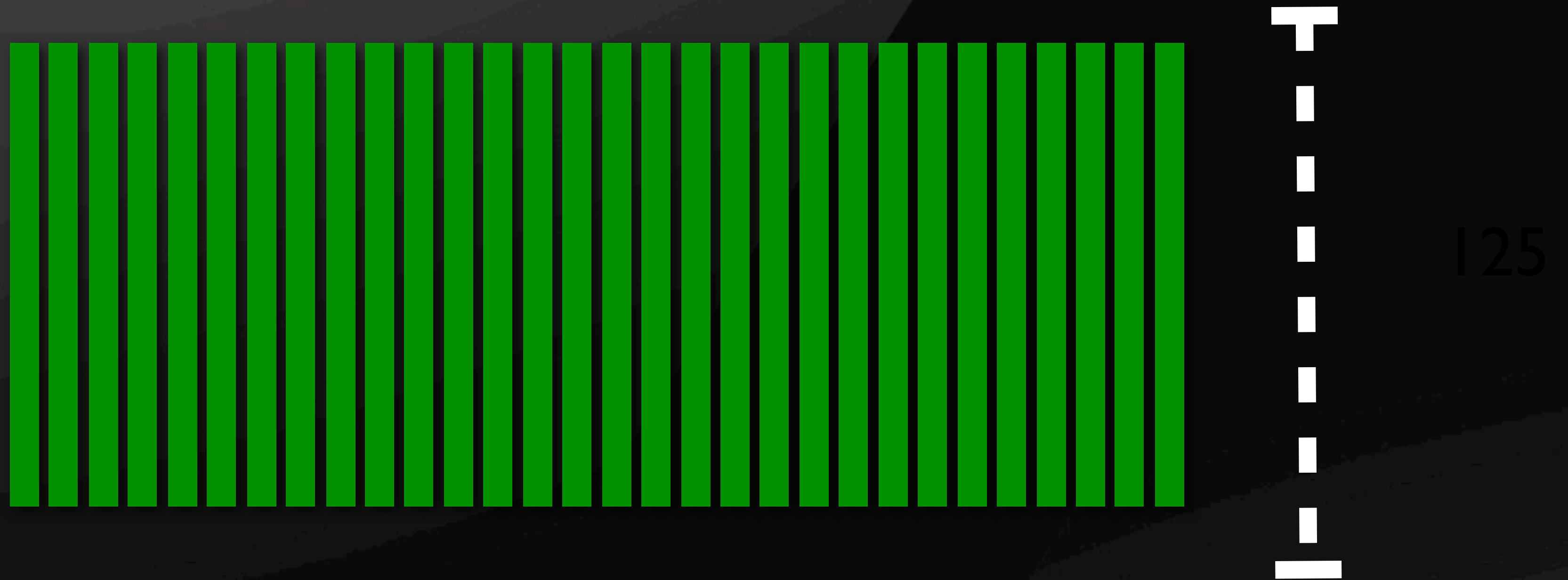
Constant Bit Rate

(every frame gets the same amount of data)



Constant Bit Rate

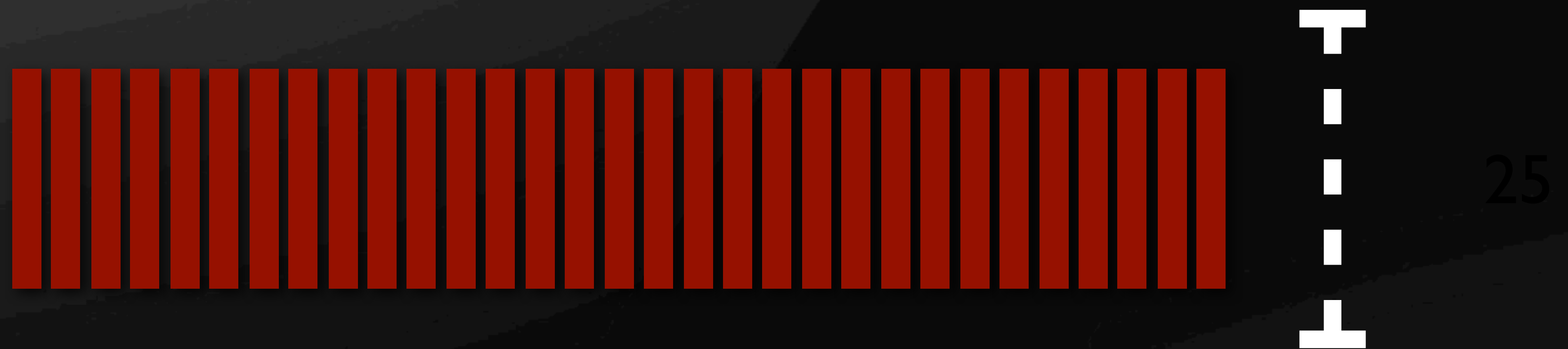
(every frame gets the same amount of data)



Uncompressed = easy for camera
(no compression/decompression)

Constant Bit Rate

(every frame gets the same amount of data)



DV = each frame gets JPEG
Compression.

**Variable
Bit Rates
or
Robbing Peter
to pay Paul**

How low can we go?

- **At some data rate, the quality becomes unacceptable.**
- **Unique for any type of footage**
- **but some footage has lesser demands**

Data

Complex material

Cherry Blossoms
falling in DC

Simple material

Talking heads

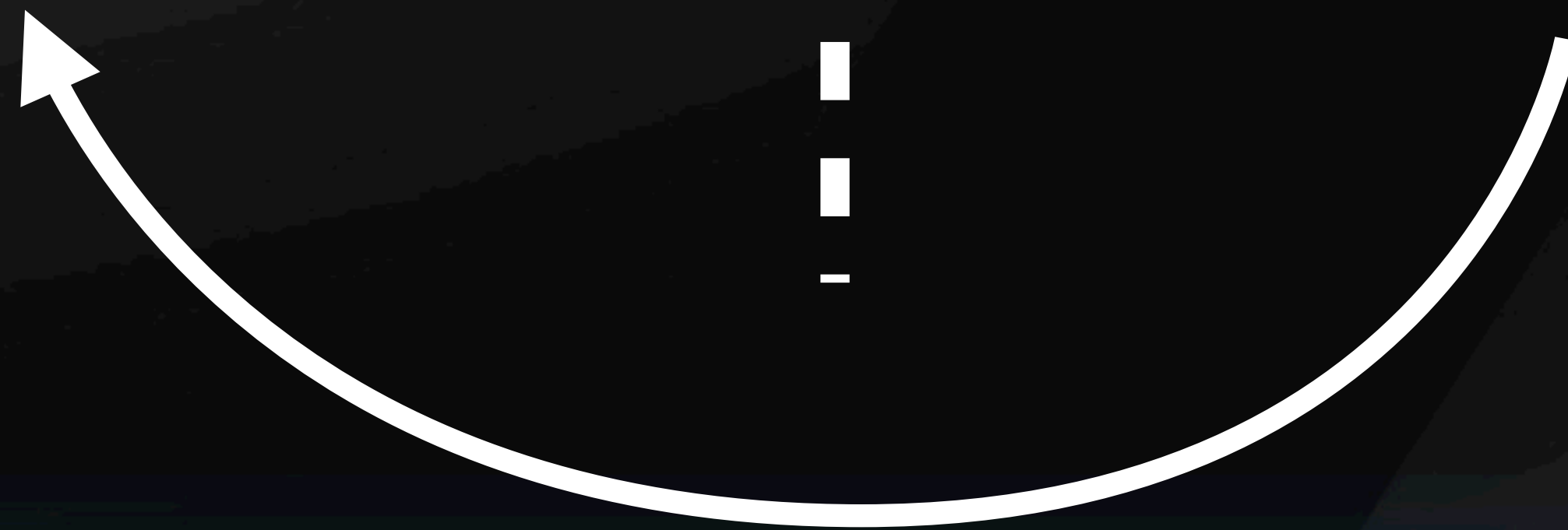
What if we could steal data for where it's needed?

Complex material

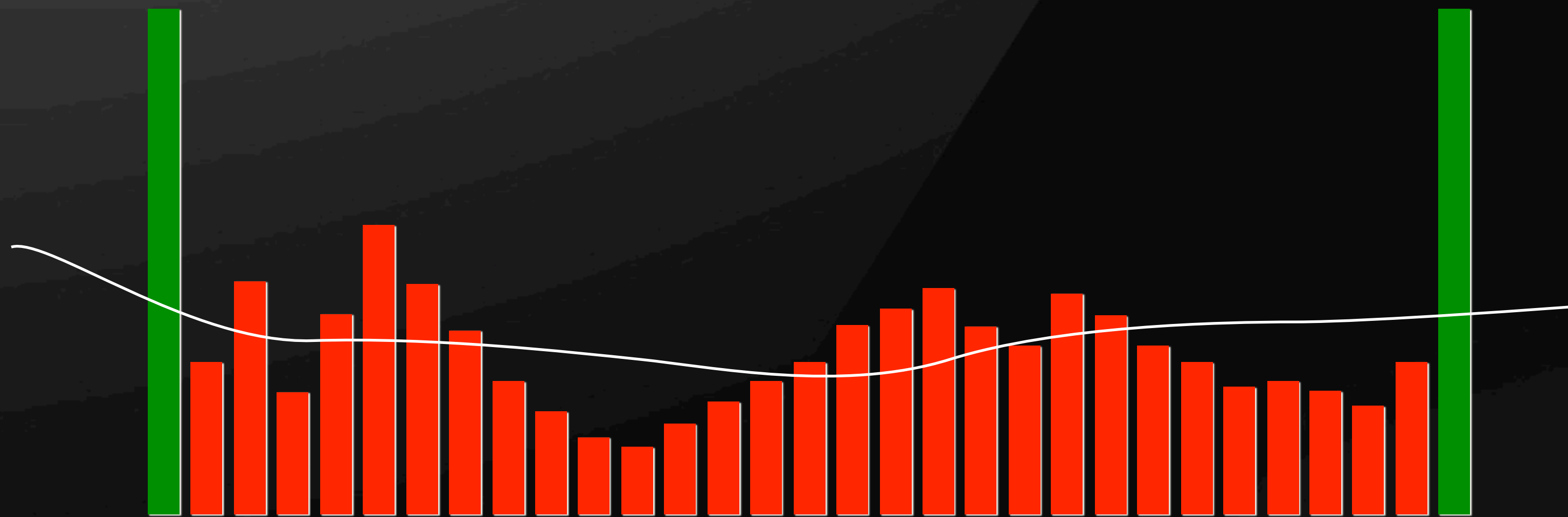
Cherry Blossoms
falling in DC

Simple material

Talking heads



Variable data rates



**Multiple Passes = more
Analysis**

Large data rate
2 pass VBR
@ original size & FPS
= decent quality

**The larger the
dimensions the **more**
data needed**

You're shooting HD

- **1920 x 1080**
- **1280 x 720**

**Smaller dimensions
mean **less** data**

Halve the size **quarter** the data

- **1920 x 1080**

960 x 540*

- **1280 x 720**

640 x 360**

* bigger than SD

* SD widescreen

Large data rate
2 pass VBR
@ original size & FPS
= decent quality

How many fps do you need?

- **1080 @ 30i (for a total of 60 'moments')**
- **720 @ 60**
- **1080/720 @ 24**

More frames \neq larger files

**higher data rate =
larger files**

**More frames at the
same data rate means
less data per frame**

Pick fps carefully

- **Filmic motion vs. smooth motion**
- **Talking heads vs. sports**

Bonus tip

Lower fps (same data rate) = better picture

Lower fps (1/2 data rate) = smaller picture

***can't use online hosting**

****subjective**

Large data rate
2 pass VBR
@ original size & FPS
= decent quality

Quality is subjective

- **“Does it look good enough?”**
- **Encode tough 30 seconds (TETO)**
- **Better looking starting point = better finishing point (GIGO)**



Which architecture?

FLV, MOV, MP4?

MP4

- **Can always go in the other containers**
- **Can never get out of the other containers to MP4**
- **WRONG JEFF - You know how to get it out of QuickTime**

Improving h.264

**Throw enough data @
the problem and
there's no problem**

perfect for online
sharing

“Adequate” data rates

1920x1080	8 Mb/s
1280x720	6 Mb/s
960x540	2-4 Mb/s
640x360	1-2 Mb/s
320x180	.3-.5 Mb/s

**Throw enough data @
the problem and there's
no problem**

**DSLRs encode
@ 48mb/s**

**Send larger (less
compressed) files to
online re-encoding
services
@ 20 mb/sec or more**

Large data rate
2 pass VBR
@ original size & FPS
= decent quality

Understanding your compression tool

**In some ways,
they're all the same**

A source gets a **setting
and is told to **output**
in a specific place**

**Where are the data rate
settings? VBR? FPS?**

What the hosts want for upload

Youtube

- **h.264 - any size**
- **ProRes, DNxHD**
- **20 mbs or larger @ 1080 h.264**

Vimeo

- **h.264**
- **Don't follow their suggestions (5mb@ 720)**
- **Throw more data @ the problem**

Brightcove

- **Unique in that you can upload video @ h.264 and if you do it right....they won't recompress**

Tools to add to your toolbox

Review

- **What it means to be in a post YouTube world**
- **What are they doing?**
- **How do I get my video to look its best**
- **Your compression tool**
- **Online host suggestions**

Closing thoughts

Certified training?

- **Intense 2/3 8 hour days**
- **Small classes 2-6 people**
- **Taught by professionals**
- **Authorized Adobe/Apple/Avid**
- **BRAND NEW OFFICE in IRVINE!**



FMCTraining.com

Other sessions

Wednesday

2:15 Digital Cinema Workflows in Avid

3:45 Scriptsync/Phrasefind

Thursday

9 Adv. Compression in Avid with Squeeze

10:30 BCC Effects in Avid

Noon FCPX Mastering Magnetic Timeline

3:45 Adv. Color Correction in MC

Friday

9 Practical Video Compression in a Post YouTube world

11:15 Adobe Premiere Pro Expert Tips

2:15 Media Composer Expert Tips

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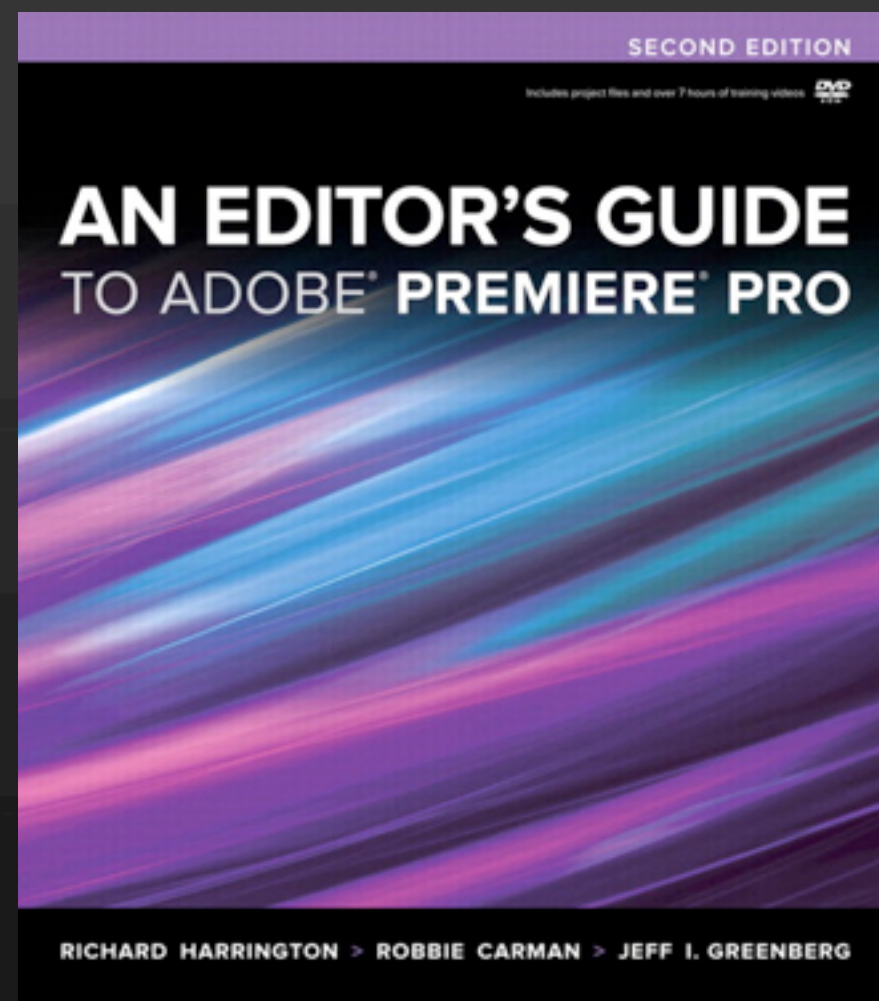
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Master Trainer



You **should** follow me on twitter.com/filmgeek

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Peachpit

Amazon.com

iBooks

Kindle

macProVideo.com

Comprehensive Media

Composer 6 Training

Premiere Pro and FCPX DSLR

workflow training

Lynda.Com

Compressor

Training

You should follow me on twitter.com/filmgeek

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Session Notes @ J Greenberg Consulting
(along with my blog)

Yes, you can have me educate
your group **directly** or
speak at your event

You **should** follow me on twitter.com/filmgeek