



ACES Development Process Update & Review

August 19, 2020



Welcome

Today's Agenda

- Why are we here?
- Overview of ACES Dev Process
- Perspective from Chris Clark, VWG Chair
- Perspective from Chris Brejon, VWG Member
- Discussion and Questions
- How can you get involved?



ACES Development Process

Old process (leading up to ACES 1.0)

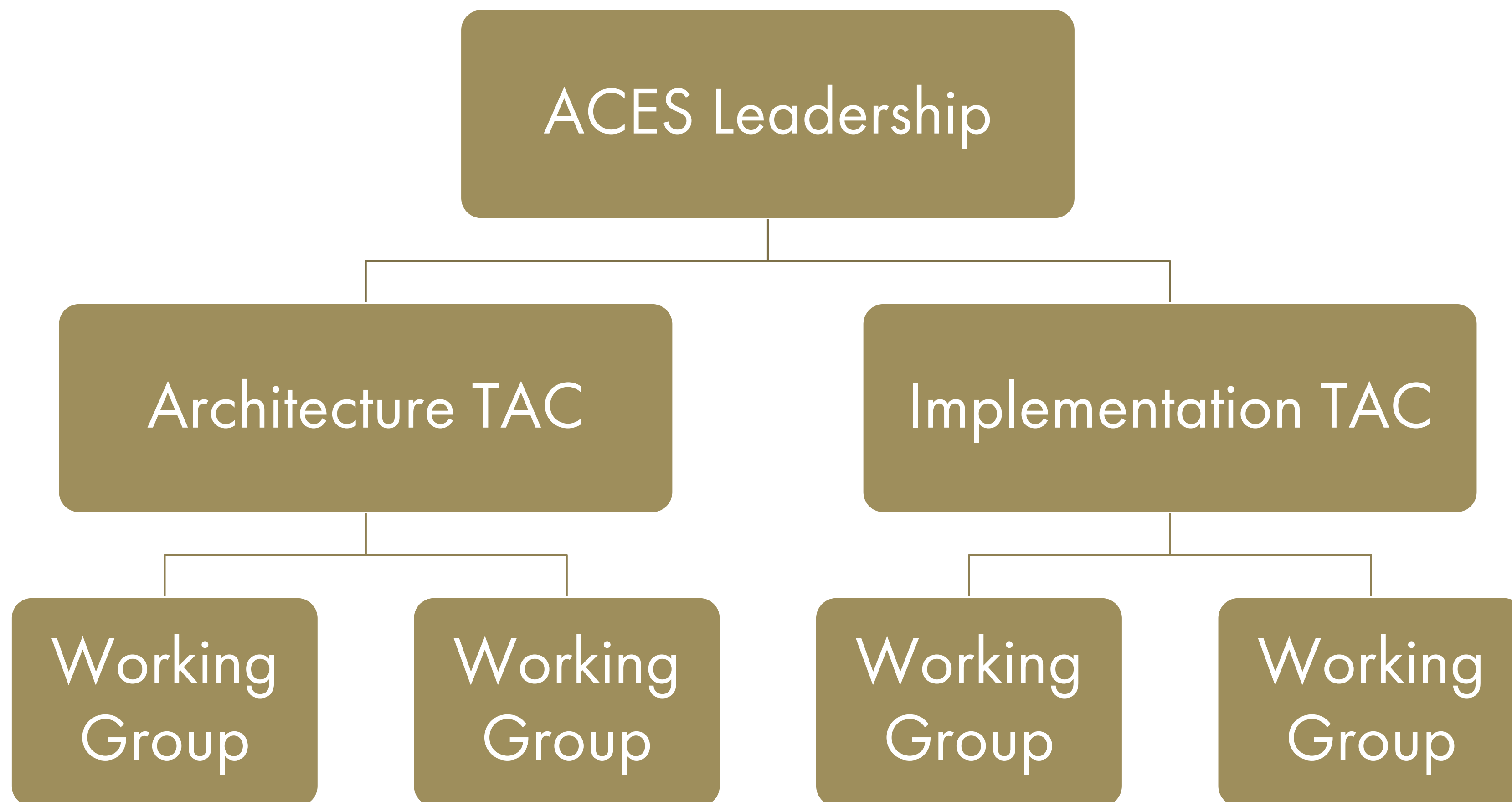
- Seemed like “Academy project” and not a “community project”
- Processes and decisions were detached from the users and implementers of the system

New process (ACESNext)

- Give more of the oversight, development, test and implementation responsibility to the community of engineers, end-users and other stakeholders who rely on the system



ACES Organization





Working Groups

These do the engineering, software development, documentation, and other development tasks

- Regular meetings held via web-conference - recorded and posted
- A "home page" to collect relevant documents, meeting notes, action items, etc.
- Discussion area for each group on forum (ACESCentral.com)

Participation is open to anyone willing and able to contribute

Formed by a proposal form filled by any member of the ACES community

Intended to be short-lived, issue-based

Present status reports and deliverables to the parent TAC



Technical Advisory Councils

Comprised of industry experts with a broad understanding of motion picture workflows and the impact of those workflows on their organization's objectives

- Studio or production companies, practitioners (post-production, VFX, cinematography, editorial, archiving, etc.), game studios, color scientists

No actual engineering work – TACs provide guidance, advice, and oversight

Architecture TAC – consider system design & consistency with ACES goals

- Core transforms, encodings, file formats, metadata, etc.

Implementation TAC – real-world implementation considerations

- ACES reference implementation, developer and end-user tools, Logo Program, documentation, plug-fests, etc.



ACES Leadership

Membership:

- ACES Project Chair – Annie Chang
- ACES Project Vice-Chairs – Rod Bogart and Joachim Zell
- Academy Science and Technology Council staff and consultants (as needed)

Responsibilities:

- Overall project strategy definition and execution
- Definition, prioritization, and approval of work items
- Allocation of resources
- Public communications regarding the ACES project, marketing efforts
- ACESCentral.com administration



Similarities to ASWF

Similarities

- Organizational hierarchy
- Open, community-driven

ACES is a system and has many components

- Not just software – ACES components are implemented in software/hardware
- No dedicated engineers from partner companies – all volunteer
- Product Partner program to ensure high-quality ACES implementations



Chris Clark

My Road to ACES

- Pre-1.0
 - Development activity was mostly in-person in Hollywood, not well documented
 - Sony Pictures – some of the first feature films to use ACES
- Post-1.0
 - New process, more open and publicly documented
 - Netflix – building a global studio based on open standards
- Pre-2.0
 - Here we are!



Chris Clark

Perspective from a Chair

- Academy-organized, community-driven
- Getting people involved
- Maintaining scope
- Architecture → Implementation

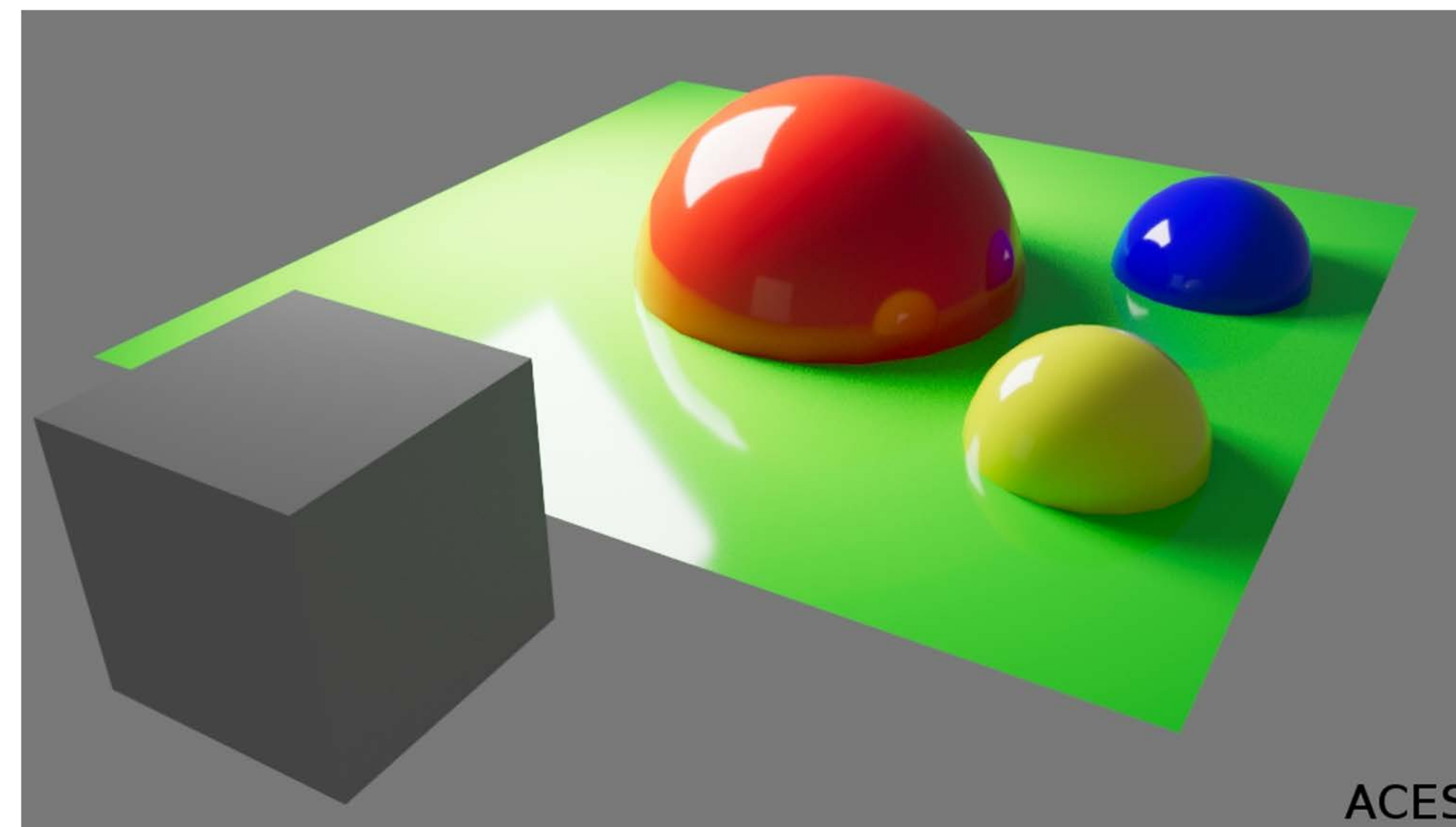
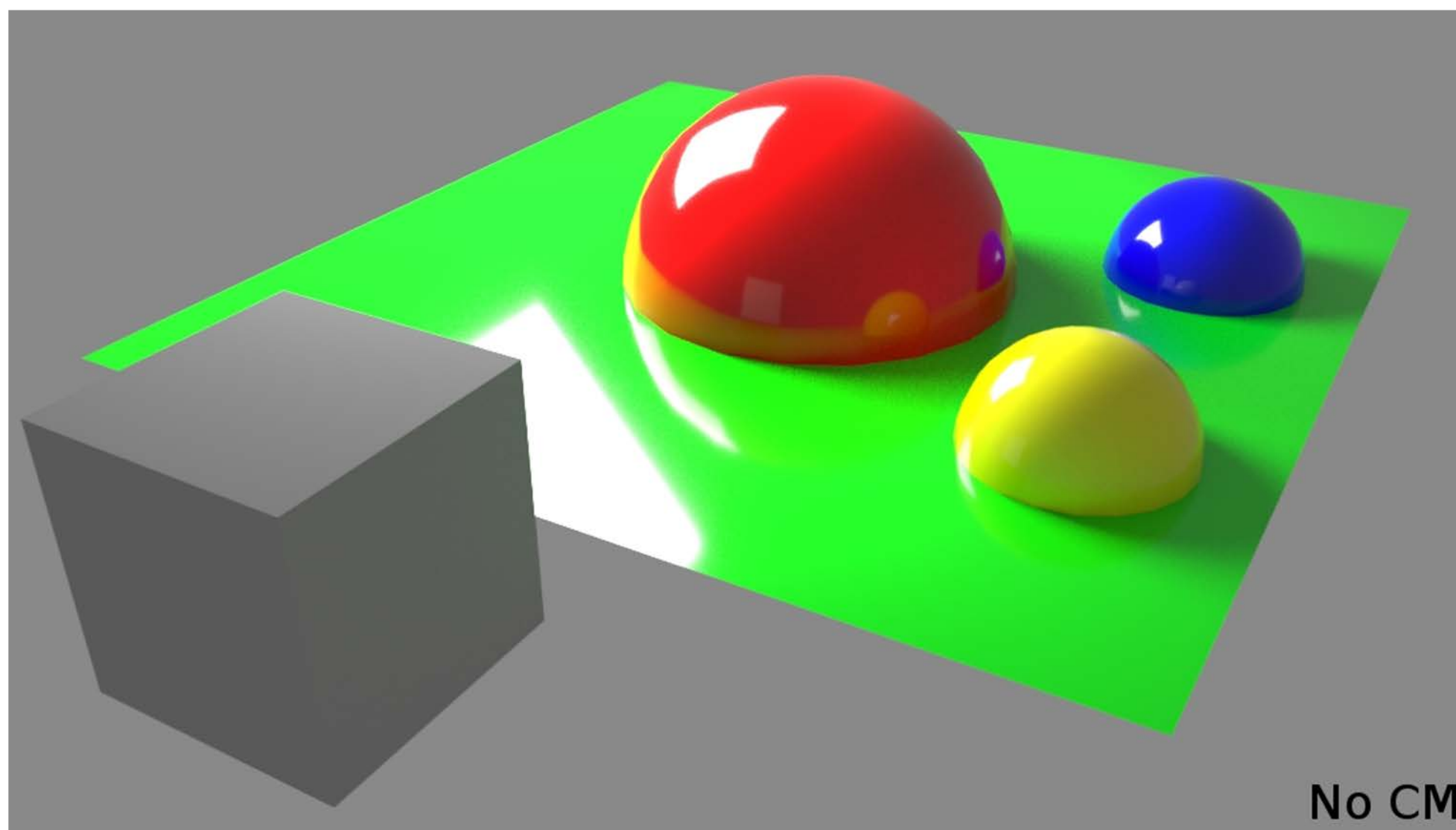
Future Improvements

- Meeting summaries
- Progress reports
- Time zone accommodation
- Chat?

Why would you switch to ACES for a full CG studio ?

1. Allows you to work with an industry standard : very helpful for exchanging files and deliveries.
2. Set things straight in terms of terminology. In Color Management, the use of accurate terms is recommended.
3. At last but not least, it actually makes your renders look better !

Switching to ACES has been an amazing journey through color, shaking off some old beliefs and adapting our tools and workflow to a modern CMS.



My first experience with ACES : Lego Batman at Animal Logic (Sydney).

- I was blown away by the quality of the image and the extreme saturation.
- I didn't know much about CMS but I felt something was just "right".
- Started to watch videos and ask questions about ACES and what it was.

I highly recommend this Siggraph 2015 video by Alex Fry. Great watch !



Back to Paris, I had only one purpose : implement ACES at our studio. A couple of difficulties :

- I didn't fully grasp what is ACES myself. I just knew it looks great.
- Supervisors are used to linear workflow, why change ?
- Lots of misconceptions on what is linear !
- No OCIO implementation in our proprietary softwares.

I didn't know it back then, but I was about to start a two-year journey with one of our lead developers, Christophe Verspieren.



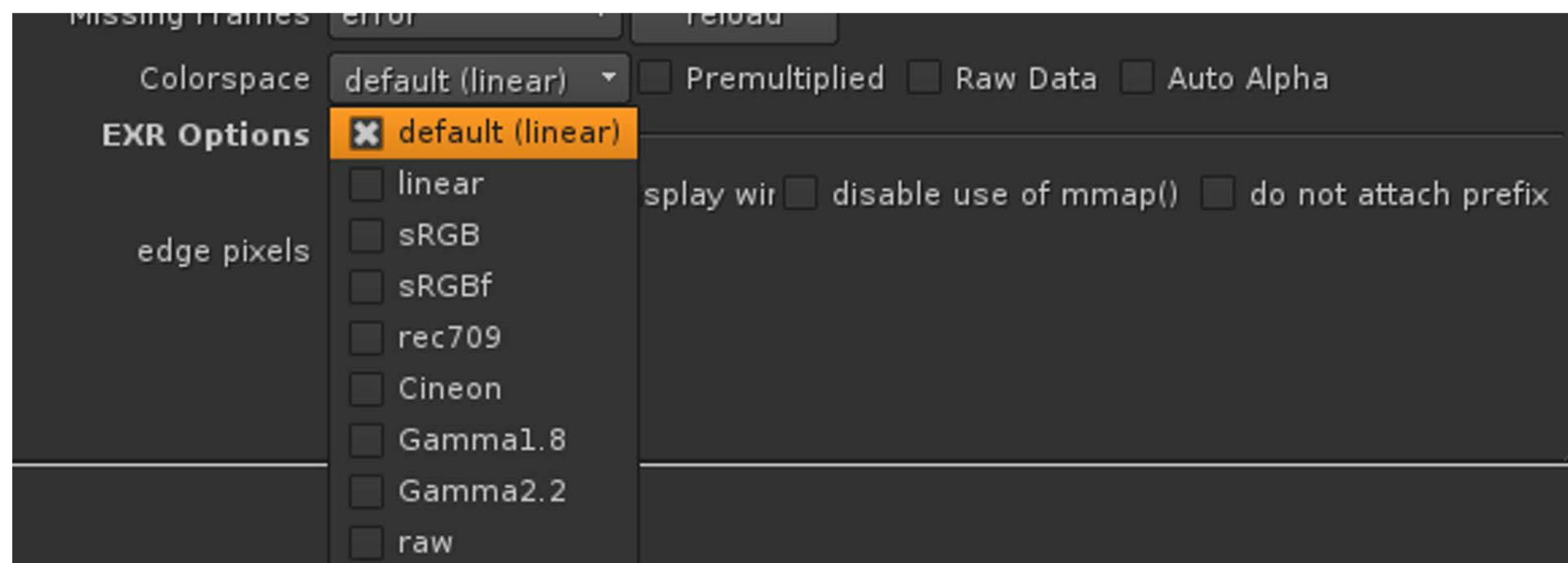


A great challenge

We had to face many obstacles, but I have learned so much on the way.

Here is a couple of hints from our experience:

- Don't try to convince people if you don't fully understand a topic.
- Biggest misconception: linear is a colorspace which gives us access to infinite colors. NO !
- Old mysticism is defeated : linear is a transfer function, it NOT a color space.
- It may sound trivial, but this was a giant step for us !
- Hence the ACES terminology : Utility - Linear - sRGB.

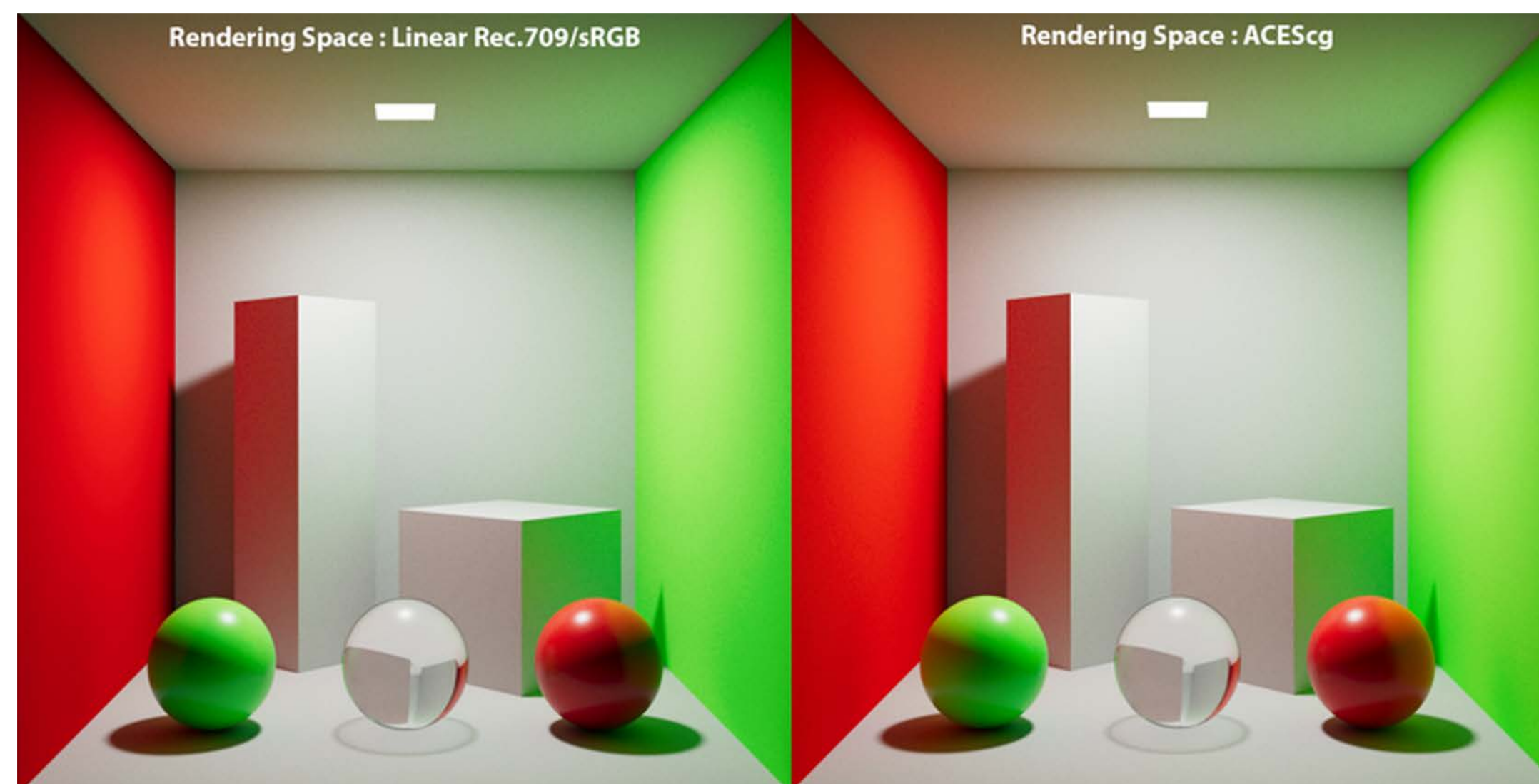


To convince someone, it is all about finding the right arguments :

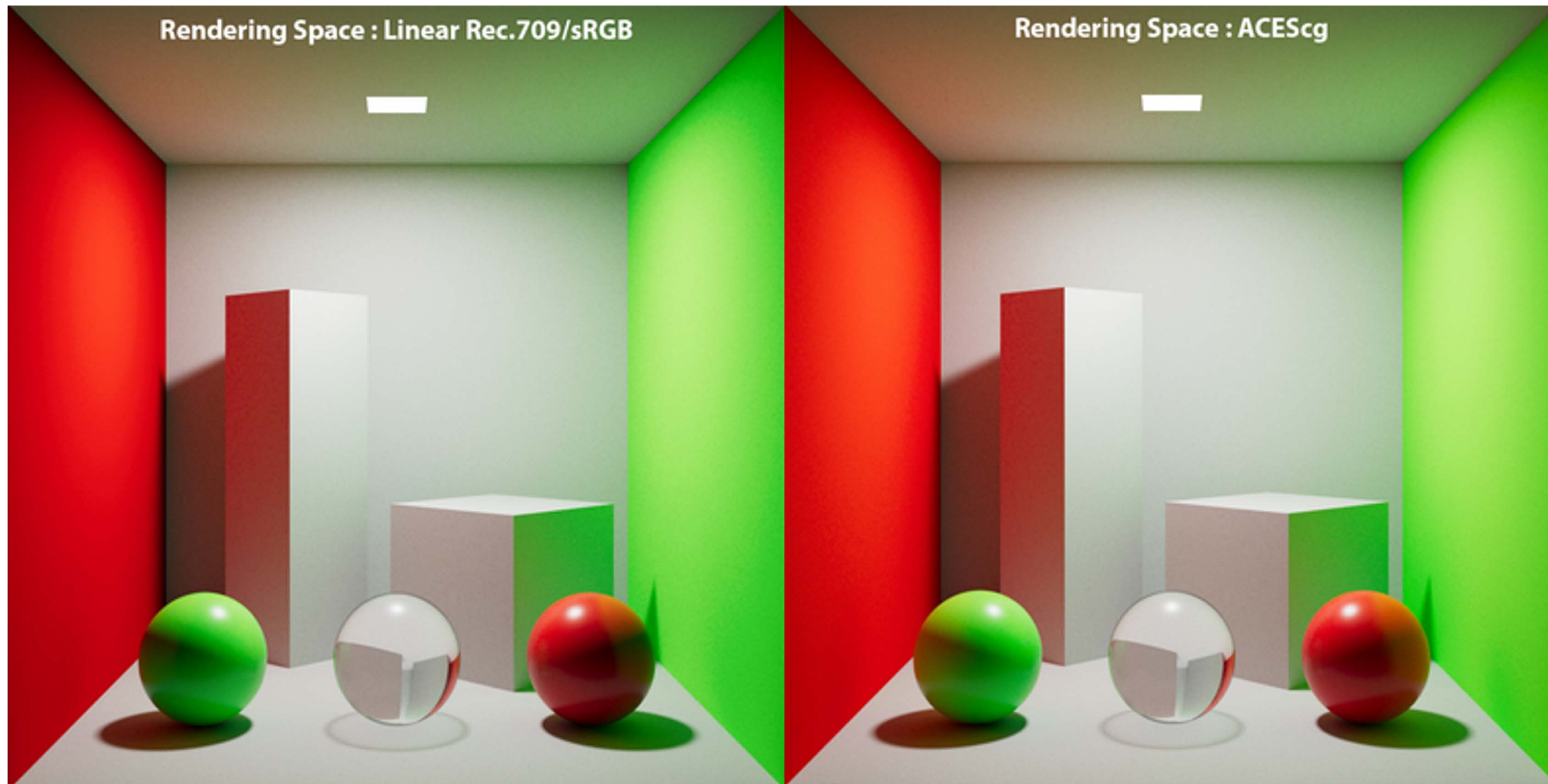
- ACES is a standard developed by the AMPAS (yup, the people from the Oscars ®) → Didn't convince
- It has been used in more than 300 movies and is a standard for Netflix. → Didn't convince
- It is currently used by many VFX studios such as ILM, Animal Logic. → Didn't convince

None of this worked with our upper management. Until I said this :

- Rendering in ACEScg brings us closer to Spectral Rendering. → Bingo !

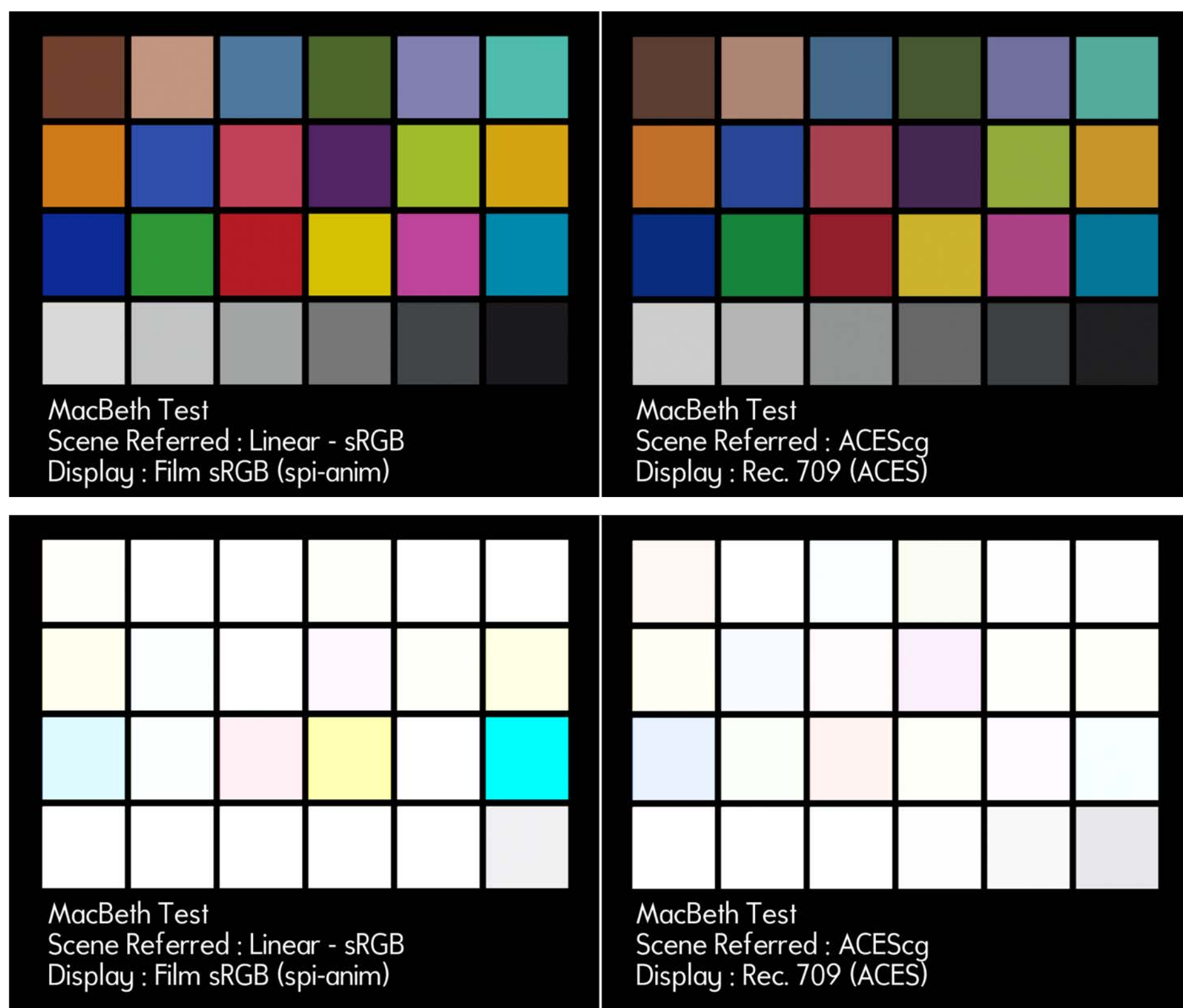


Scene-referred tests (a closer look)



Display-referred tests

Huge topic ! I often have described the ACES Output Transform as the ultimate one. It is not entirely true. But it still looks better than many other solutions out there.



We are comparing here the spi-anim and the ACES OT with a Macbeth chart at EV0 and + 6 stops.

Yep, the color 18 (cyan) is outside the sRGB gamut ! Fascinating...

ACES 2.0 should also improve on many levels : IDT, OT, gamut mapping, metadata... Future looks bright ! And colorful!



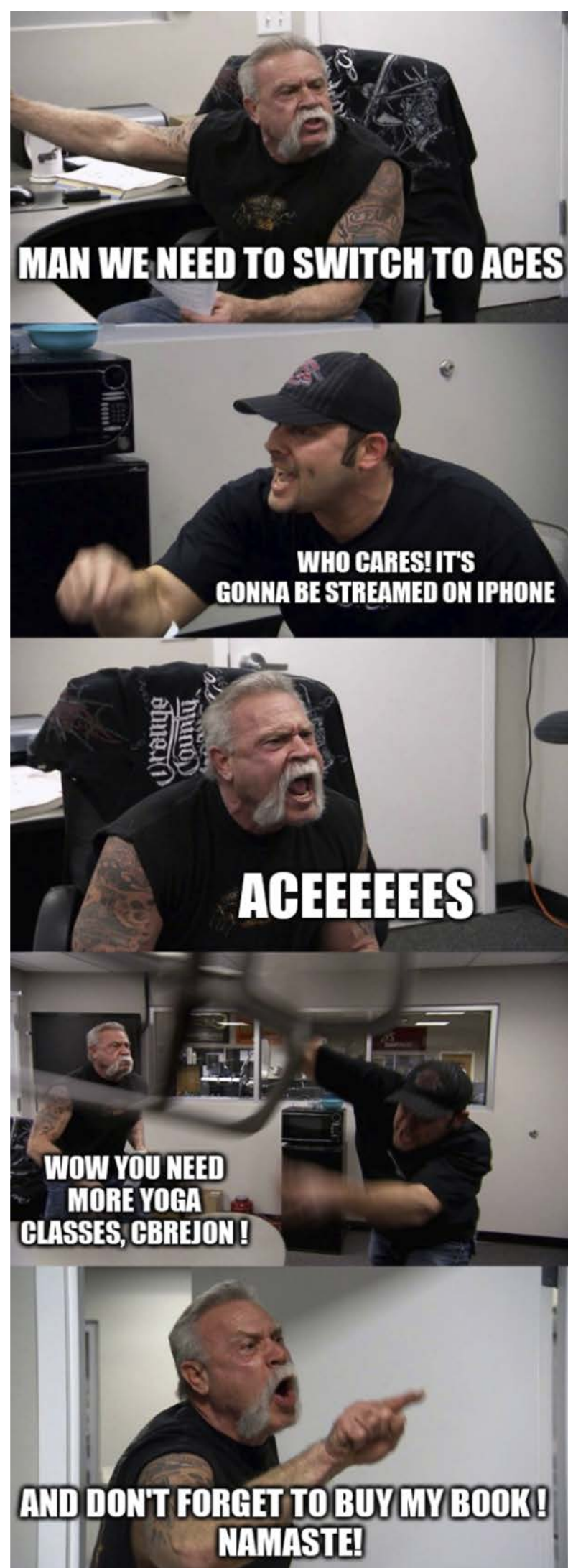
Being part of ACES

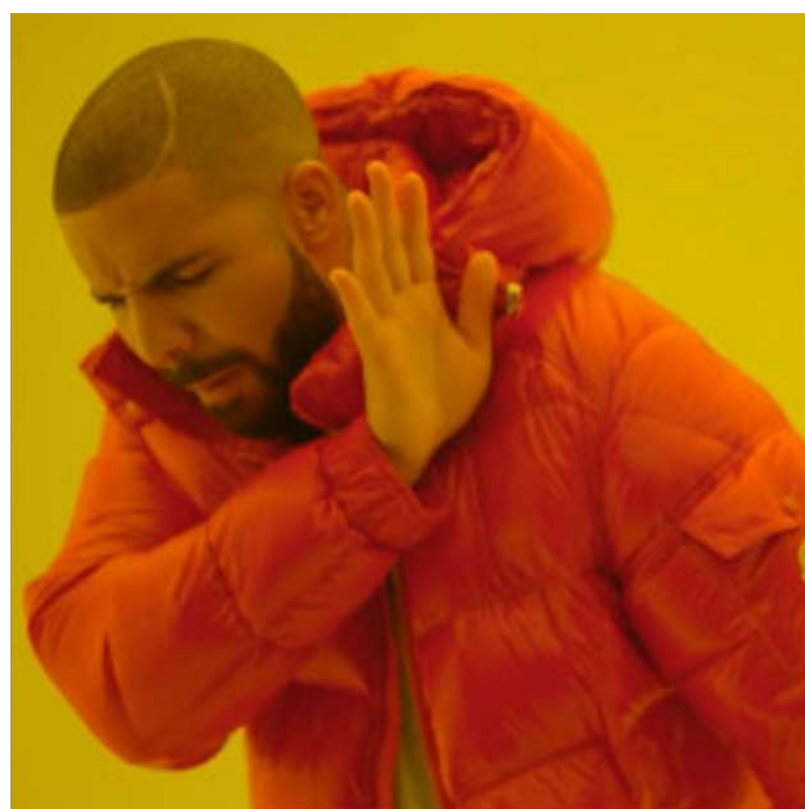
What it's like to work on the project

It's great. I have actually been learning a lot because the GM VWG is quite technical. But I think I have been able to follow, asking questions around, reading some articles and interacting on ACESCentral.

How people connect

We generally connect through GoToMeeting at specific hours. It is really great and easy to use. Anyone can join and participate, and you get to listen and learn on specific topics from these great minds.





Linear
workflow



ACES

How work gets done

Every week, we set new goals and milestones. Trying to see what our options are, comparing different solutions. It is a slow process that takes time, but it is pretty much enjoyable since you can actually experience the progress that has been made week after week.

How it feels to be part of the community

It feels great. It can be intimidating to post on ACESCentral and ask questions, but I have felt welcomed since day 1. You actually feel like you're part of something that is bigger than you and that hopefully will improve the work and quality of thousands of artists out there.



Come and Join : ACESCentral.com

Thanks to the ACES community for their help on this beautiful journey :
Thomas Mansencal, Troy Sobotka, Nick Shaw, Scott Dyer, Alex Forsythe,
Doug Walker, Steve Tobenkin...

Thanks to Christophe Verspieren and Xavier Bec for their support and
patience.

More information can be found on my color/cinematography website at
chrisbrejon.com



ACES 2.0

What groups are active?

- Implementation
 - ACES Metadata File
 - Common LUT Format
 - Input Transforms (IDT)
- Architecture
 - Gamut Mapping

Coming soon...

- Output Transforms

The screenshot shows the ACES CENTRAL website. The header includes the ACES CENTRAL logo and navigation links: NEWS, RESOURCES, COMMUNITY, and WORKING GROUPS. A search icon and a login icon are also present. A blue banner below the header reads: "Wow, ACESCentral looks different! Find out more." On the right, a dropdown menu for "WORKING GROUPS" is open, showing "WORKING GROUPS HOME", "ACTIVE GROUPS", and "ARCHIVED GROUPS". The main content area is titled "Working Groups Home" and contains a message: "If you're new to our Virtual Working Group structure, please note the following:" followed by a list of bullet points: "Working Group Meetings are conducted on GoToMeeting", "Schedules, documents, to-dos, etc. are hosted on the specific VWG workspace linked.", "Discussions are hosted on ACESCentral.com in the specific VWG Community Forum", "Discussion categories linked below.", and "All participants agree to have read and accept the VWG Participation Guidelines." Below this, the "Active Working Groups" section lists two groups: "ACES Metadata File (AMF) Implementation" and "Common LUT Format (CLF) Implementation". Each group entry includes a "Purpose" statement, the "Chair" name, the "Opened" date, and a link to the "Community Forum Discussion Area".

ACES CENTRAL

NEWS ▾ RESOURCES ▾ COMMUNITY ▾ WORKING GROUPS ▾ 🔍 ↗

Wow, ACESCentral looks different! Find out more.

WORKING GROUPS HOME

ACTIVE GROUPS

ARCHIVED GROUPS

Working Groups Home

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- Discussion categories linked below.
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Active Working Groups

[ACES Metadata File \(AMF\) Implementation](#)

Purpose: Provide tools and tests to assist in the implementation of the ACES Metadata File (AMF)

Chair: Dan Tatut

Opened: 10/31/2019

[Community Forum Discussion Area](#)

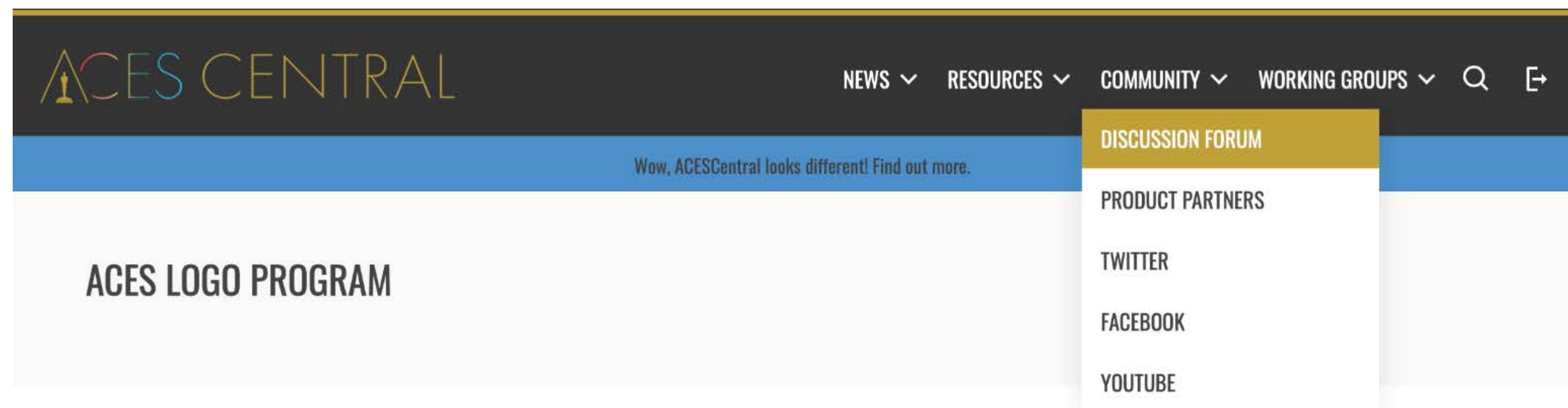
[Common LUT Format \(CLF\) Implementation](#)

Purpose: Provide tools and tests to assist in the implementation of the Common LUT Format (CLF)



ACESCentral.com

How can you get involved?



The ACES Product Partner logo - your signal that a company is serious about producing high quality implementations of ACES

The ACES Logo Program seeks to further the adoption of ACES throughout all segments of the industry. The program initially focuses on production and post-production equipment and tools ("Product Partners") because without consistent, high-quality ACES support in products, facilities and productions cannot benefit from ACES. Future enhancements to the Logo Program will cover facilities ("Service



ACESCentral.com

ACES Logo Program

- Product Partners (Hardware and Software manufacturers) – 31 members
- Service Provider Tier (for VFX, DI, Dailies and other vendors) coming soon...

Working groups

- Get involved...
- Looking for new energy, programmers, etc.

Discussion forum

- Get help
- Give help
- Participate in Working Group discussions



Discussion and Q&A!



Thanks!

See you on [ACESCentral.com](https://www.acescentral.com)