
TECHNOLOGY EMPOWERING
CREATIVITY

LUX MACHINA

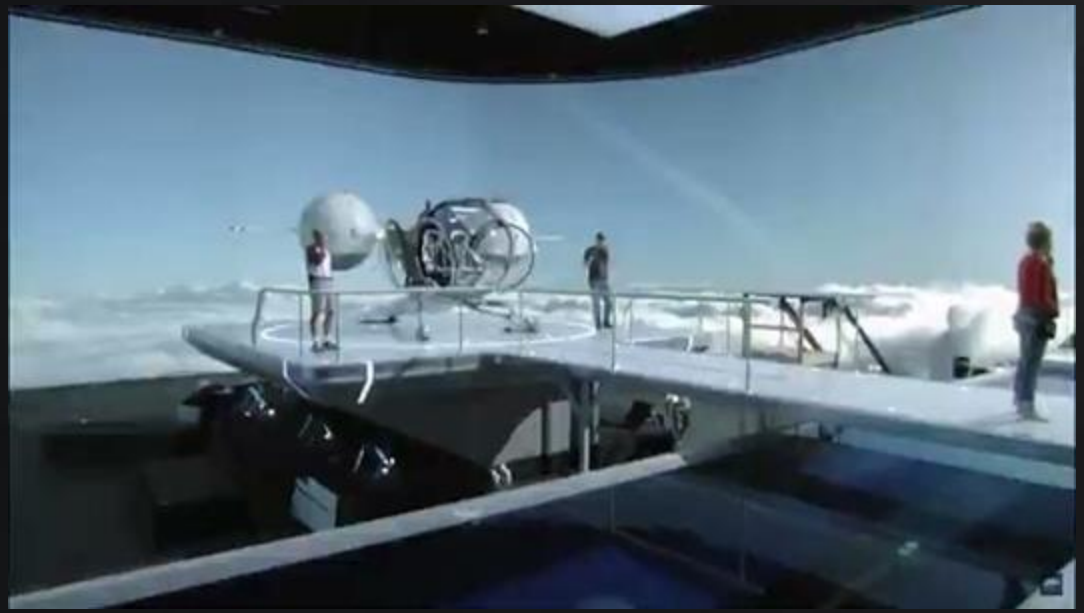
The History & Dynamic Range of ICVFX

David Gray


What is Virtual Production?

IN-CAMERA VFX

ICVFX (In-Camera Visual Effects) is a technique where visual effects are captured “in-camera” instead of in the post-production process. The main benefit of ICVFX vs. traditional green screen is the realistic lighting and reflections that the content emits onto the subject.



Translight

Glass Painting

Rear Projection

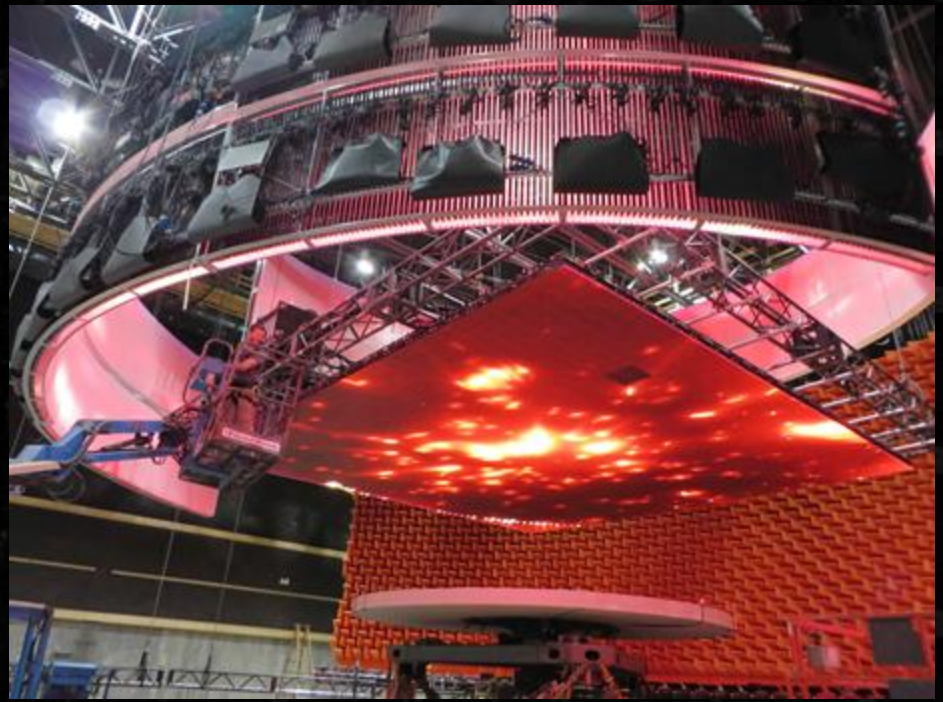
History

Car Process

Car Process

Oblivion

Interactive Lighting




Solo: A Star Wars Story

Solo: A Star Wars Story

ICVFX TECHNIQUES

Realistic ICVFX can be achieved in a variety of ways which can be split into 3 categories: 2D, 2.5D, and 3D. There are reasons for using each type depending on the shot. It is important to remember that all ICVFX solutions are / should be bespoke solutions and the amount of resources needed for each approach is completely dependent on the specifics of the project. Some of the scenarios in which you could use these approaches are:

- Car / Vehicle Process
- Distant Exteriors
- Backgrounds with Parallax
- Building Exteriors / Digital Translight
- Set Extension
- Digital Environments Integrated w/ Physical Set Pieces

2D PLAYBACK

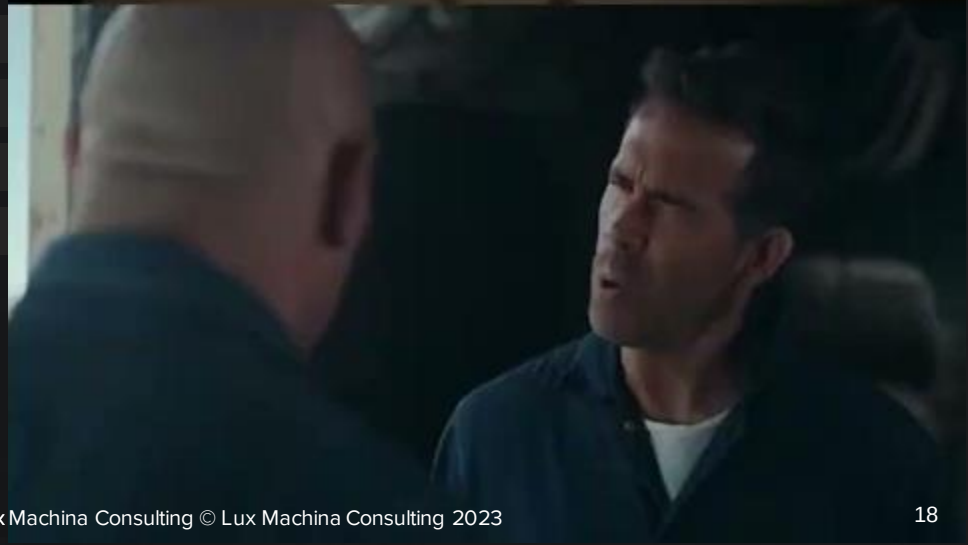
Onsite Flexibility	■□□□□□□□□□
System Complexity	■■□□□□□□□□
Pre-Production	■□□□□□□□□□
Content Creation	■■■■□□□□□□
Build Time	■■■□□□□□□□
Staffing	■■■□□□□□□□
Testing / Calibration	■■■□□□□□□□

- Least complex
- Can be captured or CG shots
- Can use projection or LED
- No parallax effect
- Limited on-site adjustments

Red Notice

The Irishman

Solo



Game Engines vs. Media Servers

Case Study: Bullet Train - 2D

2.5D REAL-TIME

Onsite Flexibility	■■■■□□□□□□
System Complexity	■■■■■■□□□□
Pre-Production	■■■■□□□□□□
Content Creation	■■■■■■□□□□
Build Time	■■■■□□□□□□
Staffing	■■■■■□□□□□
Testing / Calibration	■■■■□□□□□□

- Parallax effect achievable, allowing for camera movement in shots
- 2D assets are used to create 3D effect, requires some VAD artist work
- Is a combo of layered 2D and 3D assets, or only layered 2D assets
- Can use same media servers that are used for 2D playback
- Requires camera tracking system

Shazam 2

3D REAL-TIME

Onsite Flexibility	■■■■■■■■□□
System Complexity	■■■■■■■■■□
Pre-Production	■■■■■■■■□□
Content Creation	■■■■■■■■□□
Build Time	■■■■■■■■■□
Staffing	■■■■■■■□□□
Testing / Calibration	■■■■■■□□□□

- Fully flexible real-time environments
- Virtual Art Department and more pre-production planning required
- Most resource heavy solution
- Requires game-engine real-time playback
- Requires camera tracking system

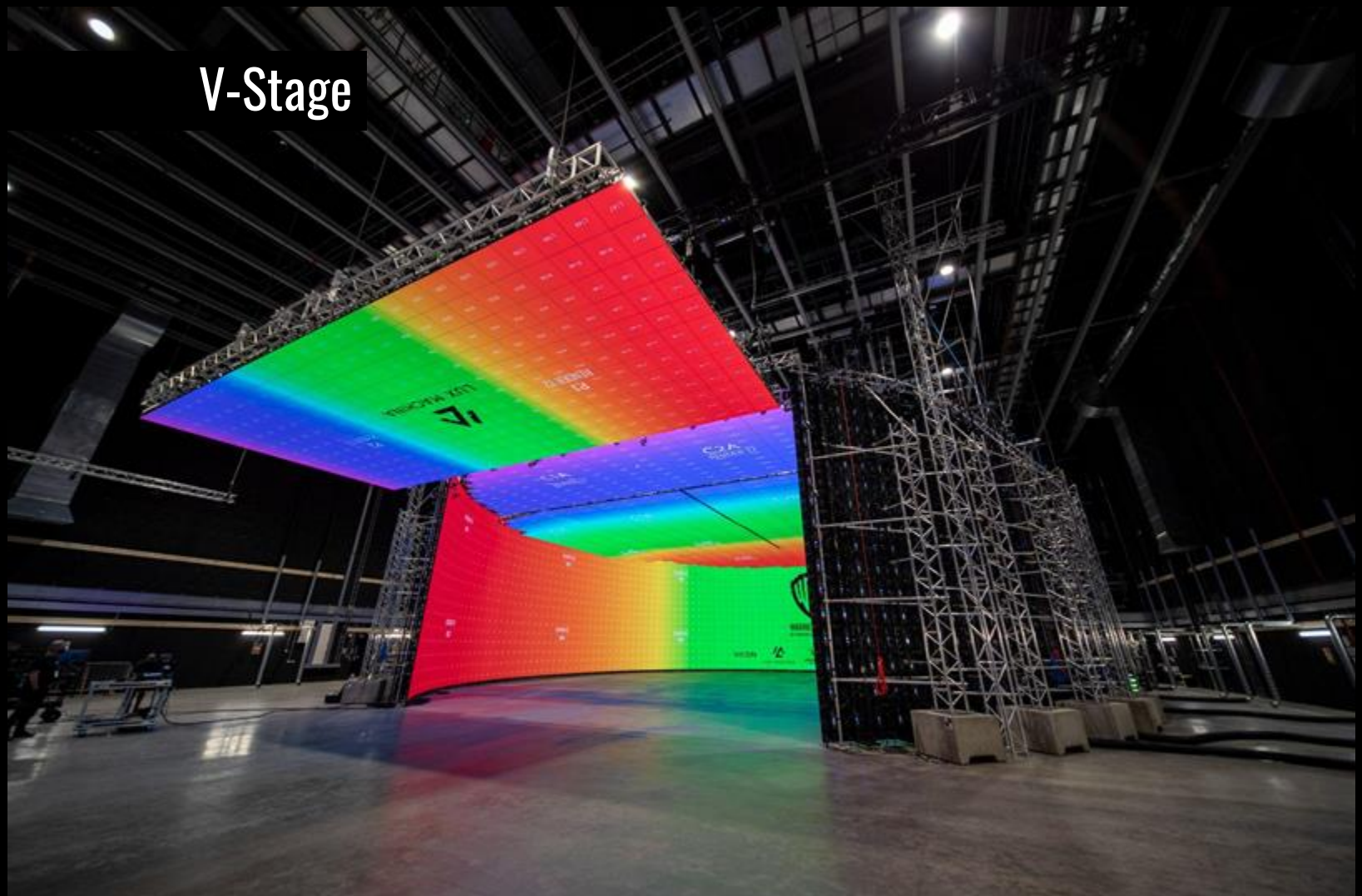
The Mandalorian

House of the Dragon


The Mandalorian

The Mandalorian

V-Stage

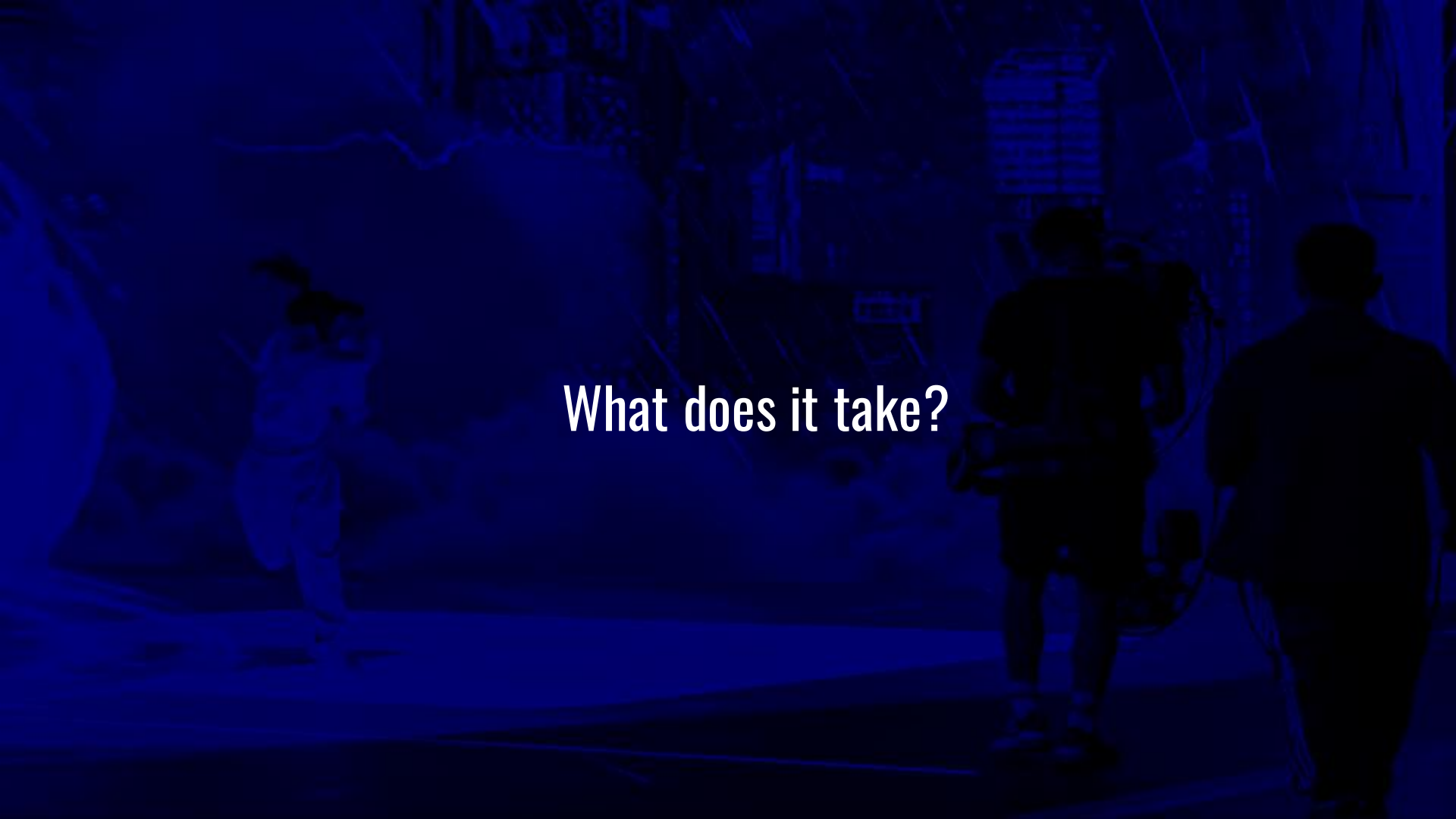

V-Stage


House of the Dragon

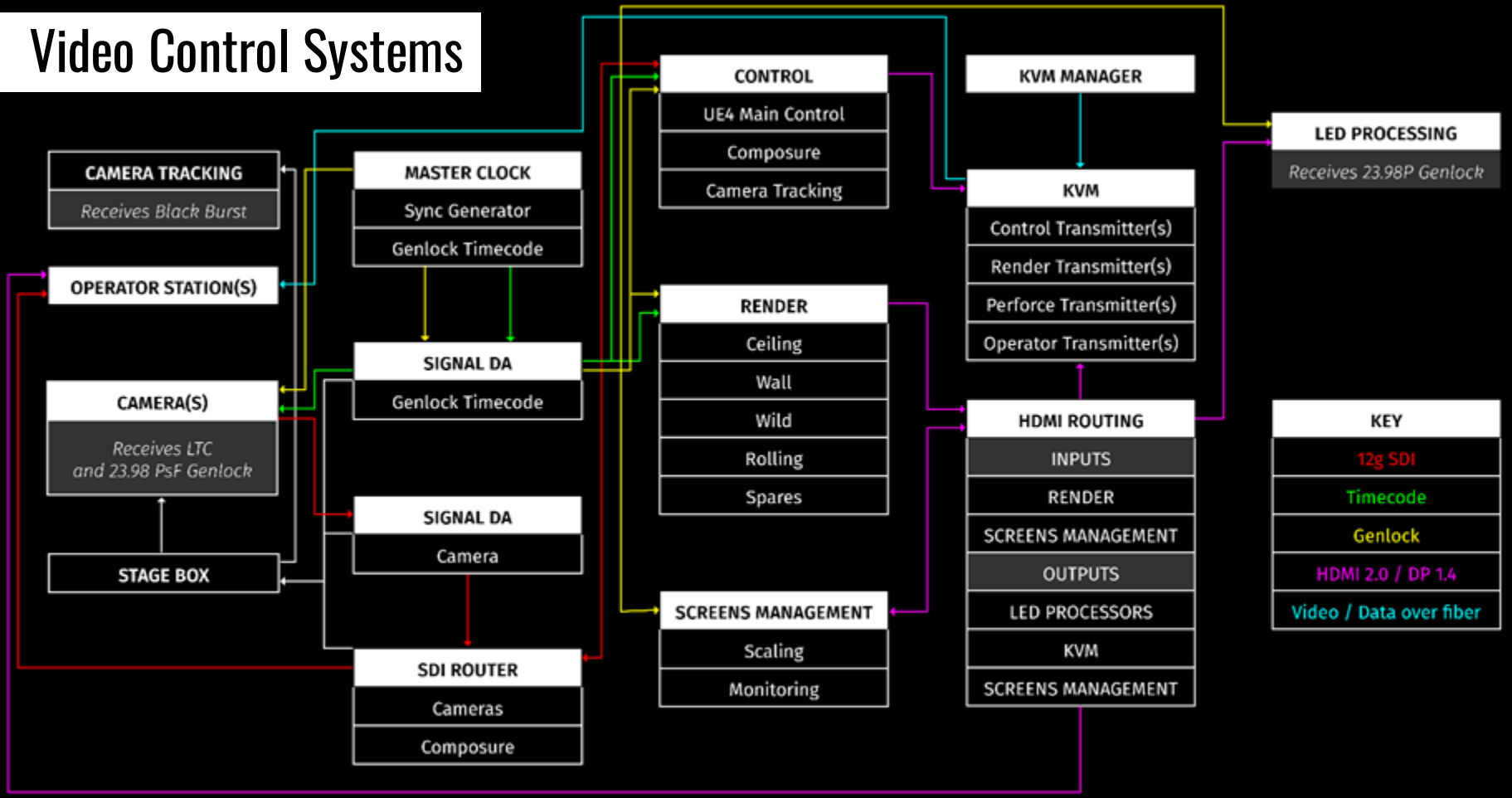

HBO

Worlds 2020

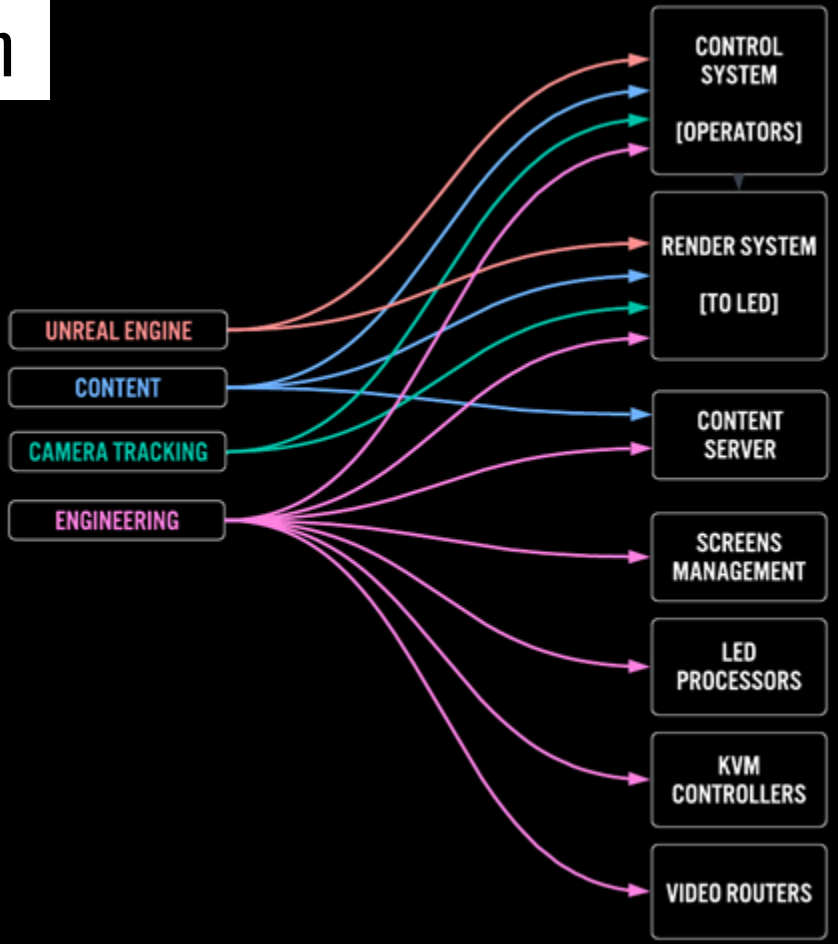
Worlds 2020


What does it take?

Video Control Systems

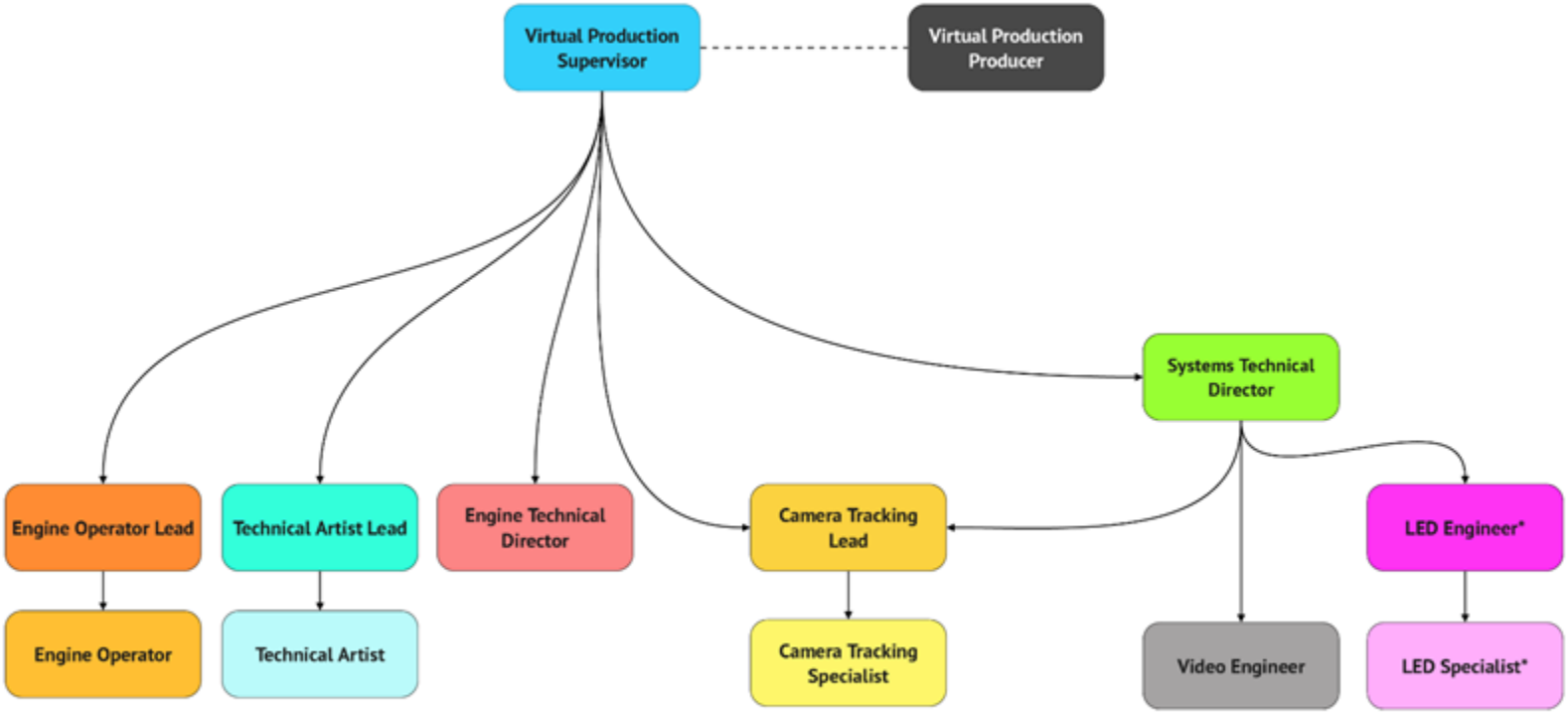


Network Diagram



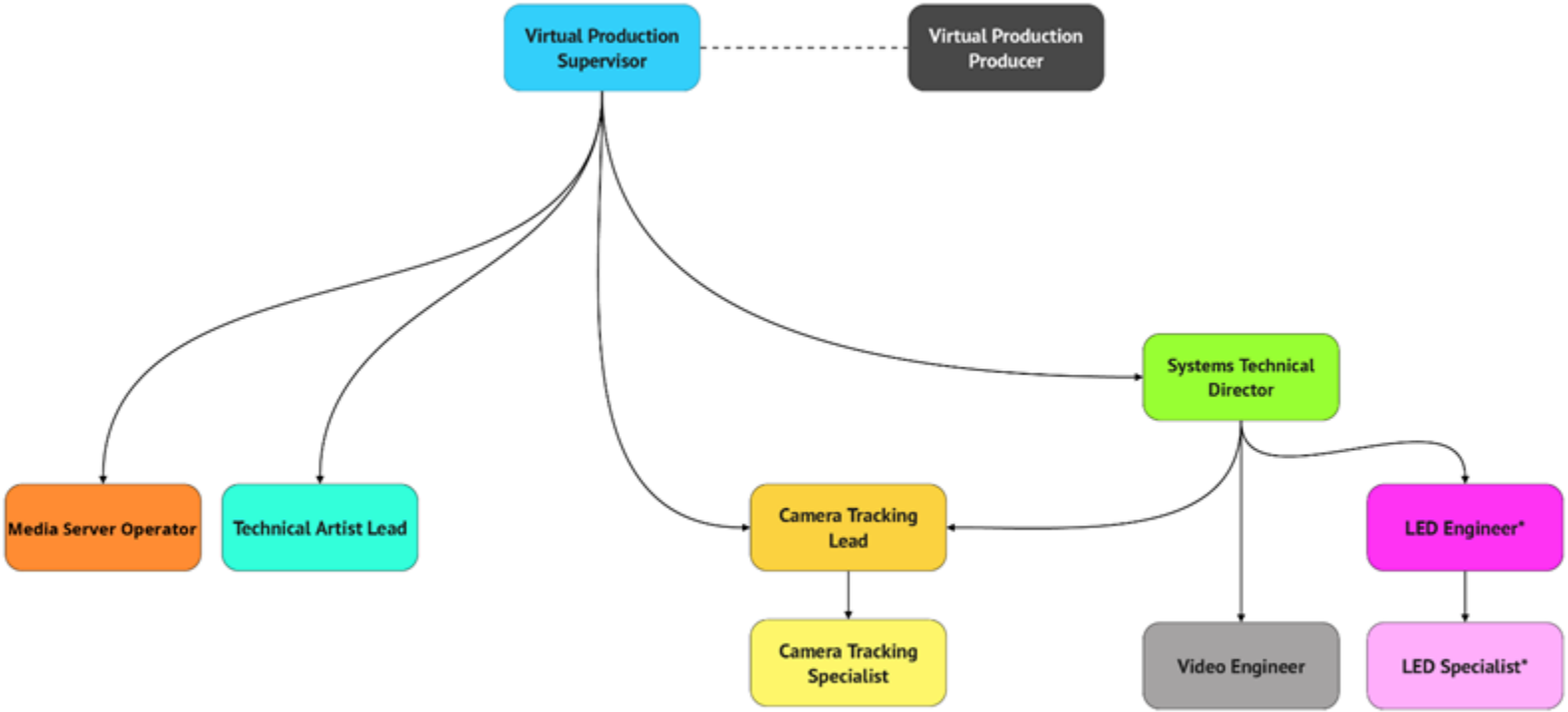
LUX MACHINA

STAFFING SUMMARY: ORG CHART



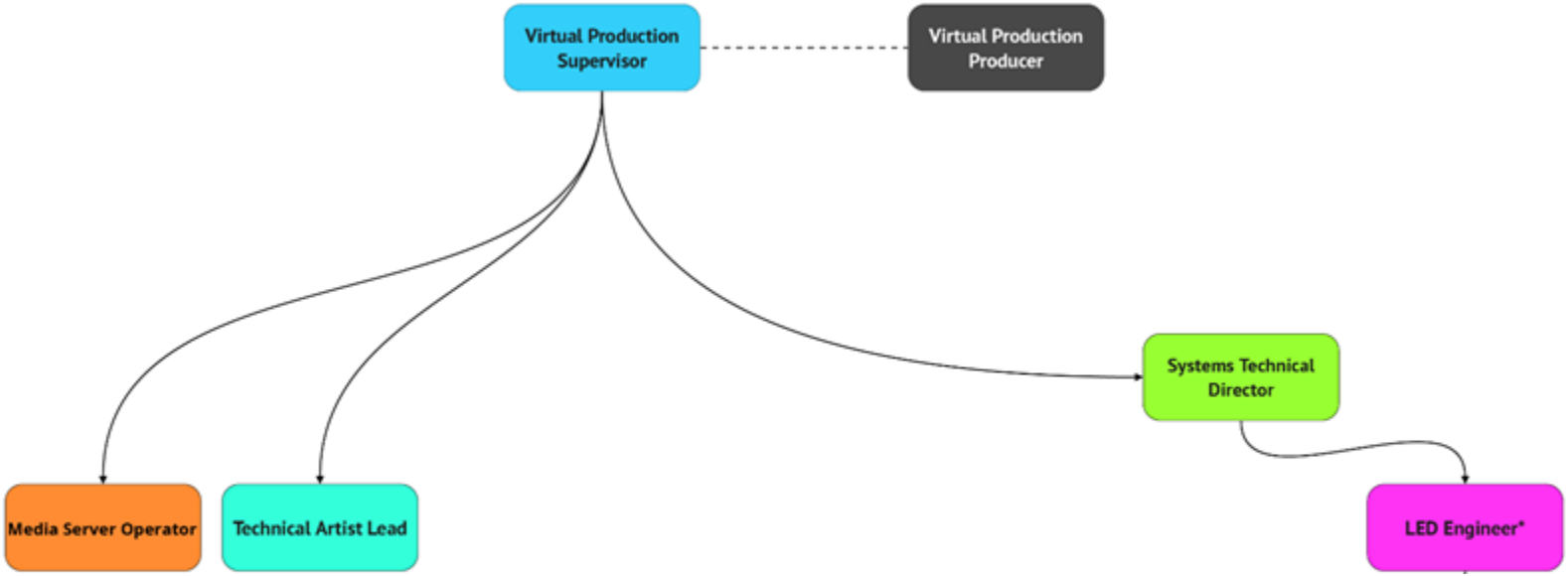
LUX MACHINA

STAFFING SUMMARY: ORG CHART



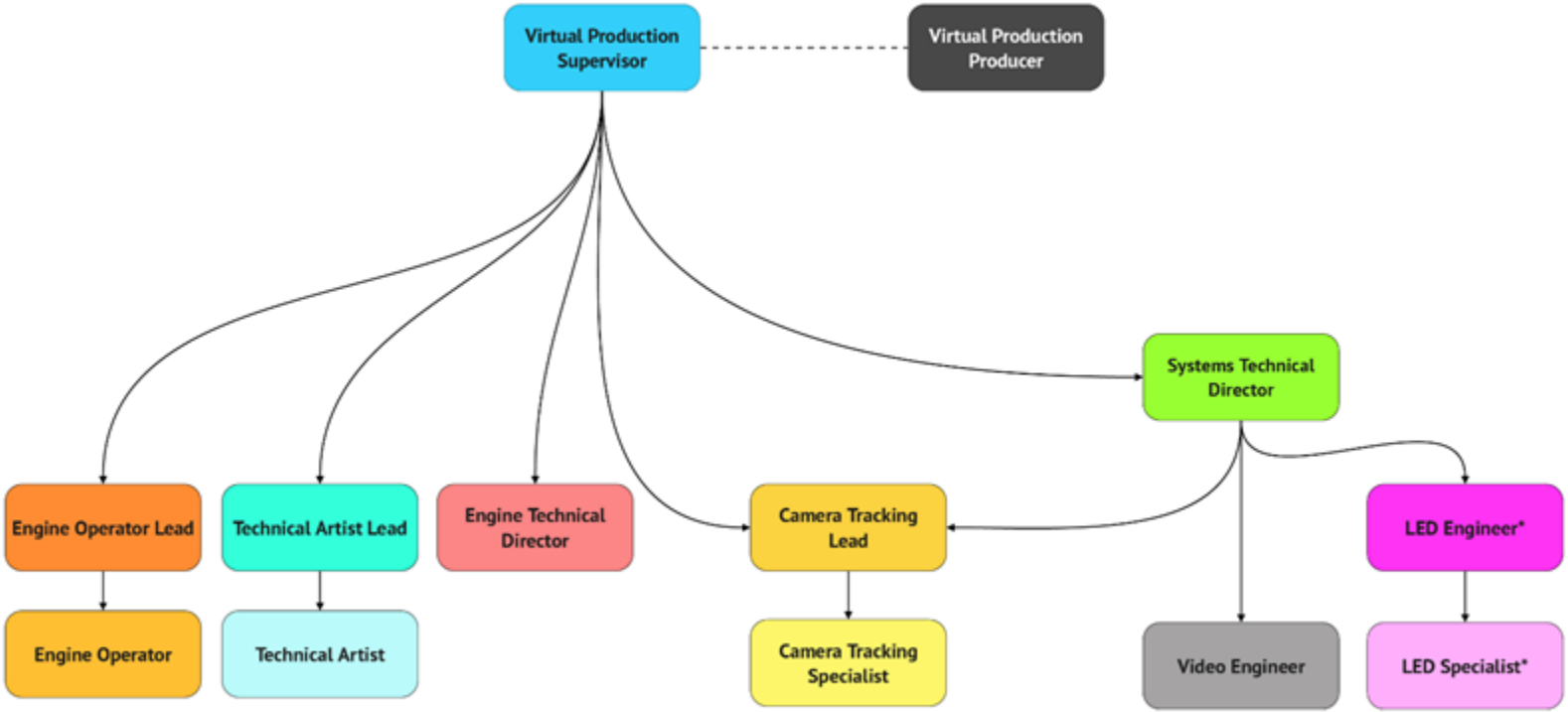
LUX MACHINA

STAFFING SUMMARY: ORG CHART



LUX MACHINA

STAFFING SUMMARY: ORG CHART




Q & A