



How do you  
deliver a  
feature on the  
biggest stage  
in the world?

11th June 2024



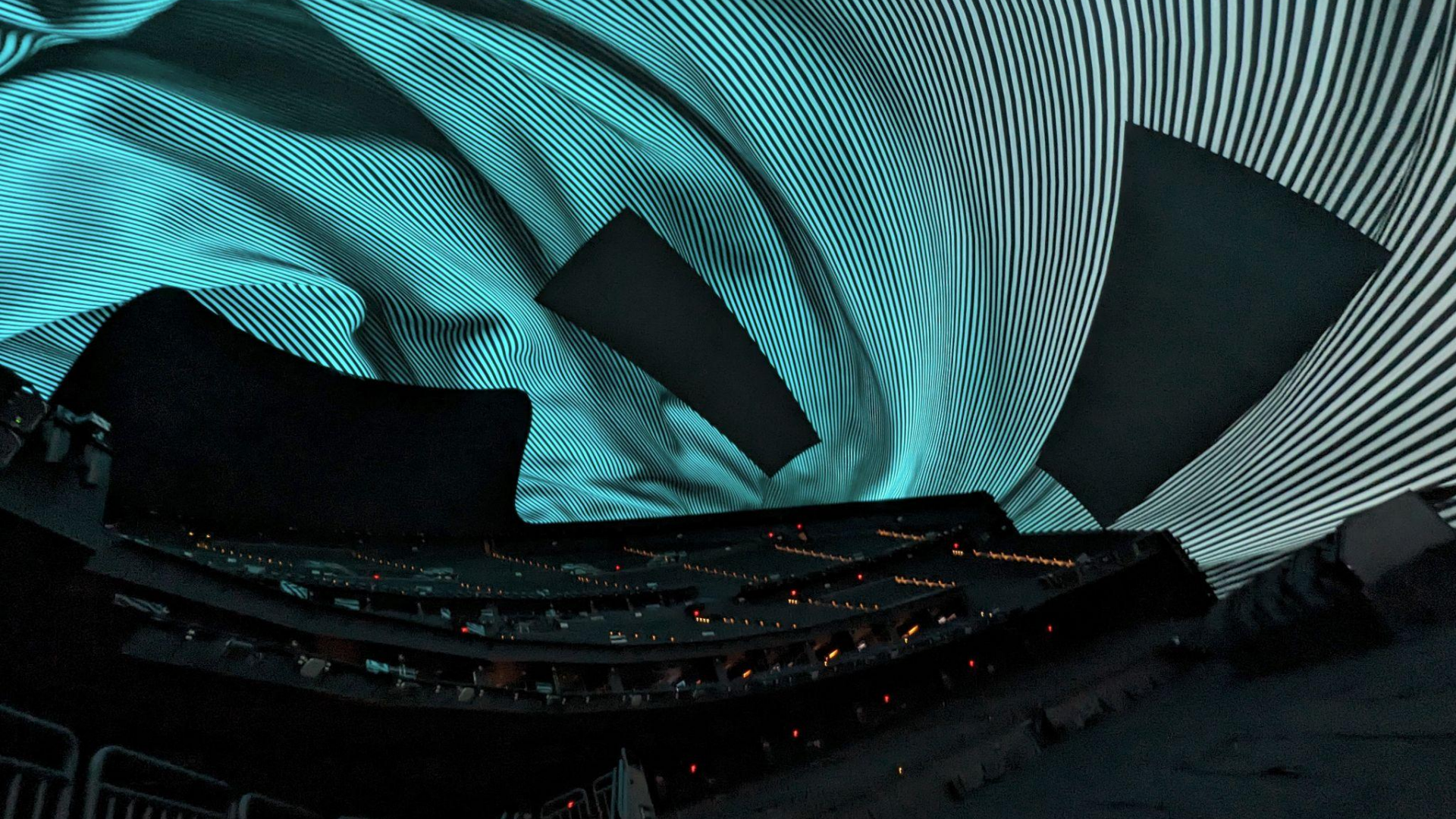


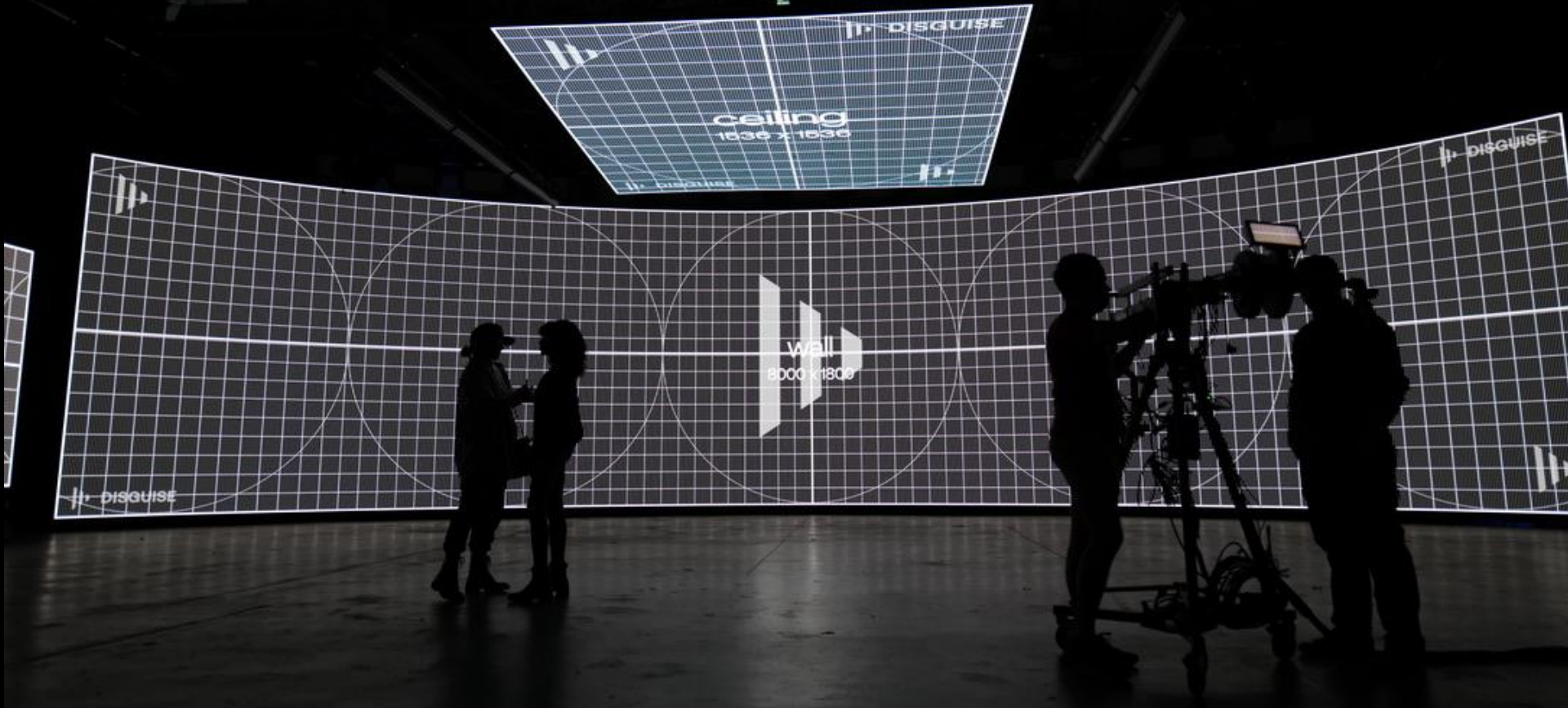
# Sphere

- Immersive concert venue.
- LED pucks on surface form external screen.
- Interior auditorium with capacity of 20,000.
- Hemispherical screen on the interior.
- 64,000 panels form world's highest-resolution LED screen
- 112 metres high.











# Me

- Hello I'm Josh!
- Lead software engineer at Disguise.
- I work across rendering, video streaming and performance.
- Irrational thrill seeker.
- No LED panels to speak of.





3

E4

E5

E6

E7

E8

D3

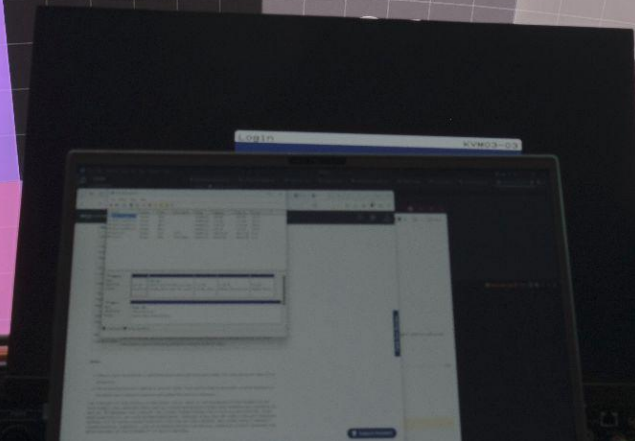
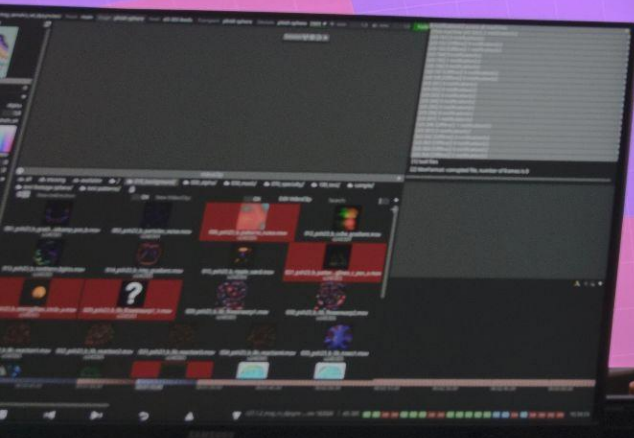
D4

D5

D6

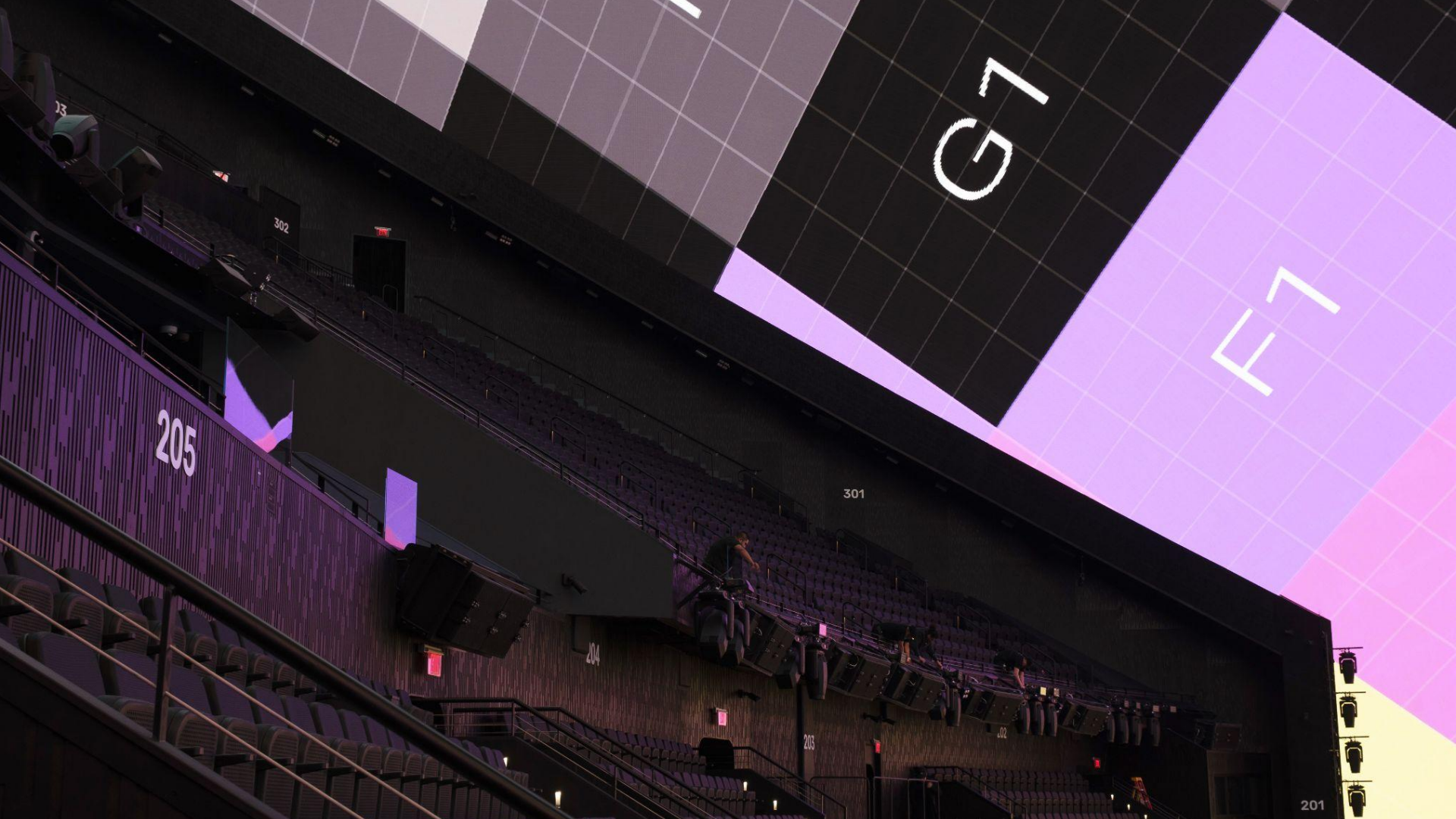
D7

D8



7





G7

E7

205

302

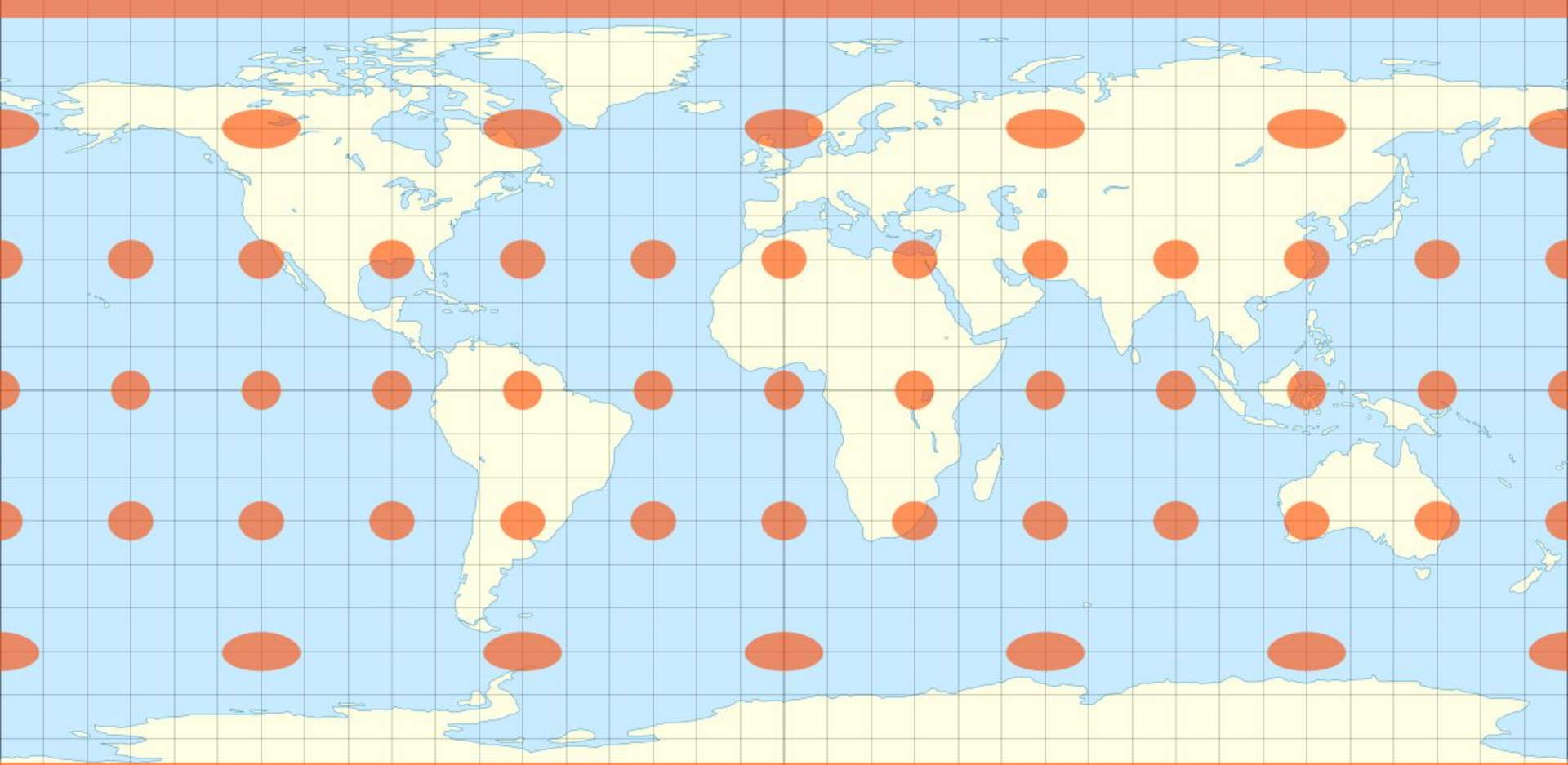
301

204

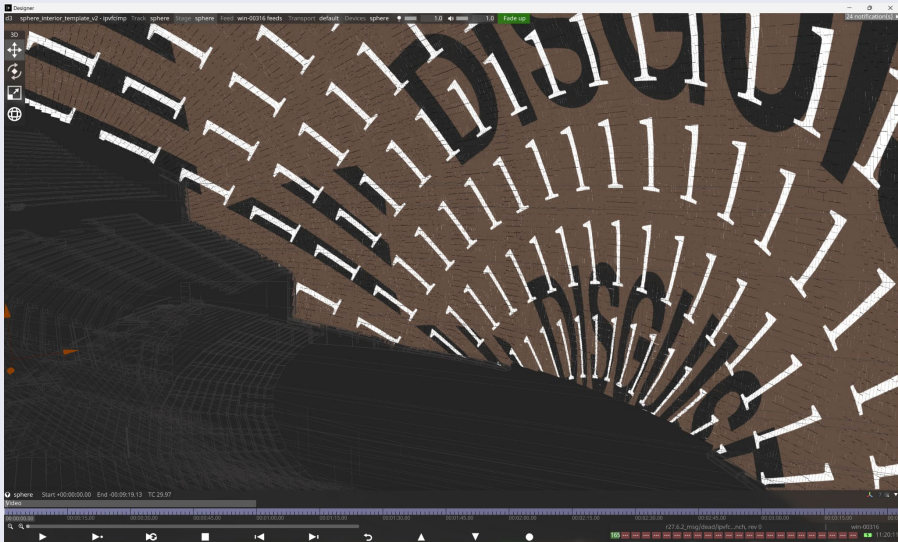
203

202

201

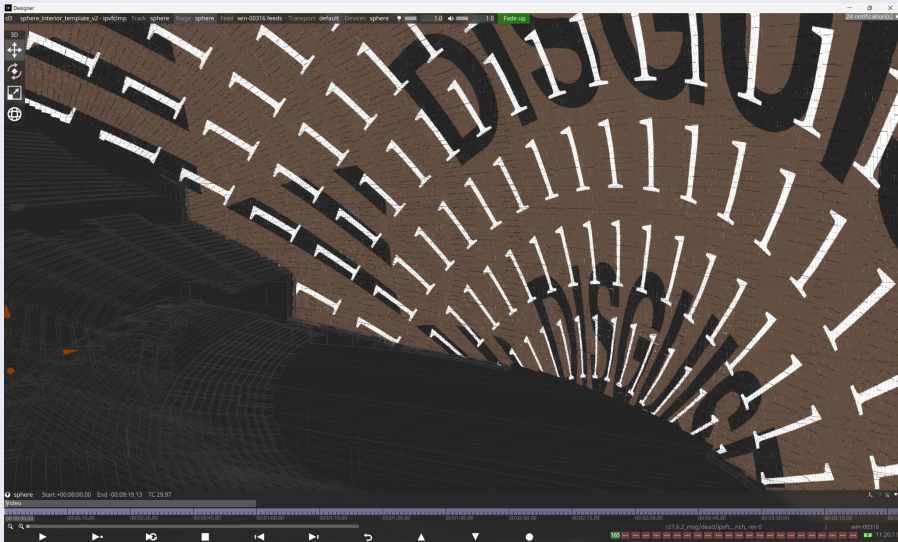


# Single Large Canvas (SLC)

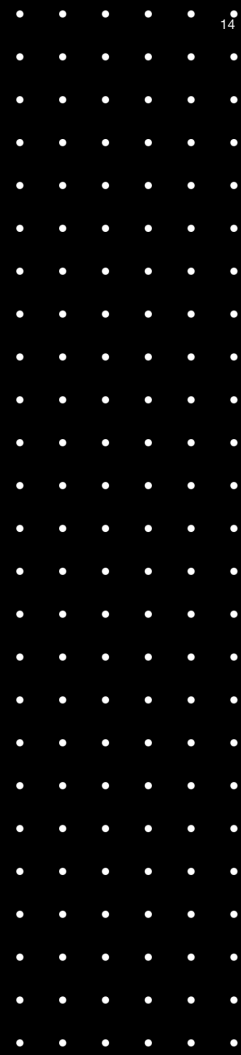


- Designed to allow drawing to extremely large canvases (>16k x 16k).
- Extremely far-reaching changes to core infrastructure.
- Launched behind an option switch for stability reasons.
- Crucial feature: ability to reverse-project individual output regions to determine which area of input was required.

# Single Large Canvas (SLC)



- Designed to allow drawing to extremely large canvases (>16k x 16k).
- Extremely far-reaching changes to core infrastructure.
- Launched behind an option switch for stability reasons.
- Crucial feature: ability to reverse-project individual output regions to determine which area of input was required.



16k\_spherical

Filtering: Bilinear

Resolution: 16000, 16000

Offset: 0, 0, 0

Rotation: 180, 0, -115

Horizontal Arc: 180

Vertical Arc: 180

Projection Mode: Inwards

Content mode: 2D

Frame of reference: None

Regions

Generated Video Region Set: 16k\_spherical

Create video region set

Create and export video region set

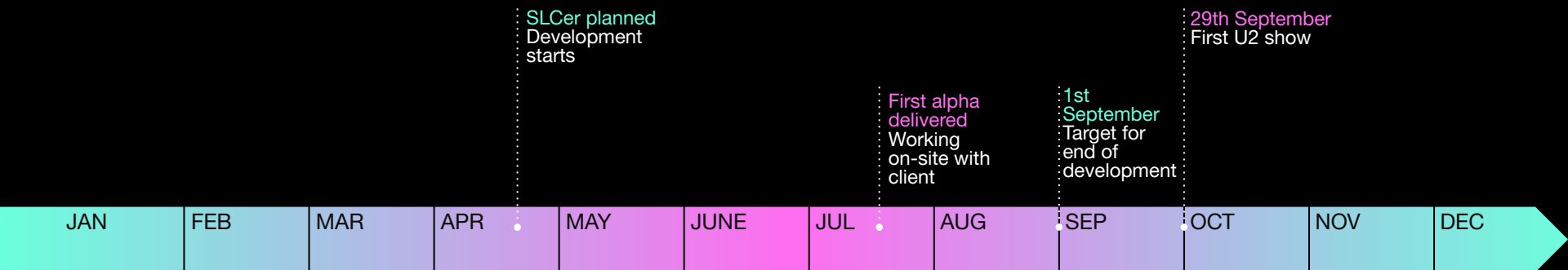
Hierarchy

Find/Replace Usages



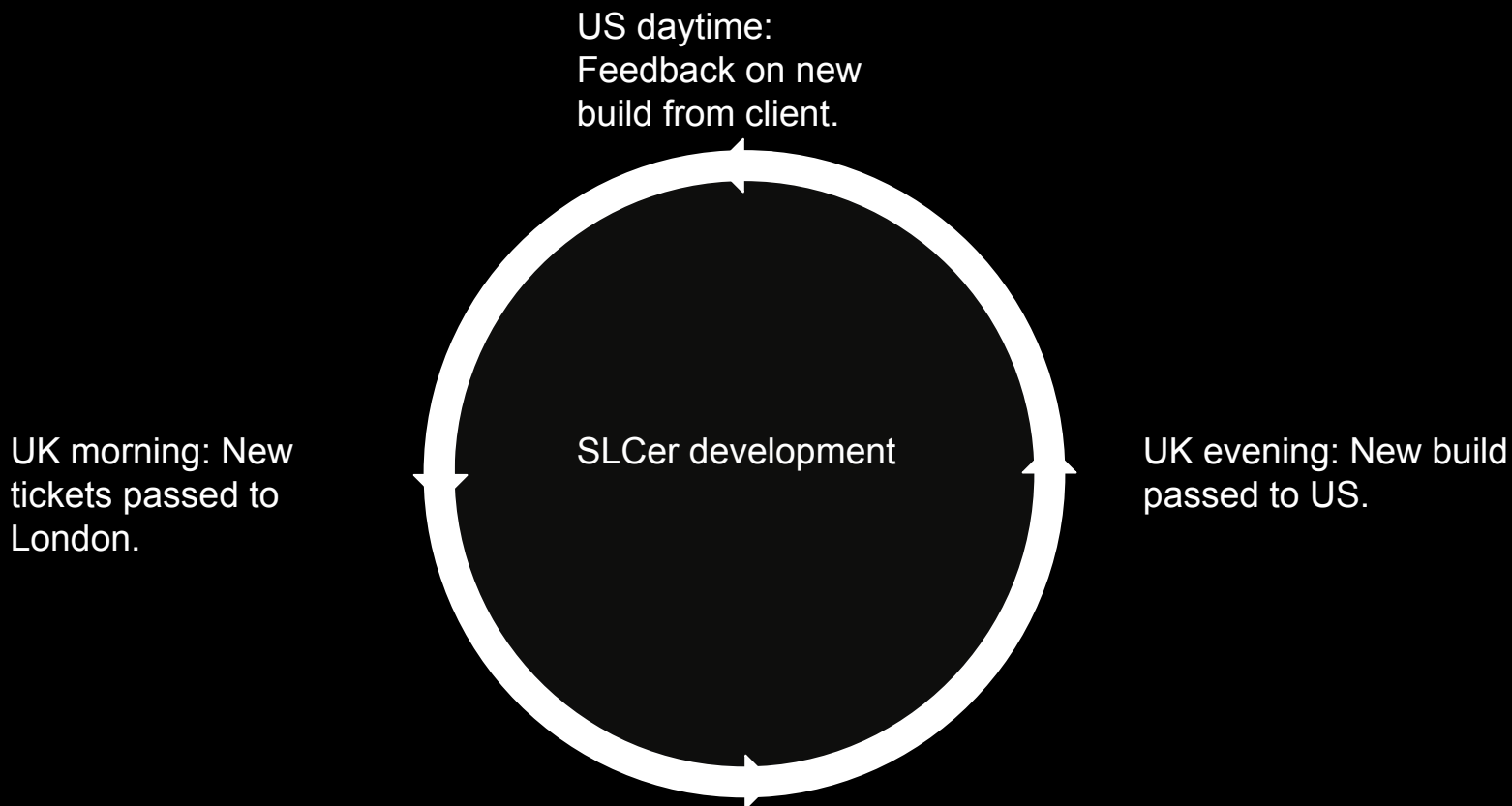
Enabled	Name	Region (pos)	Regions	Region (size)	Target machines	
<input checked="" type="checkbox"/>	0	Region (pos)	0, 0	Region (size)	1, 1	Target machines d3-305 d3-306
<input checked="" type="checkbox"/>	1	Region (pos)	0.83069, 0.37837	Region (size)	0.096, 0.27375	Target machines d3-101 d3-206

# Development timeline





# Daily development cycle



## Load configuration

d3 SLC config

mrset1 target (backplate)\_videoregionset.json

AME render preset

example\_AME\_base\_preset.epr

Director Proxy level

1/8

d3 project name

slcer-demo

Region Selection

 0 1 2 Select/Deselect All

Select encoder machines

Import machine list

Available encode machines

 localhost

127.0.0.1

 Select/Deselect All

Machine Status

 localhost : Task 1 / 2 - Region 2 - 202.43GB Free

## Slice content

Use remote shared folder

D:\slcer\

Available source files

Filter files

filter

- 230\_LAVA\_LL180\230\_Lava\_Blue\_LL180\_v006
- 420\_North\_v009
- 420\_North\_v009.seq
- 420\_North\_v009\_[0000-9999].mov
- 420\_North\_v010.seq
- dance10100x3800-notchlc30.mov
- spherecount-short.seq
- spherecount12k
- spherecount12k.[0001-0100].mov
- spherecount12k.mov
- spherecount8k.[0001-0100].mov

 Select/Deselect All

Backup Folder Path

D:\slcer\sliced

 Auto Run Sync

Current Tasks

localhost

420\_North\_v009 region 2 420\_North\_v009 region 1

SLCer

File Edit View Window Help

### Load configuration

d3 SLC config

AME render preset

Director Proxy level

d3 project name

Region Selection

0

1

2

Select/Deselect All

Select encoder machines

Import machine list

Available encode machines

Select/Deselect All

Machine Status

localhost : Task 1 / 2 - Region 2 - 202.43GB Free

### Slice content

Use remote shared folder

Available source files

Filter files

- 230\_LAVA\_LL180\230\_Lava\_Blue\_LL180\_v006
- 420\_North\_v009
- 420\_North\_v009.seq
- 420\_North\_v009\_[0000-9999].mov
- 420\_North\_v010.seq
- dance10100x3800-notchlc30.mov
- spherecount-short.seq
- spherecount12k
- spherecount12k.[0001-0100].mov
- spherecount12k.mov
- spherecount8k.[0001-0100].mov

Select/Deselect All

Backup Folder Path

Auto Run Sync

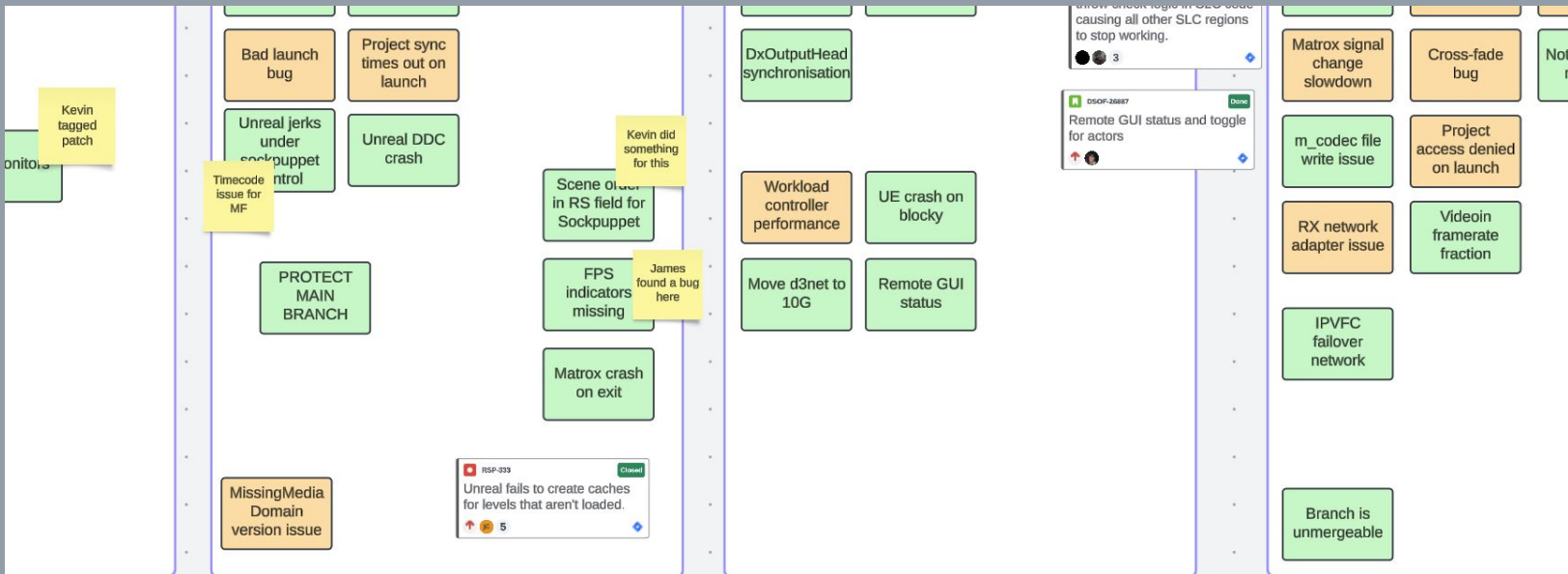
Current Tasks

localhost

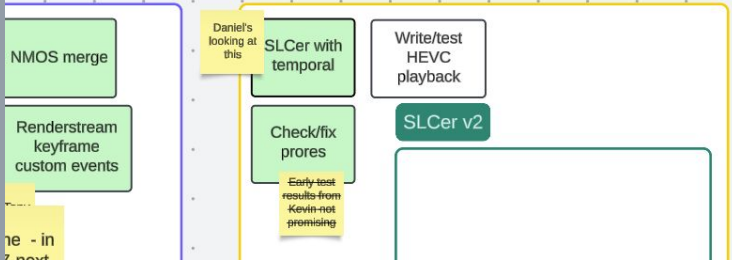
- 420\_North\_v009 region 2
- 420\_North\_v009 region 1



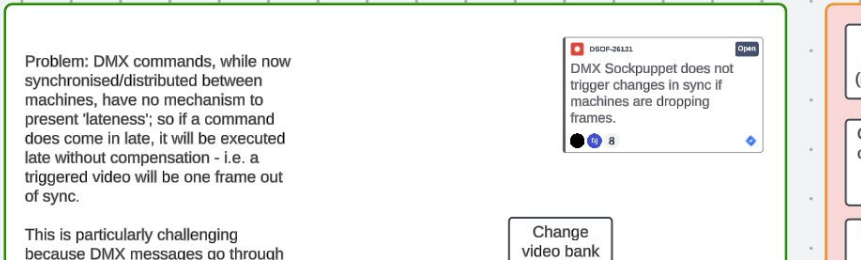




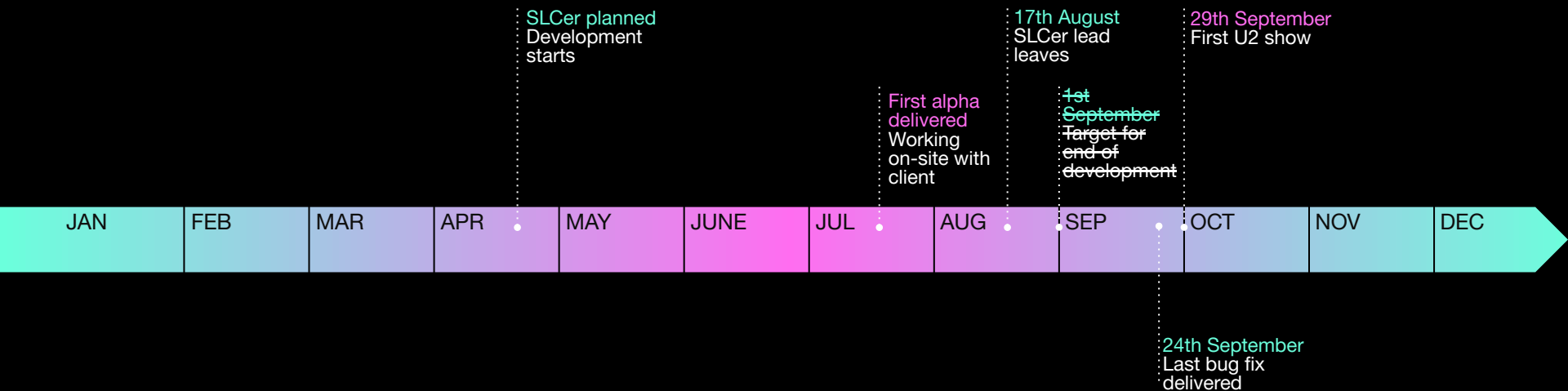
Dead - April/May

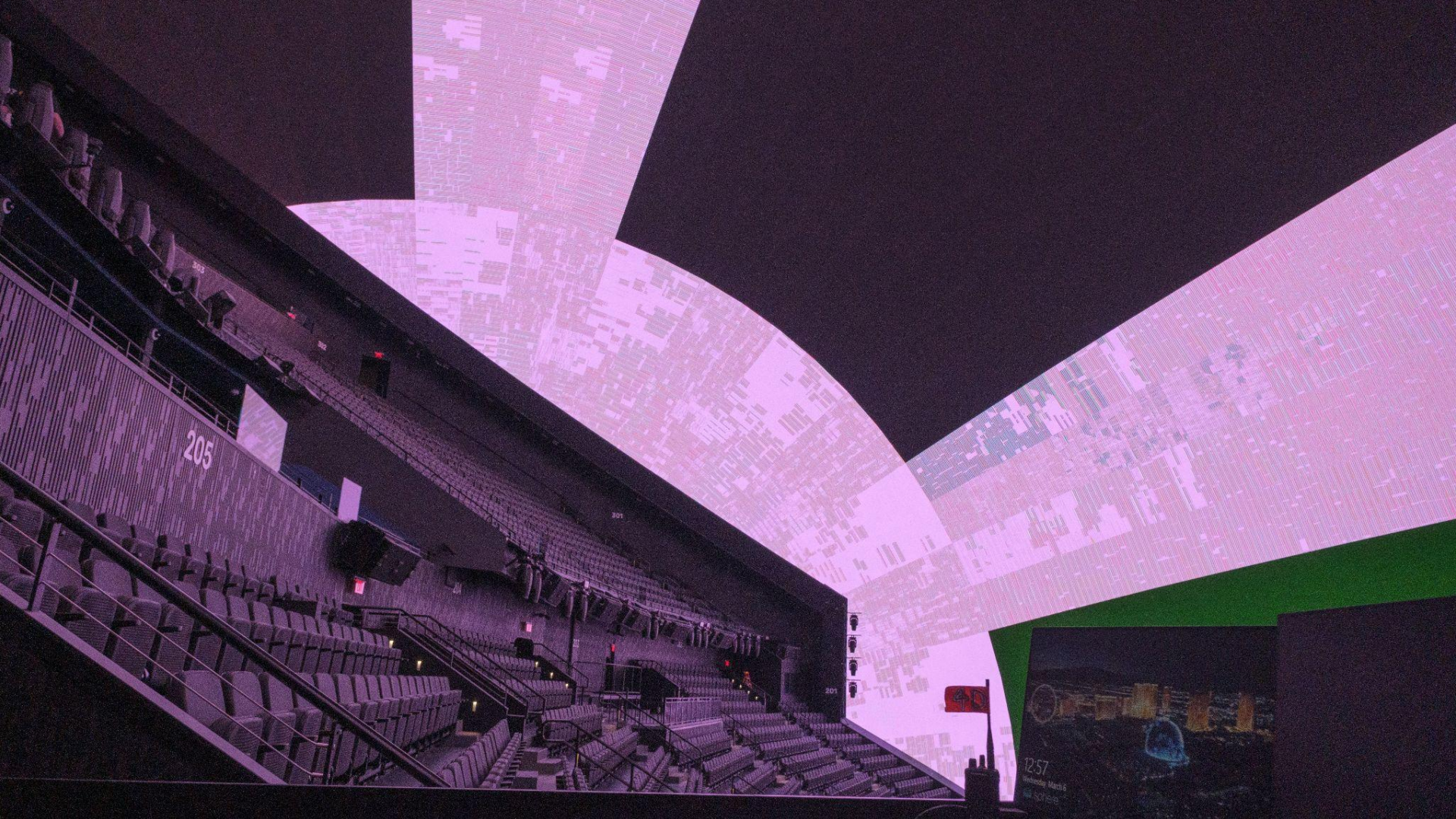


DMX sync frame jump



# Development timeline





205

201

201

12:57  
Wednesday, March 6  
iStock

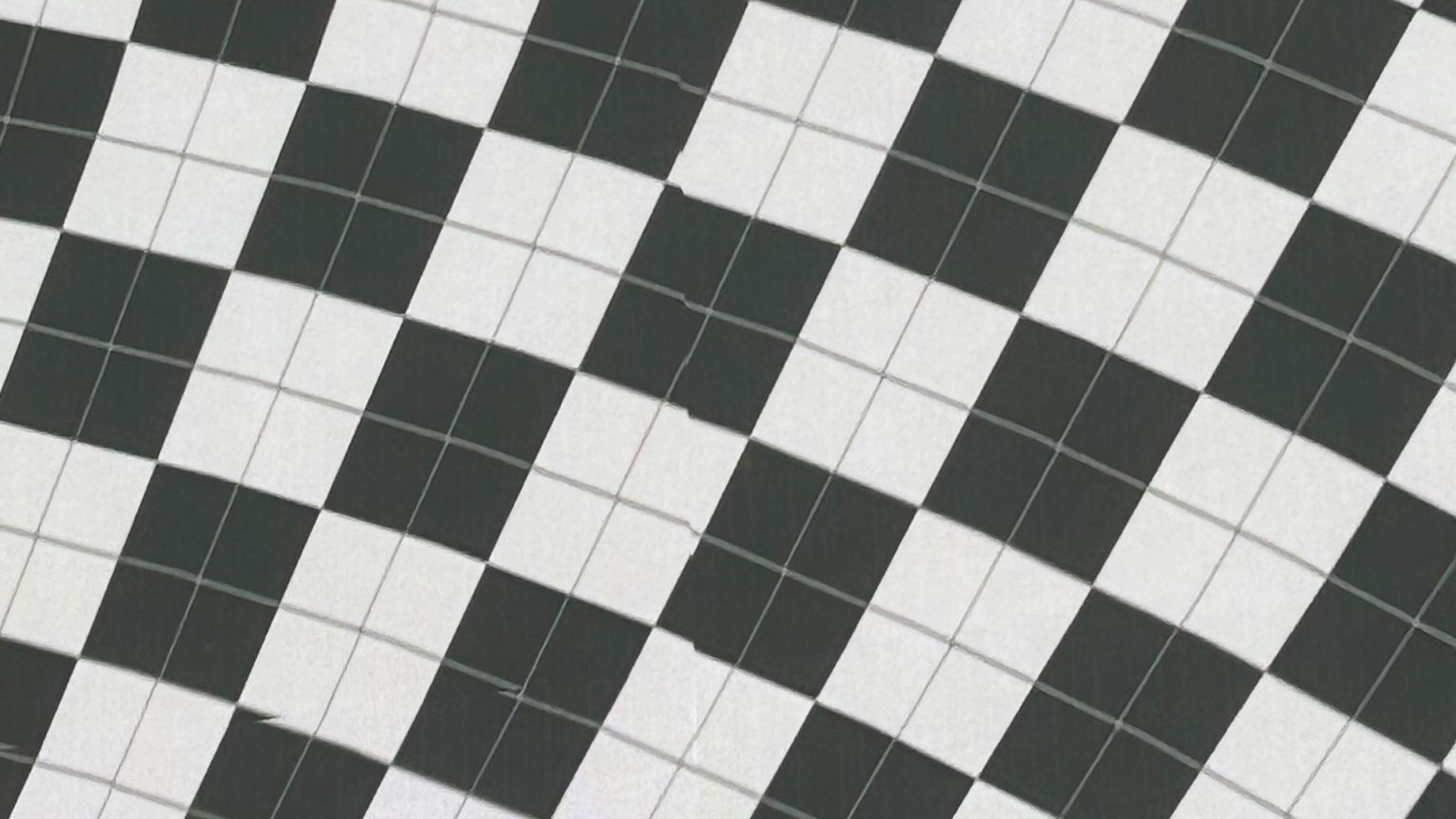


Credit: Phillip Lebowitz



Credit: Phillip Lebowitz







Add comments from your team under the team category for CONTINUE / STOP / START

Constant pressure and changing of priorities under "gigabit" discussions

**No handovers**

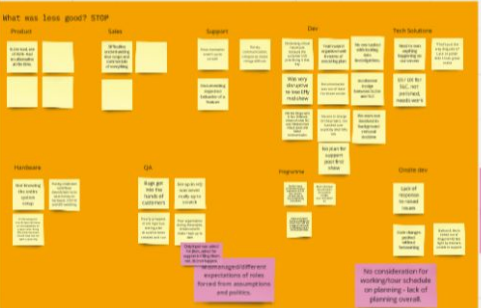
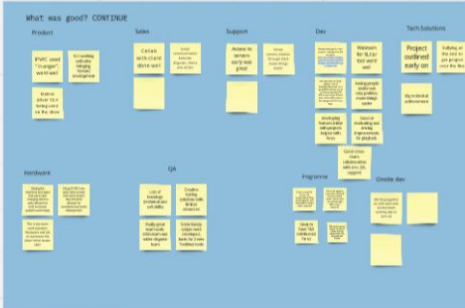
Experience and knowledge shared and misunderstood or not shared

After week 1, no checks or follow up or project support to complete until their team was finished

lack of support and awareness of what was going on with respect to "gigabit"

no checks or updates or even if get updates it was hard to know what was the actual project management

Action points from [xxx] - (placeholder)



Guidelines for the retrospective session

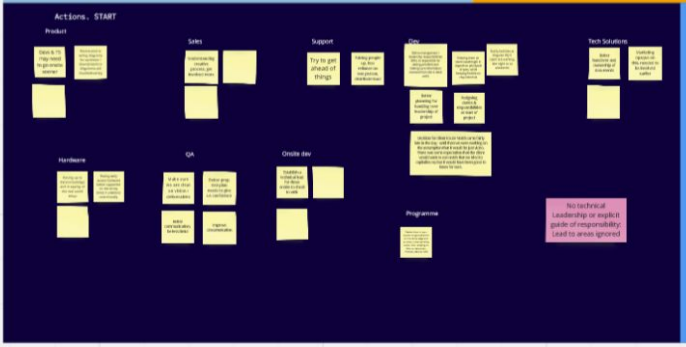
- Participating teams should have discussed among themselves first as preparation for the session, and then have 1 representative presenting the points to the group
- Try to keep the points succinct
- For all Continue, Stop and Start points, discussion should focus on actions taken and then the outcome, rather than just mentioning an event that happened.
- To make sure the discussion on things that did not go well is constructive, the discussion should first talk about the situation, then the consequences to the team, and suggest what can happen to alleviate/mitigate the negative effect which should first focus on the actions that can be taken by the team, and then what other teams can do.
- Action points should be listed in the bottom right panel, especially when cross-team efforts are needed.

Definitions

**CONTINUE**  
Things that worked well and should be continued. Can be some good practices that the team has carried out.

**STOP**  
Issues that caused a hindrance or problem, and should not be repeated in the future. Often issues can come with some learnings to be taken away.

**START**  
Actions that the team wishes to start doing which will improve things for themselves and the wider team



Action points - (placeholder)

No technical Leadership or explicit goals of responsibility. Lead to areas ignored

No access to the building, design knowing & planning to work late

Costs changes were being pushed into the build without re-evaluating time on site

Issues raised before on-site still were ignored/was working as intended

When we were able to work together on a call things greatly improved, they did this though?

Scheduling time to overlap working

No operational support during a critical time point, temporary change of priorities, no working plans

Project being cancelled and replaced in a completely different way, no operational "back up culture" to ward the back the line



# Thank you!

