Stylize
Synthetic Aperture
Text
Time
8 bpc
(20%)
0:00:00:00
Full
clouds_in_loopframe500
Render Queue
particle_different_direction
important_movie_v23
clouds_out
Current Render
Stop
Pause
Render
Render
#
Comp Name
Status
Started
Render Time
1 particle_different_direction
Queued
Render Settings: Best Settings
Output Module: swareanimasjon_ohne_tohn
2 important_movie_v23
Log: Errors Only
Output To: important_movie_v23.mov
3 clouds_in_loopframe500
4 clouds_out
clouds_out.mov
Goodbye
Render Button
Realtime workflows

Ad de Haan
Dave van Roon

Live Legends
[The Unit Showcontrol & LiveLAB]

Moeder, ik wil bij de revue
The Bodyguard
Das Wunder von Bern
El Guardaespaldas
Nick & Simon

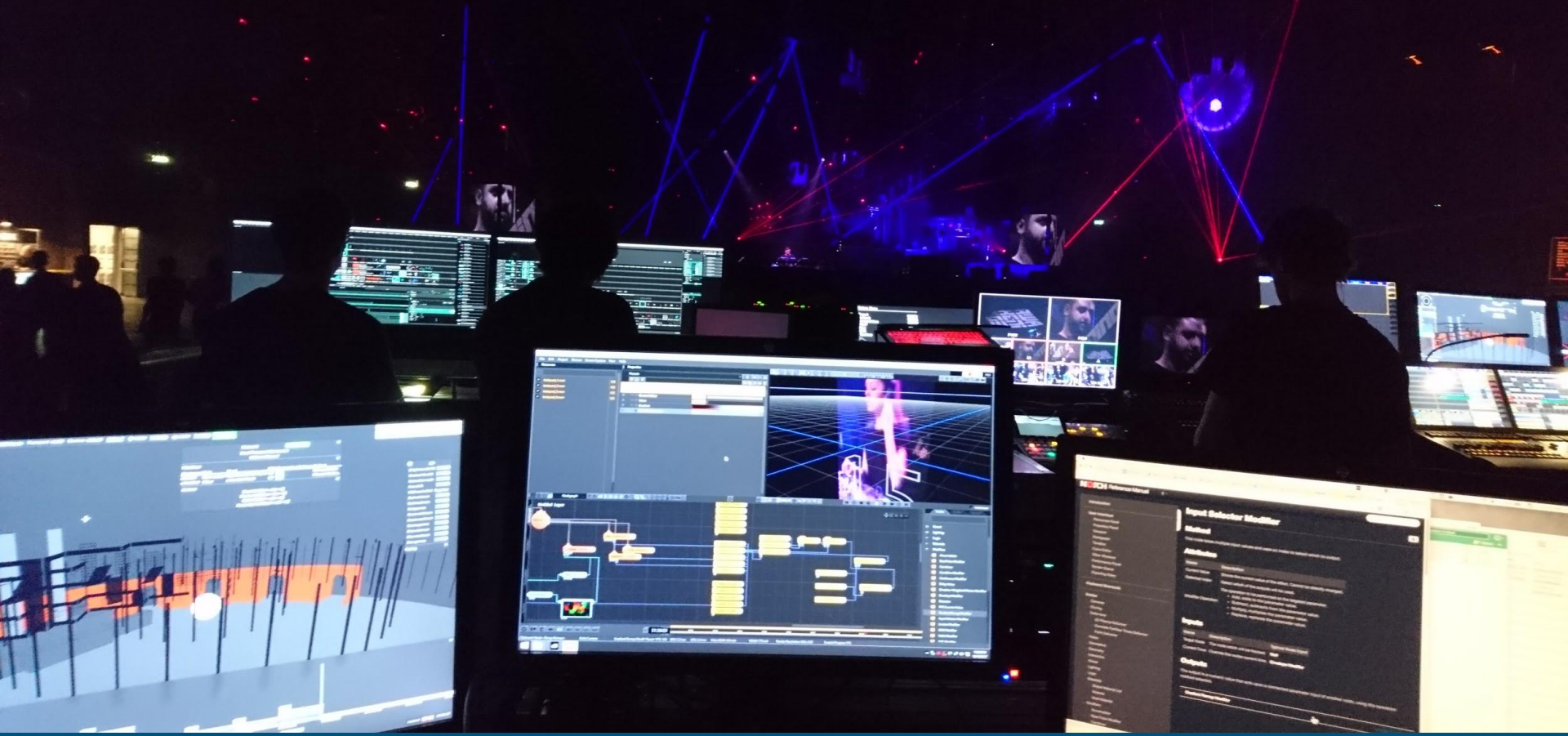
The Bodyguard
Madrid
WEIGHT:
COLLI:
LIVE LEGENDS
Ad de Haan
Beeldregie & realisatie
Ad zorgt voor de creatieve invulling,
vormgeving en beweging van het
Doin' My Thing
Crew
vpt
Academy
LIVE
LEGENDS

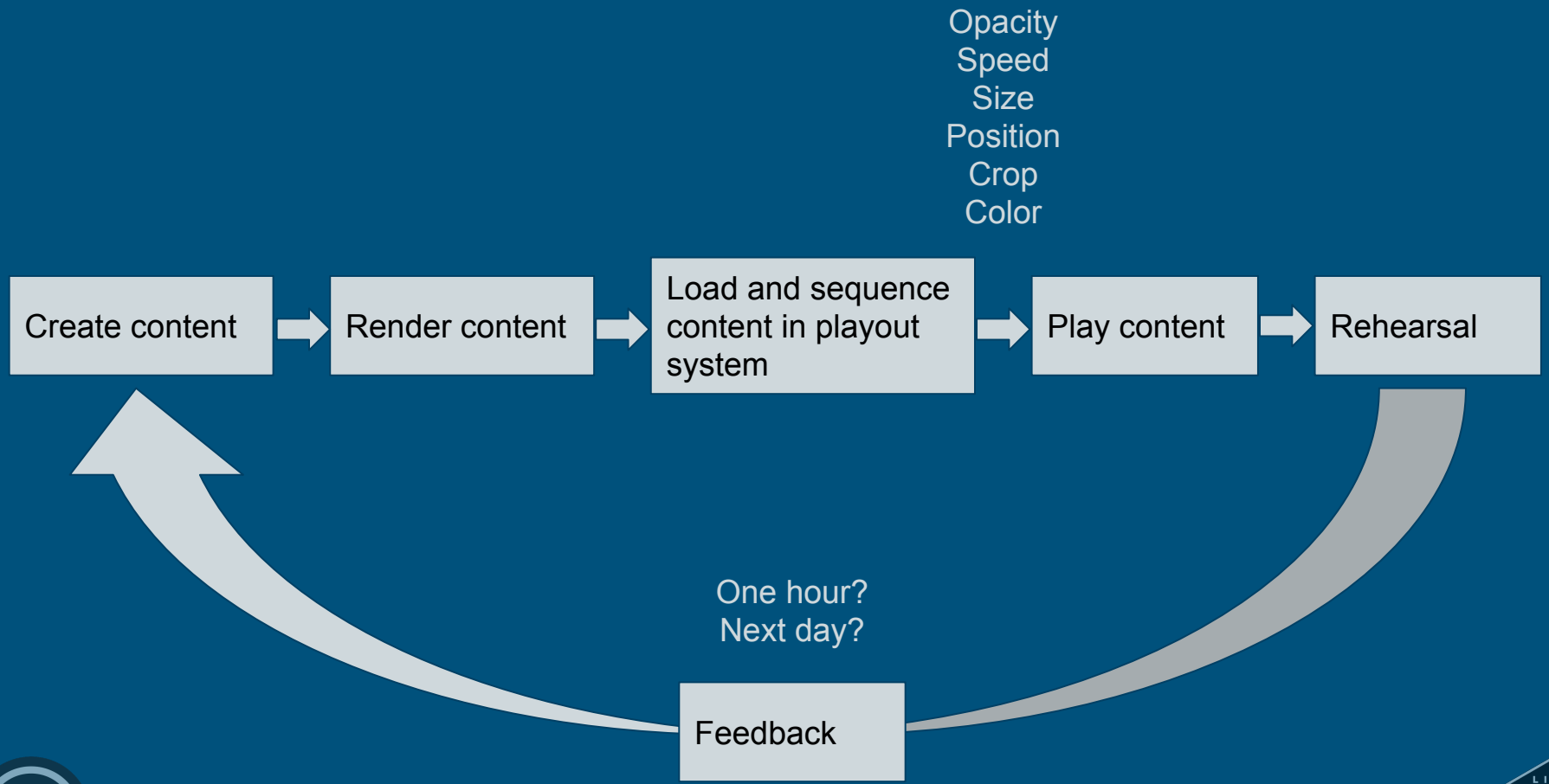
Spreek standje
Film standje

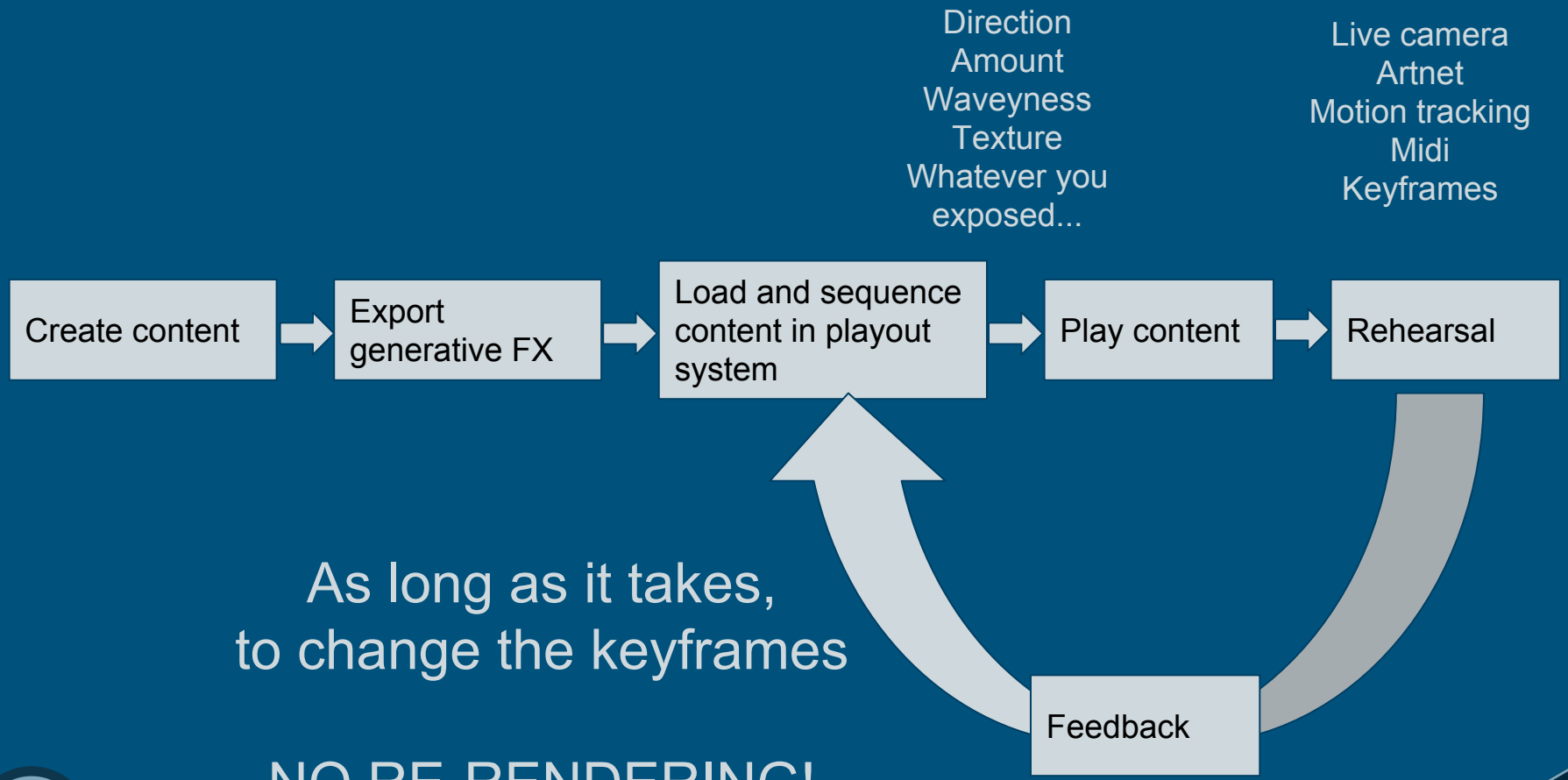
Color of general theme?

Which movie?

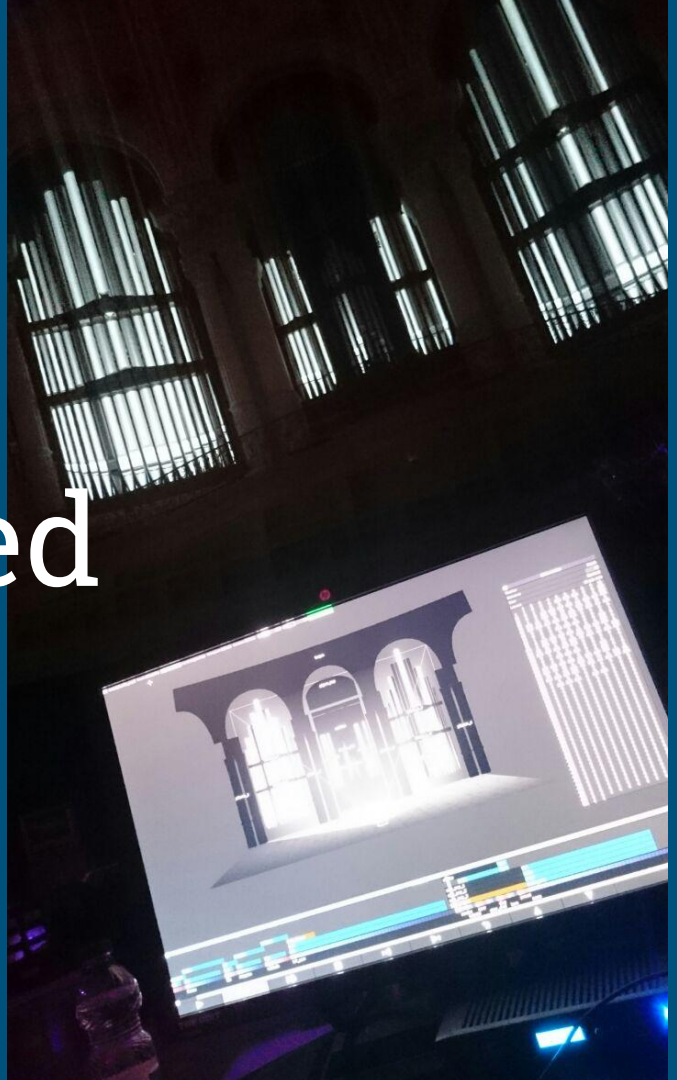
How much time left for this movie?




Opacity
Speed
Size
Position
Crop
Color
Create content
Render content
Load and sequence content in playout system
Play content
Rehearsal
One hour?
Next day?
Feedback


Direction
Amount
Waveyness
Texture
Whatever you exposed...
Live camera
Artnet
Motion tracking
Midi
Keyframes
Create content
Export generative FX
Load and sequence content in playout system
Play content
Rehearsal
Feedback
As long as it takes,
to change the keyframes
NO RE-RENDERING!

Example: Artnet controlled organpipes



Corporate event 2015 - Barcelona

```
112
113     for(var x=0; x<=aantal_pijpen; x++){
114     var totaal = height - pijp[x][1] - p
115     var stapje = round(totaal/100);
116     var aantal = round(totaal/stapje);
117     var intens = map(max(licht[x]), 0,255,255,0)/aantal;
118     //text(""+intens+" ", 10,(90+x*30));
119
120         //maak een pijp
121         for(var i=1; i<=aantal; i++){
122         fill(2*licht[x][0],2*licht[x][1]                ntens*i*3));
123         var y = pijp[x][2] + totaal - (i
124         rect(pijp[x][0],y,pijp[x][3],stapje);
125         }
126     }
127
128 }
129
```

Create pipes

Create gradient for each pipe based on Artnet value

vpt Academy

LIVE LEGENDS

disguise

NOTCH

2016: Notch surfaced in our workflow quest

IMAG

Big, ugly, flat obligation,
‘cause “That’s what they came for”

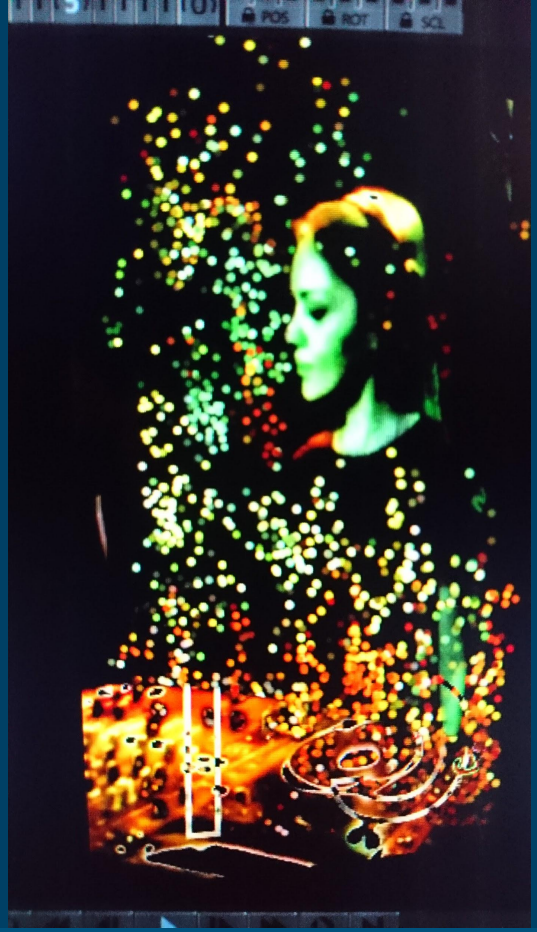
Dedicated IMAG screens

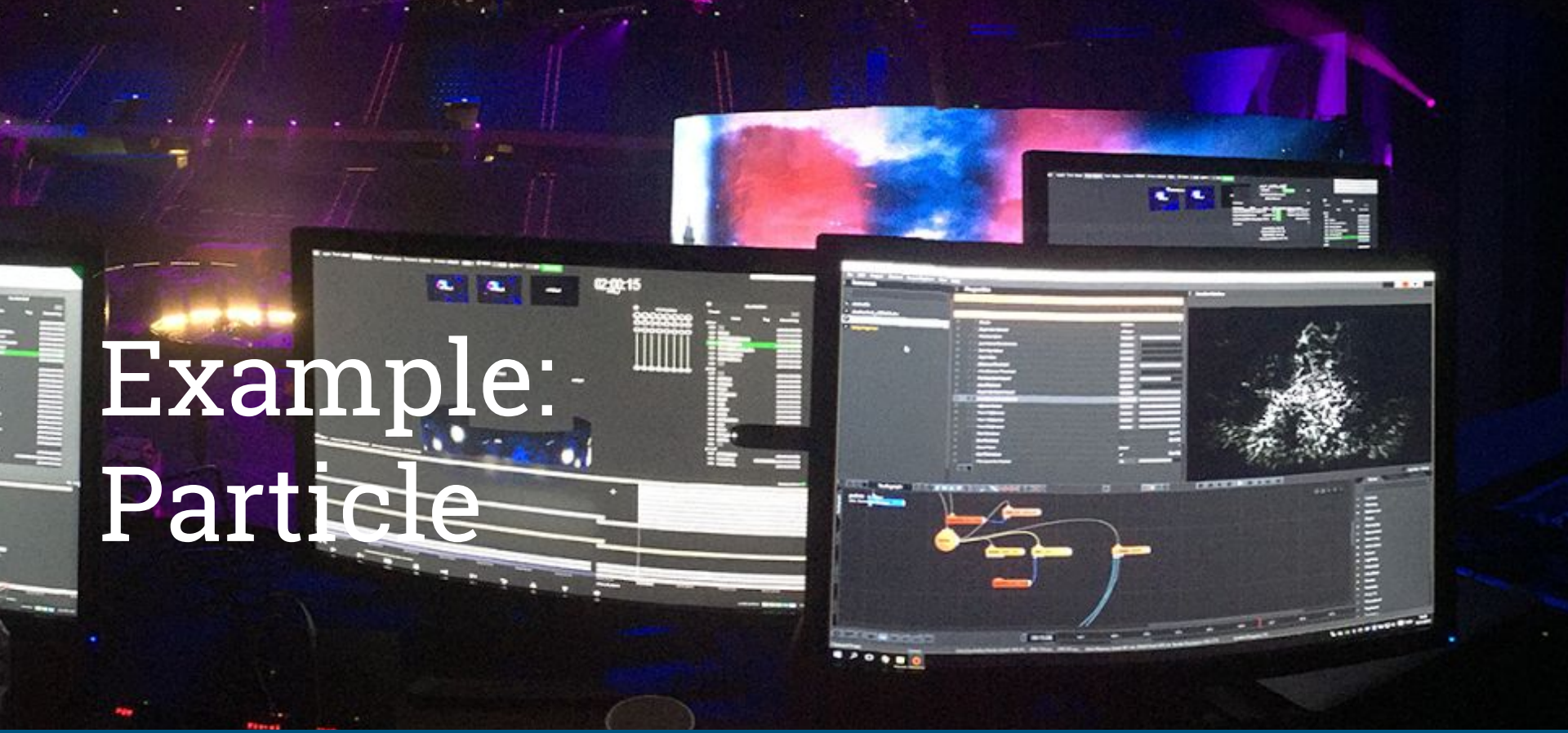
Flat IMAG integration

KENSINGTON

Let’s make it interesting

Particles / fields
Glitches
Color corrections
-> Apply LUT
Frame delay
Vignette
Custom postFX
Placement





Example: Particle

Corporate event 2016 - Ahoy

ferry corsten
VOPAK 400 YEARS
ferry corsten
LIVETIME
NICO
ALSEMGEEST

Example: Custom post-FX

Example: Placement

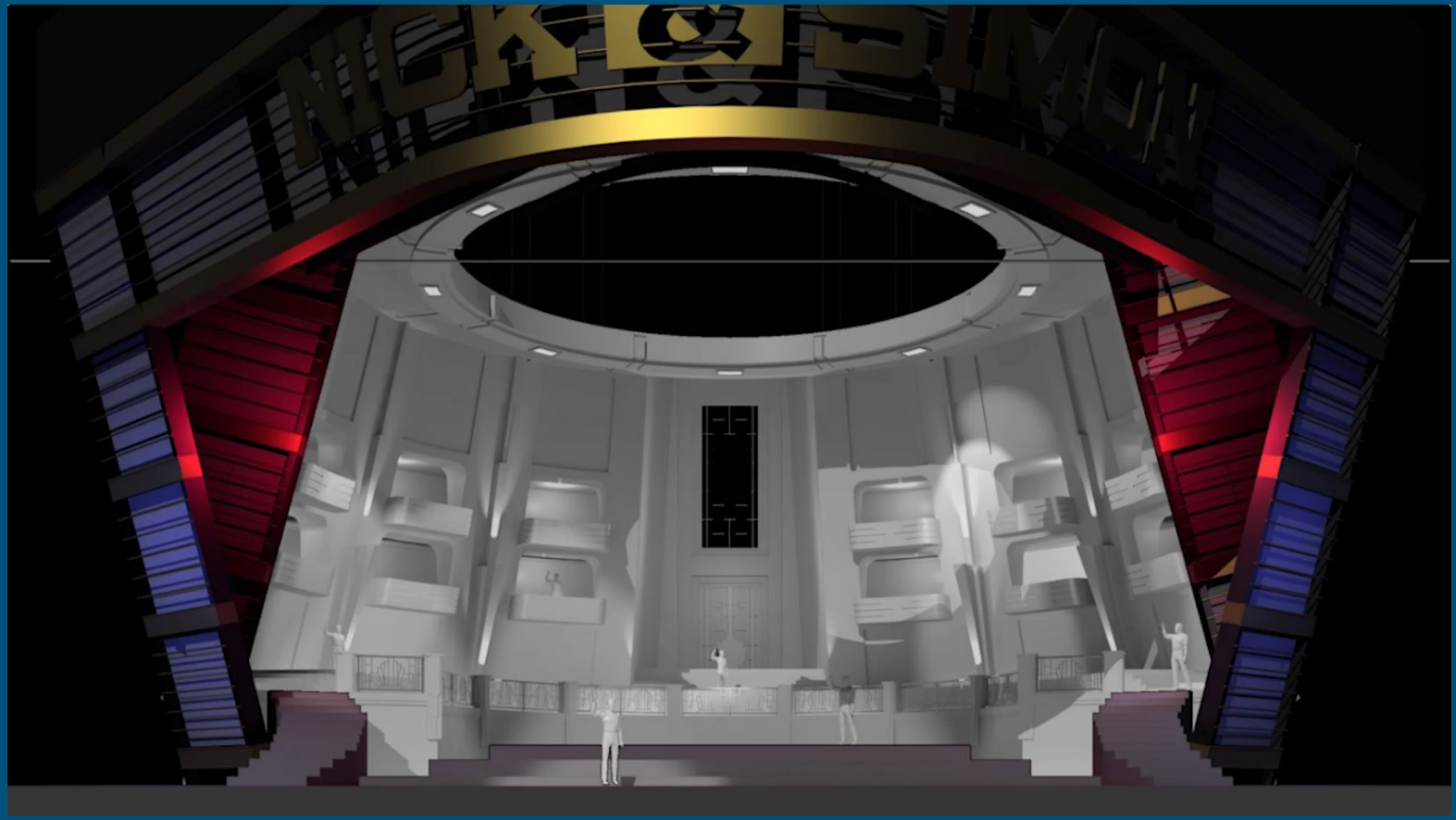
Nick & Simon

3D IMAG Placement
Hybrid 3D Workflow

vpt Academy

LIVE LEGENDS

Just a flat LED screen



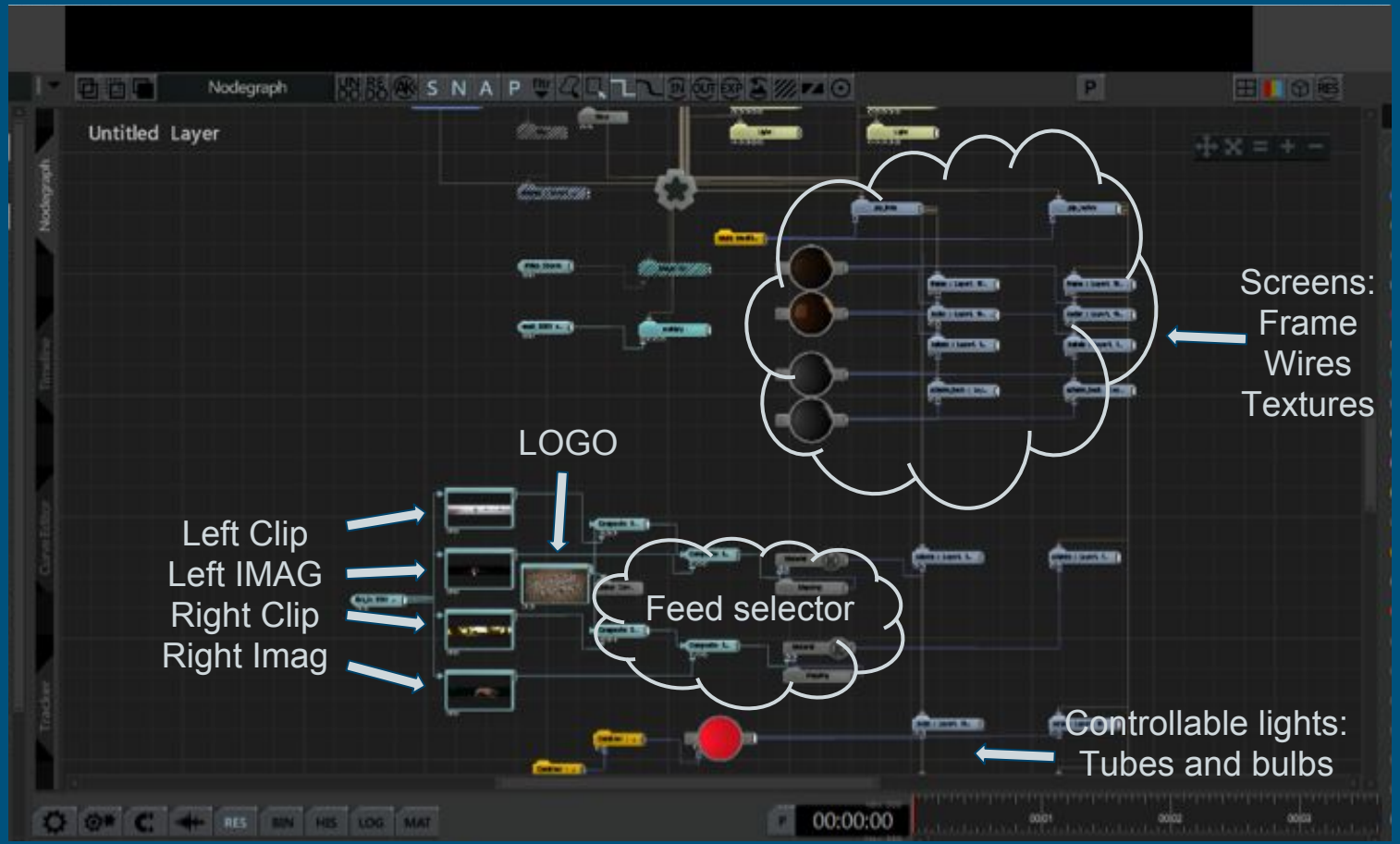
Common base 3D model
shared across content team

Flat PIP

Spherical PIP

Arty PIP

3D PIP

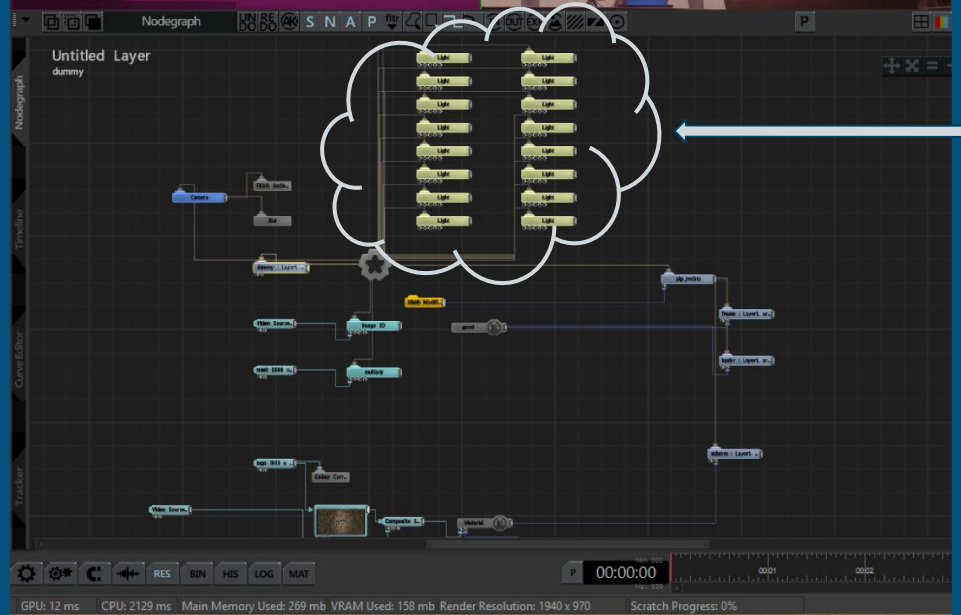

Nodegraph
Untitled Layer
Screens:
Frame
Wires
Textures
LOGO
Left Clip
Left IMAG
Right Clip
Right Imag
Feed selector
Controllable lights:
Tubes and bulbs
00:00:00

Hybrid Workflow

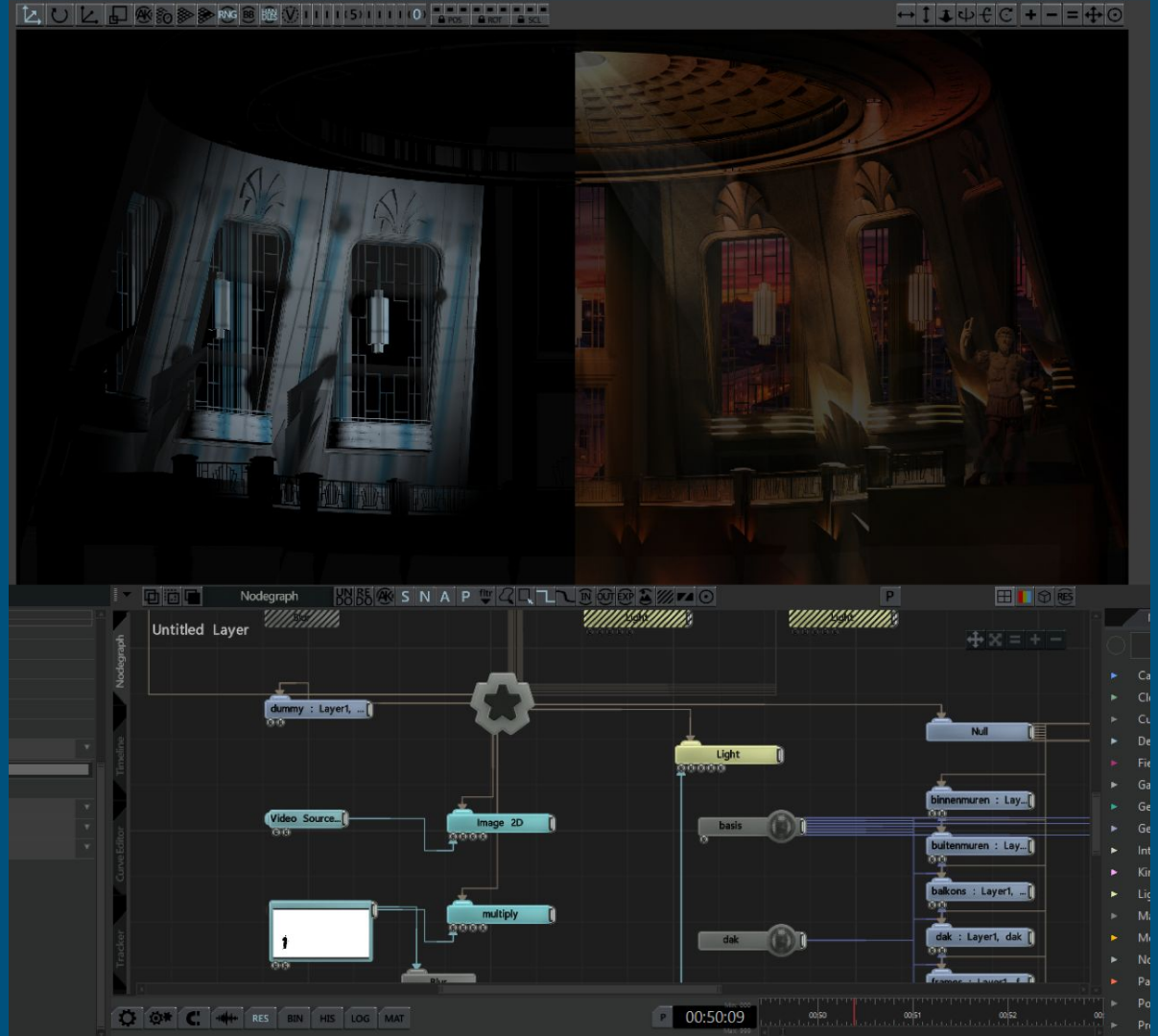
Shared 3D model, loaded as reference to match camera

Actual output

Rendered content, loaded as reference



Matched lighting


Nodegraph
Untitled Layer
dummy : Layer1, ...
Light
Null
Video Source...
Image 2D
basis
binnenmuren : Lay...
buitenmuren : Lay...
balkons : Layer1, ...
multiply
dak
dak : Layer1, dak
RES
BIN
HIS
LOG
MAT
00:50:09

Sales complexities

Load	1.000 particles	2.000 particles
Rendered	1 HD	1 HD
Realtime	1 ms	4 ms

Price	16 sec loop	32 sec loop
Rendered	n €	2n €
Realtime	n €	n €

Content creation

3D Objects, Cloners, Particles,
Fluid simulations,
and a bunch of keyframes

3D world
Cloners
Name and title
updateable in
mediaserver
ANDRE MIKKERS
Partner FS & DA @ PwC

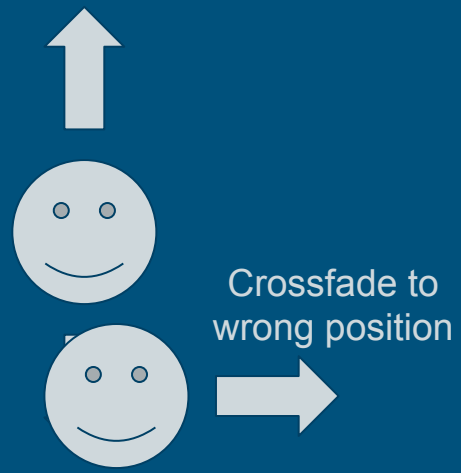
Presentation elements placed in 3D:

Van Gogh painting
Dance rehearsal video
Depth sensor video

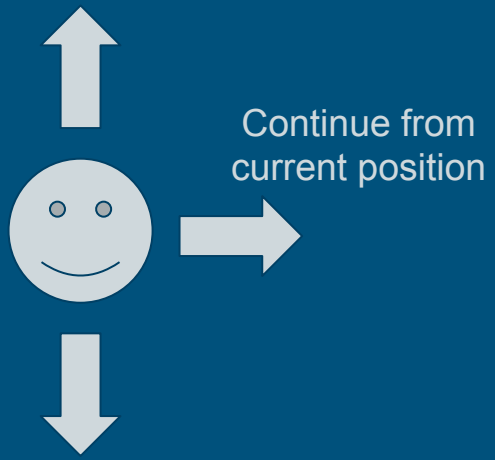
Turning mills need crossfade to transition from loop to animation

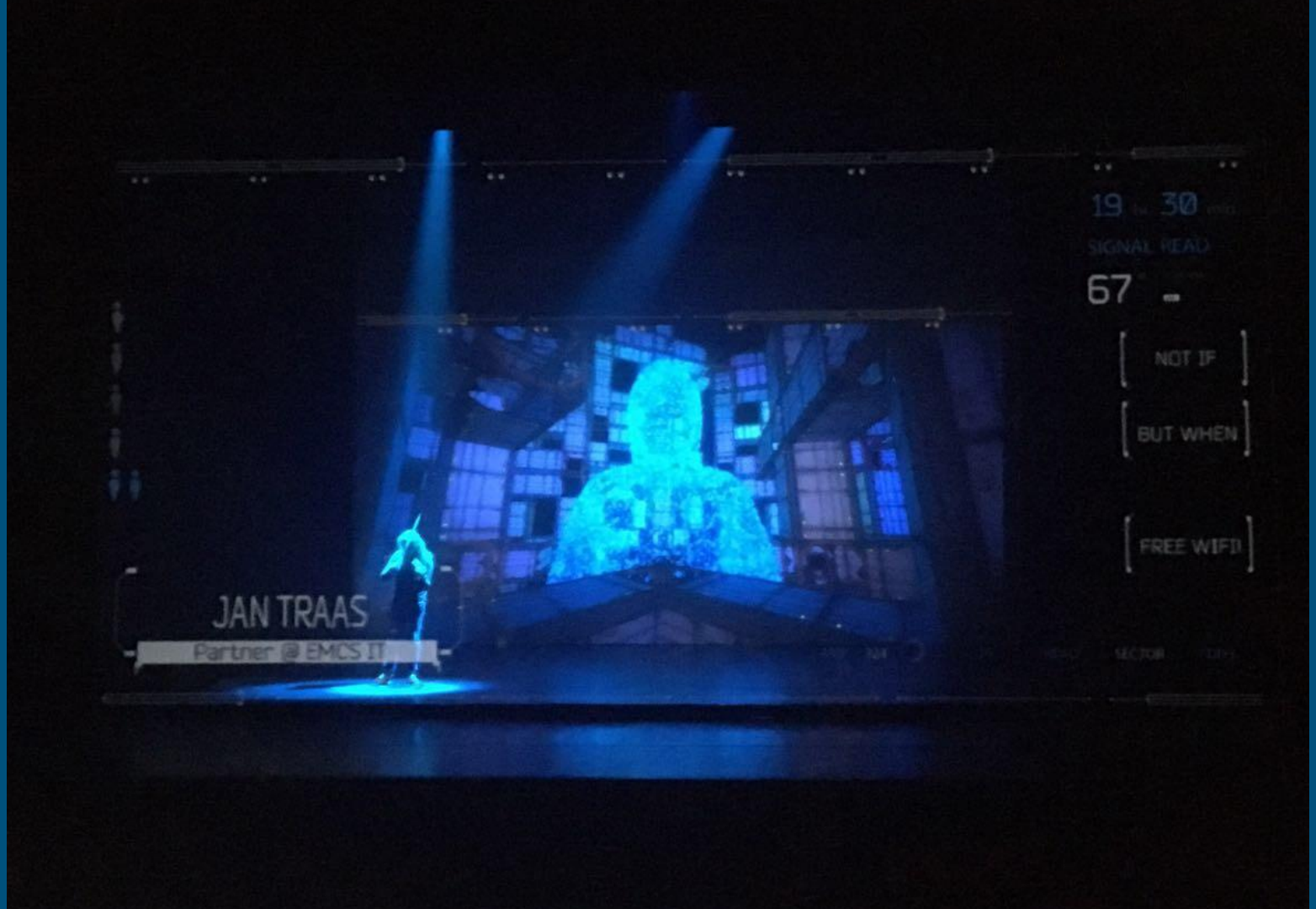
Transitions between animations

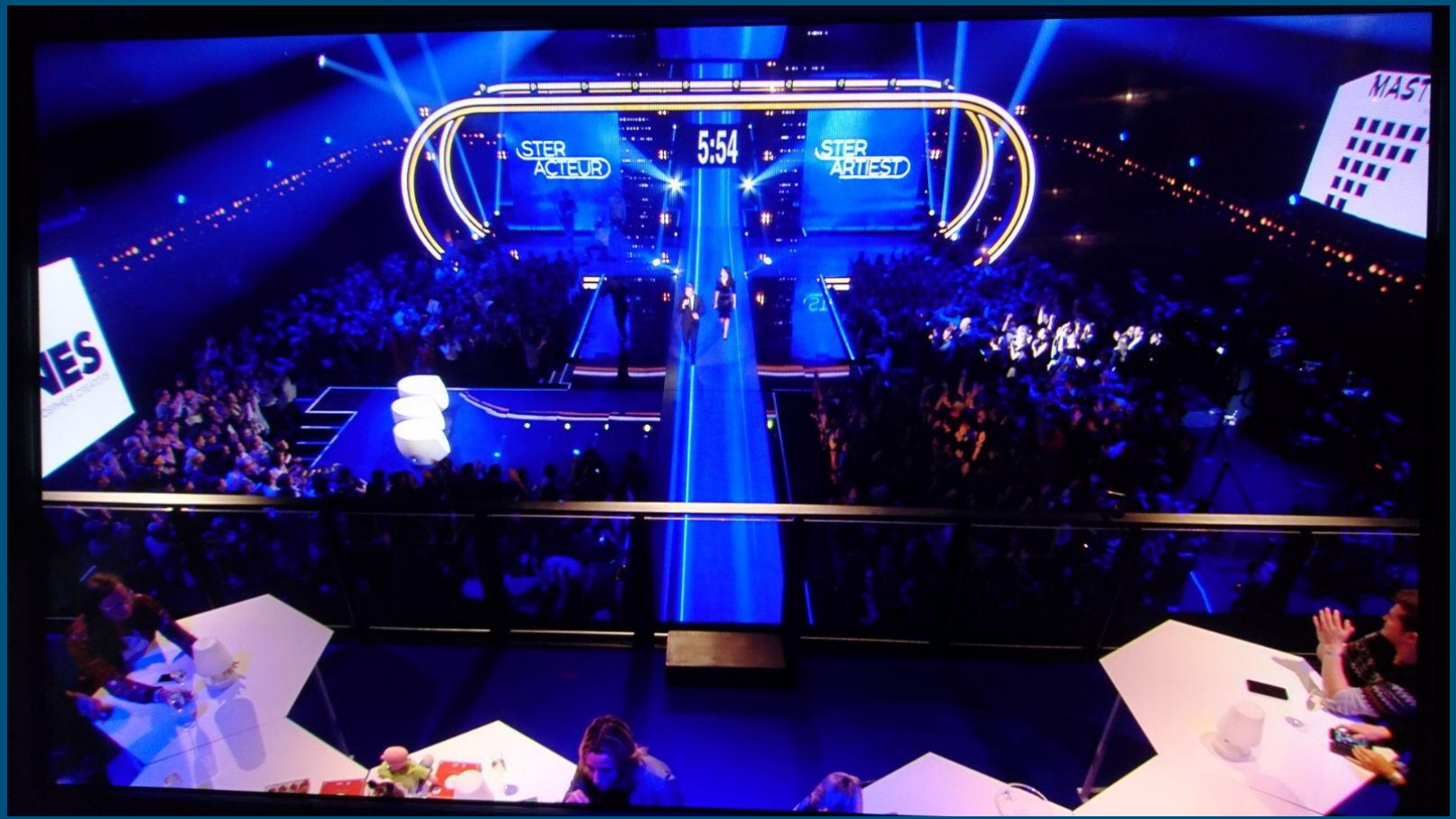
Rendered



Realtime




19 30
SIGNAL READ
67
NOT IF
BUT WHEN
FREE WIFI
JAN TRAAS
Partner @ EMCS IT



Ster Acteur Ster Artiest 2017 - Vilvoorde BE (één)

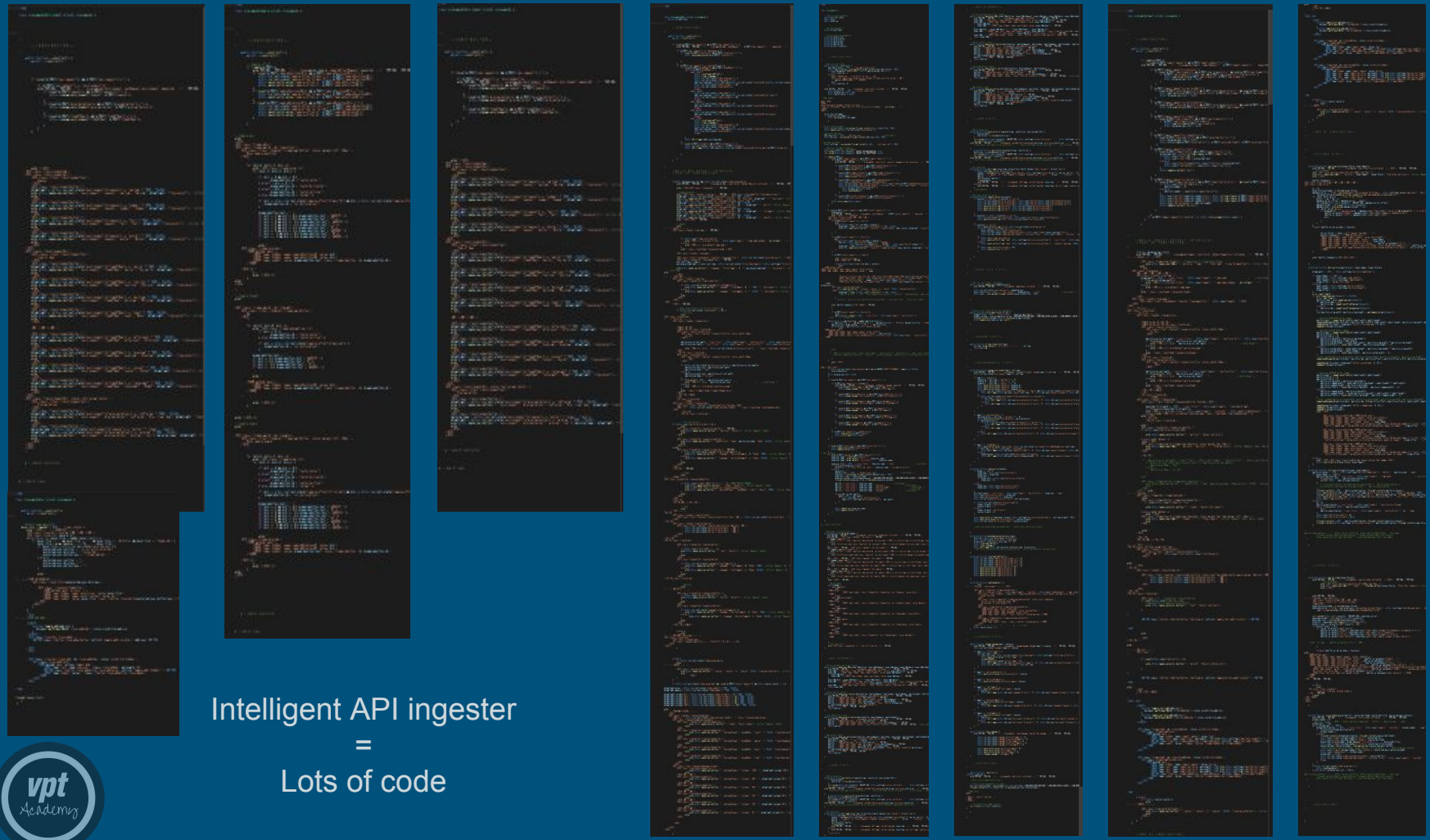
Corporate event 2017 - Madrid

Data ingestion

API Data, Artnet,
Motion, Midi

MPI Proeftuin 2017 - Utrecht

iPad APP for API ingestion and control



Intelligent API ingester

=

Lots of code

vpt Academy

LIVE LEGENDS

iPad APP for API ingestion and control

```
/*

        == P I C T U R E   S T U F F ==

*/



    protected function search_picture($searchterm, $searchgoal){
        echo PHP_EOL . PHP_EOL . "<!--  LiveLegends::search_picture initiated  --> </DIV>" . PHP_EOL . PHP_EOL;
        // Extra zoekbalk
        echo "<DIV style='position:absolute;left:200px;top:75px;'>";
        echo $this->make_searchBar("", "picture", "$searchgoal", "$searchterm", "Find other pictures"); //Action, Request, Goal, Query, Submit
        echo "</DIV>";

        $buffer_thumbnails = "
<DIV class='llsearchlistbg'> <BR /><BR /><BR /><BR />
<DIV class='llsearchlist'>
";
        $j = 0;
        $searchterm_encoded = urlencode($searchterm);
        $google_server = "https://www.googleapis.com/customsearch/v1?key=" . $this->settings["google_api_key"] . "&cx=" . $this->settings["google_cse"] .
            "&q=$searchterm_encoded&searchType=image&fileType=jpg,png&imgSize=medium&start=";
        for ($k=0; $k<3; $k++){    //TIJDELIJK WAT MINDER
            $start = ($k * 10) + 1;
            $google_server_offset = $google_server . "$start";
            curl_setopt($this->curl_connector, CURLOPT_URL, $google_server_offset);
            $google_output = curl_exec($this->curl_connector);
            $google_json = json_decode($google_output, true);
            for ($i=0; $i<10; $i++){
                if (preg_match('/\.(jpg|png|jpeg)$/', $google_json['items'][$i]['link'])==1 && preg_match('/[^a-zA-Z0-9?_:\-\.\/\\\\]/', $google_json['items'][$i]['link'])==0) {
                    $buffer_array[$j]["thumb"] = $google_json['items'][$i]['image']['thumbnailLink'];
                    $buffer_array[$j]["full"] = $google_json['items'][$i]['link'];
                    $j++;

                }
            }
        }
        foreach ($buffer_array as $key => $value){


            $first_offset = ($key == 0 ? "margin-top:20px;" : "");
            $buffer_thumbnails .= "<FORM method='post'>
            <INPUT type='hidden' name='ingest_request' value='pictureEdit'>
            <INPUT type='hidden' name='search_goal' value='" . $searchgoal . "'>
            <INPUT type='hidden' name='search_query' value='" . $searchterm . "'>
            <INPUT type='hidden' name='selected_picture' value='" . $buffer_array[$key]["full"] . "'>
            <INPUT type='submit' value='' class='llsearchlistthumb' style='background-image:url(\"" . $buffer_array[$key]["thumb"] .
            "\");background-repeat:no-repeat;background-size:contain;background-position:center;" . $first_offset . "'>
            </FORM>";
        }


        echo "$buffer_thumbnails</DIV></DIV></DIV>";
```

Google API request
In this case:
Pictures & Youtube

Same goes for:
The weather
Trafic
Twitter
Instagram
Valves in bridges
Flight status
Police stuff
A lot more..

iPad APP for API ingestion and control

```
472         // Generate CROPPED buffer image
473         $picture_dest = imageCreateTrueColor($edit_width, $edit_height);
474         $picture_offset_x = 0;
475         $picture_offset_y = 0;
476         if ($picture_orig_width > $picture_orig_height){
477             $picture_cropped_width = round(($picture_orig_height / $edit_height) * $edit_width);
478             $picture_cropped_height = $picture_orig_height;
479             $picture_offset_x = round(($picture_orig_width - $picture_cropped_width) / 2);
480         } else {
481             $picture_cropped_width = $picture_orig_width;
482             $picture_cropped_height = round(($picture_orig_width / $edit_width) * $edit_height);
483             $picture_offset_y = round(($picture_orig_height - $picture_cropped_height) / 2);
484         }
485         //echo "cropped $picture_scaled_width, $picture_scaled_height, $picture_orig_width, $picture_orig_height";
486         imageCopyResampled($picture_dest, $picture_tmp, 0,0,$picture_offset_x,$picture_offset_y, $edit_width, $edit_height, $picture_cropped_width, $picture_cropped_height);
487
488         imagePng($picture_dest, $temp_path."buffer_cropped.png", 0, NULL);
489         imageDestroy($picture_tmp);
490         imageDestroy($picture_dest);
```

Picture processing

Analyze for compatibility

Get resolution

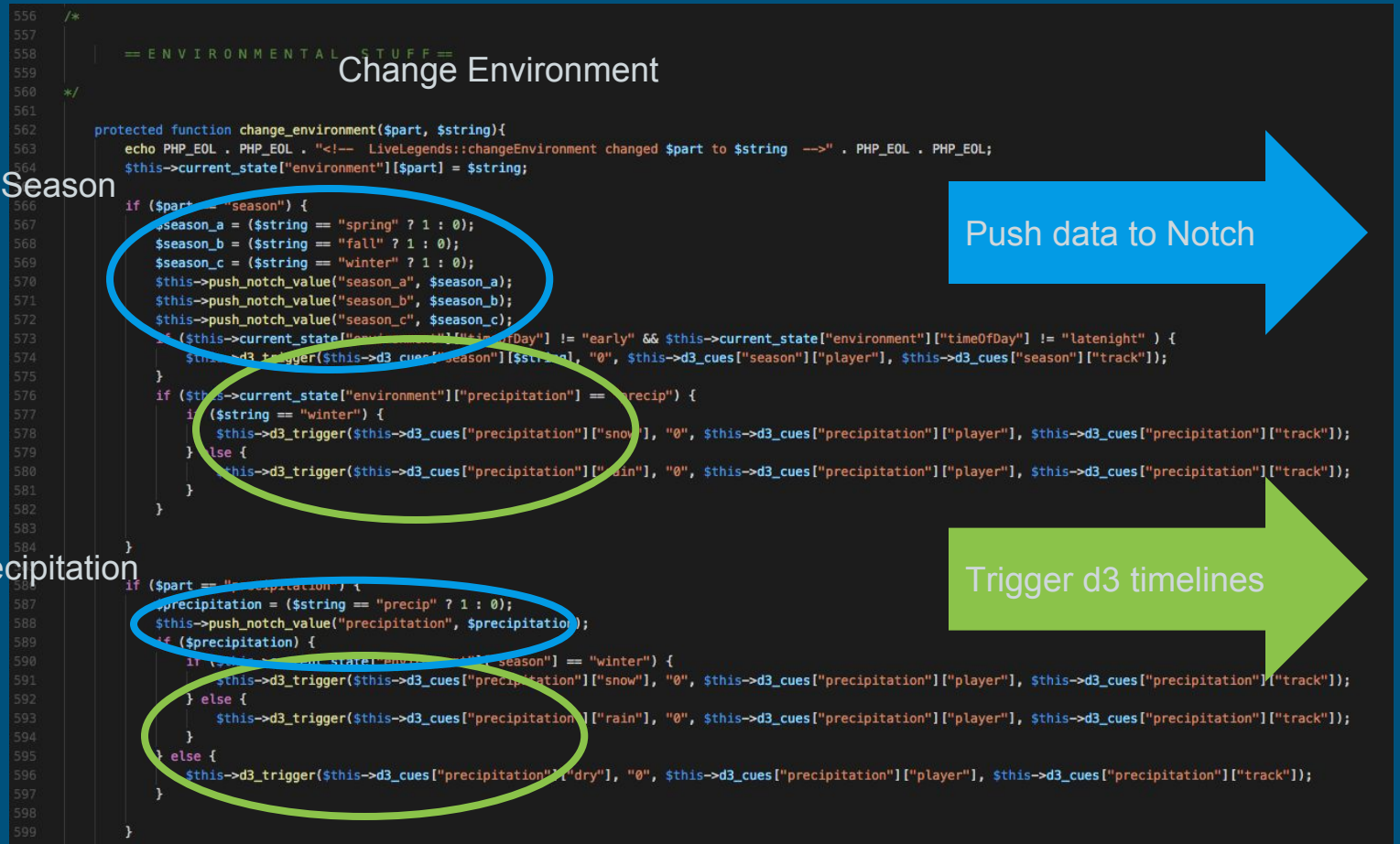
Resize

Crop and stretch if needed

Store

Register

iPad APP for API ingestion and control



iPad APP for API ingestion and control

Push data to Notch

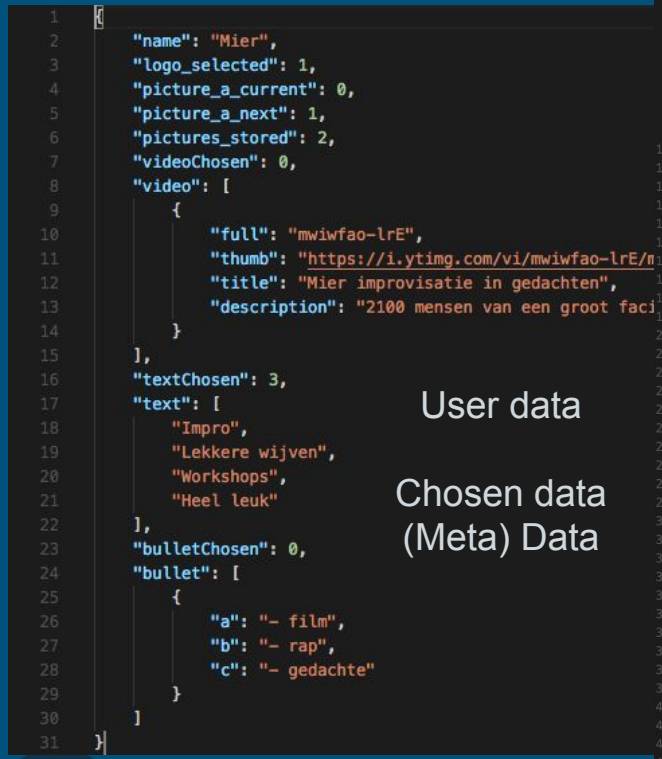
HTTP GET

Trigger d3 timelines

TELNET

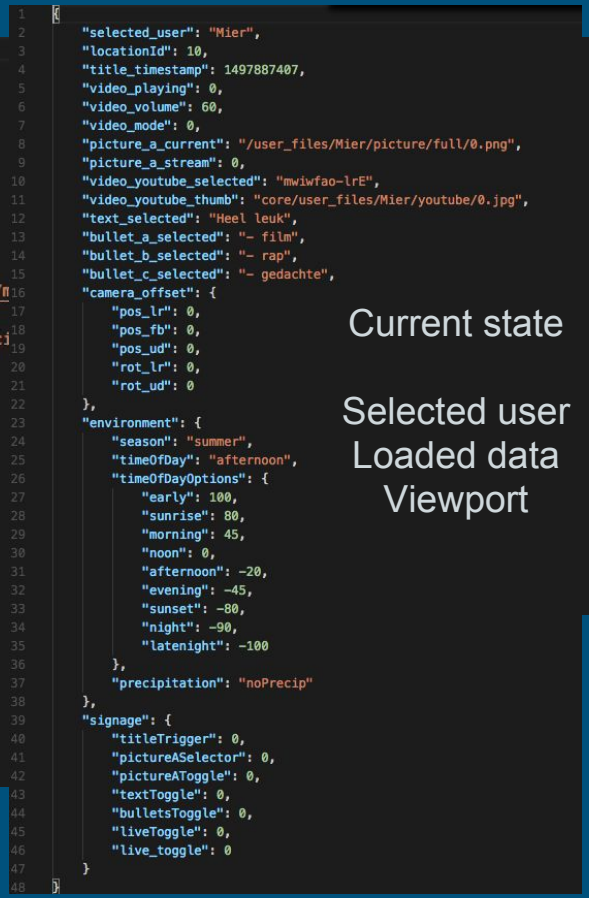
```
/*

    == COMM  STUFF ==


    // Notch connection
    protected function push_notch_string($notch_par, $notch_val, $val_encode=TRUE) {
        if ($val_encode){
            $notch_val = urlencode($notch_val);
        }
        curl_setopt($this->curl_connector, CURLOPT_URL, $this->settings['server_notch_ip'] . ':' . $this->settings['server_notch_port'] . '/control?value=' . $
        curl_exec($this->curl_connector);
    echo PHP_EOL . PHP_EOL . "<!--  LiveLegends::pushNotchString pushed $notch_par with value $notch_val  -->" . PHP_EOL . PHP_EOL;
        //echo $this->settings['server_notch_ip'] . ':' . $this->settings['server_notch_port'] . '/control?value=' . $notch_val . '&uid=' . $notch_par;

    }
        protected function push_notch_value($notch_par, $notch_val) {
        $notch_val = urlencode($notch_val);
        curl_setopt($this->curl_connector, CURLOPT_URL, $this->settings['server_notch_ip'] . ":" . $this->settings['server_notch_port'] . "/control?uid=" . $no
        curl_exec($this->curl_connector);
    echo PHP_EOL . PHP_EOL . "<!--  LiveLegends::pushNotchValue pushed $notch_par with value $notch_val  -->" . PHP_EOL . PHP_EOL;
       //echo "$this->server_notch_ip:$this->server_notch_port/control?uid=$notch_par&value='$notch_val'";
    }


    // d3 connection
    protected function d3_trigger($cue_time, $transition_time=0, $player="mpi_transport", $track="show"){
        if ($this->settings["server_d3_active"]){
            $sokje = fsockopen($this->settings["server_d3_ip"], $this->settings["server_d3_port"], $errno, $errstr, '10');          //@fsock @ errn
            $buffer = '{"request":12,"track_command":{"command":"playSection","track":"' . $track . '","location":"' . $cue_time . '","player":"' . $player . '
            $buffer .= "\n";
            fwrite($sokje, $buffer);
            fclose($sokje);
            echo PHP_EOL . PHP_EOL . "<!--  LiveLegends::d3Trigger called timecode: $cue_time  -->" . PHP_EOL . PHP_EOL;
        } else {
            echo PHP_EOL . PHP_EOL . "<!--  LiveLegends::d3Trigger called timecode: $cue_time, but no trigger send as server is inactive  -->" . PHP_EOL . PHP_
        }
        //echo $buffer;
    }

    // Push new content to server
    protected function update_content($content){
        if ($content == "bullets" || $content == "all"){
            $this->current_state["bullet_a_selected"] = $this->user["bullet"][$this->user["bulletChosen"]]["a"];
            $this->current_state["bullet_b_selected"] = $this->user["bullet"][$this->user["bulletChosen"]]["b"];
            $this->current_state["bullet_c_selected"] = $this->user["bullet"][$this->user["bulletChosen"]]["c"];
            $this->push_notch_string("bullet_a", $this->current_state["bullet_a_selected"]);
            $this->push_notch_string("bullet_b", $this->current_state["bullet_b_selected"]);
            $this->push_notch_string("bullet_c", $this->current_state["bullet_c_selected"]);
```

iPad APP for API ingestion and control



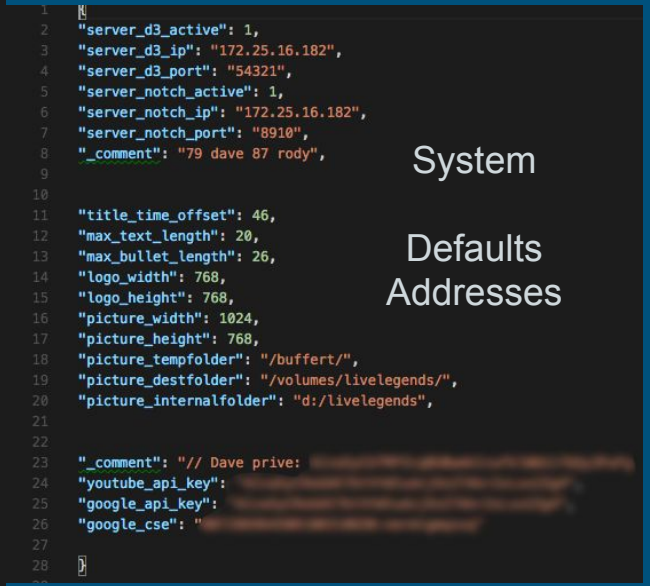
User data

Chosen data
(Meta) Data



Current state

Selected user
Loaded data
Viewport



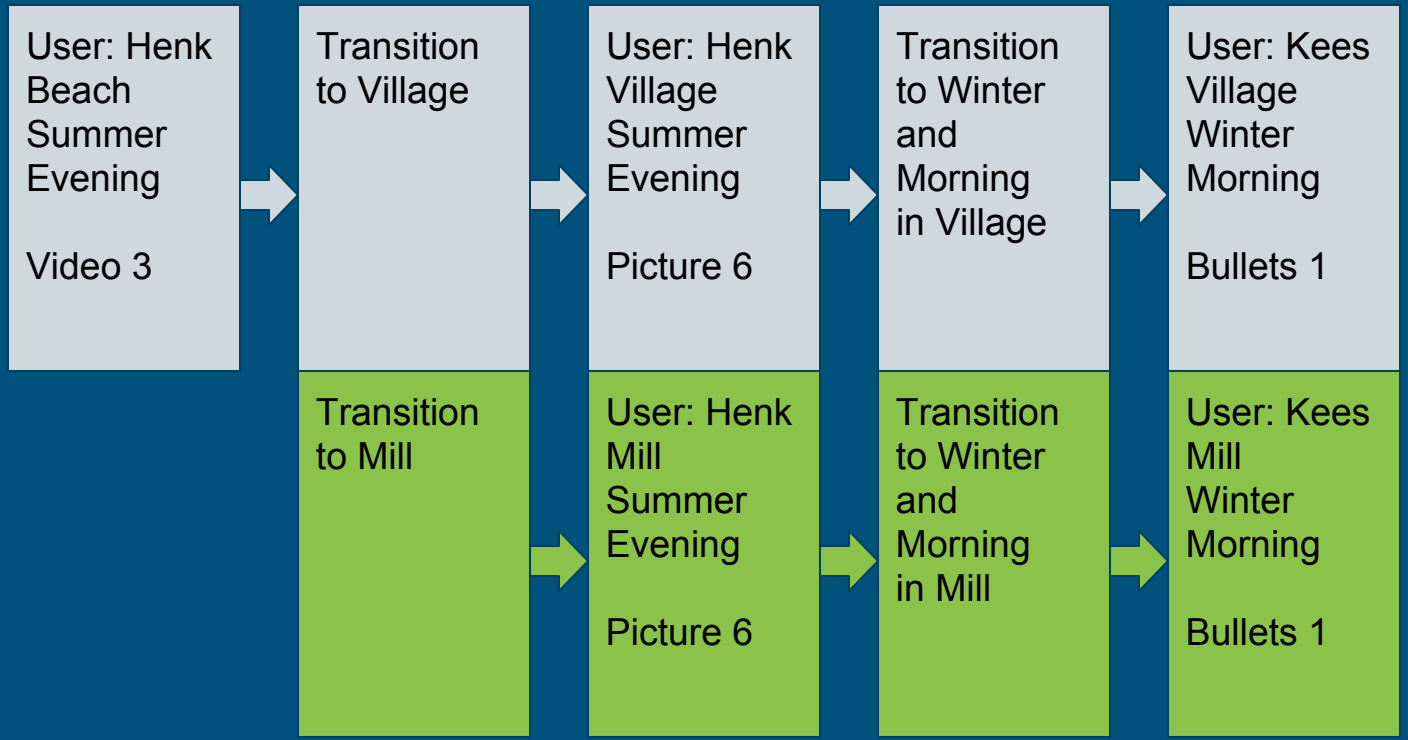
System

Defaults
Addresses

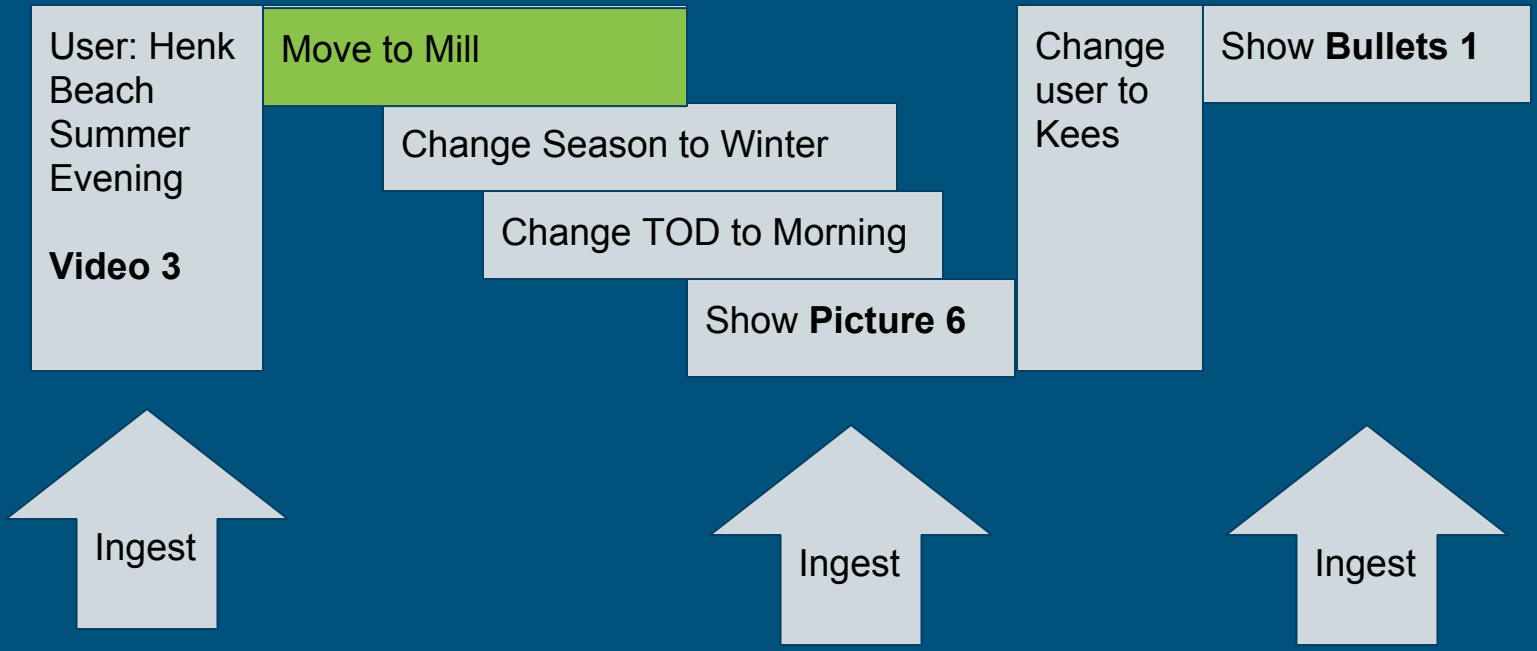
Memory

MPI Proeftuin 2017 - Utrecht

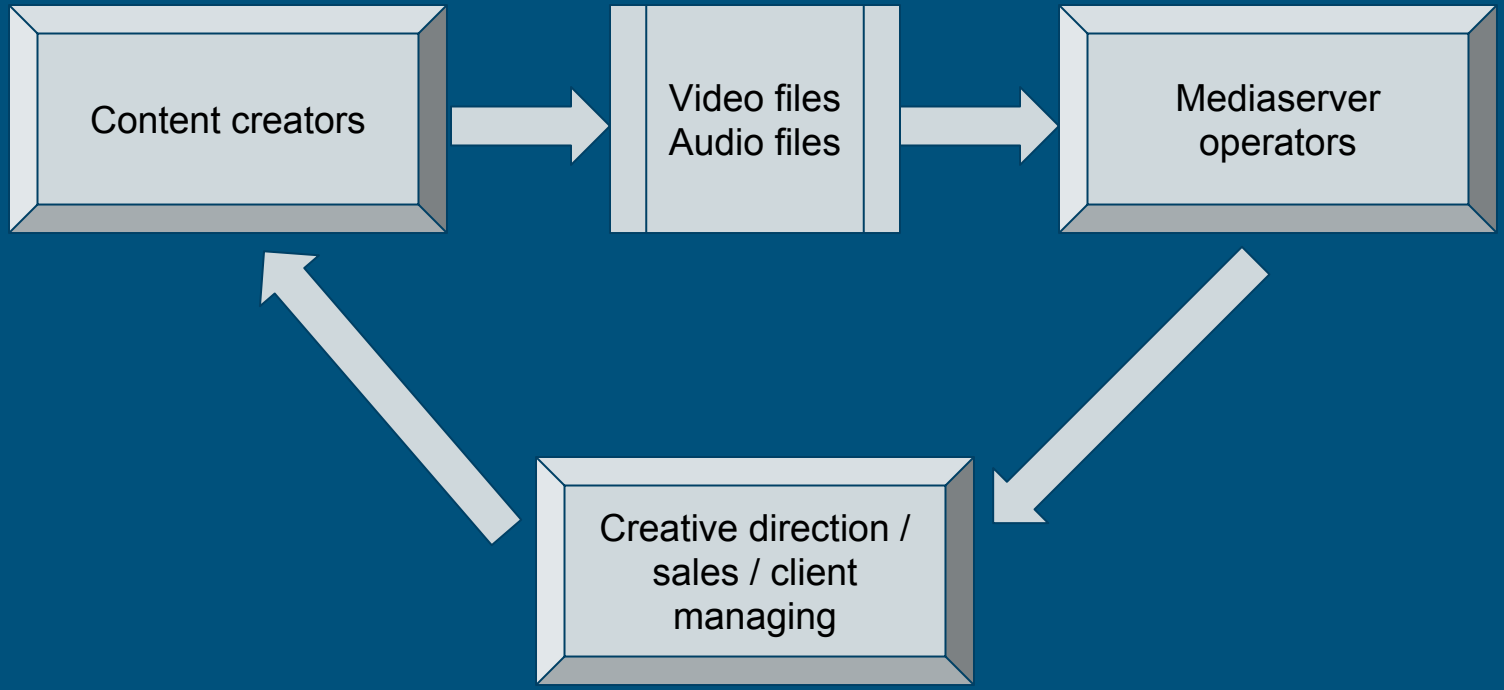
Lineair timeline



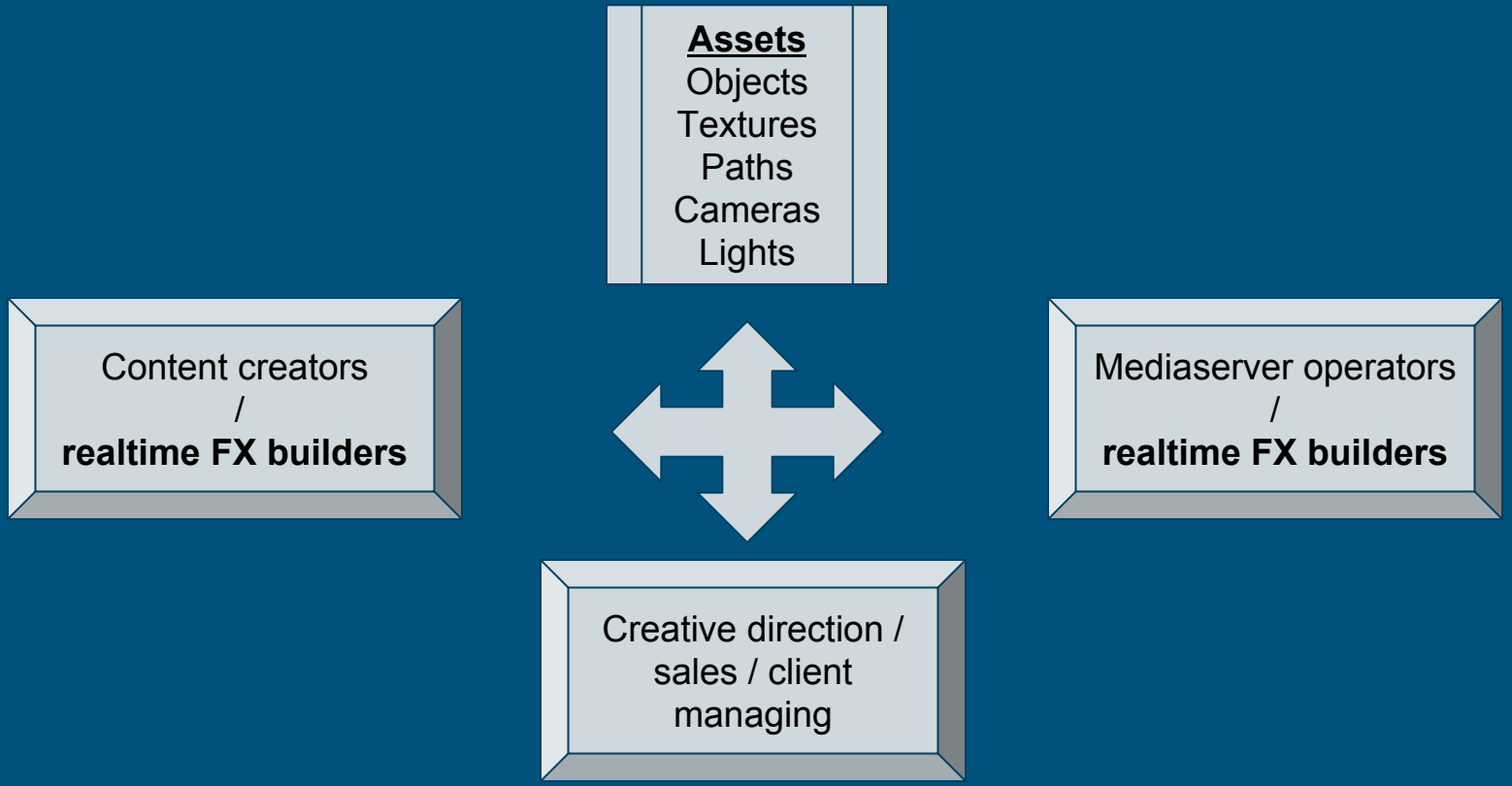
Non-Lineair timeline



Rendered files workflow



Realtime workflow

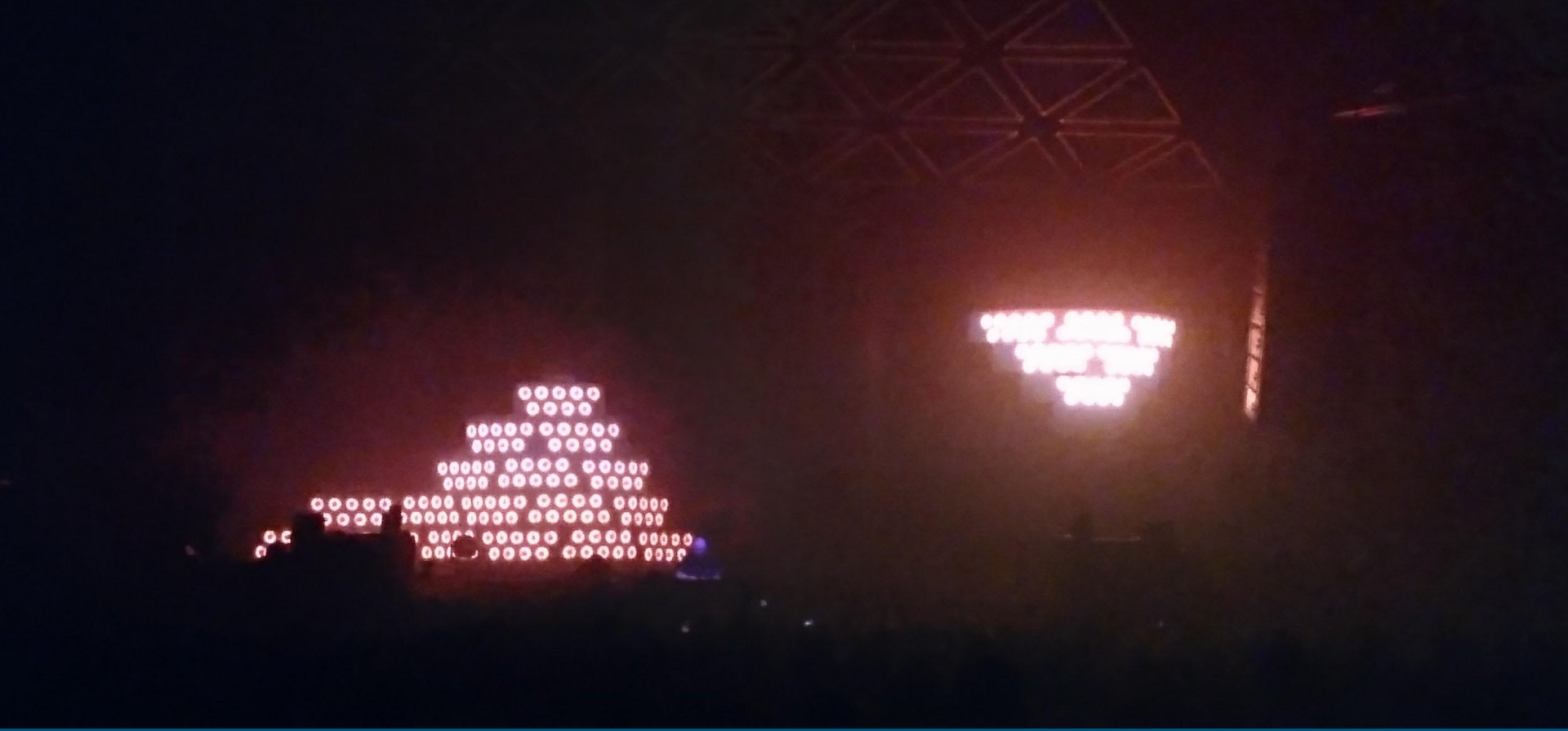


AWAKENINGS

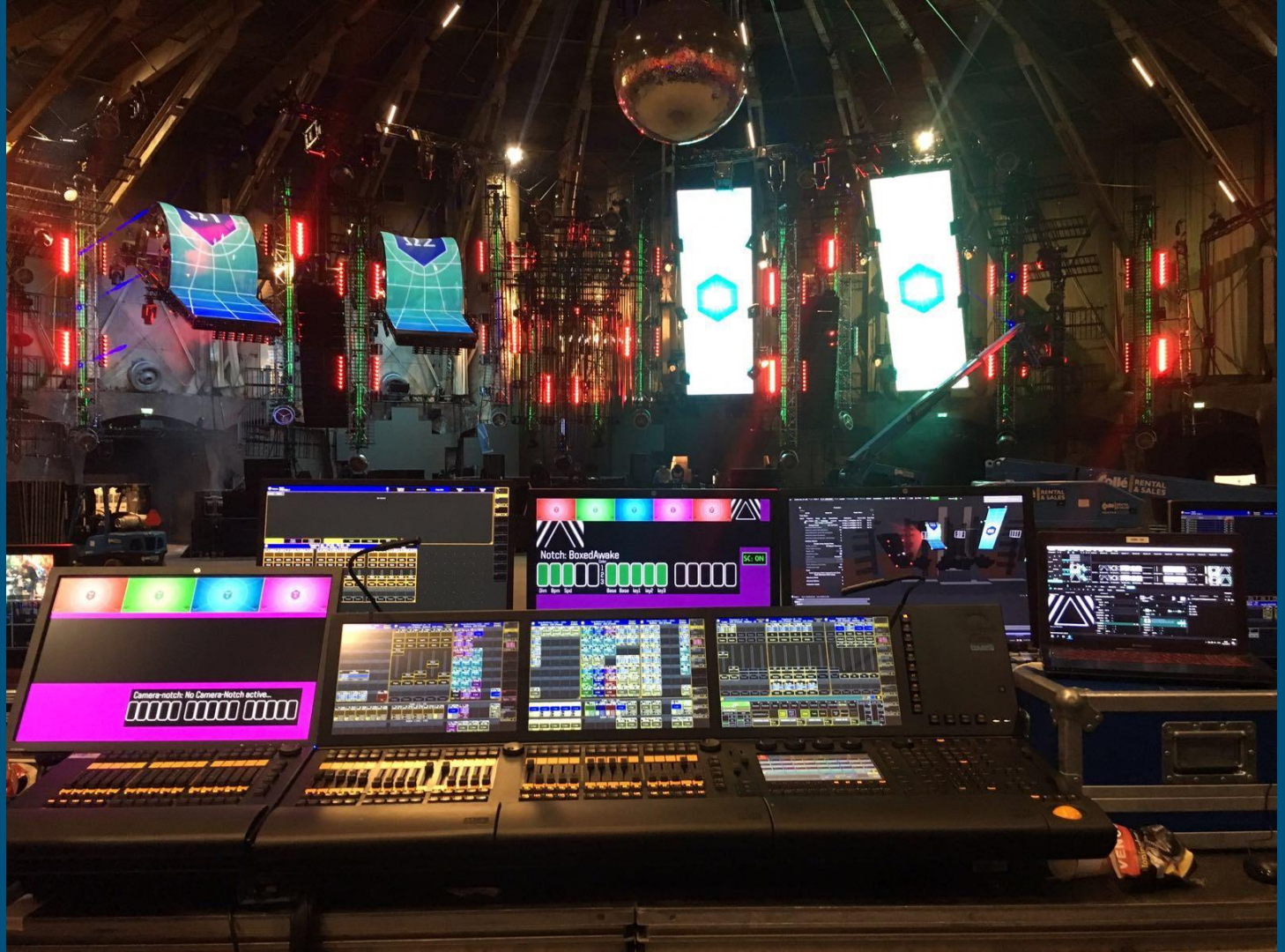
Artnet input
Motion data
IMAG FX

AWAKENINGS

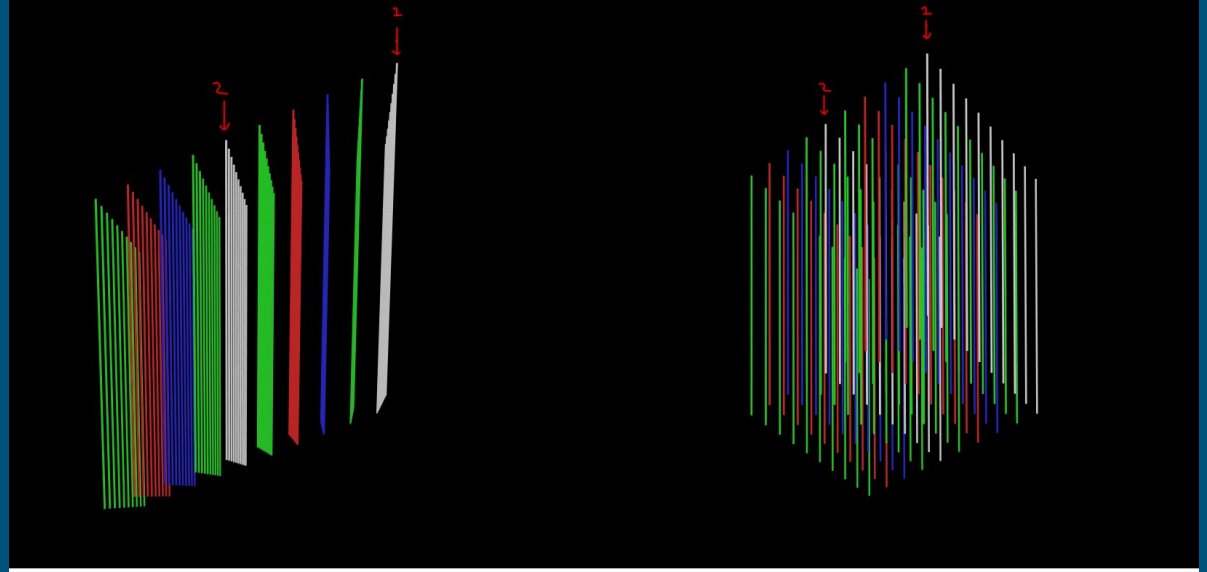
Light
Reflectoren
Materiel
Video Source...
Mapping
Mapping
3D Object : Layer...
3D Object : Layer...
3D Object : Layer...
3D Object : Layer...
Area Lights From...
Area Lights From...
Area Lights From...
Area Lights From...
Nodes
Camera
Cloning
Deformers
Fields
Gameplay
Generators
Geometry
Interactive
Kinect
Lighting
Ambient Light

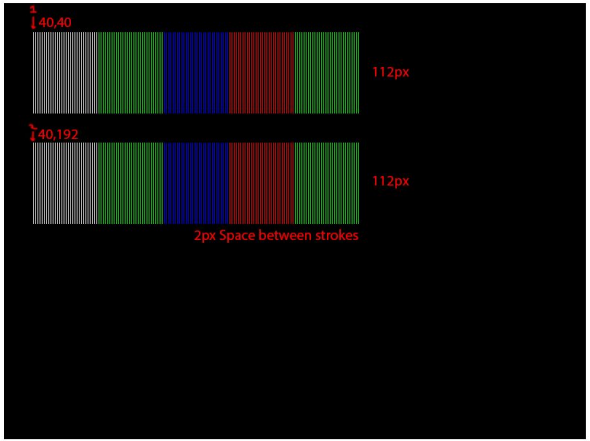


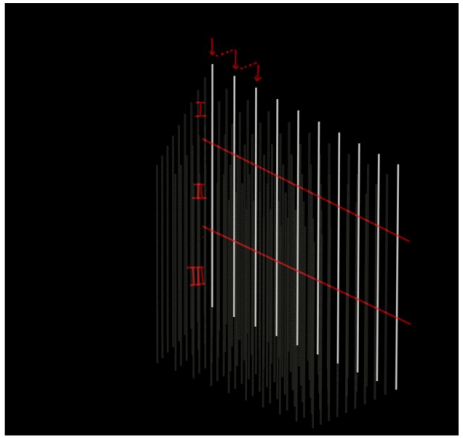
VL5
Pan
Tilt
Color
Dimmer
AWAKENINGS


Notch: BoxedAwake
SC: ON
Camera-notch: No Camera-Notch active...

Notch: Dreiecken vor deine bakkes
SC: ON
Color
1
2
3
50
50
SUB
TIEL
Dim
Spd
Size
Mv 1
Mv 2
Emit
XtrDr
Glitz
Emiss
Light
Dot
Curl
Sinus
Blur
FBck


1
2
1
2


1
40,40
112px
40,192
112px
2px Space between strokes


I
II
III

FUTURE

Mocap, facetracking, HLSL

Workflow optimizations

Growing community

Standalone

Ai

dHTML

disguise

Notch

Green Hippo

7th Sense

Realtime

Touchdesigner

Max/MSP

Ventuz

Unity

Unreal

openFrameworks

Stylize
Synthetic Aperture
Text
Time
8 bpc
(20%)
0:00:00:00
Full
clouds_in_loopframe500
Render Queue
particle_different_direction
important_movie_v23
clouds_out
Current Render
Stop
Pause
Render
Render
#
Comp Name
Status
Started
Render Time
1 particle_different_direction
Queued
Render Settings: Best Settings
Output Module: swareanimasjon_ohne_tohn
2 important_movie_v23
Log: Errors Only
Output To: important_movie_v23.mov
3 clouds_in_loopframe500
4 clouds_out
clouds_out.mov
Goodbye
Render Button
Realtime workflows