Evolution of the Cinematic Process

GEARS OF WAR™

TRILOGY

Greg Mitchell - Cinematic Director

- 15 Years experience in TV Production
- 7 Years making Game Cinematics
- 5 ½ Years at Epic Games
- Worked on Gears of War, Unreal Tournament 3, Gears of War PC, Gears of War 2, Infinity Blade, Bulletstorm, Gears of War 3, and Infinity Blade 2

GEARS OF WAR TRILOGY

- All 3 are 90's rated titles on Metacritic
- Sold 18.8 million copies to date
- Franchise has received more than 370 award nominations and wins
- Spawned novels, comics, collectables, & more
- A billion-dollar franchise

Cinematic Process Evolution for Gears

- Production Challenges
- Style and Presentation
- Performance & Animation
- Tools used and updates
- New Processes for future games

Overall theme to keep in mind – Baby Steps

Challenges of Cinematics with this new IP

- Relatively small company
  - Art Director doing the cinematics
  - No cinematic team
  - 90% of Cinematic animation was outsourced
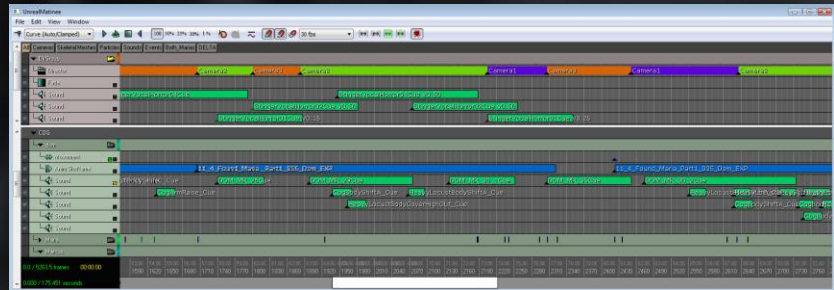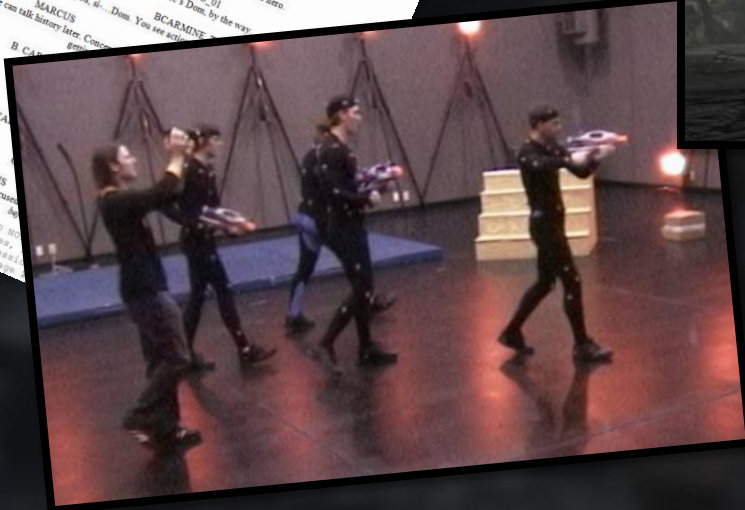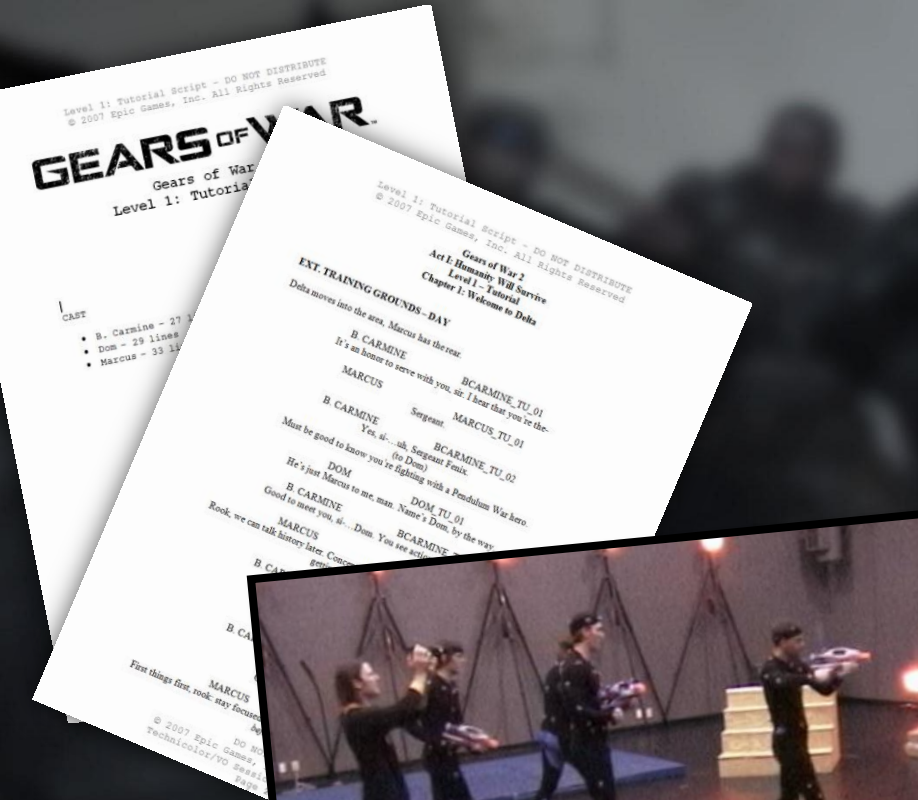 - Hired first full-time cinematics person (me)

GEARS OF WAR

Production Challenges

- Big push for Next-Gen Cinematics
  - Focus was to creating real-time next generation cinematics in engine (UE3).
  - Use game content to make cinematics
  - Apply real-world filmmaking techniques to cinematic production
  - Find creative ways of getting the scenes done

- Gears of War Cinematic Scope
  - 30 minutes of Cinematics
  - 22 Narrative scenes
  - Several short undefined in-game sequences
    - Level Designer Cinematics (LD Cines)
    - Birth to the "Frankencine"
  - Averaged 2-4 characters per scene
  - Short time to finish when I arrived (3 months)

Presentation and Style – Gears 1

- Director adopted an 'organic' production style
    - No storyboards or pre-visualization
    - The script was the only blueprint
    - Director had freedom to change in mocap
    - Worked to coordinate camera and character blocking

Gears of War 2
Act I: Humanity Will Survive
Level 1 – Tutorial
Chapter 1: Welcome to Delta

EXT. TRAINING GROUNDS – DAY

Delta moves into the area, Marcus has the rear.

B. CARMINE   BCARMINE_TU_01
It's an honor to serve with you, sir. I hear that you're the-

MARCUS

B. CARMINE   Sergeant.   MARCUS_TU_01

Must be good to know you're fighting with a Pendulum War hero.   BCARMINE_TU_02
                                                        (to Dom)

DOM   DOM_TU_01
He's just Marcus to me, man.

B. CARMINE   Good to meet you, si—...Dom. You see acti—   DOM_TU_01
Good to meet you, si—...Dom. Name's Dom, by the way.

MARCUS
Rook, we can talk history later. Conc—   BCARMINE...

First things first, rook- stay focused...

MARCUS_...
Technicolor/VO Session...
© 2007 Epic Games...

Presentation and Style – Gears 1

- Keep characters moving instead of standing and talking
  - Didn't want any 'talking heads' in the scenes
  - Handheld feel of the game was extend to the cinematics
  - Documentary style / In the trenches

- Minh's death scene used a more traditional approach
  - Move the cameras, the actors, and make edits

- Some scenes re-cut to be more traditional
  - Handheld motion didn't always work as well as intended

The "Frankencine"
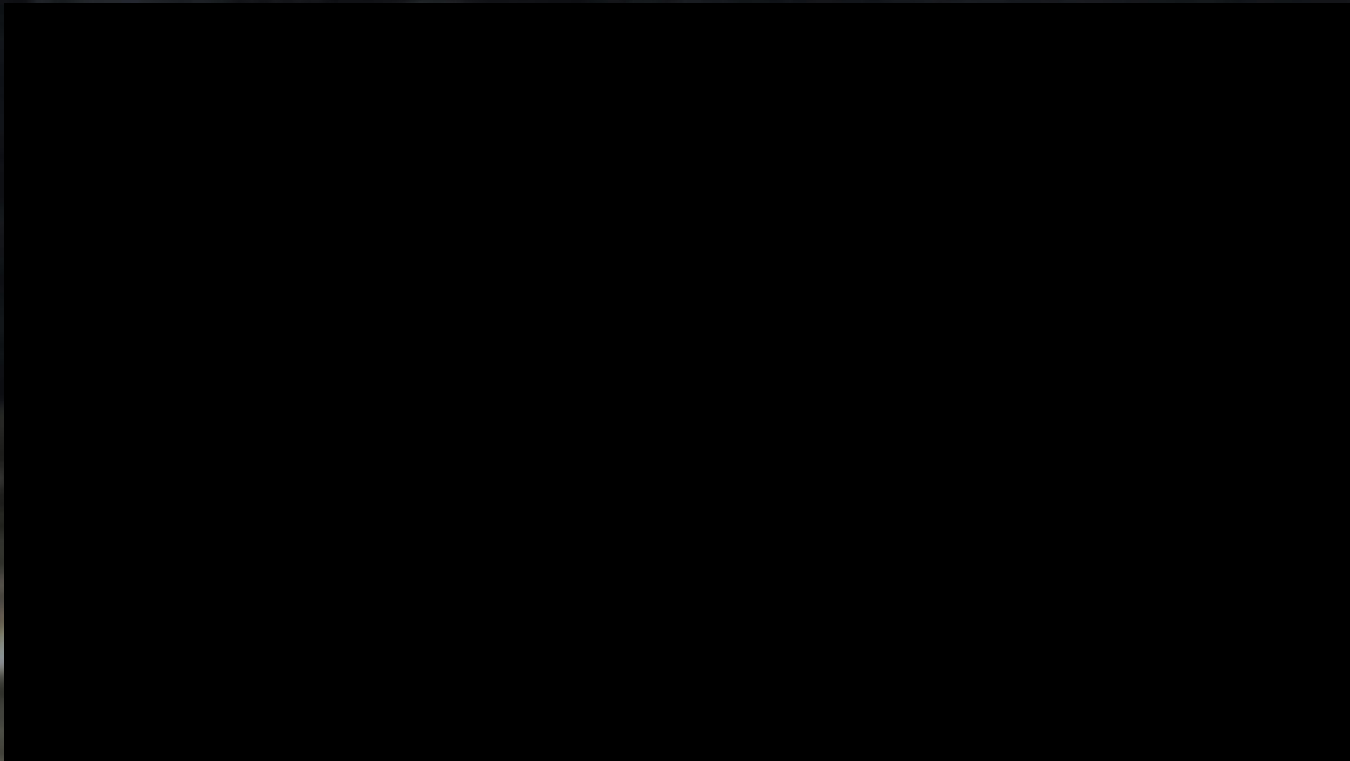
- Cines created with motion from other scenes
- No time to mocap new data – had to make these work

Character Performance

One character's performance is the combination of three people.

The Motion Capture Actor

The Voice Actor

The Animator

This defined character performance for the trilogy.

Motion Capture – Gears of War

- The actors were co-workers

- Lines read from offstage
  - Sometimes dictated by the director
  - Set the emotional beats

- Multiple takes done to bring it together
  - Finesse the blocking and camera motion

- Captured single camera POV

Motion Capture – Gears of War
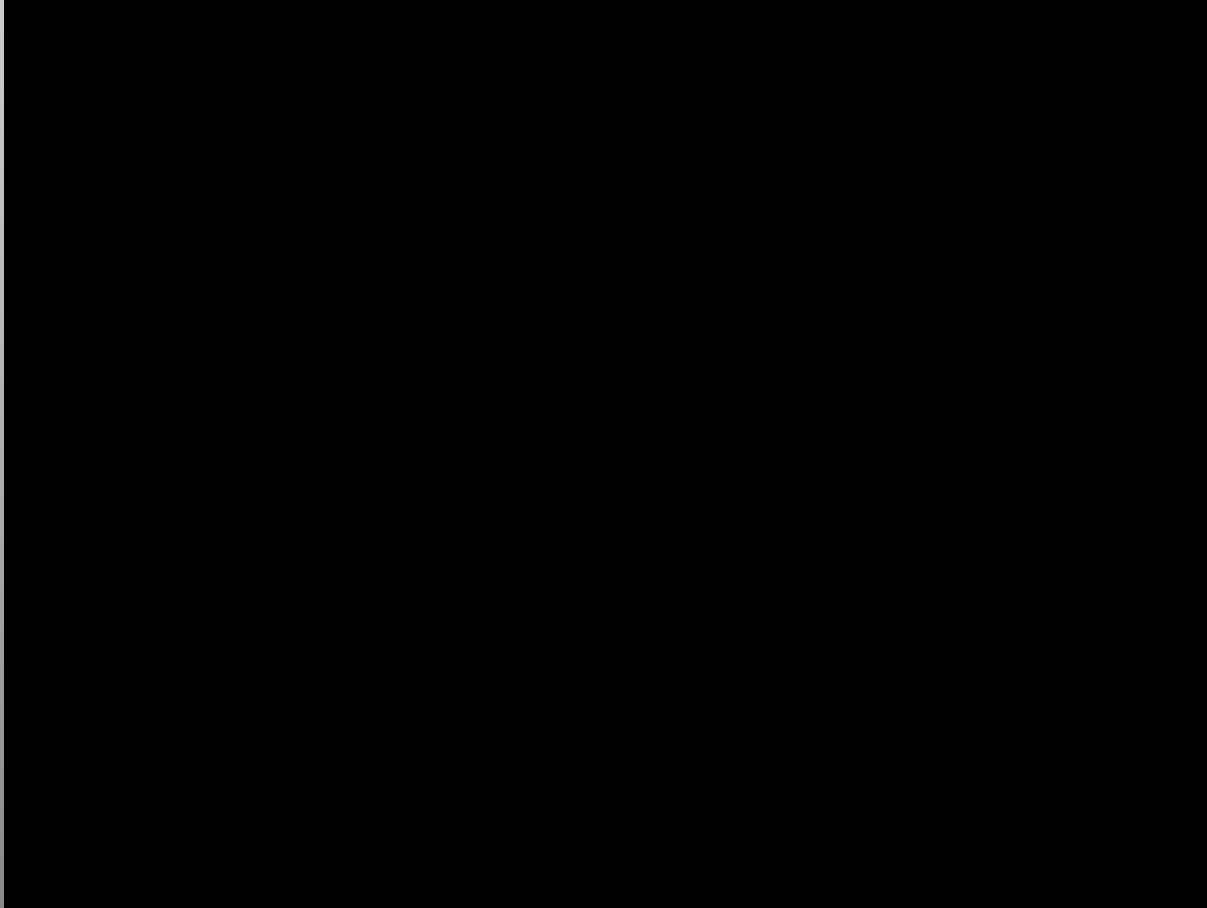
Motion Capture RESULTS – Gears of War

- Final result looked good when put in editor
  - Actor motions looked good and the characters interacted well
  - Camera motion felt organic and definitely hand-held

Our Tool Chest – UE3 Matinee
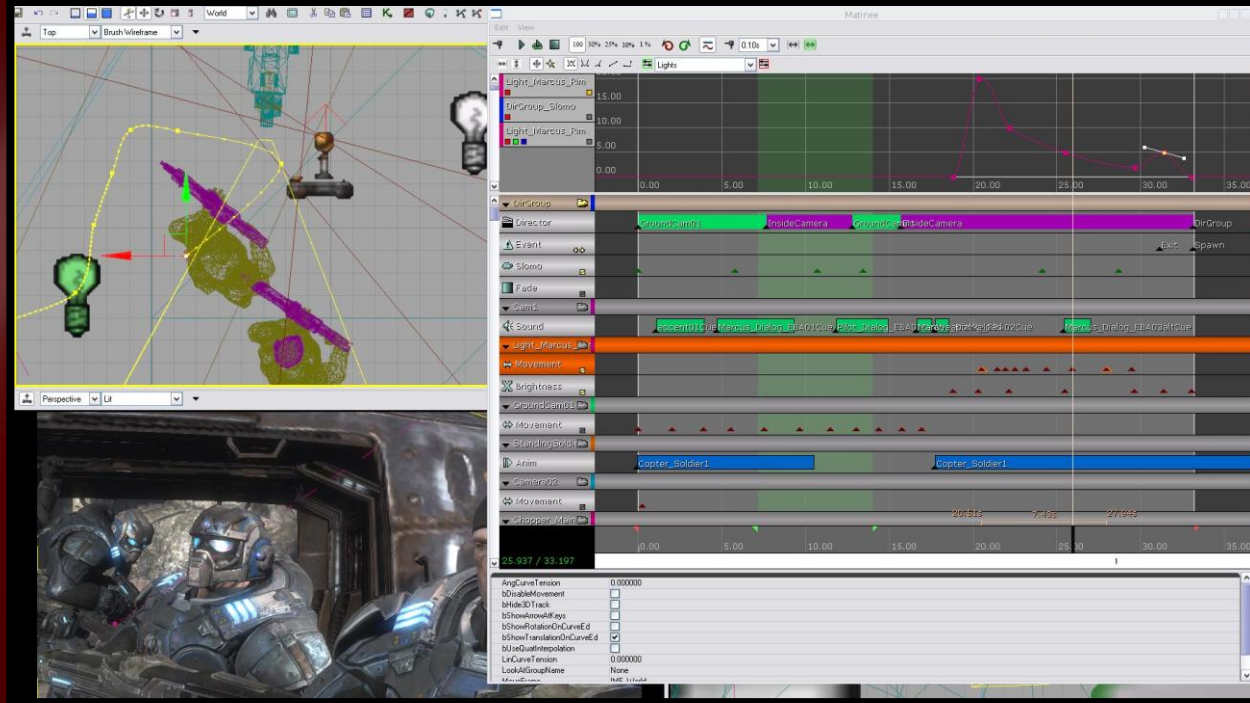
- **Unreal Matinee**
  - A sequencer that controls scene objects like an NLE or Compositor

What could we have done better?

- Needed a manager for Cinematic Production
    - Track the status of scenes
    - Push back on scope changes
    - Create a pipeline
    - No defined naming conventions
        - Hard to understand what goes where
    - Keep us on target for milestones

What could we have done better?

- Could have used Pre-visualization
- Had to reference the director a lot to get scene together
- Sometimes shot from the hip during layout

What could we have done better?

- No way to tracking animation or assets
- VO dialogue didn't always line up with the motion
  - Affected gesture and head placement for facial
  - More animation corrections to fix timing
  - Facial could easily me moved out of sync with motion
- Motion timing adjusted in the editor looked un-natural
- Handheld Camera pans and scene timing wasn't always tight
  - Couldn't always easily fix
  - Entire scene was in front of the camera

What could we have done better?

- Weapons and props lacked weight

GEARS OF WAR 2

Production Challenges

Production challenges – Gears 2

- Scope for Gears 2 was bigger, better, and more badass
  - 60 minutes of story Cines (double of the first Gears)
  - 44 Narrative scenes
  - Scenes consisted of 2-4 characters
    - Some scenes with a greater scope – more characters/events
  - 8 – 10 month window to get everything done

Production challenges – Gears 2

- Problems to solve based on Gears of War
    - Create Pre-visualizations
        - Needed scripts sooner to make happen
    - Define a Cinematics Pipeline
    - Organization of scenes and all production
    - Build a small floating team
    - Continue with animation outsourcing (has to be managed)

Production challenges – Gears 2

- Added a producer to manage the project -Tanya Jessen
  - Keep cines on schedule
  - Keep production organized
  - Keep an eye on outsourcing
  - Helped create a pipeline
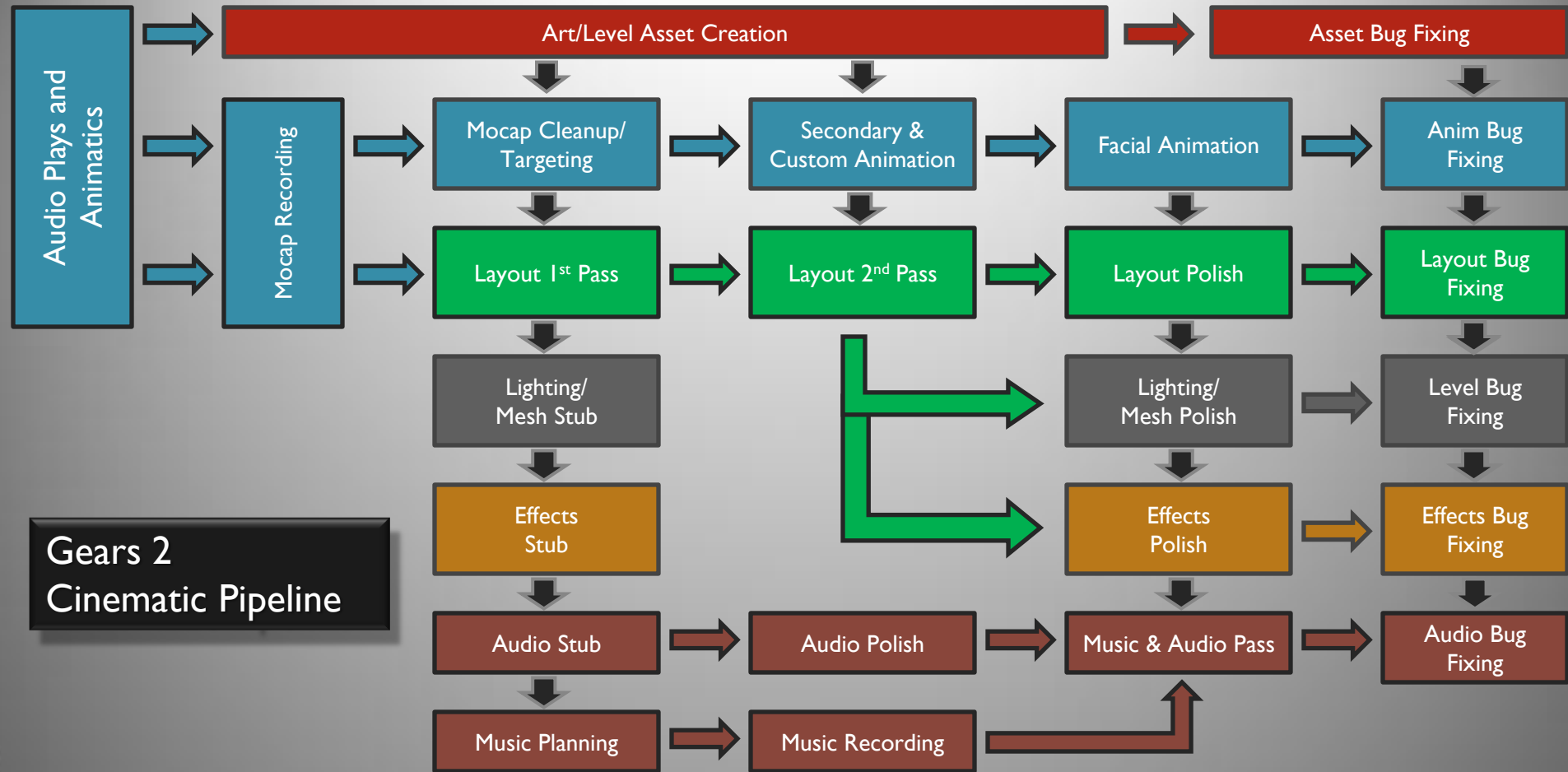
Production challenges – Gears 2

- Scripts came in hot
- Pre-vis for 3 pre-rendered scenes
- Still relied on the 'organic' process
  - Shot from the hip in layout
- LD Cine overload – around 80!
  - The 'Frankencine' lives

CAMERA PANS UP TOWARDS SKY SHOWING HOD BEAM.

OVERHEAD SHOT. CAMERA PANS DOWN REVEALING HUGE NUMBERS OF COGS MOVING OUT FROM JACINTO

AFTER THE CAMERA MOVES THROUGH THE GROUND IT REVEALS A MASSIVE HORDE OF LOCUST MARCHING OUT. BRIDGE IN F/G OUT OF FOCUS

SLOWLY A LARGE PILE OF DEAD HUMANS IS REVEALED

A ROCKET BLAST LANDS NEXT TO THE CAMERA.

FLASH TO WHITE

CAMERA LOWERS UNTIL IT IS STREET LEVEL WITH MARCH COGS. LAYERS OF COGS CAN BE SEEN MOVING OFF INTO THE DISTANCE

JACINTO: CAMERA STARTS MOVING TO THE RIGHT. HAND HELP COG IN F/G FIGHTING MASSIVE GROUPS OF LOCUST
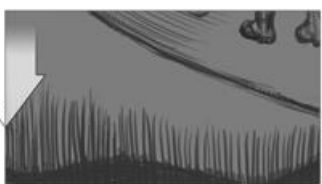
A MAN HOLDS HIS DEAD WIFE AS THE BATTLE CONTINUES AROUND HIM CAMERA CONTINUES

THE CAMERA IS THROWN TO THE GROUND. A DYING SOLDIER DESPERATELY REACHES OUT FOR HELP. BLOOD COVERS THE SCREEN.

CITY VIEW SHOWING HOD BEAMS DESTROYING STRUCTURES

CAMERA CONTINUES ITS MOVEMENT DOWNWARDS THROUGH THE GROUND

AS THE CAMERA MOVES IT SHOWS QUICK GLIMPSES OF DELTA IN F/G. CAMERA CONTINUES PAST WITHOUT HESITATION

COG SOLDIERS RUN PAST.

THE BLOOD SLOWLY COMES INTO FOCUS. THE CRIMSON OMEN IS REVEALED.T

Gears 2 - Opening Cinematic Boards

Style and Presentation – Gears 2

- Story scope showed large crowds and epic events
    - Decided to go with a more traditional style of cinema
    - Cameras should mimic real-world cinematography – support equipment

- Need close ups to convey emotion and importance
    - Can't be afraid of using these to tell the story

- Still experiment at times when needed
    - We don't want cameras and cuts to distract the viewer

Motion Capture – Gears of War 2

- Improve acting on the stage and lock scene timing
- Audition and Hire Actors
  - Our artists weren't hired to act
  - Cast actors to play specific roles – keep motion consistent
  - Actors will learn the dialogue
- Use "radio plays" on the stage with VO sound clips
  - Actors learned the lines and had samples of the VO
  - Able to adjust and lock the timing on the stage

Motion Capture – Gears of War 2

- Work on getting a good performance on the stage
  - Concerned with the motion and not defining camera angles
  - Could experiment with blocking on the stage
  - Spend more time rehearsing than trying to get the perfect performance on camera

- Animation
  - Chose to bake in facial animation with the body motion

Motion Capture – Gears of War 2

- Added weight to our Nerf gun props

Motion Capture RESULTS – Gears of War 2

- "Radio plays" helped us lock timing on the stage

Motion Capture RESULTS – Gears of War 2

- Scenes dropped in easily when it came to layout
  - Made things easier for the layout artists
- Timing was tight accurate for most of the dialogue
  - This made facial match up better with the body motion
- Still had the freedom to make edits and change cameras around in layout
- Motion looked normal (timed at 100%)

Our Tool Chest and Updates
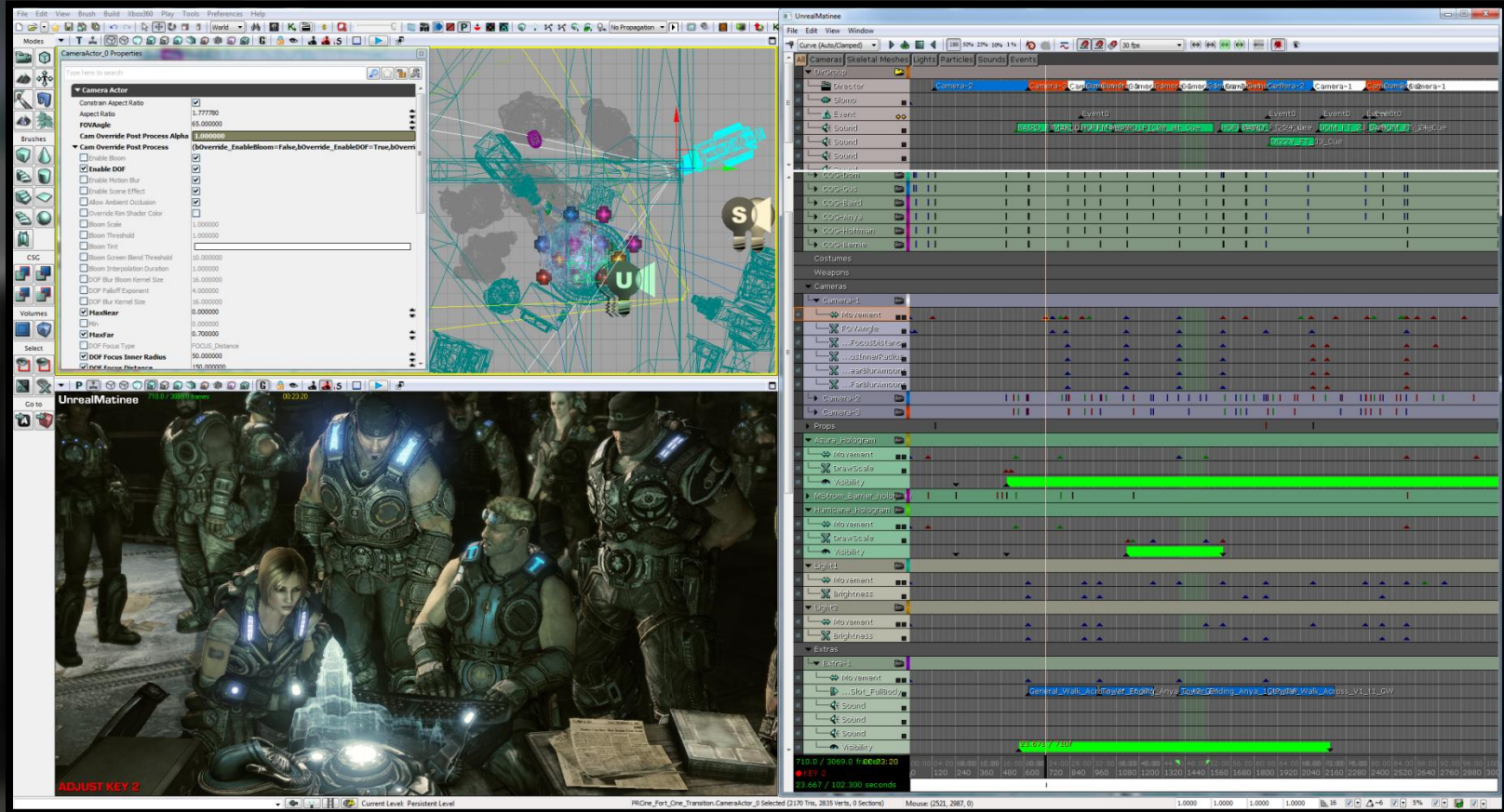
Our Tool Chest and Updates

- Added more features to our Matinee Tool
    - Output of Matinee Data for Animation
    - Support for particle toggling and playback
    - More robust timeline features for tracking time and frames
    - Better organizational features
    - Shortcuts for scene setup

Gears 2 - What could we improve?

- Mocap was rushed
  - Schedule was tight
  - Need time to fine tune in mocap
- Improve weapon props and weighting
- Get better reference for facial
  - We have multiple cameras
  - Get cameras on the actor's faces

Gears 2 - What could we improve?

- Maintain our quality bar in outsourcing
  - Great motion on the stage
    - Outsourced data came back not looking too good
    - Facial animation wasn't up to par
    - In the future do more facial animation in-house
- 'Organic' production style still requires hand holding
  - It's good / it's bad – weighing the options
  - Worked well for a small company, but we've growing

GEARS OF WAR 3

Production Challenges

- Scope of Gears 3 – Bigger again!
  - 90 Minutes of story cines (1/3 more than Gears 2)
  - 129 Narrative scenes
  - Fewer LD cines than before (around 36)
  - 4 Player Co-op game – average of at least 4 characters per scene

Gears 3 Cinematic Pipeline
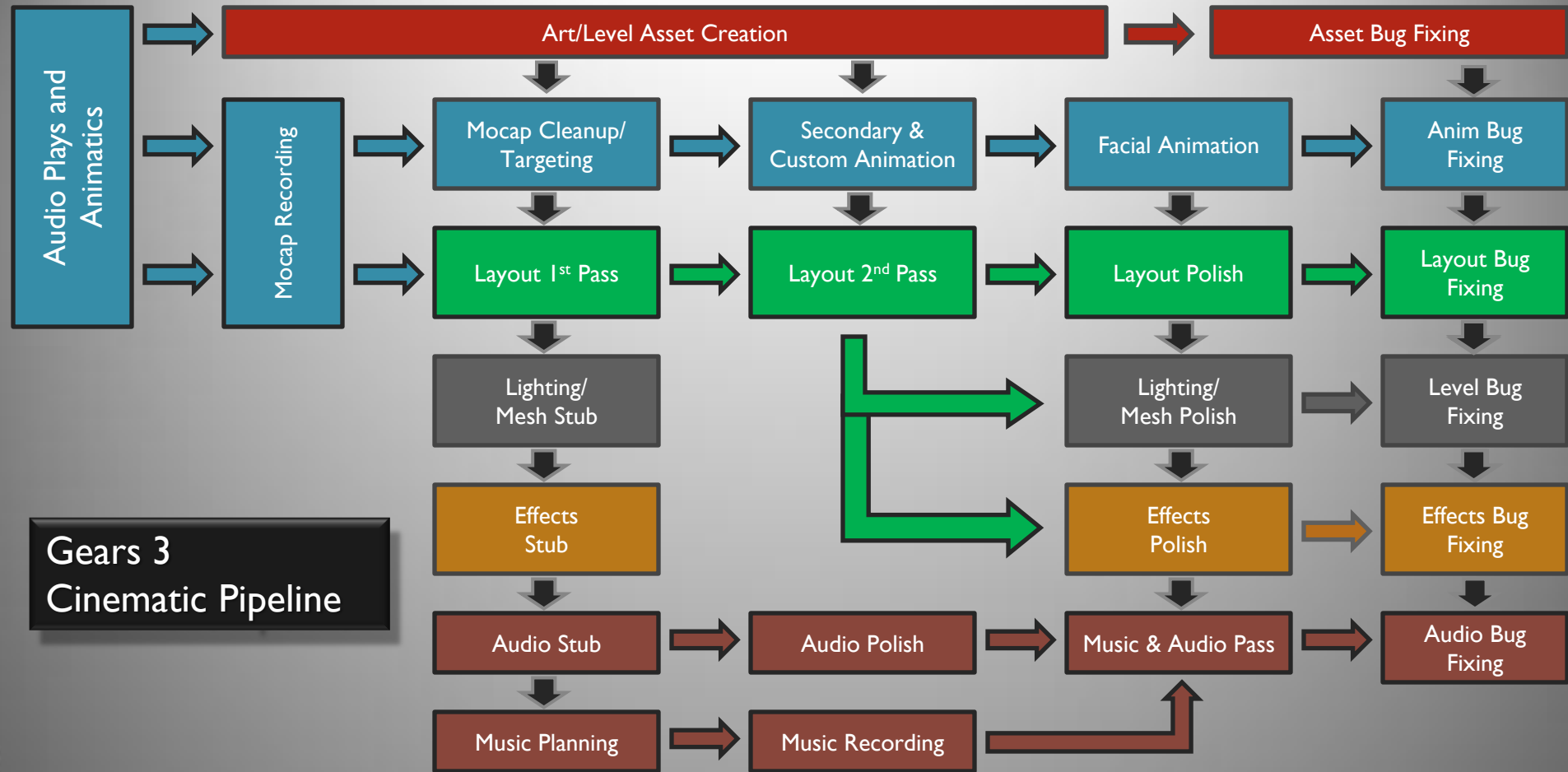
Production challenges – Gears 3

- Gears 3 Pipeline
  - Defined in Gears 2 – adapted to Gears 3
- Small defined cine team of 3 full-time people
- Now naming and organizing animations per shot in each scene
- Outsourced motion clean-up and some facial
- Chris Mielke joined the team as a producer

Production challenges – Gears 3

- Tracking animations per shot was a full time job
  - Assigned one person just to do this task
- Scripts still hot / some churn on story
  - Affected scope but we didn't act on it
  - Should have allotted more time for pre-vis
  - Story changes threw out some pre-vis work

Style and Presentation

- Built upon what we did in Gears 2
  - More action – got creative with camera movement
  - Brought the handheld look back

- Explored new ways of storytelling
  - Did this through visuals and editing
  - Cole flashback cine

- 4 Player Co-op was a challenge for us in the cines
  - Usually minimum of 4 people in a scene
  - Had to get creative with blocking and framing shots

Motion Capture – Gears of War 3
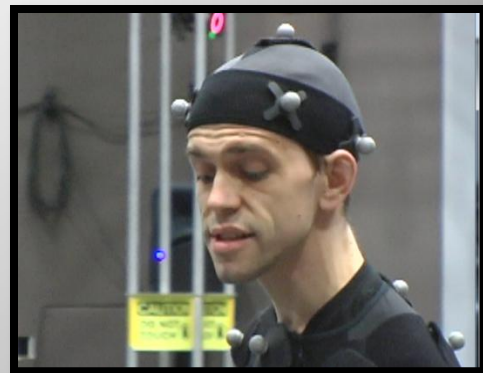
- Still using "radio plays" for timing
- Audition and Hire more actors
  - We had a larger cast of characters
  - As many as 9 people on stage at once
- Work out a regular schedule for mocap
- More animation work done in-house
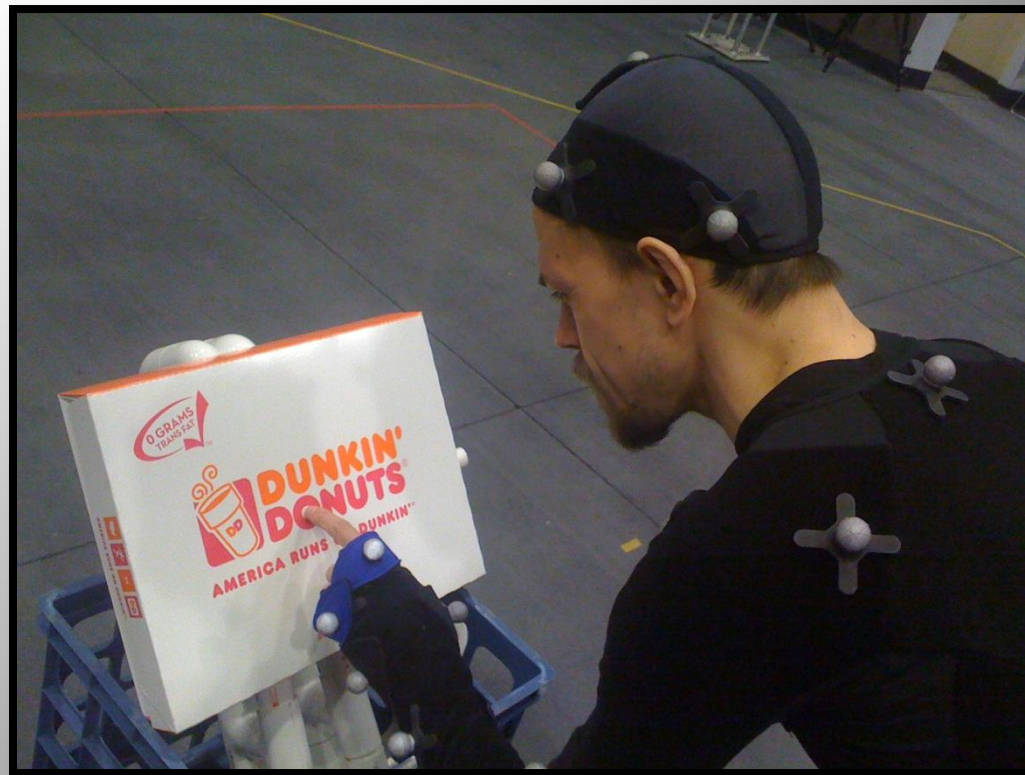 - Better Facial

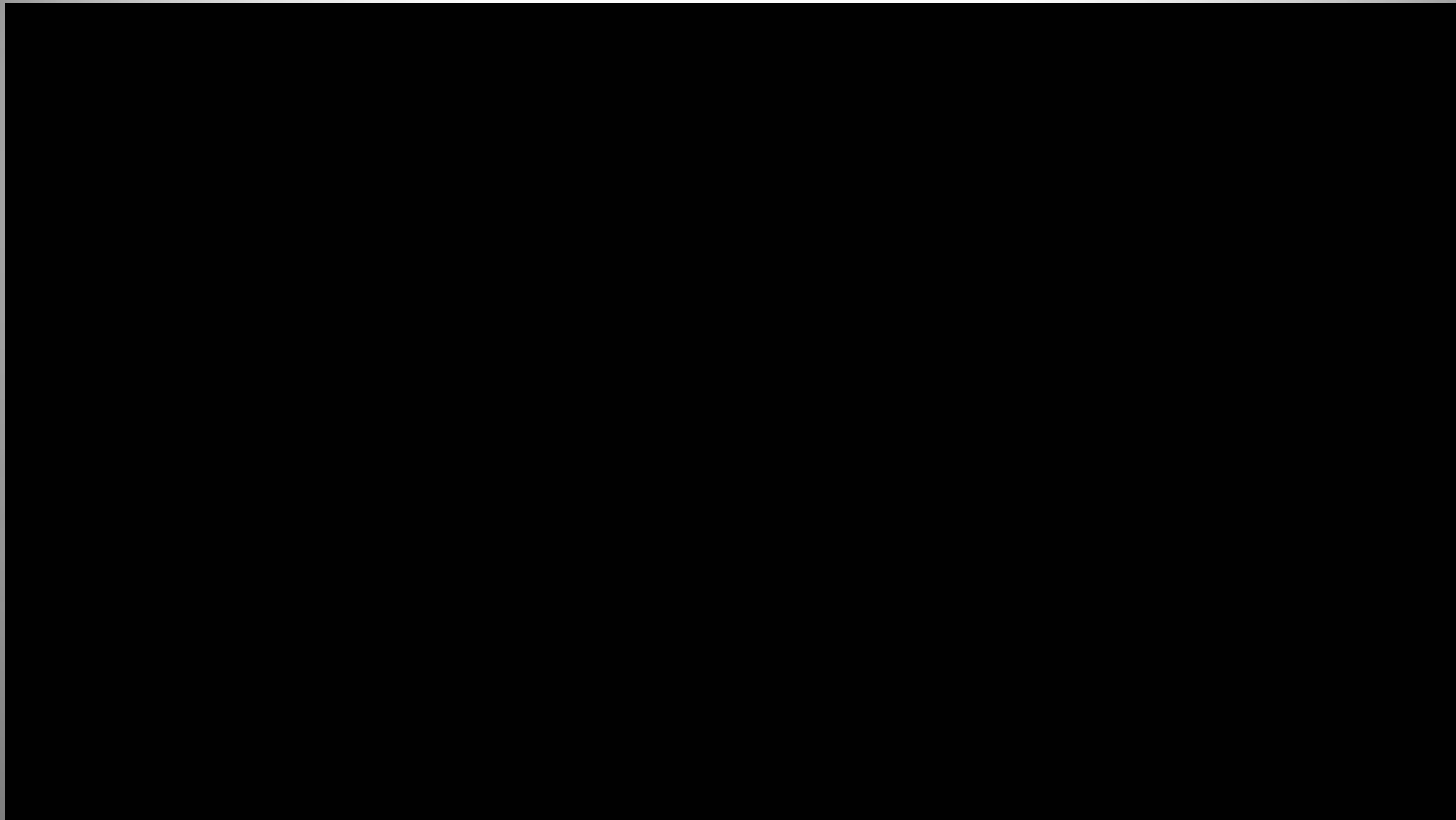# Motion Capture – Gears of War 3

- Weighted props
  - Modified collectable lancers with weights glued in.

Motion Capture – Gears of War 3

- Anything is a prop

Shoot some generic stuff to help with the 'Frankencines'

Motion Capture Results – Gears of War 3

- Scenes dropped in easily when it came to layout
- Timing was tight accurate
- Still could edit in layout
- Motion looked normal
- Facial and body motion got extra love
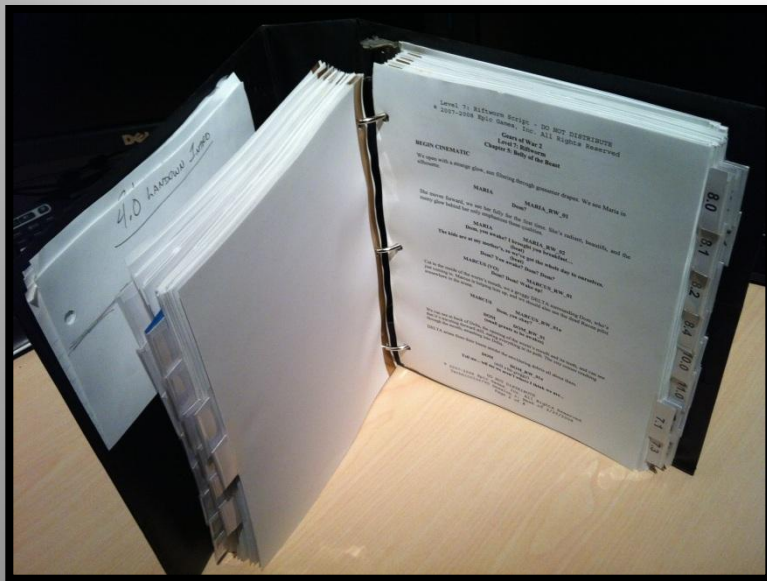- New outsourcers gave us better results

Virtual Camera Support in Matinee

- Virtual camera in postproduction of Gears 3 scenes
- GameCaster GCS 3
  - Physical device with weight and balance of a film camera
  - Able to record motion in Matinee
- Got some cool hand-held response we wouldn't have been able to achieve otherwise
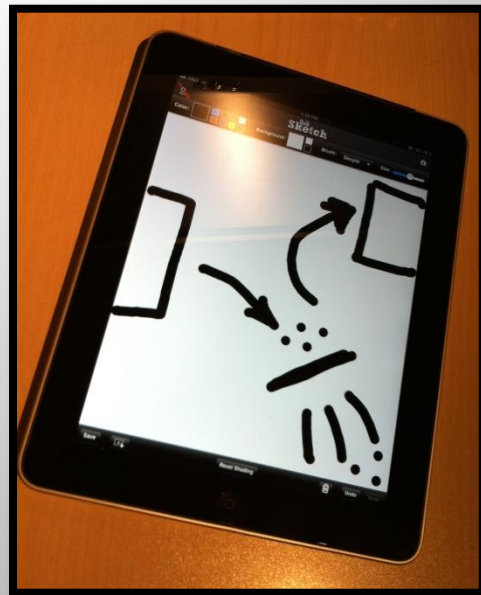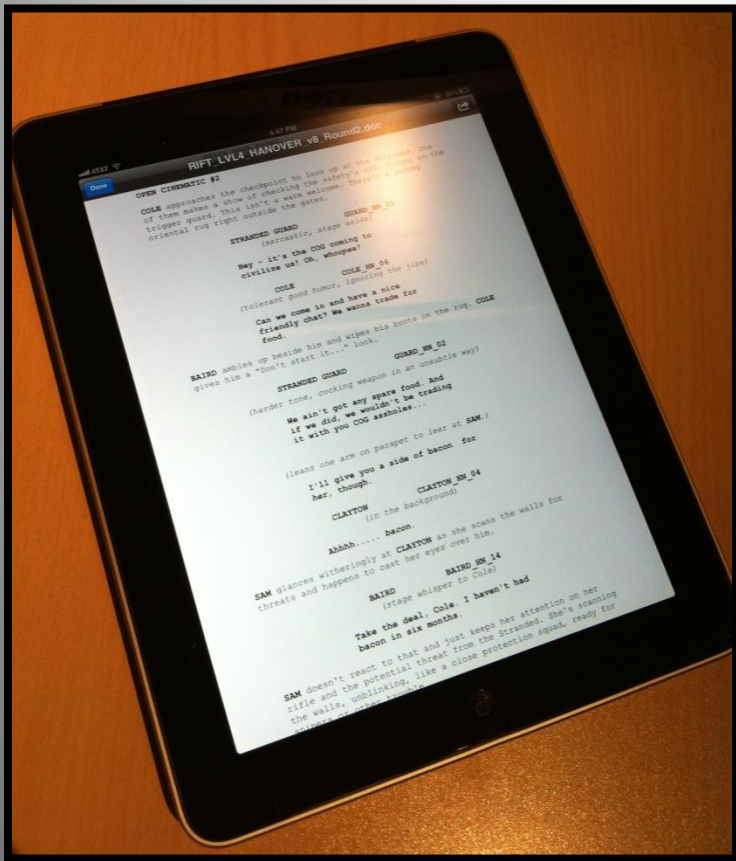
Mocap floor tools

- Script pages on set have always been the norm
  - Can make corrections on paper with actors
  - Can scribble notes and draw blocking diagrams
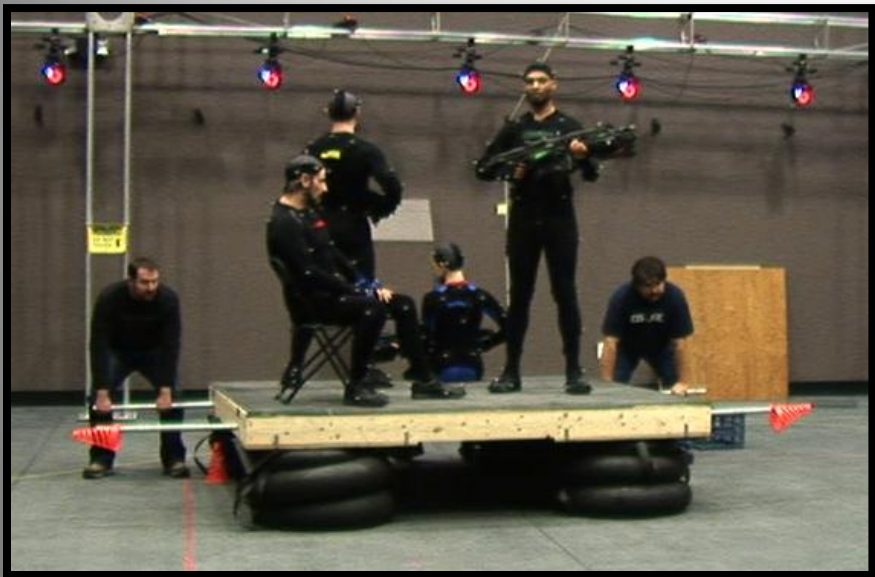 - Great to have the physical script in your hand
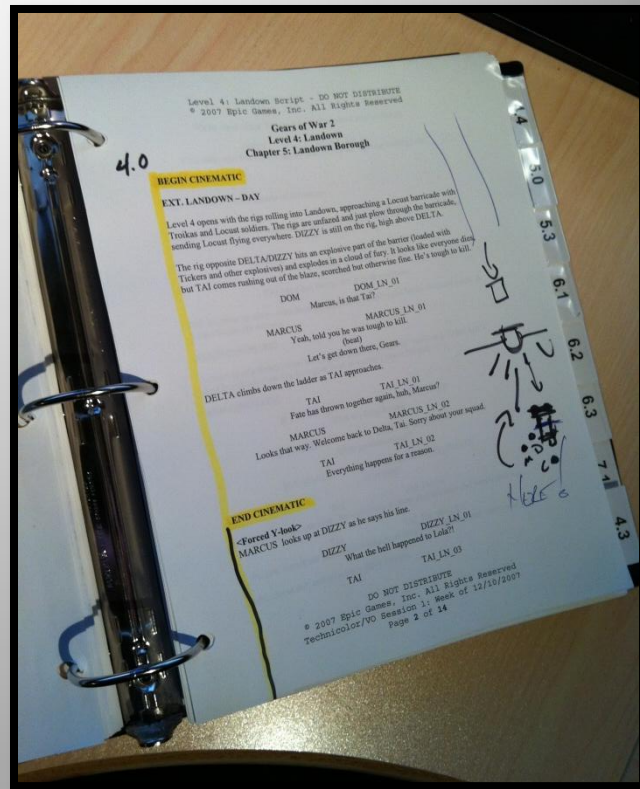
Mocap floor tools

Decided to go electronic with the iPad
- Able to open and view scripts easily
- Use drawing apps for blocking diagrams
- Convenient and saves on paper

Mocap floor tools

- New Vehicle Prop – "Betty"
  - Custom built to mimic vehicle movement

How can we improve?

- Over 90 minutes of story!
- A lot of animation data to handle
- Need better tools for exporting scene from Matinee
  - Animation would benefit from this
  - Look to making it an automated process

How can we improve?

- Lack of pre-vis is starting to take its toll
- Actors are a slave to the radio plays
- Pipeline felt too segmented at times
  - Should have been more linear
- 'Frankencine' was still alive (but barely)
  - Game development is also 'organic' at times

- 'Organic' workflow is starting to cause problems for us
  - Processing a lot of animation that isn't going to be seen
  - Costing a lot of time and money
  - Stuff is not getting locked down soon enough
  - Artists need a visual guide for what they're working on

We need to make Pre-visualizations part of our pre-production pipeline

Improvements and Changes Continue

Processes in DLC and the Future

- DLC Production
  - We scheduled in time for pre-visualization
  - Made changes and locked scenes before mocap
  - Artists and animators had a better idea of the scene direction
  - Shot just what we needed based on animatics

Processes in DLC and the Future

- Decided to let the actors 'act' to their own timing
- Moved away from radio plays on set
  - More natural motion from the actors vs. using pre-recorded VO
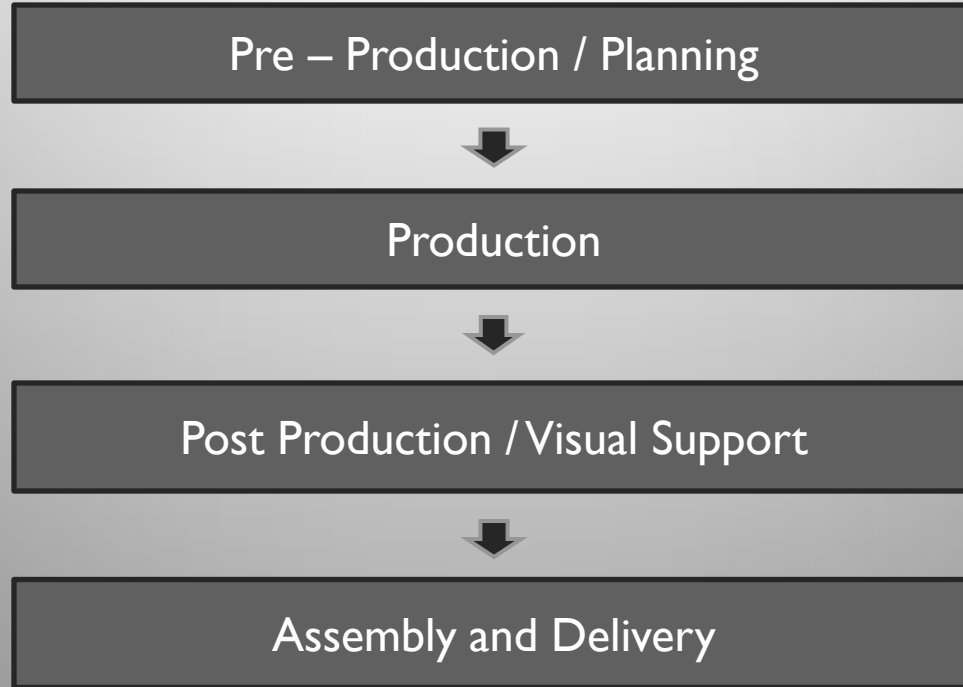- ADR done to the cines during VO session

Processes in DLC and the Future

- ## More Tool Updates
  - ### New Matinee tools for exporting scenes into Maya
    - Automated process
    - Save a lot of man hours from a tedious process
  - ### Automation of shot numbers for individual cuts
  - ### Movie maker to render out scenes easier

Processes in DLC and the Future

- Continue looking to the future with our projects
  - Concentrate more on script and storytelling
  - Performance capture (voice and body) on stage
  - Capture camera angles based on pre-vis
  - Plan and try handheld cameras on the mocap floor
  - Continue to refine our current cinematic pipeline

STREAMLINED PIPELINE

Pre – Production / Planning

Production

Post Production / Visual Support

Assembly and Delivery

STREAMLINED PIPELINE

Pre – Production / Planning

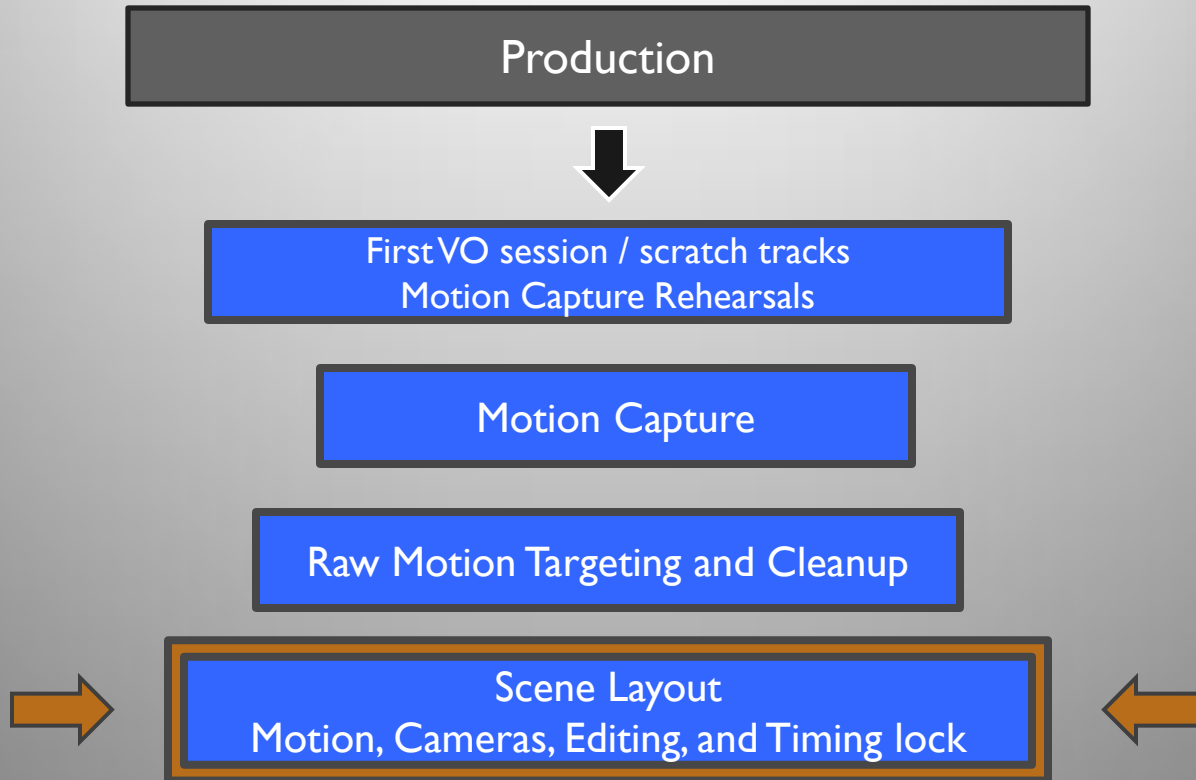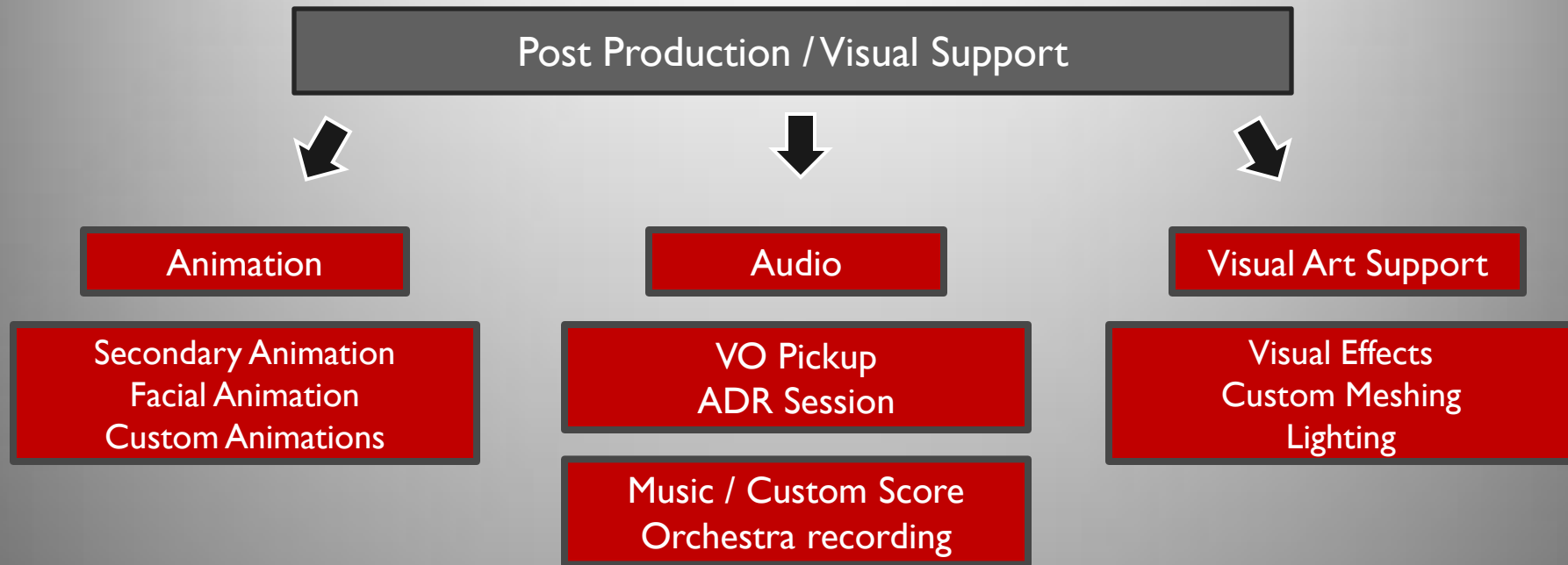Story Ideas / Feedback Loop / Script

Scope / Assets needed

Pre-visualization

Casting Actors for
Voice Over and Motion Capture

STREAMLINED PIPELINE

Production

↓

First VO session / scratch tracks
Motion Capture Rehearsals

Motion Capture

Raw Motion Targeting and Cleanup

→ Scene Layout
Motion, Cameras, Editing, and Timing lock ←

STREAMLINED PIPELINE

Post Production / Visual Support

Animation

Audio

Visual Art Support

Secondary Animation
Facial Animation
Custom Animations

VO Pickup
ADR Session

Music / Custom Score
Orchestra recording

Visual Effects
Custom Meshing
Lighting

Gears Trilogy Cinematics - Conclusion

- It's been a great challenge taking a new IP from script to screen.
  - We've learned through necessity, trial, and error as to what works best for us.
  - Organized production is the foundation to getting content produced efficiently and on time
  - Actor performances have a lot of room to grow and we will strive to make them better
  - Our cinematic style will continue to support the game they are a part of
  - And we will always build and improve upon the tools that help us make better cinematics

Evolution of the Cinematic Process

GEARS OF WAR™

TRILOGY

Thank you for attending!