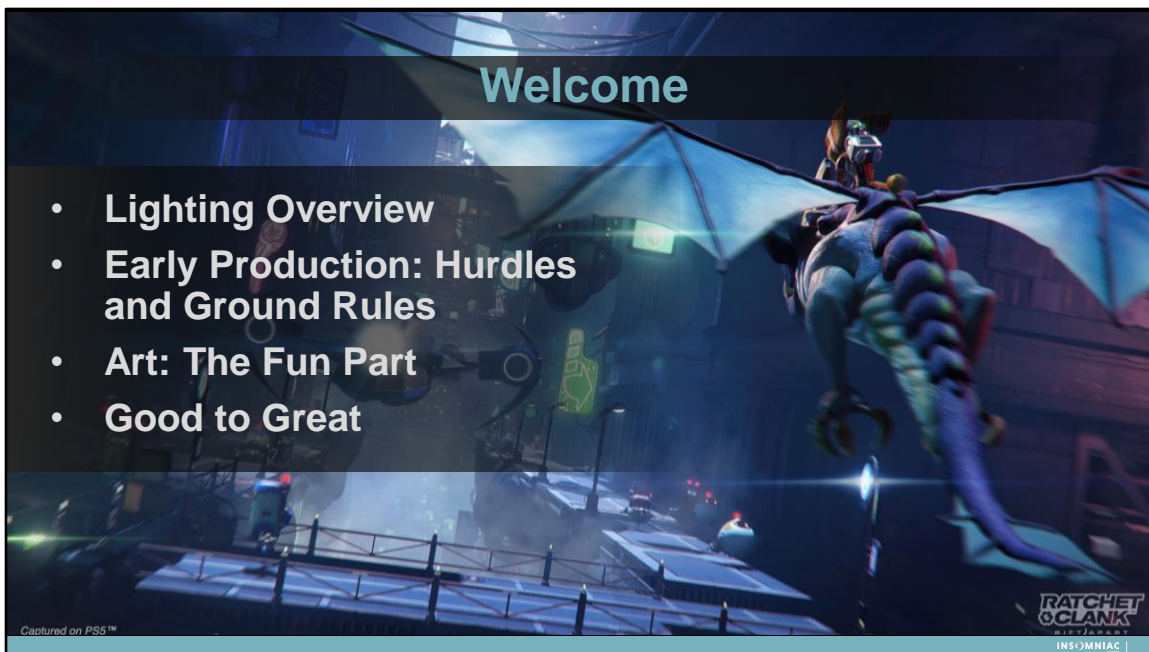# Recalibrating our Limits - Lighting on Ratchet and Clank: Rift Apart
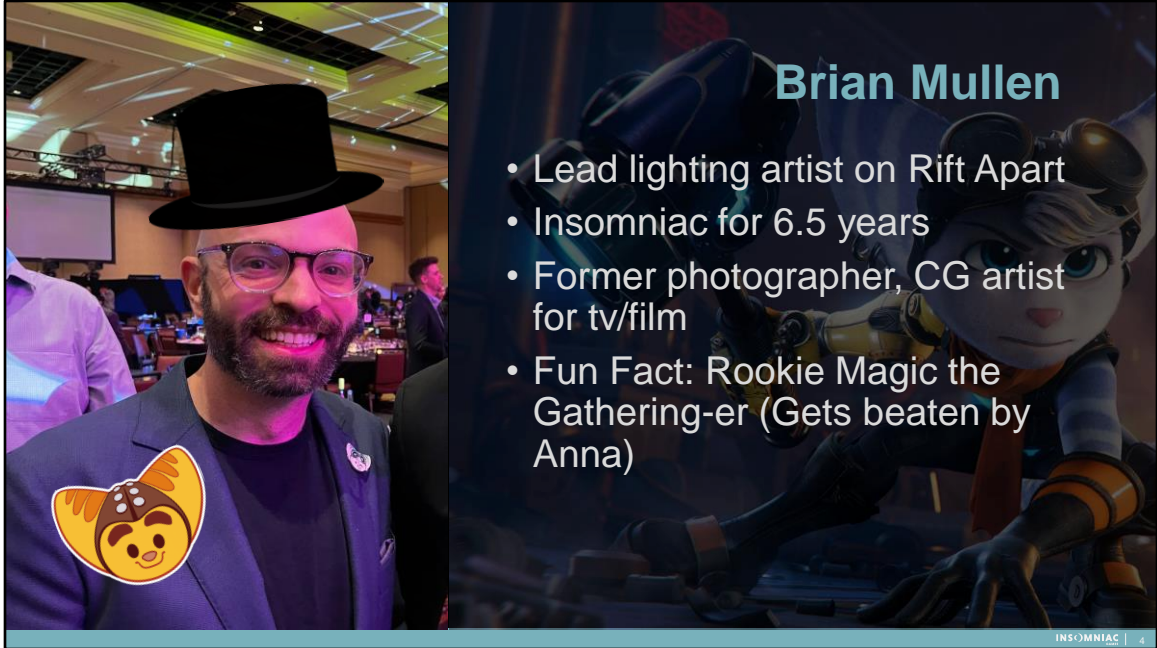
GDC 2022

Hello GDC! Thank you for coming out today to our talk on the lighting of Ratchet and Clank Rift Apart. This is a game very near and dear to our hearts and we're super excited to share with you all just how it all came together!

Today we're going to run through a high level overview of our artistic process and workflows as well as talking about our biggest cahllenges and succeses on the project. WE'll start with a general overview of what lighters are responsible for and then we'll start talking about the role lighting played in preproduction and the work that was done that laid the foundation for the game. Then we'll dig into the really fun stuff of going through our artistic process, taking everyone through the challeges of standing up one of our coolest levels and we'll wrap things up with some insight on how we spent the final weeks of the game really diving into the nittiest of nitpicks to polish this game

Who are we?

But before we do any of that, some quick introductions

Brian Mullen

- Lead lighting artist on Rift Apart
- Insomniac for 6.5 years
- Former photographer, CG artist for tv/film
- Fun Fact: Rookie Magic the Gathering-er (Gets beaten by Anna)

My name is Brian Mullen and I have been an Insomniac for 6.5 years. I started way back in the early days of Marvel's Spider-man as a lighting artist for the project and was moved into a Lead Lighting Artist role for Ratchet and Clank. Prior to working at Insomniac, I worked as a cg artist for tv and film and worked for a few years as a professional photographer, all of which laid the groundwork for a really cool job working on video games.

Anna Roan

- Lighting artist on Rift Apart
- Insomniac for 2 years
- Fun Fact: Pro Magic the Gathering-er (Beats Brian)

Hi I'm Anna Roan! I was lighting intern at insomniac and got hired after I gradated. I've now been here for over two years now. Unfortunately not all of our incredible lighting team could be here today but it's my honor to introduce -
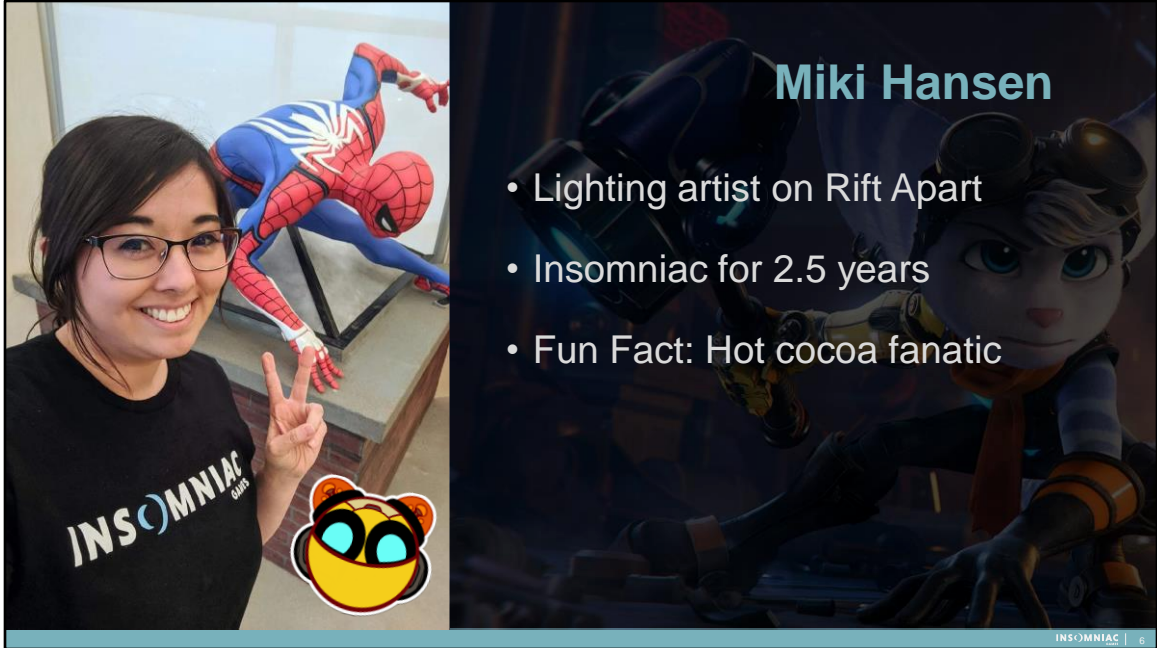
Miki! Miki has also been at insomnia for over two years and has done some incredible work on Rift. Also she's just a delight.

Ozgur (Oz) Ustundag

- Senior Lighting Artist with Playstation Studios Visual Arts

- Extensive background in feature animation lighting

- Fun Fact: "My first gaming computer was a Commondore 64 which I mind-tricked my parents into buying for school!"

And last but least we have Oz! Oz's years of work in feature animation helped round out our little lighting team into something amazing. Now you might be thinking

What is Lighting?

Captured on PS5
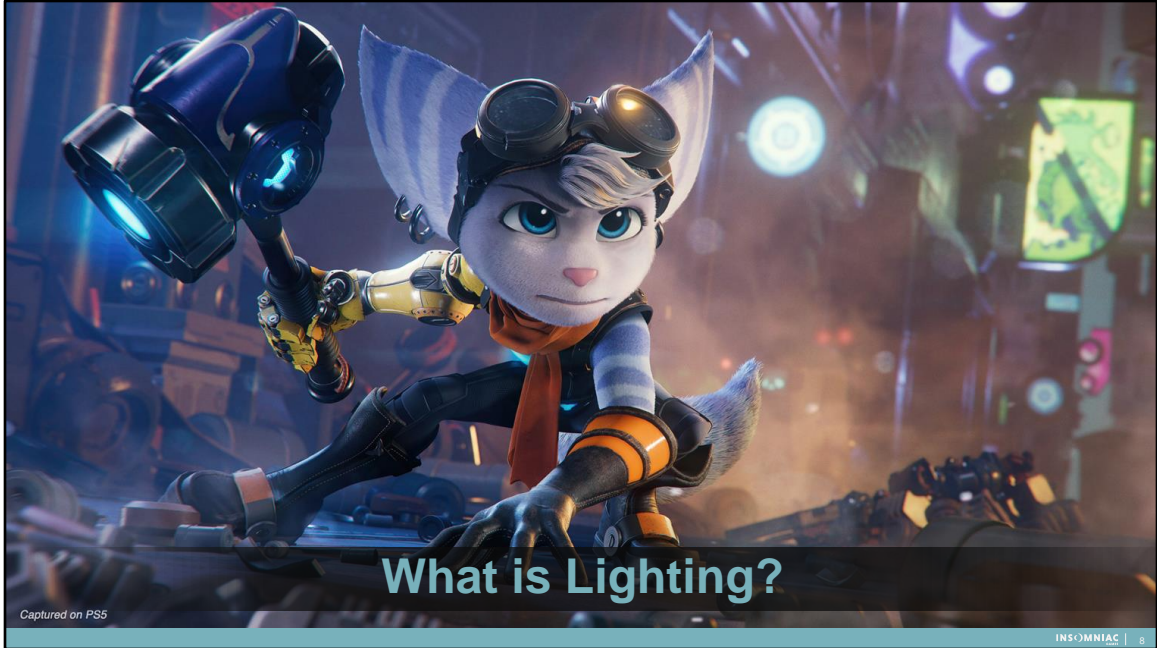
- What is lighting?
  - What is lighting? That question comes up all the time. You know what lighting is it, but what does it mean?

Components of lighting

- Key light
- Fog
- Skies
- Post effects:
  - Bloom
  - Color correction
  - Film grain
  - And more!

INSOMNIAC | 9

- Components of lighting:
  - Well it isn't just adding lights.
  - It's adding fog, weather, color correction, and everything else that makes a picture feel finished at the end of production.
  - In games, we have to wear many hats: compositor, colorist, and even sometimes matte painter.
  - Because of all this Lighting plays a huge role in determining the final look of a game.

9

Lighting adds life

- Lighting add life:
    - As one of the final steps in production, its our job to add that last bit of life into a piece.
    - Whether that's in a level or cinematic, we work on enhancing what's already there.
    - We make sure our characters are lit in flattering ways, we depth to an already rich world, and we call attention to the best parts of the product.

Lighting affects mood
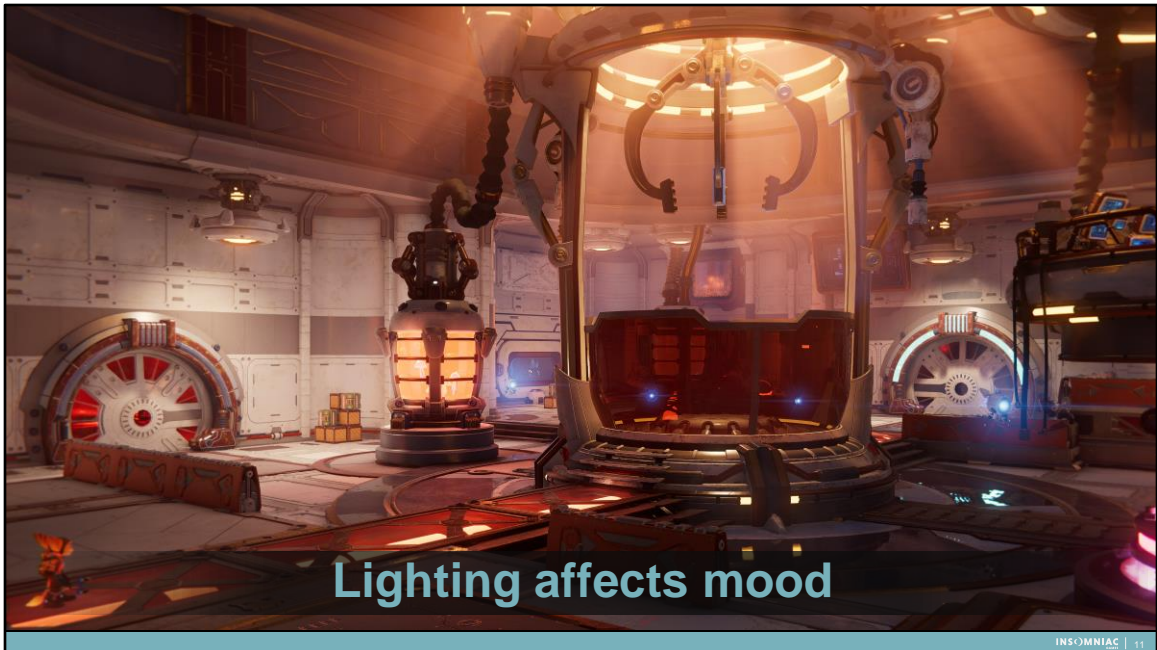
- Lighting effects mood 1:
    - Now a huge responsibility of our job is to determine the mood of a space.
    - Not only do we need to make sure the level is playable and visually appealing, but we need to make sure it tells a story.
    - So much of that comes down to atmosphere. Brightness, contrast, fog, color, and all of these things make lighting nearly as vital to storytelling as the dialogue.
    - Which is why lighting can take an image from this -

Lighting affects mood

- Lighting effects mood 2:
    o To this.

Lighting affects the entire image
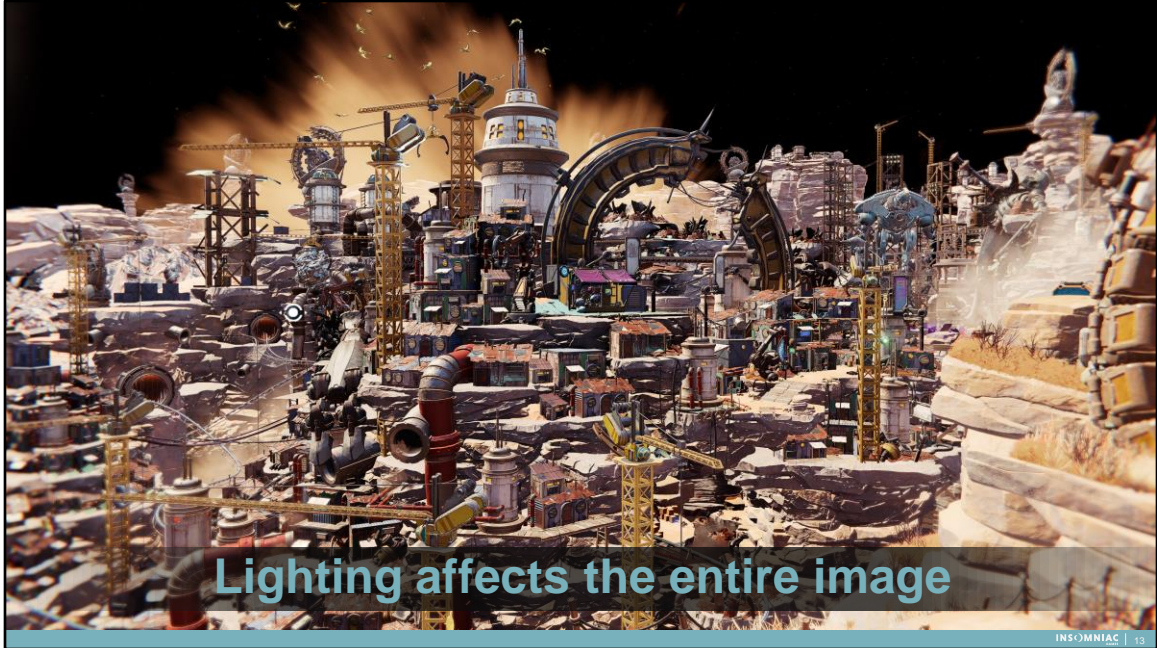
- Lighting affects the entire final image:
  - o Here we can see an approximation what Rift Apart looks like before lighting -

Lighting affects the entire image

- And after lighting.

It might not seem like much but all these individual tools I've been mentioning come together to impact every pixel on the screen but oddly enough, when lighting is done well, its not something most people are ever going to notice.

I've always said that you can build the most amazing environments and fill it with the most incredible characters but if the lighting isn't strong, everyone's work suffers. Like we said, it's our job to bring the image to the finish line but let's start at the beginning.
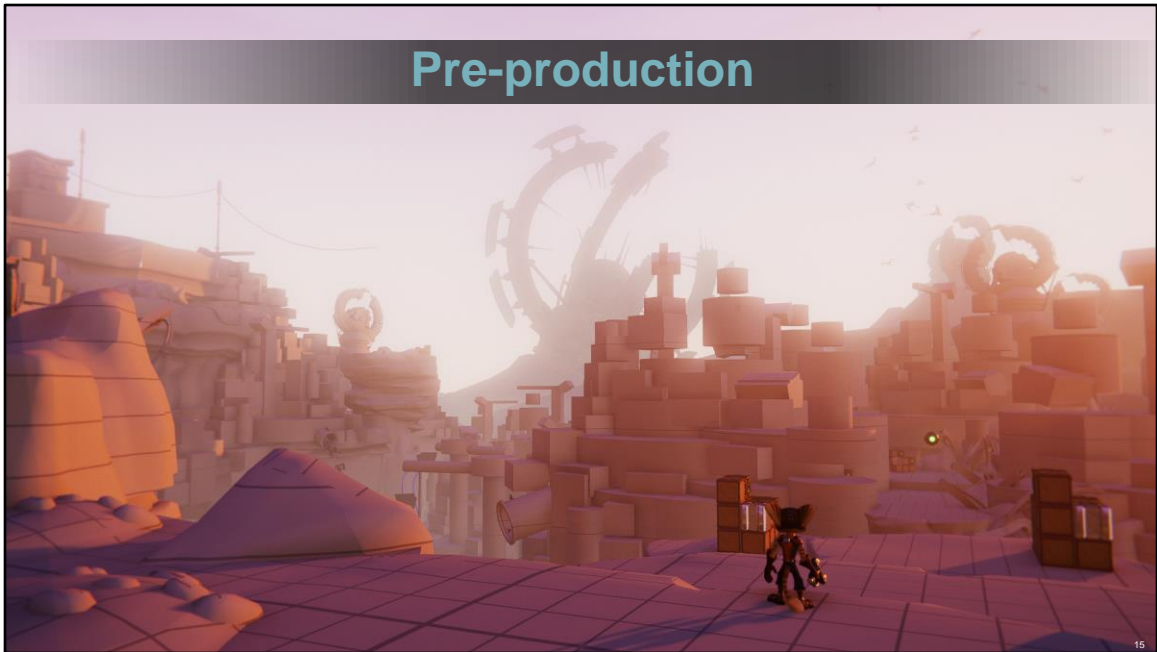
We knew going into this project that we were going to have a big task ahead of us but as anyone who's been through pre-production knows, the only thing you can be certain of is that things will change. So this preproduction phase was focused on the things we could control: identifying our pillars and areas of concern and making a gameplan. Lets dive into a bit of what that looked like:

And I'm going to start with a bit of a cheat because our biggest hurdle didn't actually happen in preproduction but it was our and frankly everyone's biggest hurdle of that past few years, Covid 19. Its tough to talk about any game made in the past few years without addressing this elephant in the room so lets do it. Our small team was forming just as work from home started and it was a stressful and uncertain time. No one really knew how all of this was going to work and frankly work wasn't anyone's primary concern. That said, our IT team at Insomniac Games did incredible work on our transition to work from home and after an adjustment period, its hard to figure how this could have gone any smoother. As for the day to day work, obviously every single day wasn't going to be the most productive. Some days were just going to be tough and that was ok. We knew the priority for everyone needed to be to take care

of themselves and we kept our focus on that. But I also think I can speak for the team when I say that this colorful silly and super fun game and working with these awesome people was just the distraction that I needed.

But jumping back to our preproduction goals, we started by identifying our hurdles. The first one being that we were going to try to complete this work with a slim crew. Small teams can present workload issues and you really have to have the right combination of folks to make it work but personally I find the challenge of working with smaller teams really exciting. Everyone gets to work on a variety of tasks and the communication and comraderie tends to be really great

Hurdle number 2 was a pretty big one and one that anyone working on a launch window title can understand, we weren't really sure how to best push our bar forward on the ps5. In preproduction, work on the console was still happening so we needed to be wise about how we set our lofty visual goals because we still werent sure what we are going to be able to do yet. It's a tricky deal trying to figure out where the new baseline is and what kinds of things we can afford to do now and where we need to establish our limits.

Ratchet and Clank (PS4) was beautiful!
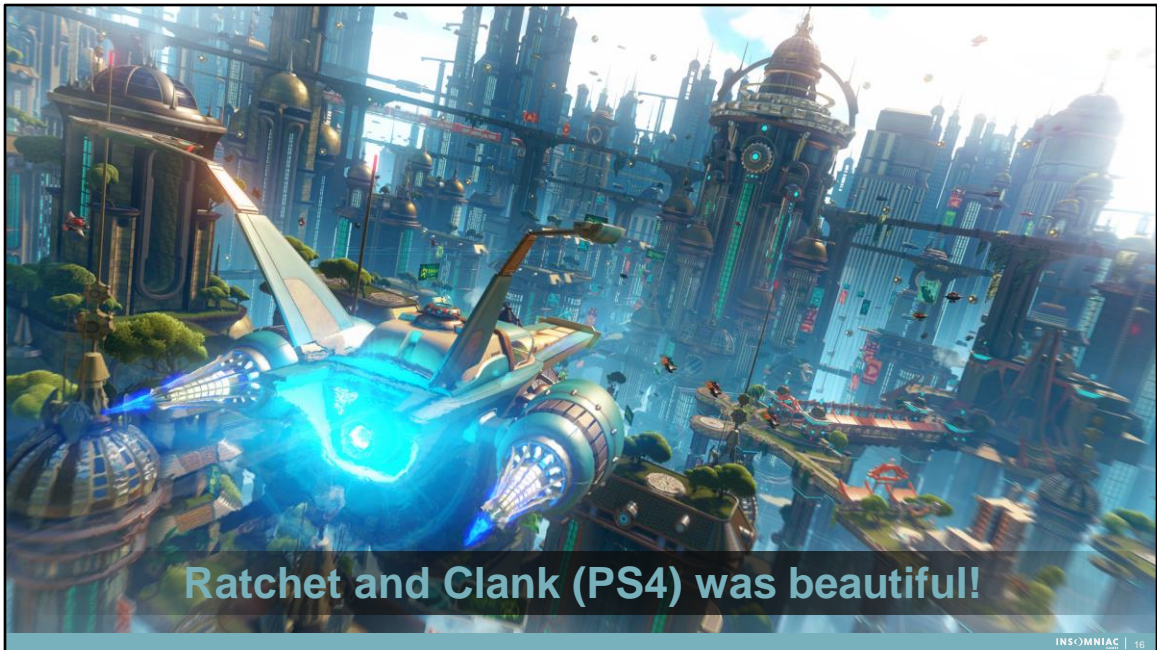
But honestly one of our biggets hurdles on this project was understanding that we needed to show a clear generational leap in quality over the last Ratchet and Clank game on ps4 and that game was STUNNING.   Lauded at the time for its amazing visual fidelity, there was a real concern that we needed to figure out exactly how we were going to improve on this already outstanding foundation in way that shows the promise of next gen lighting
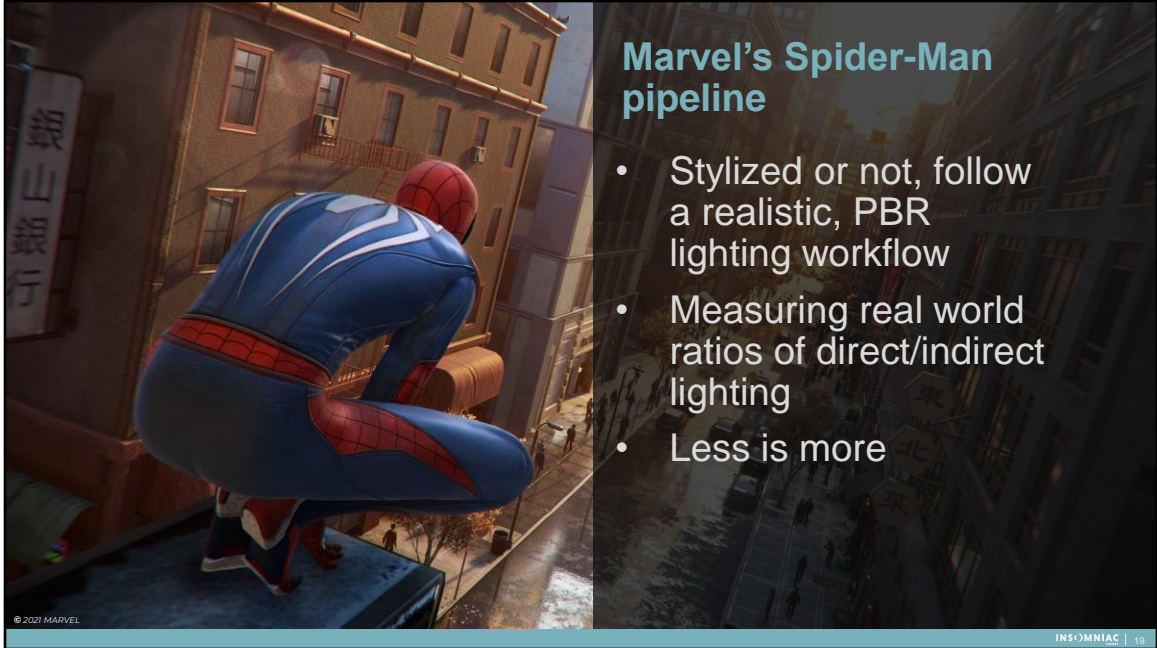
Key Areas of Focus

So where did we start here? We started identifying exactly which areas we knew could be improved upon.
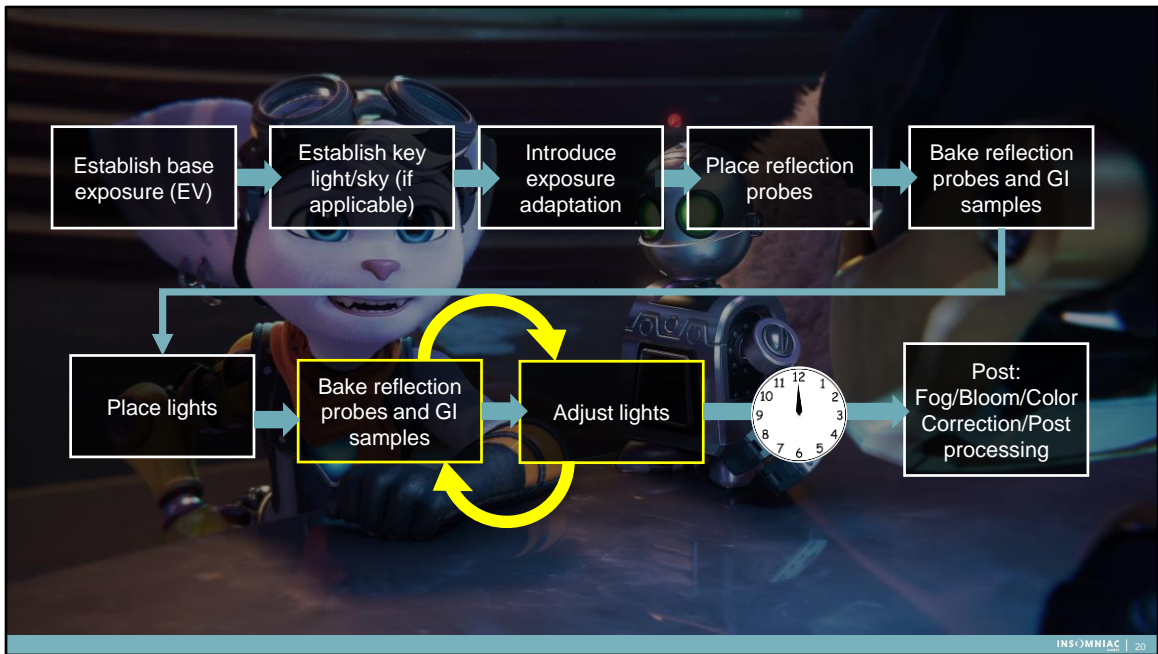
First off we wanted to make artistic advances to make the game feel more cinematic. We wanted the player to feel like they were living inside a movie instead of just playing a game. Second we wanted to showcase technical improvements in both reflections and indirect lighting to make the world feel more realistic. And lastly we wanted to expand our post processing to match that feature animation level of polish, further refining and implementing bloom, chromatic aberration, and color correct, really dialing in the polish. While we had some ambitious goals here, luckily for us we weren't starting completely from scratch.

Marvel's Spider-Man

Insomniac was just coming off of the huge success of Marvel's Spider-Man and with it came a lot of knowledge about best practices and workflows. As I mentioned before, we're still learning the limits of the ps5 but we did know what a ps4 was capable of so we started with that knowing we would be able to push things more as production went on.

Marvel's Spider-Man pipeline

- Stylized or not, follow a realistic, PBR lighting workflow
- Measuring real world ratios of direct/indirect lighting
- Less is more

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We started from a foundation of making sure that we followed a PBR pipeline that had a foundation in lighting that could be measured in the real world. We would make sure that our contrast ratio of direct and indirect light matched real world measurements. And a major lesson that we learned on Marvel's Spider-man was that the act of a lighting a space tended to have stronger results when we kept things simple, which we'll expand on in a bit.

The first place we start with is exposure. Exposure is really the foundation of everything that we do, it affects everything and we need to get this locked down early. Not setting this correctly at the beginning can be tricky because the impact is not immediately obvious but can really start to come more obvious as production goes on. An inproper exposure can cause inconsistency in glowing materials and visual effects and in the intensity of placed light values throughout the game. It can also lead to situations where we aren't fully adapting in really bright or dark areas. Essentially we treat this step less like an artistic or aesthetic step and more technical first step that is consistent with values across the game. What we are aiming for in our first pass lighting is predictability.

Why is exposure important?

- **Adaptation Anchor** – 8
- **Adaptation Range** – 2
- **Emissive** – 0.5
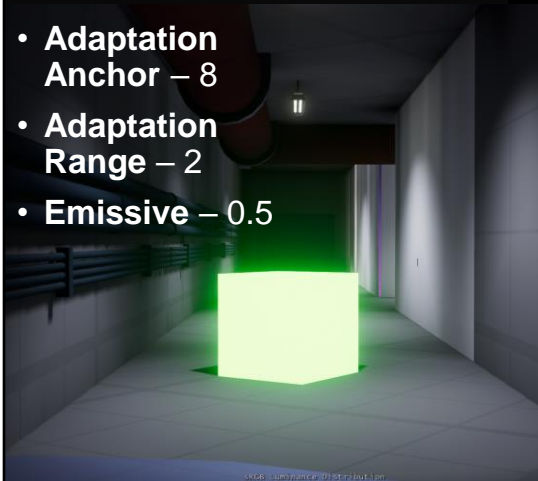
- **Adaptation Anchor** – 12
- **Adaptation Range** – 2
- **Emissive** – 0.5
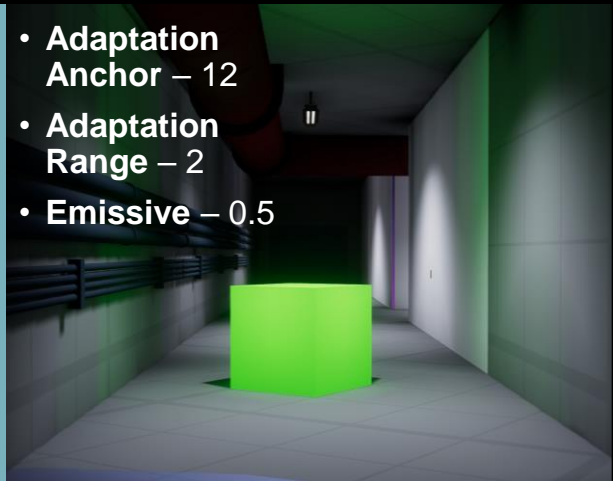
Lets take a look at an example of the impact of different exposure settings can make on a scene in a way that isn't entirely obvious to the lighter when they're starting. We have a simple hallway here, the results on the right and left are not very different with the EXTREMELY noticeable difference of what our glowy green cube is doing. The reason that exposure has such an impact on materials is because it is essentially brightening and darkening the entire scene, and its bringing the emissive along for the ride. Think of a cell phone screen that doesn't have auto screen brightness active. If you look at your phone in a dark room, the screen is very bright, getting you angry looks in a movie theater. But if you take that same phone outside on a bright sunny day the brightness of the screen can be incredibly dim and hard to read. That's why we need to get this step right from the beginning. Many of the assets that will be most impacted by having incorrect exposure might not be in the game for weeks or months. We not only want predictable lighting for our team, we want our lighting to produce predictable results for everyone.

Setting the key light intensity
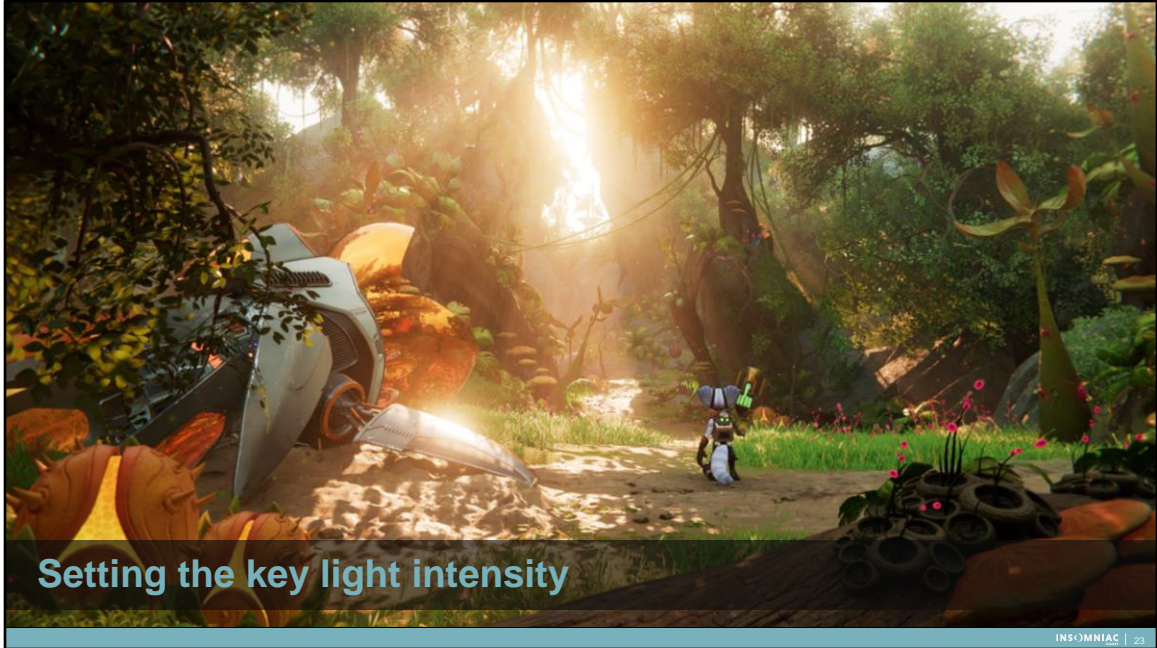
Once we have established our exposure, we're going to set our key light intensity. Again, this is not a value that is set for aesthetics but a value that is coordinated with the value of the exposure. Throughout the work on the level, we like to treat these two settings as locked variables that the rest of the lighting work is balanced around, whether it be light intensity, fog brightness, god rays, you name it. Its all impacted by this. This ensures that we're all working on the same baseline across the lighting team and making sure that we have consistency.

Direct to Indirect Lighting Ratio

- SLR Camera
  - Manual - Lock the shutter speed, ISO, white balance and aperature
- Calibration card gray
- Take a photo of the gray card in direct sunlight …
- … and then in a shadow area
- The ratio of direct to indirect lighting here should be your same target in engine

2:00 pm Los Angeles

2 Establish key light/sky (if applicable)

The next big step for us to get a good ratio of direct and indirect lighting. Almost all of Rift Apart is taking place in these large outdoor areas and in every level we are starting with a wide and majestic vista shot. And of course, these are all alien worlds so matching our earthbound lighting ratios might not seem as necessary but I felt after doing lots of testing that when we weren't getting the ballpark of what we are all used to seeing in real life, something wasn't quite clicking. Starting from a strong place where lighting matched what we were familiar with gave us better results quicker.

To get it right, we want to know what the real world ratio is and this is a rather simple process if you have the equipment. You'll need a digital SLR camera and a gray calibration card. Setting the camera to a fully manual mode should be able to override anything the camera is trying to do for you and will allow you to lock in the shutter speed, F stop, ISO, all that stuff. You can refer to a photography guide for best settings to use for each time of day but the real goal here is that we don't change it once its set. So with our camera all ready to go, we're going to step outside and snap

a picture of that gray card facing the sun. Then turn away from the sun and snap another picture. You can also just go into a shadow area like I did in the image here. And there you go! Take those pictures into a photo editing software, desaturate it, and get an RGB reading and figure out how many times brighter the sunlit card is than the card in indirect light. And there you have it, a direct to indirect contrast ratio.   For a sunny Los Angeles afternoon we ended up with roughly a 3:1 ratio here

Direct to Indirect Lighting Ratio

- The ratio of direct to indirect lighting here should be your same target in engine

2:00 pm Los Angeles
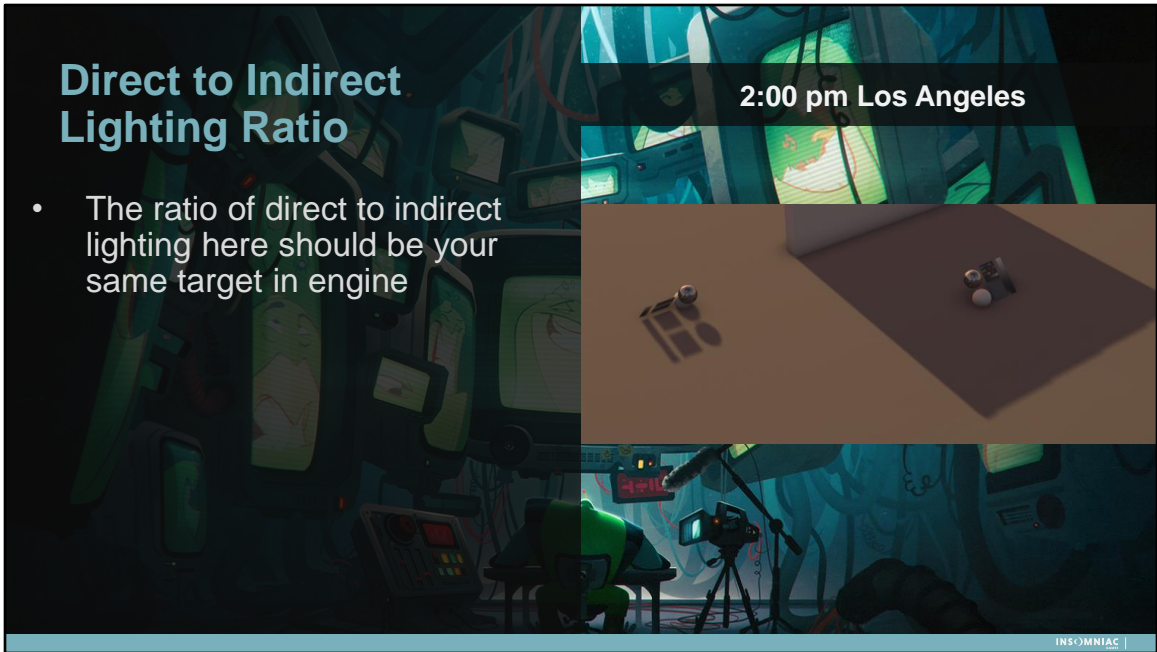
The next step is just to recreate this exact process in engine! We are looking for that same 3 to 1 ration in our direct vs indirect. If key light and adaptation are locked, this process should run rather smoothly.

If it's not, it might be good to either brighten or darken your sky and re bake until you reach your match the expected ratio.

Less is More

- Goal: any light contributing to global illumination or reflections has a visible source

- Avoid adding cheat lights

- Avoid adjusting how the bounce light is generated or displayed from the default (correct) setting

3 → Place reflection probes → Bake reflection probes and GI samples → Place lights

The next steps of the pipeline is actually placing our lighting model prefabs, the probes and the lights. A big goal for this project was to try to work simple and realistic. Every light needed to be motivated by a light source. We didn't want to have phantom lights on Ratchet or manipulate the strength or color of our bounce light. We wanted it to be simple and PBR.

In this example of Rivet's hideout, a majority of this room is lit by just a few very large, very overlapping lights.

Less is More

- More realistic bounce light
- More natural exposure adaptation
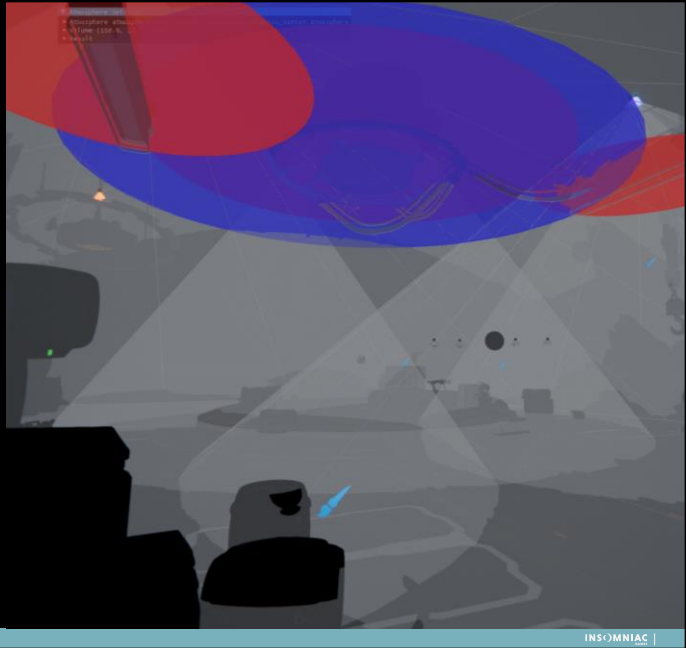
While generally seen as a negative to have overlap of this extent, we found that this caused less performance issues to deal with because we kept our setup simple. After all, its easier to dial 3-5 lights for performance than 10-15. And aesthetically we got more realistic bounce light and a more natural adaptation in our exposure.
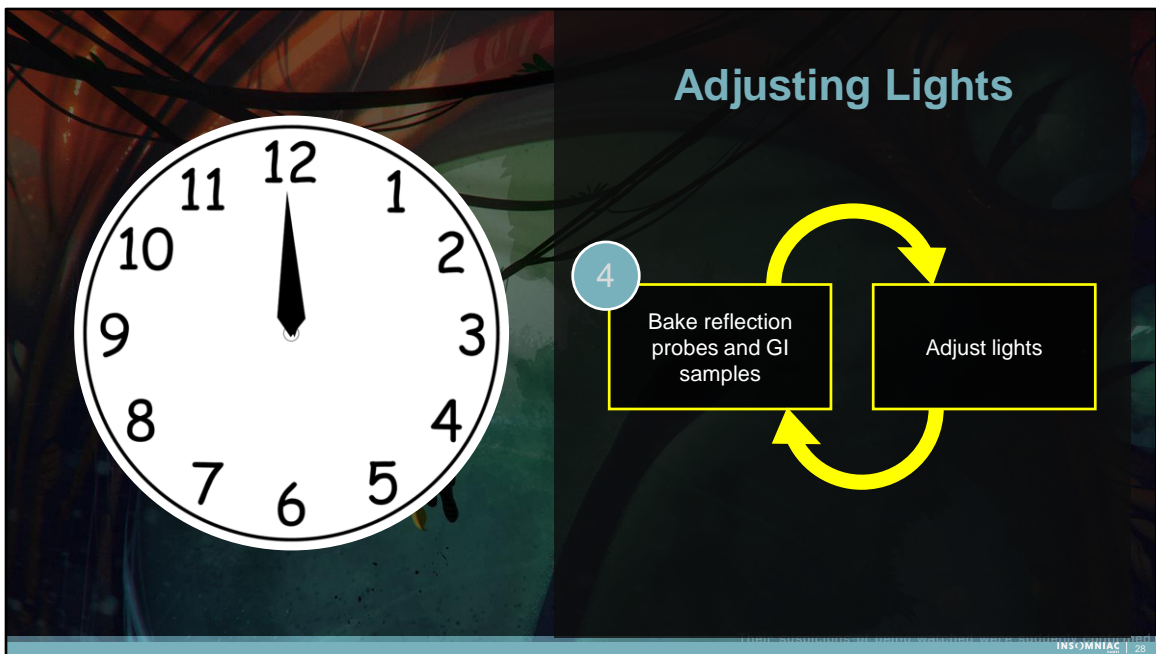
From then on, it's an adjustments game, tweaking and re baking until you get something you're happy with. It's important that you re bake continually. The game is in constant flux, other departments are always adjusting levels and you don't want any surprises midway through production.

Post and Atmosphere
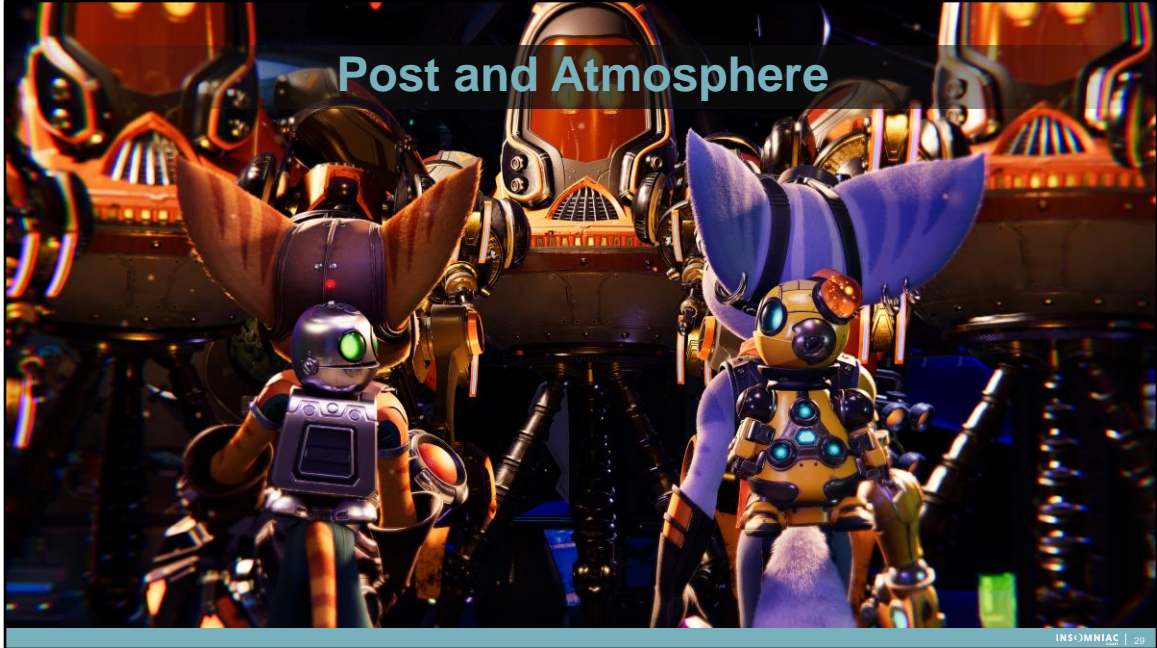
After you get it technically correct and in the ballpark artistically, it's time for the exciting part: Post Process

You don't want to do this step too early because anything you're doing to add visual flourish can complicate the initial set up and can lead to technical mistakes later on.

Post and Atmosphere

5 Fog/Bloom/Color Correction/Post processing
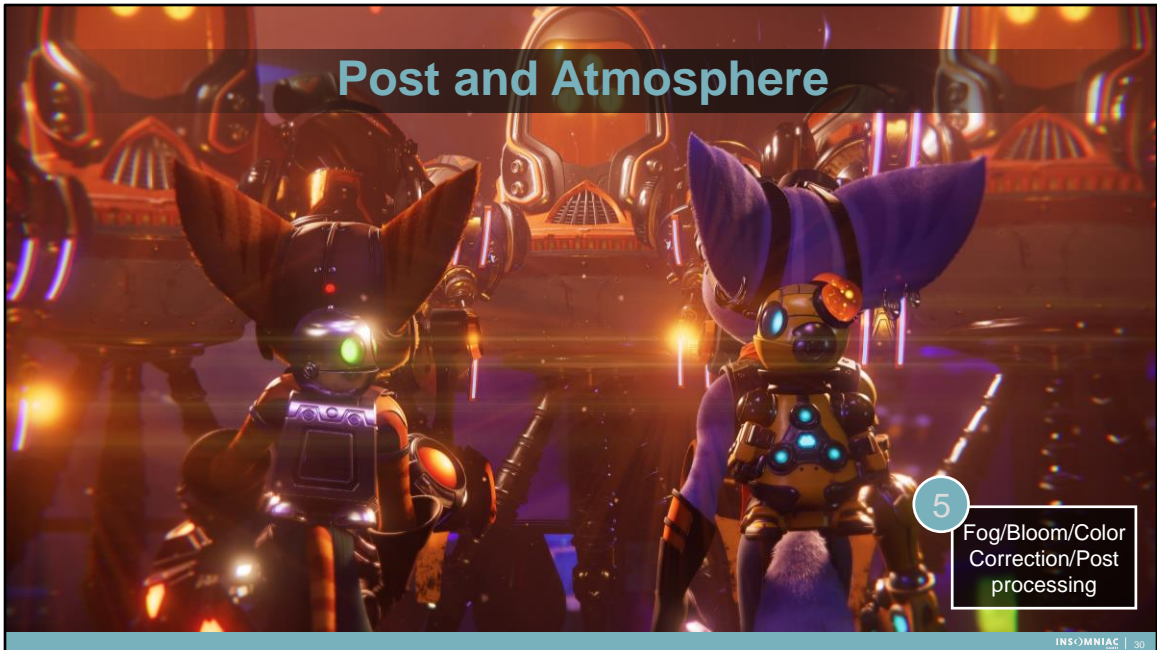
All that being said, the post process step in production is where a project can really find its voice.

In Rift apart we were going for a more futuristic colorful look. We wanted lens flares that would make star trek jealous and a color scheme that made the player excited to see more. That meant adjusting the color correction to saturate the scene and push the contrast for a more cinematic feel. It also meant adjusting fog to soften the overall look of the piece to match the quality of feature animation.

We mentioned earlier that lighters are finishers of an image and this is what we mean. These final steps in the process can dramatically change the tone, style, and feel of a game completely.

And that's why its so important that everything before it is done correctly. Trying to polish lighting work that wasn't built on a solid foundation is an immensely more difficult task, one that takes substantially more time and is likely to never hit the visual bar that we are looking for.

We have an example of exactly that.

Before

This is a train station in nefarious city that we've relit using a series of common workarounds and inefficient workflows. There are entirely too many lights in here flattening everything. Because we have so many lights, I had to start making several of them skip shadow casting. Even that didn't help in some spots so I made some only contribute to bounce lighting. And then we still had performance problems so I reduced the falloff of lights but then that produced less bounce light so I had to add back in more lights for fill and you can see this is starting to become complicated and messy. If this is hard to follow its because we started from a weird foundation and now we're just chasing our tails trying to get a result that looks good and doesn't tank framerate.

So at first glance you might not be able to see anything wrong, you can see the color tone and mood we are going for and most people wouldn't notice right away but compared against a scene lit using the pipeline we had in place the difference can be pretty stark.

when we light something correctly it's obvious. This is the same train station lit using the pipeline we've outlining. This has fewer lights, better performance and easier to further adjust for performance if we needed to, better player pathing, and the materials all read better. And bonus, it just looks prettier.

Let's take a look at the details.

The image of the left is missing shadows from this platform. In some ways, its hard to tell there is even a platform present because the contrast is missing and making the image harder to parse. One of the primary reasons we are losing contrast here is that the light above the platform isn't casting shadows. It's a common technique to move to in the ages long battle with making sure a game is performant and in previous generations of hardware, it made a certain amount of sense to do this. In the past, we've all had to cut corners to keep the cost of lighting from impacting playability, sacrificing visual fidelity for performance. But with the power of the PS5, we were determined to find other ways to get that performance back and not resort to this. We lit scenes with the idea that everything a light touches is casting a shadow. Anything less and immersion is lost.
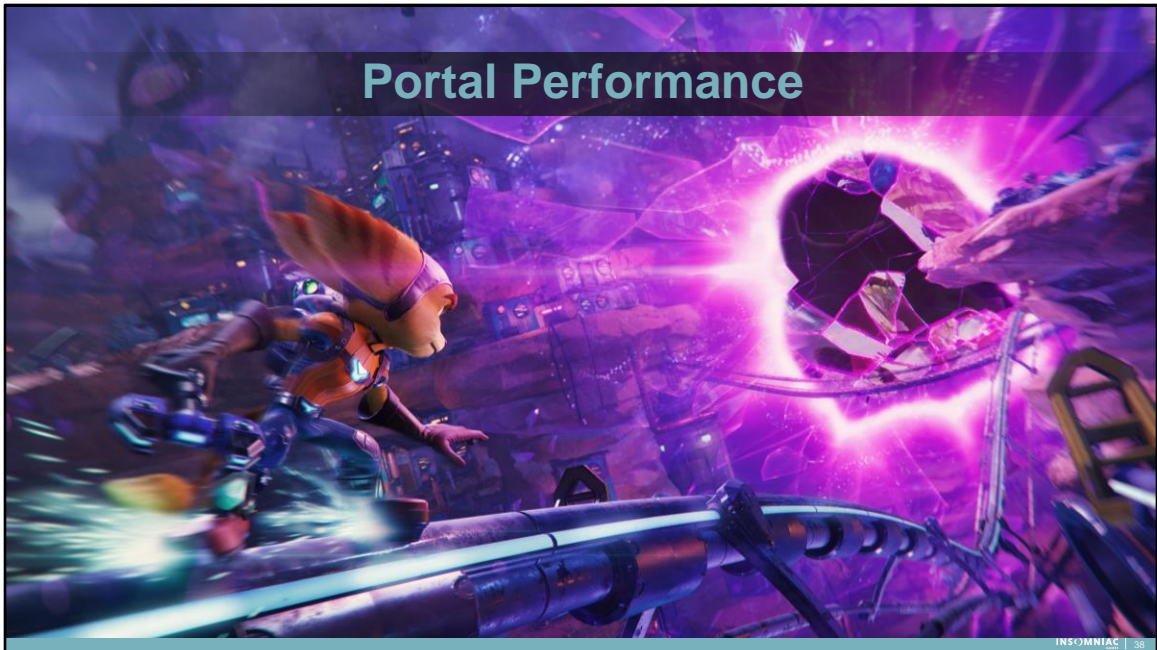
The other issue we have here is player pathing. The blue of this light is supposed to pop to draw your attention toward the exit of this room. In the image on the left the colors don't contrast against each other making the objective less clear.
In the image on the right has a clearer sense of not just where we need to go but we can clearly see the platforms leading me too it.

Character Impact

And what about our lombax friend here? By over optimizing a setup, we have a character that is not doing the PS5 or the amazing character team justice. Ratchet has lost his highlights and looks extremely evenly lit. When cinematics begin to roll in, we really want to make sure that the level lighting is done correctly or the cinematics will become substantially more difficult to handle. The glowing mouth of Ratchet on the left is of major importance as that would become an immediate red flag of concern the second he begins to speak and the interior of his mouth begins to glow.

We're all trying to figure out how to balance aesthetics and performance. All too often we find ourselves making tough decisions with the amount of lights, the falloff of lights, etc to make sure that the pretty picture isn't creating a game that isn't fun to play. But what we found by following the pipeline was that we generally put ourselves in a good position to get a strong foundation of lighting that didn't have to make many sacrifices. Our simpler setups were easier to tune for performance, we didn't need extraneous fill lights because our bounce light was correct. If you look at the images above, the image on the left isn't awful but it doesn't hit the mark for a game that we wanted to show the promise of next-gen lighting. Its missing specular highlights and shadows and our characters and environment are suffering as a result.

But with all that said, we're still making a video game here and its impossible to not face performance problems. To keep the game running smoothly each department is allotted a certain percentage of power that we can use to affect the scene. In lighting's case that's about 8 milliseconds. Now thats not a hard and fast rule as different scenarios will require some teams to take up more of the budget, but it's a strong place to start.

Taking a look at another incorrectly lit set up we can see that lighting is actually at 25 milliseconds. That's three times the size of our budget! The reason lighting is so high here is because this scene was flooded with smaller unoptimized lights that were inefficiently placed and covering mistakes that could have easily been fixed with proper care.

That's why its extremely important for us to tackle performance early and often because this effects every department.
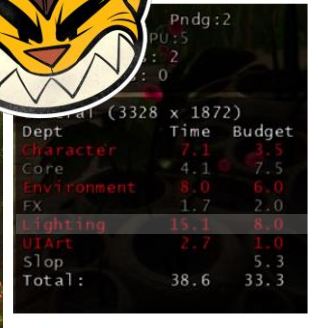
Of course, even if we do our job correctly, not everything is as simple as a static room. If everything would have just sat still our game would have been a lot easier to light.

And a big reason for that is we're making a complicated game! One of the main features of our game is the ability to open a portal and enter a completely different level. This required both levels to be loaded at the same time and if we aren't lighting efficiently, that's TWO inefficient levels open at once!

We built a game featured around fast loading and lighting is one of the most expensive things in the game. That's why its ultimately so important that we are responsible for our own work first and then start looking for creative solutions afterwards.

If you'd like to learn more about the incredible portal work in the game you can check

out Peter Kao's GDC talk on Shifts and Rifts: Dimension Tech on ratchet and clank rift apart.

- Here's a specific example where we had a performance problem without an immediate answer. We did all the things we just said, we kept it simple and followed the pipeline. There's only one real driver of the light cost here and it's the sun, which we need. So if we've not gone crazy in here why is lighting double our budget? What happened here?

-
    Well there's a few reasons. First off, the power of the ps5 isn't only going to lighting. Everything that lights are hitting in this game is getting more expensive to light! Rift Apart is known for its stunning environments, huge crowds, amazing characters, and active vibrant scenes. And we love them. But those come at a cost.
    In this particular scene what we are seeing is the cost of lighting a complex and dense environment without a lot in the way of optimization available for us on the lighting team. But we did accomplish our goal here of getting this very lovely shot performant and lets dig into how.
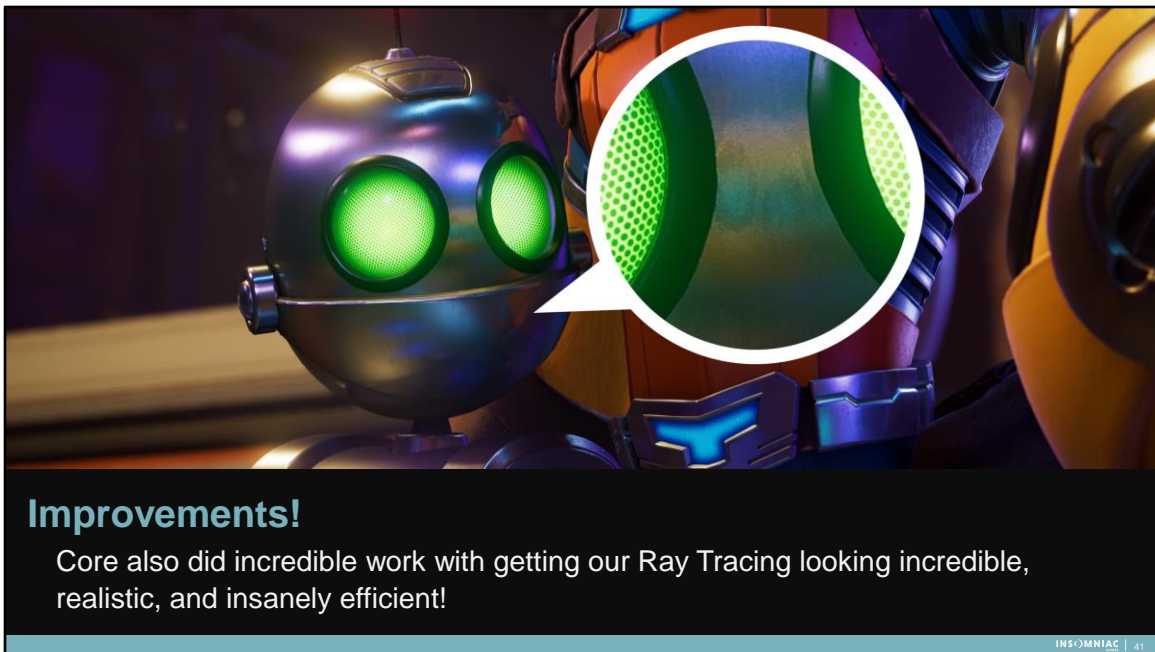
Improvements!

Our team worked on making believable, realistic fur that we could afford to light.

First off, our Core team made not only incredible looking fur, but fur that somehow didn't tank framerate. For lighting, we skip rendering shadows for the fur shells and only render the base geo for the shadow maps which makes shadow map rendering much cheaper and unintentionally but neatly also adds sort of a subsurface scattering effect to the fur. In the deferred lighting pass, we combine the shadow maps with screen-space contact shadows to pick fine shadows from the individual strands.

Improvements!

Core also did incredible work with getting our Ray Tracing looking incredible, realistic, and insanely efficient!

For our second item, its worth highlighting again the gargantuan effort of our Core team in exploring and implementing more and more refinements, optimizations, and improvements to our ray tracing throughout production. Ray tracing was always going to be a major feature of this game. I mean, Clank is a walking chrome ball. But that it was done this impressively with this minimal of an impact on performance is the reason this team was able to win the Best Technology award at this years DICE Awards. Major tip of the cap to this team.

Improvements!

Adding LODs to both environment and character helped ease the cost of lighting immensely.

And then finally, we can't stress enough the importance of the hard work that the environment and character teams did not only with making the most stunning environments and characters imaginable but by putting in the work to optimize and ensure that LODs were in place.
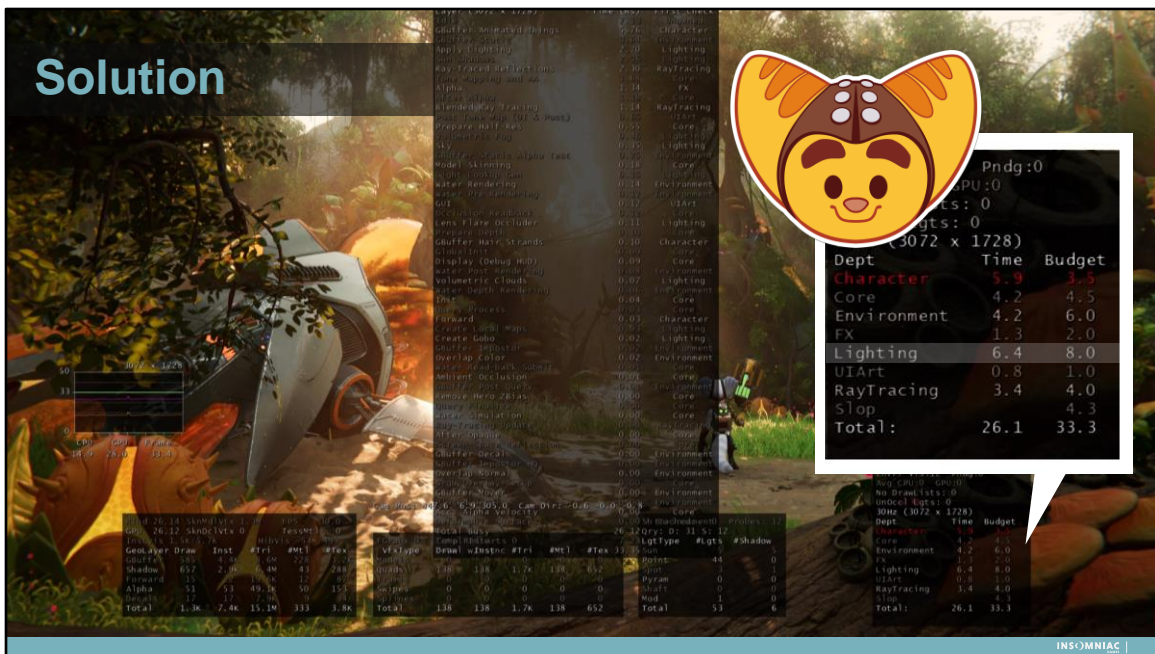
Circling back to this scene, lighting dropped by almost 9 milliseconds due in large part to the work of the people I mentioned in the previous slides. I certainly didn't do anything to help with performance in this particular instance as there wasn't anything for lighting to handle.

We could have reduced the shadow quality of our keylight to make this work but performance is a team effort and not all solutions are immediately apparent. By working together we were able to keep the incredible ps5 quality graphics and run in frame at the same time.
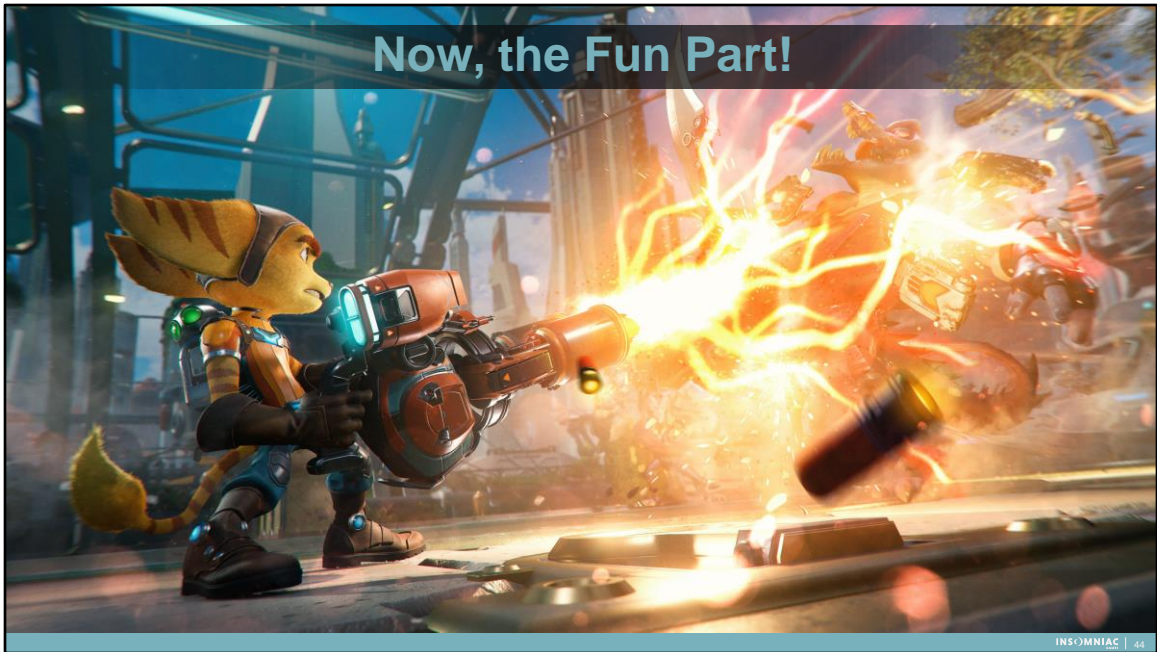
Ok so now lets dive into the fun stuff, making the art. Following these rules and more allowed us to start with a good foundation for our lighting. But our next step was taking what we've been learning to this point in production and bring it into our levels. Lets take a look at some of what we had to do.
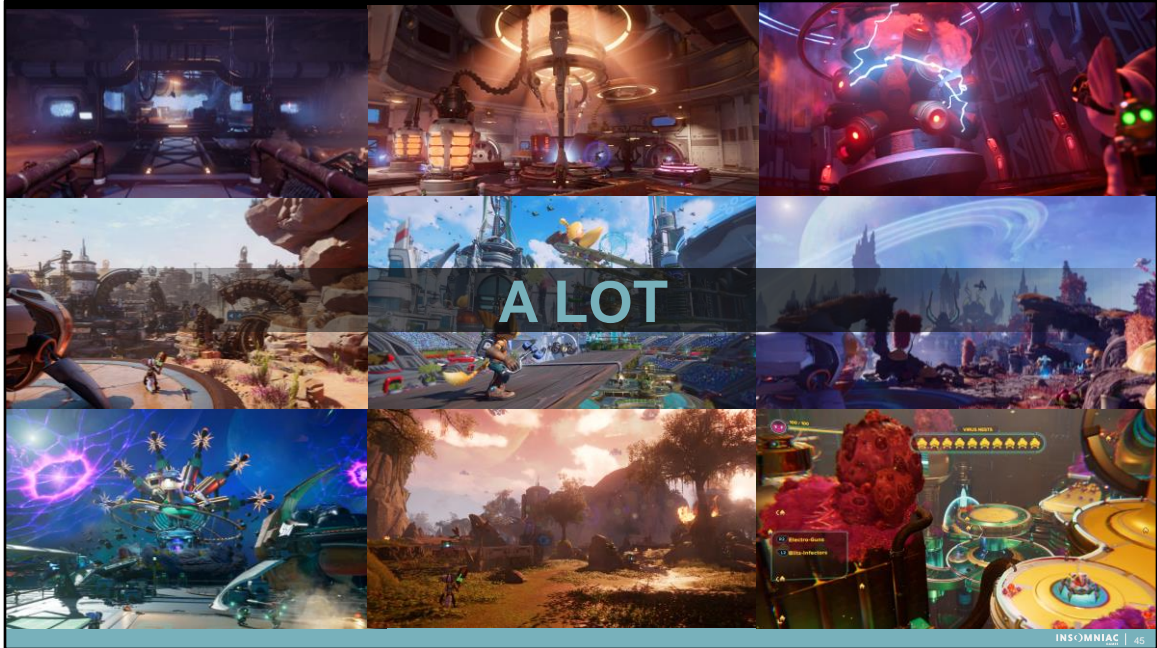
It was a lot. This is a massive linear game with expansive worlds. And on top of that, we had over 1 hour of cinematics taking place in 13 distinct planets that needed to have their own unique look, some of them requiring multiple lighting setups for return visits or alternate dimensions. They each had to express a different mood and story while still feeling like it lived in the same universe with the same level of polish.
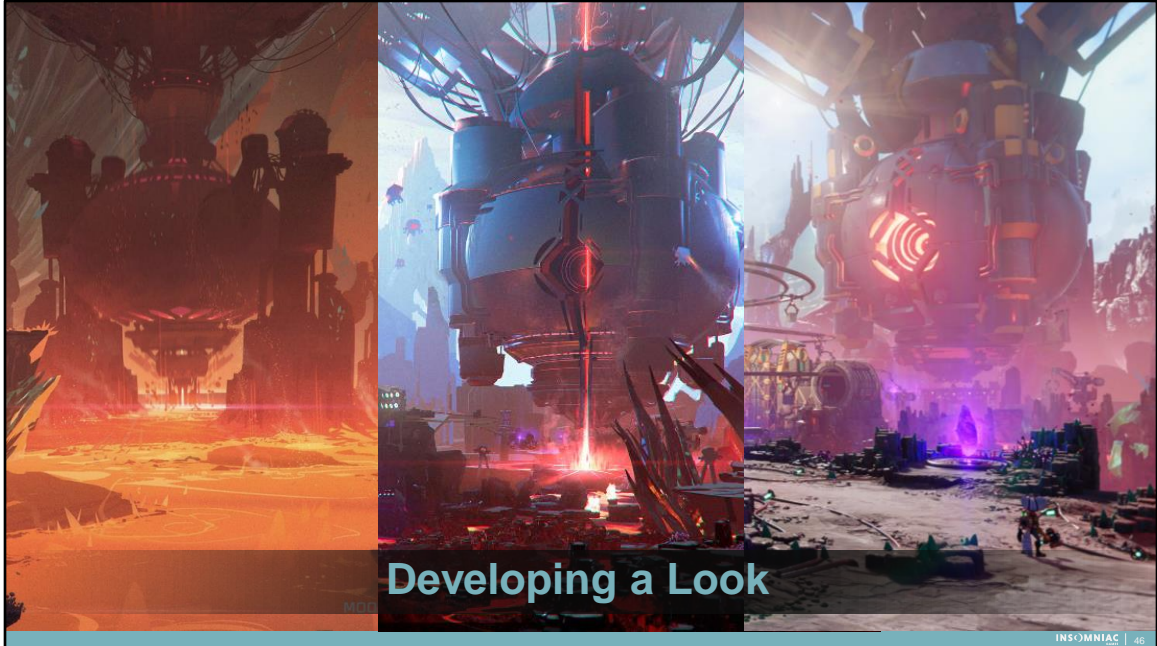
Developing a Look

Developing a look can be a daunting process that takes a village. From initial ideation all the way to the finished product you're constantly working to hammer out the identity of a space.

To explain how this process works, lets take a look at one of the levels that exemplifies not only the process but the pivots we had to take during production.

This is Blizar, the level that underwent some of the most narrative and design changes throughout the games lifetime.

Concept

MOOD PAINTING ALPHA

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At the beginning of production Blizar's narrative concept revolved heavily around these green magical crystals placed around the environment.

Because of that, they wanted them heavily contrasted against a red monochromic look. It also took place underground meaning that the majority of the light had to come from the glow of the orange lava.

Most of our concept art was based heavily on mood and the theme of a space. It was up to us to interpret that mood and make it useable for practical level lighting. And *Early* concept art, while helpful in finding a visual tone, doesn't always take into account player pathing. That's the need to guide a player throughout a level easily and naturally. That's where things can get tricky.

Issues

- After we tried to match the concept art in game we found contending with multiple issues. We wanted players to be impressed with the beautiful open vistas of the level, but we also needed them to know where to go. But because of the monochromatic color scheme, it was hard for the player to understand where the points of interest were. Without another source of light, it was difficult to point the player toward their next objective while still looking natural.

- Through exploration we quickly determined that we needed to add another color to help break the monotony of the orange lava. We needed that other source of light but in an underground space that can be difficult to find. After talking to narrative and environment we determined that changing the location of the space was necessary to get the look we wanted.

Iteration
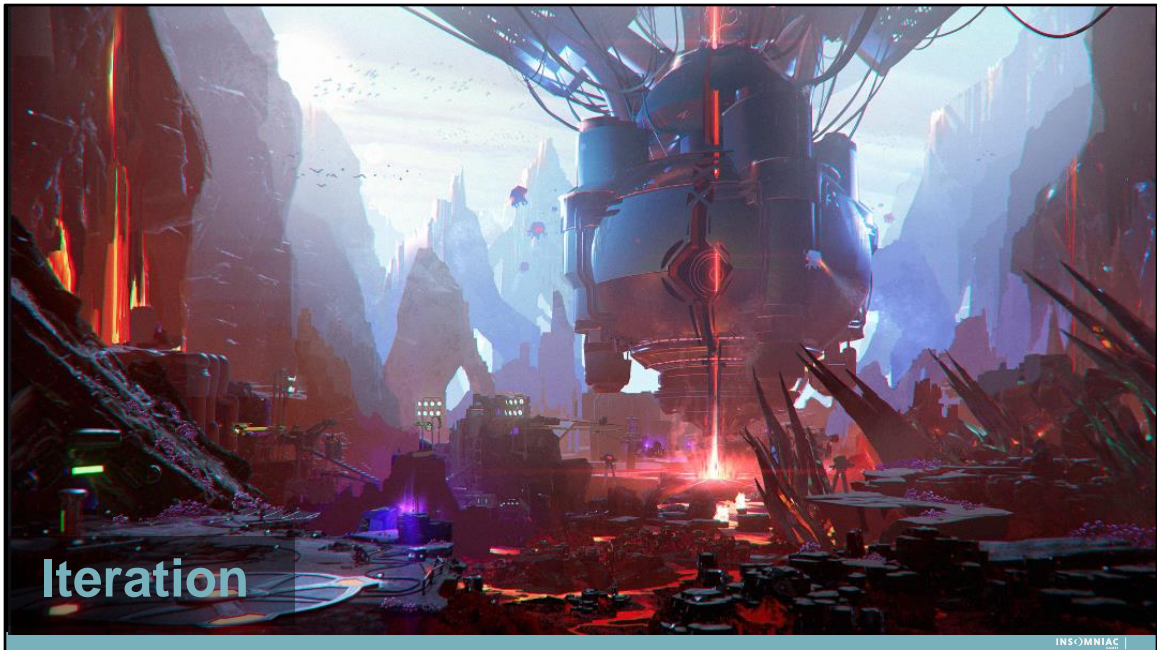
So we talked to our AD and concept team about possible artistic avenues. We went back and forth trying and experimenting with color and theme. And eventually it was decided to knock out the back wall of the cave and get key light and sky contribution into the space to contrast nicely against the orange.

After they've decided on that general concept look it was our turn to bring it into the game.

-    Differing Opinions:
  - o   Like we said before, interpreting the concept art into something practical can be tricky.
  - o   Even though we had solved some of the issues of color scheme, we were still having player pathing issues. The overall complexity of the environment and the size of the space led to the player easily getting lost.
  - o   Above are the two examples of each of Brian and I's interpretations. On first glance they may seem similar, after all we were following the same concept art and were trying to address the same issues with player pathing, readability, and mood, but this was one of the first times in production where the two of us had differing opinions about how to achieve it.
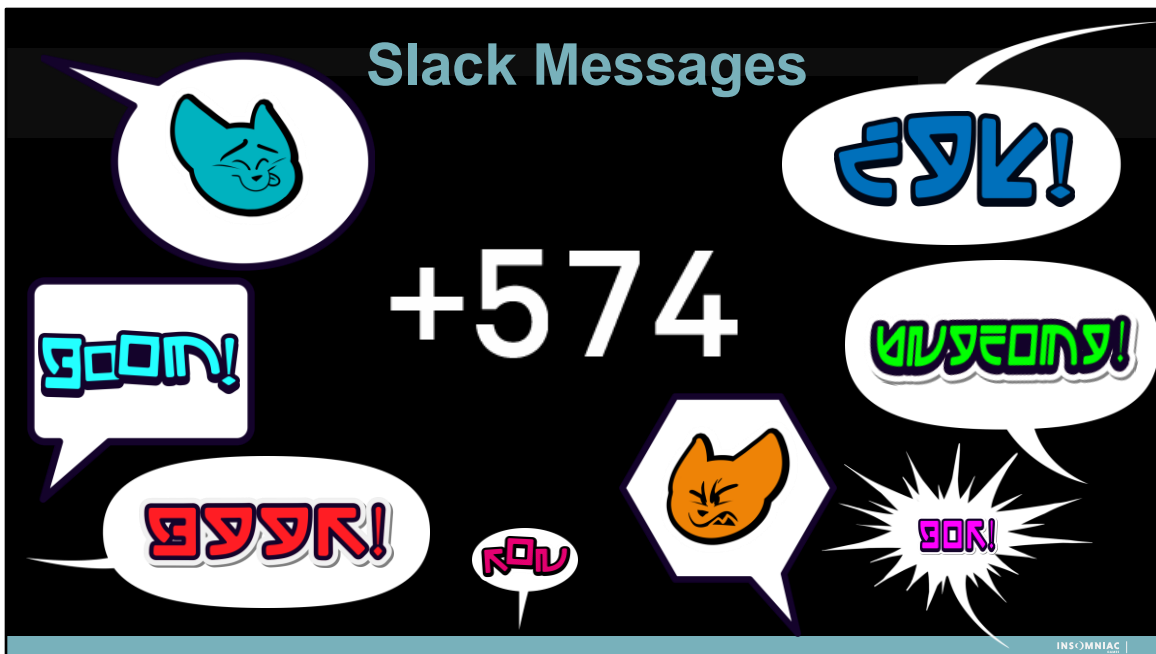
- Slack messages:
    - Like we said, we talked a lot on this project. From favorite types of pizza to level direction, we were constantly in communication.
    - We talked back and forth with each other about how we should tackle this issue and more. There countless slack message sent between us discussing every problem and every solution.
    - We can't stress how important this was both because we made a majority of this game from home, but also because it made our work stronger.

    - This was my first time leading a team and I knew going in that I wanted to extend the same level of trust that I have always had with our awesome art director, Grant Hollis. Approaching feedback to the team with less of a "this is how you need to fix this" attitude and making it more about identifying the issues and starting a conversation about how best to resolve it is how I felt would work best with this very talented team. In this example of Blizar, it was very clear that the problems we're trying to help solve with lighting are known and this was a perfect example of a

great opportunity to let someone on the team follow through on their vision.

Working together
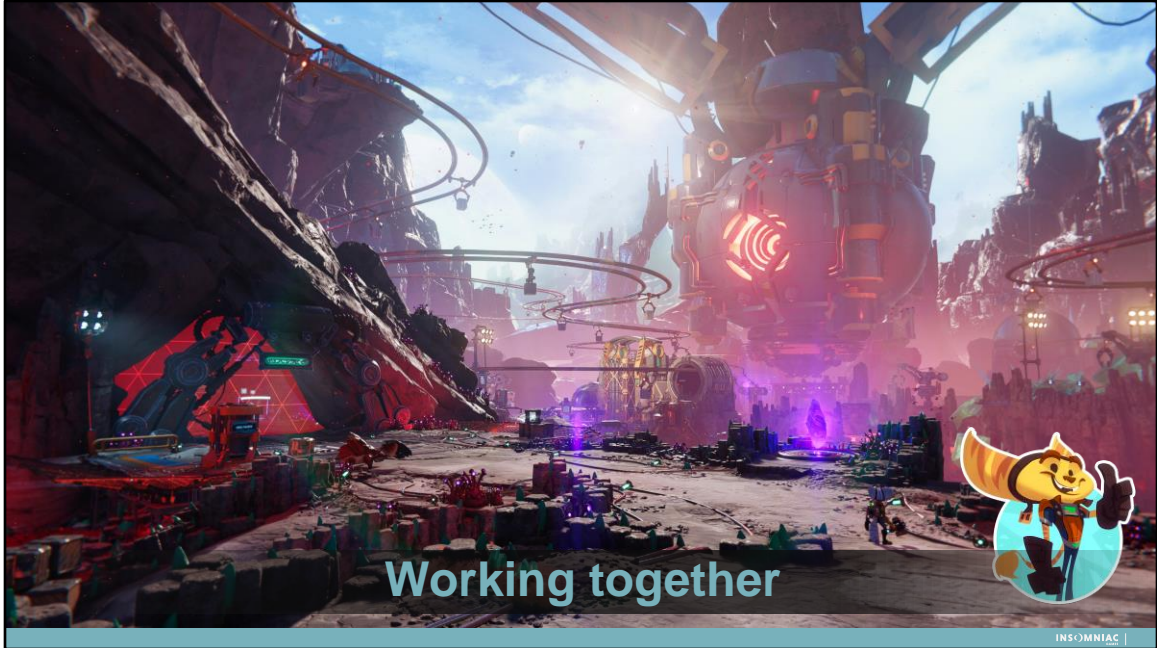
- And it made all the difference. Not just because this space turned out tremendous, utilizing our fog to create a strong sense of foreground, middle ground, background, and adding visible fixtures to add lighting that contrasted against the organic environment, but also because trust had been established and it carried through the rest of the project. We both talked later after the game had launched how cool this moment on the project was and how much it helped us grow as a team.

Getting Granular
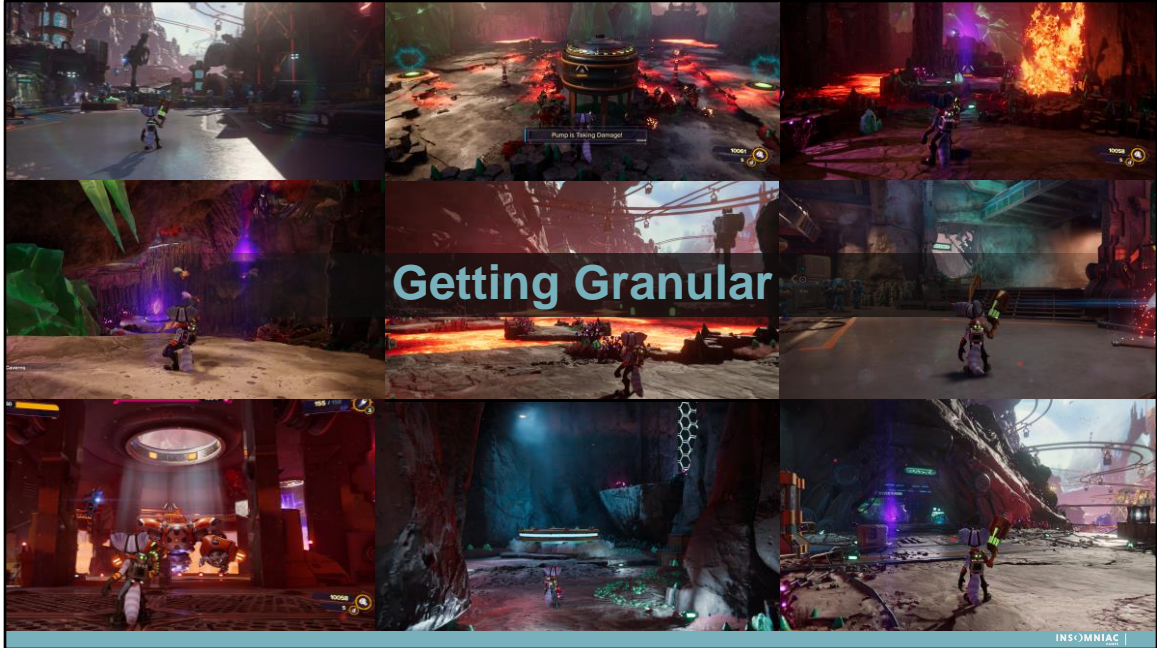
- With Blizar really taking shape at a broad strokes level, it was time to start digging into making each area within the level feel distinct and exciting. The different districts, the honeycomb mission, the underground lava cave, the grand vista, they all work together to create a cohesive vision but one with enough variety in the color palate and contrast that individual spaces were able to stand on their own.

Contrasting Dimensions

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And that leads us to one of the more exciting and challenging opportunities on this project: figuring out how to compare and contrast not just the levels with each other but with levels that have multiple dimensions. Ratchet and Clank is all about two things, blowing stuff up with crazy weapons and insane levels that encourage the player to explore. Each new world you go to is a chance to see something spectacular and that meant that after establishing one planet, we needed o maek sure that it felt entirely different from the rest. Each level had to have its own unique color scheme and identity. In cases like Blizar, we even had to compare some levels against their own interdimensional counterparts. Doing these constant checks helped us make each space feel like an entirely new alien worlds as well as making sure our lighting felt consistent throughout the game.

Going from Good

Something really special about rift apart was how much time we had to accomplish real polish on this project. As many of you know that doesn't always happen in production whether it's a AAA game or a midterm, you're often running right up to the wire.

But because of our faithfulness to the pipeline, our constant checking of the game, and the dedication of the team, we had a little extra time to make things as good as we could.

That meant we were able to go back to each balanced area and really dial in and explore what we wanted to do. It was through careful planning and many slack threads that we were able to take something from good -

… to Great!

-      To great.

When you're deep in production it's easy to get overwhelmed with design, player pathing, technical work. It's so much to keep track of that it all makes art take a back seat in your brain. While the previous image was… fine, it was all technically correct, it wasn't where we wanted it artistically.

With this added time we were able dial in on exactly what our key areas of focus were and put in the work to fix them.

Sometimes that meant doing more post process work, tweaking the color schemes of specific areas to make them feel more unique. Other times it was fog adjustments to really dial in the mood of area. In this specific spot we needed to make a more cohesive color scheme which involved changing the emissive colors on the signs as well as the light they can off for a more focused polished look.

Later in production, many of our biggest cinematics started coming in and it became a huge undertaking that needed a lot of quick turnaround and fantastic results. It was at this point that I decided to have Oz and Miki, two incredibly skilled cinematic lighters, begin focusing on taking these major parts of the project to final. They took on the significant role of not only lighting these cinematics but like we mentioned earlier, functioning almost as quality control of the final image. This meant tackling a lot of things that aren't really associated with lighting like making material adjustments, making sure the fur looked wet when it was raining, animating the fur to blow around if the characters were up high or in a storm, and always always making sure that we had a nice eye spec on our two Lombaxes.

Going the extra mile
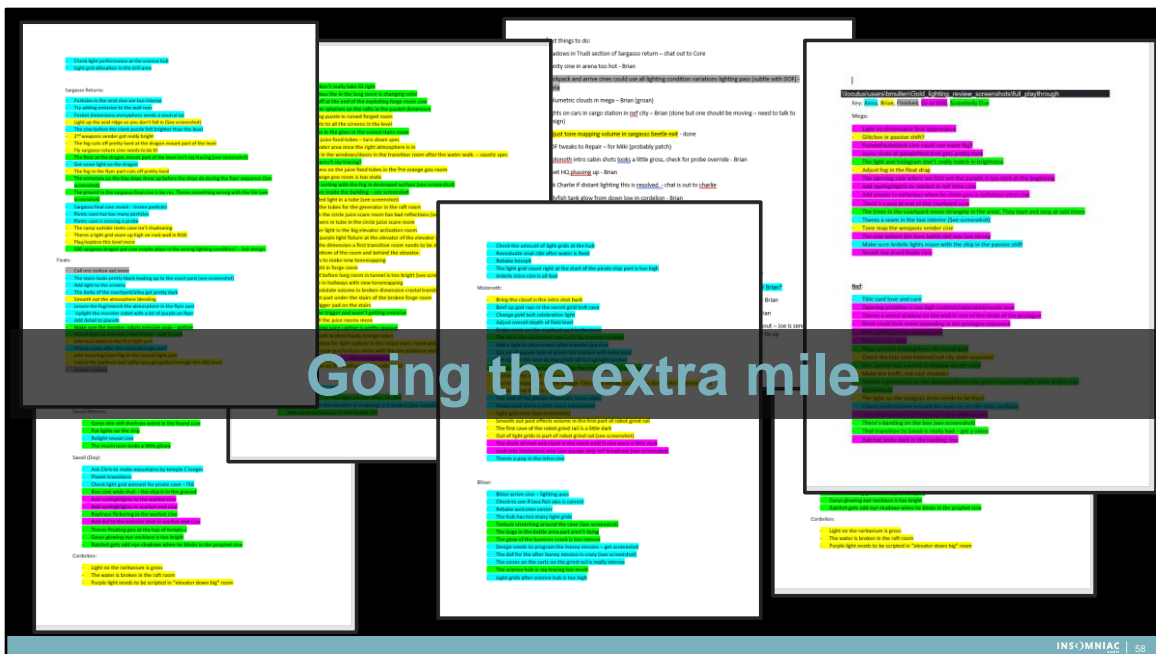
- Meanwhile, Brian and myself turned our attention to wrapping up our level work. We would regularly play the game, creating extremely long pages of notes for us to address as well as items of feedback for other teams. And then we'd split that work up, knock everything out we could, and then do it all over again. We did this repeatedly for the final month or so of production and I think I can speak for Biran when I say that not only was it some of the most fulfilling work I've done with polish on a project, it was really fun!

- Nowhere is there a better example of collaboration really bringing a space to the finish line than Nefarious City, one of the first levels that the player sees in our game and a level we just needed to knock out of the park. This was one of our biggest challenges in the game because it had to feel moody and atmospheric but also full of life. That's a lot of hats to wear for one level, not to mention that the player needed to be able to navigate through all of this noise. One of the unique things about this project that this level really represents is the strength of the collaboration of this team. We spent months passing this level back and forth between us building on each other's strengths, getting ideas from one another, and lending a hand too many times to count. Closing in on the end of production, I handed off this level fully to Anna to bring home and she absolutely nailed it. It went from looking like a great level to just an incredible environment.
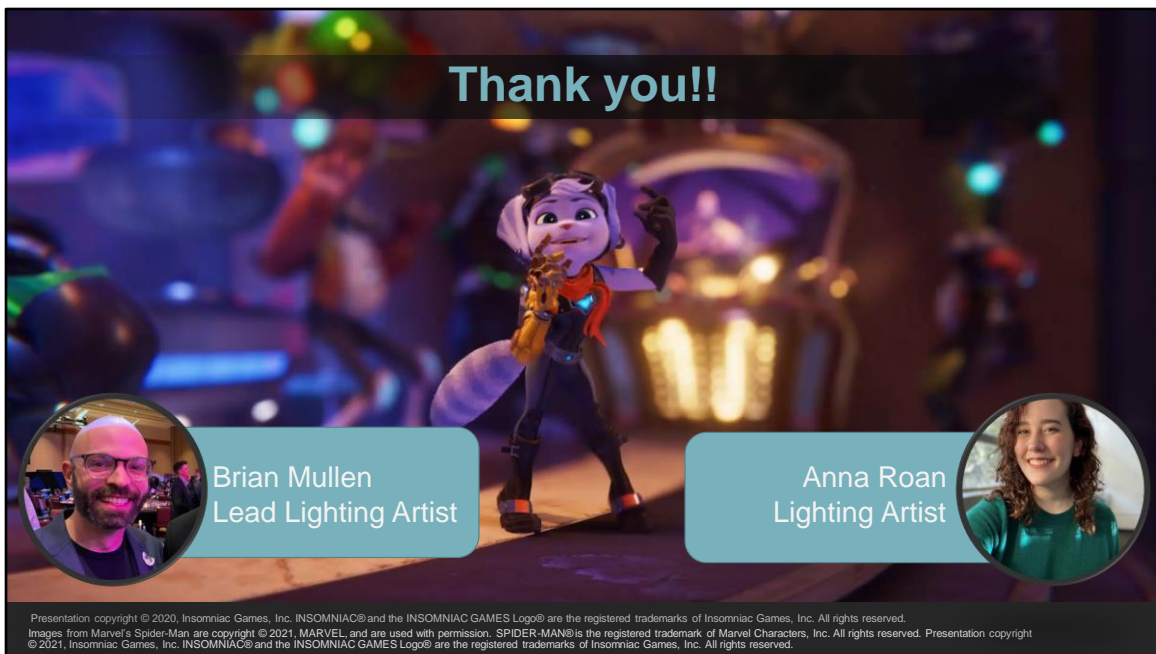
Its all coming together

Like Brian said, Nefarious City is the thing I'm proudest of in the game not just because is it a great level, but because of the challenge and collaboration it took to get there.

I started this project as an intern and after I finished college, I was given the opportunity to come back and finish what I had started. I've learned more about lighting, teamwork, and the struggles of game development, on this game, in this level, than I ever had in a classroom.

To me Rift apart isn't just a great game but a sign of the personal and professional growth it took for me to get right here on this stage and I couldn't be happier to share it all with you.

Bringing it Home
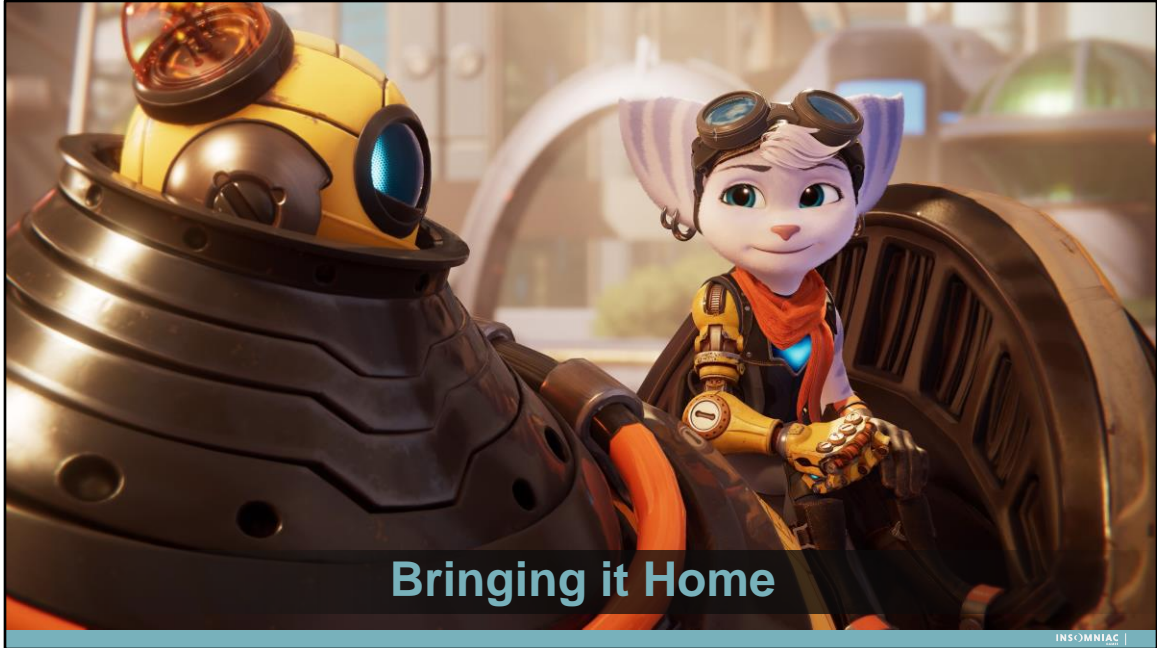
So in the end, through a lot of communication and hard work, we were able to make something memorable together in challenging circumstances. It took incredible buy in from everyone to accept a task like this and to collaborate like we did. This is the most pride I've had in a project that I've worked on and its because of how well everyone executed this across the board. Environment, Character, animation, VFX, Core, Design, its all comes together in this game and makes something I know everyone involved in felt was special. I think I can speak for the both of us and the entire Rift Apart crew when I say this project was a career highlight and we hope that everyone has enjoyed experiencing it as much as we enjoyed making it.

Thank you!!

Brian Mullen
Lead Lighting Artist

Anna Roan
Lighting Artist

- Thank you!