
AWS
re:Invent
NOV. 28 – DEC. 2, 2022 | LAS VEGAS, NV

CMP311

The future of sport: How Riot Games is reinventing remote esports broadcasts

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AWS

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Mauricio Wecker

Principal Network Engineer
Riot Games

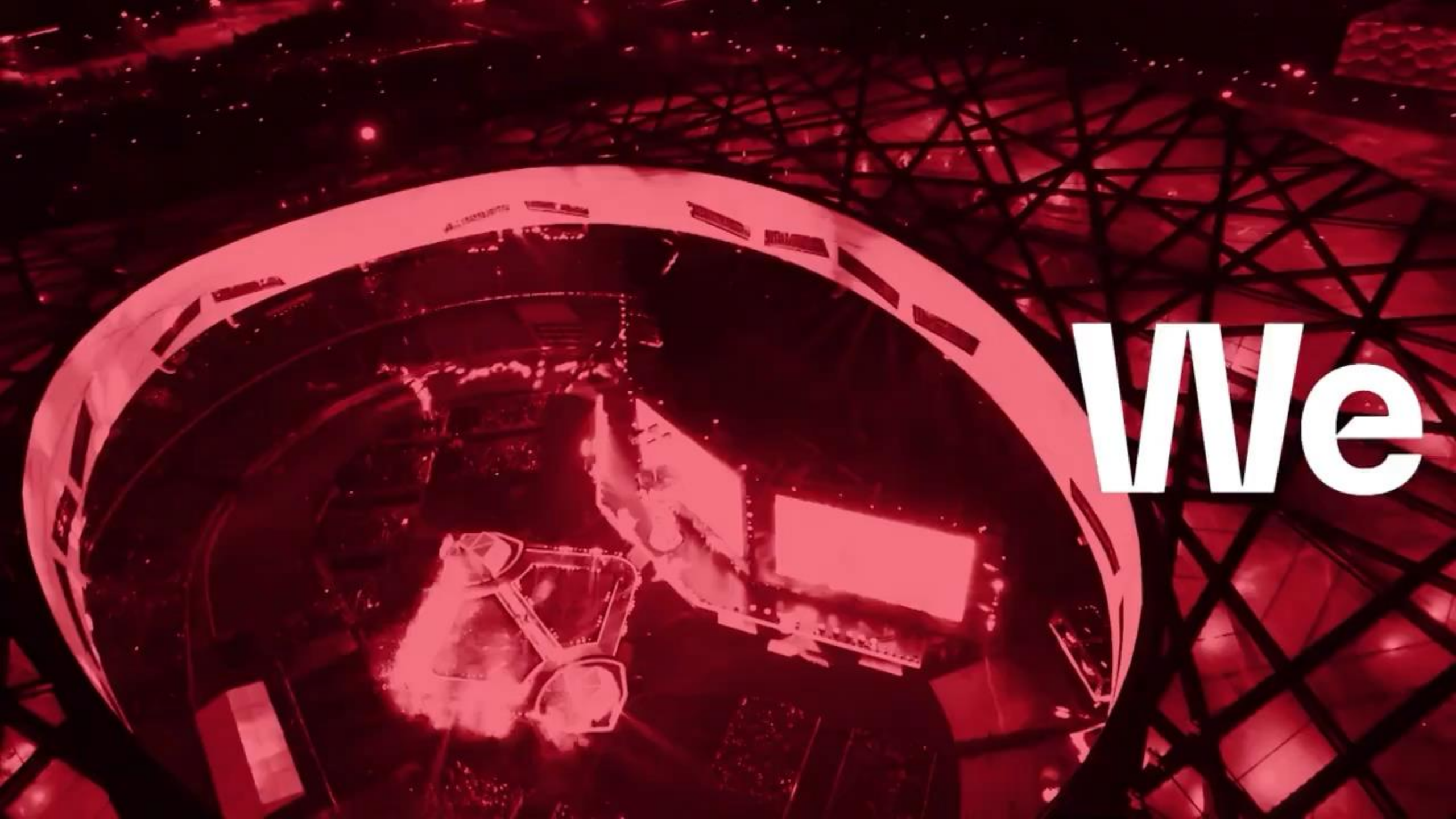
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RIOT'S MISSION

WE ASPIRE TO BE THE MOST PLAYER FOCUSED GAME COMPANY IN THE WORLD


RIOT
GAMES
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We


ESPORTS MISSION
BRINGING JOY TO BILLIONS OF ESPORTS FANS NO MATTER WHERE THEY LIVE, HOW THEY WATCH OR WHAT LANGUAGE THEY SPEAK.

How is Riot redefining esports?

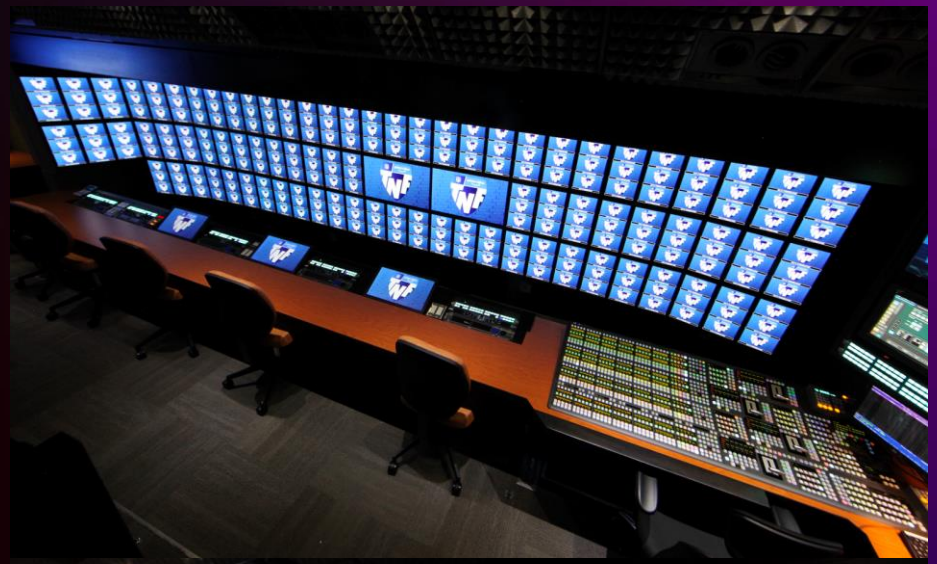
- Cutting edge broadcasting technology
- Advanced esports statistics powered by AWS
- New media experiences like AR/VR, Spatial Audio, AI/ML and more…



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Traditional Methods for Broadcast

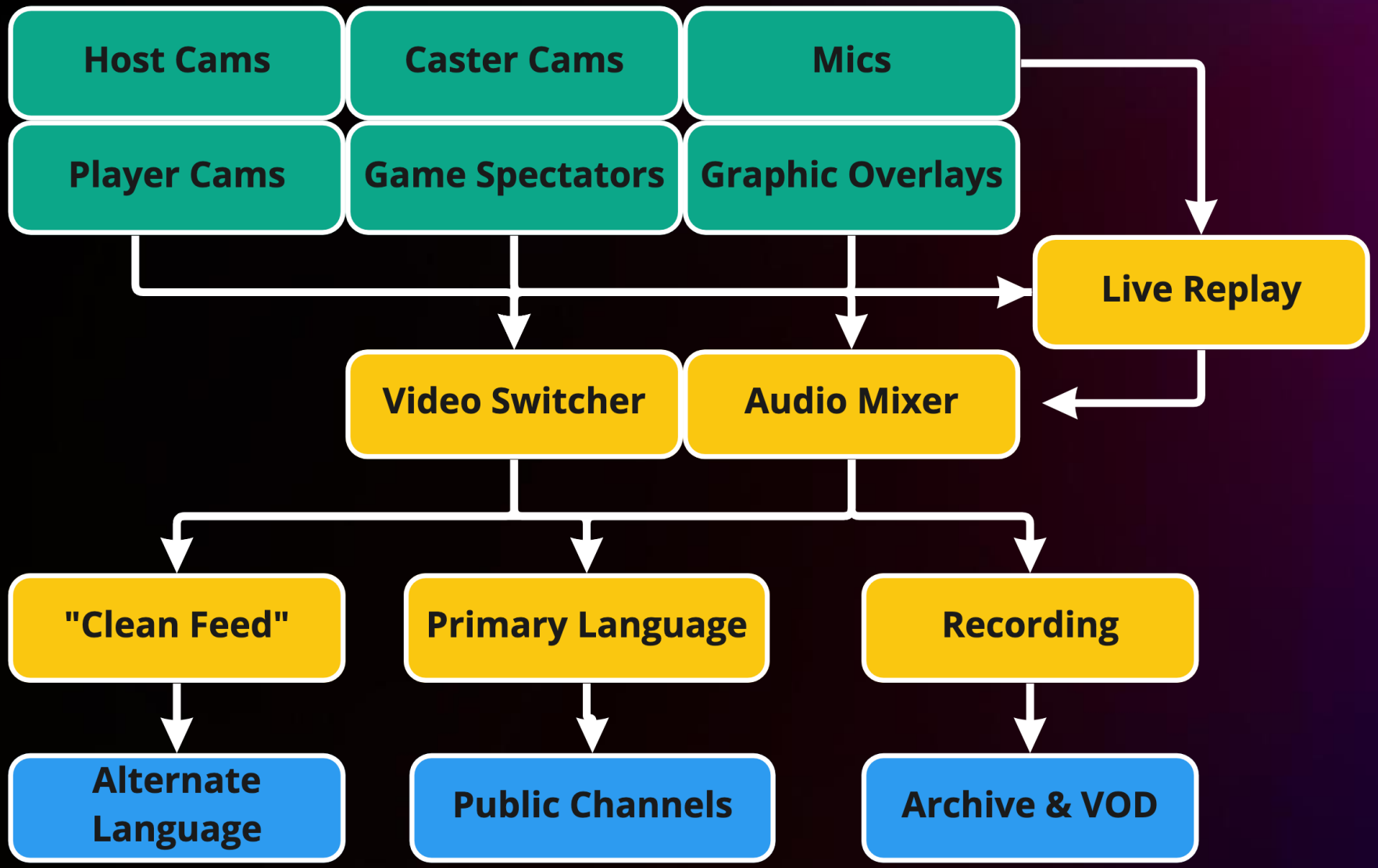






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Key Broadcast Elements



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What does it look like?

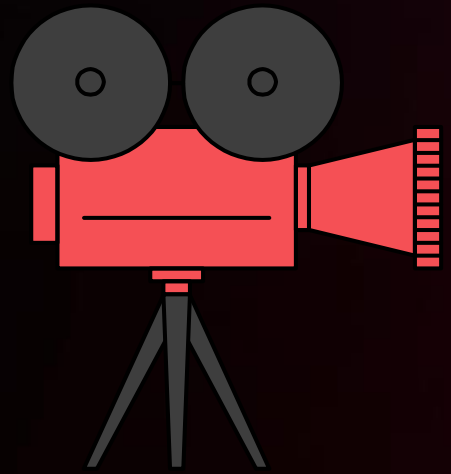


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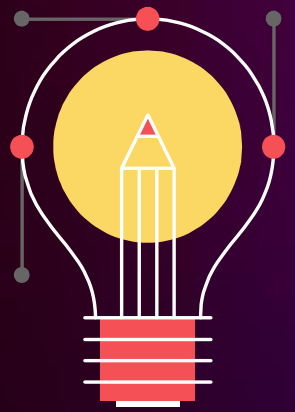
March 2020



No one allowed on site



Weekly shows already running



11 days to figure out a solution

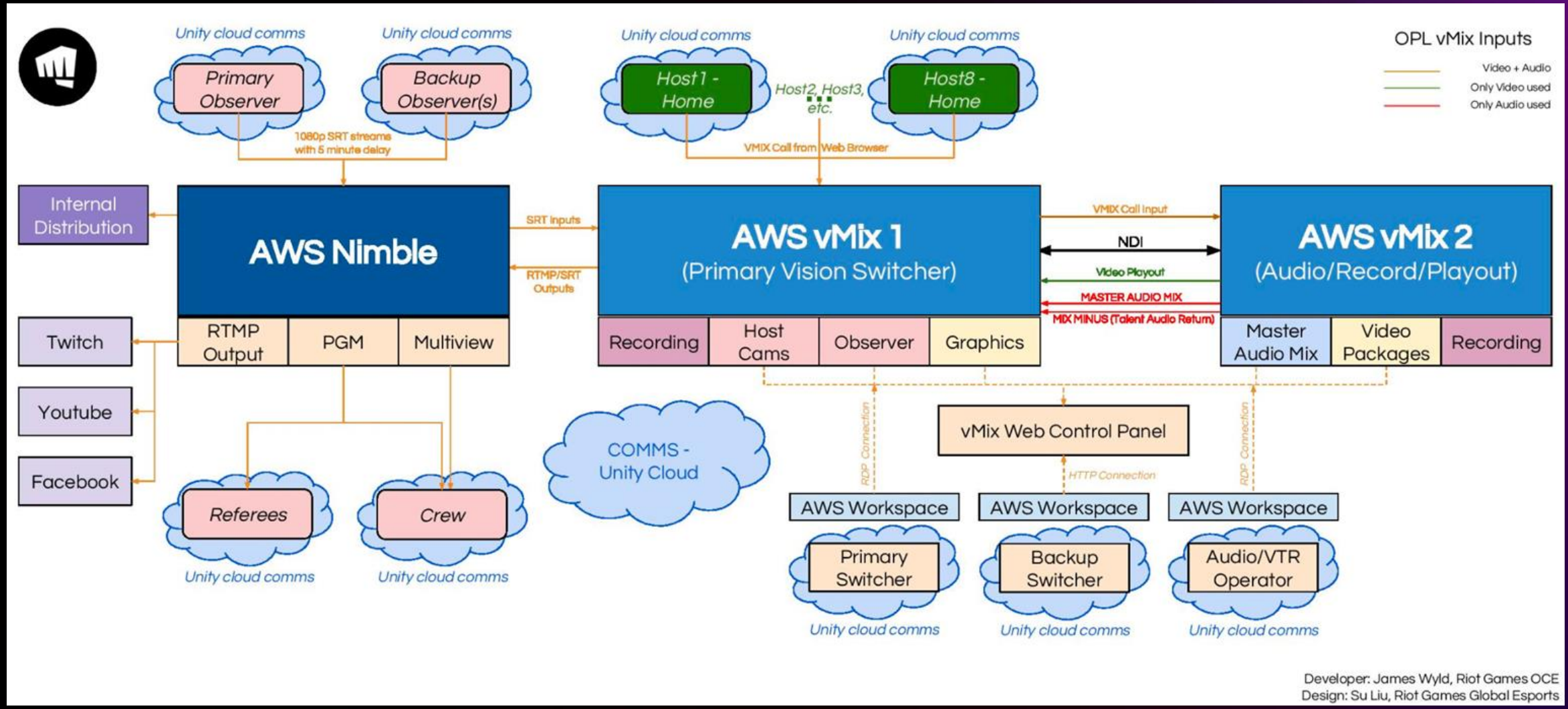
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Remote broadcast pivot due to covid

- Minimise dependency on home gear
- Encoding/Production in the cloud
- Remote desktops for broadcasters



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Approx capabilities @ 1080p60:

- 8 SRT inputs
- + 2 NDI Inputs
- + 2 NDI Outputs
- + 2 SRT Outputs
- + Render HTML5 graphics engine overlay

vMix EC2 Instance:

- g4dn.4xl - 16 vCPU / 64GB Mem / 1 NVIDIA T4 GPU

Insights

- Rendering the rich vmix UI back to the operator was a tax in itself.
- Multiview (display 2 out) was rendered to NDI/SRT and delivered separately via SRT reduce display load.

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Operational Success



Major Regions remain operational throughout covid



Only 1 broadcast day missed!

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Worlds 2020 (China)

Large portion of the production team unable to travel to China

Many WFH staff during the show, not even in the LA studio

Global remote production reliant heavily on H264/SRT



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Remote Production

We utilize remote production in normal years to efficiently produce many versions of our content simultaneously but without introducing logistics challenges of traveling everyone.

In 2020, Remote Production naturally allowed us to produce this show without the need to bring as many staff on site or put anyone in harm's way.

We're not the only ones doing Remote Production, but we are definitely one of the larger users.



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From Shanghai...

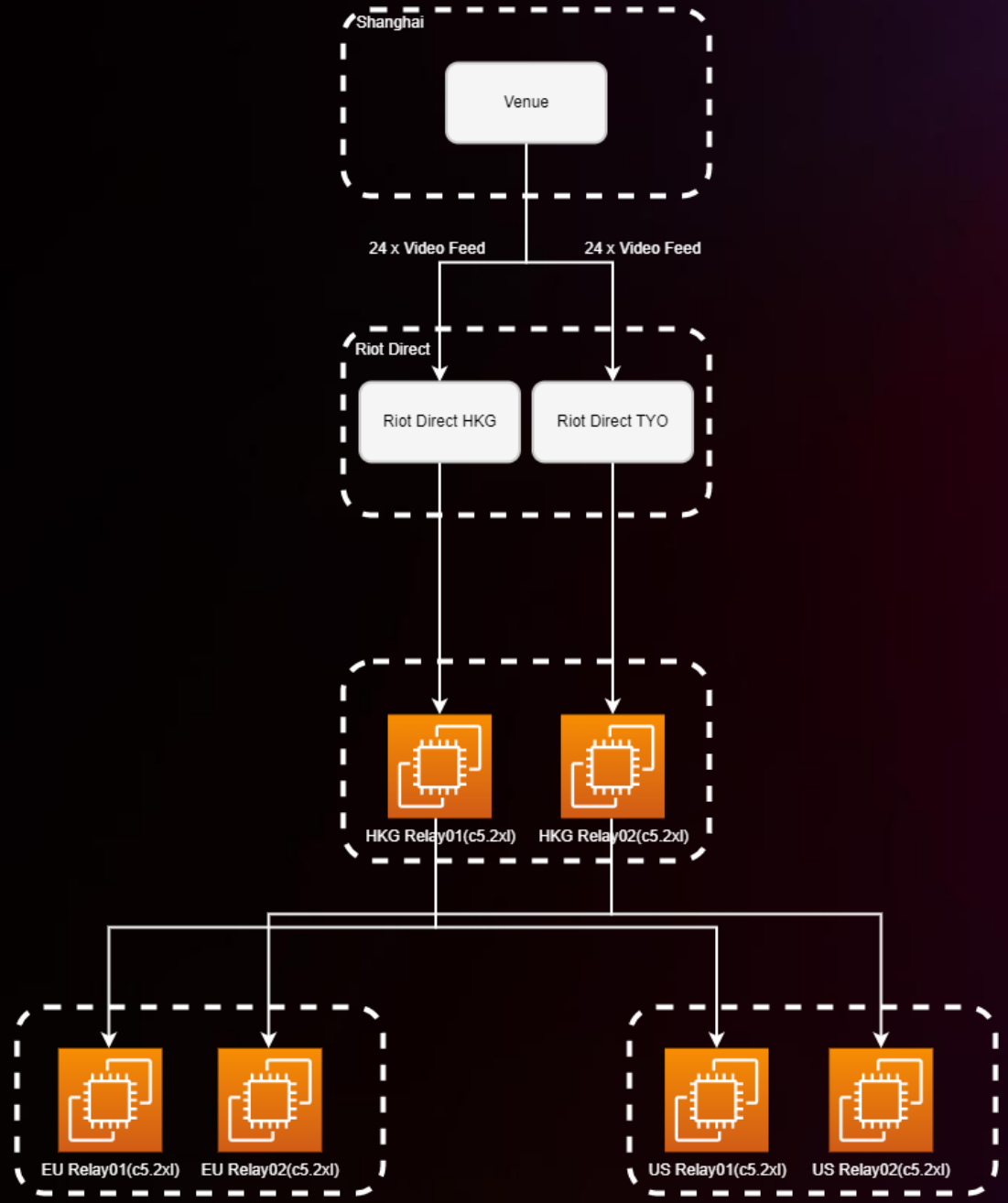
We distribute 120+ unique video & audio feeds, multiviews, cameras, graphic engines, data feeds & everything else needed for our partners to produce their shows.



UNIQUE VIDEO/AUDIO FEEDS	120+
REMOTE PRODUCTION STAFF	1300+
LIVE BROADCAST LANGUAGES	19

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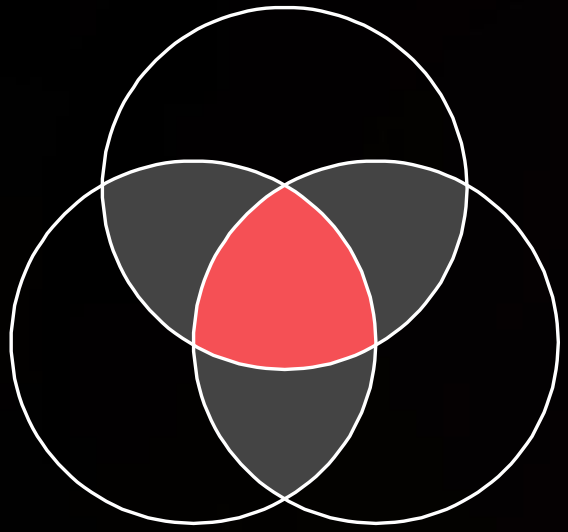


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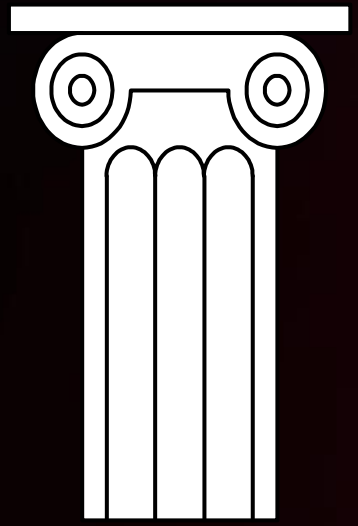


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What does the future look like?



Simultaneous premiere events

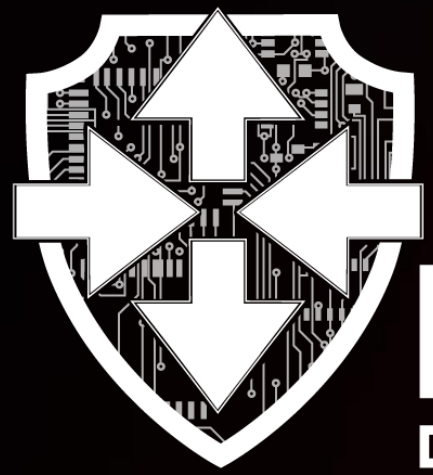


Resilient Architecture



Innovative new experiences for fans

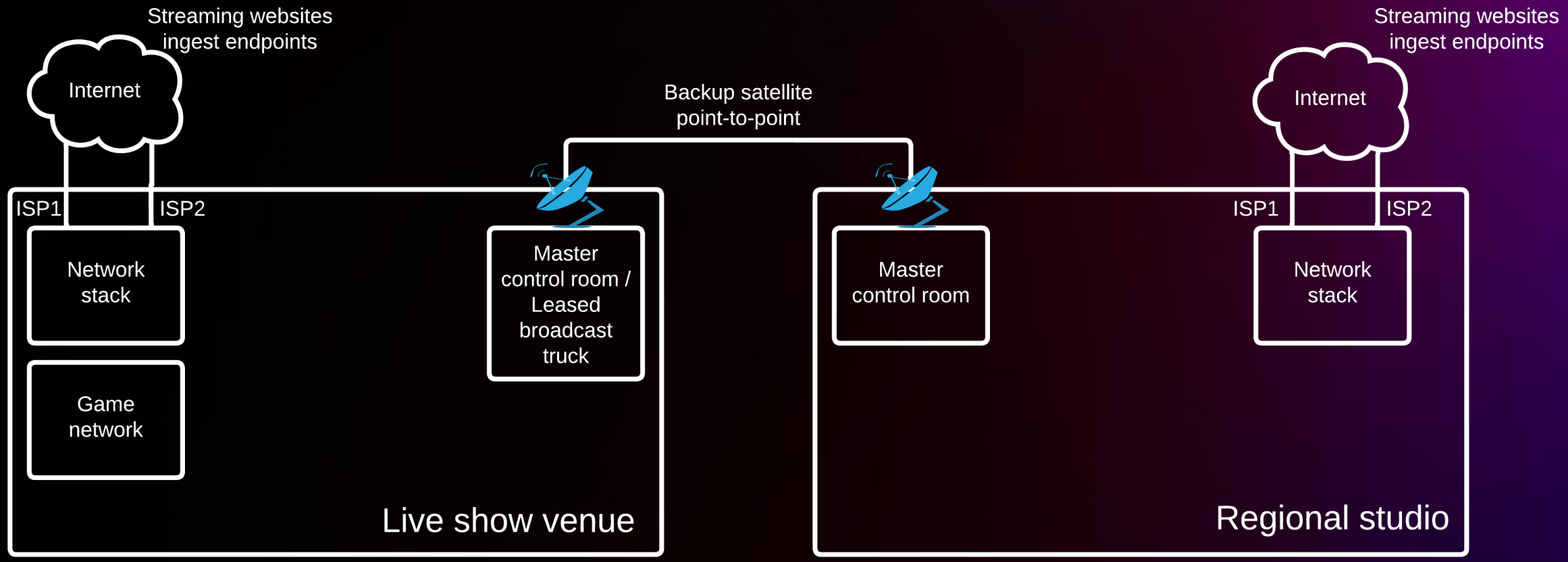
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RIOT
DIRECT

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Traditional Methods for Broadcast



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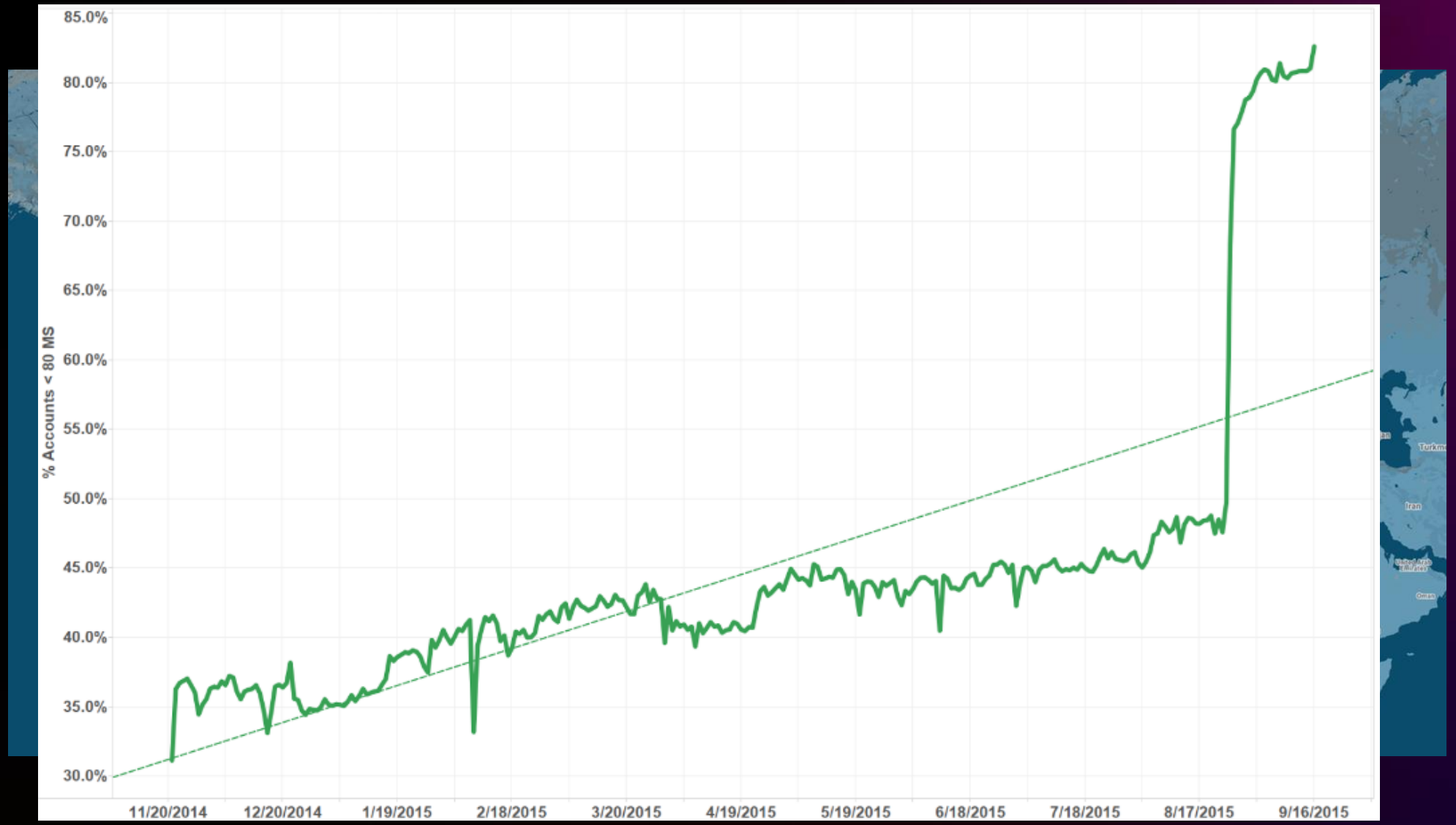
What is Riot Direct?

- Web of cables and routers deployed globally specifically used for Riot's packets
- Cold-potato routing
- Multiple Tbps of bandwidth available across the world
- Peered to all major ISPs in the world via IXPs or PNIs.
- Mix of proprietary and off-the-shelf DDoS mitigation solutions



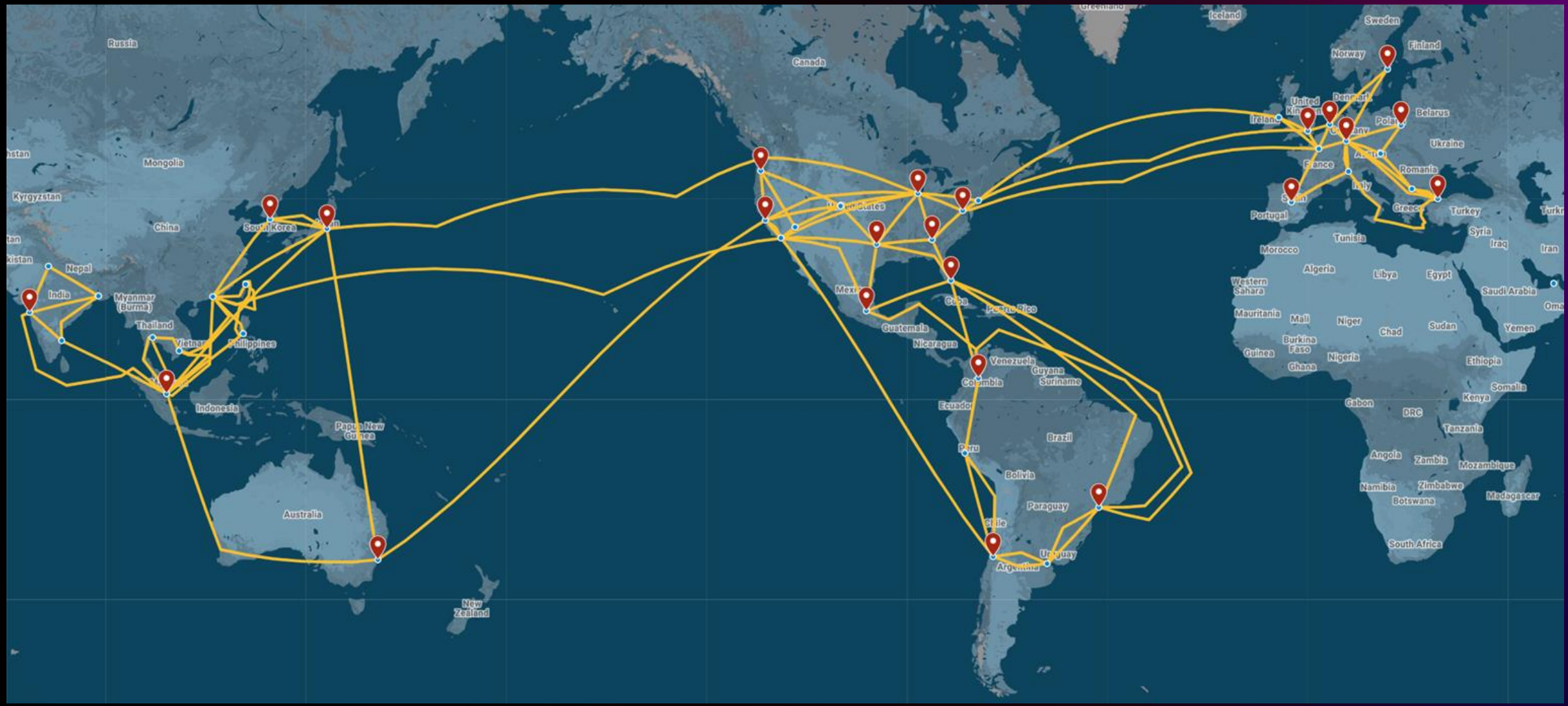
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Riot Direct: first year



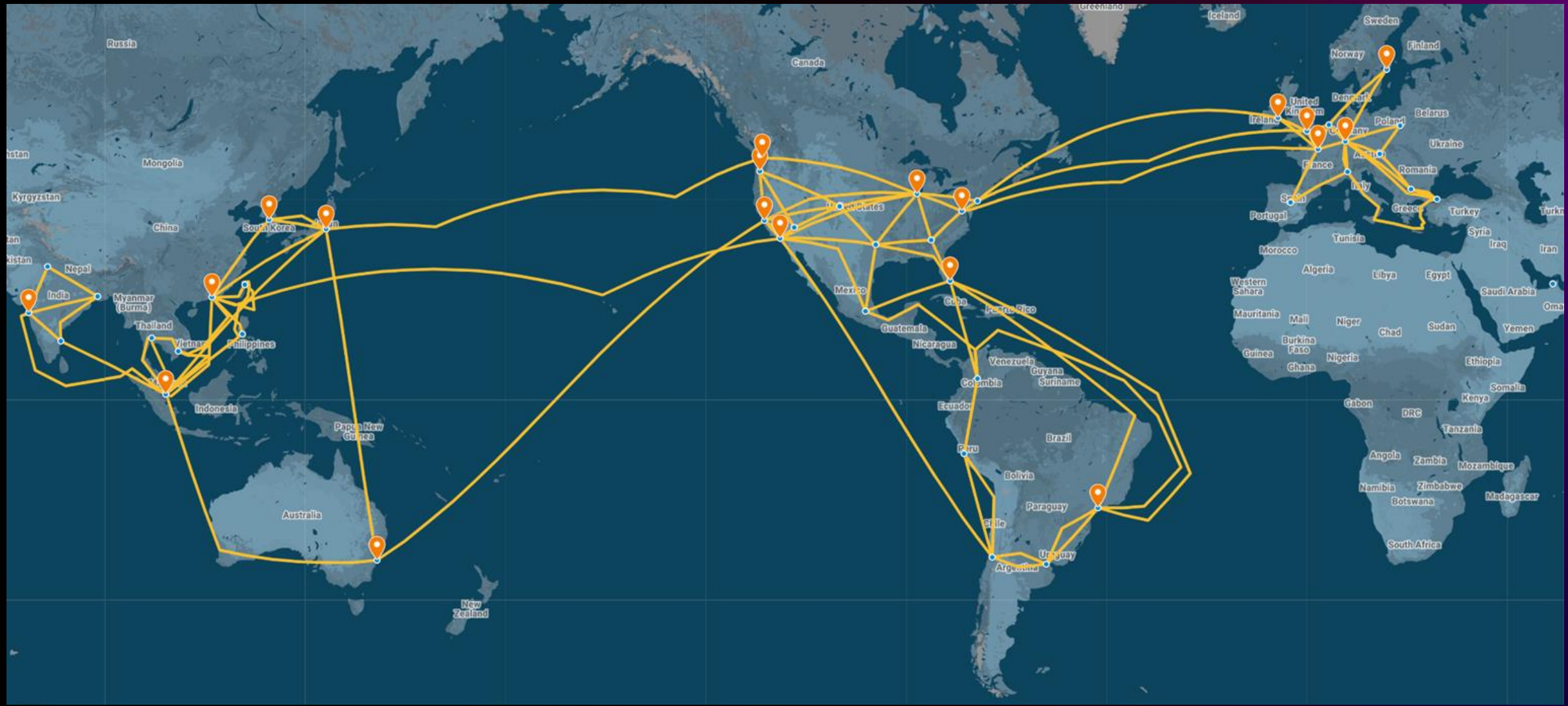
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Riot Direct



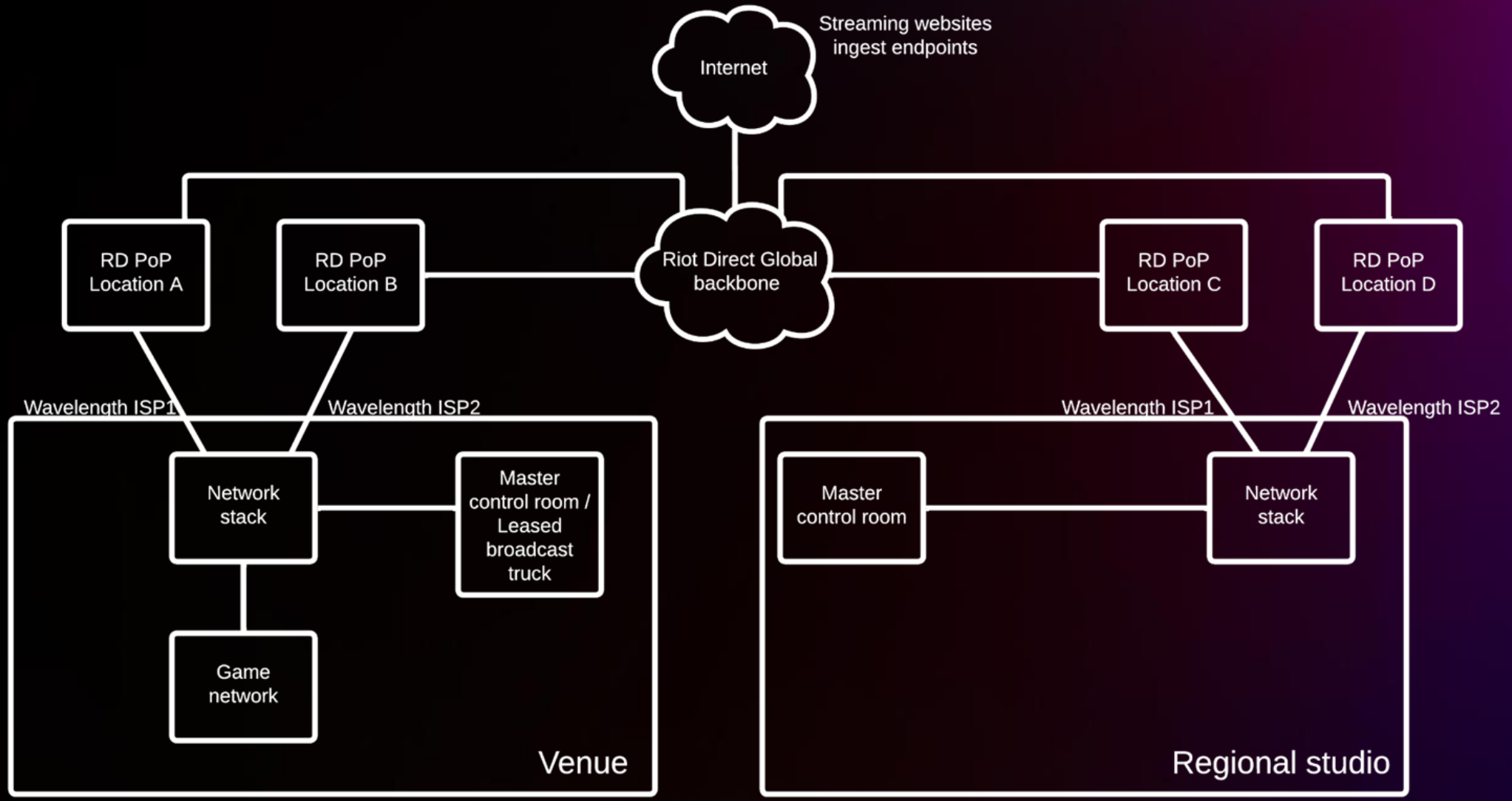
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Riot Direct + AWS DirectConnect locations



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Improvements over the first model



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PRODUCTION CONTROL ROOM

STAGE

OPERATIONS STAFF

TECHNICAL STAFF

Truly Global Production

How we broadcast in **23** languages and reach nearly **74M** viewers, **live.**



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2022











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MORE GAMES = MORE EVENTS

...but more events means many more competitions to cover, all live.

We have reached the limits of our current global content production capacity.

LEAGUE OF LEGENDS

TEAMFIGHT TACTICS

LEGENDS OF RUNETERRA

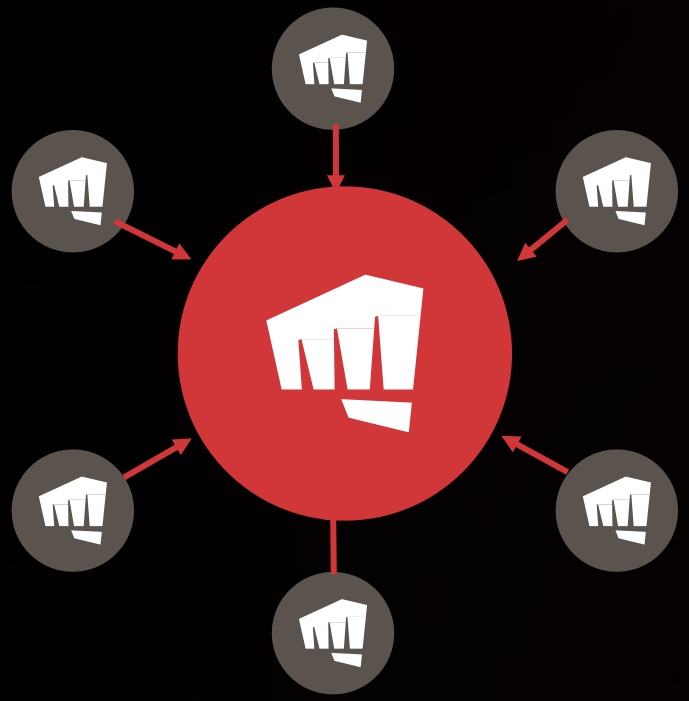
VALORANT

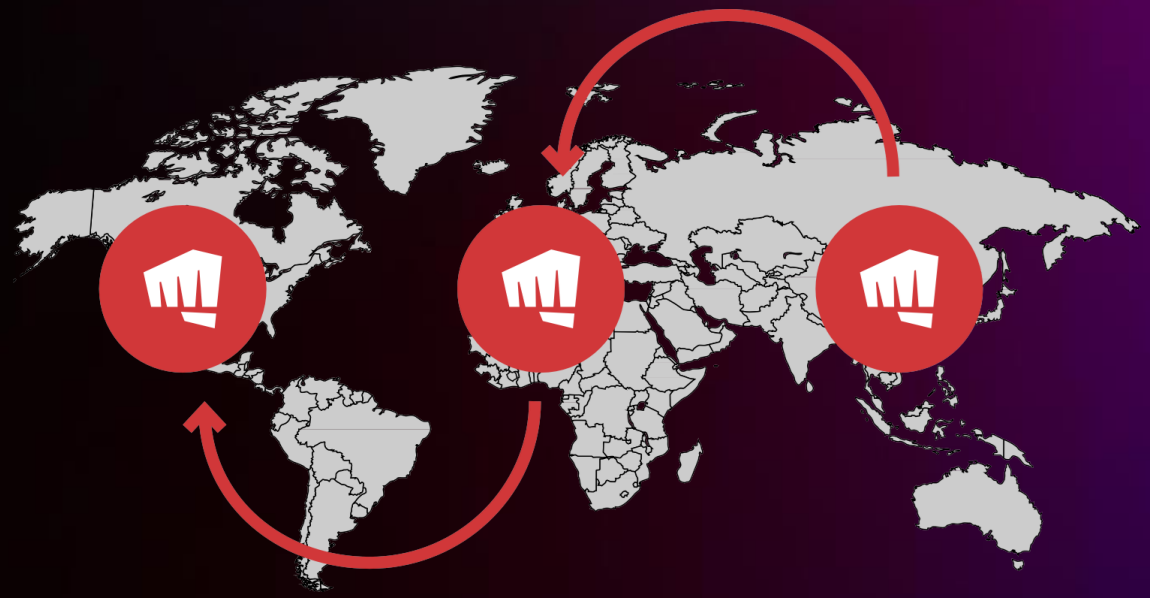
LEAGUE OF LEGENDS WILD RIFT

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Truly Global Production





Centralized Production

- Consistent Production Quality
- More Efficient Use of Capital
- Increased Production Capacity for New Titles & New Endeavors

Follow-the-Sun Operational Model

- Global Technical & Operations Teams
- 24/7/365 Operations
- Knowledge Sharing Between Regions
- Globally Efficient

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IF WE COULD **PIVOT** OUR ENTIRE PRODUCTION **TO AWS IN 11 DAYS**, BY OURSELVES, WHAT COULD WE ACCOMPLISH **FOR OUR FANS TOGETHER**



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POWERED BY **AWS & RIOT DIRECT** OUR CUTTING EDGE RBCS BUILD RIOT'S **GLOBAL BACKBONE** OF **PRODUCTION AND TECHNOLOGY** BEHIND THE **BIGGEST ESPORTS ON EARTH**.

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BUILT **DIFFERENTLY** & DESIGNED TO **SCALE** WE **ESCHEW CONVENTION** AND PUSH THE BOUNDARIES OF **WHAT IS POSSIBLE**

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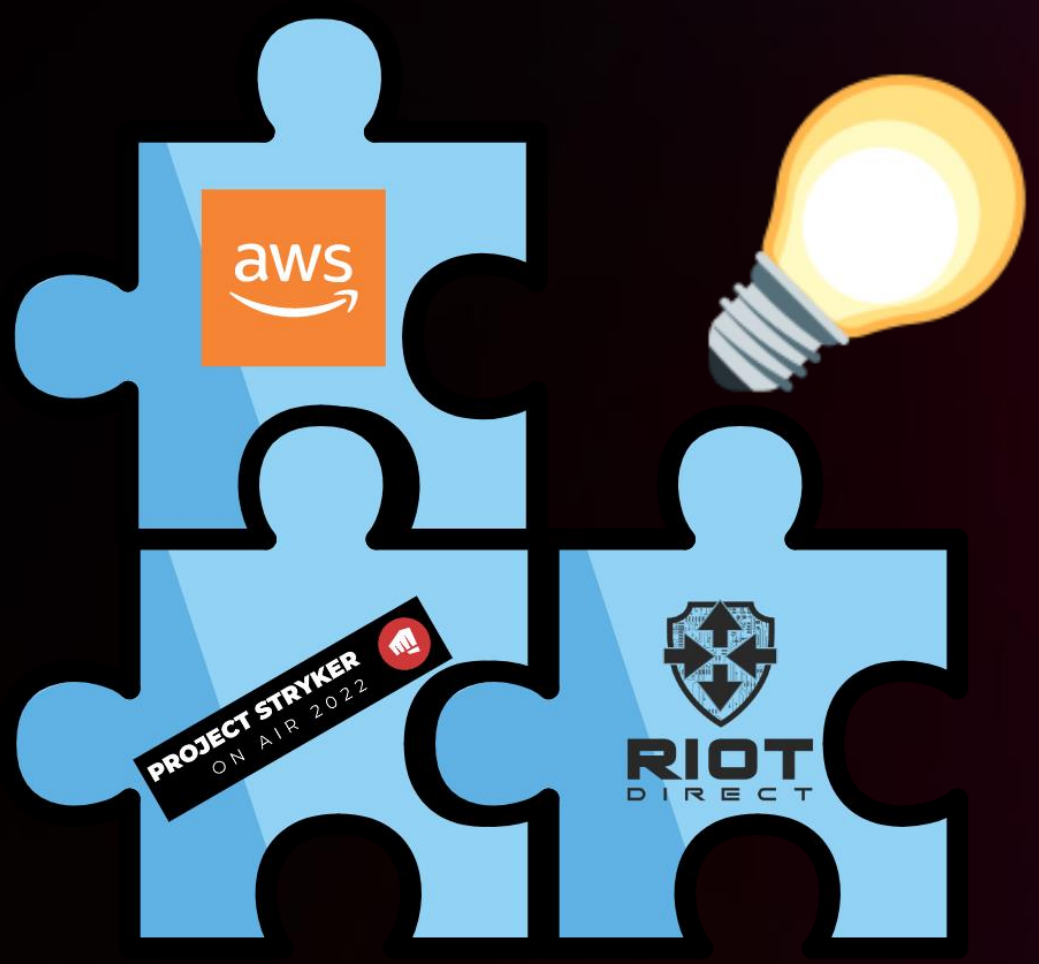


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What Powers Project Stryker?

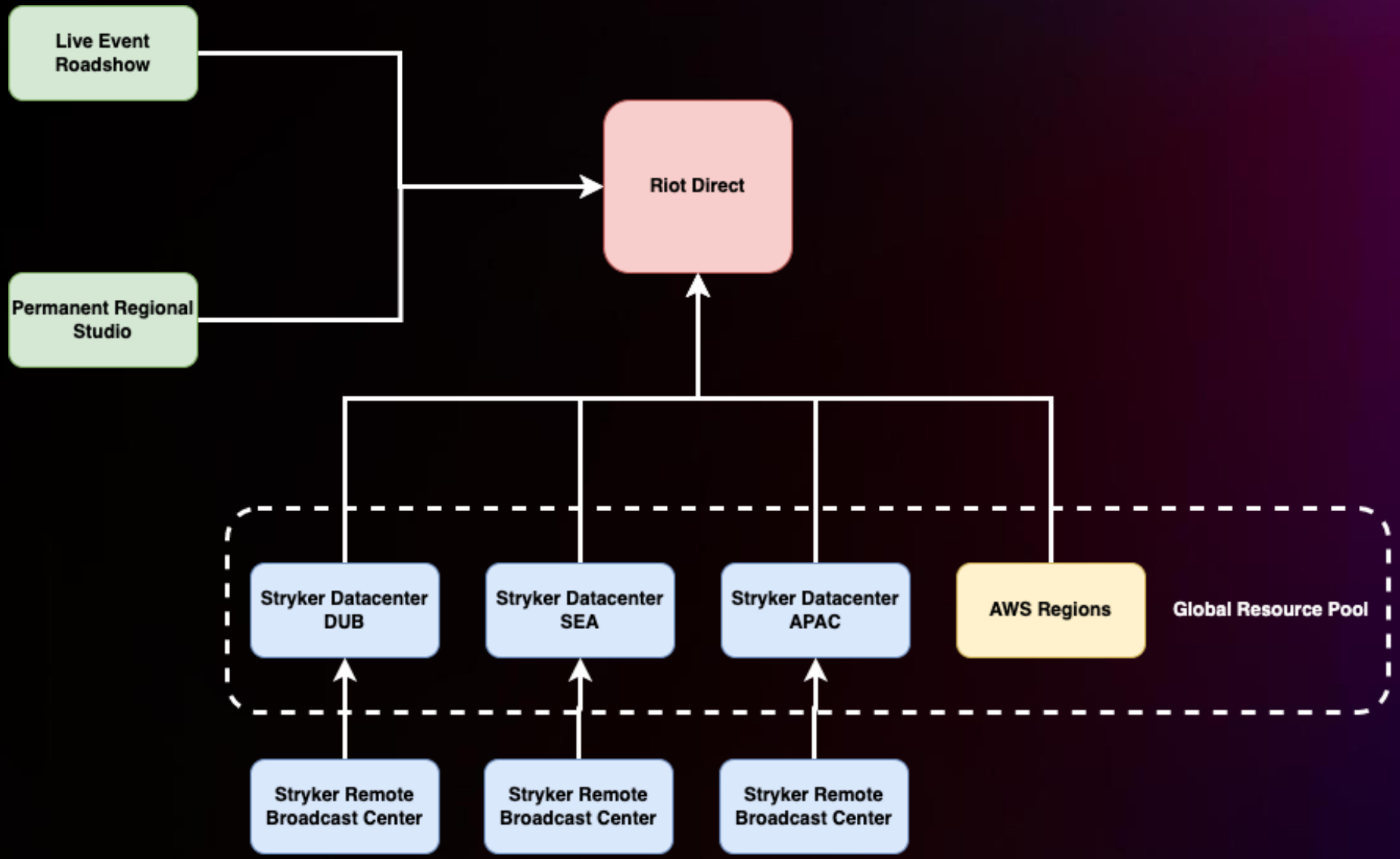


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Shared resource pool



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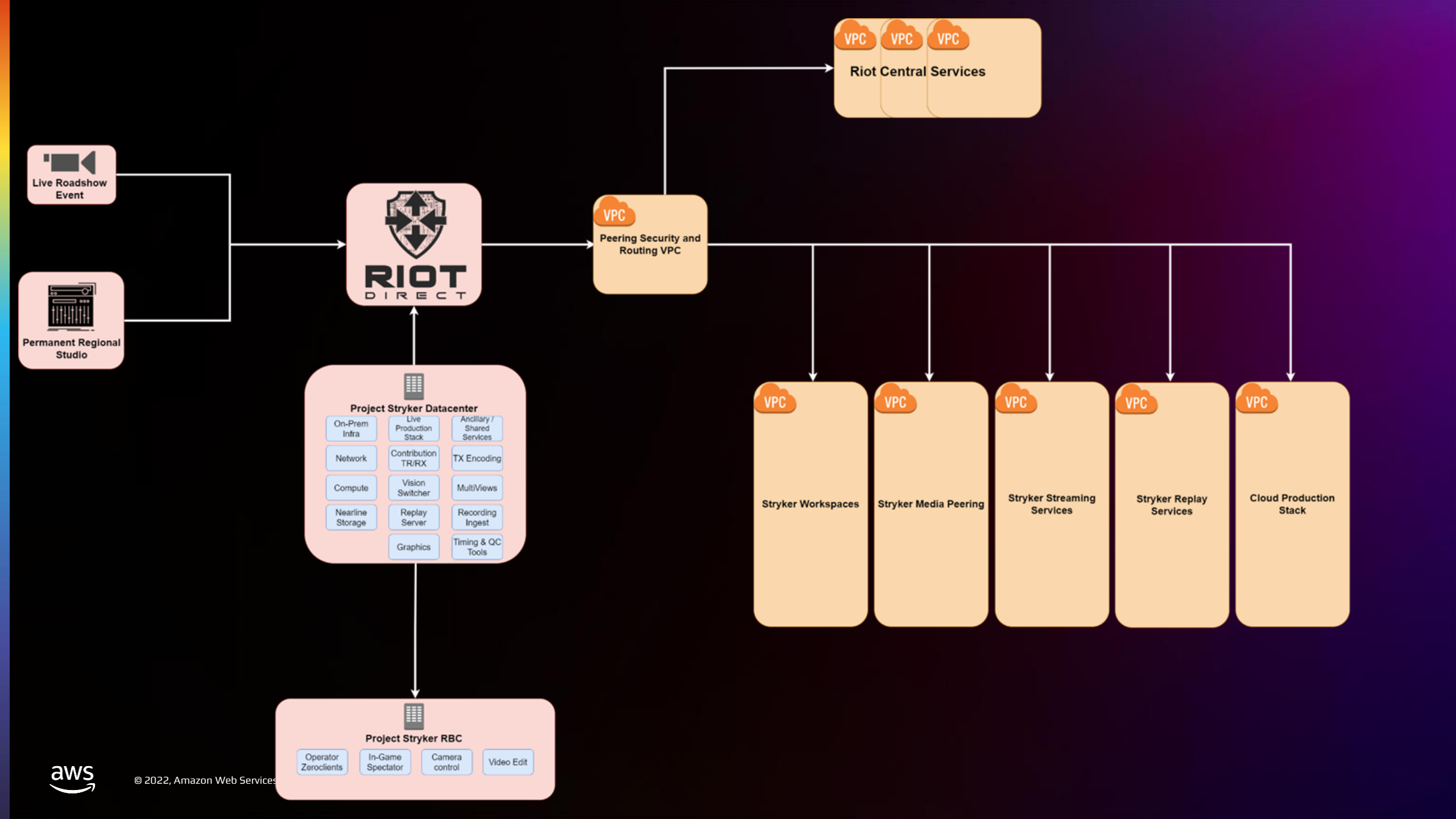


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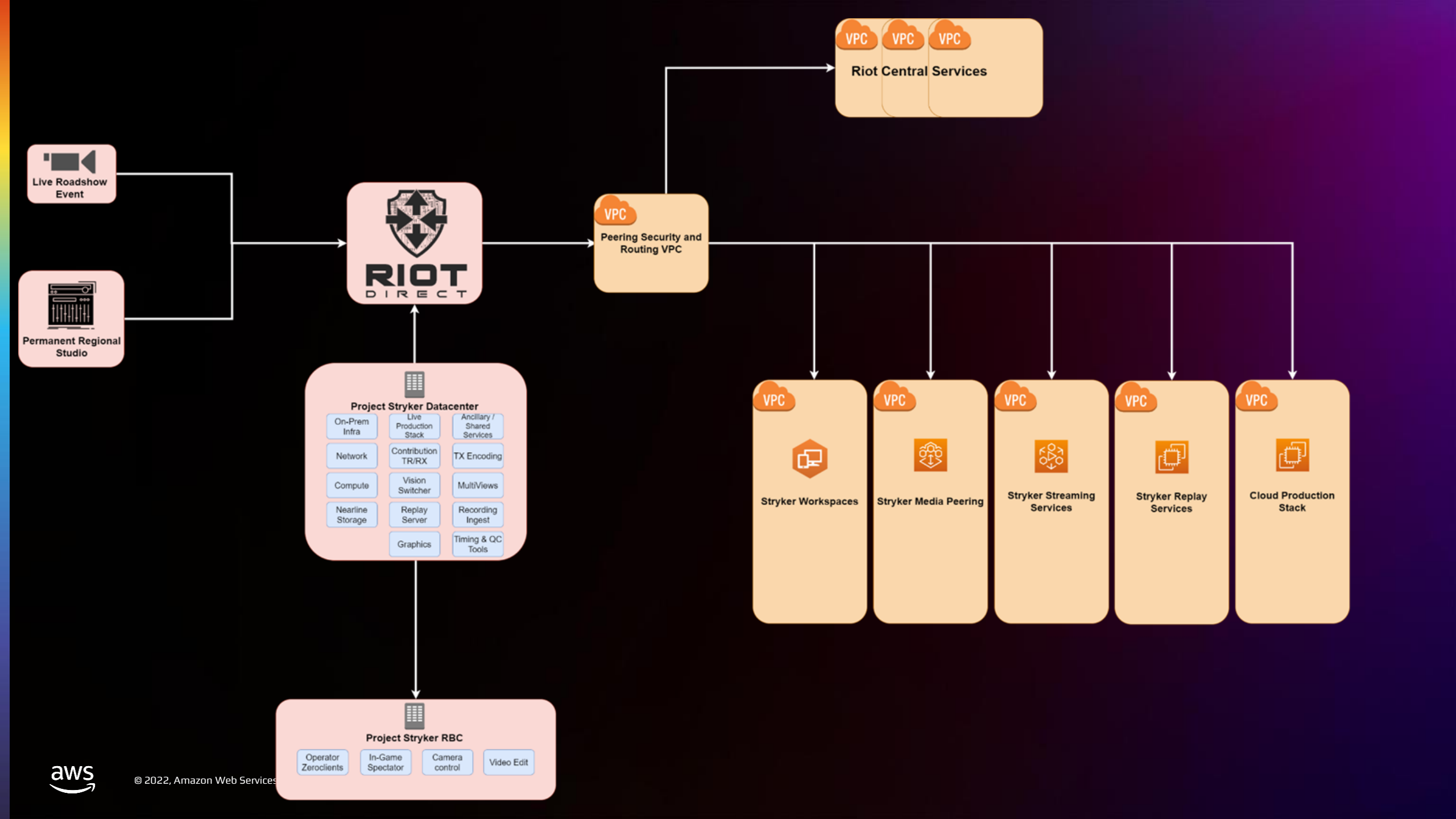
Global Production Latency



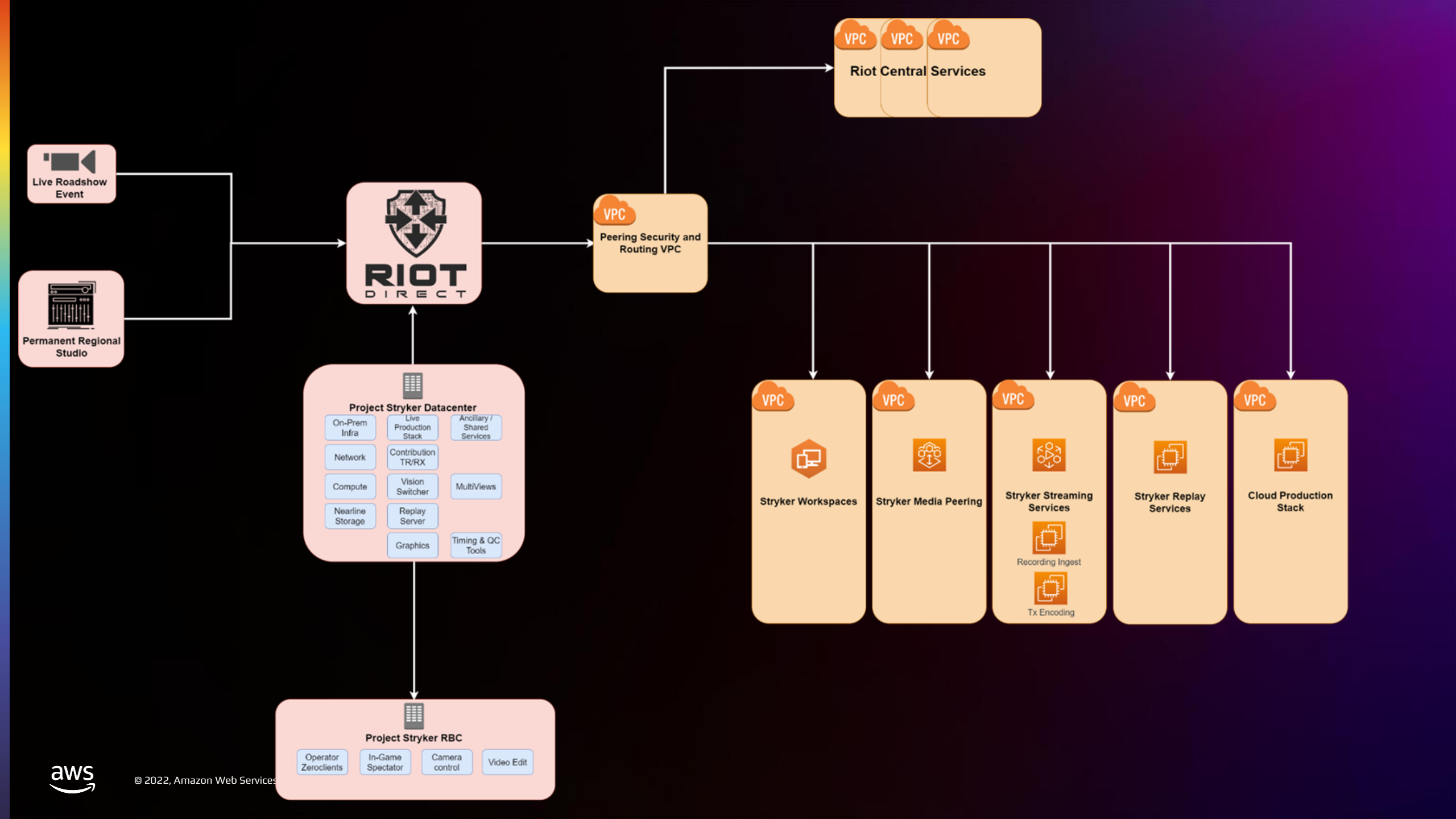
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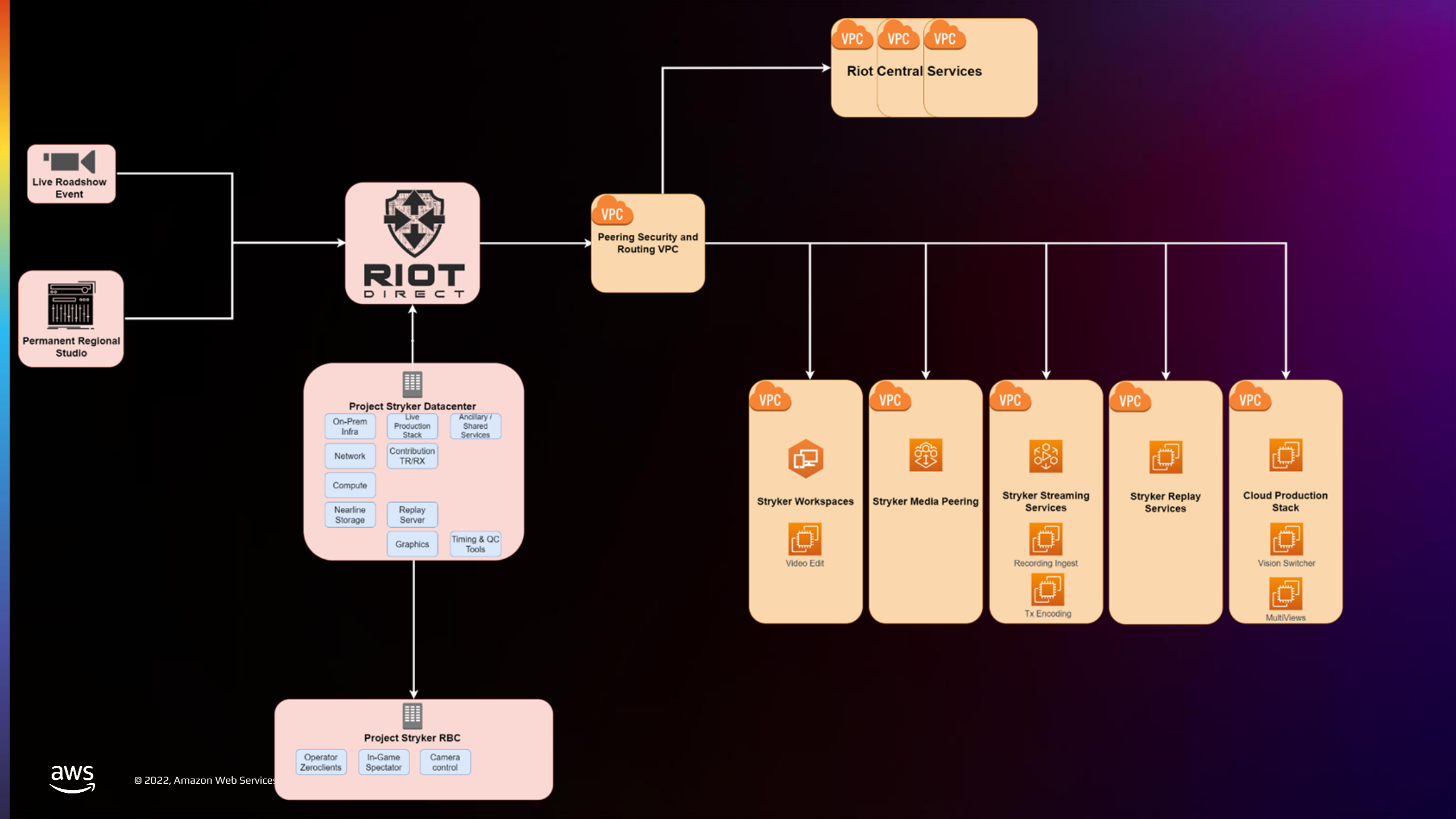
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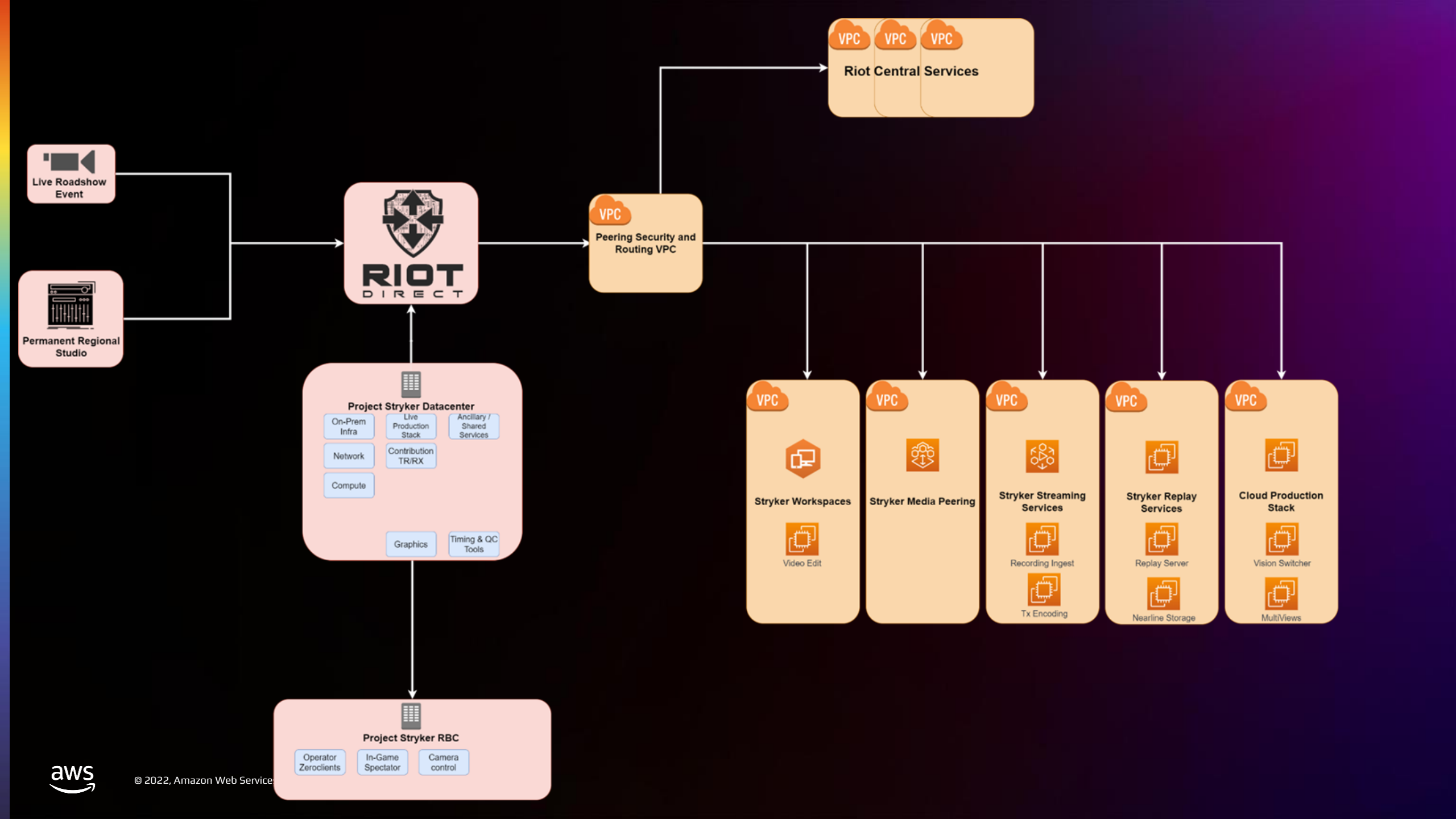
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VALORANT Game Changers

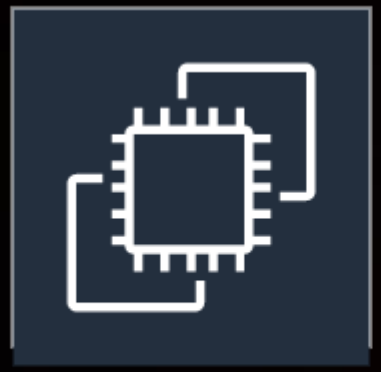


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VALORANT Game Changers - AWS Tech



Elemental Server



Amazon EC2



Amazon Workspaces



Amazon S3

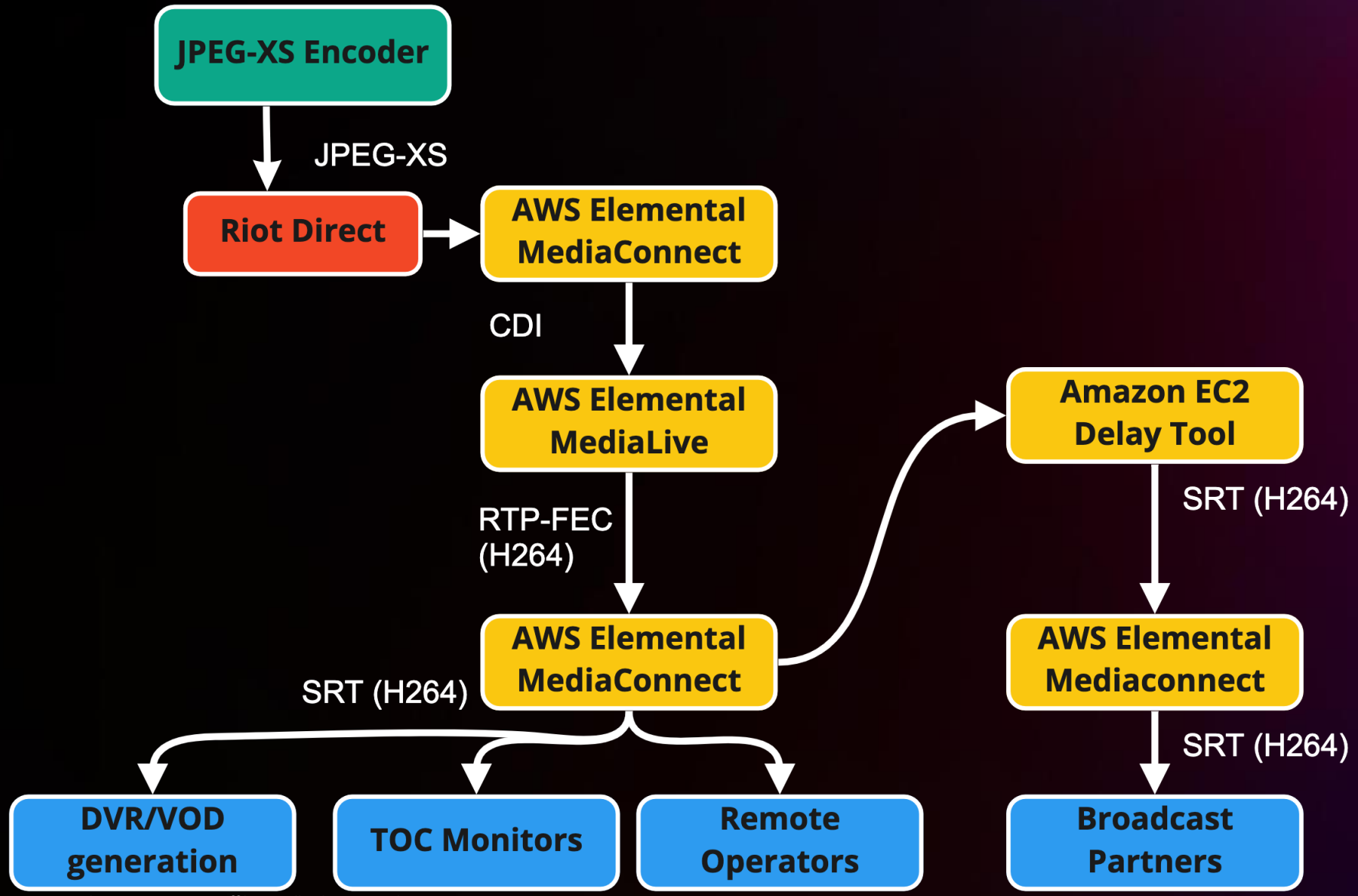


AWS Elemental Medialive

50+ Operator Workspaces
200TB live JPEG-XS content uploaded
~10k Assets stored to content archive

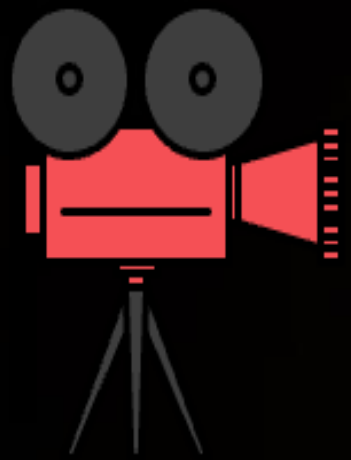
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Live Transmission Workflow



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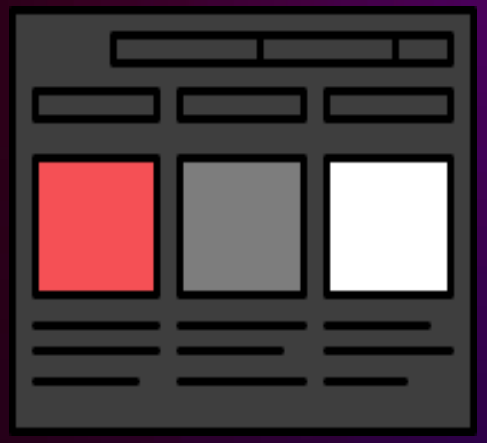
Going forward...



Positioned to move as fast as vendors



Cloud Archival Workflows



Unlock r&d cloud workflows

aws

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Thank you!



https://www.riotgames.com/en/work-with-us

James Wyld
jameswyld

Mauricio Wecker
mauriciowecker

Ashwin Raghuraman
ashwinraghuraman



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