

Road to the Digital Shop Floor.

Streamlined Decision with VRED Core

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Autodesk | Implementation Consultant Automotive



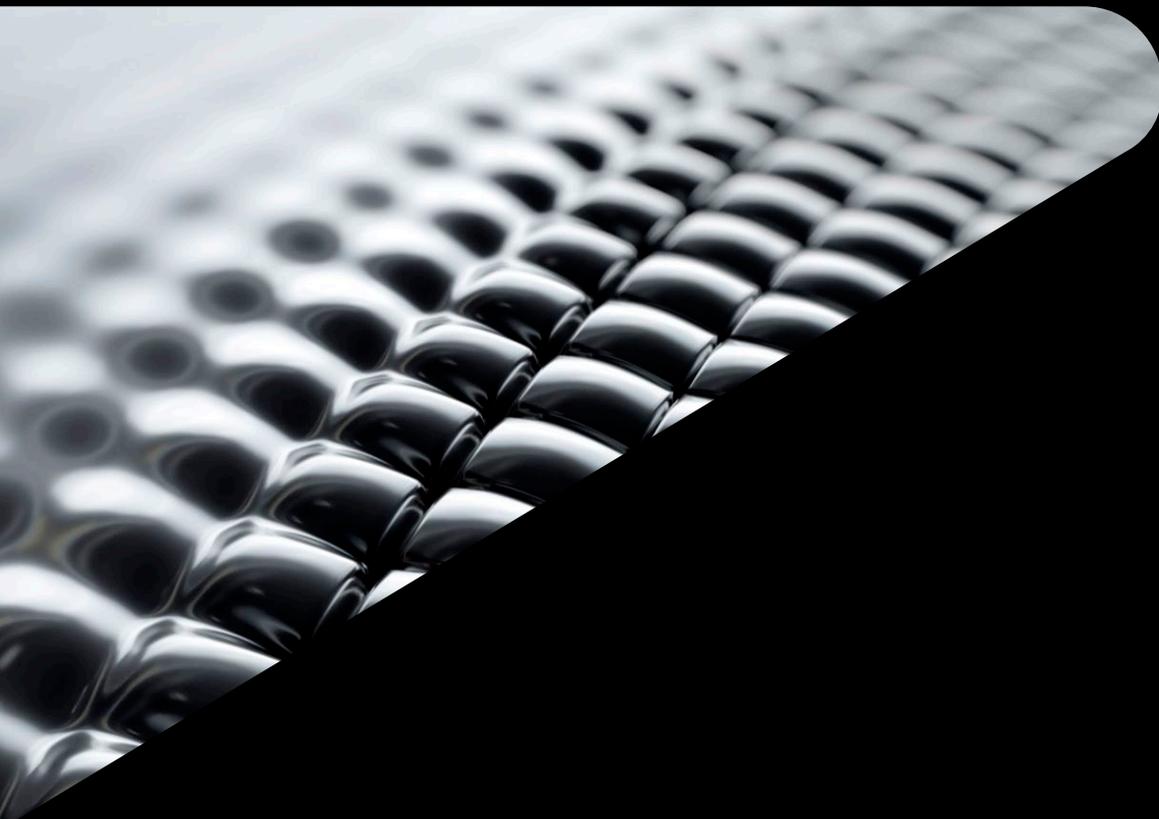
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Introduction

Who am I ?



- Autodesk Consulting
 - Implementation Consultant - Automotive
 - Support Customers with Autodesk Automotive & Visualization Solutions adoption and customization
- 20+ years experience in Design & Visualization
- 14 years in the Manufacturing industry (Rail) leading Digital Design Team
- Trained as a Designer, specialize in Creative Design visualization & communication, Real-time visualization, AR and VR.



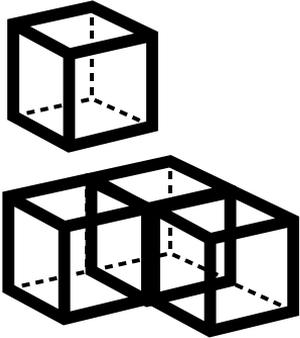
What is it about ?

- Make real-time & interactive 3D visualization easy.
- Access data from anywhere, on any device.
- One-click workflow to collaboration.

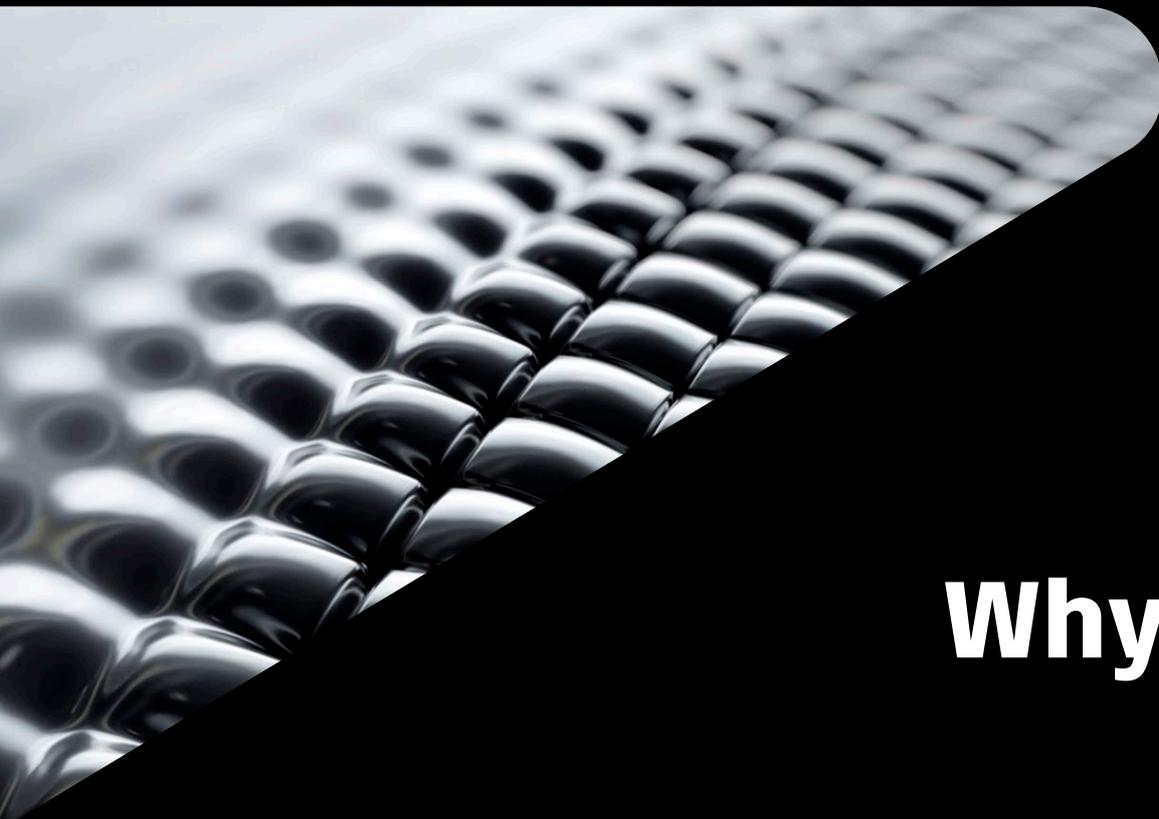




Learning Objectives



- Understand how to take advantage of VRED Core streaming capabilities.
- Learn how to visualize design data in a device-agnostic environment.
- Discover how to implement on-demand visualization as a service.
- Learn about the business ROI of a streaming collaboration platform.



Why did we do it?



Decision Making process

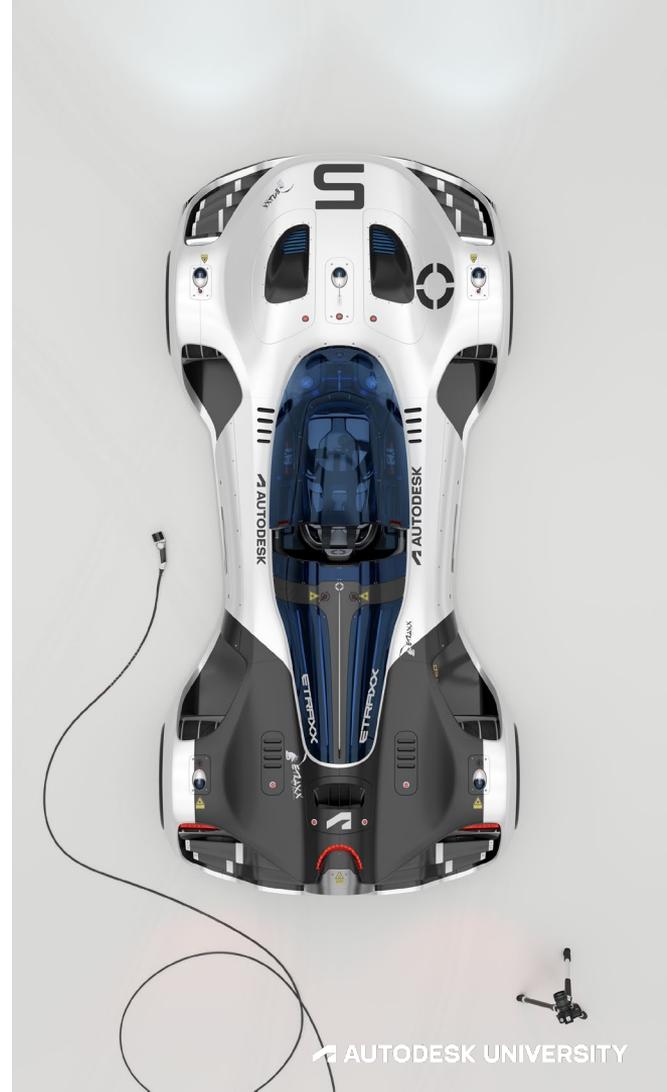
Digitization of Design workflows made us loose the ability, during early design phases, to walk around the shopfloor to see and compare designs progress.

How might we do it again in a digital world...?



Digital Design opportunities & struggle

- Designing digital unlocked creativity.
 - Design faster thanks to new tools.
 - Visualize earlier with a level of realism close to reality.
 - Experience designs and interact in VR.
- Managing this amount of data and consuming it can be challenging.
 - Requires dedicated hardware.
 - Needs expertise.
 - Finding the right data, the latest update is sometimes a challenge.





V AUTODESK® VRED™

Autodesk® VRED™

VRED Stream and Streaming App

A AUTODESK.



Value driven

Access high-end visualization data and experience designs through a web browser on any device.



Save operational time

Reducing the need for expert support to find, prepare, and manage ad-hoc presentation



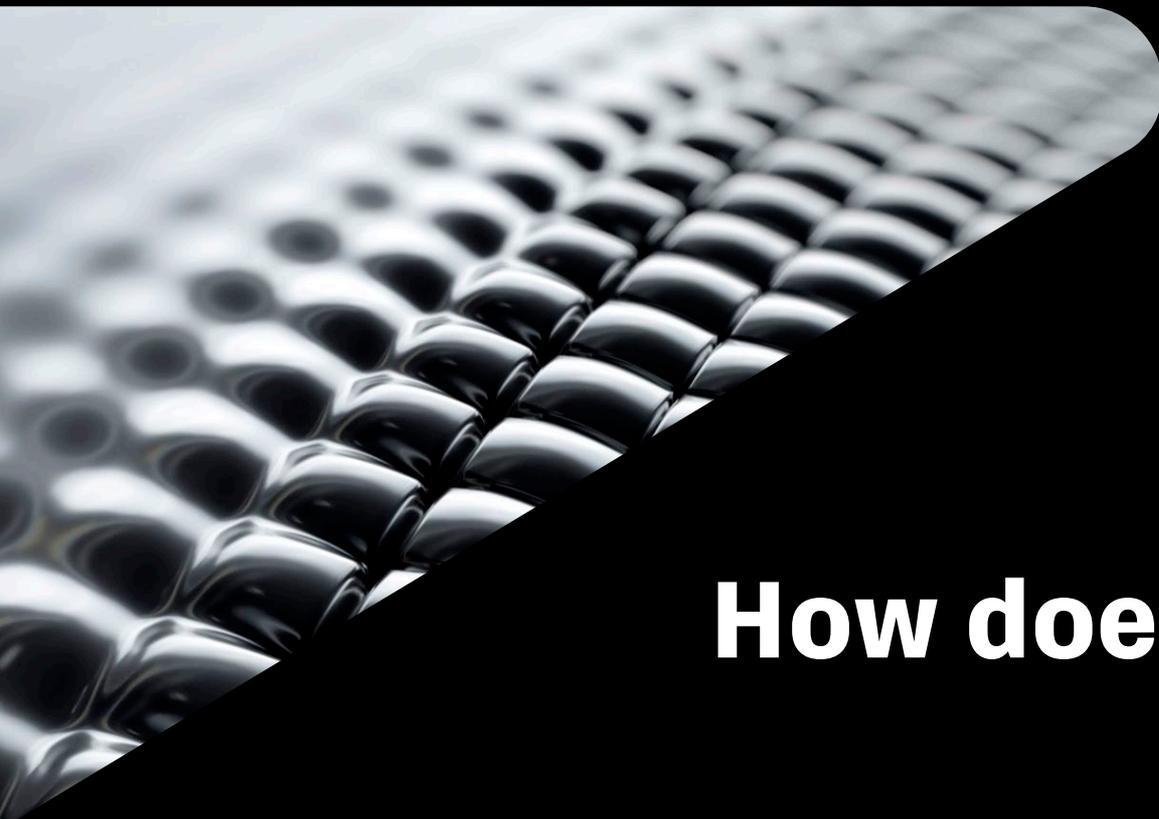
Ease access to the right data

Remove the technological barrier by allowing any device to consume visualization data



Shorten Design cycles

Influence design changes earlier, detect earlier wrong design direction, shorten time to find the right data



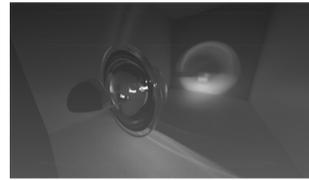
How does it look like?



Filters

- Projects ▾
All
- Phases ▾
All
- Scopes ▾
All

Shared with me



[Admin](#) April 21, 2022 at 15:48:17

Light Study - shared with Engineering Only

Light Study - shared with Engineering Only

Shared with ['Design_Group', 'Admin_Group', 'Engineering_Group'] or Everyone



[Admin](#) April 22, 2022 at 06:16:08

PROJECT: Aurora | PHASE: Crea-Design | SCOPE: Exterior

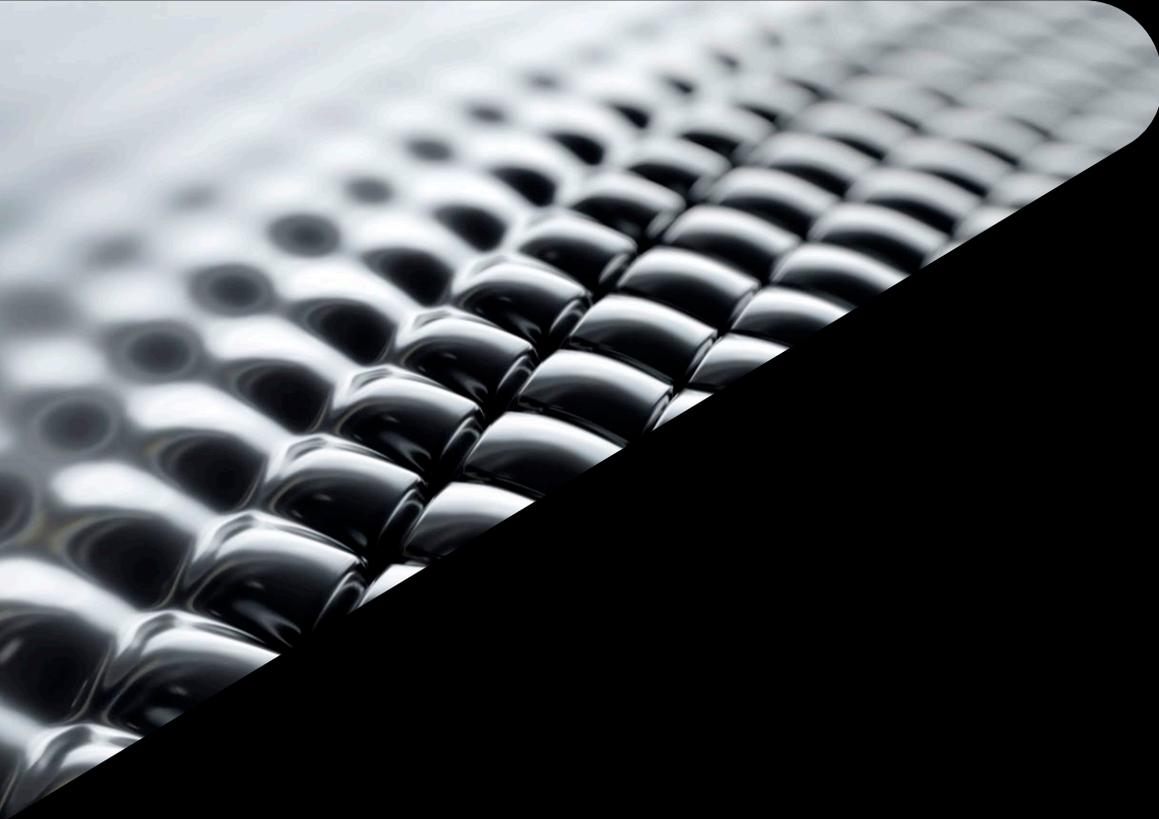
Aurora - Demo Model Shared with DesignManager

Aurora - Demo Model Shared with DesignManager



PROJECT: SRG | PHASE: Detail-Design | SCOPE: Exterior

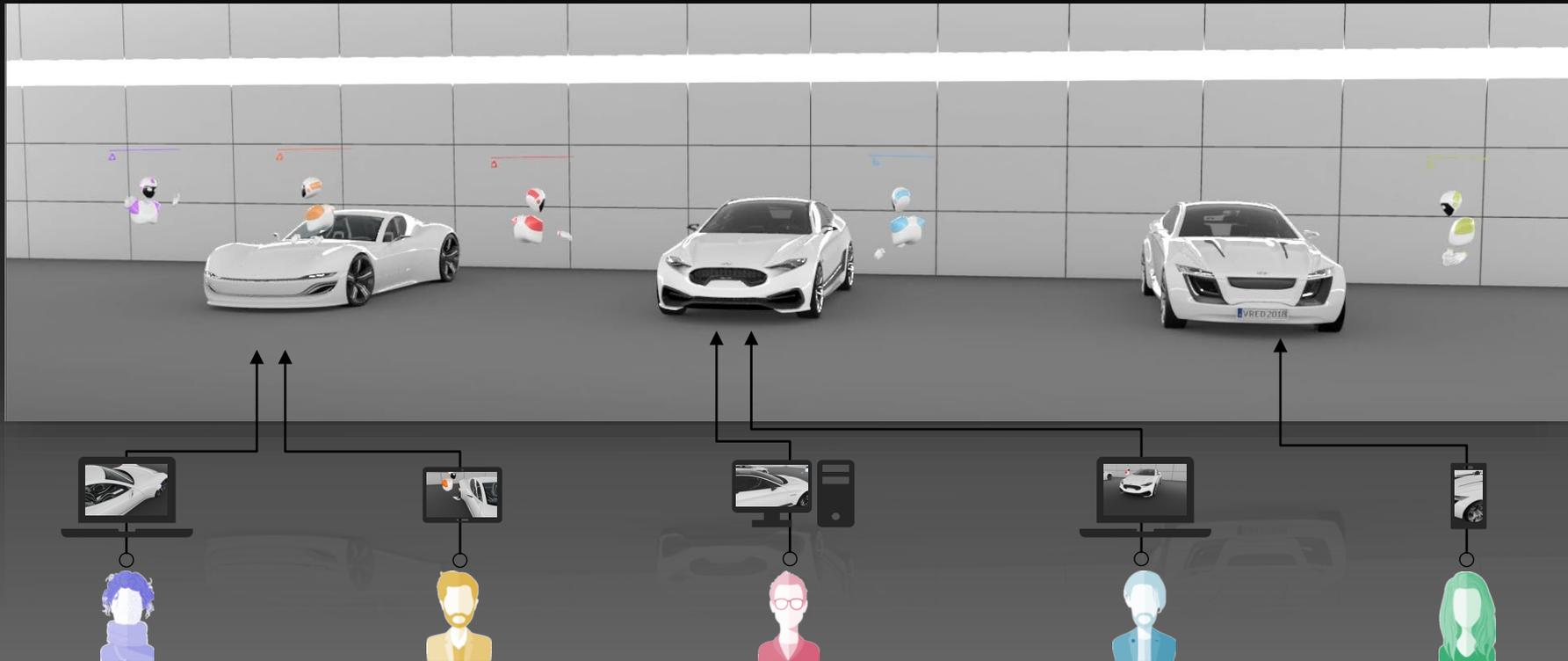
SRG - Demo Model - Shared with Design Only



Use-Cases

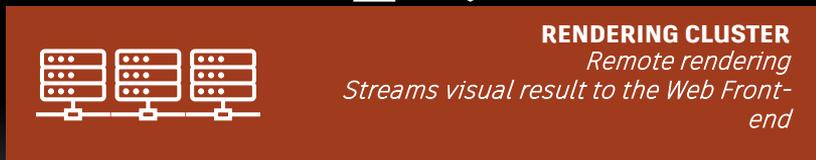
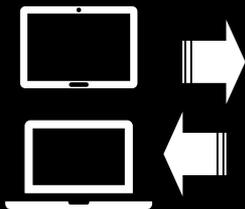


What If...?





Self-served review



Designer
Digital Modeler
Visualization Artist



Use-cases

Quick/Daily check on
work progress

High-End
Visualization Self-
service - Gate
reviews prep.

Automate work
packages assembly

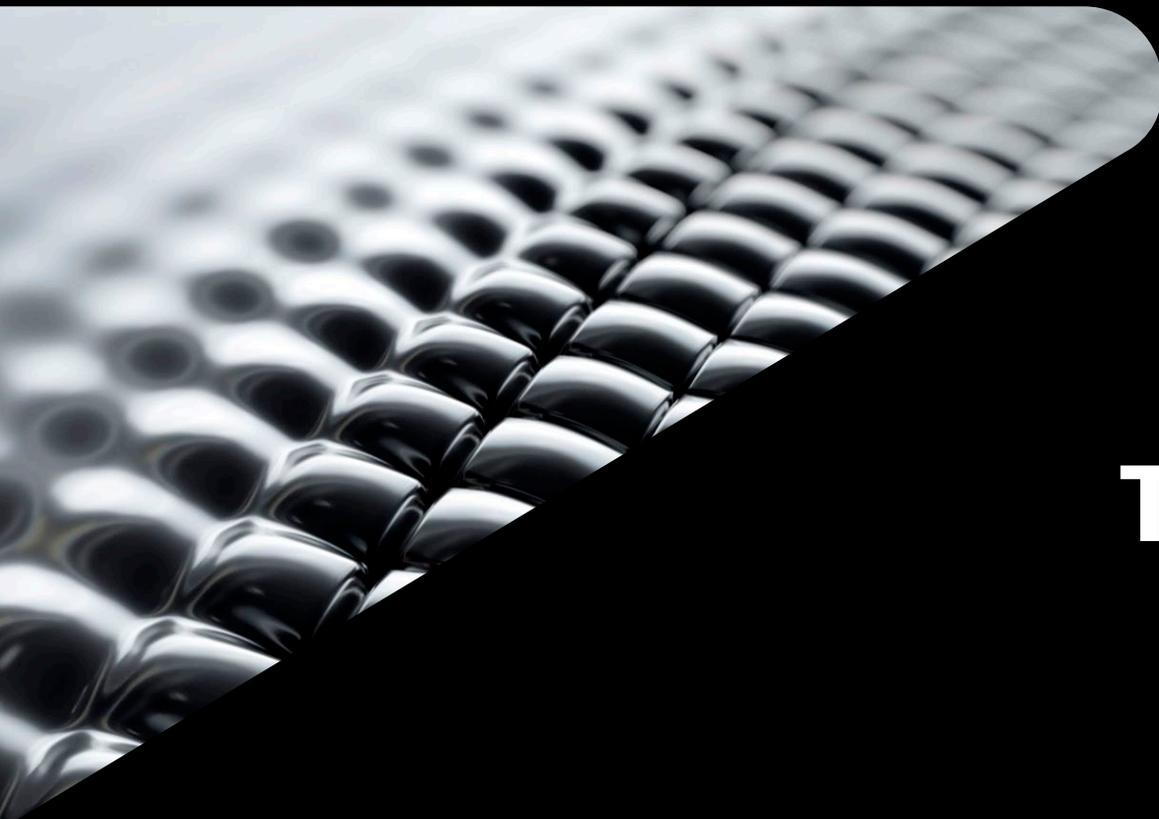
Share controlled
data outside of the
Design

Collaborative Design
reviews

Compare multiple
Designs

Live data review /
check auto-built
assembly - Daily
update

Single source of
Truth



Technological components



System Components





System Architecture

FRONT-END



User Login



Posts List



3D review



New Post



Edit Post



Manage

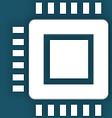
DJANGO MODELS



User Model



Post Model



Streaming Server Model

WEB SERVER

RENDERING INSTANCES



VRED Core Instance



VRED Core Instance



VRED Core Instance



VRED Core Instance



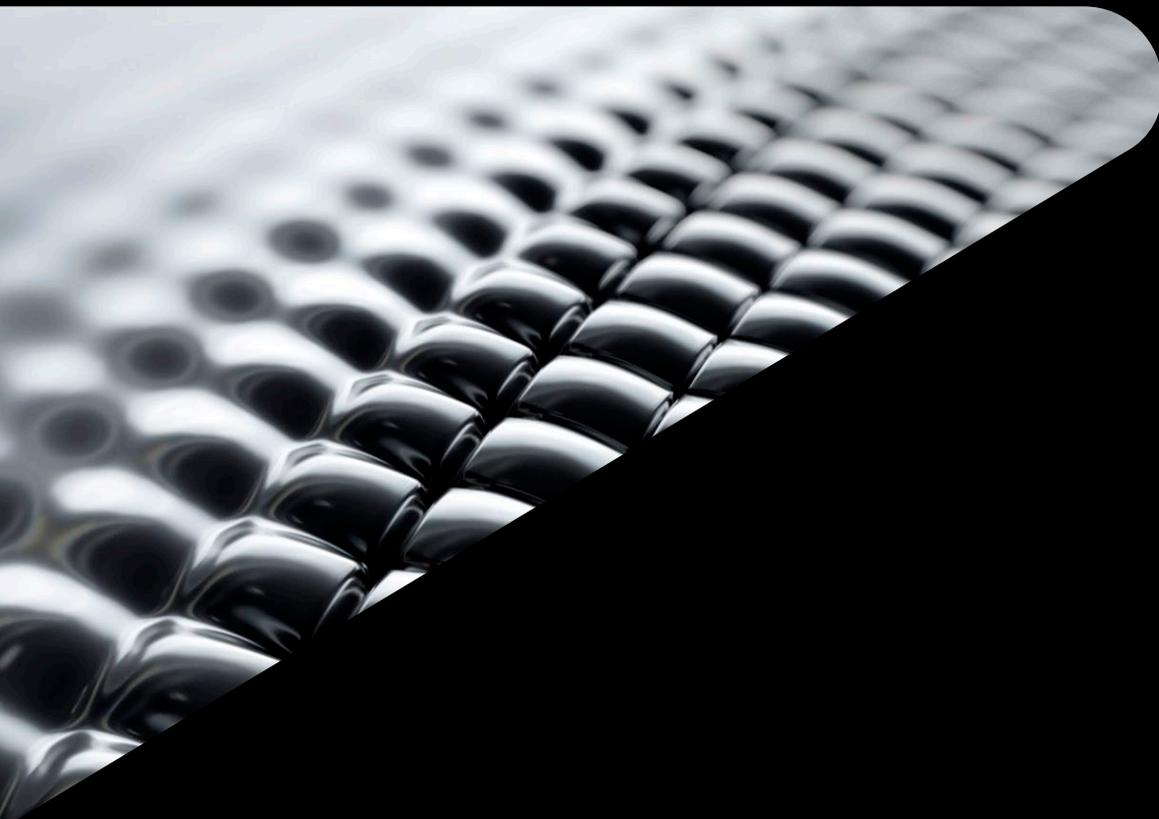
VRED Core Instance



VRED Core Instance

MEDIA





What's Next?



Live data feed

ProjectA Data

```
ProjectA_root
├── Exterior
│   ├── |--zone1
│   │   ├── |--FileA_rev00.wire
│   │   ├── |--FileA_rev01.wire
│   │   ├── |--FileA_rev02.wire
│   │   └── |--zone2
│   │       ├── |--FileB_rev00.wire
│   │       └── |--FileB_rev01.wire
│   └── Interior
│       ├── |--zone3
│       │   ├── |--FileC_rev00.wire
│       │   ├── |--FileC_rev01.wire
│       │   └── |--FileA_rev02.wire
```

ProjectB Data

```
ProjectB_root
├── Exterior
│   ├── |--zone1
│   │   ├── |--FileA_rev00.wire
│   │   ├── |--FileA_rev01.wire
│   │   ├── |--FileA_rev02.wire
│   │   └── |--zone2
│   │       ├── |--FileB_rev00.wire
│   │       └── |--FileB_rev01.wire
│   └── Interior
│       ├── |--zone3
│       │   ├── |--FileC_rev00.wire
│       │   ├── |--FileC_rev01.wire
│       │   └── |--FileA_rev02.wire
```

DATABASE

AUTOMATION

DOWNSTREAM VISUALIZATION WORKFLOWS

MANAGE MODELING ASSETS

Project data are stored in a structured repository to allow downstream automation

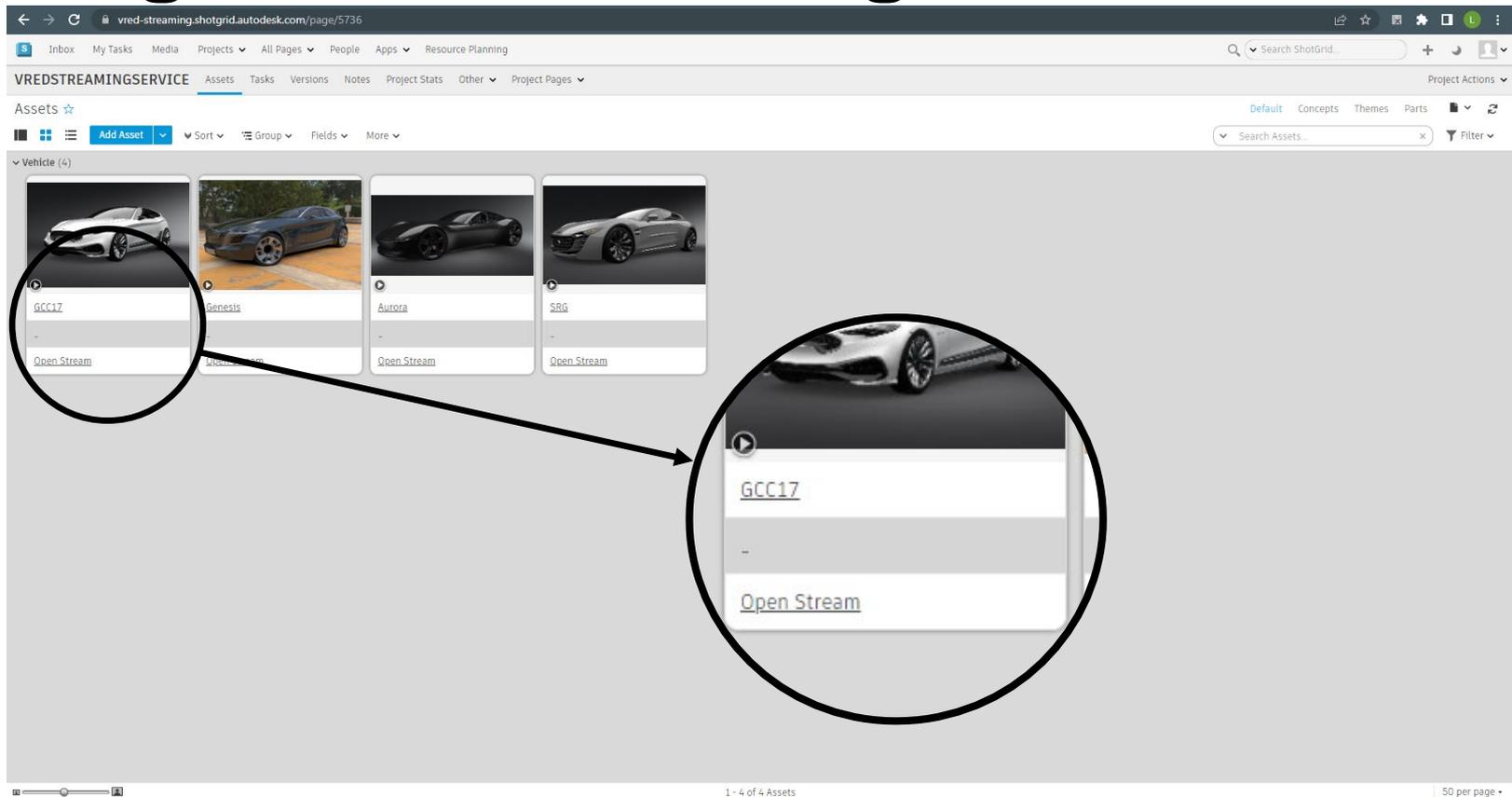
PREPARE DATA

Automated translation of modelling assets into Visualization-ready materials

CONSUMABLE DATA

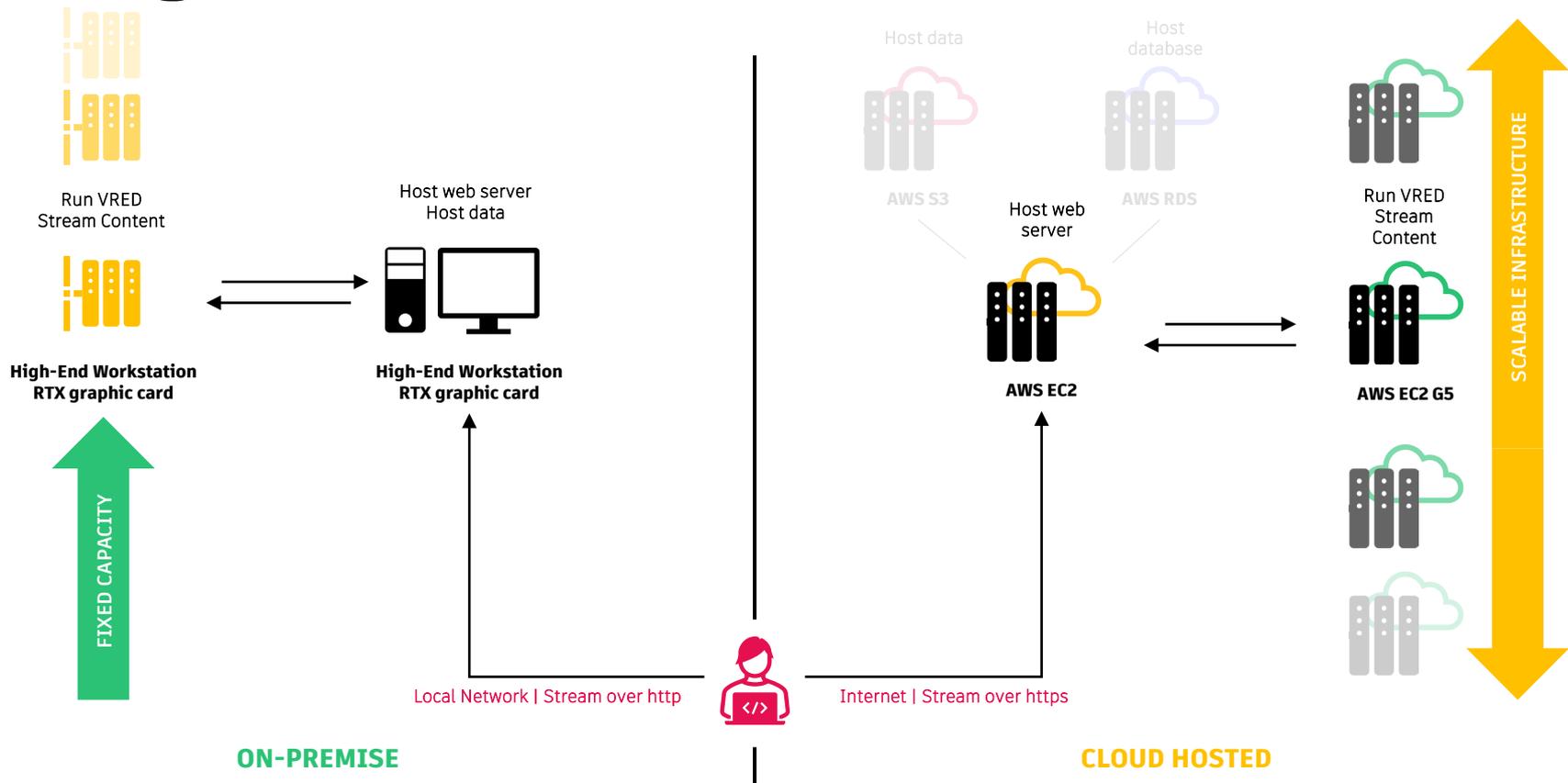
Automatized translation of modelling assets into Visualization-ready materials

Pairing with Autodesk Shotgrid





Scaling the service





Automotive Virtual Design Review

Autodesk VRED streamed to any XR device from AWS using NVIDIA Cloud XR



 NVIDIA
CLOUDXR™

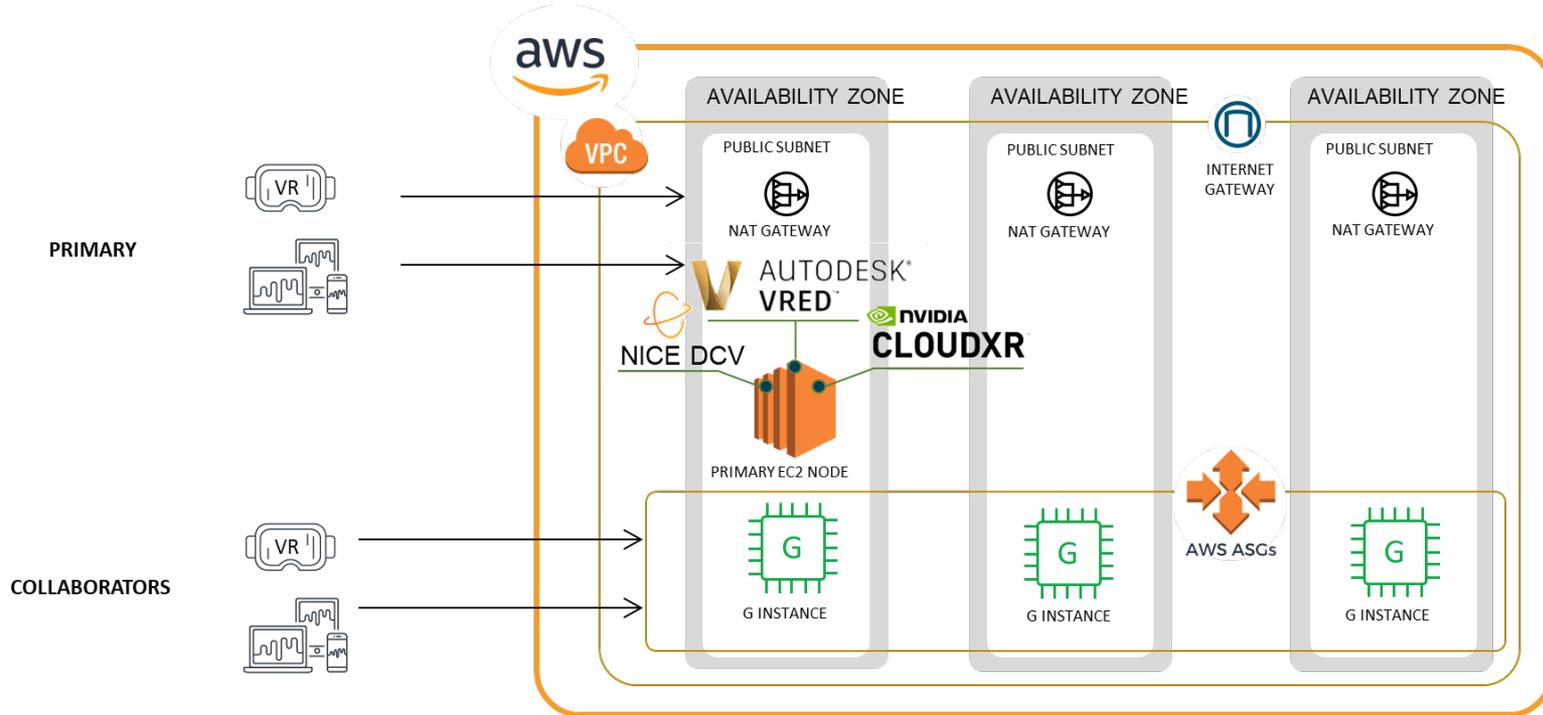
 AUTODESK
VRED™





Quickstart

Autodesk VRED and NVIDIA Cloud XR on AWS EC2 G5





Automation

Leveraging VRED's Python API, we can achieve almost anything...

Automate data preparation tasks.

- VRED supports a broad range of data formats
- Automate data conversion
- Apply data preparation templates

Streamline visualization workflows.

- Combine live data pulling and automated data prep.
- Automate engineering data assemblies
- Auto-update part versions

Off-line rendering service.

- Make realistic rendering accessible to anyone
- Simplify rendering resource management
- Apply scenery template for product life-like integration



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