AUTODESK. UNIVERSITY

Cloud-Based Design Review in High-Quality Real-Time Rendering

Simon Nagel / Christoph Frandrup

Technical Sales Specialist / Technical Solutions Executive

Key Learnings

- Why the Cloud?
- How to setup Cloud Instances for Visualization
- Cloud Use-cases for Visualization

About the speakers

CHRISTOPH FRANDRUP

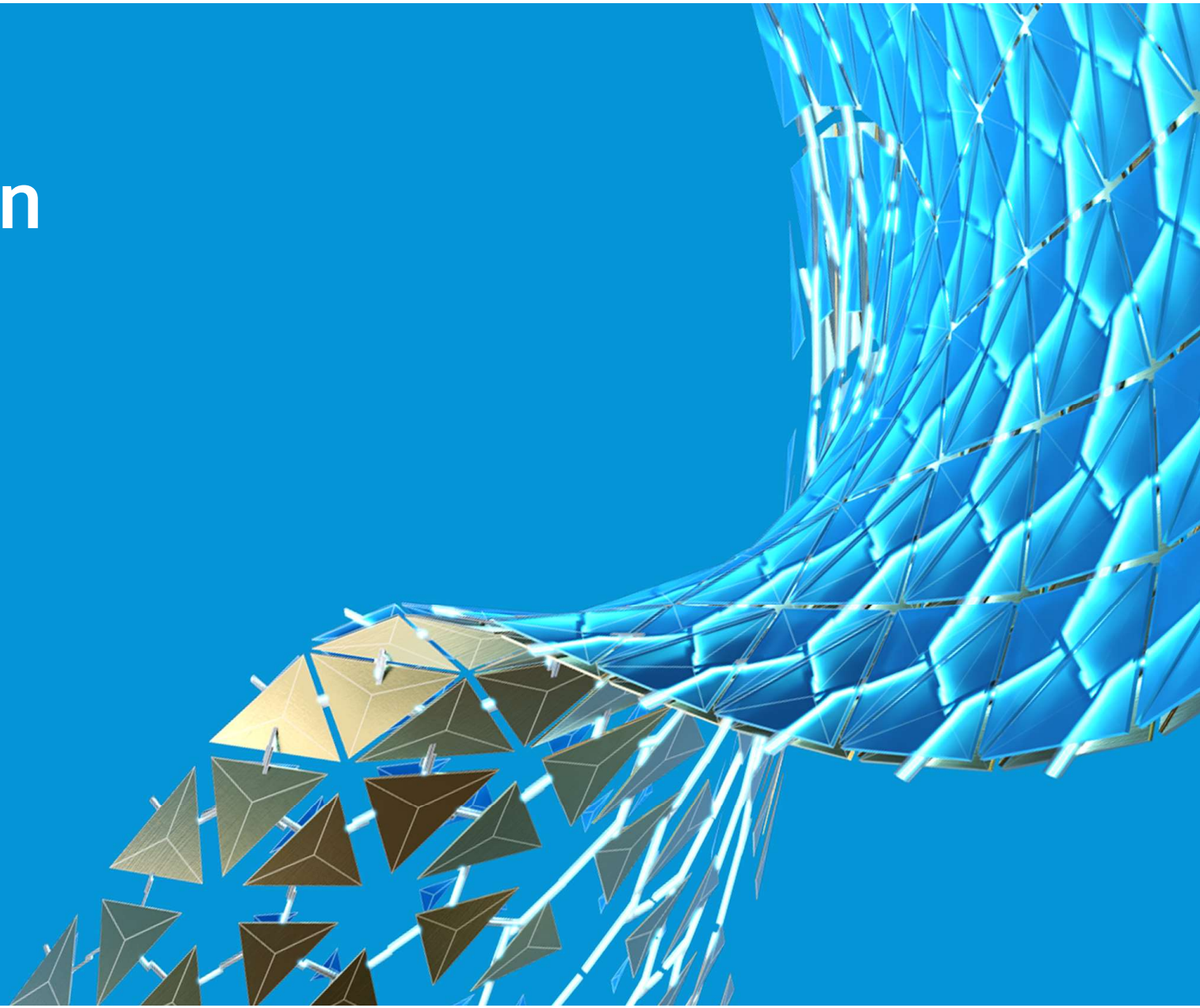
Christoph Frandrup has worked for more than 20 years in different roles in the automotive industry mainly focusing on visualization.

In 2009 Christoph joined Autodesk as a visualization consultant and later move to the Technical Solutions Executive role.

SIMON NAGEL

Simon Nagel is an expert for Visualization for Realtime Rendering, High-quality-image generation and Virtual Reality.
Simon is working in the Design industry for 15 years as 3D Artist, Consultant, UX Designer, Product Manager and Technical Sales Specialist.
His main focus is the Automotive Industry.

Visualization



Beautiful ≠ Real

Visualization for Virtual Prototyping

Replicate Reality to save cost and time

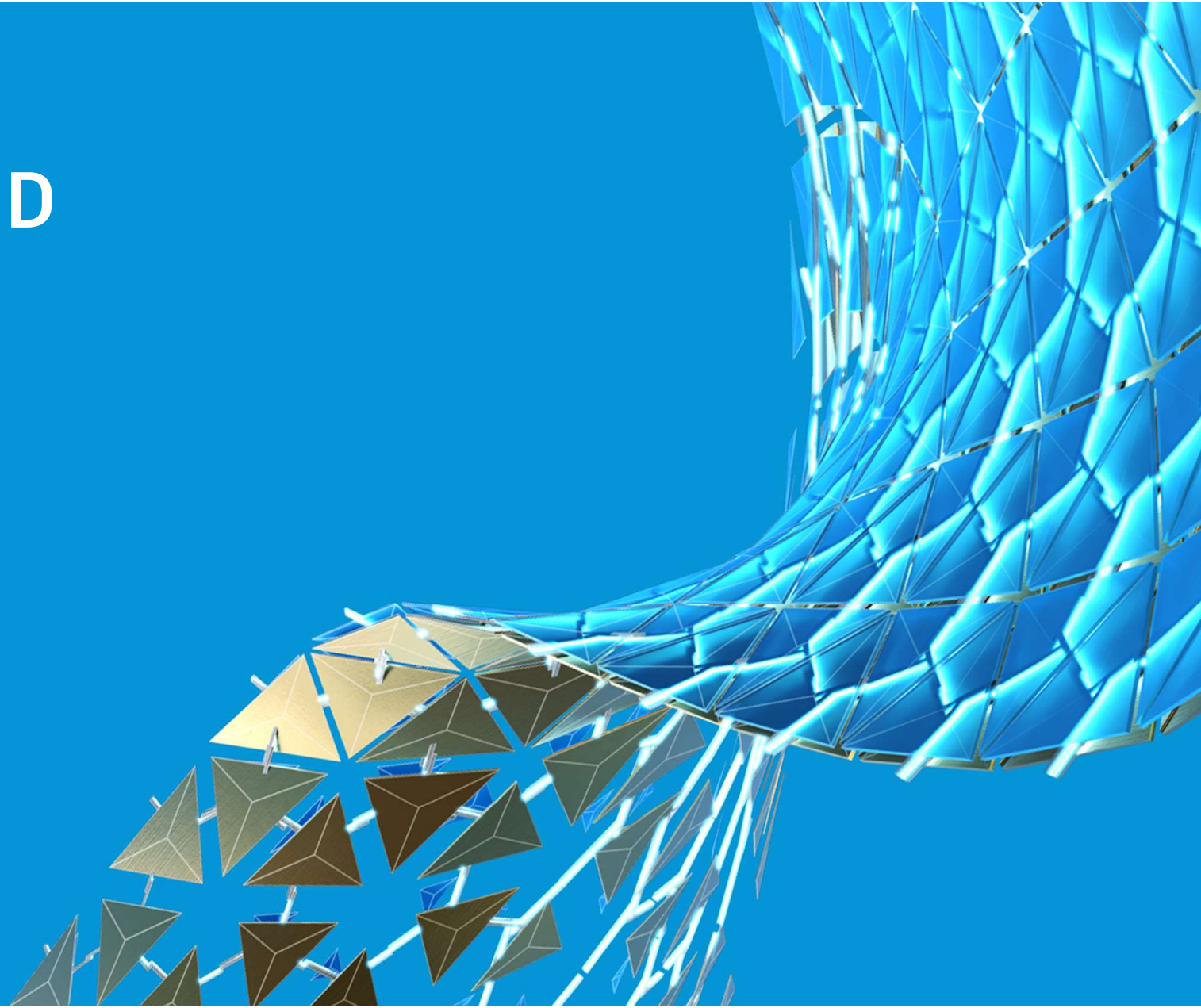
Quick Design Exploration and Presentation

Visual Communication and Collaboration improve Workflow

Early Detection of Design Intent and Quality

Confidence in Digital Decision Making

What is VRED



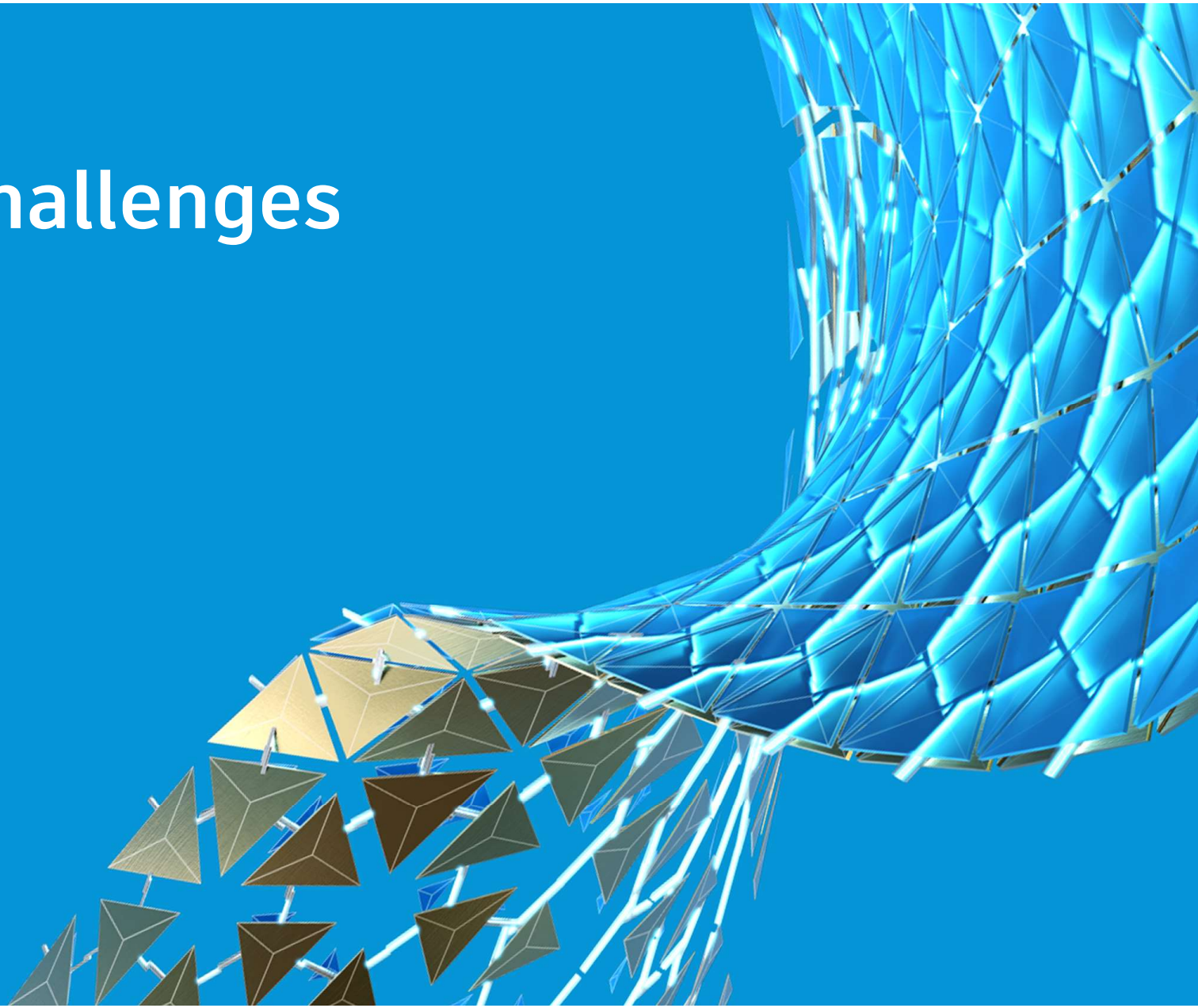
AUTODESK® **VRED**™

Review, validate, and showcase photorealistic prototypes

Assemble and maintain complex control models with VRED

Connect people and data seamlessly to enhance decision making

Customer Challenges



Customer Challenges

HIGH
COSTS

Ramp up costs are high, maintenance costs are high

NO
FLEXIBILTY

Current solutions are inflexible and static regarding growing or shrinking resources

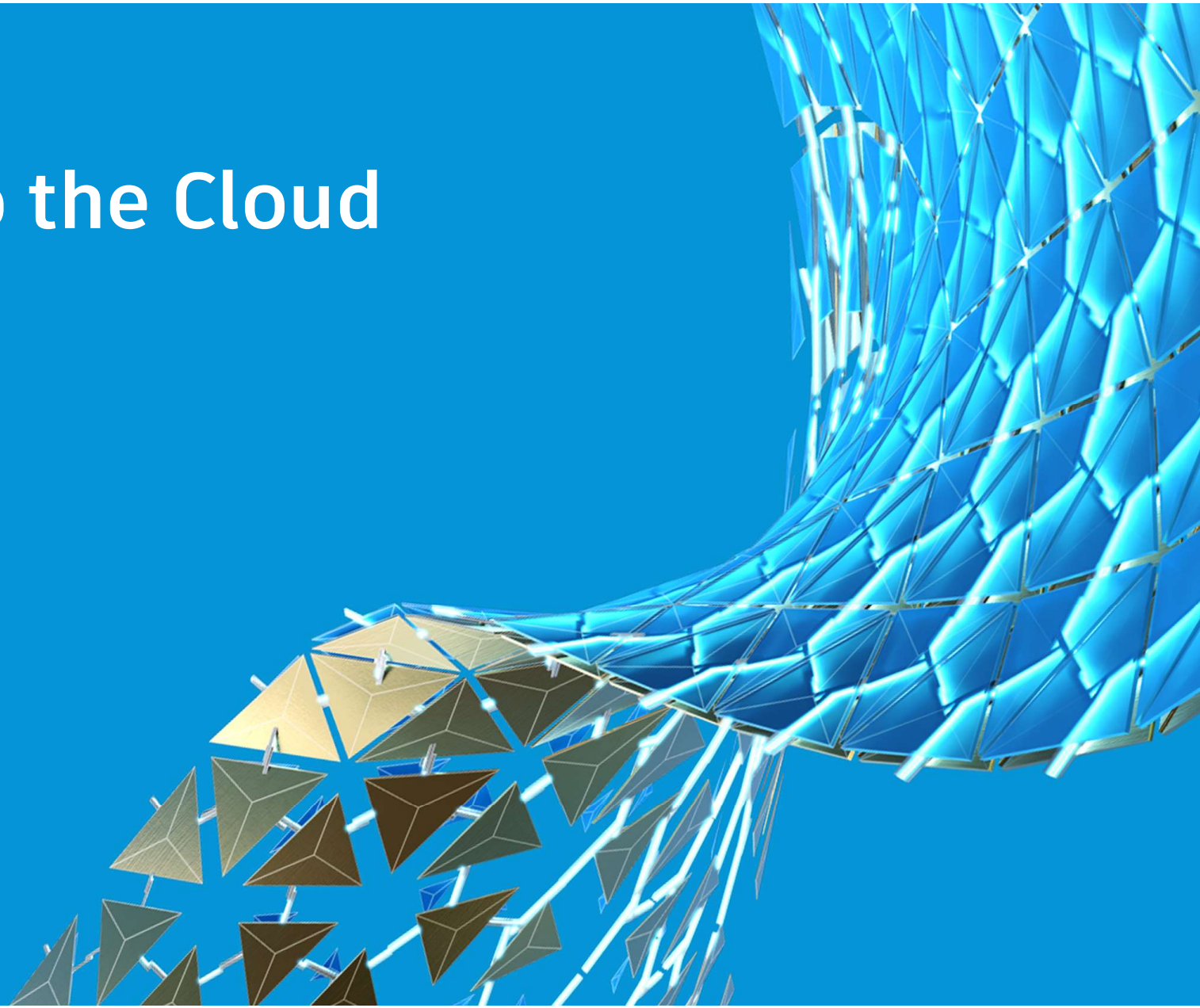
BIG
DEPENDENCY

Access to virtual content is dependent on time and space

HIGH
DEMAND

Customers and decision makes show a higher demand for real-time content

Moving into the Cloud

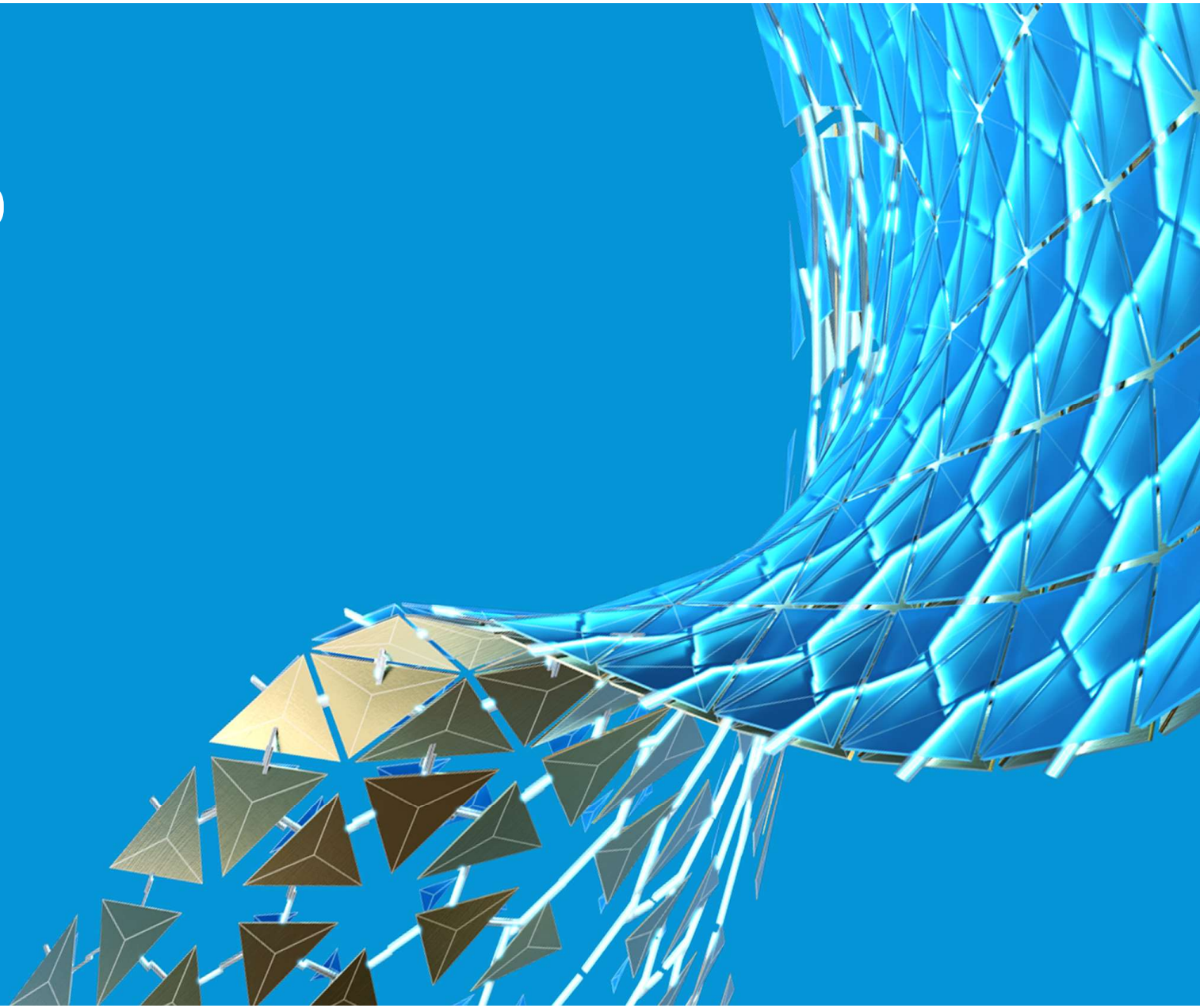


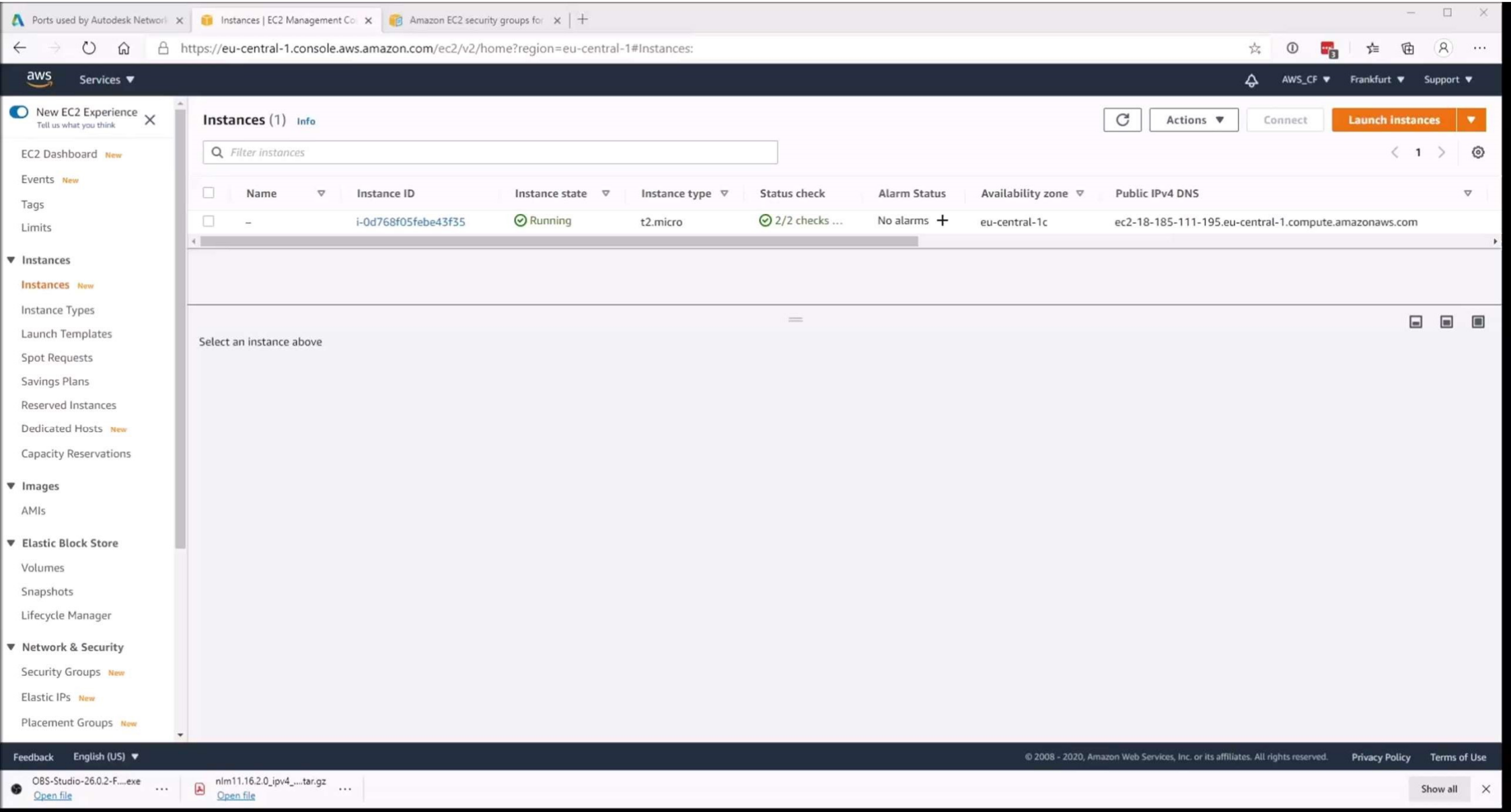
Moving into the Cloud

Moving to the cloud has a lot of advantages:

- **Accessibility**
  - Access “visualization” from any device
  - E.g. SLA commitment of 99.99% availability for each Amazon EC2 region. Each region consists of at least 3 availability zones
- **Flexibility**
  - Increase or decrease capacity within minutes, not hours or month/years
  - No commitment to a certain amount of compute power
  - Turn on and of hundreds of compute nodes in minutes
- **Maintenance**
  - Reduce costs for maintenance and initial purchase

Cloud Setup




Ports used by Autodesk Network
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AWS_CF
Frankfurt
Support
New EC2 Experience
Tell us what you think
EC2 Dashboard New
Events New
Tags
Limits
Instances
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Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances
Dedicated Hosts New
Capacity Reservations
Images
AMIs
Elastic Block Store
Volumes
Snapshots
Lifecycle Manager
Network & Security
Security Groups New
Elastic IPs New
Placement Groups New
Instances (1) Info
Actions
Connect
Launch instances
Filter instances
1
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Instance ID
Instance state
Instance type
Status check
Alarm Status
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© 2008 - 2020, Amazon Web Services, Inc. or its affiliates. All rights reserved.
Privacy Policy
Terms of Use
OBS-Studio-26.0.2-F....exe
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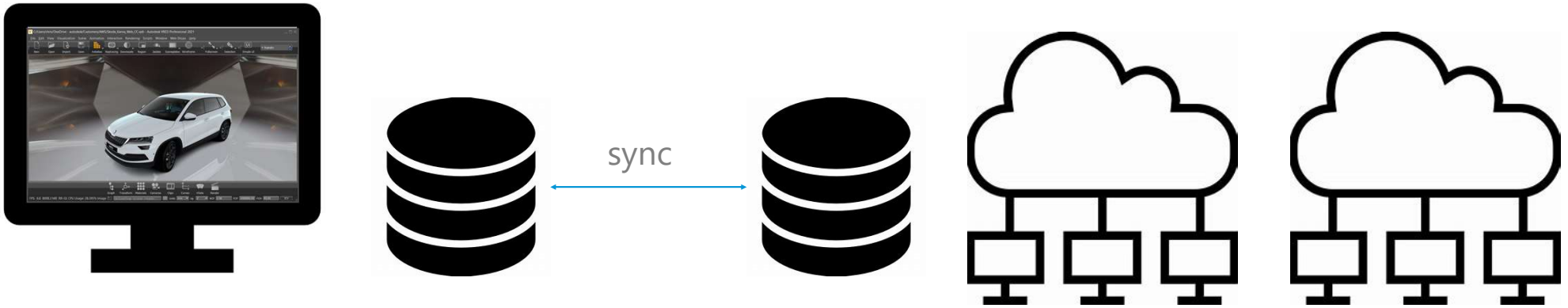
Open file
Show all

Cloud Setup Summary

The cloud setup is a one-time task and is straight forward:

- Choose the operating system to use (Linux or Windows)
- Start an instance and connect to the instance
- Install VRED Pro or VRED core on the instance and license it
- Create a container to restart instances with different types (more or less powerful)
- Start multiple instances using the created container



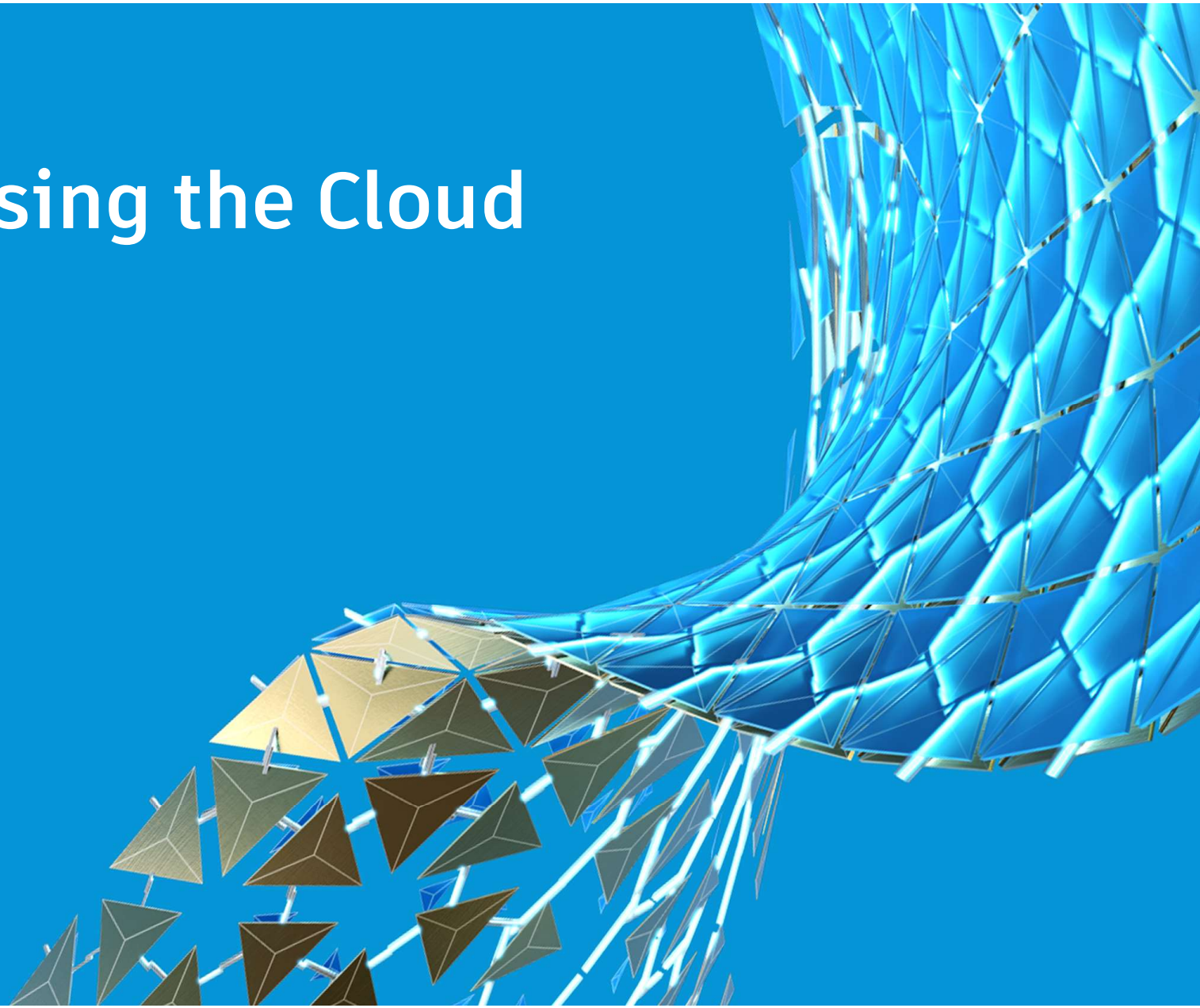
Local resources

- Prepare the scene
- Save the prepared scene and have it ready to be uploaded to the cloud
- Sync the local to the cloud storage (e.g. oneDrive)

Cloud resources

- Once the prepared scene is uploaded
- Start as many instances as needed
- Start the rendering process
- Copy / sync the resulting files to your local drive

Scenarios using the Cloud



Scenarios using the Cloud

VIRTUALIZE YOUR DESKTOP HARDWARE WITH AUTODESK DIGITAL WORKPLACE

Use a remote powerful desktop to access your data, work from any device.

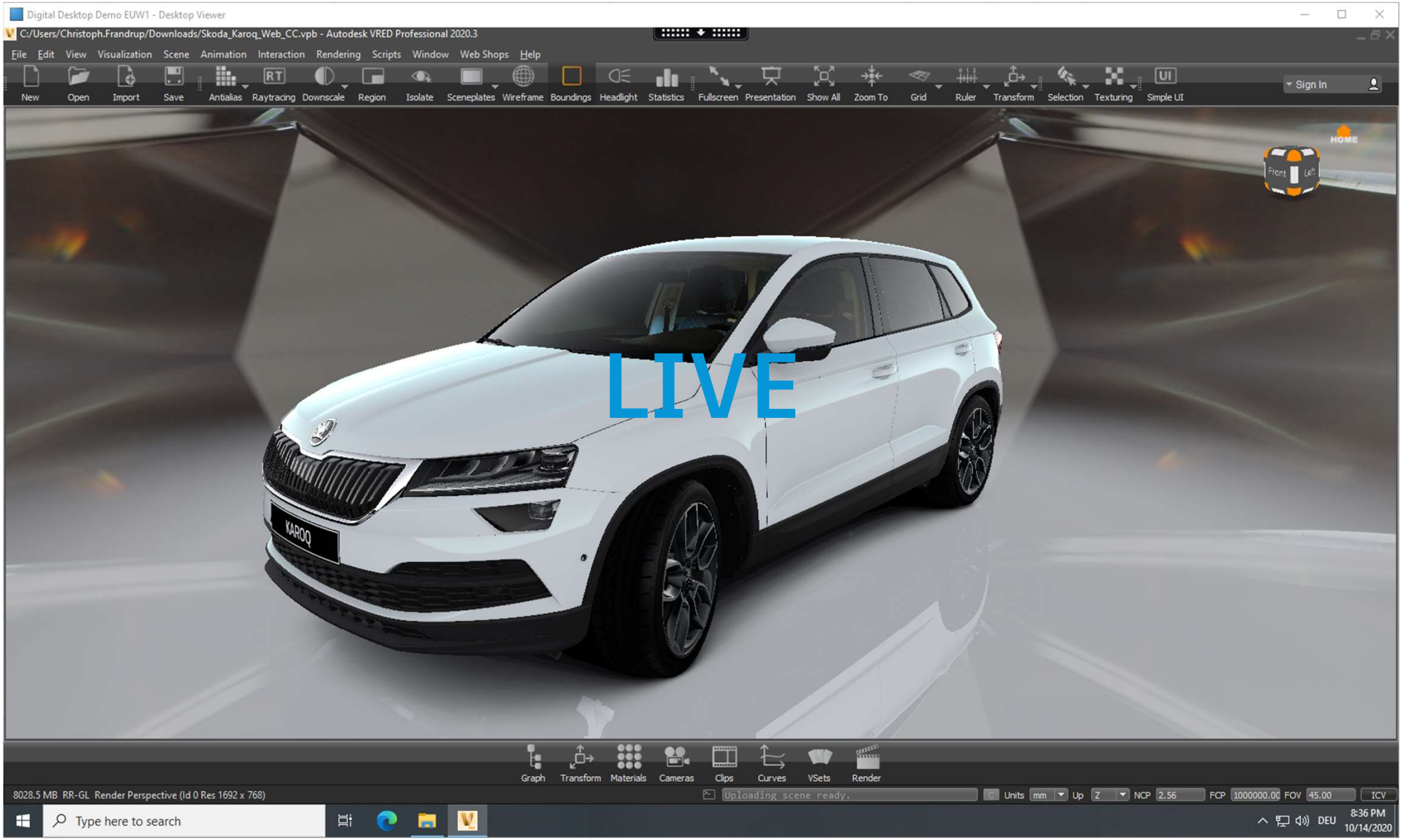
REVIEW HIGH QUALITY DATA AND COLLABORATE FROM EVERYWHERE

Stream your content to any device and collaborate with others.

RENDER IMAGES ON DEMAND / OFFLINE RENDERING

Use cloud resources to perform offline rendering jobs in a scalable environment.

Virtualize your Desktop Hardware with Autodesk Digital Workplace


Digital Desktop Demo EUW1 - Desktop Viewer
C:/Users/Christoph.Frandrup/Downloads/Skoda_Karoq_Web_CC.vpb - Autodesk VRED Professional 2020.3
File Edit View Visualization Scene Animation Interaction Rendering Scripts Window Web Shops Help
New Open Import Save Antialias Raytracing Downscale Region Isolate Sceneplates Wireframe Boundings Headlight Statistics Fullscreen Presentation Show All Zoom To Grid Ruler Transform Selection Texturing Simple UI
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Front
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Units mm Up Z NCP 2.56 FCP 1000000.00 FOV 45.00 ICV
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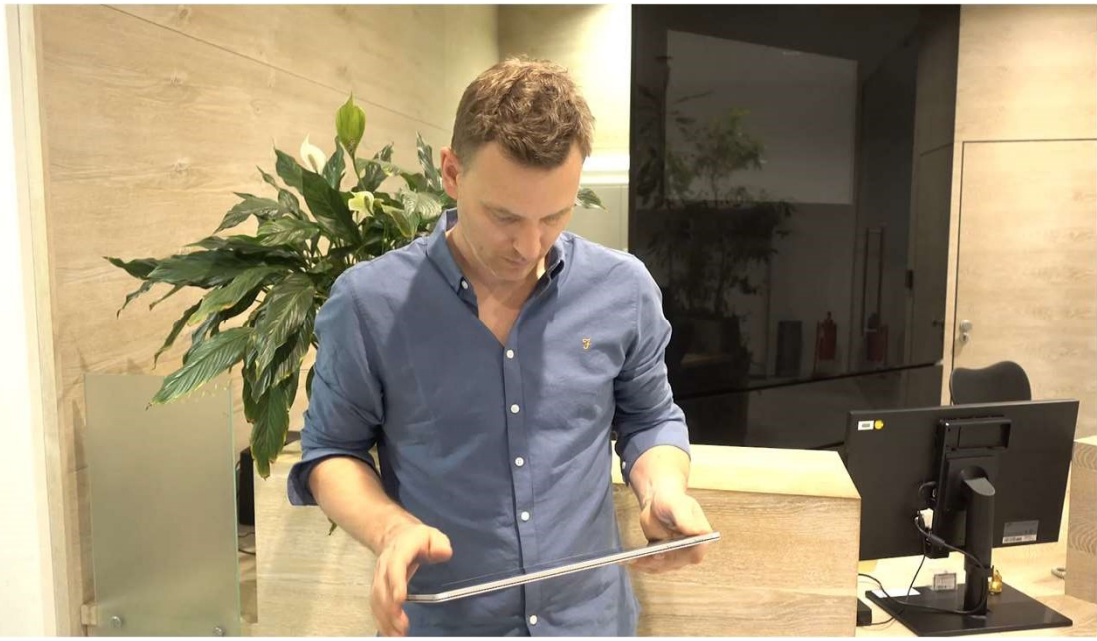
Review High Quality Data and Collaborate from Everywhere




E:/onedrive/OneDrive - autodesk/Projekte/Skoda Car Config/Skoda_Karoq_OpenGL.vpb * - Autodesk VRED Professional 2021.2
File Edit View Visualization Scene Animation Interaction Rendering Scripts Window Web Shops Help
New Open Import Save Antialias Raytracing Downscale Region Isolate Sceneplates Wireframe Boundings Headlight Statistics Fullscreen Presentation Show All Selection Simple UI
Simon.Nagel
KAROQ
LIVE
VRED Streaming App
http://localhost:8888/apps/VREDStreamApp/index.html
KAROQ
Variants
Viewpoints
Settings
Viewpoint1
Viewpoint2
Christoph Frandrup 38:44
Graph Transform Materials Cameras Clips Curves VSets Render
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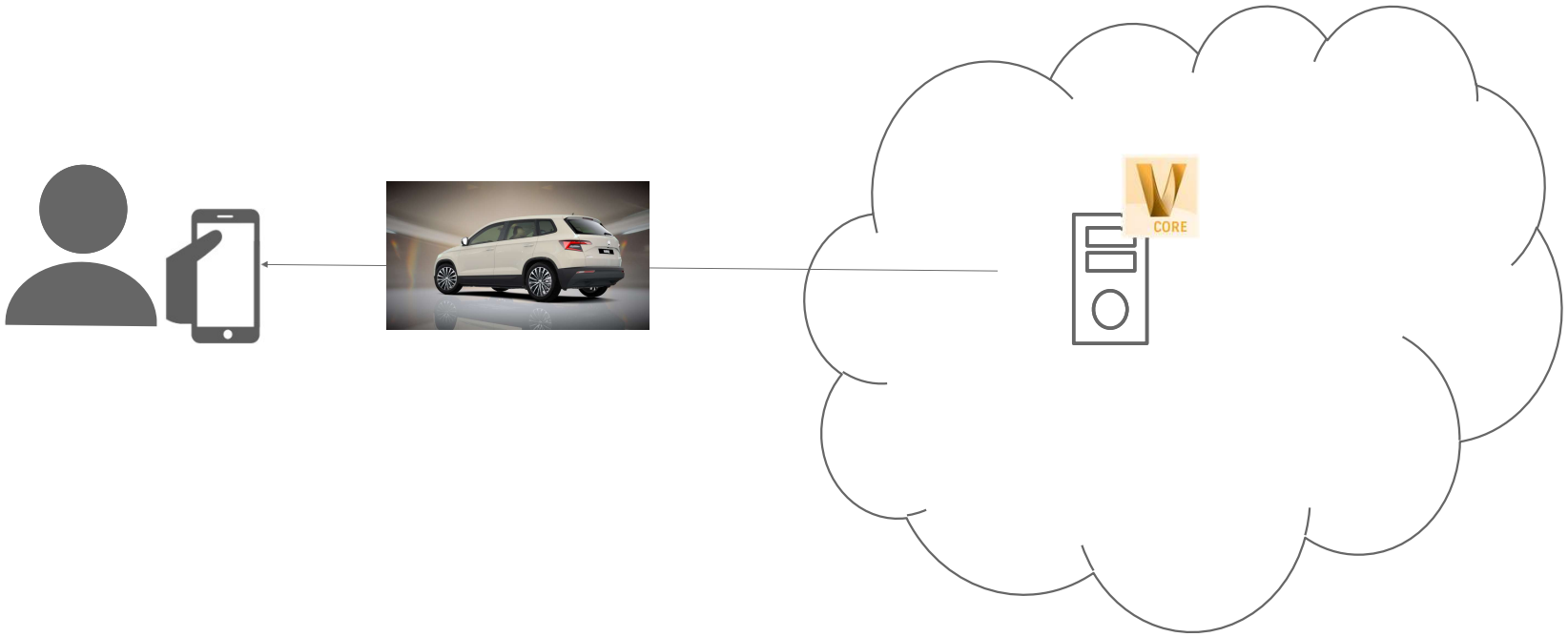
Streaming from the Cloud



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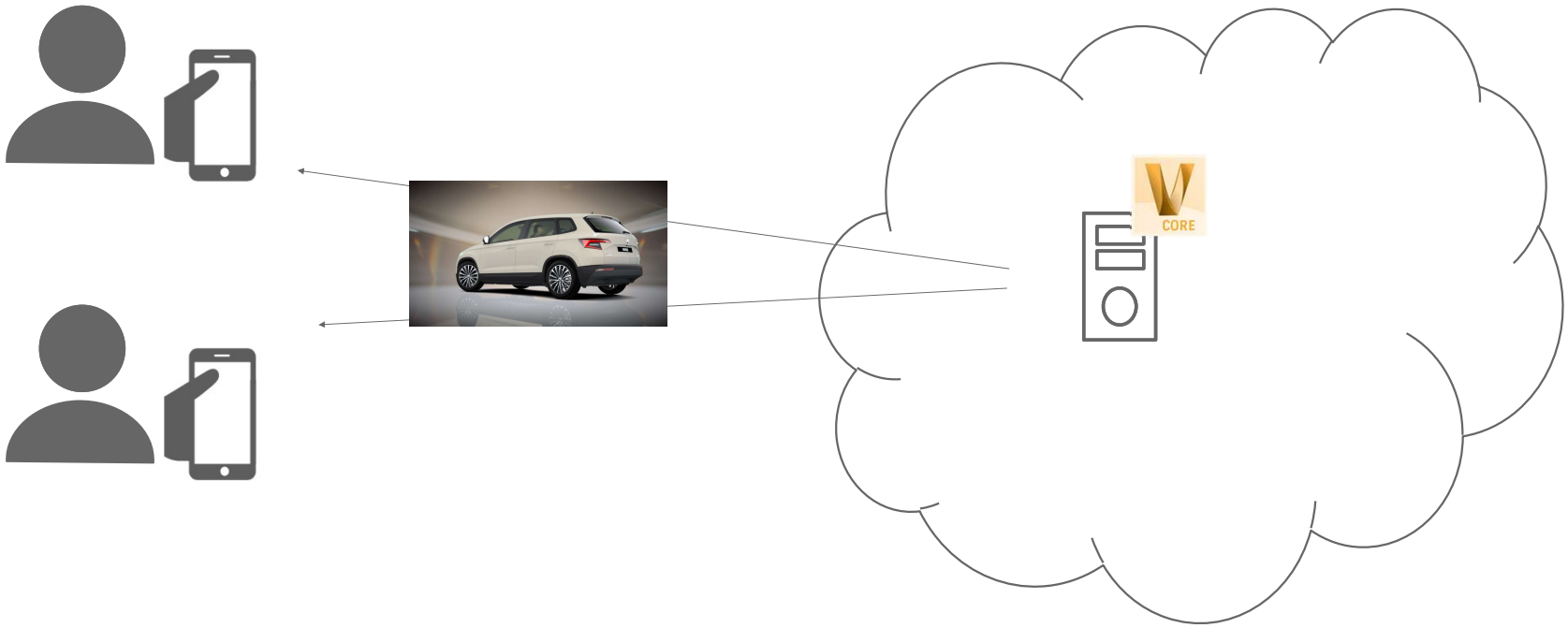
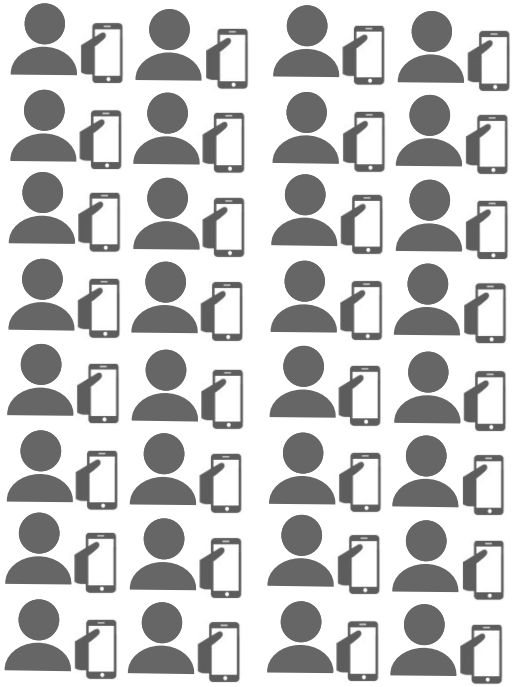
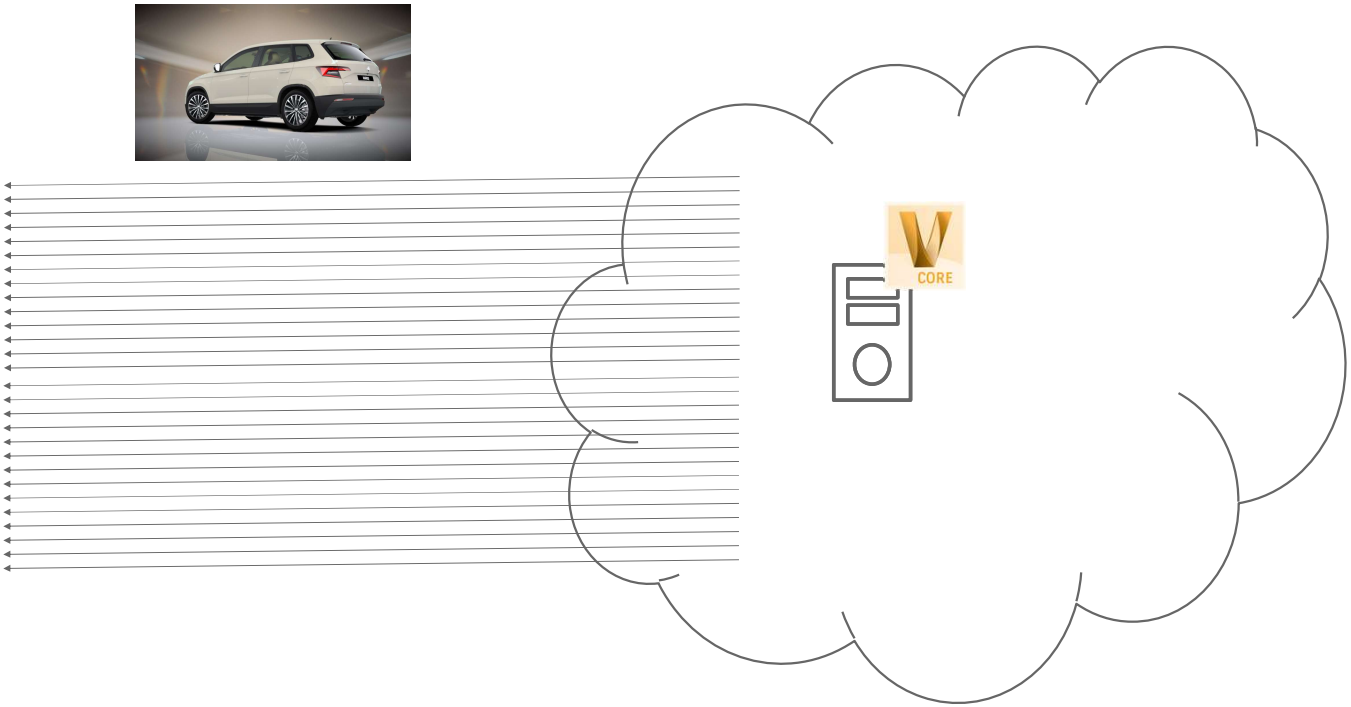


Streaming from the Cloud





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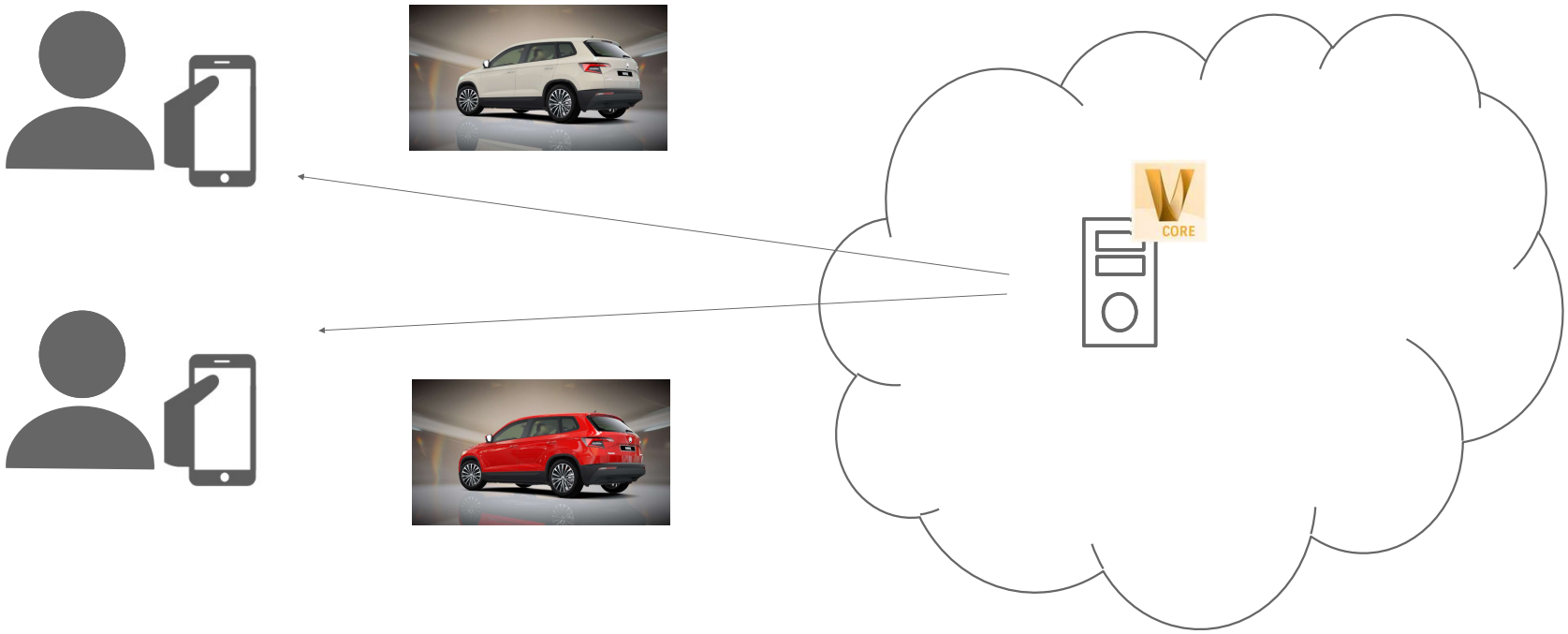

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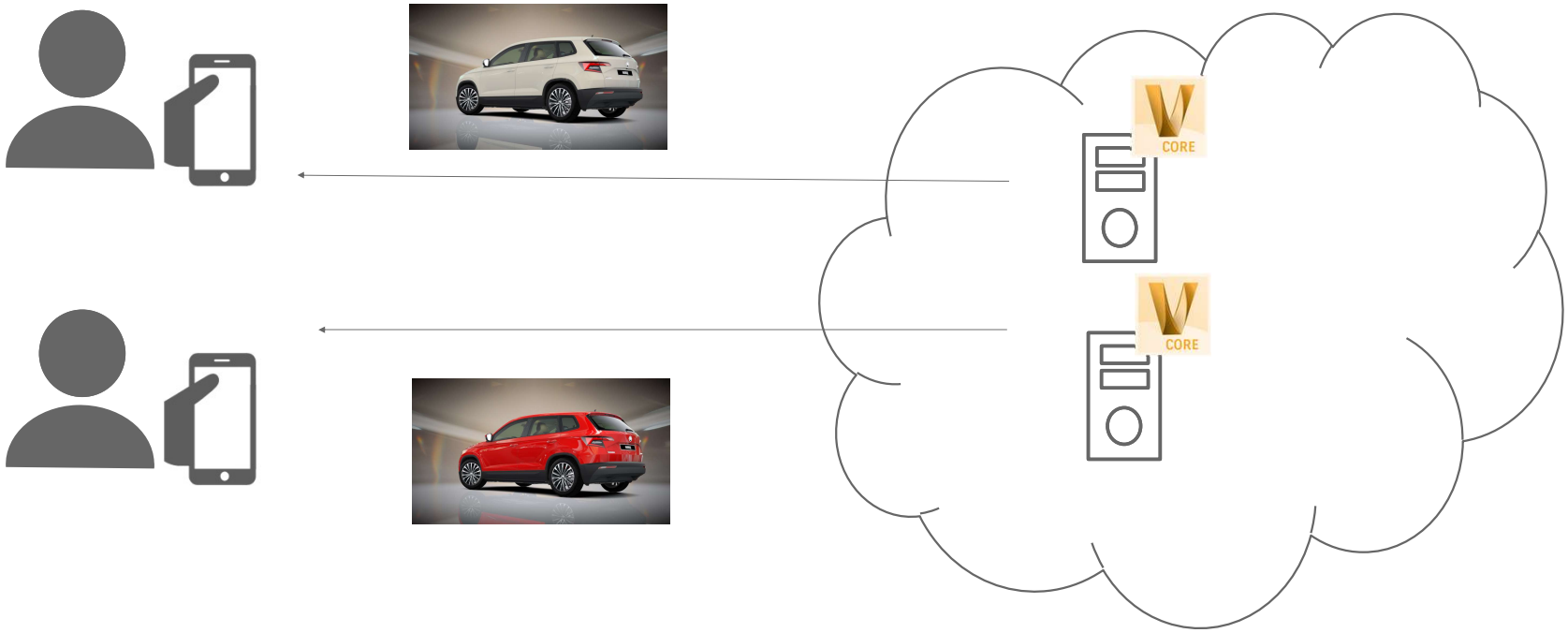

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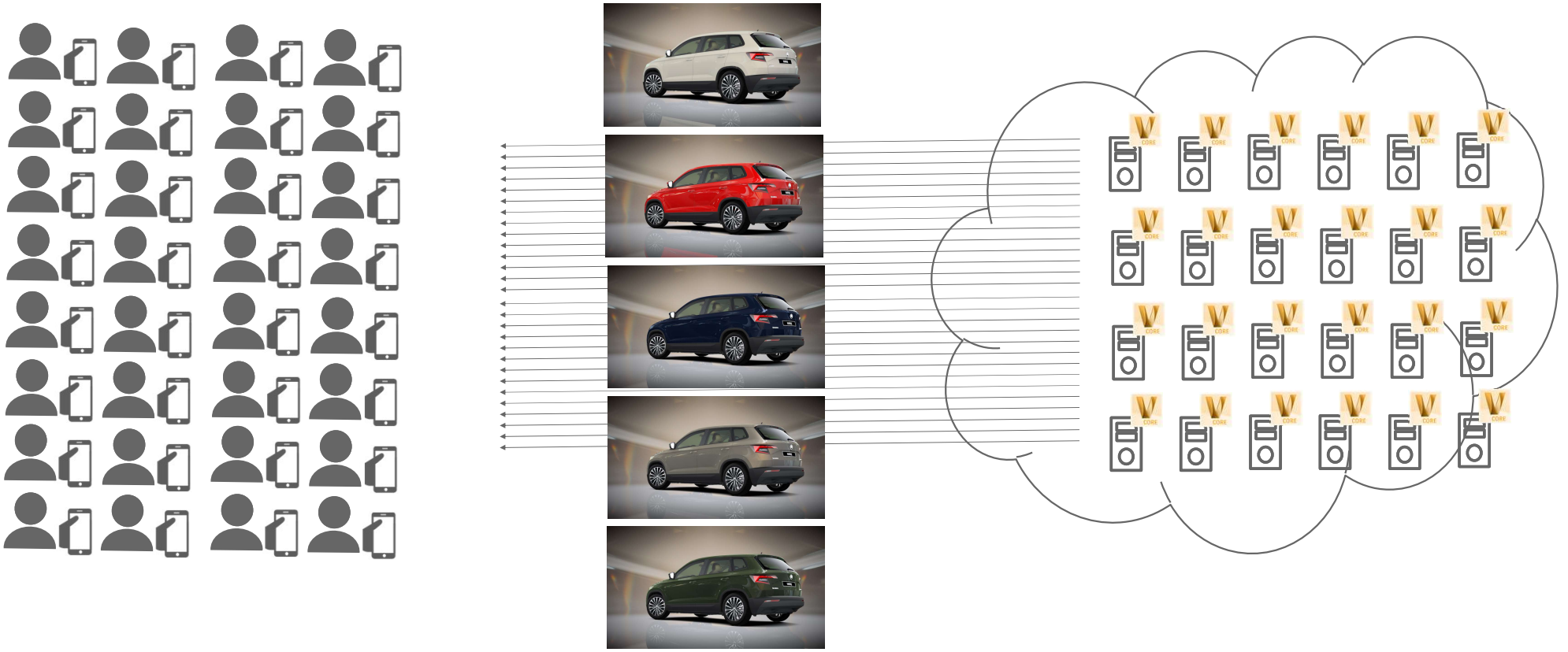

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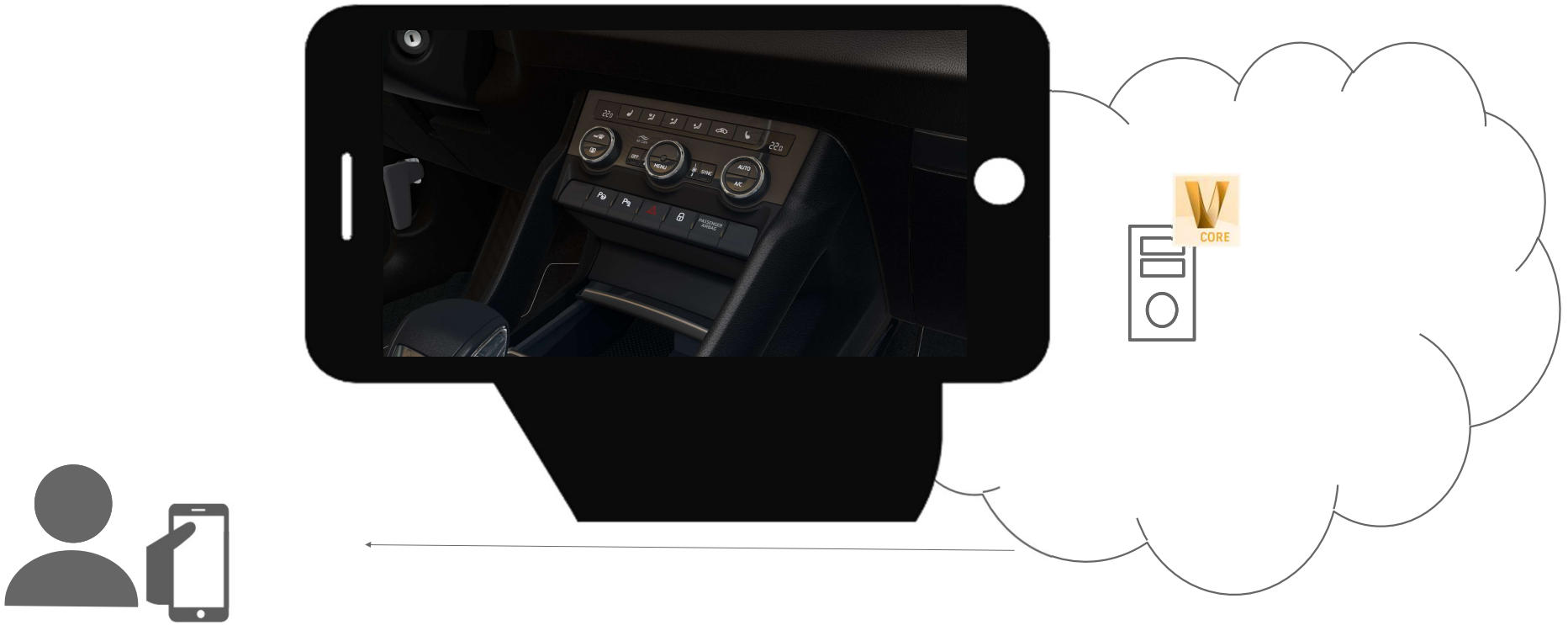

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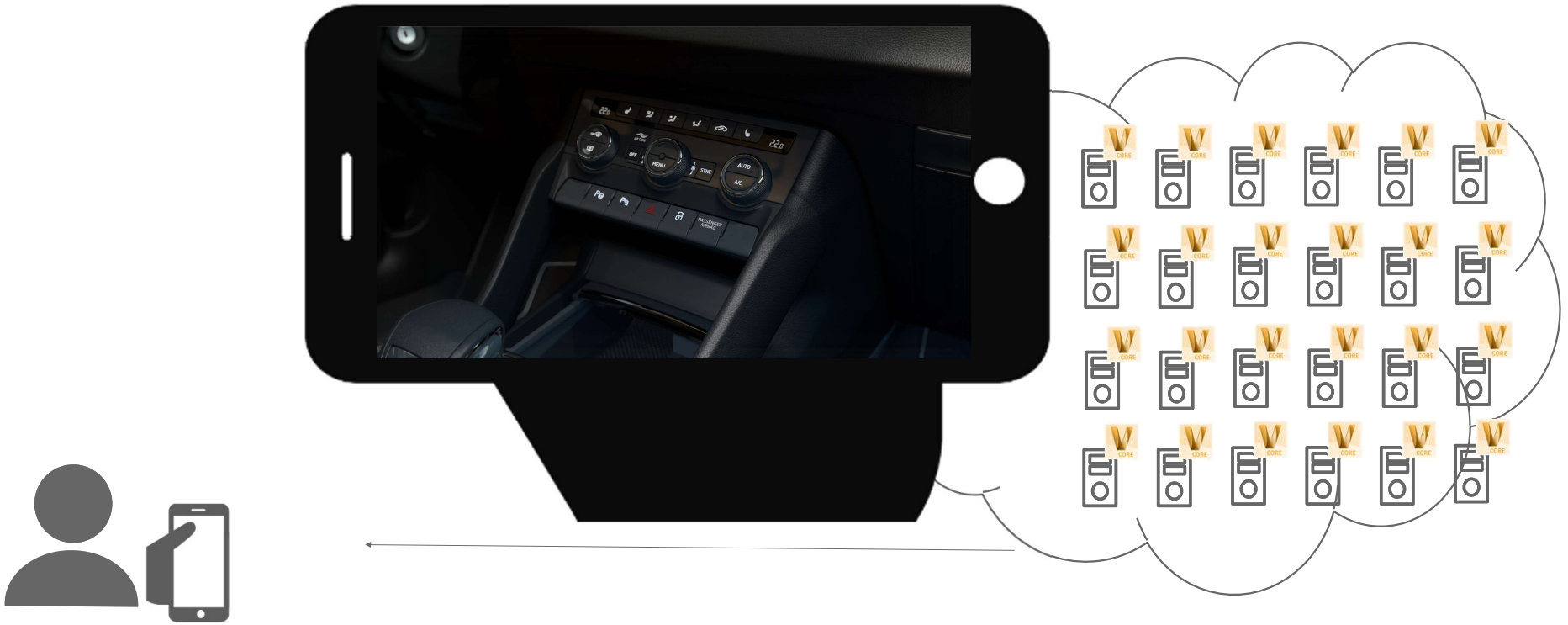
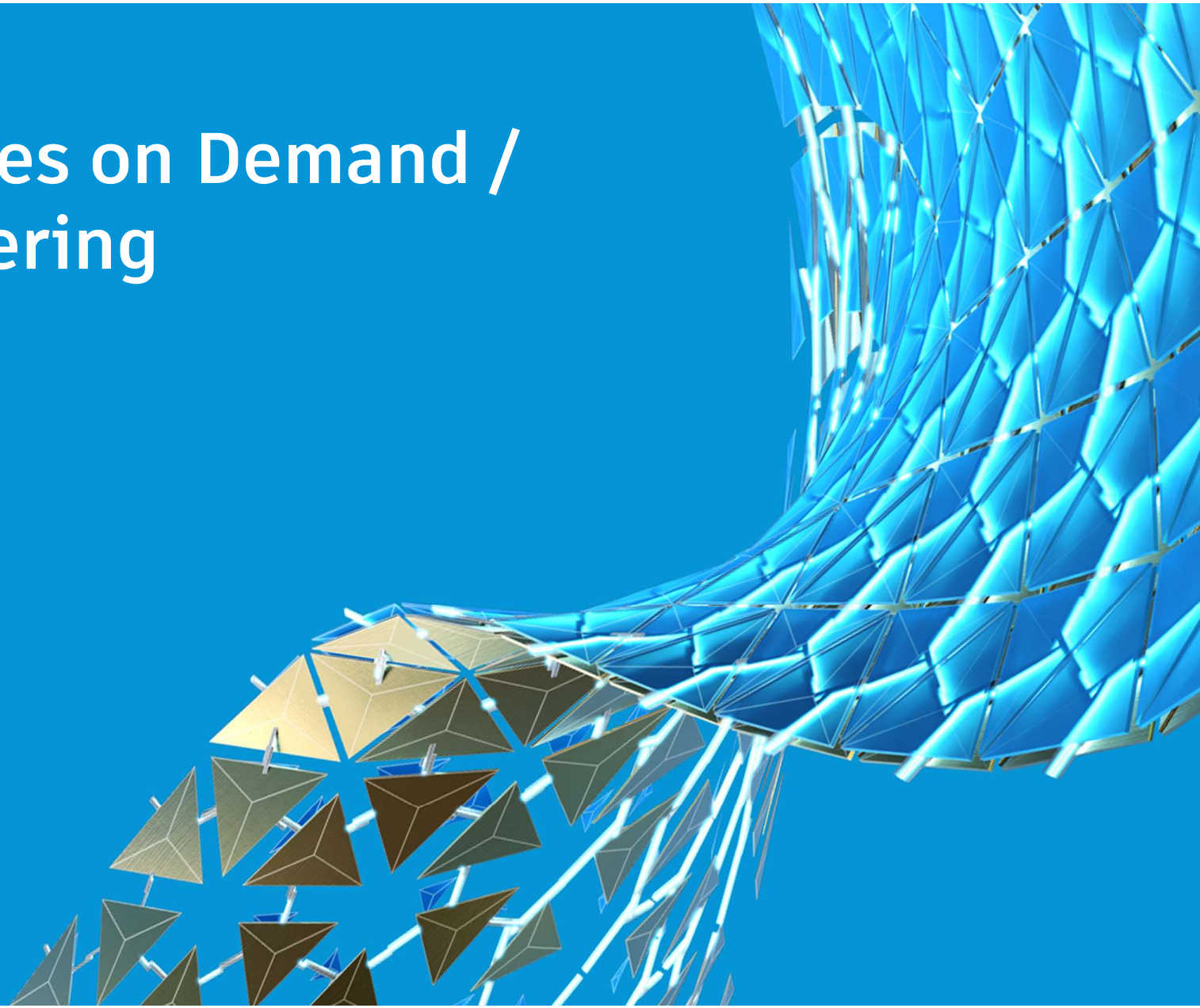


Render Images on Demand / Offline Rendering



Render Images on Demand

RENDER IMAGES ON DEMAND

Render images on demand can help:

- **Start a huge amount of machines in the cloud**
- **Move you models in a secure way to the cloud**
- **Start rendering and when finished get your content and switch off the cloud instances**
- **Save days or even weeks (10 local machines compared to 100 on the cloud means 10 times faster)**

1 Node	100 Nodes	1000 Nodes
1 hour	~36 seconds	~3.6 seconds

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