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Material Transfer in Production using Arnold and MaterialX

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Previously

R&D Engineer at DNEG London

Pipeline and Tools Developer at Bluesky studios Greenwich CT - USA

What is Arnold?

- Path tracing in production pioneer
- Scales well for large scenes
- Addresses complex rendering challenges
- Comprehensive C++ and Python API
- Compatible CPU and GPU rendering
- Ships with Maya and 3ds Max
- Plugins for Houdini, Cinema 4D, Katana,...

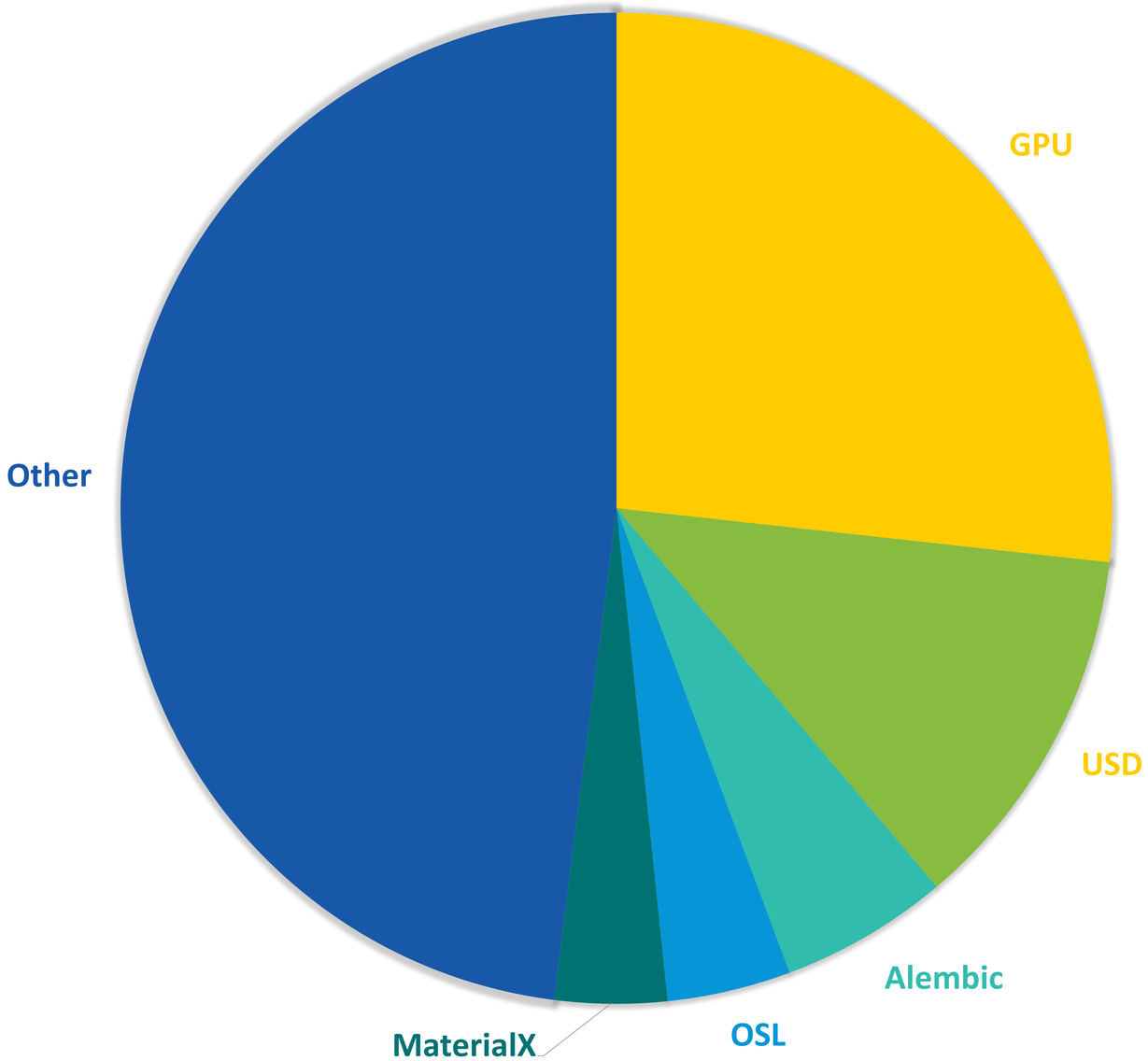
Release Pace

Sept 2019-Aug 2020

Component	Number of Releases
Arnold Core	11
MtoA	11
MAXtoA	10
HtoA	13
C4DtoA	19
KtoA	16

Bugfixes

272 bugs



GPU Improvements

Arnold 6.0.2

- Texture attribute tags
- Cameras: uv_camera, uv_remap, filtermap, merge_shader
- OSL transforms
- Shadow matte shader
- min_pixel_width for curves and points
- OptiX denoiser for all AOVs
- Bucket scanning order
- Light filters support
- Multi-GPU rendering without NVLink

GPU Improvements

Arnold 6.0.3 – 6.0.4

- OSL textures
- Custom AOVs
- IES lights
- Wireframe shader (and utility mode)
- Improvements on sparse textures
- OSL trace()
- AOV shaders

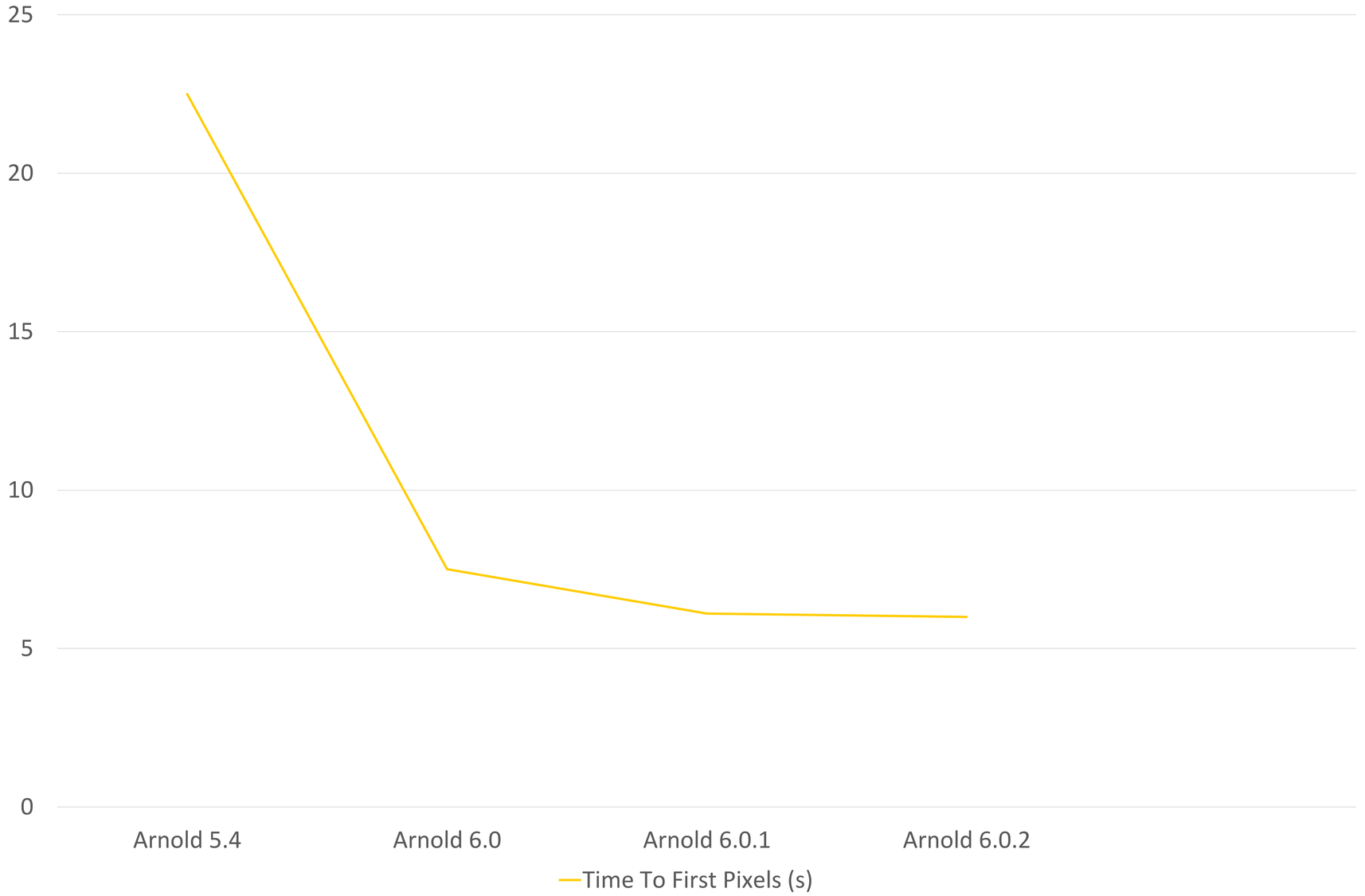
GPU compatibility status update

Arnold nodes types

Node Type	Supported / Total	Ratio
Cameras	**7 / 7**	**100%**
Color Managers	**2 / 2**	**100%**
Drivers	4 / 6	66%
Lights	**9 / 9**	**100%**
Operators	**10 / 10**	**100%**
Shaders	108 / 117	92%
Shapes	11 / 16	68%

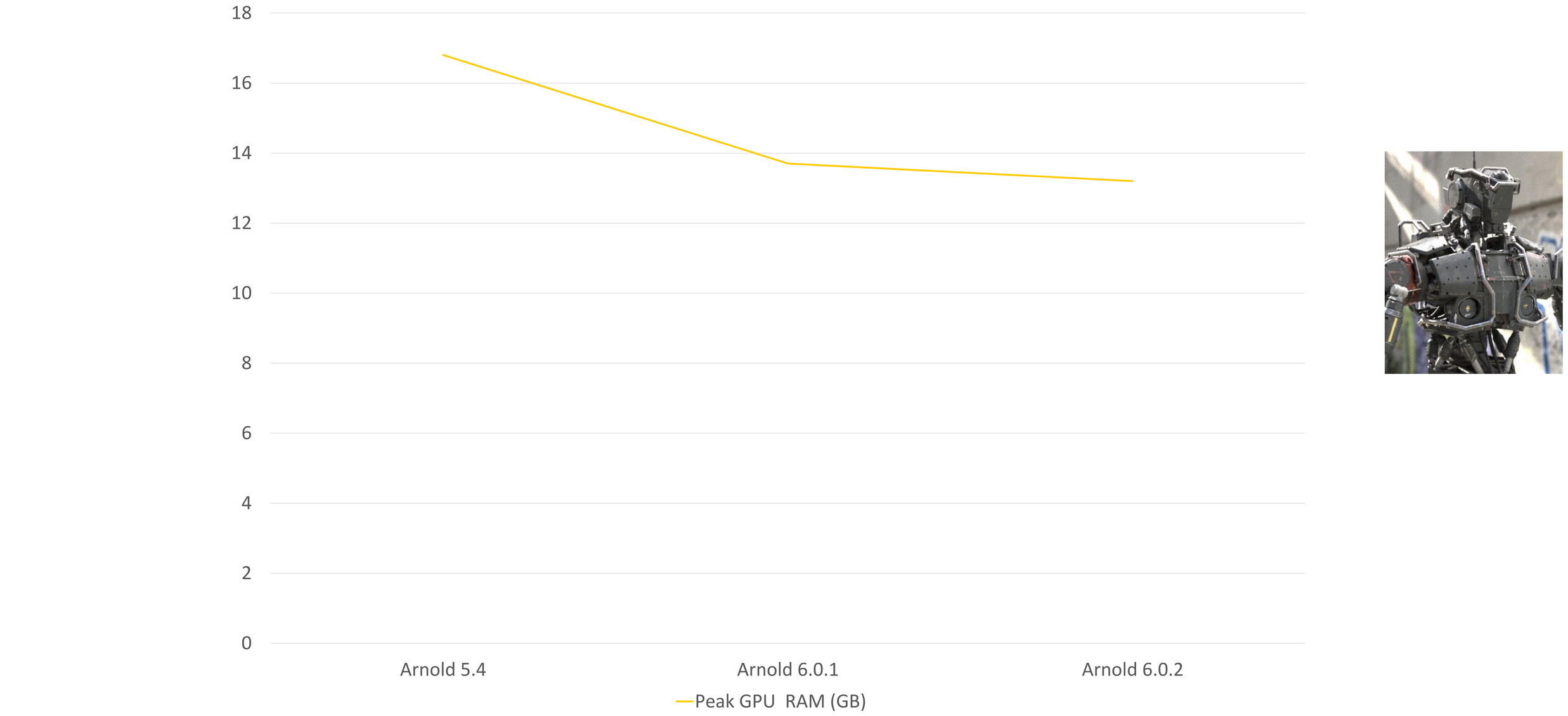
On demand texture loading

Time to First Pixel



On demand texture loading

Peak GPU RAM



Material Transfer in Production using Arnold and MaterialX

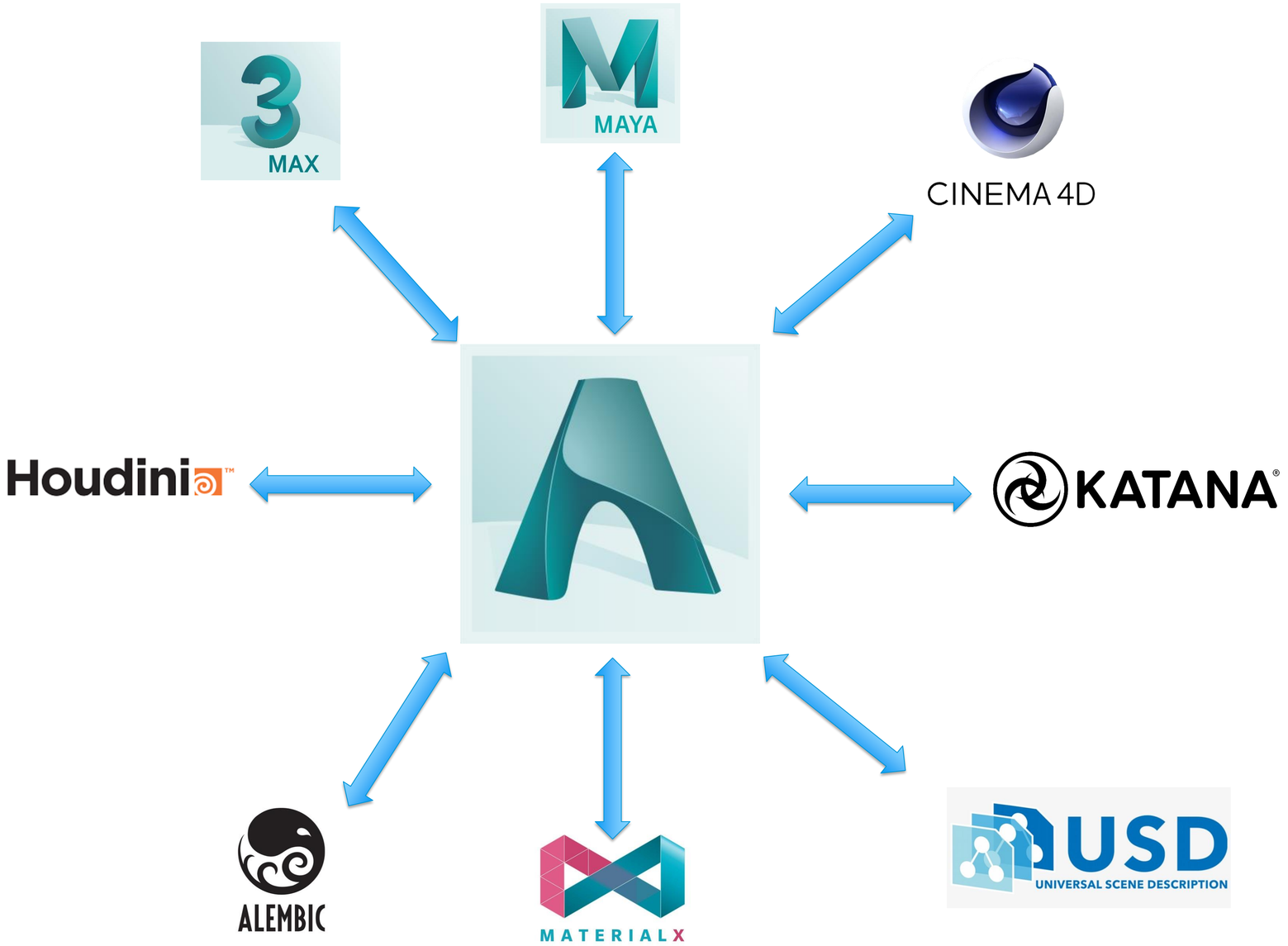
LEARNING OBJECTIVES

- Transport your looks across supported software easily.
- Build Modify and Edit your looks all along your pipeline.
- Setup your pipeline for high flexibility and re-use
- Scale your pipeline combining modular looks across software.

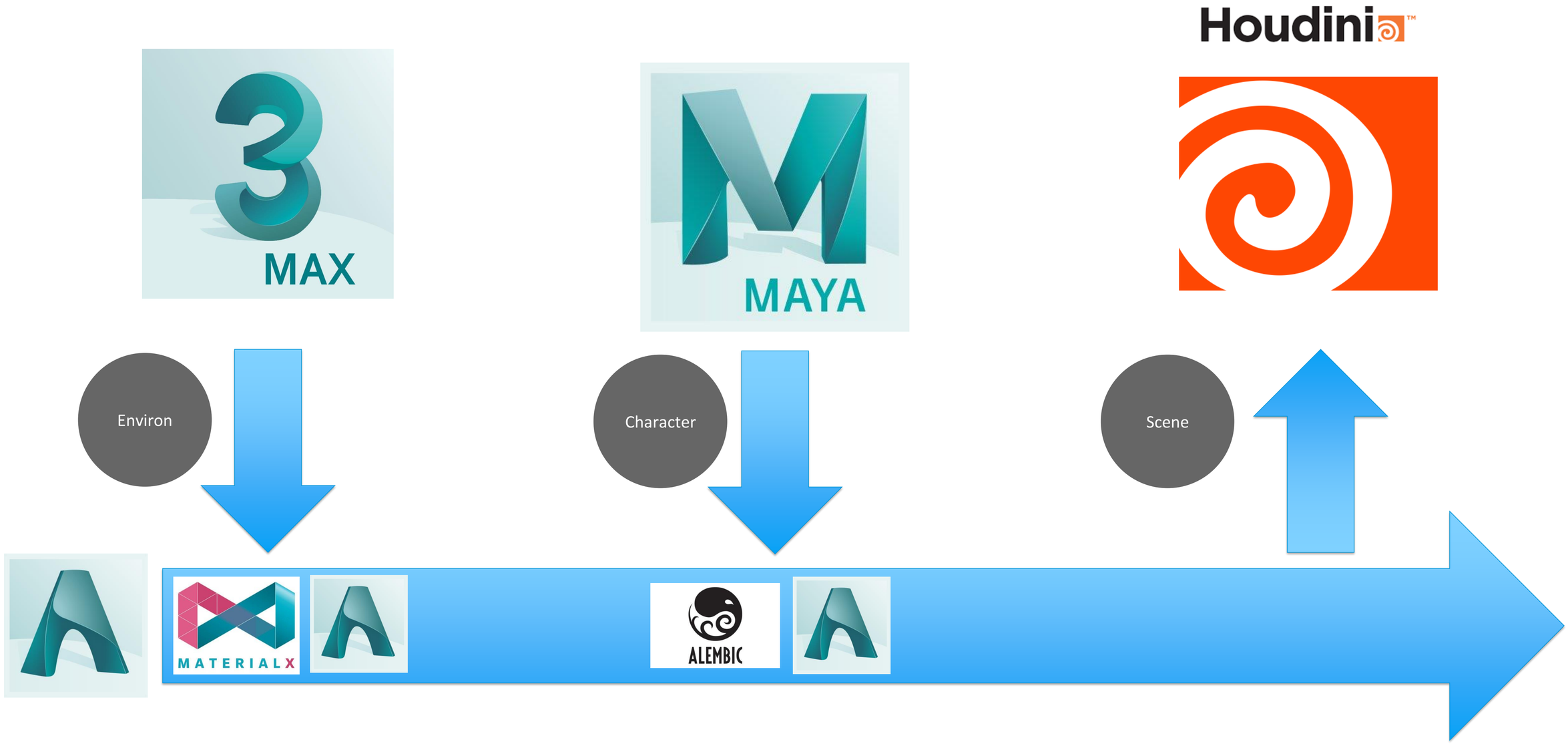
Why talk about Material Transfer

Houdini

Why talk about Material Transfer



Agenda


3
MAX
MAYA
Houdini
Environ
Character
Scene
MATERIALX
ALEMBIC

File Formats

MATERIALX

ALEMBIC

ARNOLD SCENE SOURCE

USD

ARNOLD – USD @ AU 2020

Arnold + USD = Love

Frederic Servant

Leverage the power of Pixar's USD with Arnold in production scenarios. We'll show examples of exporting and importing USD assets including full shading, material assignments and render setup, from any of the application that Arnold supports, such as Maya, 3ds Max, Houdini or Cinema 4D and demonstrate how you can take advantage for the power of USD's composition and variants to address common scenarios in modern studio pipelines. All of Arnold's efort for USD is open source, you'll learn what's out there and how you can contribute.

- Hide key learnings

- Import and export USD from any of the Arnold supported applications.
- Leverage Arnold and USD to build studio pipelines
- Use Arnold and USD in production today.
- Understand the Arnold commitment to Open Source for USD

Products:
Arnold, 3ds Max, Maya

Language:
English

Topics:
Animation and VFX, Visualization, Software Training

Industry:
Media & Entertainment

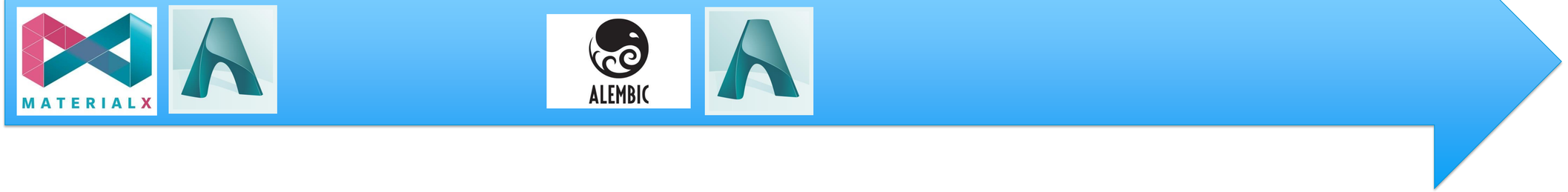
Pipeline

Houdini™

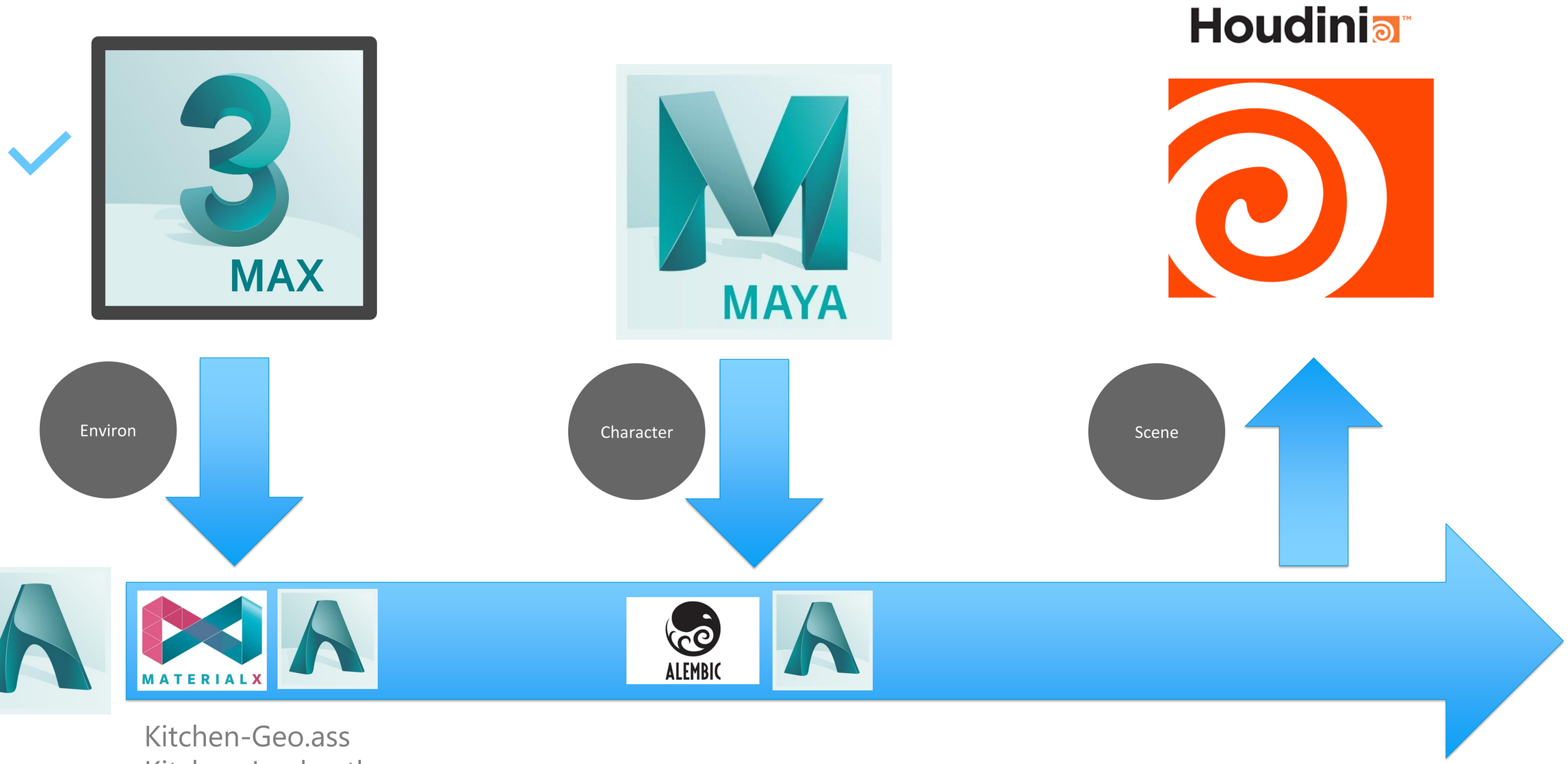
Environ

Character

Scene



Pipeline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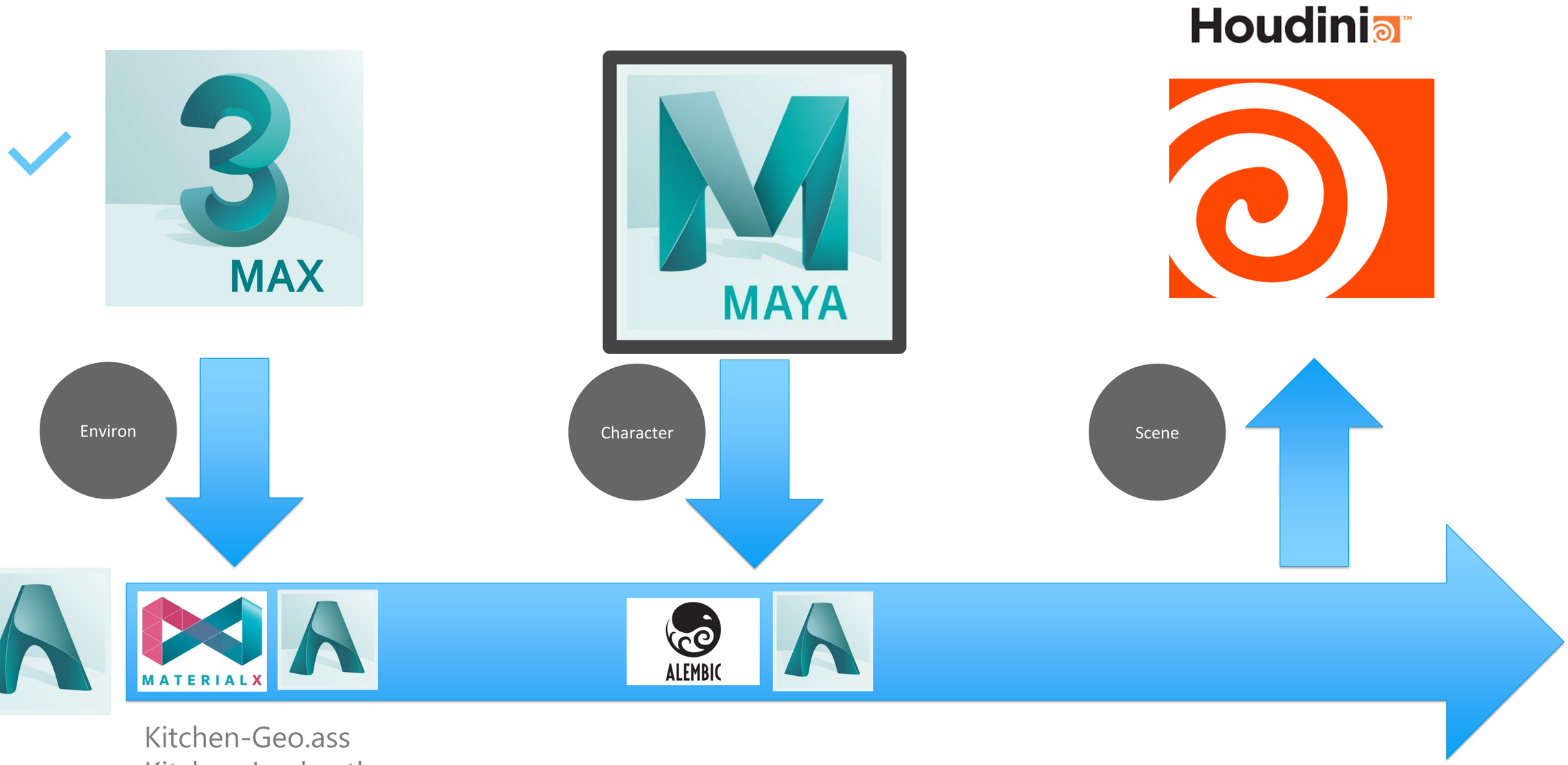
MATERIALX
ALEMBIC
Kitchen-Geo.ass
Kitchen-Look.mtlx

Pipeline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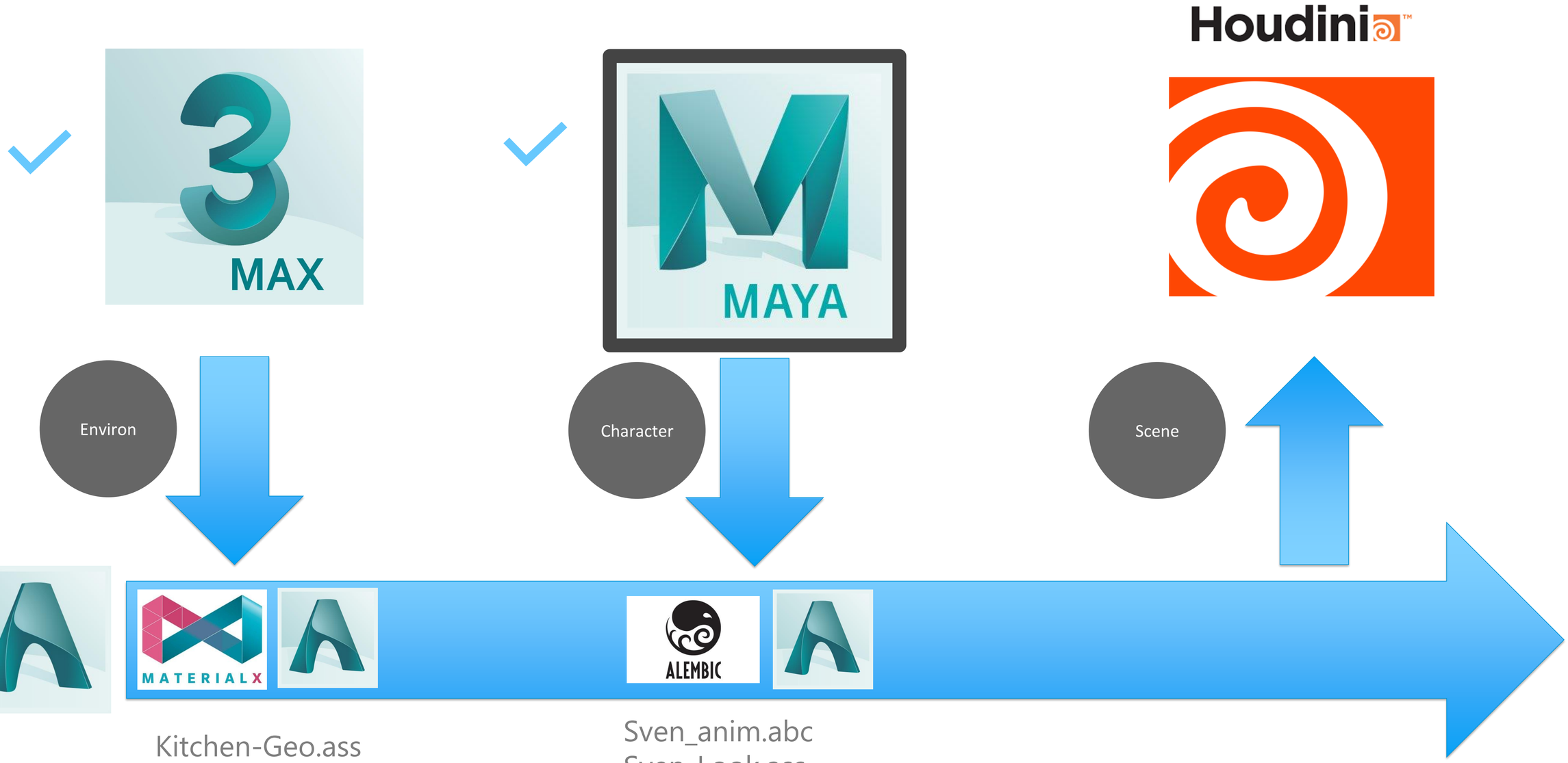
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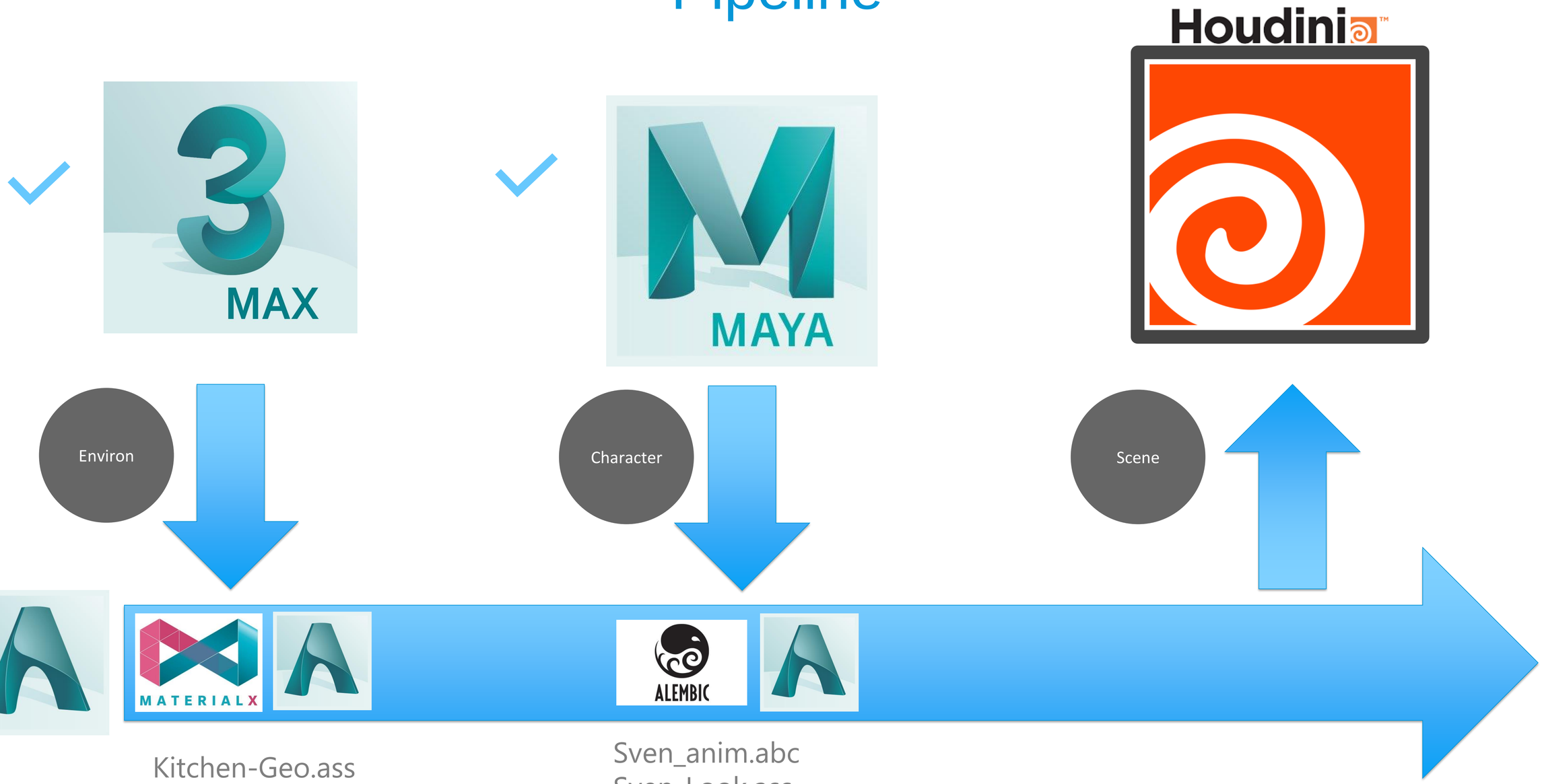
Sven-Look.ass

Pipeline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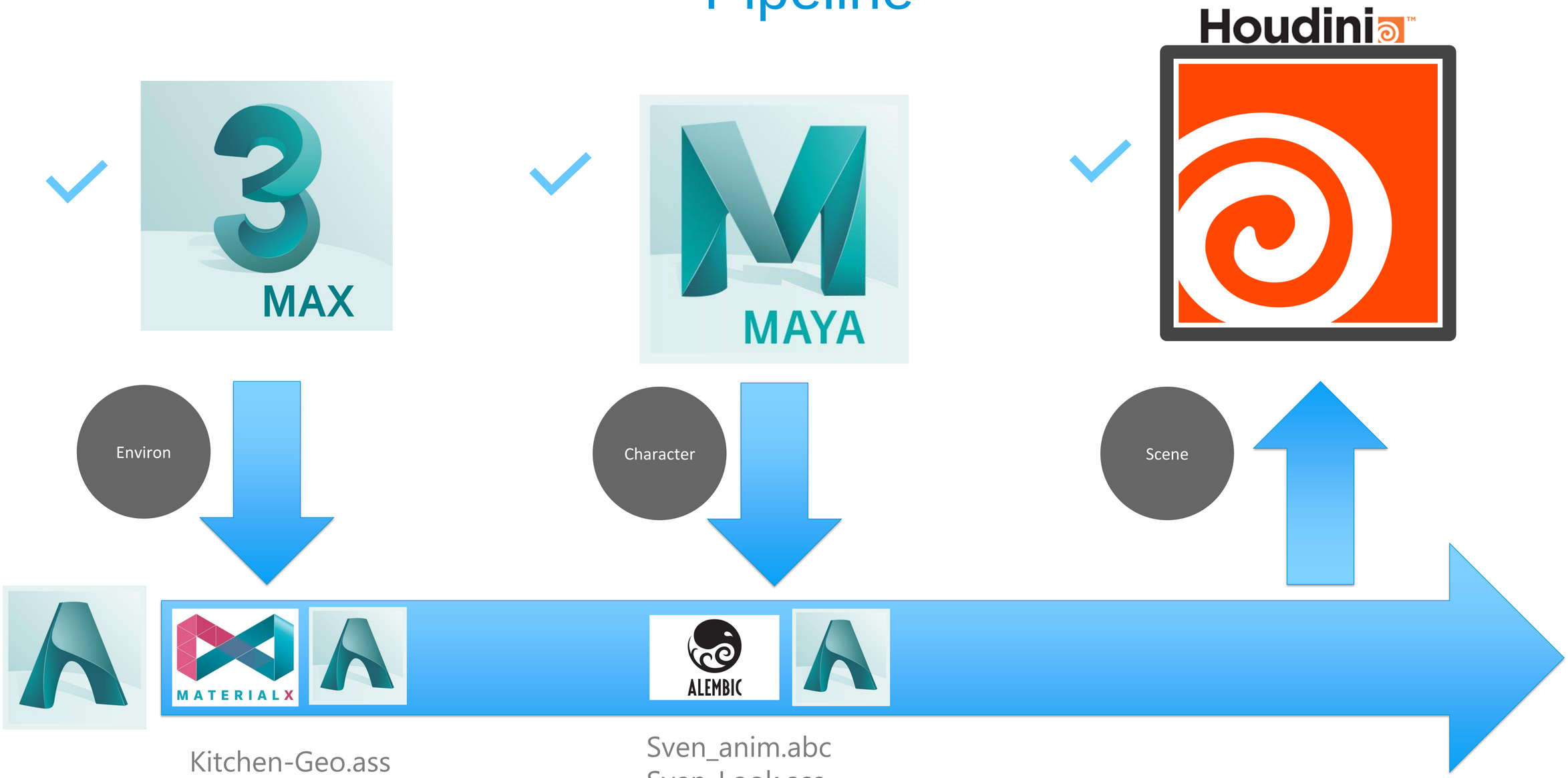
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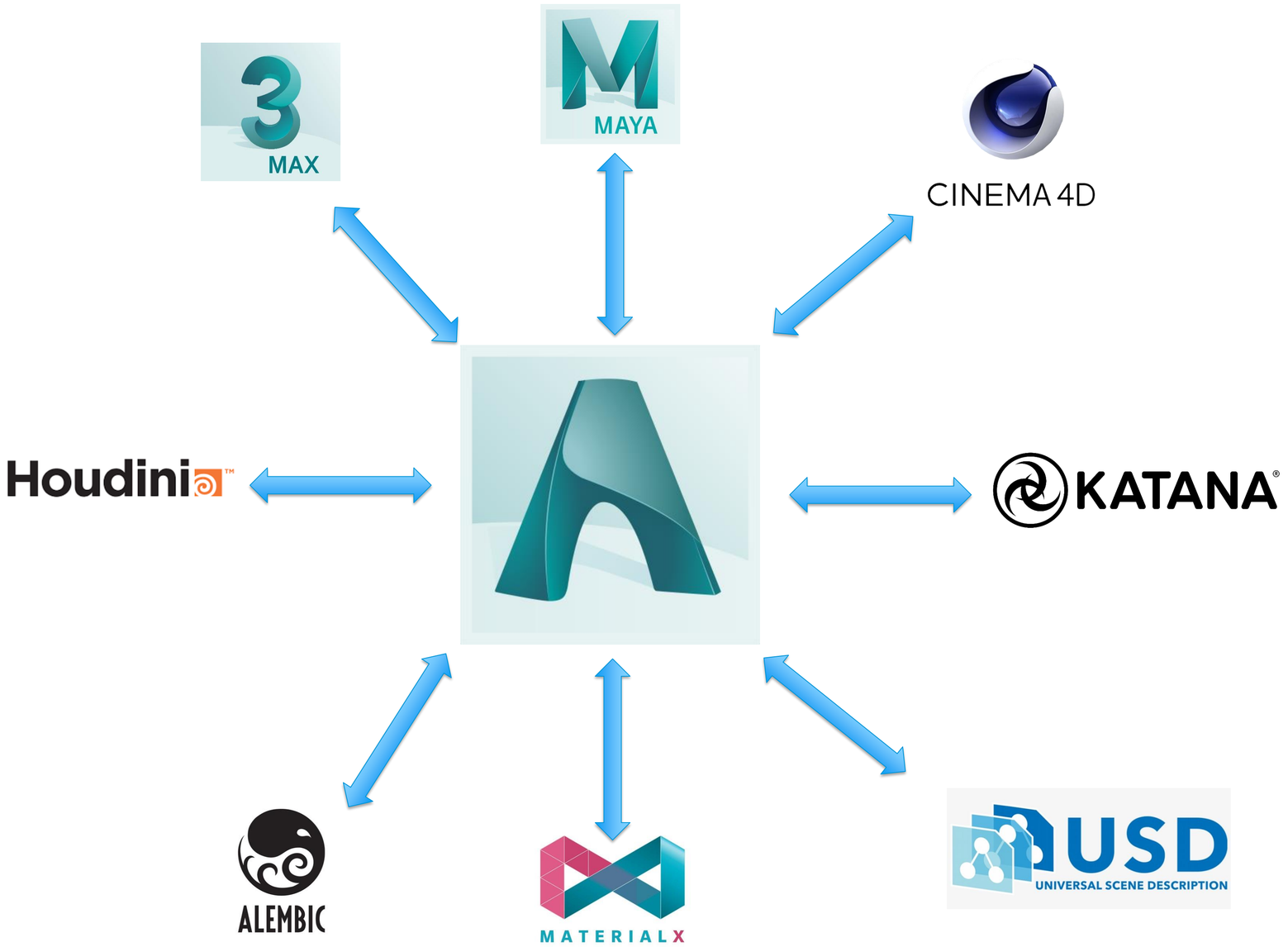
Arnold as the data driver for your pipeline



More Arnold Pipeline and Operators

Interactive and flexible rendering workflows with Arnold Operators (featuring The Mill)
Source : Youtube

Alembic, Operators, and MaterialX in MtoA
Source : Youtube

Get In Touch

COMMUNITY SUPPORT

arnold answers

DOCUMENTATION

https://docs.arnoldrenderer.com

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