AUTODESK UNIVERSITY

Accelerating Engineering Workflows in the Process Industry with Autodesk Forge

PM502031

Jessica Soloway
Senior Digital Strategist, Emerson Automation Solutions

Tom Closs
Principal Solution Architect, Autodesk

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Agenda

- Introductions
- Who, Why, and What
- 2D/3D Viewer Demo
- Technical Overview
- Continuing the Digital Thread

Jessica Soloway

Senior Digital Strategist, Emerson Automation Solutions

9 years at Automation Solutions

Boulder, Colorado

Leading efforts to envision, design, and manage Emerson’s digital engineering tools built to support our customers and internal users

Tom Closs

Principal Solution Architect

15 years at Autodesk

Detroit, Michigan

Helping customers overcome challenges by improving processes and integrating technologies

Emerson Automation Solutions

2021 At-A-Glance (NYSE: EMR)

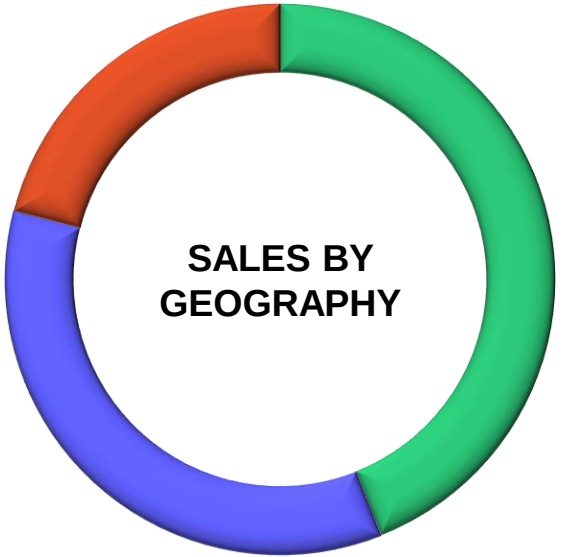
Global supplier of technologies and services that help businesses measure, analyze, control, automate, and optimize production, processing, and distribution.

$11.6B
SALES

~56,000
EMPLOYEES

CUSTOMERS INCLUDE

Amgen, BASF, BP, Cargill, Colgate-Palmolive, Dow, Duke Energy, Equinor, Novo Nordisk, Reliance Industries, Sasol, Saudi Aramco, Shell, Sinopec



Automation Solutions

Improving Process, Discrete Automation and Hybrid Industrial Manufacturing Performance with Measurable Results

INDUSTRIES SERVED

Life Sciences & Medical
Chemical
Power
Food and Beverage
Packaging, Pulp, and Paper
Marine
Oil and Gas/Refining
Mining, Minerals, and Metals
Water and Wastewater
Automotive
Industrial Energy
Onsite Utilities
Software

PRODUCT BRANDS & SERVICES

Measurement Instrumentation
- Rosemount
- Micro Motion

Fluid Control & Pneumatics
- ASCO
- AVENTICS

Electrical & Lighting
- Appleton

Industrial Internet of Things
- Plantweb™ Digital Ecosystem

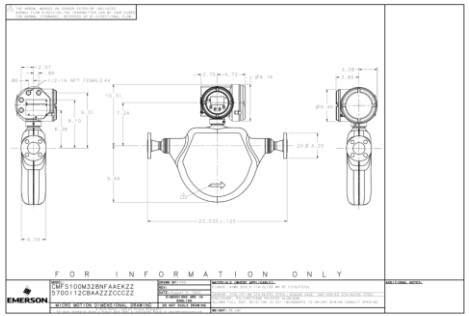
Valves, Actuators & Regulators
- Bettis
- Fisher
- Keystone
- KTM
- Vanessa

Materials Joining, Assembly & Cleaning
- Branson
- HTE

Software & Systems
- AMS
- DeltaV
- OSI
- Ovation
- PACSystems
- Zedi
- Movicon
- Syncade

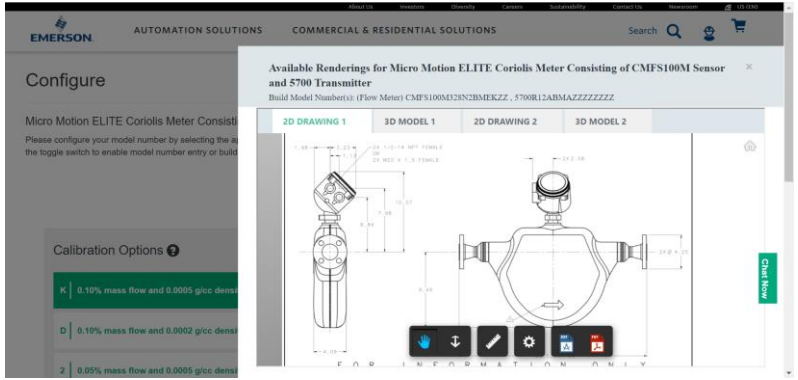
Challenge

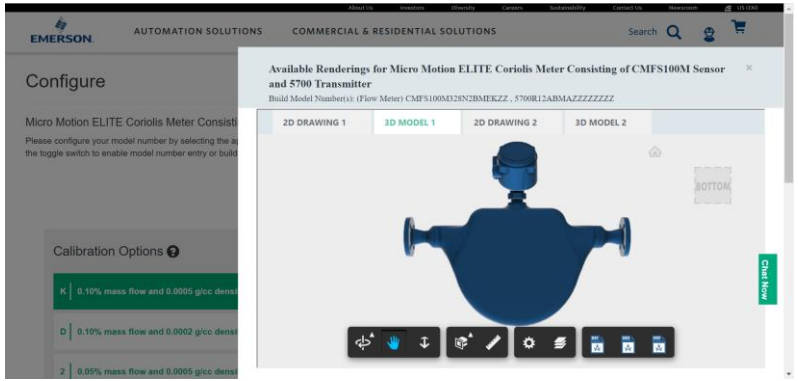
- Hundreds of thousands of requests each year for 2D PDF dimensional drawings & CAD models
- 80% of requests involved resource intensive processes and cross-functional teams
- Average turnaround time was not meeting customer expectations
- Several engineering systems supporting different product brands
- Existing tool was expensive to maintain and limited in ability to scale to more complex products



Solution & Benefits

- Partnership with Autodesk; utilizing Autodesk Forge Platform
- 2D/3D Viewer on Emerson.com: interact & download files
- Self-service digital platform is 94% faster than traditional methods
- Scalable API architecture
- CAD system agnostic
- Support for wide range of file types
- Caching scheme for improved performance and maintenance

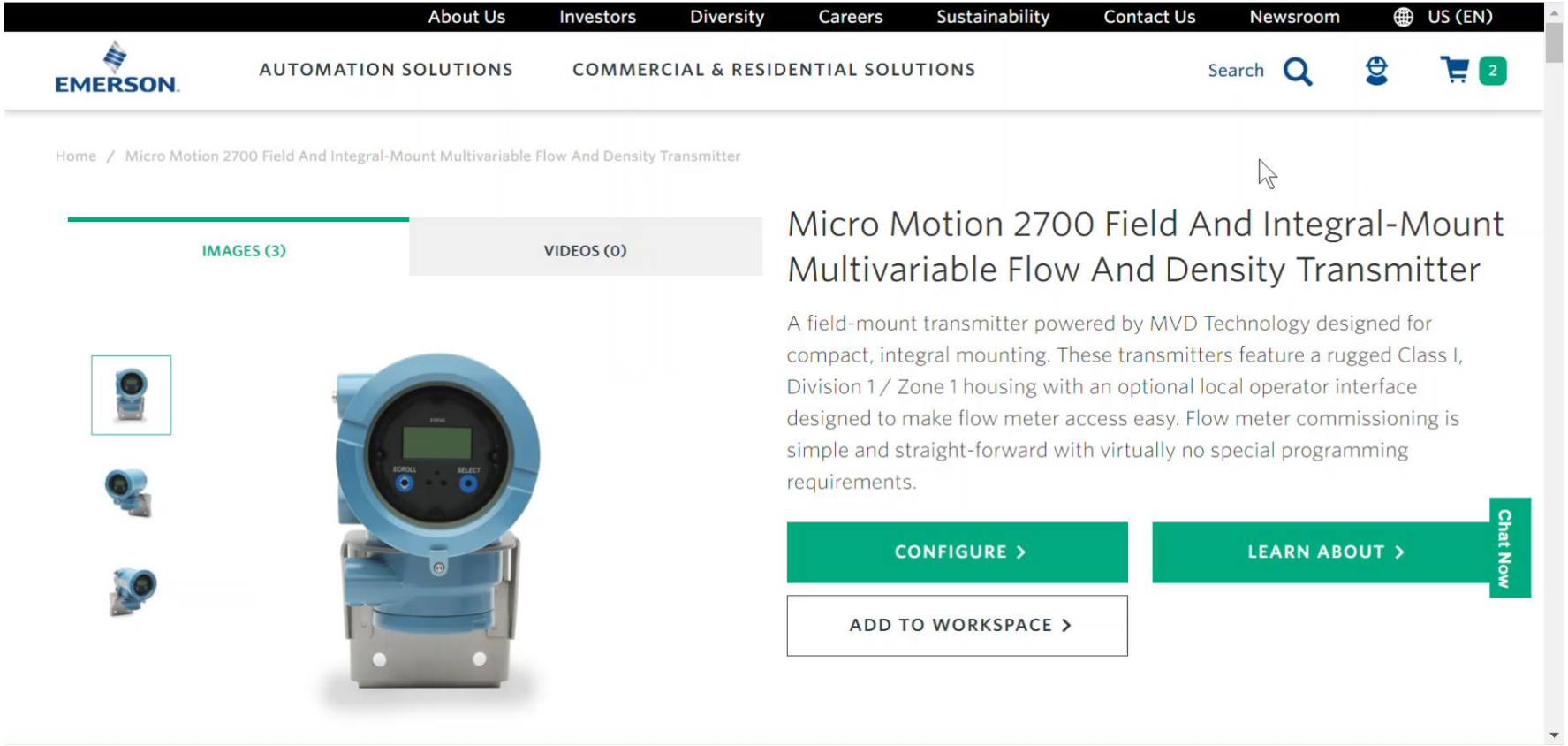




Demo

Jessica Soloway

2D/3D Viewer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Micro Motion 2700 Field And Integral-Mount Multivariable Flow And Density Transmitter
A field-mount transmitter powered by MVD Technology designed for compact, integral mounting. These transmitters feature a rugged Class I, Division 1 / Zone 1 housing with an optional local operator interface designed to make flow meter access easy. Flow meter commissioning is simple and straight-forward with virtually no special programming requirements.
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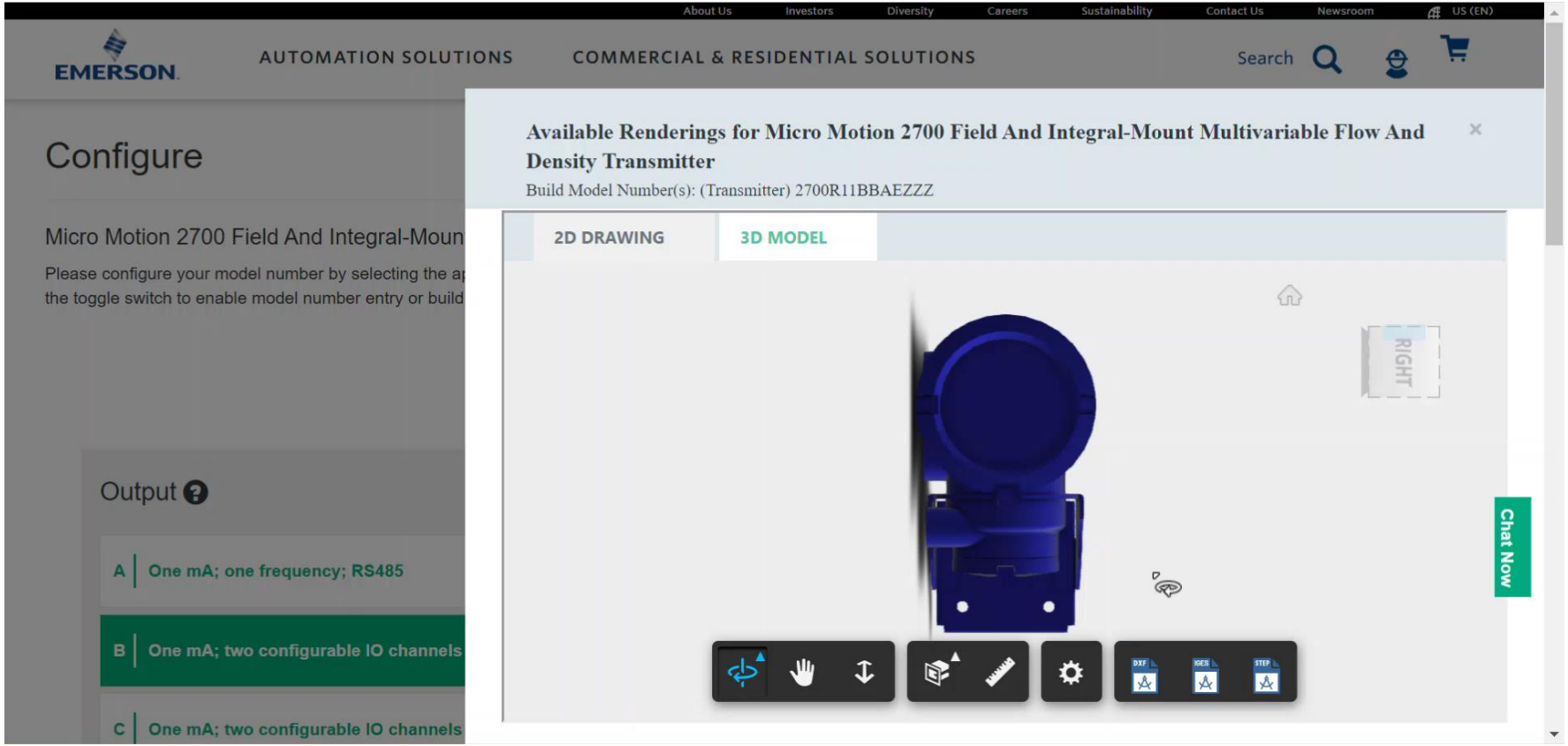
Visualize the Change



Technical Overview

Tom Closs

Forge Viewer

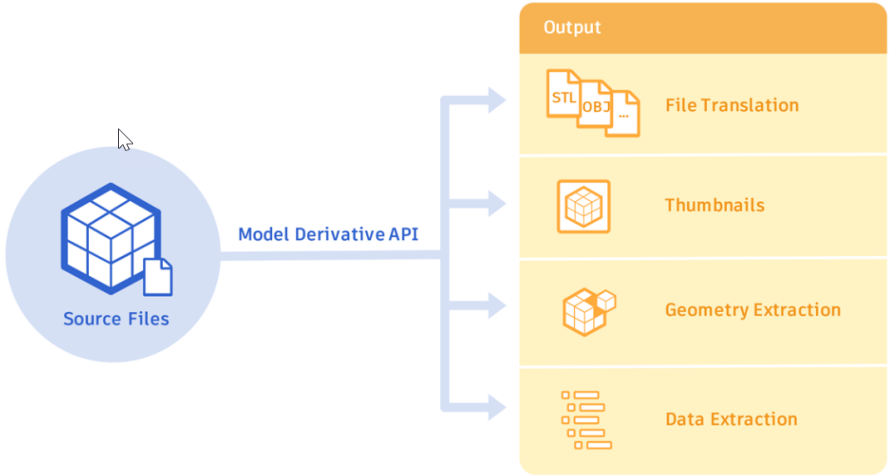
- WebGL-based
- JavaScript Library
- MultiCAD support

AnyCAD

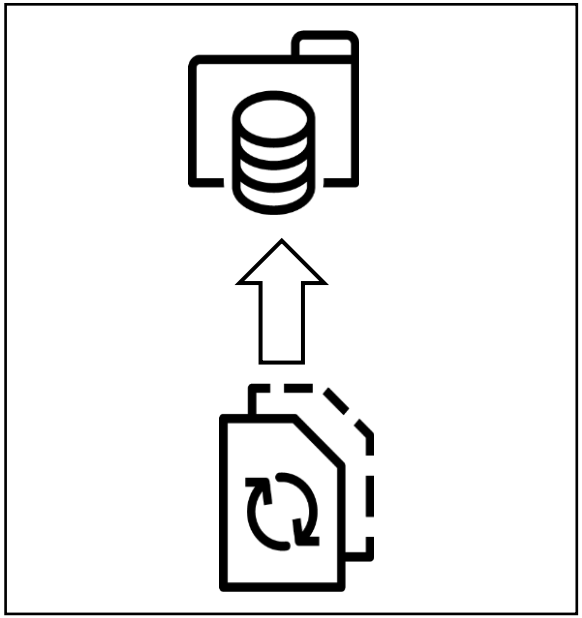
- Converging CAD Data into one common data thread
- Allows the reading of multiple CAD formats

Model Derivative

- Translate designs into SVF/SVF2 format for rendering in the Forge Viewer.
- Extract selected parts of a design and export the set of geometries to the OBJ format.
- Translate designs into different formats.

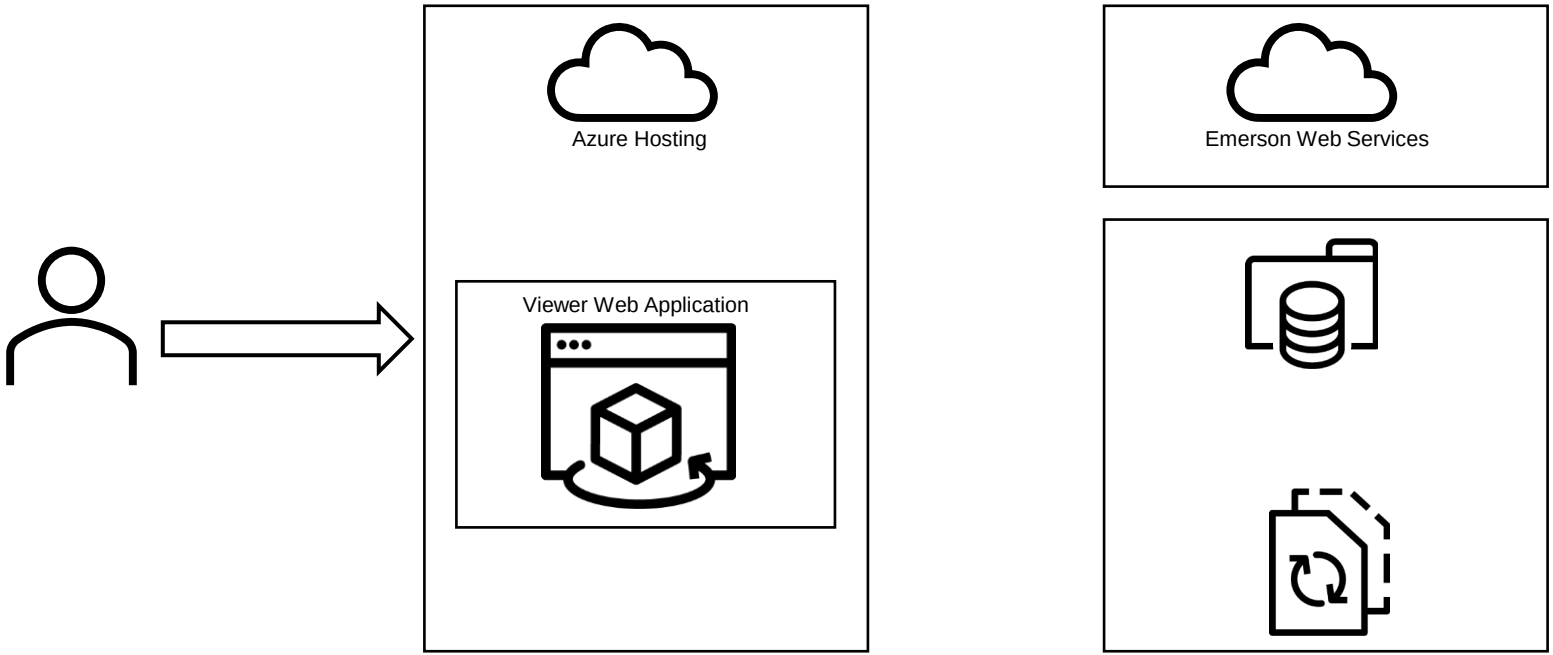


Caching



- Increase performance
- Built over time
- Automation to ensure the correct version of data

Solution Overview



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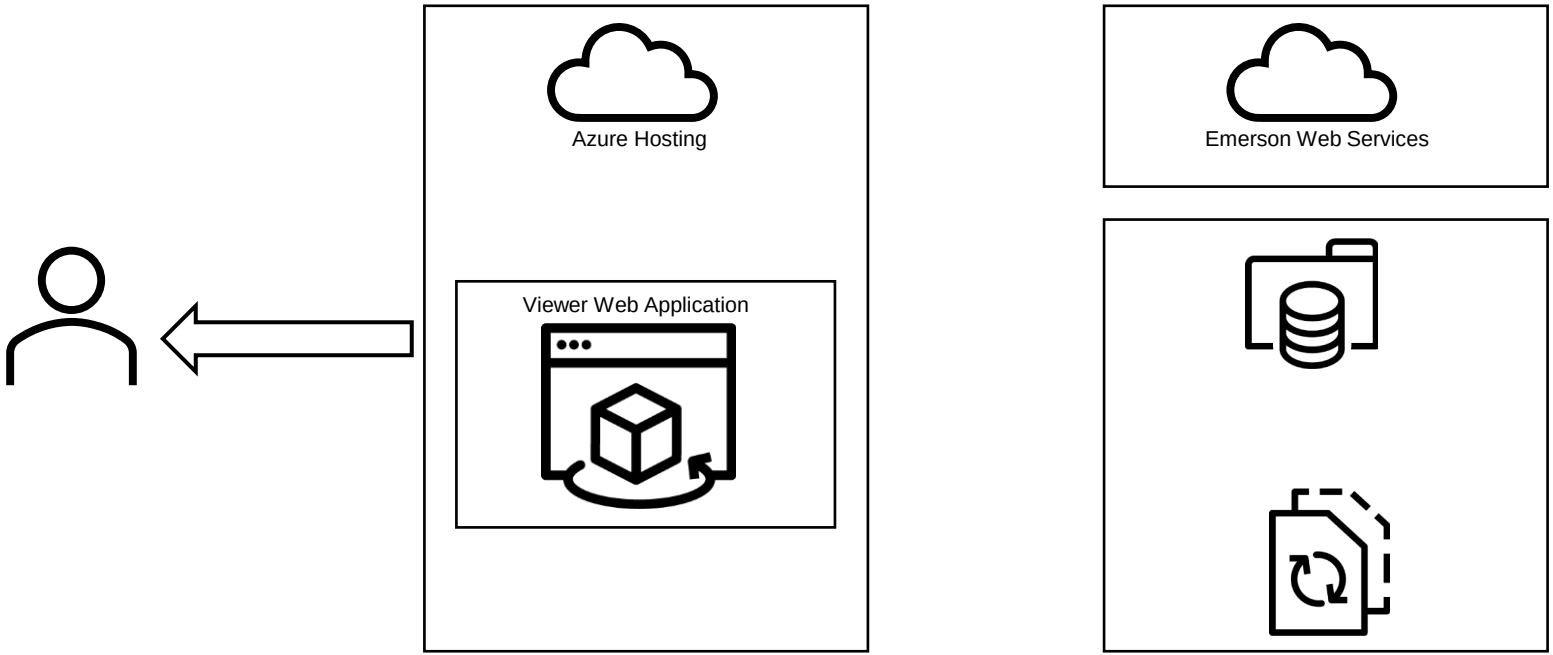

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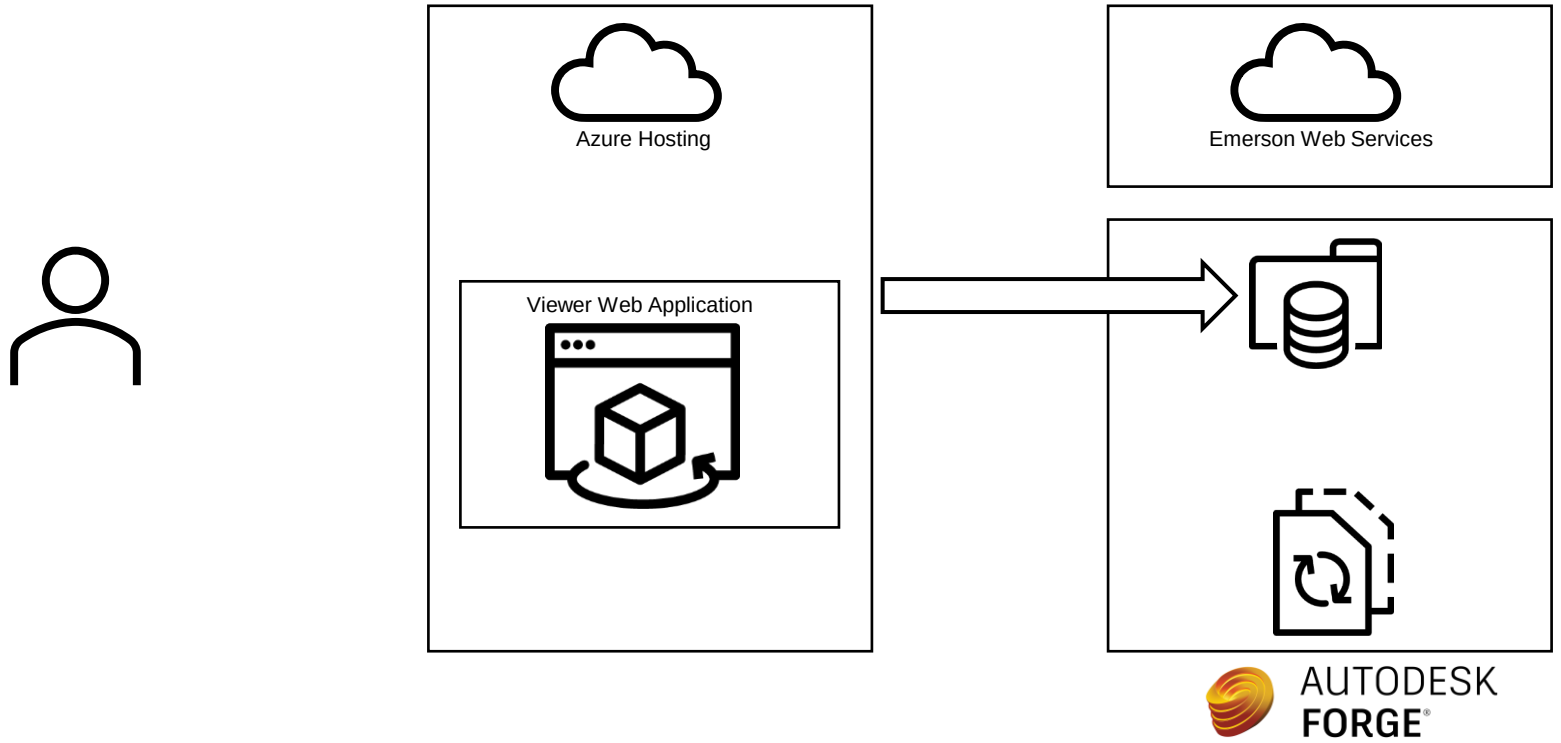

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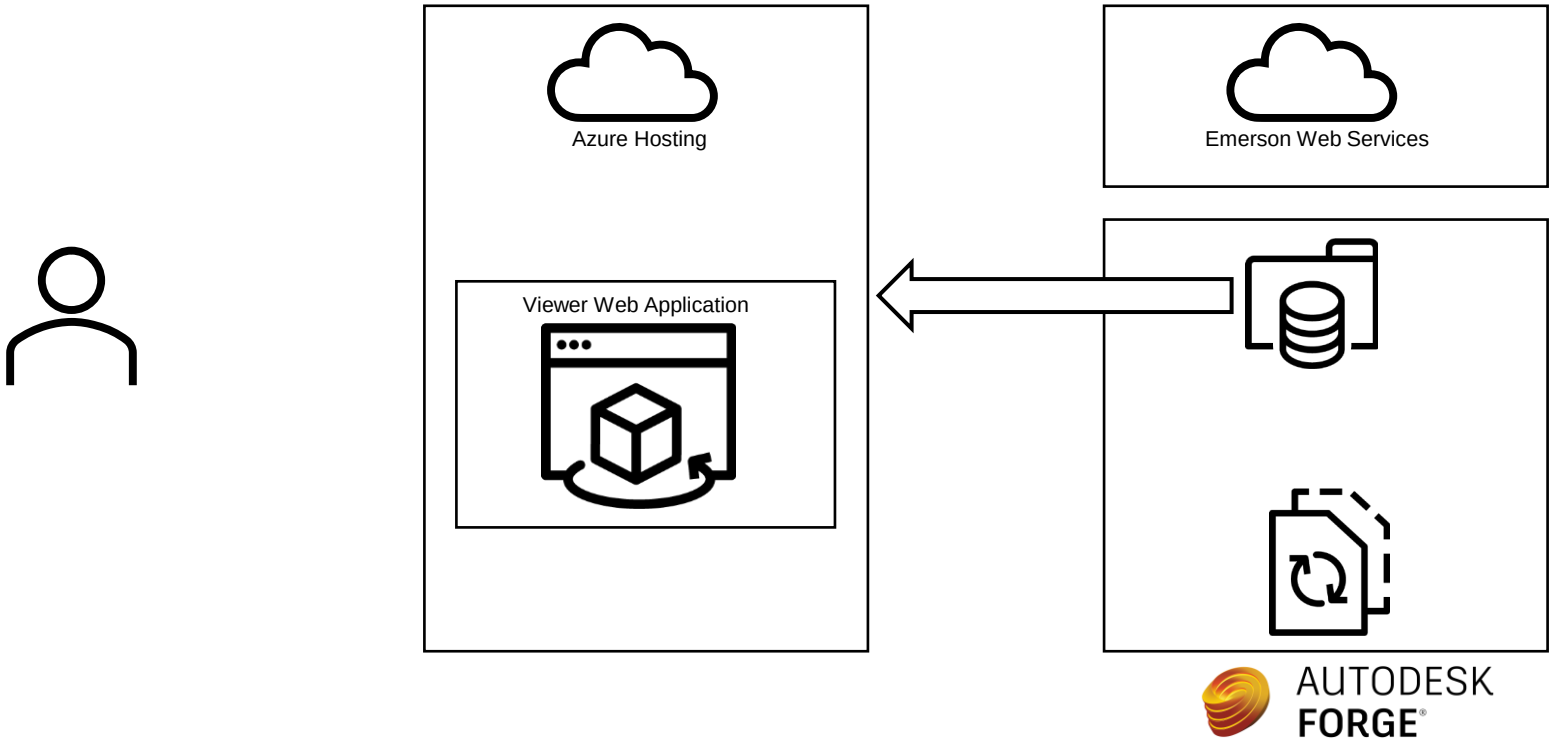

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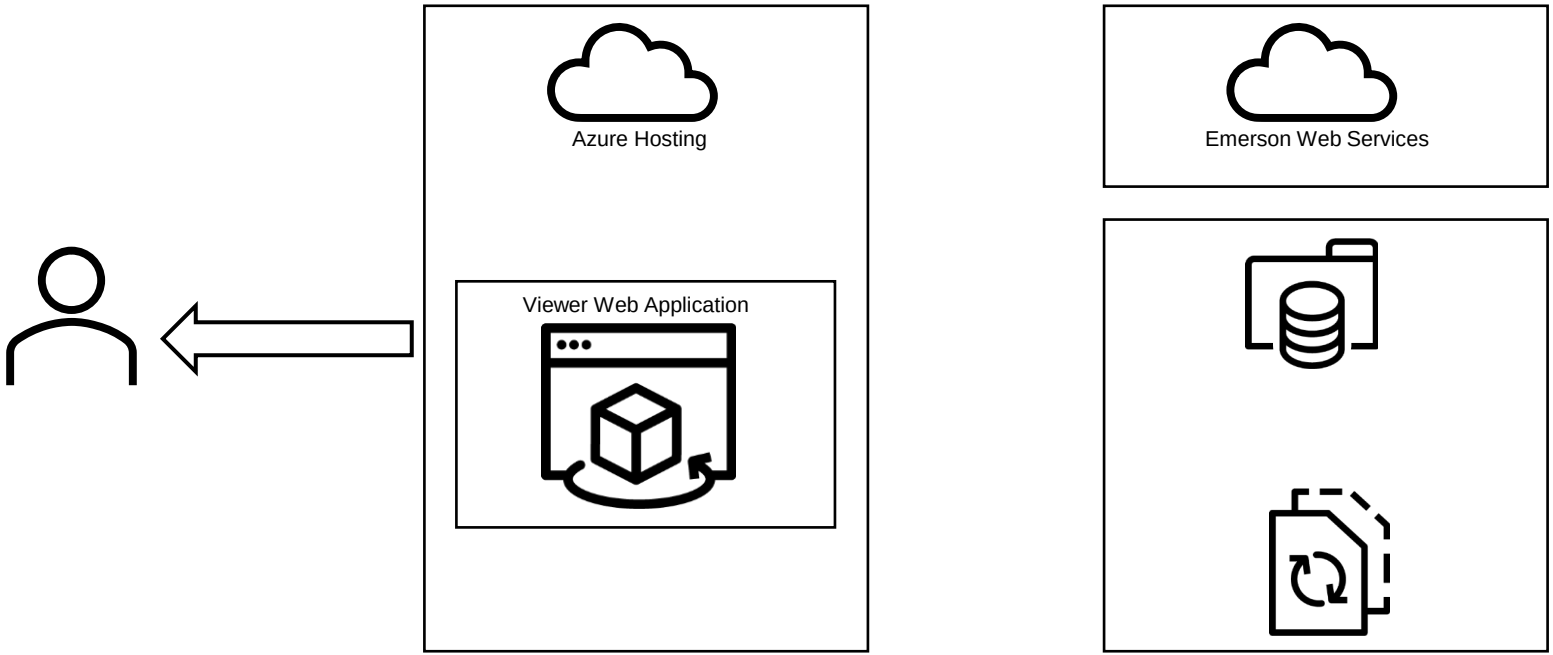

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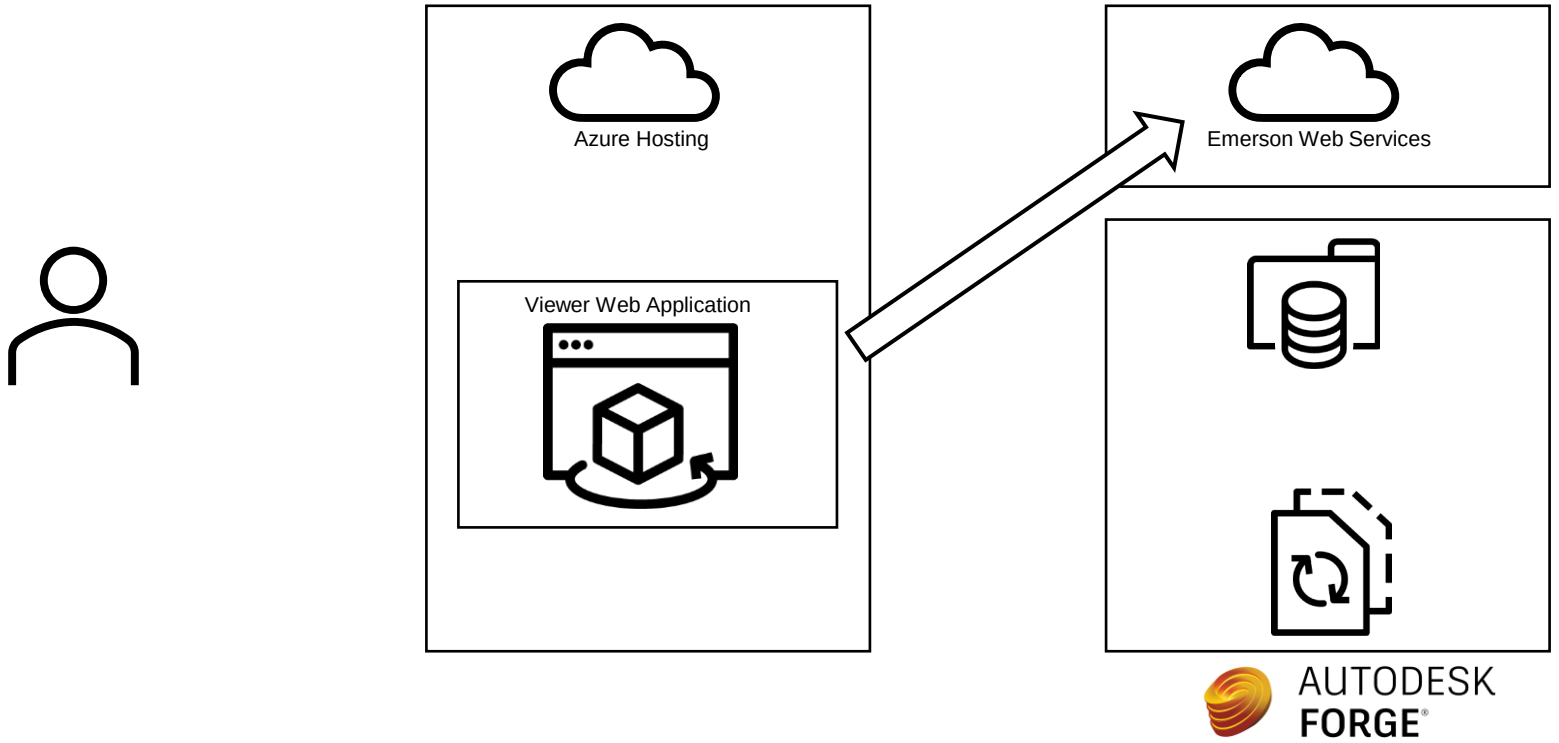

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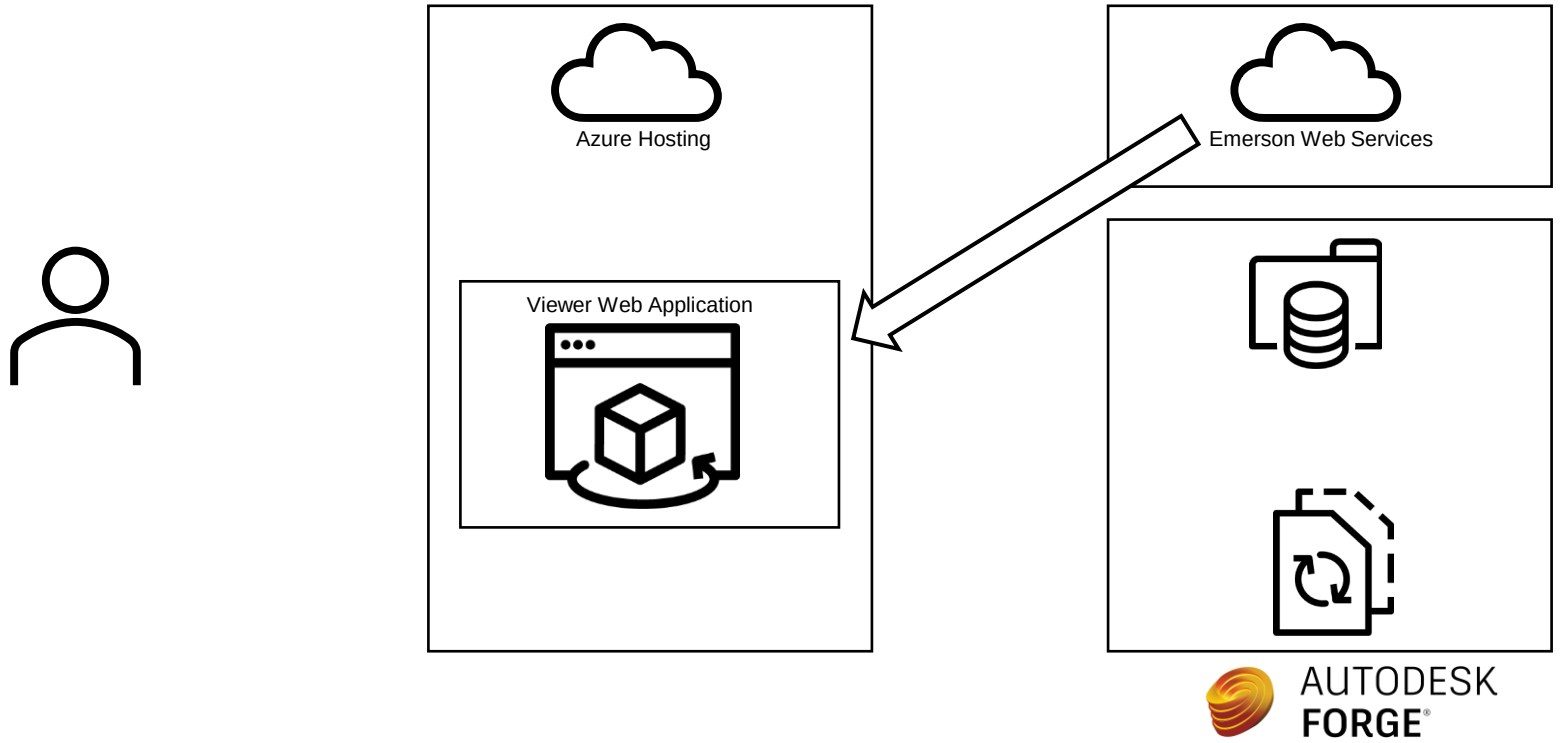

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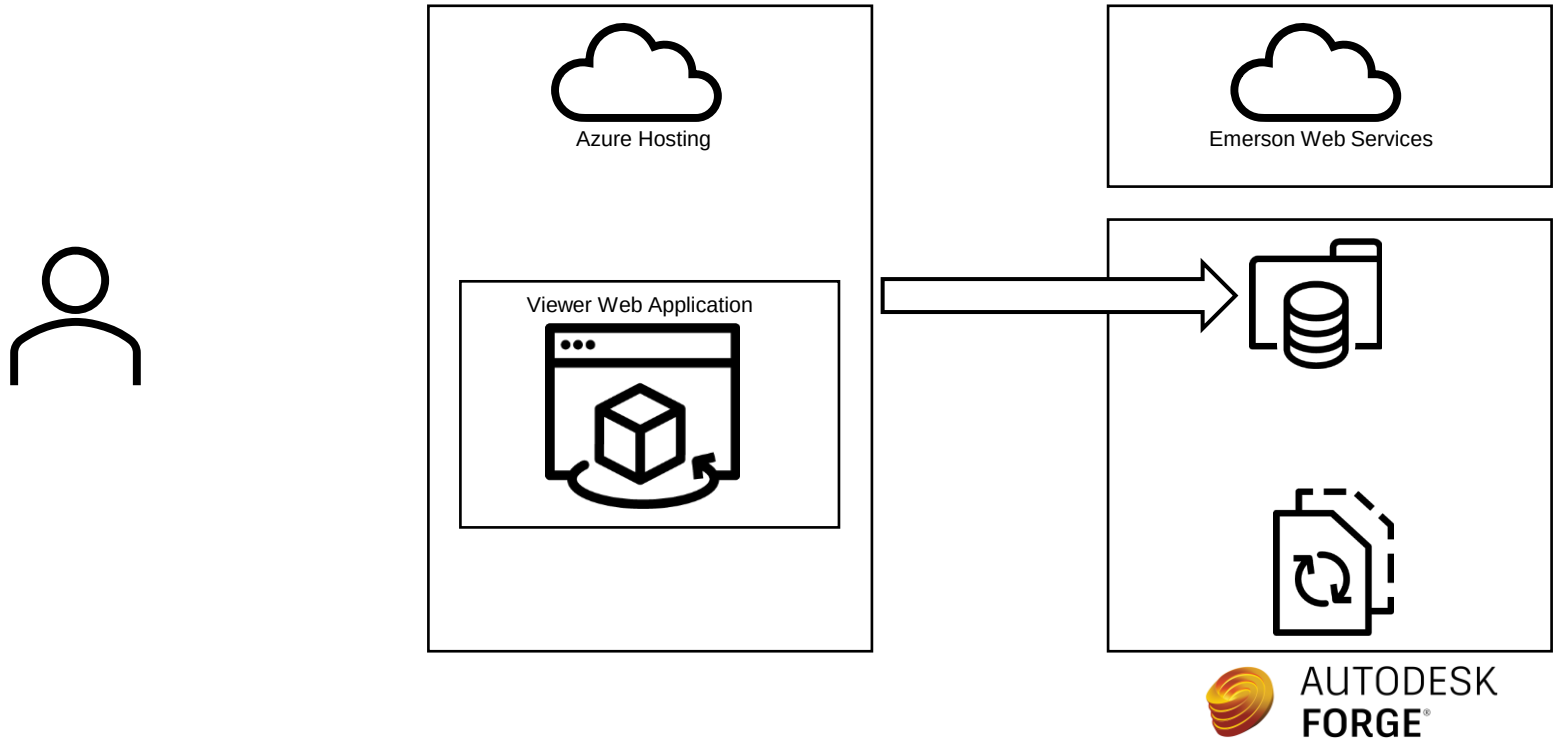

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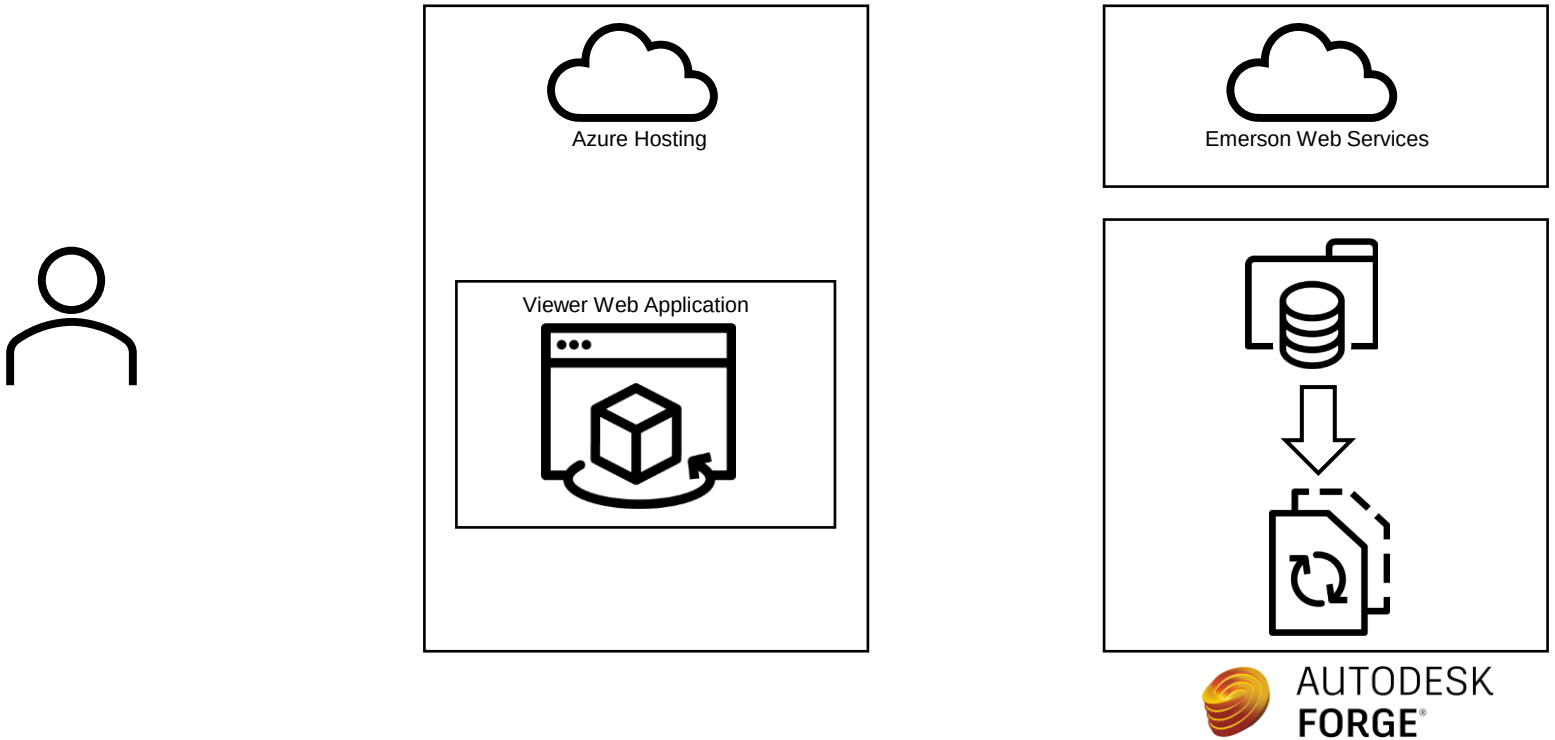

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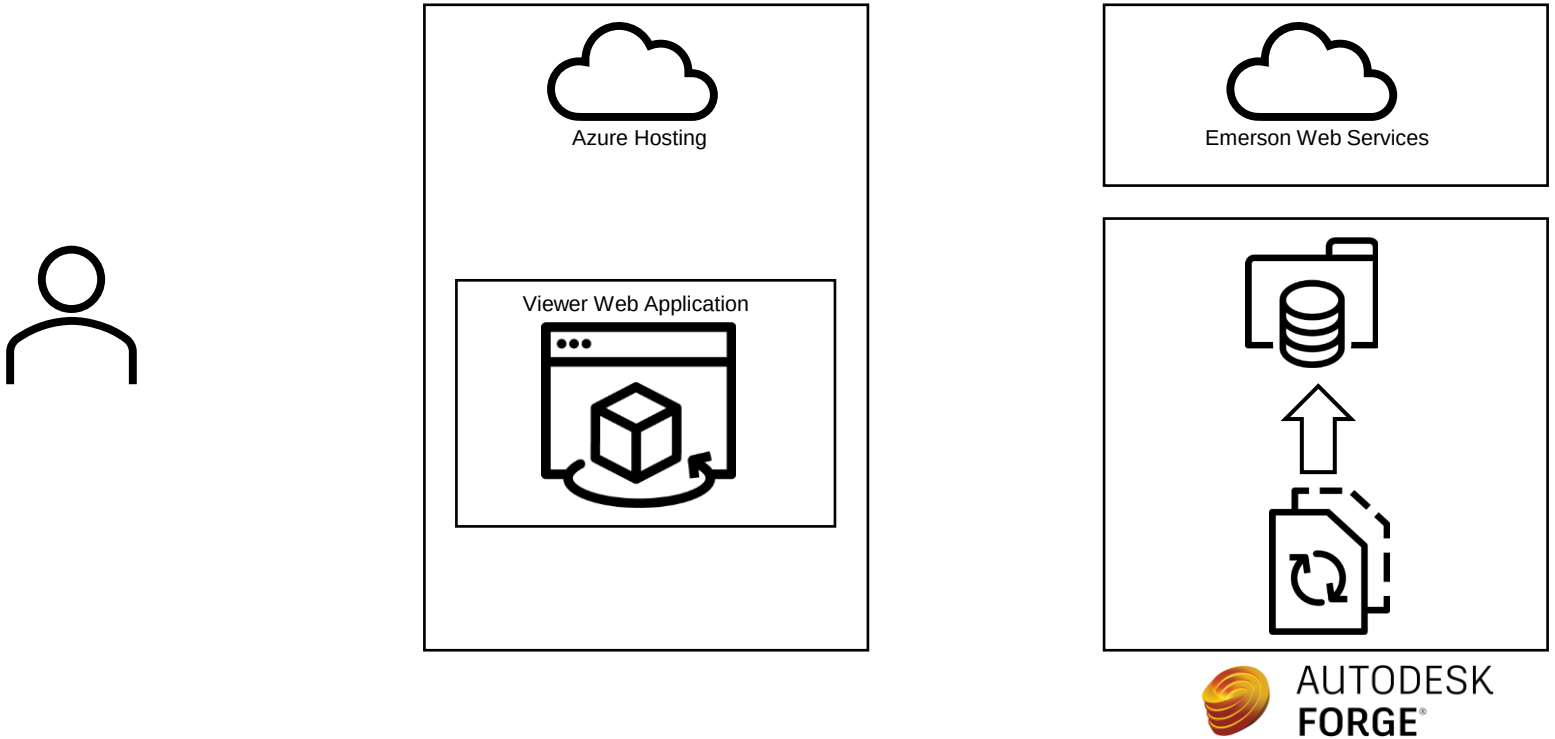

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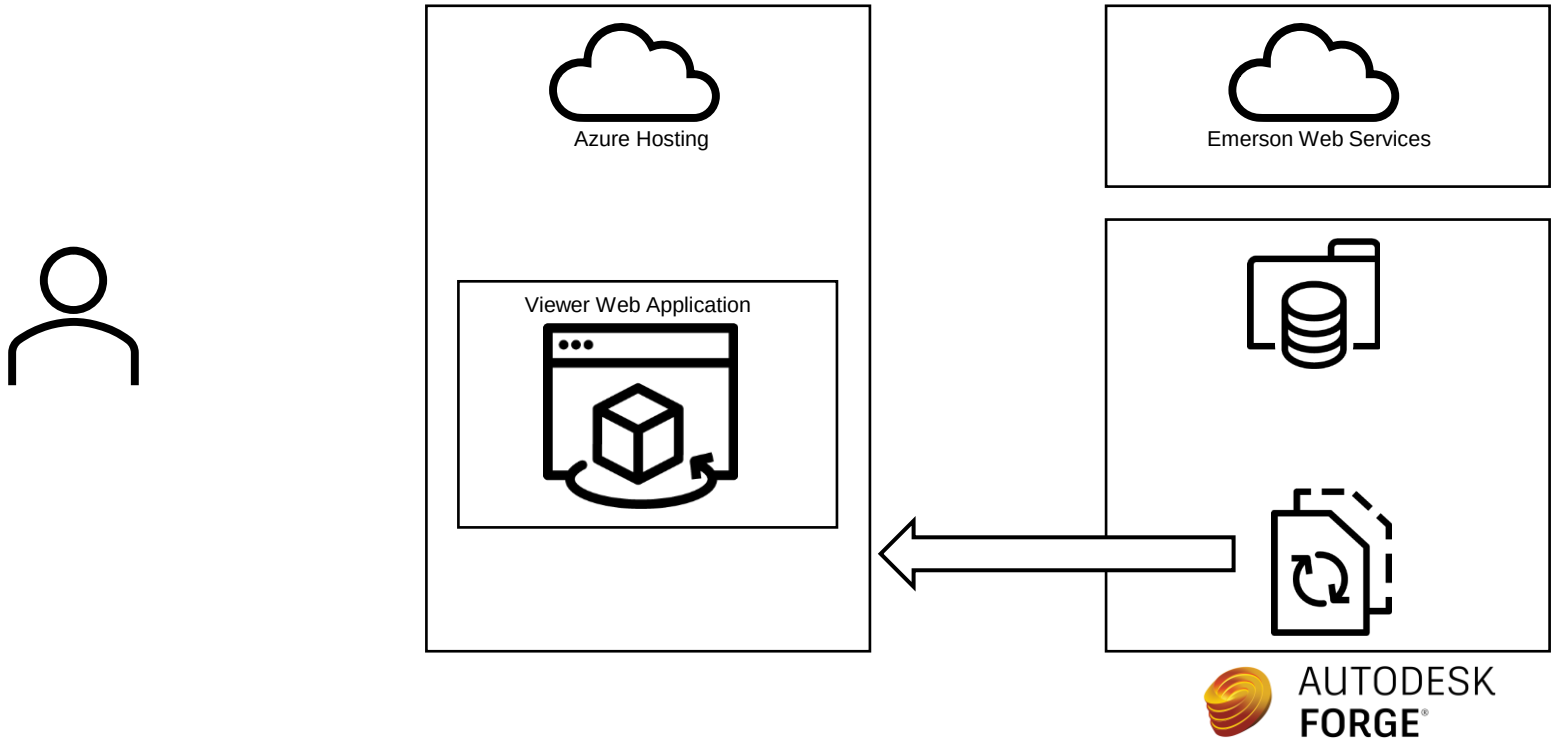

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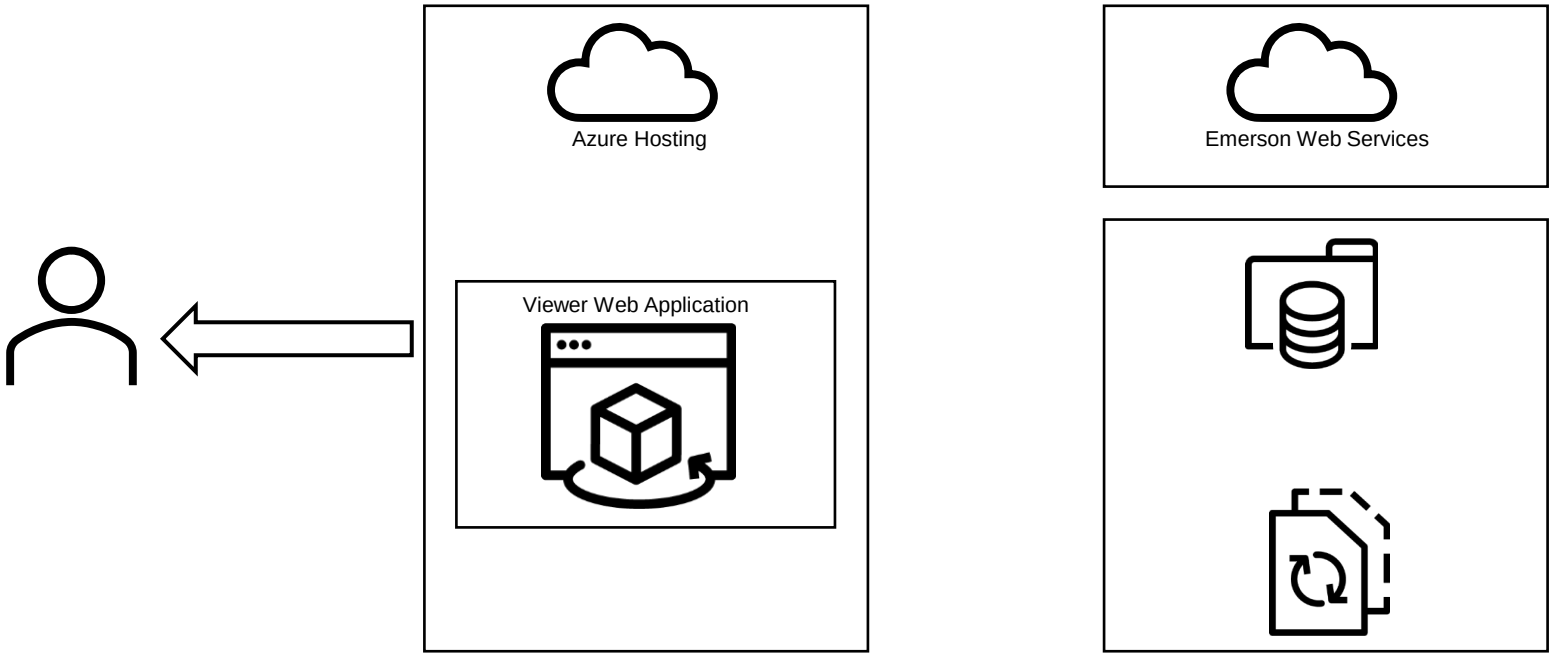

Continuing the Digital Thread

Tom Closs

Digital Twin

- The digital thread
- Convergence
- Simulations vs Digital Twin