BES500028

Using Forge to Build Connected and Customized Workflows in BIM 360

Matthew Anderle
AECOM

Russ Dalton
AECOM

Learning Objectives

- Learn about what Forge can provide to BIM 360 enterprise customers
- Discover AECOM's vision on technology innovations
- Learn how AECOM is using Autodesk cloud products and Forge to build innovative solutions to solve industry challenges
- Gain insights on the business values of Forge and ideas of use cases

Description

Forge enables companies to connect data and processes, build custom integrations, and streamline workflows to extend Autodesk product capabilities. Enterprise customers can elevate the ROI of BIM 360 software to the next level by maximizing Forge web services that come with BIM 360 subscriptions. In this session, AECOM will share innovations and stories about how the firm uses Forge to connect BIM 360 with company-specific project administration workflows in a large enterprise environment, and optimize the design collaboration, review, and submittal processes for project teams. You will get a better understanding of what's available in and applicable from Forge to BIM 360, and gain inspiration for driving business value with models and data.

Speaker(s)

Matthew Anderle
Autodesk Expert Elite
Director of Digital Practice & Technology, Buildings+Places, AECOM

Matthew is a BIM and technology evangelist with over 21 years of experience establishing global digital delivery workflows. He serves AECOM as a leader in the implementation and advancement of digital processes, analytics, and collaboration strategies, enabling global offices to work efficiently and effectively as one entity.

Russ Dalton
BIM Director, Digital Practice & Technology, Americas, AECOM

Russ is a seasoned professional with 30 years of experience in the Architecture, Engineering and Construction arena. His primary function is implementing BIM technology into a company's natural workflow to optimize results through financial gain, design and construction excellence and competitive advantages for value added delivery.

Introduction

The functionality of the BIM 360 environment is the building blocks for your custom application and Forge is the interface that provides the integration for those functions and connection to cloud-data.

Forge offers key integrations for consumers, including:

- Software developers building new applications
- System integration developers to connect data
- Companies improving efficiency or workflows

AECOM's Vision

Technology & Innovation

For Our Clients

Our clients count on us to think without limits. By harnessing the power of digital technology and innovation and connecting our technical experts and visionaries around the world, we deliver tailored solutions and transformative outcomes for our clients and the communities they serve.

Partnering for Impact

We're collaborating with experts and innovators to pioneer new solutions. Through our work with partners such as Google Cloud, Microsoft, and Autodesk, we apply data science in unique ways, building industry-leading automated design tools and creating collaborative digital platforms that are transforming the infrastructure sector.

Innovative Solutions for Industry Challenges

Technology is rapidly transforming how we design and construct. We are embracing fully digital workflows to deliver faster, smarter, better, and safer solutions to our clients' biggest challenges.

Efficient design tools and the use of artificial intelligence and machine learning automate repetitive manual tasks, enabling greater creativity whilst providing more reliabledesign and construction outcomes.

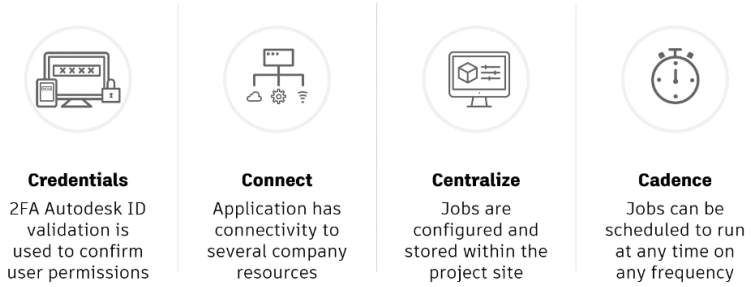
1. File Transfer Scheduler

Challenge

AECOM required a tool to migrate data, distribute data, and synchronize data through the BIM 360 environment.

Forge-Enabled Solution

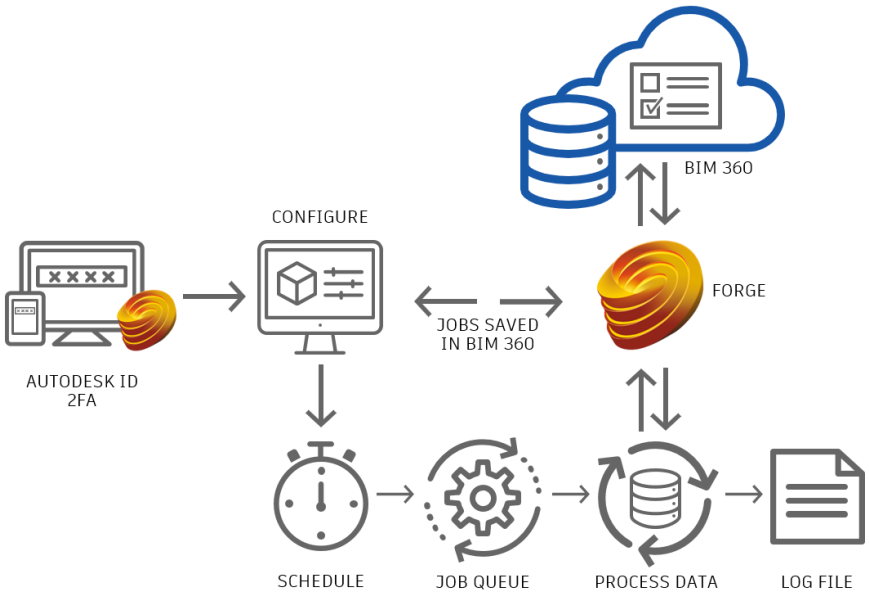
BIM 360 – File Transfer Scheduler was developed to mitigate the challenges of managing and moving data in the cloud by enabling our teams to schedule data transactions during off-peak hours.



Key Features: File Transfer Scheduler

How It Works

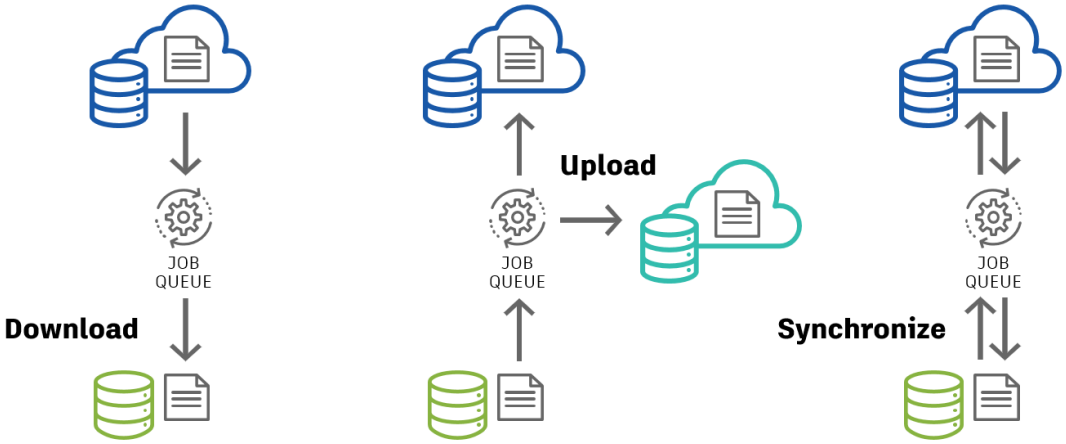
The File Transfer Scheduler allows users to configure data to be moved, distributed, and/or synchronized through a series of scheduled tasks. Once implemented, data is put into a queue and processed at a specific time at daily or weekly increments. This provides the opportunity for scheduling data migration during off-peak hours. Upon completion a log file lists the assets successfully transferred, by whom, and identifies any potential errors.



Application Diagram: File Transfer Scheduler

Business Value & Use Case

The File Transfer Scheduler improves workflows by automating time consuming tasks. The application provides teams the ability to schedule high-bandwidth consuming processes to off-peak work hours. The File Transfer Scheduler offers consistent and repeatable data migration to a specific project site or between multiple project sites.



Functionality Diagram: File Transfer Scheduler

2. Model Performance Analytics

Challenge

AECOM is embracing the data made available to project teams through BIM 360, and by leveraging Forge, we gain knowledge and an enhanced level of certainty about our project's digital health, efficiency, and composition.

Forge-Enabled Solution

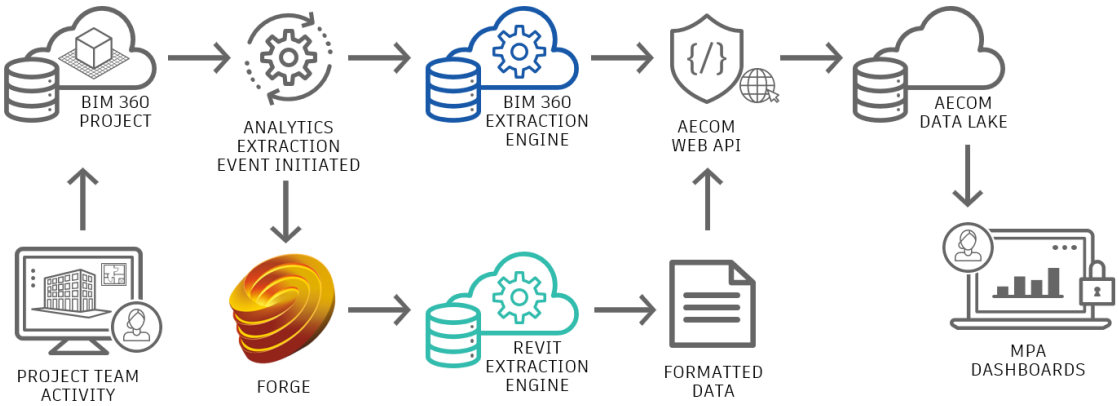
The Model Performance Analytics platform AECOM has developed, leverages Forge to process over 10,000 models in our North American Hub across more than 3,200 projects. Our innovative approach to project analytics is pushing the boundaries of what is possible.



Key Features: Model Performance Analytics

How It Works

The Model Performance Analytics platform automatically extracts information from a project hosted on BIM 360, based on specified triggers. The application formats the data, and through AECOM's customized API, populates a data lake which is then retrieved and visualized in AECOM custom dashboards.

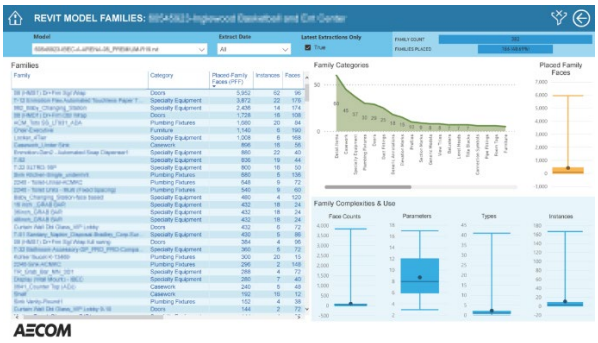


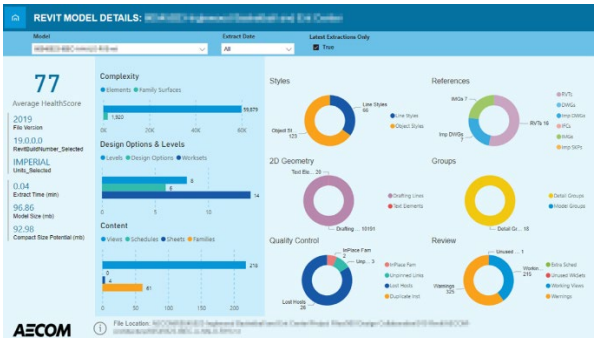
Application Diagram: Model Performance Analytics

Business Value & Use Case

Model Performance Analytics harvests millions of data points across thousands of projects and tens of thousands of models, to enable AECOM to determine model health, fidelity, and model complexity. Leveraging historic and trajectory-based visuals, teams are well-informed to determine risk and mitigate anomalies that reveal themselves through comparative data.

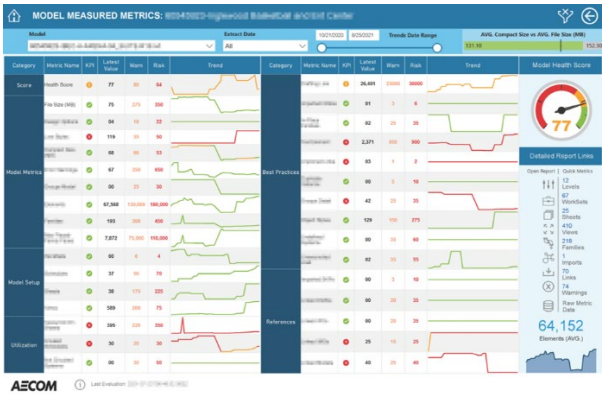












Dashboards: Model Performance Analytics

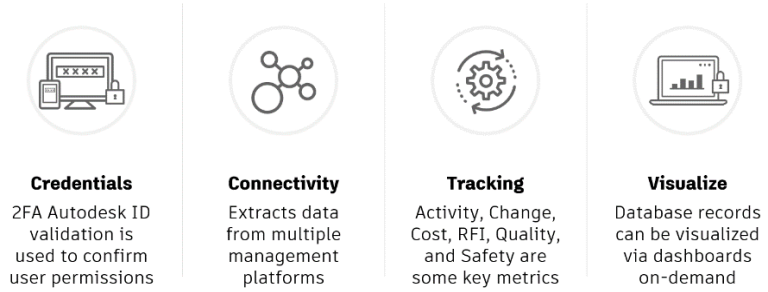
3. Project Visibility

Challenge

AECOM is continually improving digital delivery methodologies and quality tracking processes to enable our teams to successfully design and construct the world's most complex projects.

Forge-Enabled Solution

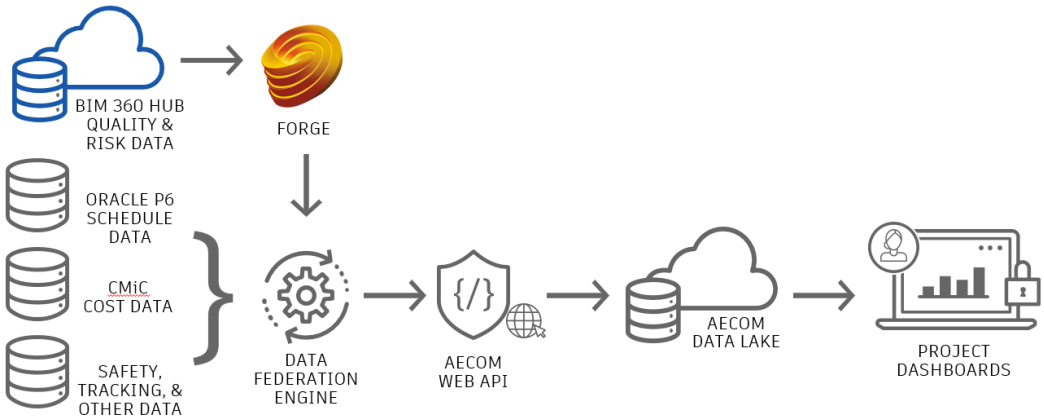
The Project Visibility platform AECOM has developed, leverages Forge and several other key data integrations to analyze and report real-time data throughout the project lifecycle. We use these reports to obtain three levels of certainty in our strategy: Geometric Certainty, Cost Certainty, and Operational Certainty.



Key Features: Project Visibility

How It Works

Quality and risk management data is extracted from the BIM 360 Hub and through Forge is federated with data extracted from Oracle P6 Schedule software, CMiC Cost software, as well as data from safety, tracking, and other project management platforms. AECOM's customized API populates a data lake which is then retrieved and visualized in AECOM custom dashboards.



Application Diagram: Project Visibility

Business Value & Use Case

AECOM's virtual footprint reflects the physical project in its entirety. Coordinated and completed virtually before physical build. There are three levels of certainty in our strategy:

- Geometric certainty – assessing whether form and function fits in the facility.
- Cost certainty – assessing whether the project meets cost goals.
- Operational certainty – assessing operational costs.

The use of Forge ensures an on-demand, as needed look at the CS project and allows real time decision making through a holistic view of the project. We carry forward the results of our virtual/physical strategy forward for measurement.

Dashboards support the delivery of predictable results, provides new communication flows, and gives immediate and holistic visibility of project progress to executives and operation leads.



Dashboards: Project Visibility