

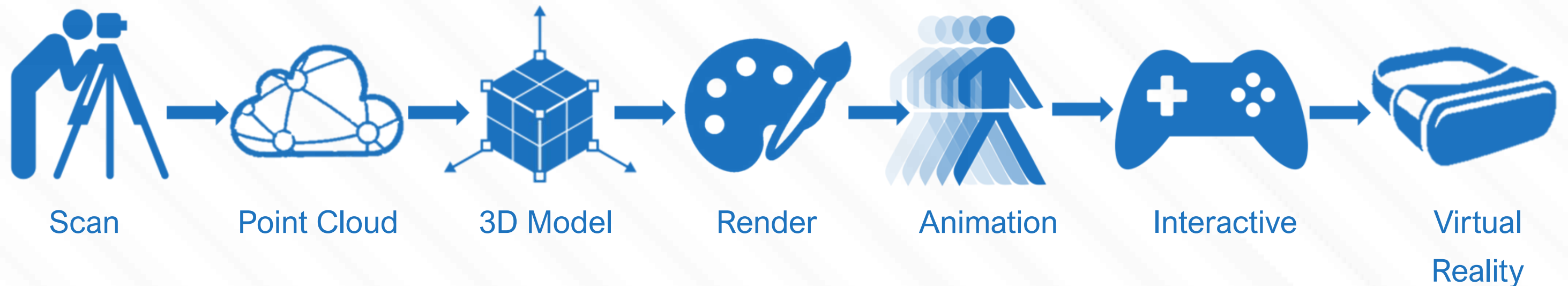
WHY BACK MODELING?

ECAD CASE STUDIES

HAVING THE SCAN DATA MODELED HAS MANY BENEFITS THAT DEPEND ON THE GOALS OF THE PROJECT

Most scan to 3D model projects involve the need for as-built 2D documentation, intelligent objects and/or isometrics.

Included in this document are three case studies to represent reasons why back modeling the point cloud data was highly critical to each customer's desired outcome.



Demand for back modeling has increased

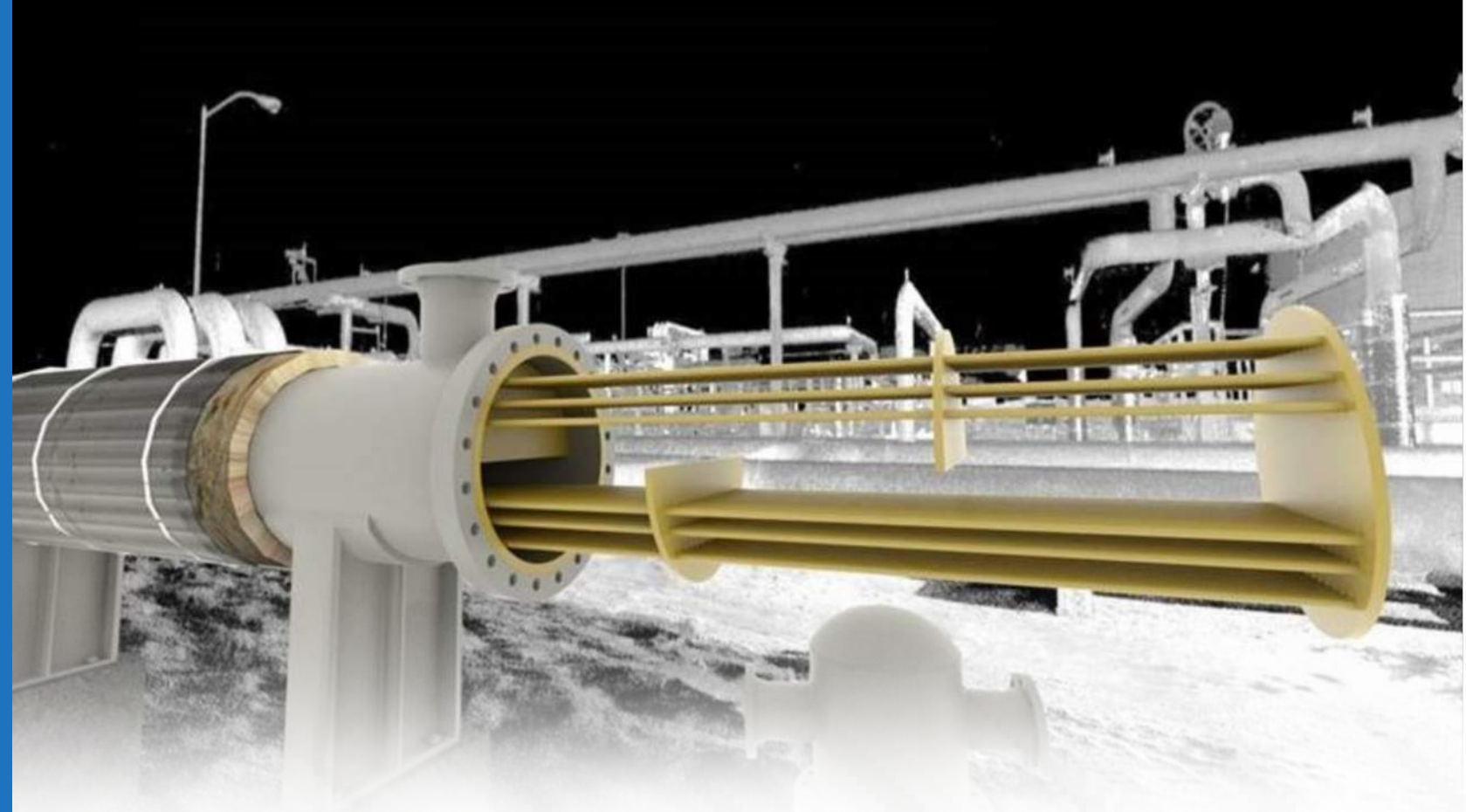
48%

in the last two years.

“Since getting into the Virtual Reality world for engineering applications, ECAD has been our greatest help.

They have been working on manipulating different software to create VR environments and helping our company further excel by giving us new tools that will help us differ from the competition and stay ahead of the industry. I'm looking forward to working with ECAD on more tasks to come and producing some great quality VR material.”

- John T.



READ THESE CASE STUDIES:



Logistical Animations



3D Model for Retrofit



Interactive 3D Model

LOGISTICAL ANIMATIONS



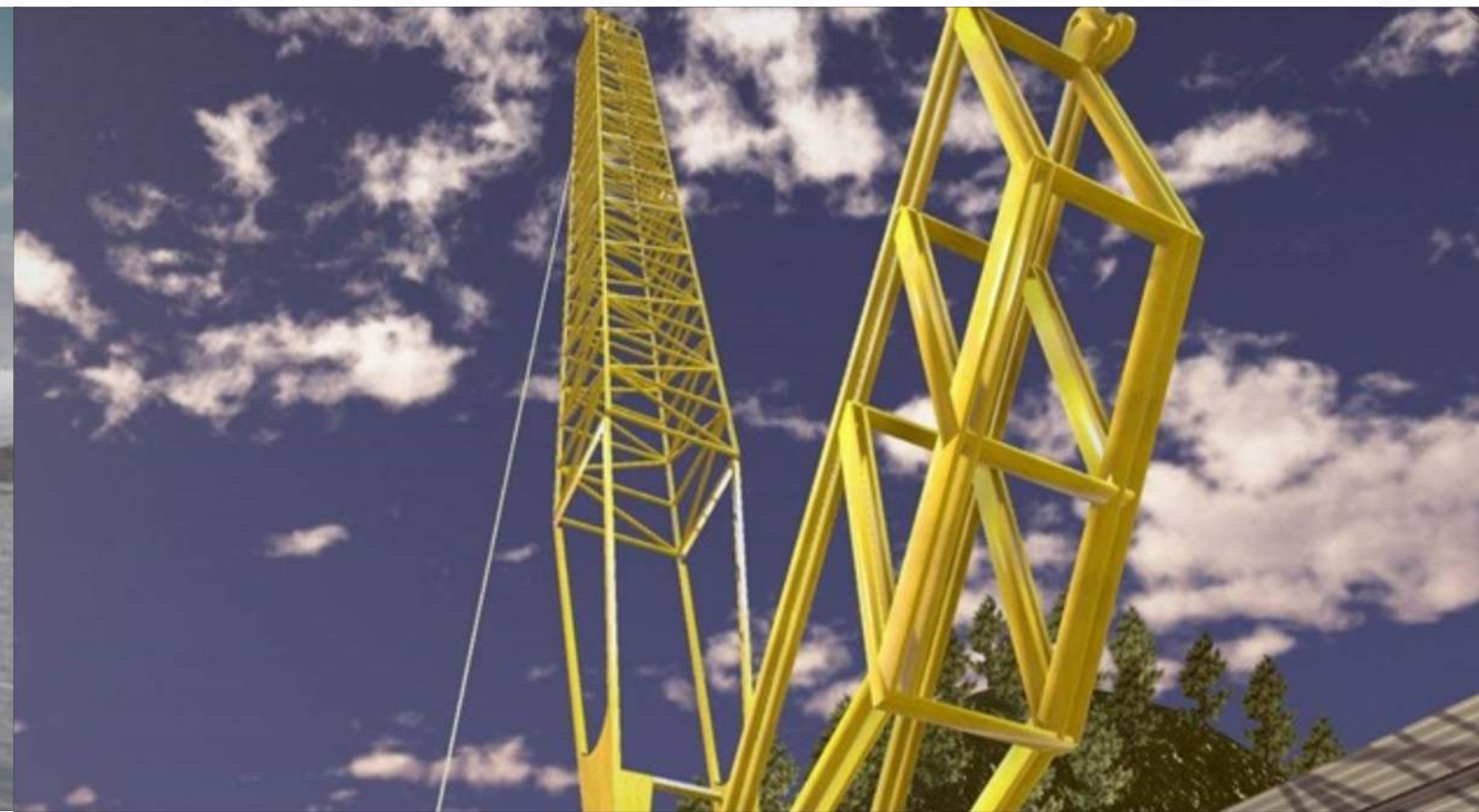
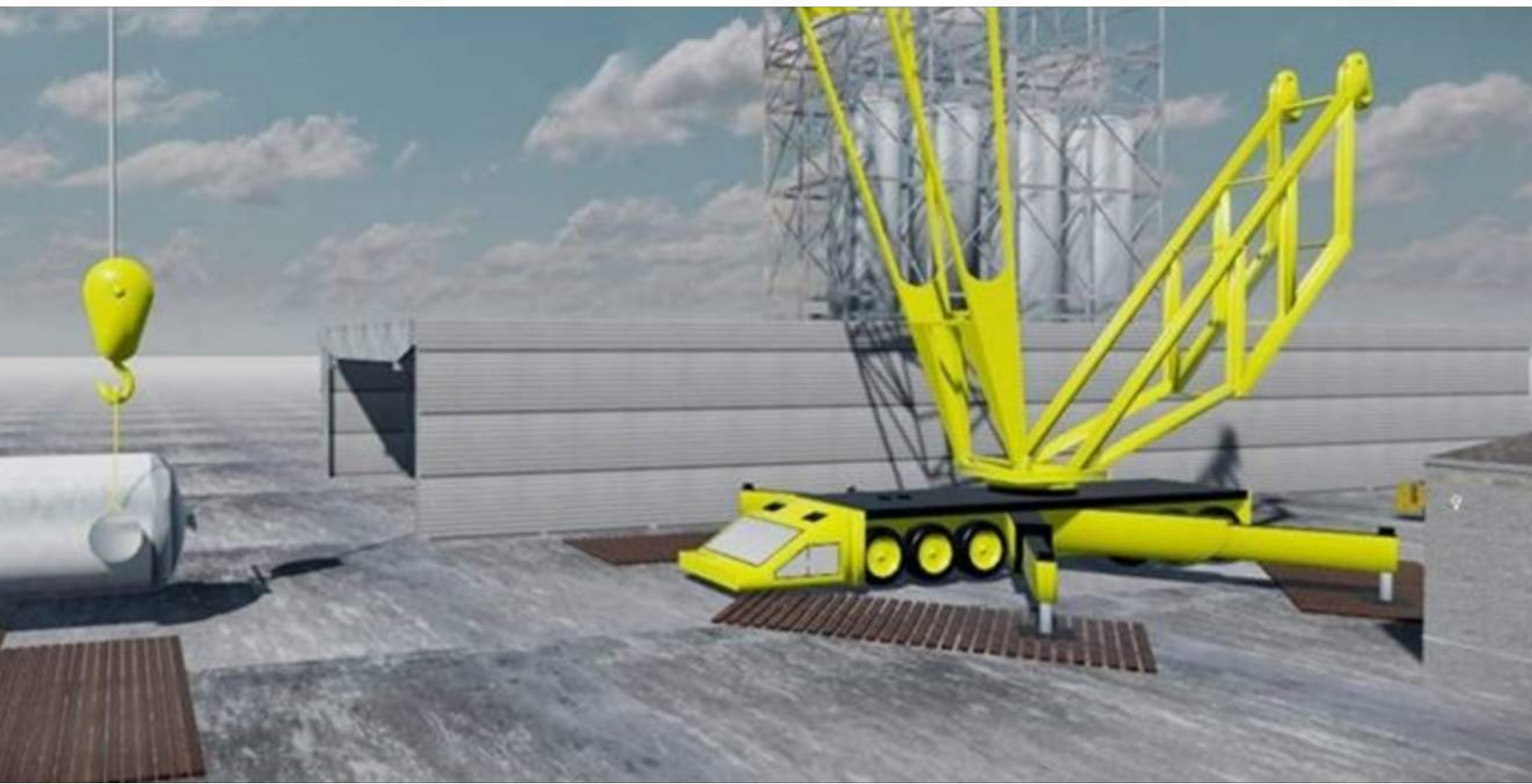
ECAD partnered with a client that is requesting the services of removing old industrial equipment and replacing with new equipment.

The new equipment is in a highly congested area and the company would like to make sure they are able to meet clearance requirements when moving the equipment around the existing structures. The first step for accomplishing this task was to get field measurements of the site and the construction equipment being used (cranes). We laser scanned the site and modeled the point cloud data in AutoCAD Plant 3D.

A 3D model was necessary for the next step in the project which was animation. The animation was instrumental in proving the equipment did not violate any clearances around the existing structure as it was removed and replaced.

By viewing the animation in a VR environment the client was able to see the clearances from every angle. As a result, the client and plant manager were aligned logistically and the risk of interference issues happening on site were eliminated.

BACK



3D MODEL FOR RETROFIT



ECAD assisted a client with their dilemma of getting measurements around the ceiling of a warehouse to capture existing MEP systems and ceiling trusses.

The client needed the measurements because the company was tasked with manufacturing an overhead conveyor system to retrofit onto the warehouse ceiling. The warehouse was filled with machines that also needed measurements captured. ECAD introduced them to laser scanning or LIDAR and the client agreed it was the fastest and most efficient means of capturing the information they needed.

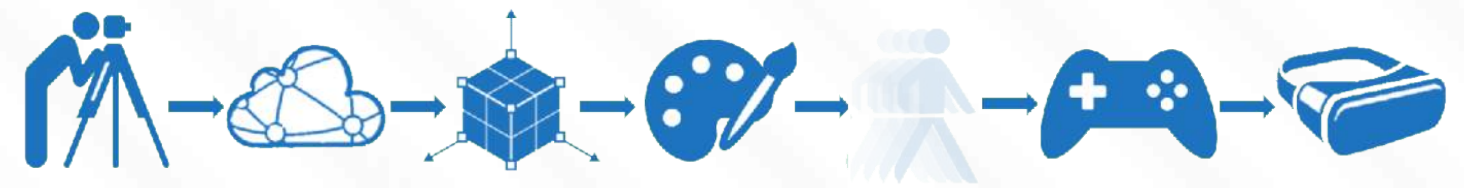
The challenge that arose with adopting this process was the customer's lack of computing hardware and network bandwidth to handle the point cloud data across their network. This challenge is very common, as point cloud data files are often very large. As with most clients, the most convenient way for the designer to access the data across the network, was to create a 3D model.

The end result was an Autodesk Inventor model that was used to design and manufacture an overhead conveyor system without going back and forth to the site or second-guessing measurements.

BACK



INTERACTIVE 3D MODEL



Industrial plants have a lot of safety regulations and rightfully so, as most are very dangerous. When new plant employees are hired, they go through an extensive amount of training on the equipment they will be using. Rather than training them on the actual plant equipment, they would like to train new hires in virtual reality for safety purposes.

This project was brought to ECAD from one of our clients who was a contractor for the plant. First, we used the laser scan model workflow to get field measurements of the equipment and its surroundings.

Once the equipment and site were modeled, rendering software was used to make the project more realistic.

Next, we made the model interactive by applying functionality by means of a video game engine. Opening doors, opening and closing valves, picking up objects, etc. were all made possible with this process.

The last step was getting the project into a virtual reality format. The final deliverables to the client included both a standalone executable of the VR environment and a windows-based training module of their equipment. The client was now able to effectively train new hires on equipment without physically stepping foot into the plant.

BACK

