

Lessons Learned: Ten Years of Applying CAD Model Comparison

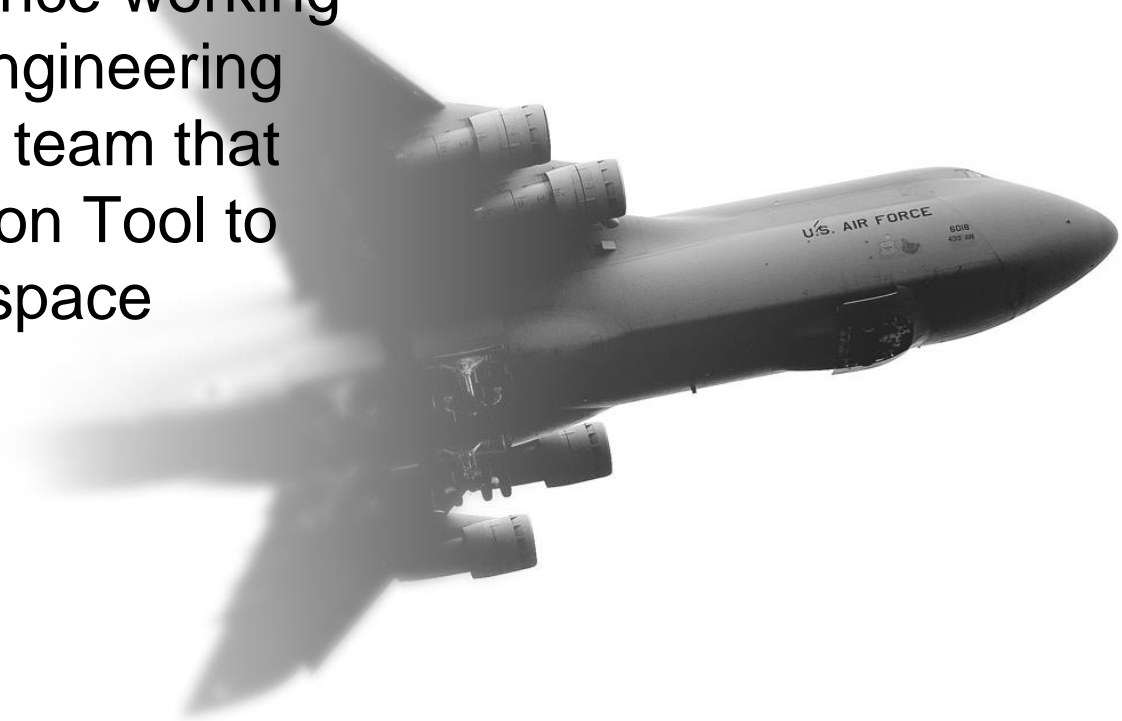
Andy Beaupre
Kubotek3D

GLOBAL PRODUCT DATA
INTEROPERABILITY
S U M M I T
2019



Andy Beaupre

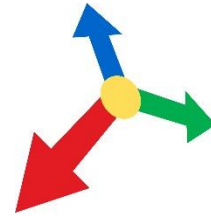
- **General Manager – Sales and Support – Kubotek3D**
- Andy has more than two decades of experience working with manufacturers and helping them with engineering software solutions. He was a member of the team that developed and brought the Kubotek Validation Tool to market and has worked with countless aerospace suppliers.



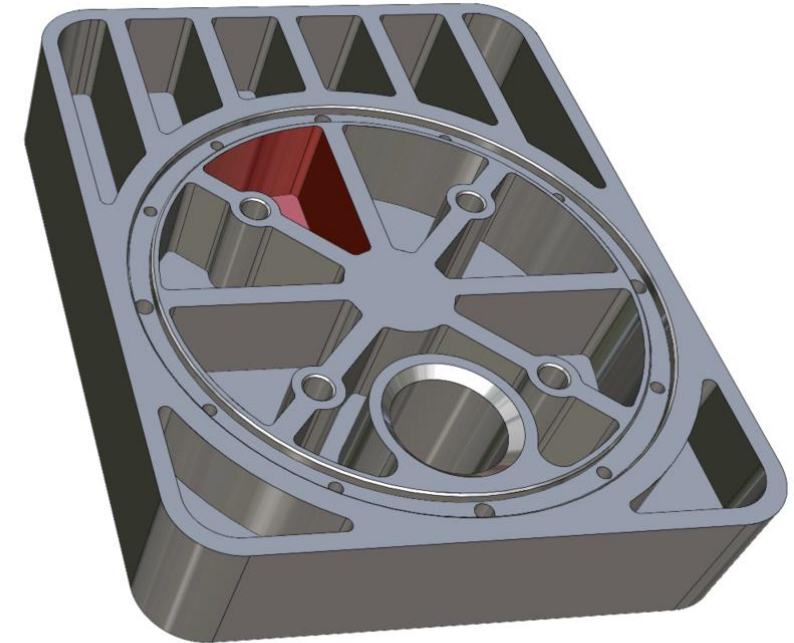
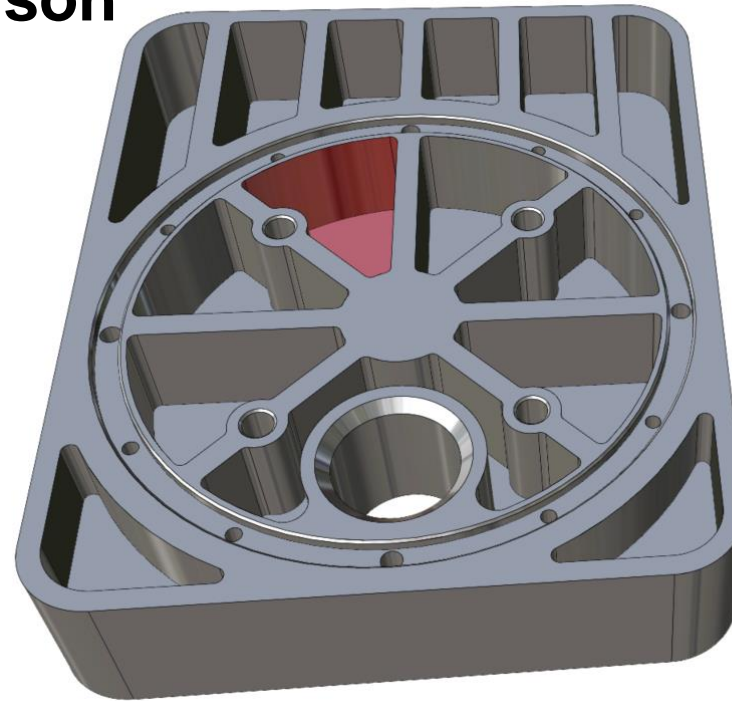
Presentation Roadmap

Global Product Data Interoperability Summit | 2019

- Introduction
- Comparison Technology
- Application of Comparison
- On the Horizon
- Questions



KUBOTEK3D



Introduction

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- Introduction
- Comparison Technology
- Application of Comparison
- Stories From the Road
- On the Horizon
- Questions



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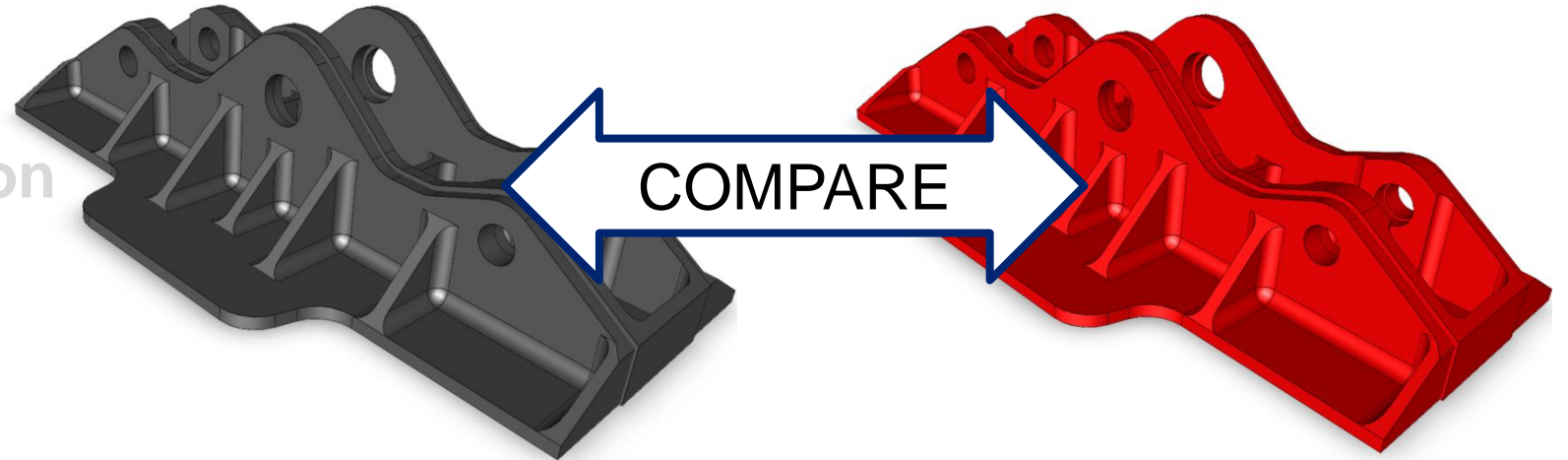
Comparison Evolution



Introduction

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- **Introduction**
- Comparison Technology
- Application of Comparison
- On the Horizon
- Questions



Translation Validation

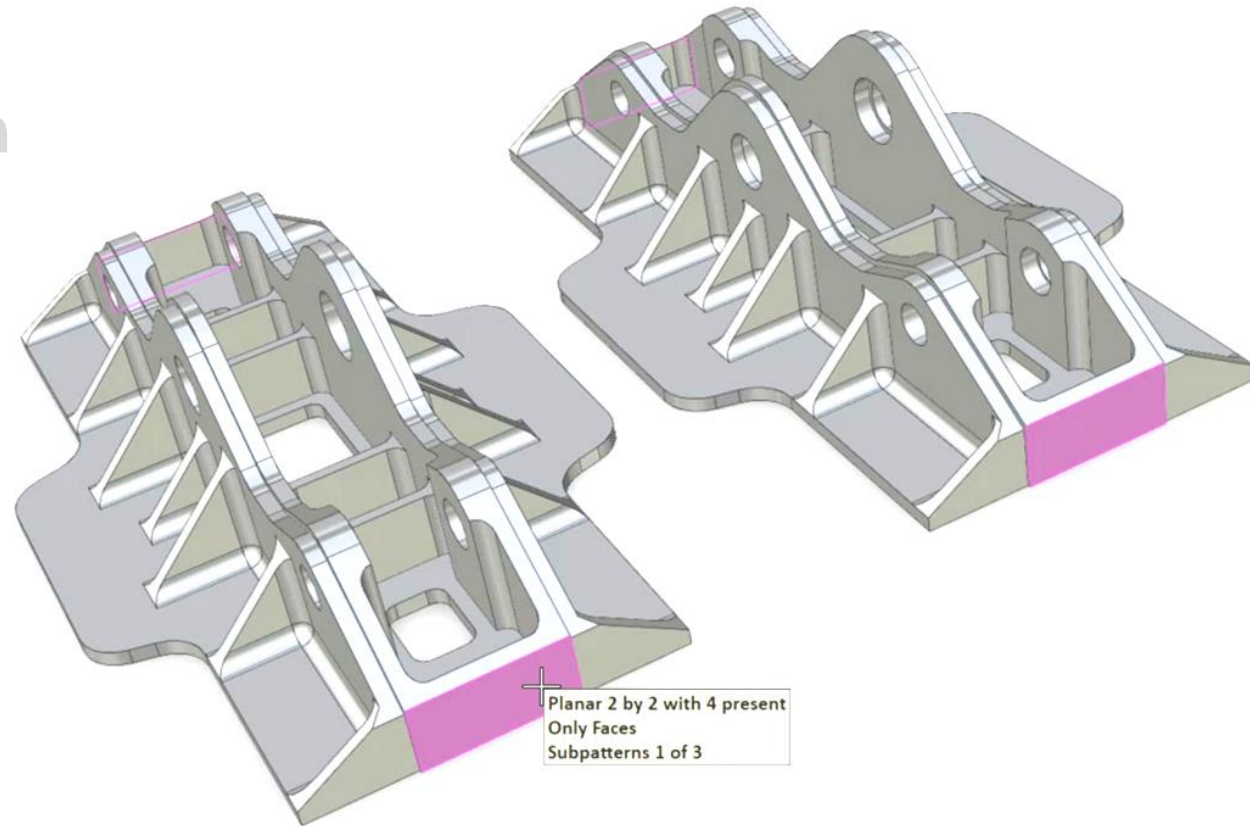
Certified Quality Document

✓ **Validated**

Comparison Technology

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- Introduction
- **Comparison Technology**
- Application of Comparison
- On the Horizon
- Questions



Application of Comparison

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- Introduction
- Comparison Technology
- **Application of Comparison**
- On the Horizon
- Questions

- 
- **Geometric Comparison**
 - **Validation of Translated Data for Quality Assurance**
 - **Aerospace Supplier Survey (April 2018)**

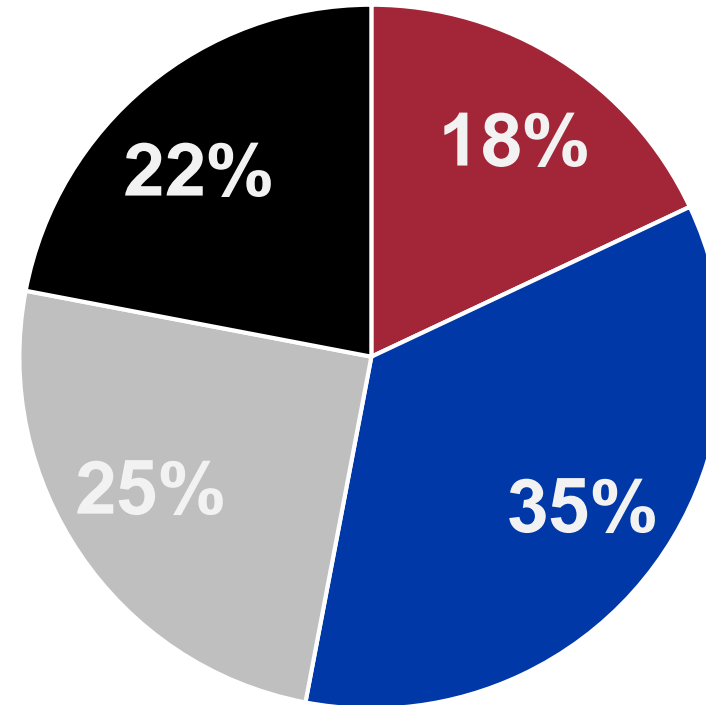
Application of Comparison

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- Introduction
- Comparison Technology
- **Application of Comparison**
- On the Horizon
- Questions

How often do you validate translations?

Translation Validation



■ Daily ■ Weekly ■ Monthly ■ Quarterly

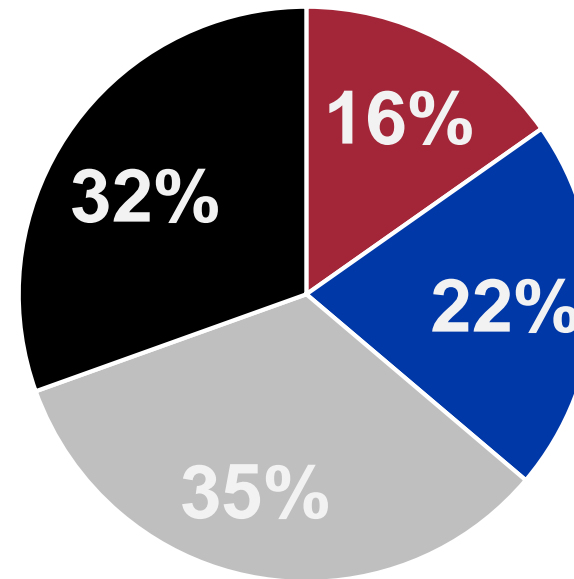
Application of Comparison

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- Introduction
- Comparison Technology
- **Application of Comparison**
- On the Horizon
- Questions

How often do you need to compare a point cloud derivative to the authority data set?

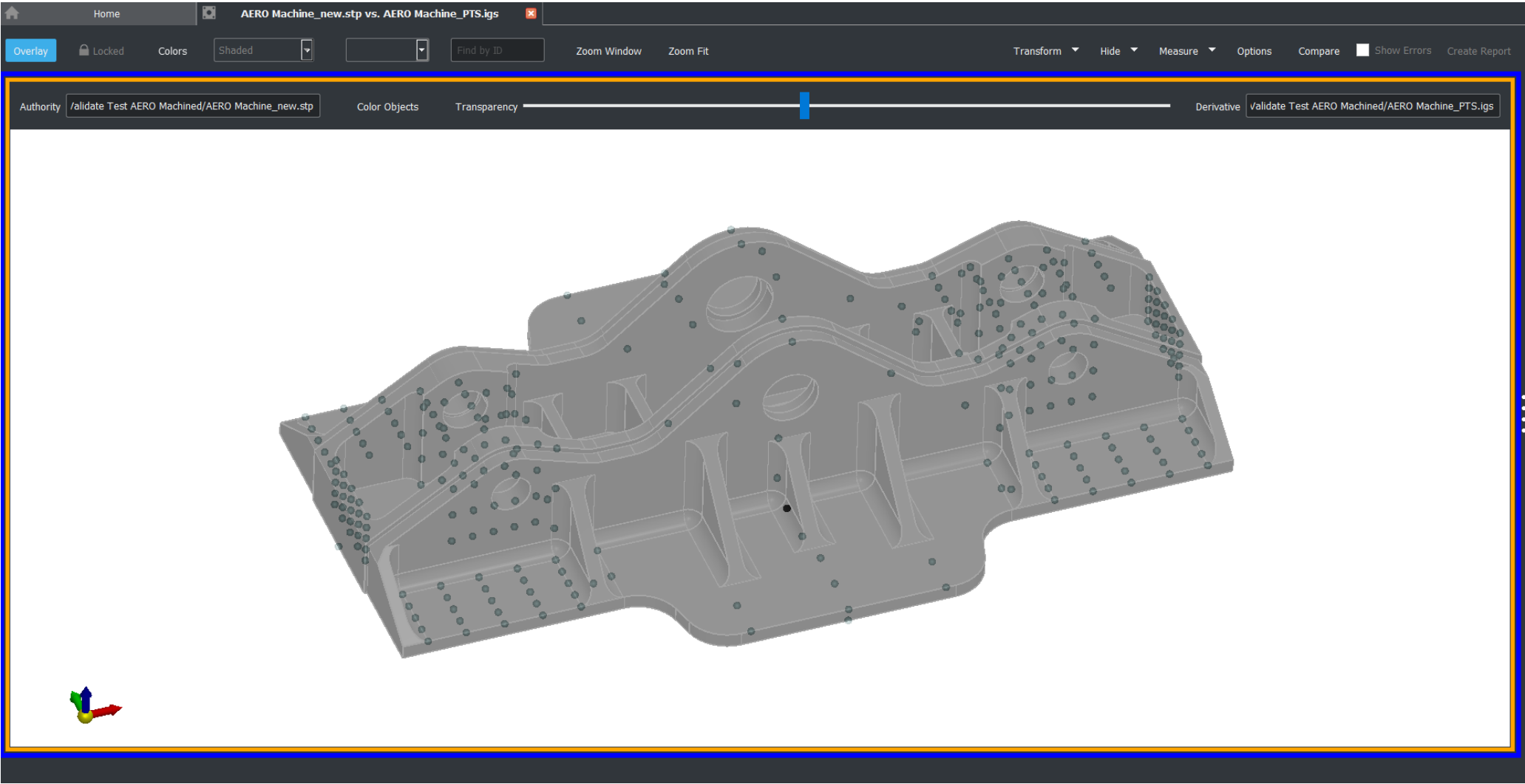
Translation Validation



■ Always ■ Usually ■ Sometimes ■ Never

Application of Comparison

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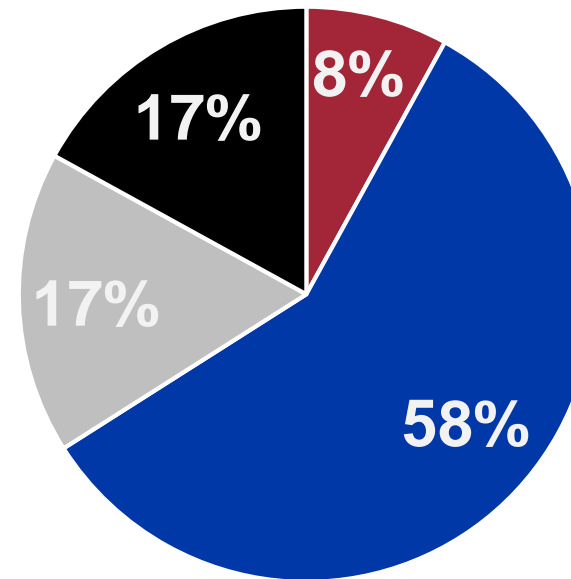
Application of Comparison

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- Introduction
- Comparison Technology
- **Application of Comparison**
- On the Horizon
- Questions

How often do you need to compare a derivative that is in a different orientation than the authority data set?

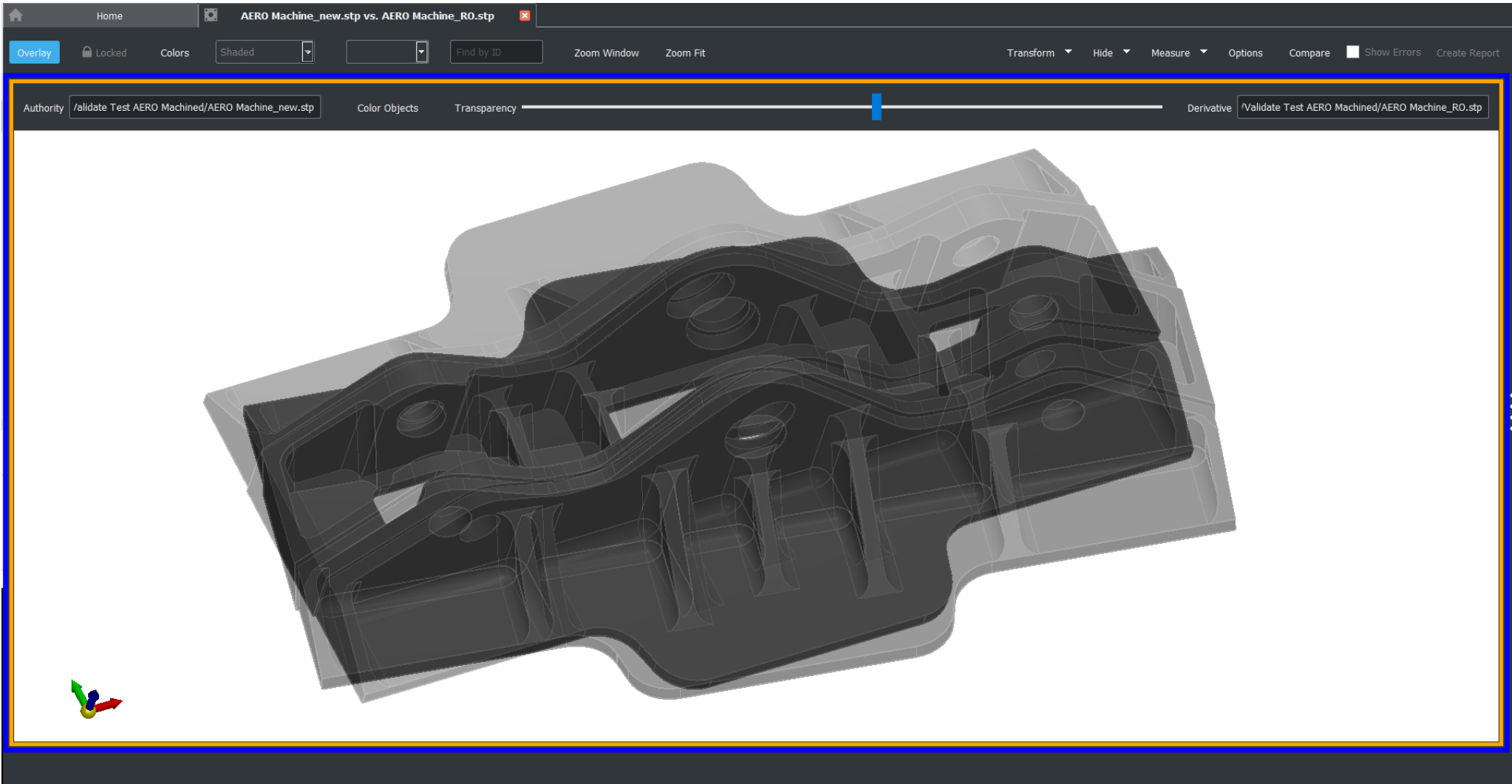
Translation Validation



■ Usually ■ Sometimes ■ Rarely ■ Never

Application of Comparison

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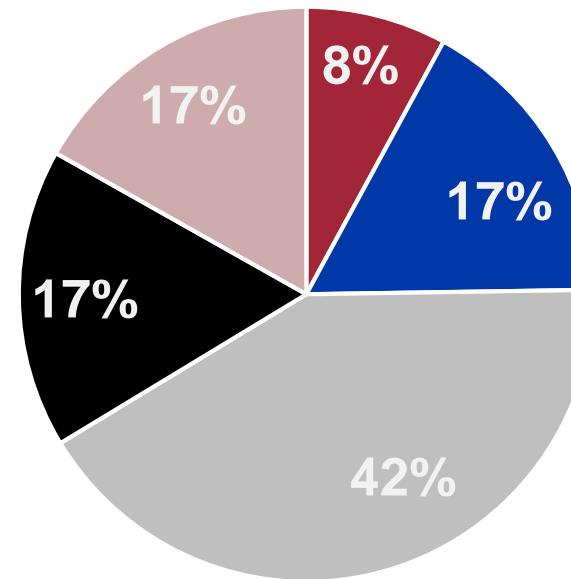


Application of Comparison

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- Introduction
- Comparison Technology
- **Application of Comparison**
- On the Horizon
- Questions

How often do you compare an authority file that has more data in it than the derivative file?

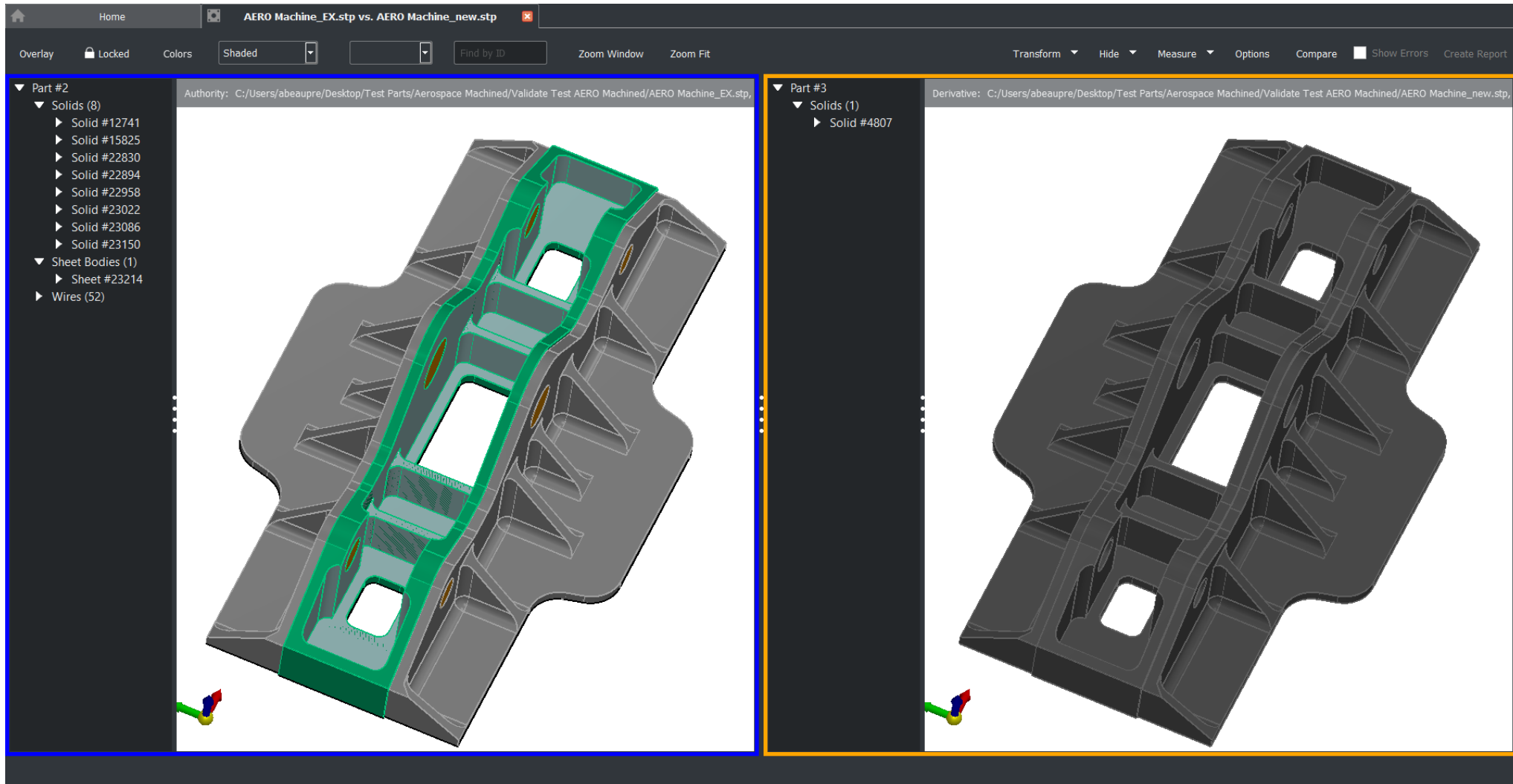


Translation Validation

■ Always ■ Usually ■ Sometimes ■ Rarely ■ Never

Application of Comparison

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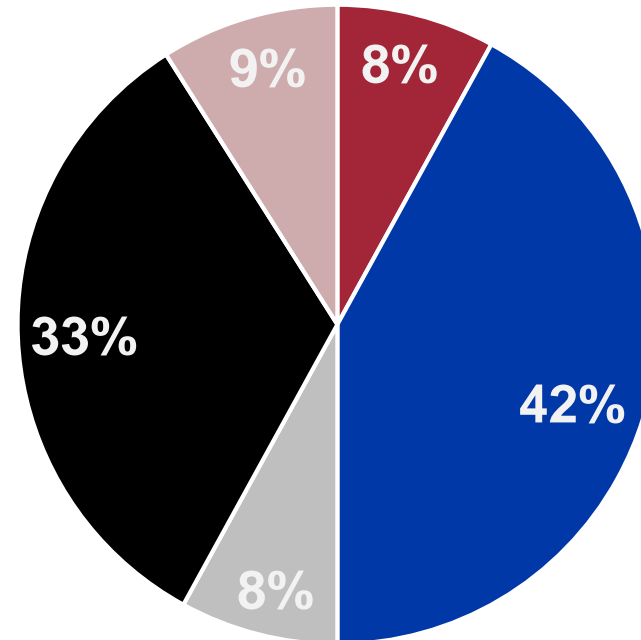
Application of Comparison

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- Introduction
- Comparison Technology
- **Application of Comparison**
- On the Horizon
- Questions

Translation Validation

Approximately how many files do you
Validate each year?



■ 0-10 ■ 11-50 ■ 51-200 ■ 200-1000 ■ 1000+

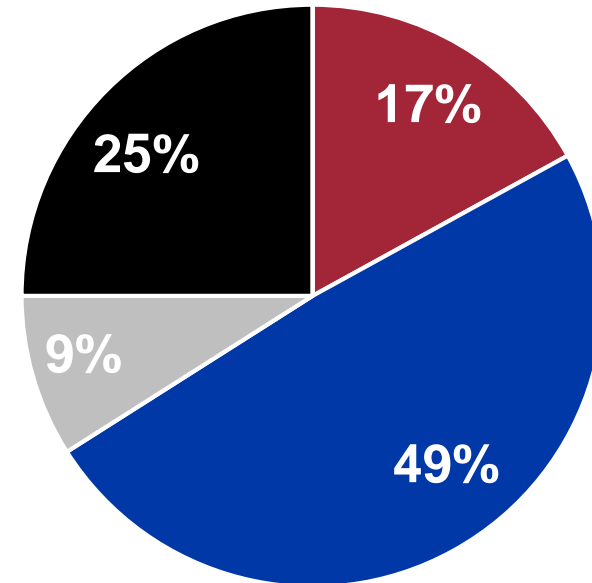
Application of Comparison

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- Introduction
- Comparison Technology
- **Application of Comparison**
- On the Horizon
- Questions

Translation Validation

Do you ever perform batch validations?



- I don't understand the question
- Never
- Rarely
- Sometimes

Application of Comparison

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The screenshot displays a software interface for comparing two CAD files, 'Auth' (left) and 'Der' (right). The interface is split into two panes, each showing a list of files with columns for Name, Date Modified, Type, Size, and Status.

Auth Pane (Left):

Authority Name	Date Modified	Type	Size
1UL05FA600901RAV1 - C.CATPart	4/20/2012 8:07 AM	CATIA V5 Part	2 MB
1UL05FA600901RAV1 - CC.CATPart	4/20/2012 8:07 AM	CATIA V5 Part	2 MB
1UL05FA600901RAV1.CATPart	4/20/2012 8:07 AM	CATIA V5 Part	2 MB
BRACKET - A.CATPart	4/11/2012 11:27 AM	CATIA V5 Part	659 KB
BRACKET - B.CATPart	4/11/2012 11:27 AM	CATIA V5 Part	659 KB
BRACKET.CATPart	4/11/2012 11:27 AM	CATIA V5 Part	659 KB
MS3-57-0157-1_ISSUEN2 - A.CATPart	8/10/2009 1:20 PM	CATIA V5 Part	2 MB
MS3-57-0157-1_ISSUEN2 - B.CATPart	8/10/2009 1:20 PM	CATIA V5 Part	2 MB
MS3-57-0157-1_ISSUEN2.CATPart	8/10/2009 1:20 PM	CATIA V5 Part	2 MB
SZ437FA511001RBVER2 - C.CATPart	4/20/2012 8:45 AM	CATIA V5 Part	1 MB
SZ437FA511001RBVER2 - D.CATPart	4/20/2012 8:45 AM	CATIA V5 Part	1 MB
SZ437FA511001RBVER2.CATPart	4/20/2012 8:45 AM	CATIA V5 Part	1 MB
triple_clamp3 - C.CATPart	3/1/2012 6:59 PM	CATIA V5 Part	4 MB
triple_clamp3 - C2.CATPart	3/1/2012 6:59 PM	CATIA V5 Part	4 MB
triple_clamp3.CATPart	3/1/2012 6:59 PM	CATIA V5 Part	4 MB

Der Pane (Right):

Derivative Name	Date Modified	Type	Size	Status
1UL05FA600901RAV - C.stp	4/20/2012 7:46 AM	STEP	2 MB	No Match
1UL05FA600901RAV - CC.stp	4/20/2012 7:46 AM	STEP	2 MB	No Match
1UL05FA600901RAV.stp	4/20/2012 7:46 AM	STEP	2 MB	No Match
BRACKET - A.stp	4/11/2012 11:27 AM	STEP	96 KB	No Match
BRACKET - B.stp	4/11/2012 11:27 AM	STEP	96 KB	No Match
BRACKET.stp	4/11/2012 11:27 AM	STEP	96 KB	No Match
MS3-57-0157-1_ISSUEN2 - A.stp	10/6/2011 2:49 PM	STEP	641 KB	No Match
MS3-57-0157-1_ISSUEN2 - B.stp	10/6/2011 2:49 PM	STEP	641 KB	No Match
MS3-57-0157-1_ISSUEN2.stp	10/6/2011 2:49 PM	STEP	641 KB	No Match
SZ437FA511001RBVER2 - C.stp	4/20/2012 7:46 AM	STEP	1 MB	No Match
SZ437FA511001RBVER2 - D.stp	4/20/2012 7:46 AM	STEP	1 MB	No Match
SZ437FA511001RBVER2.stp	4/20/2012 7:46 AM	STEP	1 MB	No Match
triple_clamp - C2.stp		STEP	4 MB	No Match
triple_clamp3 - C.stp		STEP	4 MB	No Match
triple_clamp3.stp		STEP	4 MB	No Match

Compare Options Dialog:

- Distance Tolerance: 0.001
- Entity Types: ☒ Faces / Surfaces, ☐ Wires, ☐ Annotations, ☐ Points
- Direction: ☐ Both, ☐ Authority to Derivative, ☐ Derivative to Authority

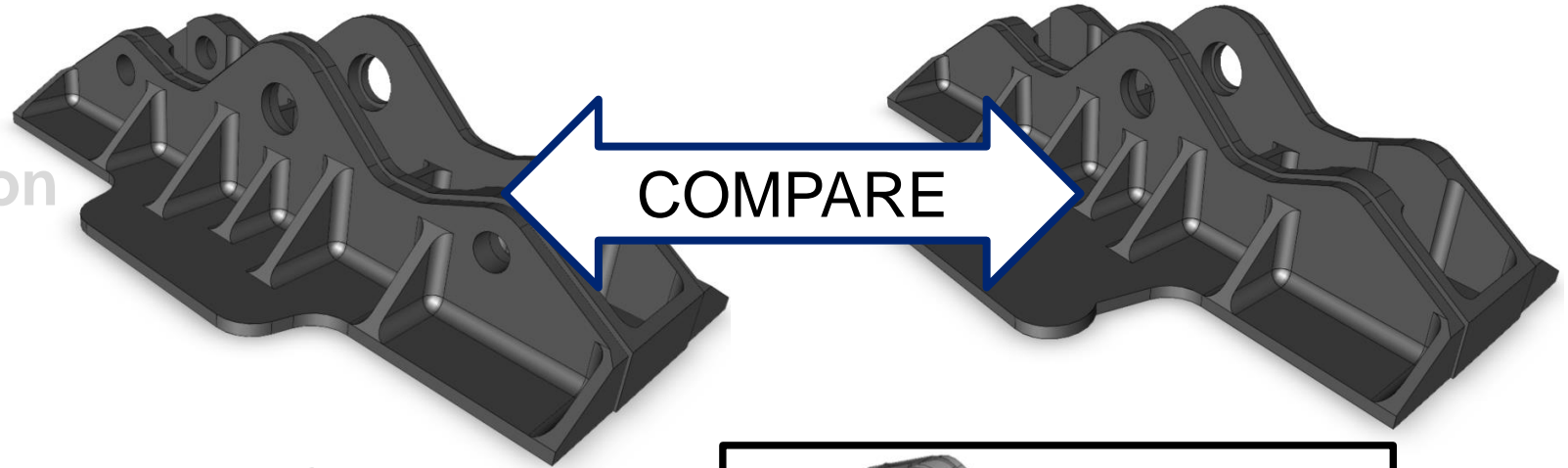
Status Bar:

Total: 15, No Match: 5

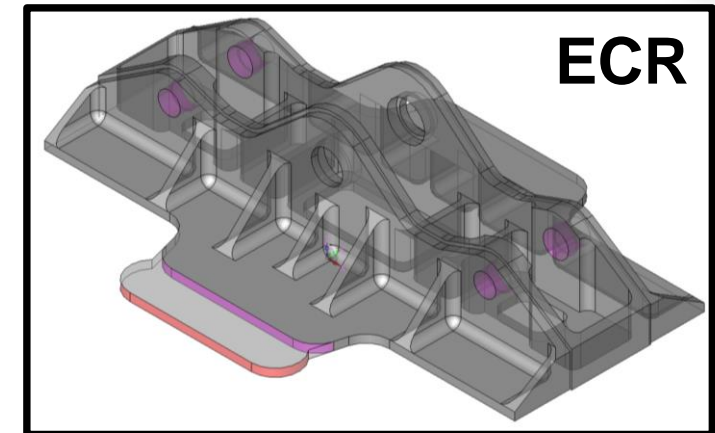
On the Horizon

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- Introduction
- Comparison Technology
- Application of Comparison
- **On the Horizon**
- Questions



Engineering Change Detection and Reporting



On the Horizon

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- Introduction
- Comparison Technology
- Application of Comparison
- **On the Horizon**
- Questions



- **Engineering Change Detection and Reporting**
- **KOSMOS**
- **October 2019 Release**

On the Horizon

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Home AERO Machine_new.stp vs. AERO Machine_new_B.stp

Overlay Locked Colors Shaded Find by ID Zoom Window Zoom Fit Transform Hide Measure Options Compare Show Differences Create Report

WAS: C:/Users/abeaupre/Desktop/Revision Test Parts/AERO Machine_new.stp, units: in

IS: C:/Users/abeaupre/Desktop/Revision Test Parts/AERO Machine_new_B.stp, units: in

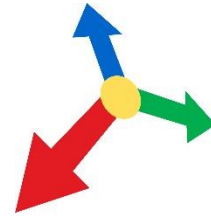
Comparison Results Different

- Options
 - Tolerance 0.001
 - Annotations Off
- IS Adjustments
- Revised (18)
 - Hole #8721 #8103
 - Hole #8718 #8100
 - Hole #8715 #8097
 - Hole #8712 #8094
 - Pocket Modification #9364 #8707
- Removed (8)
 - Face #3349
 - Face #3360
 - Rib Removal #9379
 - Face #537
 - Face #1036
 - Face #1079
 - Face #4218
 - Face #4263
 - Face #4712
- Affected Features (4)
 - Ignored

Questions

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- On the Horizon
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