

# CREO SIMULATION LIVE: BETTER DESIGNS USING REAL-TIME FEEDBACK

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SR. DIRECTOR, CREO PRODUCT MANAGEMENT



forum  
europe



## AGENDA

- Simulation Driven Design
- PTC/ANSYS Partnership
- Creo Simulation Live Overview and Demo
- Future Solutions
- Summary

# COMPANIES ARE STRIVING TO ACHIEVE:

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- **Deeper integration of simulation** throughout the development process

**Deeper** understanding of **product performance** •

- Faster ramp-up, **shorter development cycles** and **quicker time-to-market**

Reduced **design-cycle times** •

- **Fewer prototypes** and **first-time quality** at reasonable cost

**Reduced warranty liability** and exposure •

# SIMULATION DRIVEN DESIGN CHALLENGES



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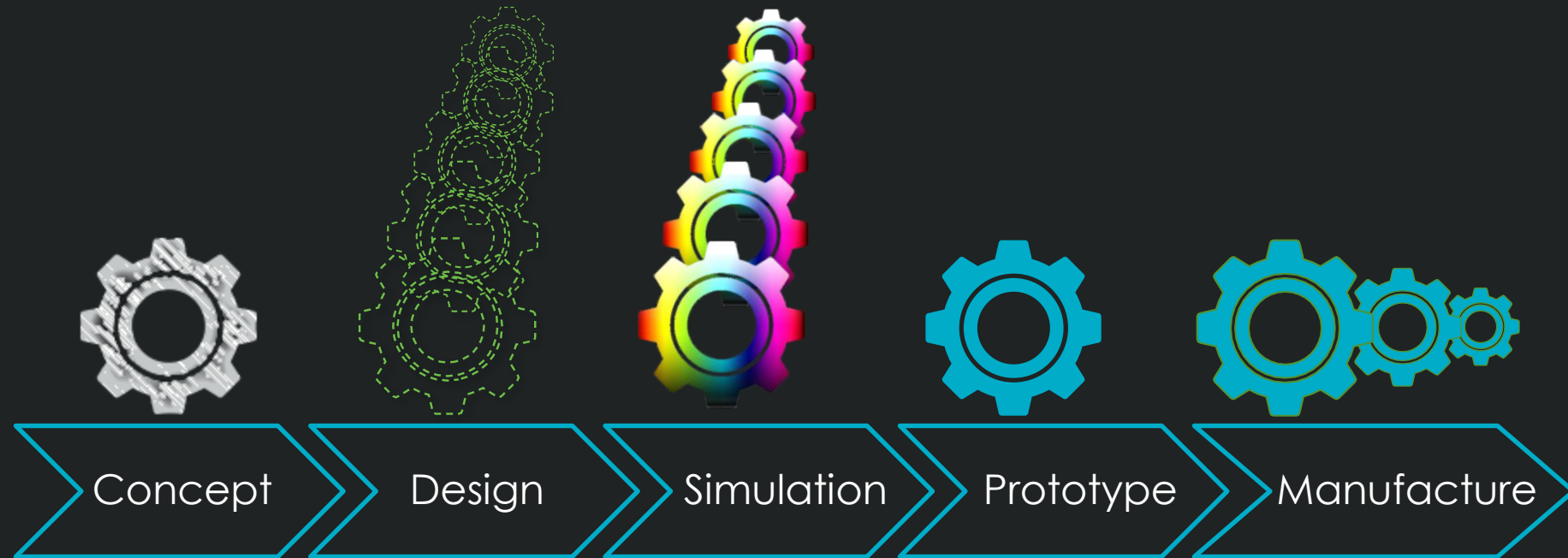
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- Design is an iterative process



# PTC/ANSYS PARTNERSHIP

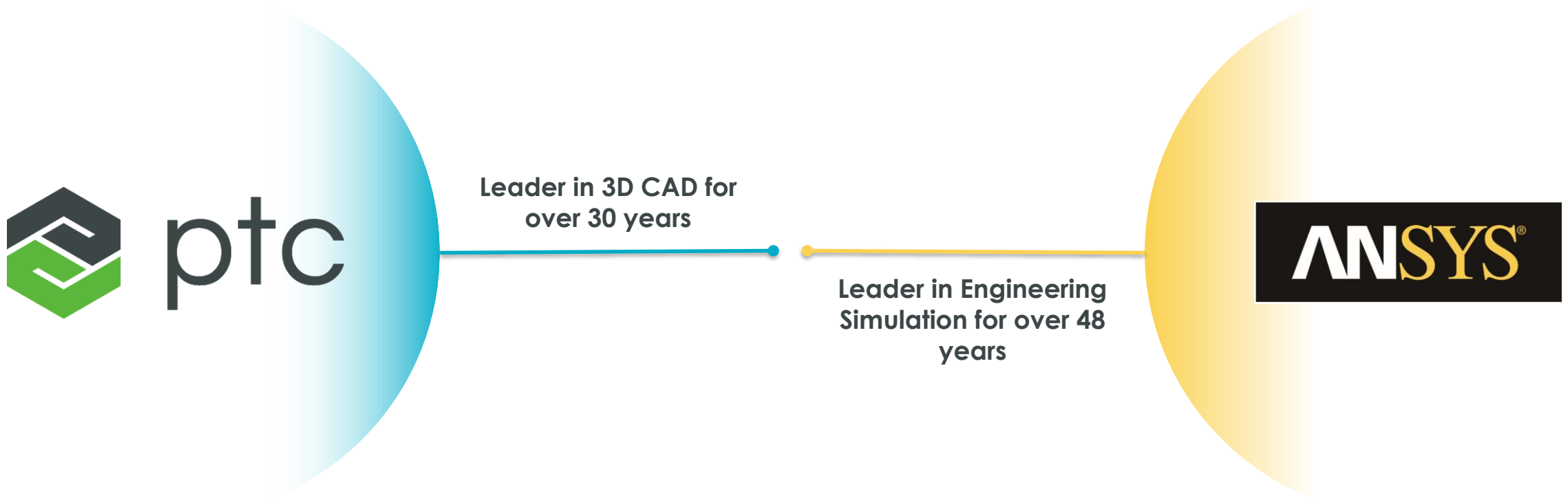


**Revolutionize product design by removing the barriers between CAD and CAE**

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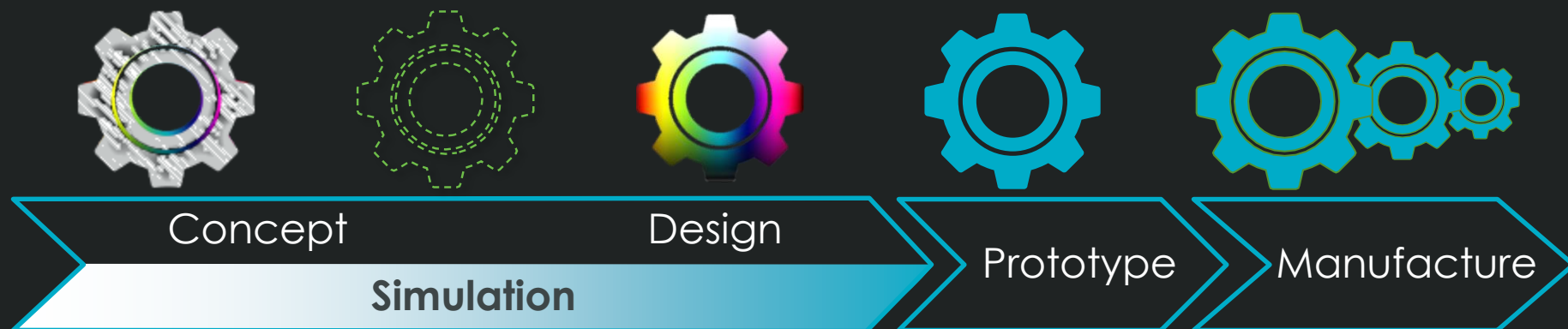
**Partnership provides  
best and broadest  
portfolio of  
engineering simulation  
software**



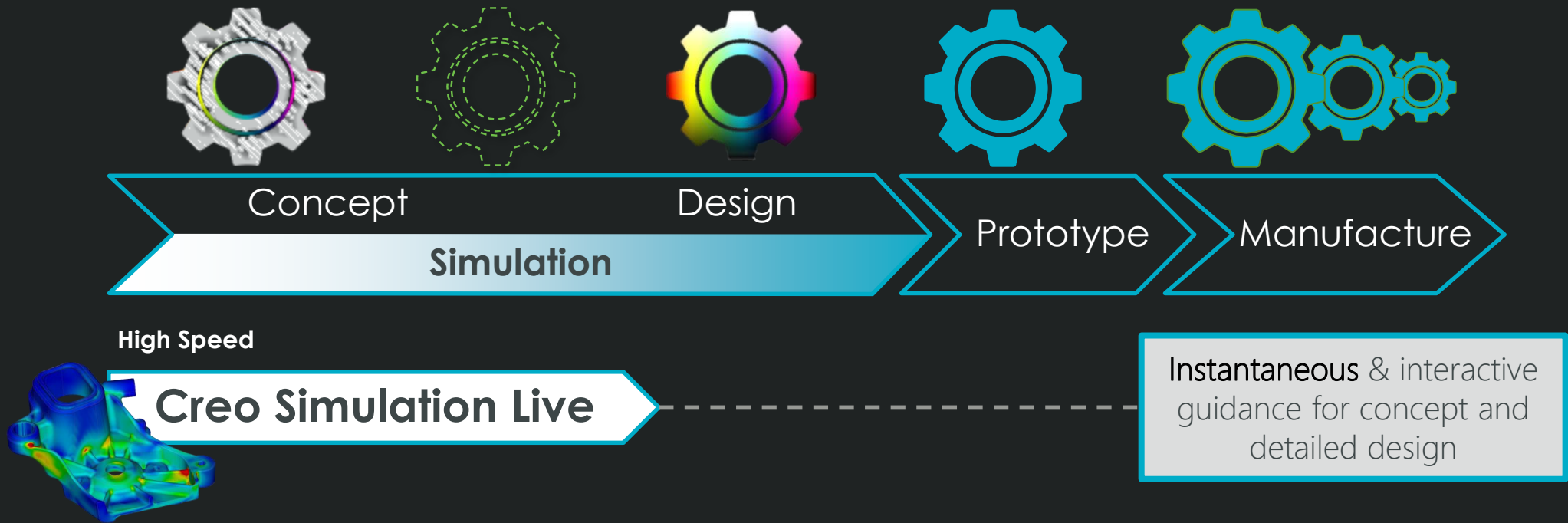
**PTC and ANSYS will put  
the power of gold-  
standard simulation at  
the fingertips of the  
Design Engineer**

**PTC and ANSYS are working together to embed the ANSYS Discovery simulation  
engines natively within the PTC Creo Parametric environment**

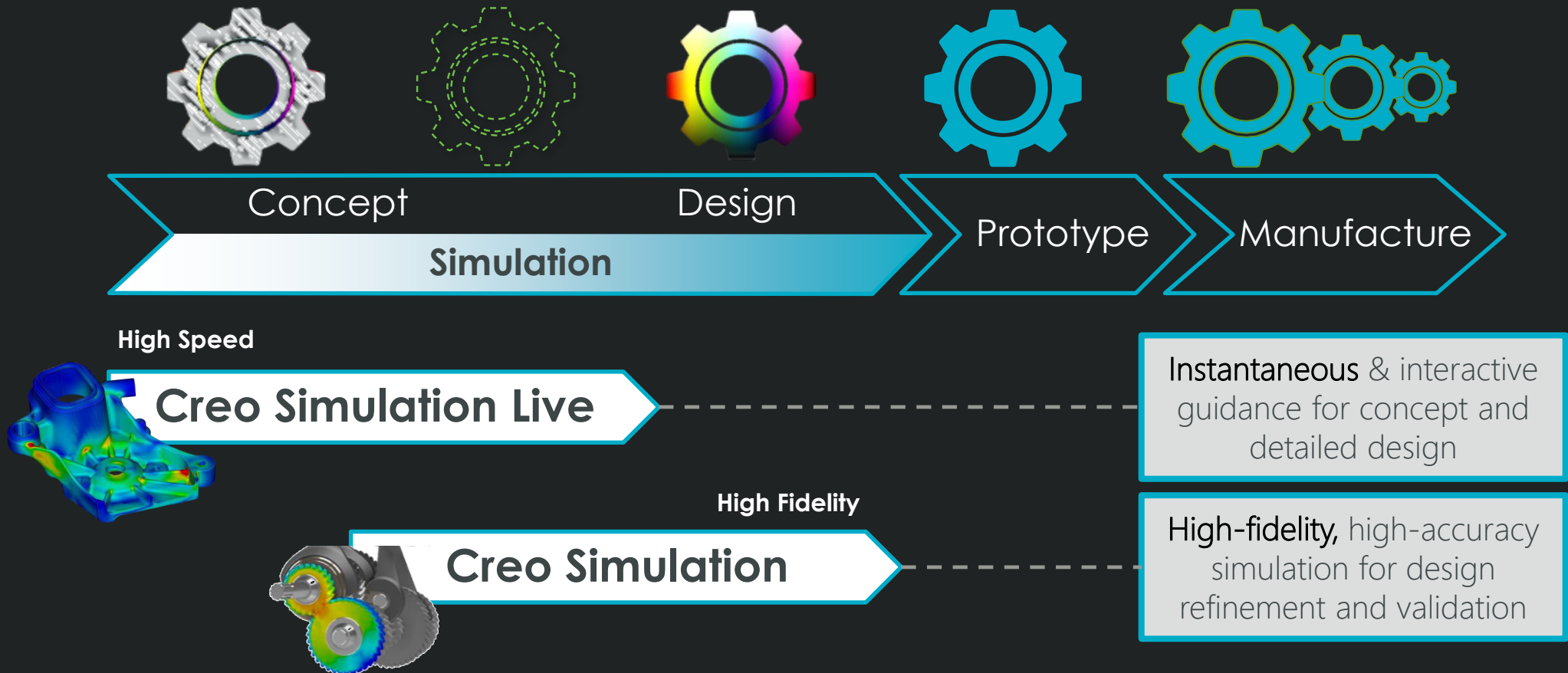
# TRUE SIMULATION DRIVEN DESIGN



# TRUE SIMULATION DRIVEN DESIGN



# TRUE SIMULATION DRIVEN DESIGN



Creo Simulation Live offers a new paradigm in 3D design exploration, bringing real-time simulation into the hands of every engineer, fully integrated into Creo Parametric

## Creo Simulation Live Delivers:

- **Speed** – Instantaneous simulation experience for parts and assemblies
- **Ease of use** – Run 1st simulation in minutes
- **Geometry enabled** – Easily edit or create features while the analysis is running
- **Interactive** – Analysis results update dynamically as user makes geometry modification

## Capabilities include:



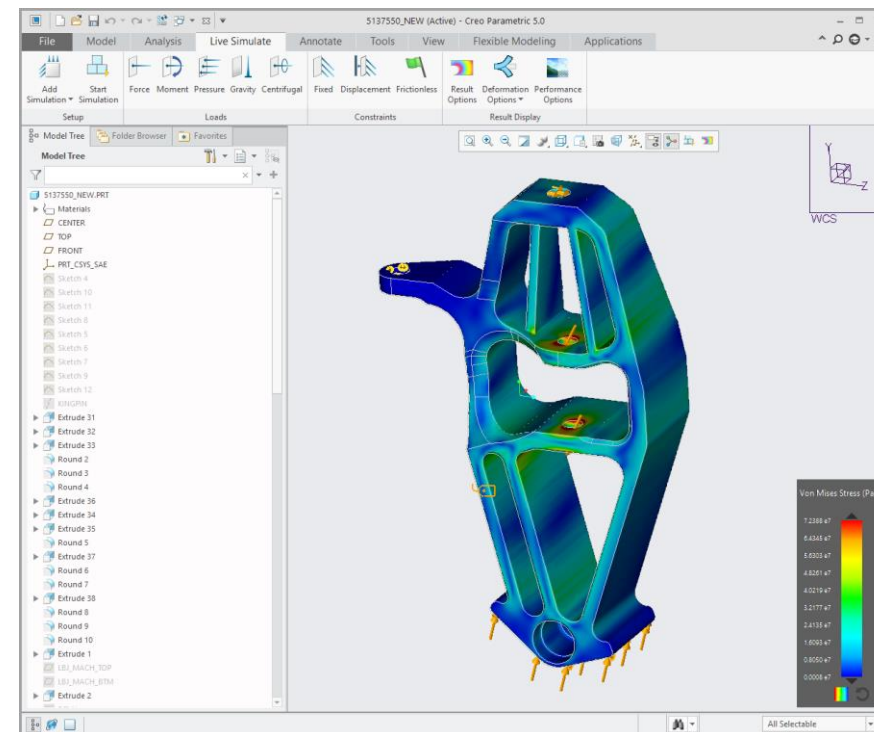
Structural



Thermal



Modal



DEMO:

CREO SIMULATION LIVE  
POWERED BY ANSYS



# CREO SIMULATION LIVE: CAPABILITIES

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- **Powerful linear solver**

- Rapidly define and perform **linear analysis for parts and assemblies**
  - Structural Simulation
  - Thermal Simulation
  - Modal Simulation
- **Automatic meshing algorithm** removing the need to manually mesh the model
- **Automatically result convergence** instantaneous without the need to simplify the model

 Structural

 Thermal

 Modal

# CREO SIMULATION LIVE: CAPABILITIES

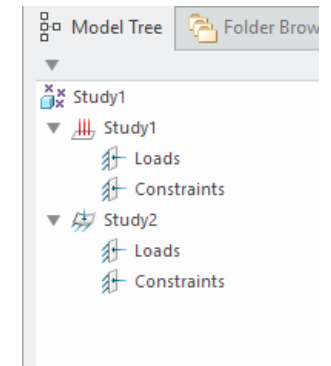
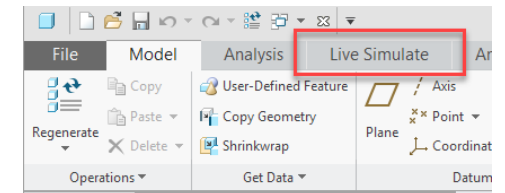
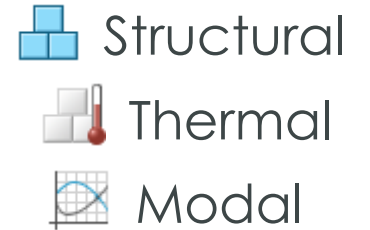


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- **Automatic meshing algorithm** removing the need to manually mesh the model
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- **Not a separate application**

- **Run seamlessly in the modeling environment** of Creo Parametric for both parts and assemblies
- A new **Simulation Live** tab that will define the setup details for Creo Simulation Live
- A new **Simulation Tree** will be available listing all the defined simulations created for the model
- **Create multiple simulations** per model which will be saved to the model
  - Only one simulation can be active at one time and do not influence other simulations
  - Toggle between simulations from the Simulation Tree

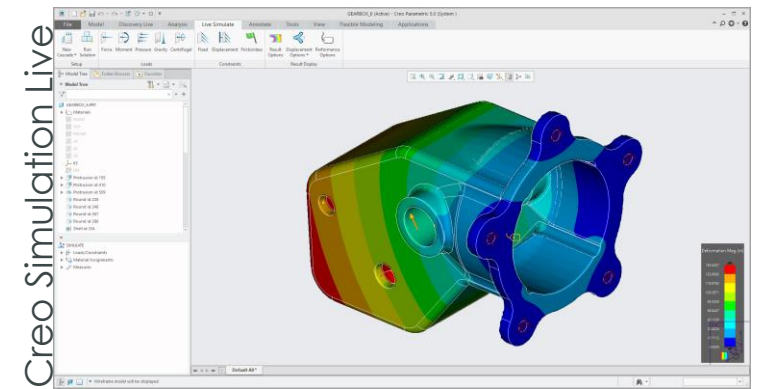
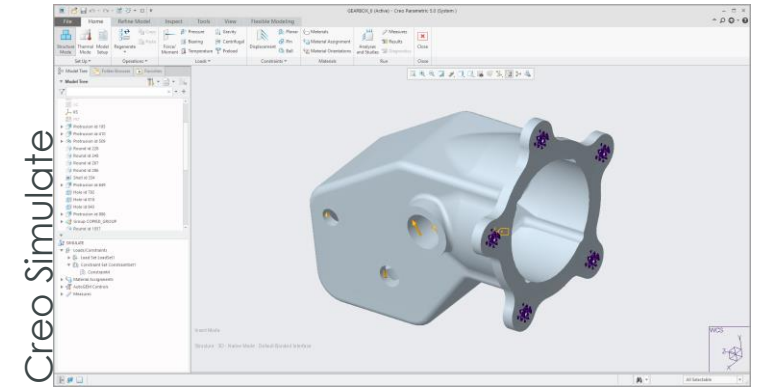


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- **Creo Parametric Modes**

- All assemblies will be defined as **bonded assemblies** and analyses will be performed on the Top-level only
- Analysis solver runs **continuously in the background** and provides updated results as user makes changes to their design
- Leverage analysis created in Creo Simulate in Creo Simulation Live and vice versa
- Creo Simulation Live to work seamlessly with Creo Design Exploration



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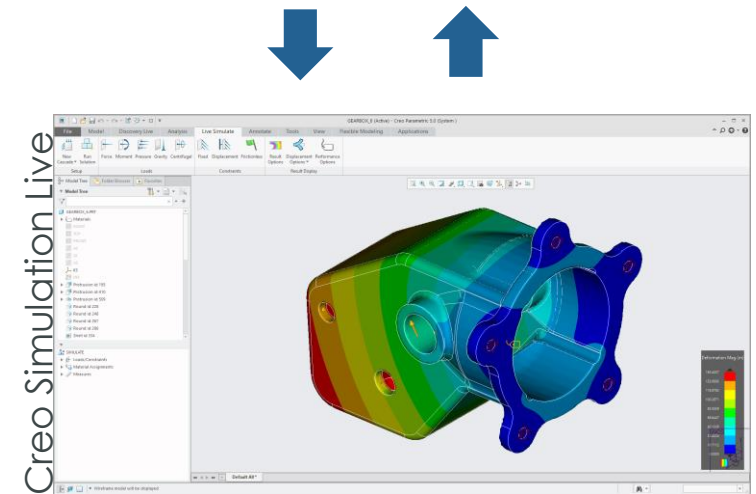
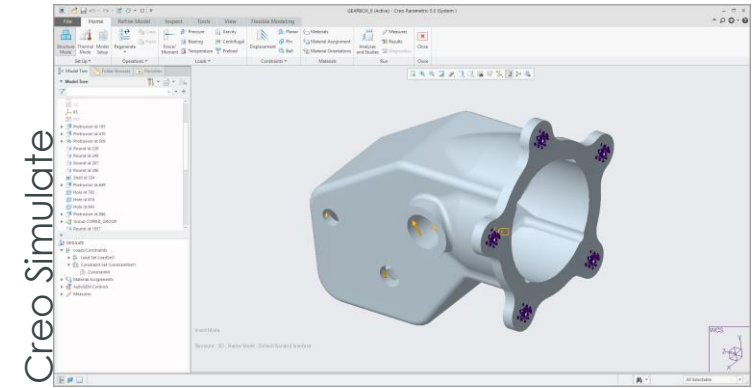


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- **Hardware Utility**

- Creo Simulation Live requires a system with a **NVIDIA CUDA graphics card**
  - **4 GB of RAM at a minimum** or for optimal performance have 8 GB+
- PTC will offer a hardware utility downloadable from [ptc.com](https://www.ptc.com) to check system requirements
- Creo Parametric will provide warning message when accessing Creo Simulation Live if the system is not supported

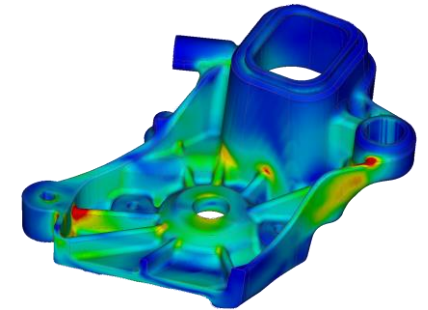
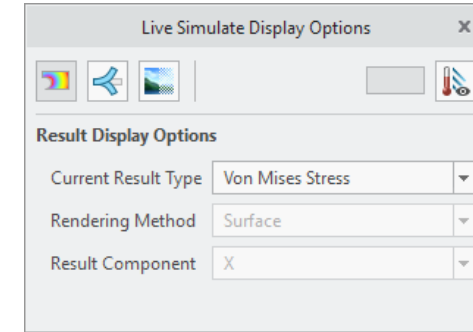


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- **Interactive Results**

- Access result **display options** from the Simulation Live tab or in-graphics toolbar (all modes)
- Change the display results based on the analysis type
  - **Structural** – Deformation, Von Mises Stress, Principle Stress, etc
  - **Thermal** – Temperature, Heat Flux
  - **Modal** - Deformation, Von Mises Stress, Principle Stress, etc
- Change the result rendering mode for simulation
  - Surface
  - Iso-Surfaces
  - Min/Max values

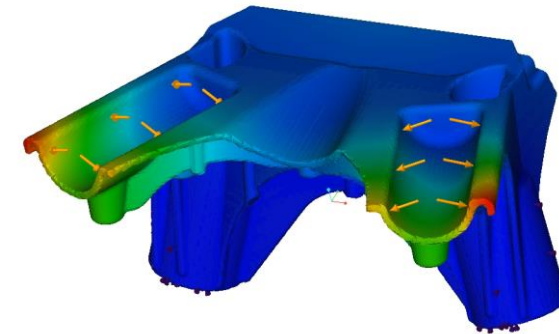
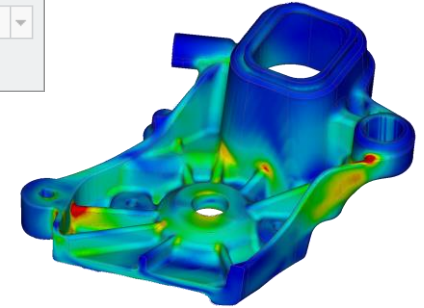
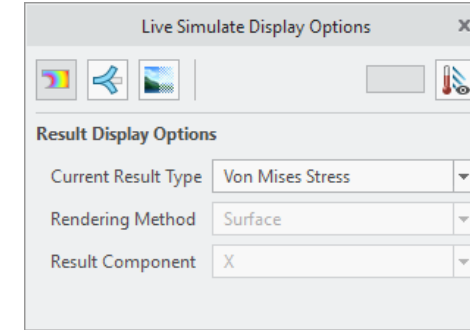




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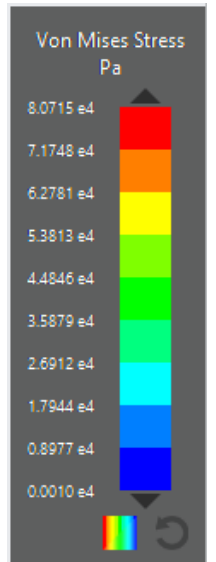
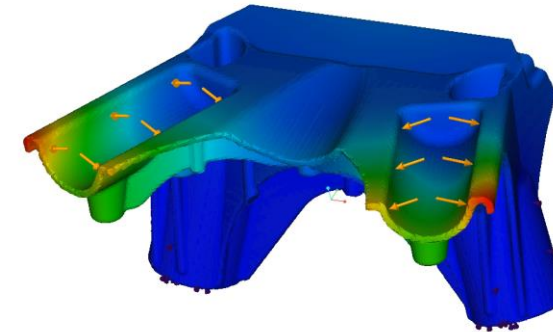
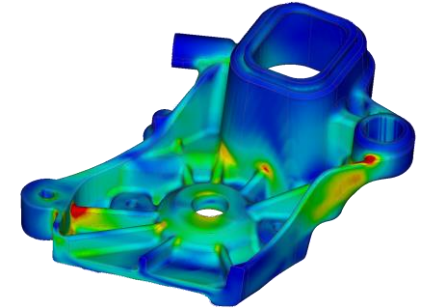
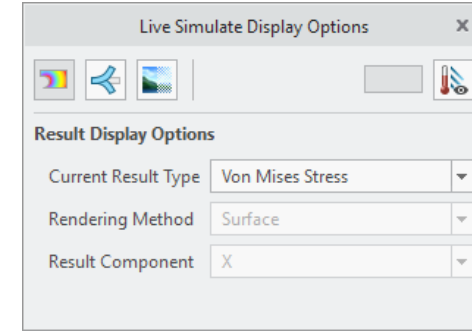
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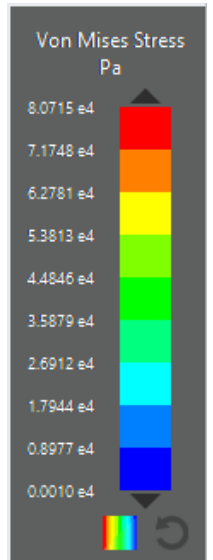
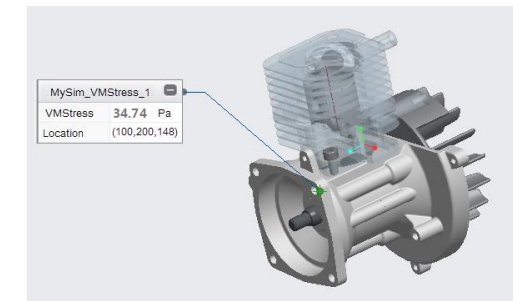
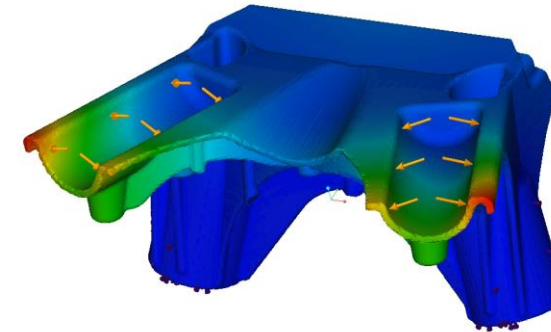
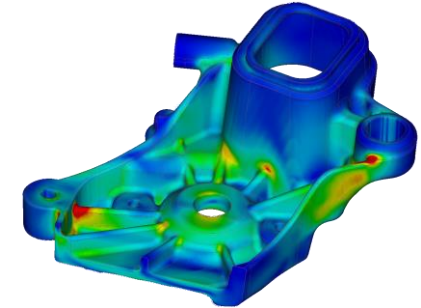
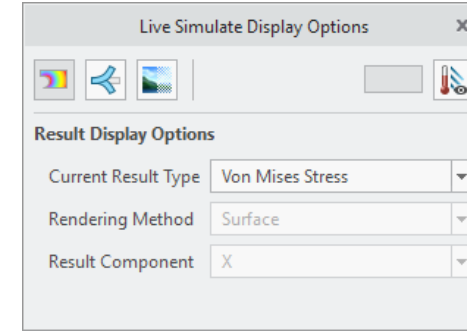
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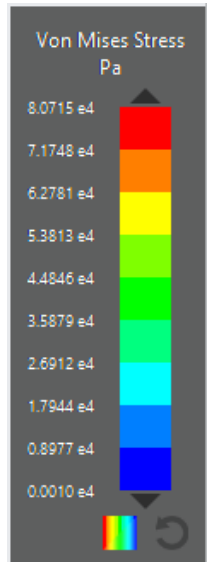
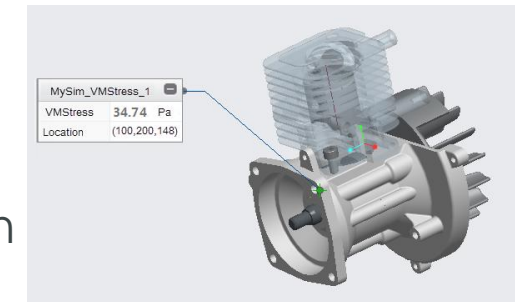
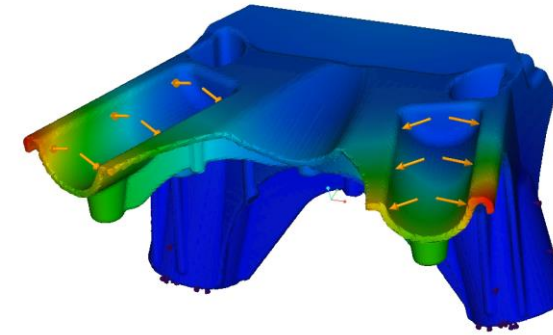
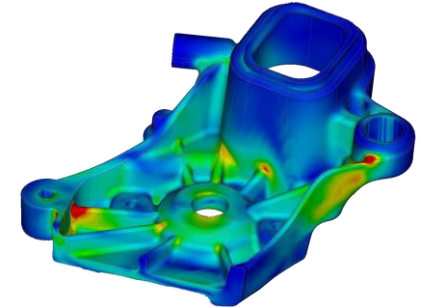
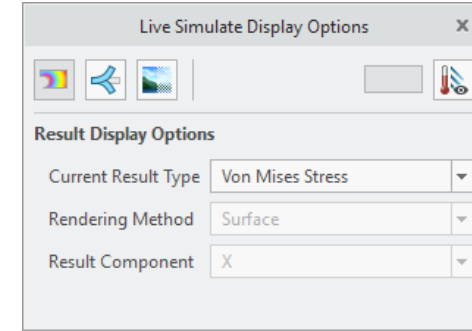
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- Query the model via **dynamic query or persistent probes**



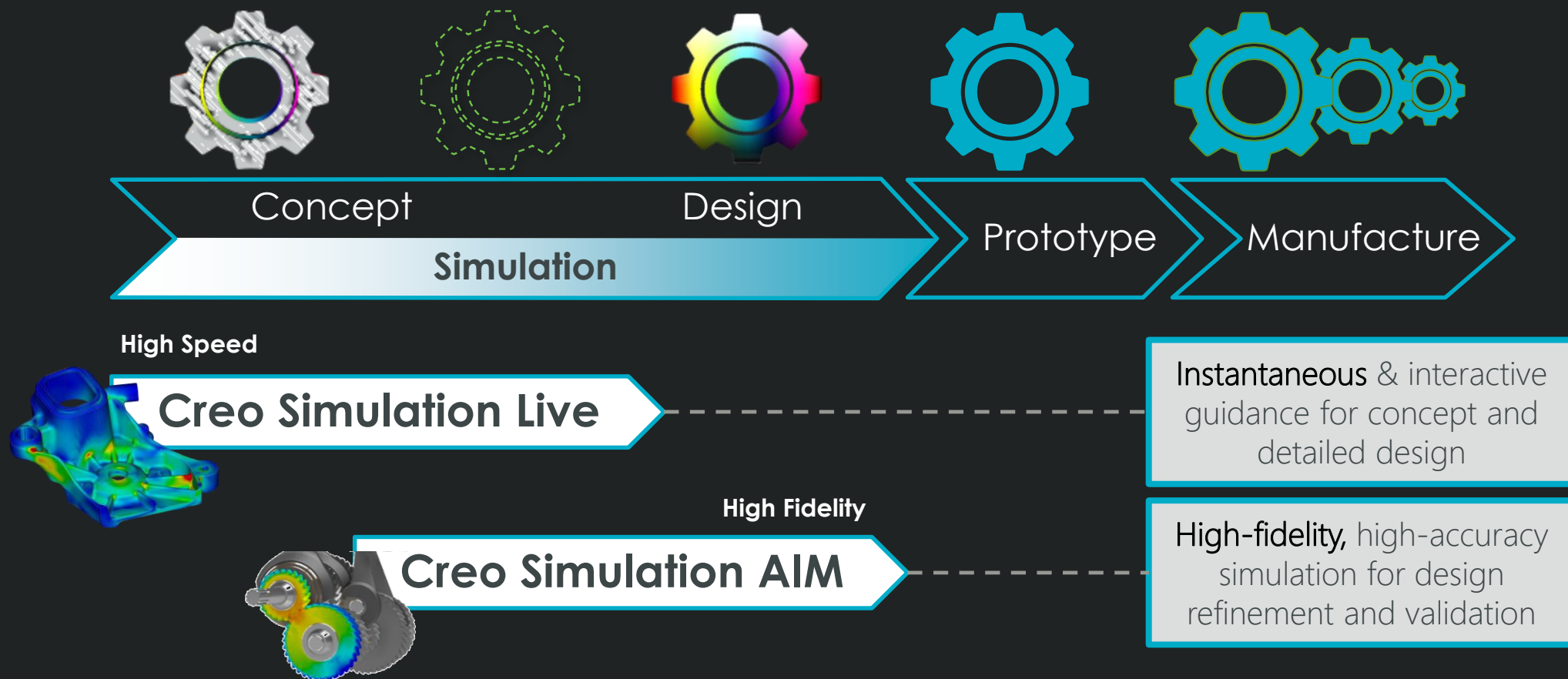
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- Query the model via **dynamic query or persistent probes**
- Highlight and annotate the min/max areas of the model in the graphics window
- Export results to a **HTML report** for downstream use



# TRUE SIMULATION DRIVEN DESIGN





Creo Simulation AIM provides an easy-to-use high-fidelity upfront simulation providing the ANSYS gold-standard for accuracy and speed, fully integrated into Creo Parametric

## Creo Simulation AIM Delivers:

- Ease of use – Learn in hours, not days or weeks
- Accuracy – Proven ANSYS solver and meshing technology
- Breath of capability – Solve a wide variety of analysis scenarios (linear and non-linear problems)
- Guided workflows – Design study schematic view of analysis (single or multi-physics)
- Extend Simulation Live simulations for additional fidelity and accuracy

## Capabilities include:



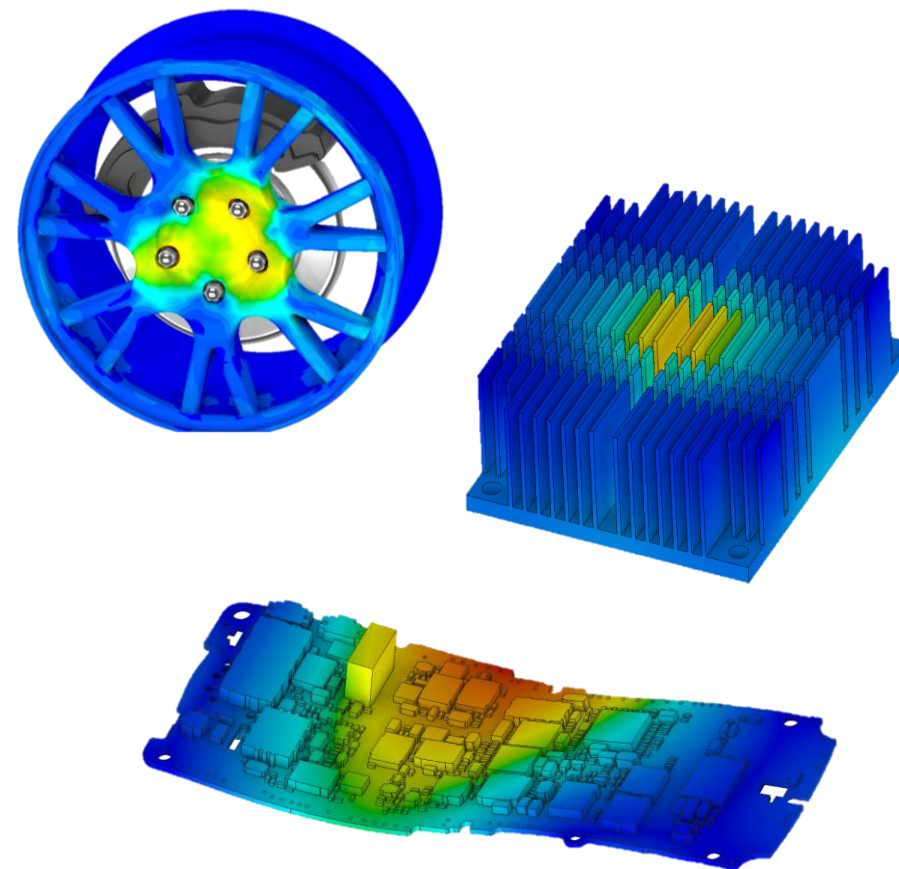
Structural



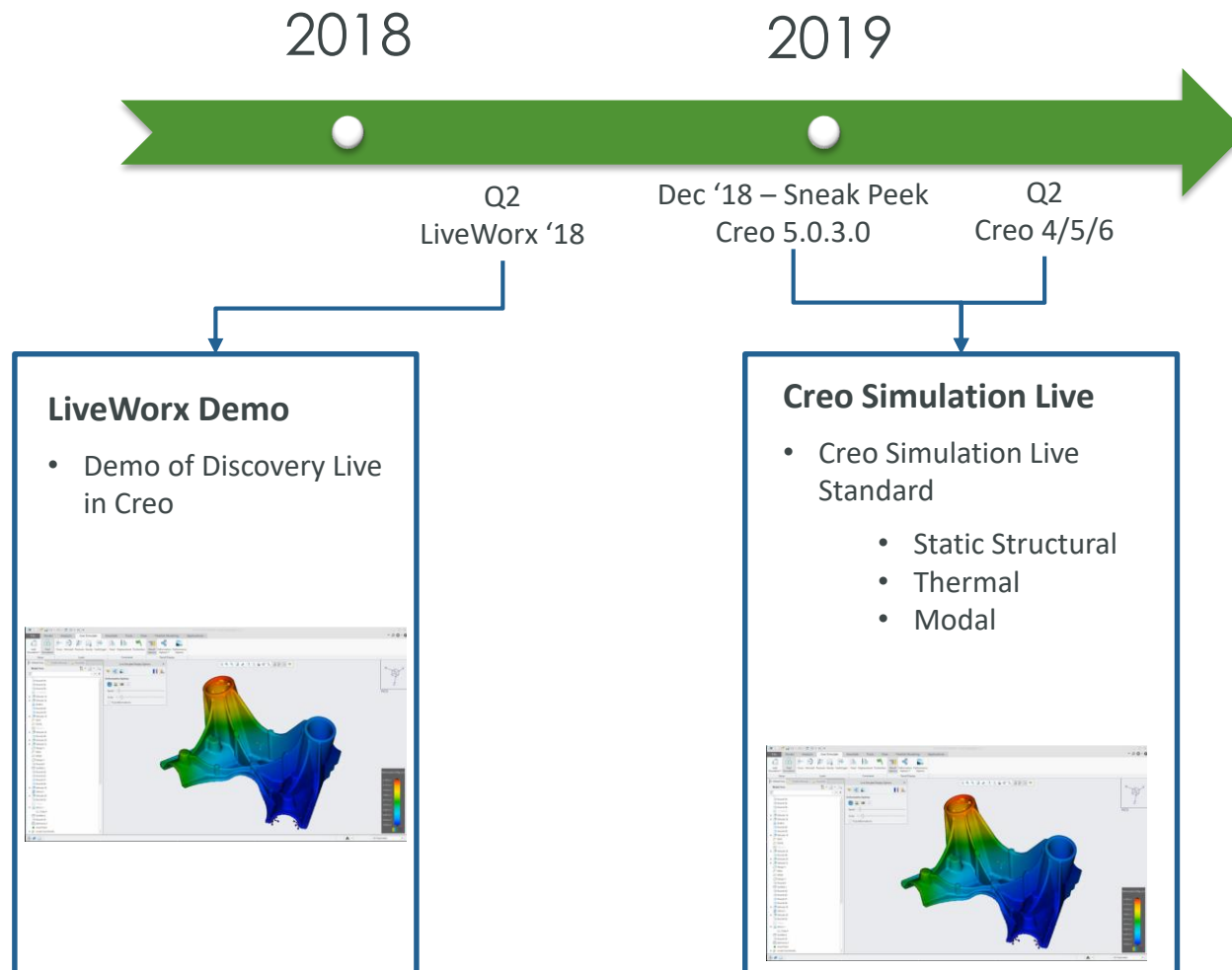
Thermal



Modal



# CREO SIMULATION LIVE ROADMAP



## Creo Simulation Live – Timeline

- PTC will release a **Creo Simulation Live Sneak Peek** as part of the Creo 5.0.3.0 maintenance build
  - Customer interested can download and register for the sneak peek
  - Customers will be given a 20-day license to try Creo Simulation Live
- **Production Release:**
  - PTC will official release Creo Simulation Live in the following builds:
    - Creo 4.0 M090
    - Creo 5.0.4.0
    - Creo 6.0.1.0





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