



Powering Innovation That Drives Human Advancement

Leveraging AI for Ansys Learning and Support

Sean Harvey

Senior Manager Technical Support - Ansys

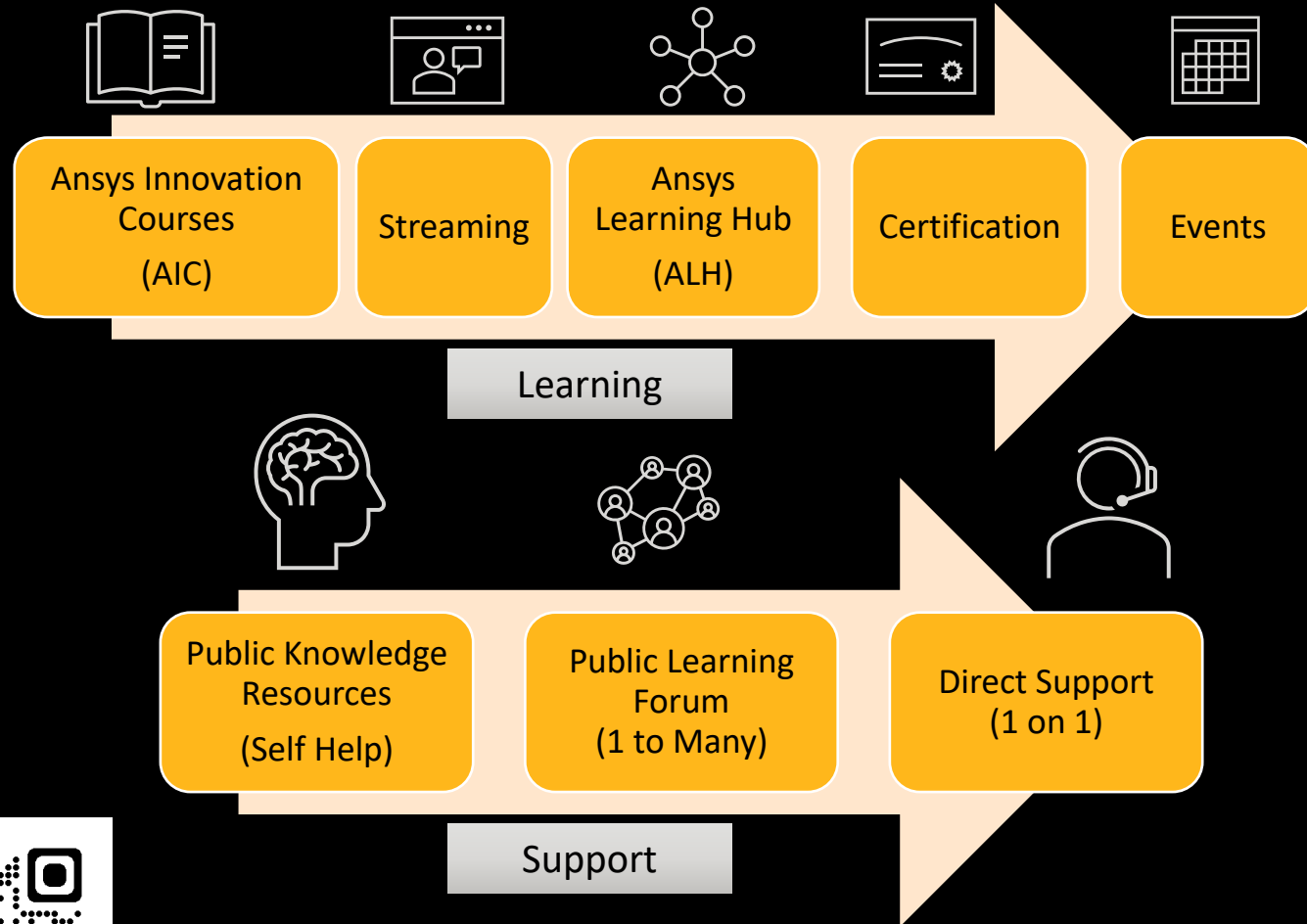
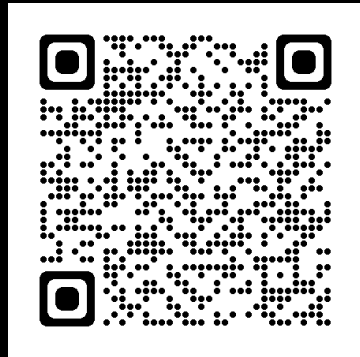
Outline

- **Ansys Innovation Space** – Brief Recap
 - Setting the foundation for AI
 - Updates
- Enhancing Customer Adoption through Multiple Support Avenues
- **AnsysGPT**
 - Background
 - Video Demo
 - As a dataset
 - What's Next?

Recap of Ansys Innovation Space



ansys.com/innovation-space



Ansys Innovation Courses (AIC)

374+ award-winning, free, online physics and engineering courses designed for educators, students and engineers to enhance simulation and physics learning.



Courses categories include:

FLUIDS

ELECTRONICS

PHOTONICS

MATERIALS

PYTHON



STRUCTURES

STEM

STUDENT TEAMS

MISSIONS

MORE...

My Workspace – Track everything in one place.

Ansys Innovation Space Search AIS Search... **FREE STUDENT SOFTWARE** Sean Harvey

Home My Forum My Articles My Learning My Credentials My Feed My Events My AnsysGPT Tokens

MY LEARNING

92 Enrolled 0 Completed 68 In Progress 0 Bookmarks

COURSES

Course Name	Progress
Ansys Customer Support Space	0%
Fluid Simulation	25%
Conjugate Heat Transfer	33%
Structural Simulation	25%
Intro to Crystal Plasticity Modeling in Ansys Mechanical	20%
Damping Effects	43%

[Go to My Learning >](#)

CERTIFICATIONS

Certification Name	Progress
Overview of Stents	60%
Foundations of Heat Transfer using Ansys Mechanical	0%
Stent Deployment	0%
Vessel and Plaque Representation	25%
Modeling of Stents	0%

MY CREDENTIALS 0 Badges

TRANSACTIONS 0 Pending 0 Completed

Marketplace – Certification, Badges and More

The screenshot displays the Ansys Innovation Marketplace interface. At the top, there is a navigation bar with the Ansys logo, 'Ansys Innovation Space' with a dropdown arrow, a search box labeled 'Search AIS', and a user profile for 'Sean Harvey'. A yellow banner for 'FREE STUDENT SOFTWARE' is also visible. Below the navigation, a horizontal menu lists regions: 'US and Canada', 'India', 'ASEAN' (highlighted), 'Mexico', 'South Europe', and 'Central Europe'. The main heading is 'Ansys Innovation Marketplace', followed by the subtitle 'Course Completion Badges, Certifications and Learning Cloud Products from Ansys and Partners'. A large section titled 'Select Your Region' features four cards, each with a map and text: 'Ozen Marketplace' for the United States and Canada, 'CADFEM Marketplace' for India, 'CADFEM Marketplace' for Singapore, Malaysia, Thailand, Indonesia, Vietnam, and Philippines, and 'GrupoSSC Marketplace' for Mexico. A vertical sidebar on the left contains various icons for navigation. The Ansys logo is in the bottom right corner of the page.

Ansys Innovation Space

Search AIS

Search...

FREE STUDENT SOFTWARE

Sean Harvey

US and Canada India **ASEAN** Mexico South Europe Central Europe

Ansys Innovation Marketplace

Course Completion Badges, Certifications and Learning Cloud Products from Ansys and Partners

Select Your Region

- Ozen Marketplace**
United States and Canada
- CADFEM Marketplace**
India
- CADFEM Marketplace**
Singapore, Malaysia, Thailand, Indonesia, Vietnam and Philippines
- GrupoSSC Marketplace**
Mexico

Gain an Industry Edge with Ansys Certifications and Digital Badges



"I believe that this Ansys Certification allowed me to stand out in the SpaceX interview process and showed I was developing new skills, even outside the classroom," says Butts. "It also did a good job further developing my skills in Ansys [software] and prepared me for my job."

- Ronan Butts, aerospace and mechanical engineering student at West Virginia University

- Completed the [Ansys Associate Certification: Physics of Structural Mechanics](#)
- Credits Ansys Certifications for giving him a competitive edge in his SpaceX internship interview process
- Ultimately hired at SpaceX to work on a components team for its spacecraft, Starship



"I took the certification to represent my experience in fluids to employers and to understand more about how Ansys software completes and represents CFD results."

- Cara Fox, mechanical engineering student at Queen Mary University of London

- Completed the [Ansys Associate Certification: Basics of Fluid Dynamics](#)
- Pursuing a master's mechanical engineering degree
- Hopes to showcase a range of skills for future industry positions



"Having the Ansys Certification has helped me greatly with job readiness. A few project opportunities have come up where I've been able to take advantage of and use Ansys, given my certification in the program. I highly encourage others to obtain the Ansys certification or badge to add it to their tool belt of skills one could offer to a role or company."

- Kayla Mennillo, senior engineer at Pratt & Whitney

- Completed the [Ansys Associate Certification: Fundamentals of Compressible Flows](#)
- Pursuing a master's degree in mechanical engineering from University of Hartford in Connecticut while working in industry
- Credits Ansys Certifications in preparing her for a career in the industry and graduate-level coursework

Access to Ansys Innovation Space from Product

The screenshot displays the Ansys Mechanical Enterprise software interface. The main window shows a 3D model of a stent with a deformation plot. The 'Learning and Support' ribbon is highlighted, featuring icons for Innovation Courses, Learning Hub, Knowledge, Learning Forum, Customer Portal, Mechanical Help, Scripting Help, and What's New?. A callout window provides a detailed view of the 'Learning and Support' ribbon, including the 'Outline' panel and a table of results.

Learning and Support Ribbon:

- Innovation Courses
- Learning Hub
- Knowledge
- Learning Forum
- Customer Portal
- Mechanical Help
- Scripting Help
- What's New?

Outline Panel:

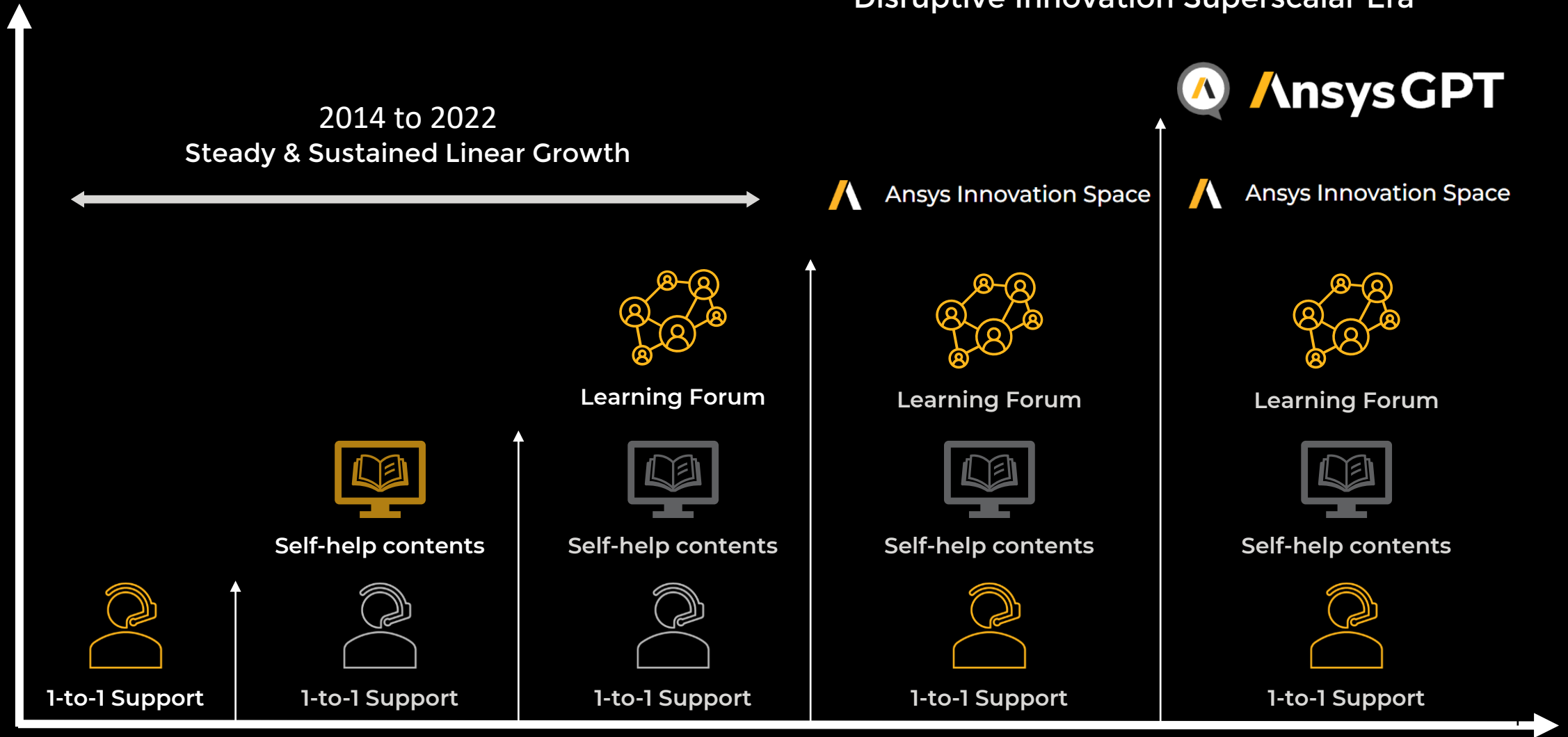
- Project*
- Model (A4)
- Geometry Imports
- Geometry
- Beam (Circle)
- SYS(Surface)
- Materials
- Gross Sections
- Coordinate Systems
- Remote Points
- Connections
- Mesh
- Named Selections
- Static Structural (A5)
- Analysis Settings
- Remote Displacement
- Remote Displacement 2
- Solution (A6)
- Solution Information
- Total Deformation
- Equivalent Stress
- Directional Deformation
- Contact Tool
- Beam Tool
- Deformation Probe
- Element Reaction

Results Table:

Item	Value
1	4.e-002
2	8.e-002
3	0.14
4	0.23
5	0.365
6	0.39
7	0.39625
8	0.4025
9	0.4027
10	0.4029
11	0.4031

Enhancing Customer Adoption through Technical Support Avenues

Disruptive Innovation Superscalar Era



Ansys AI - Transforming Simulation at the Speed of AI



Ansys AI+

AI Add-ons to Ansys products across portfolio



AI Add-ons to various Ansys simulation products that enhance simulation

Various Improvements

Ansys SIMAI

ML platform for simulation across the physics



Extremely fast and reliable physics predictions which learns from existing data

10x to 1000x Faster

Ansys GPT

Virtual assistant to Ansys products



Natural language assistant for documentation, training

Simple & Natural UX

AnsysGPT Virtual Assistant



A virtual assistant designed to assist users with Ansys specific knowledge.



Provides **high quality responses in minutes** by tapping into a vast database of Ansys public knowledge.



Holds conversations in **multiple languages**.



Scalable & secure deployment to customers on Ansys Innovation Space.



Built using Azure OpenAI service to ensure **fully compliant** with enterprise data privacy.



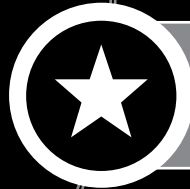
AnsysGPT Differentiators



Generates responses true to the relevant granular Ansys knowledge.



Near-zero hallucinations.



Reliable, efficient, user friendly.



Compliant with enterprise data governance

Multilingual Conversations with AnsysGPT



/ Hold
conversations in
multiple languages



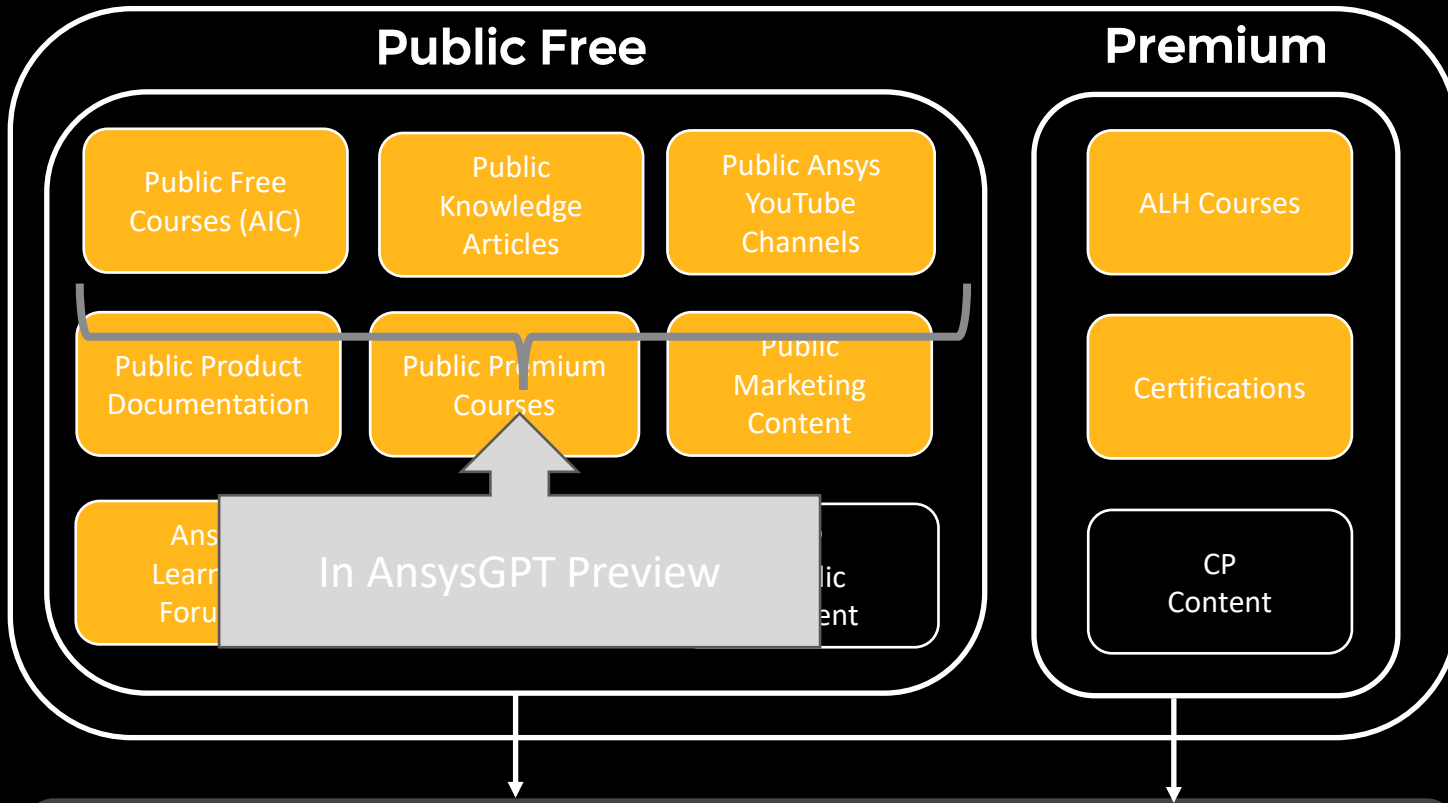
/ No more language
barriers with
AnsysGPT



/ Engage with users
globally with
multilingual capabilities

Scope of AnsysGPT Knowledge

Generic Data



AnsysGPT Knowledge Database

Generic, no customer data, no PII, no ITAR

/ Fully approved & documented audit trail



AnsysGPT as a dataset plugin



A Data "Plugin" of Ansys owned generic public dataset



Com domain knowledge



Single point access to Customer and Ansys content



License this plugin

Response from Ansys Knowledge

Response from Customer Knowledge

What are the preferred methods to model bolts at ACME Inc?

In Ansys Mechanical, bolts can be modeled in two primary ways: as a solid body or as a line body.

Modeling the bolt as a solid body allows for the representation of threads, the bolt head area, the bolt diameter, and more. It also enables the modeling of non-linear contact behavior between the bolt and the nut. However, this method requires a large number of nodes, which increases the computational cost.

On the other hand, modeling the bolt as a line body requires fewer nodes, thus reducing the solution time. This method provides a reduced stress state, but can still yield fairly accurate results in bending and axial loading.

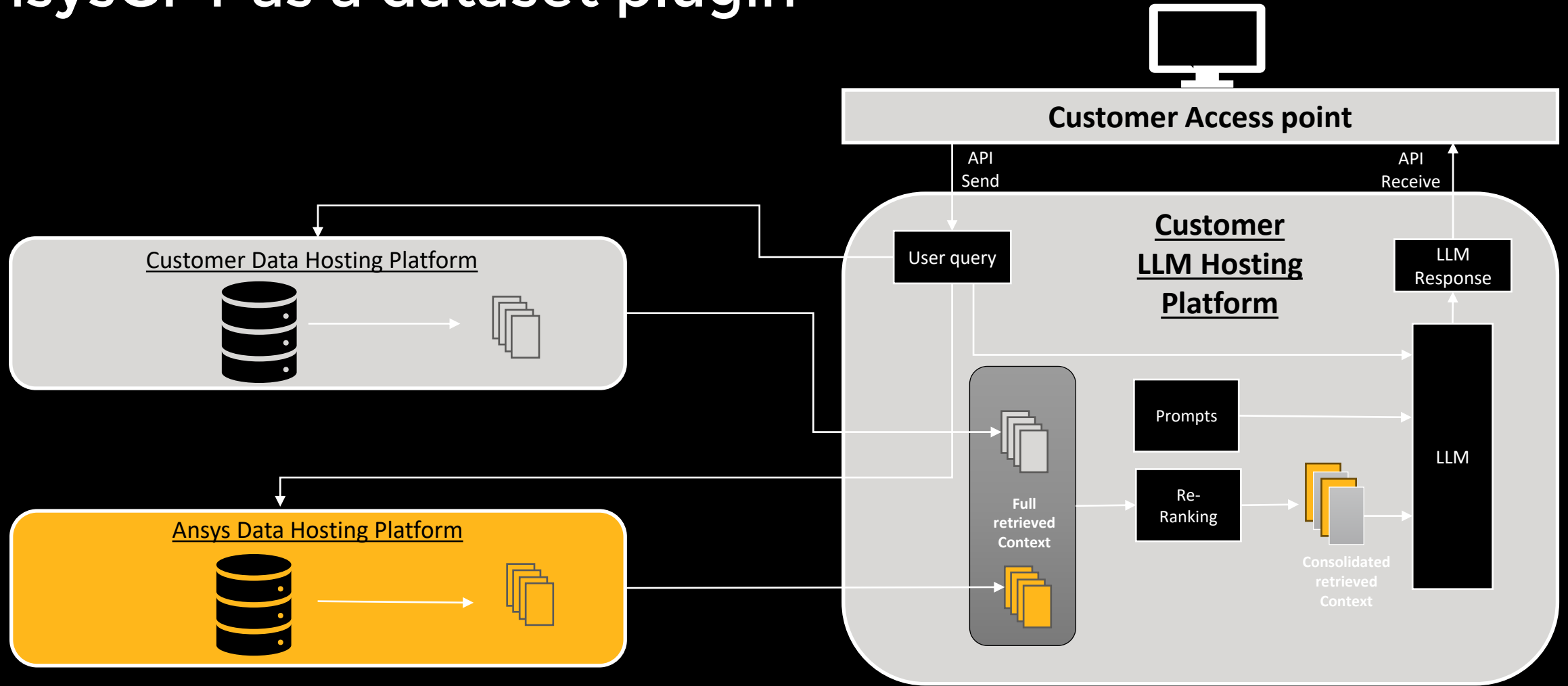
References: [1] Title: 'Modeling the Bolt and Preload | Ansys Innovation Courses', URL: '<https://courses.ansys.com/index.php/courses/modeling-the-bolt-and-preload/>'
[2] Title: 'Connecting Bolts with the Rest of an Assembly | Ansys Courses', URL: '<https://courses.ansys.com/index.php/courses/connecting-bolts-with-the-rest-of-an-assembly/>'

At ACME, the preferred method is to use a beam element to represent the bolt. This is per Structures Methods Manual 2.1. Then MPC equations are used to connect the beam to the surround mesh.

Reference: [1] Title "Structures Methods Manual", ACME Knowledge, 2021



AnsysGPT as a dataset plugin



Licensing AnsysGPT knowledge data as a service

What's next?

- Data, Data, Data – Our data engineering team is in full force.
- Staged rollout and expansion.
- Evaluating and Improving performance via a frequent build-test cycle.
- Expanding capabilities to expose AnsysGPT inside Ansys products to perform tasks such as, and subject to change:
 - Virtual Assistant.
 - Writing PyAnsys scripts.
 - Pre-processing workflow productivity.
 - Post-processing workflow productivity.
 - Non-linear convergence assistance.
 - Templated workflows.
 - And more..



The image features the Ansys logo on the left, which consists of a yellow slanted bar followed by the word "Ansys" in white. On the right, there is a large, stylized letter 'A' composed of a yellow slanted bar and a white slanted bar. The background is black.

Ansys