



2020 Vision of Engineering Analysis and Simulation
October 29 - 31, 2008 | Hampton, Virginia

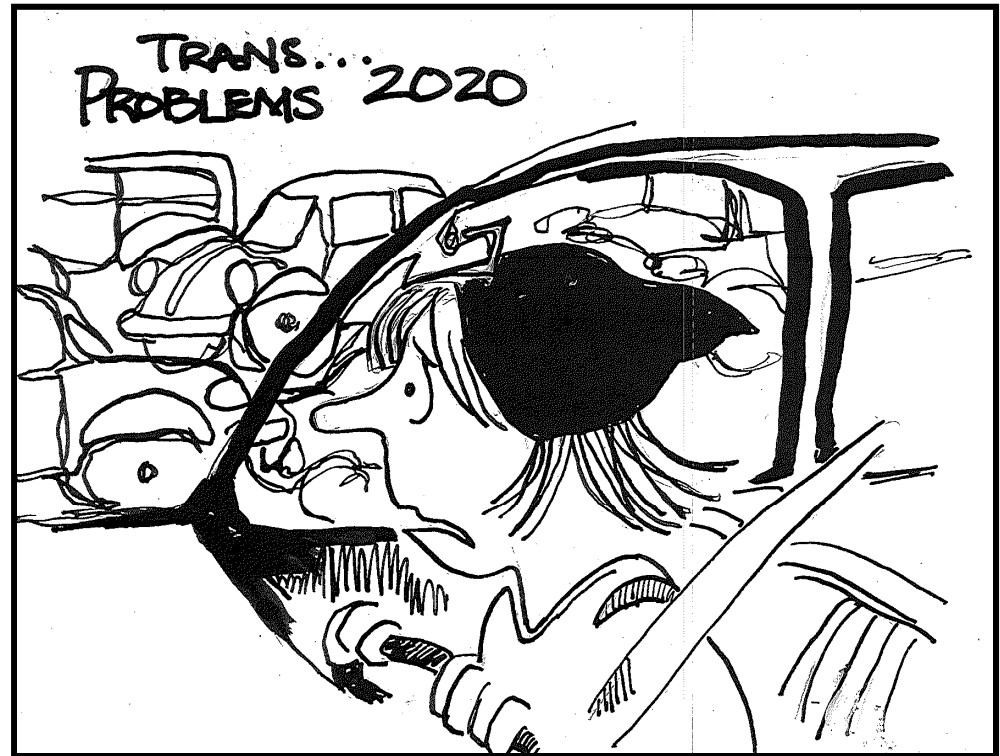
PLASVEE 2020 Proposal and ETA Technology Platform Review

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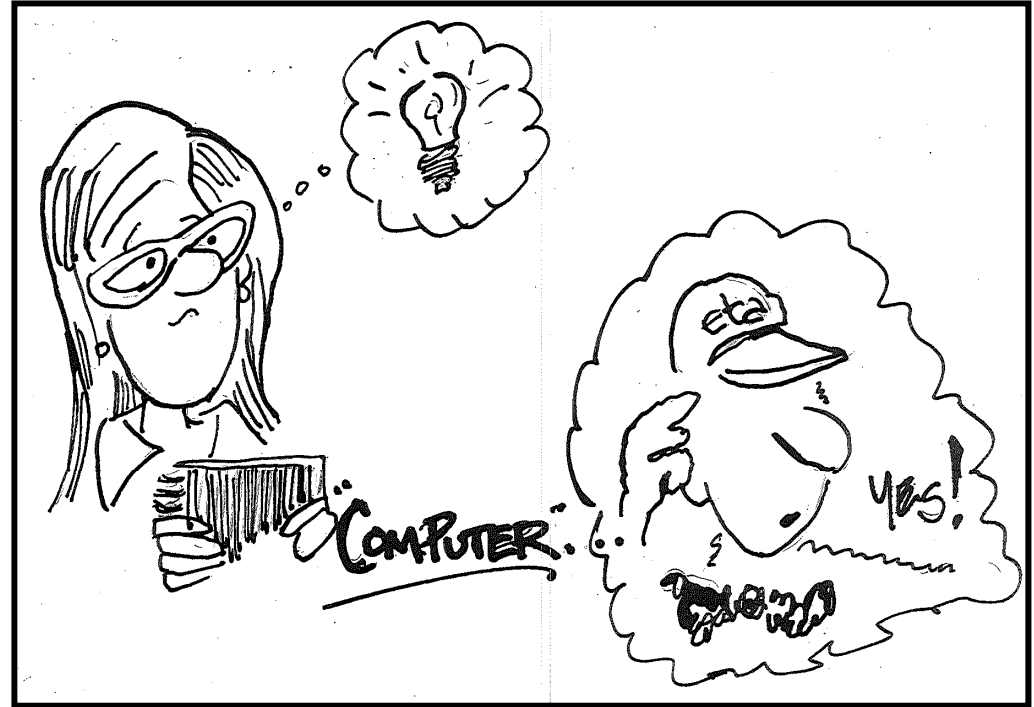
Design Motivation / Problem Statement

- The need for a new mode of transport taking advantage of air and sea to free up ground traffic growth is clearly upon us.
- We are pleased to present ETA's response to your RFQ



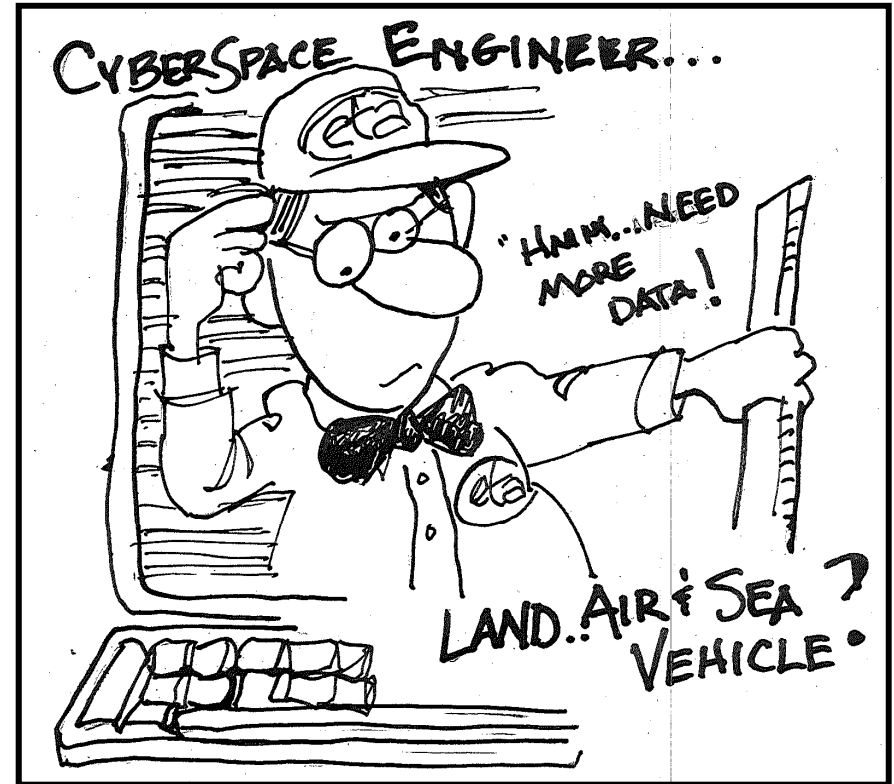
Understanding the “Product Creation Session”

- You are being offered a “**Product Creation Session**” with ETA’s Virtual Product Generator (**VPG**)
- You will interact with a “Virtual Engineer”
 - Natural Language Interface
 - A.I. Guided Product Creation Session
 - Requirements Document Interpreter



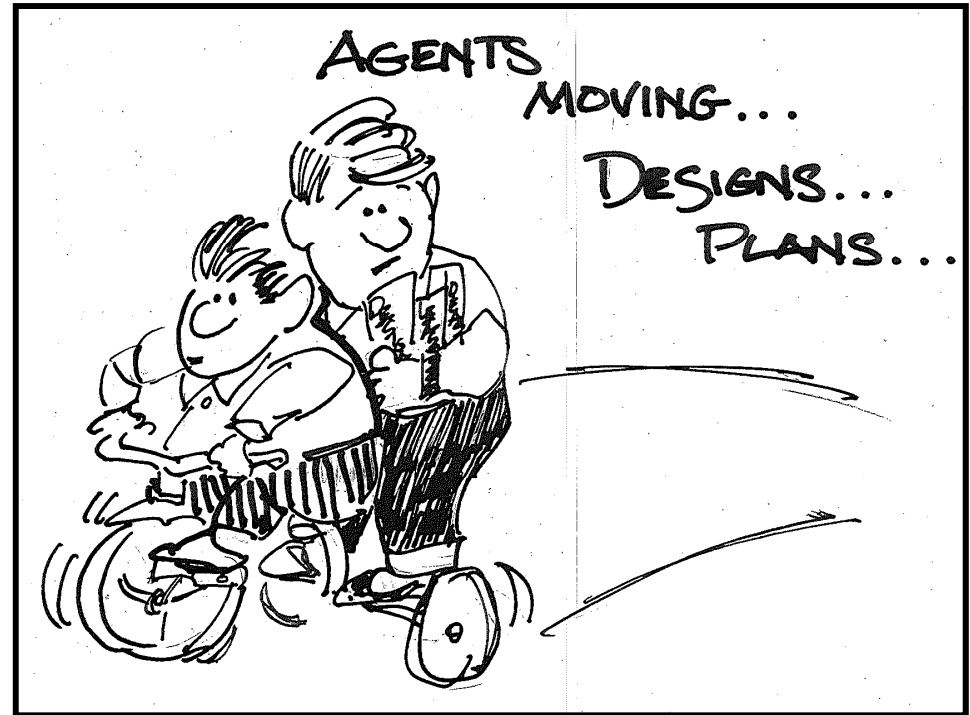
Understanding the “Product Creation Session”

- A “conversation” to
 - Gather Requirements
 - Understand Constraints
 - Provide early feasibility assessment
- Preliminary sessions indicate VPG will require approx.
 - 3 months to synthesize your design
- Estimated cost
 - \$1.25M US dollars.



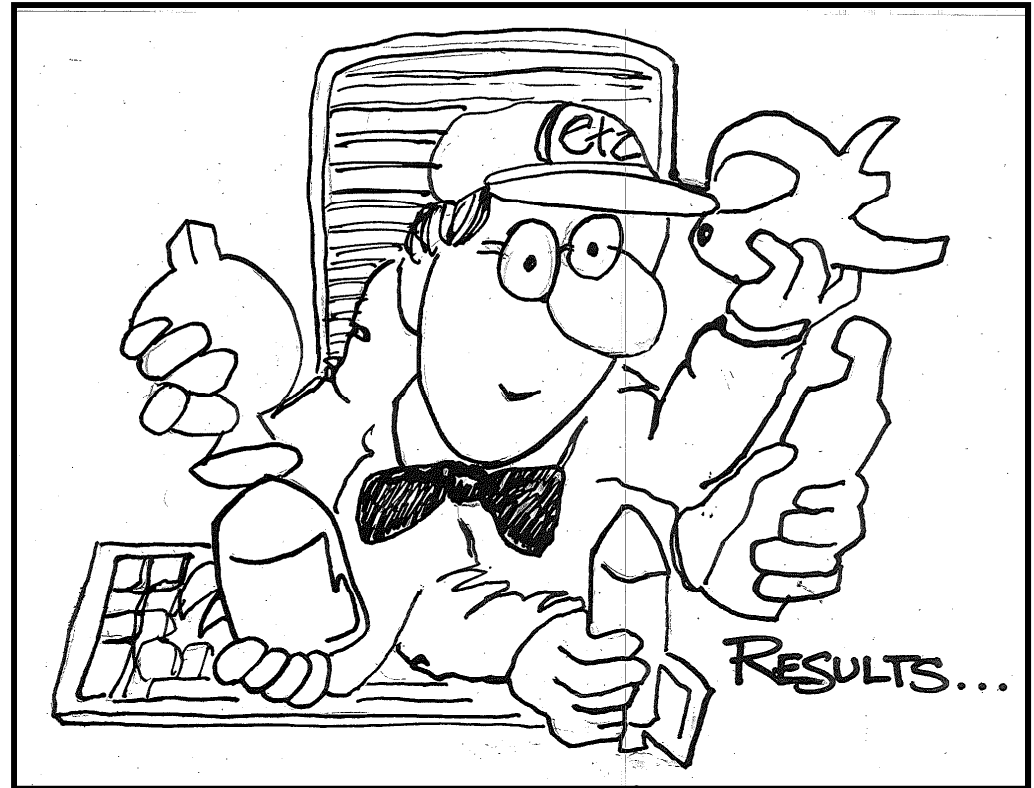
Understanding the “Product Creation Session”

- Post-Session, VPG will:
 - Model, Optimize & Evolve
 - numerous “**Virtual Prototypes**” of promising design alternatives
 - based on your requirements,
 - using what we used to call “CAE” in the **background**.
- Behind the scenes, VPG orchestrates a network of virtual **Intelligent Agents** (IA’s). They look after the details.



Understanding the “Product Creation Session”

- As design synthesis continues...
- Components designs are selected and integrated
- Alternatives are promoted and abandoned based on virtual test results
- The best balanced design alternatives emerge
- All the decisions made are supported by an auditable trail of virtual prototype evaluation and an ISO9000E, level 9 certified, interactive engineering knowledgebase

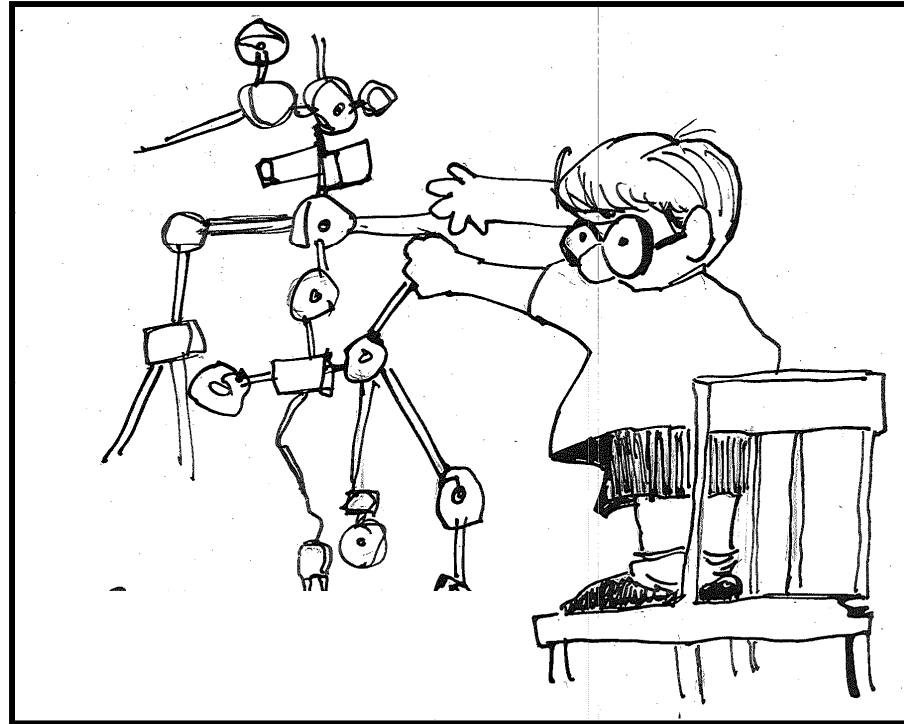


Understanding the “Product Creation Session”

- At the buyoff review, the final evolved designs are presented for approval
- Your purchase includes:
 - sourcing plans
 - manufacturing design
 - projected market performance study (optional)
- The only question remaining will be “cash, check or charge?”

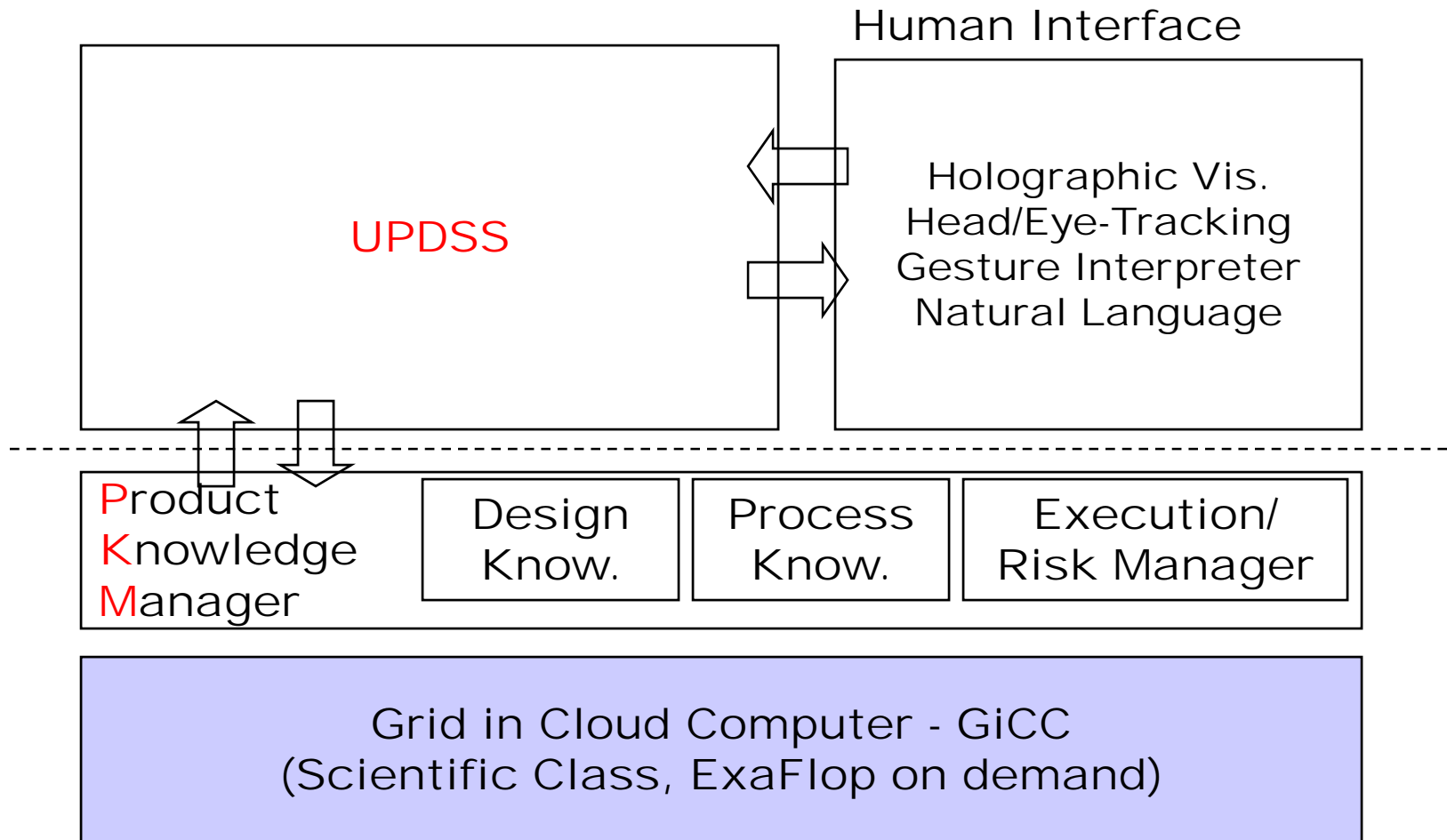


How Is This Put Together?

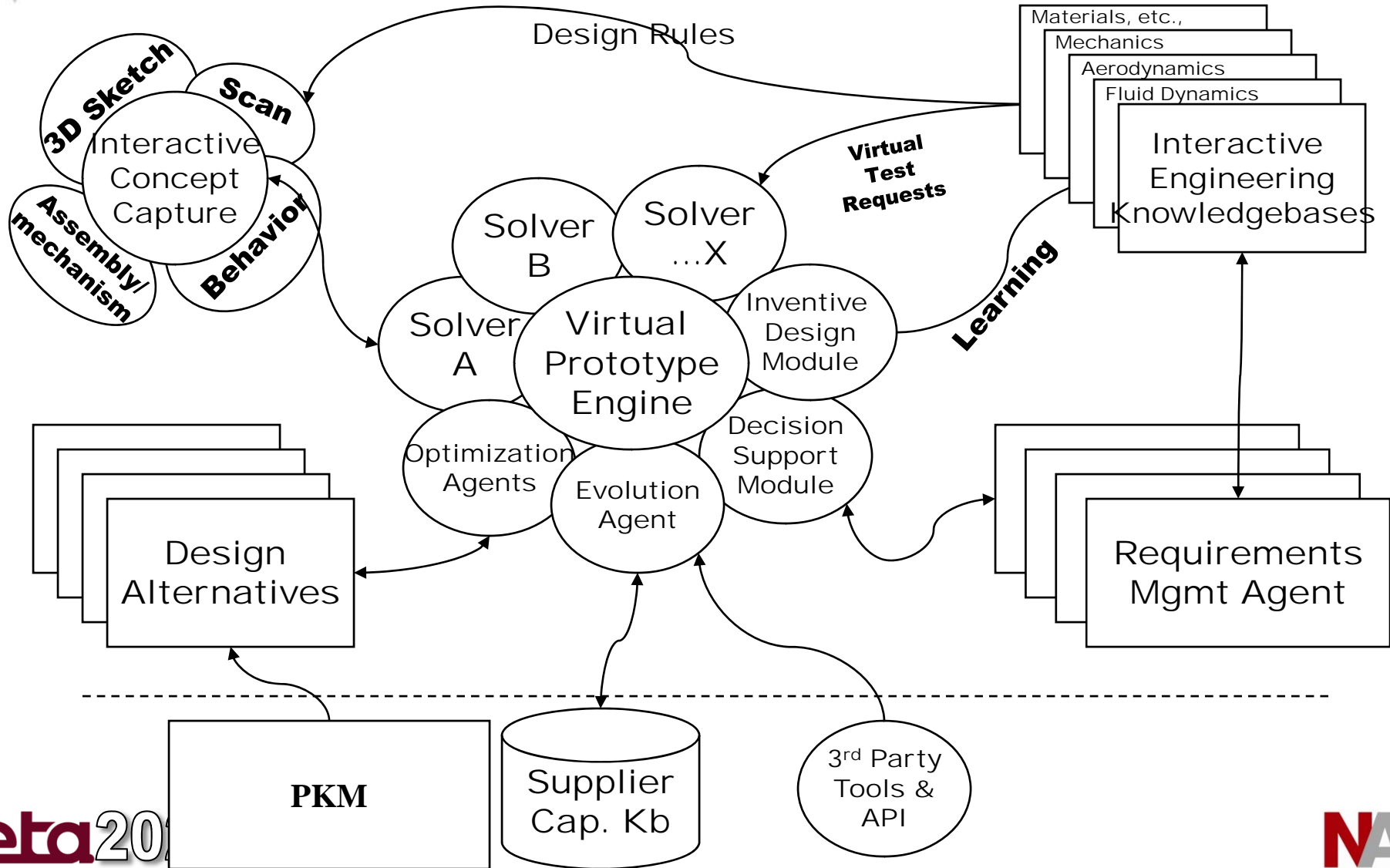


Shall we take a look “under the hood”?

Enabling Technology Platform under VPG



UPDSS – Universal Product Development Support System



2008 Technology Platform

Approx. 2008

Auto-Meshing Tools

Line & Surface

3rd Party Optimization S/W

Multi-CAD Interface



VPG/Structure

3.3
version

Multi-Solver interface

Fatigue



VPG/Safety

Multi-Solver Post

Full System Sim.

How this Platform Evolved

2008

2020

GigaFlop, Cluster

ExaFlop, Cloud

Foreground Automeshing

Background Model Generation

Design Optimization

Design Synthesis Engines

Search Engine

Search Agent

Intelligent Agent

Databases

Knowledgebase

Interactive Knowledgebases

Solver Neutrality

Solver Interchangeability

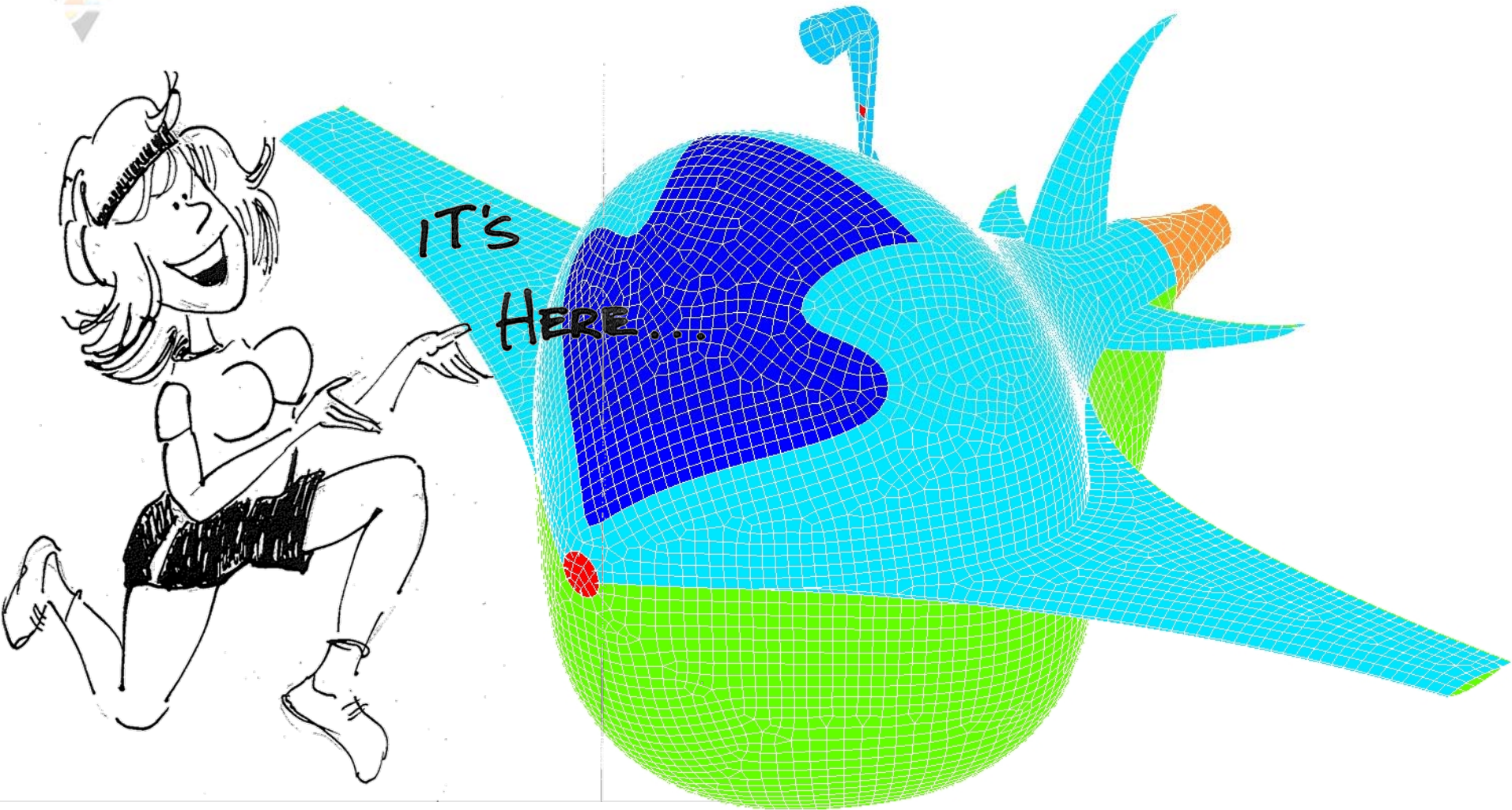
eta2020

NA

Current and Future Implications of the VPG Platform

- CAE and “Virtual Prototyping” has evolved to effectively produce a “Virtual Engineer”, in the form of VPG. VPG is essentially a composite of all the best engineers available - but faster and more consistent.
- Today, one or more human engineers are needed to interact with the system to describe a concept, provide “reasonable” requirements and allow VPG to produce well-conceived designs.
- We anticipate that within 5 years any articulate lay person with an idea and adequate capital will be able describe it to VPG and have it produce a usable design at a reasonable cost.
- THE highest value and most specialized engineering applications today are not CAE Tools; they are knowledge tools:
 - Validated Engineering KnowledgeBases
 - Knowledge capture, Classification & Context-based retrieval
 - Effective methods for correctly applying the correct knowledge to virtual prototypes

The 2020 PLASVEE – It is virtually here now



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Credits

All artwork cheerfully provided by Charles Hayden III.

