

CASC AHPDM Panel

March 16, 2011

Robert Graybill – President & CEO



- Is there a business impact on your firm due to the missing middle?
- If so,
 - Is it detrimental (how)?
 - Or has it created an opportunity (describe)?
 - Or both?
- How are you addressing it?
- How can ISVs, universities, national laboratories, and/or companies that have embraced modeling and simulation help you address this?



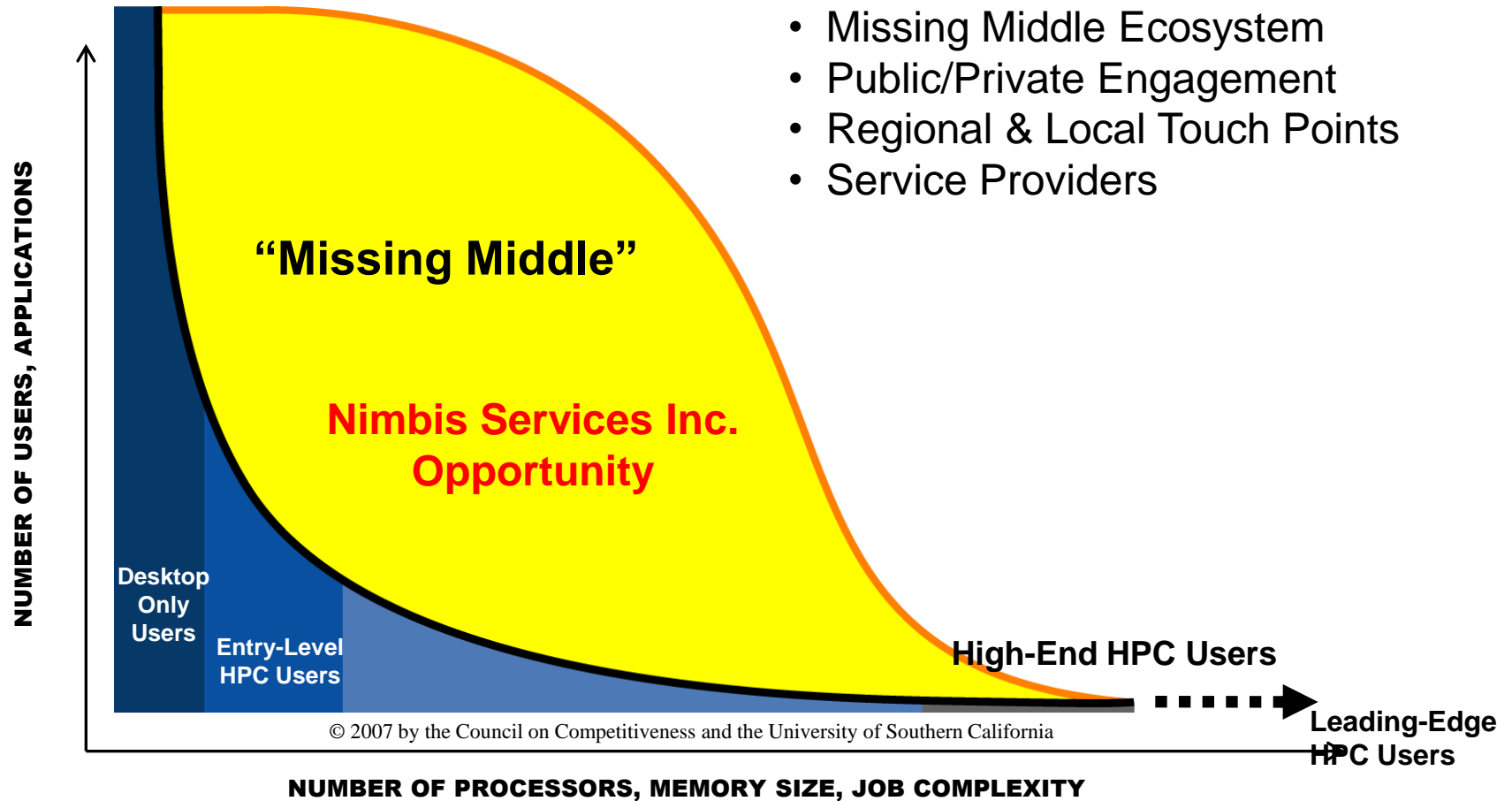
Competitiveness Transformation Challenge

Council HPC Advisory Committee Finding

CASC Missing Middle Panel

Key Factors

- Missing Middle Ecosystem
- Public/Private Engagement
- Regional & Local Touch Points
- Service Providers

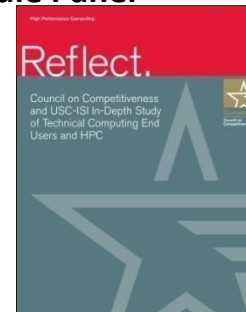


Council and USC ISI HPC Industrial Benchmark Surveys

Nimbis Market Motivation



CASC Missing Middle Panel



• Reveal Key Findings

- The primary barrier is **overall cost and ROI justification.**
- **Secondary barriers** include: 1) availability of easier-to-use domain-specific HPC application software, and 2) cost and availability of domain-specific expertise for using HPC.
- Over 60% of firms would be willing to pay outside consulting organizations (non-profits, engineering services companies, or major universities) for realizing the benefits of HPC. **They would be willing to pay from \$2K/month to \$10K/month.**
- **Two-thirds** of the firms were open to working over the **Internet to access remote HPC services.**



Nimbis Services – Commercial Marketplace

CASC Missing Middle Panel

Founded in 2008. Privately held corporation. McLean, VA.

1. We **broker access to HPC** platforms, applications, and expertise through partnerships with leading cycle providers, ISVs, and domain experts
2. We **build HPC cloud portals** using a common and easy to use interface, the online store with on-demand, low-risk, pay-as-you-go access.
3. We **provide HPC options** to experimental and periodic users stuck on the desktop that otherwise have no access to HPC; closing the “HPC Gap”.
4. We **make it easier and more affordable for desktop users** to exploit digital analysis computing for faster results and superior solutions.
5. We **enable our customers** to drive innovation, productivity, and cost-efficiency, resulting in superior products.



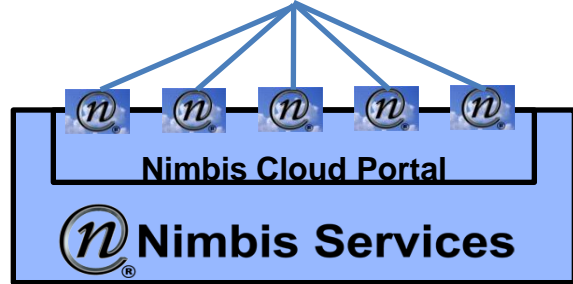
Nimbis Technical Computing Marketplace Community Roadmap

CASC Missing Middle Panel

Researchers Scientists Analysts Engineer



Desktop-only Users

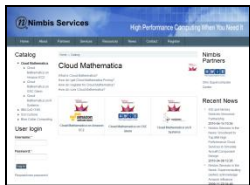


ISVs

HPC Datacenters

SaaS

Desktop User Portals



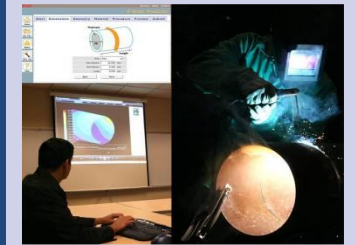
Nimbis Services
Enabling Solutions

Assistance

CRM



Industrial Users



Vertical APPS
"iPhone Like"

Design Flow Solutions



Regional PICs



NIMBIS SERVICES, INC.

Nimbis Marketplace

CASC Missing Middle Panel



High Performance Computing When You Need It

- Home
- About
- Management
- Partners
- Services
- Resources
- News
- Contact
- Register

Catalog

- ▶ Cloud Mathematica
- ▶ HPC Workbook
- ▶ SGI Cyclone
- Blue Collar Computing

User login

Username: *

Password: *

Log in

[Request new password](#)

Lowering HPC Barriers
Providing Low Risk Digital Analysis Computing Services
Supporting Periodic and Experimental Users
Providing a Choice
Enabling Information
Increasing ROI Across the Supply Chain

High Performance Computing When You Need It

Register for our Cloud Mathematica Beta Program

Wolfram Mathematica 7

Register for our HPC Workbook Beta Program

HPC Workbook

Powered by Windows® HPC Server 2008 R2 and Microsoft® HPC Services for Excel® 2010

Register for our SGI Cyclone Program

SGI® Cyclone™

Register for our HPC ITAR Portal Program

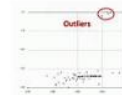
ITAR

Register for our Blue Collar Computing Program

Blue Collar Computing™
an initiative of the Ohio Supercomputer Center

More Programs Coming Soon...

Nimbis Partners



Decision Incite

Recent News

- Nimbis Services, Inc. Announces HPC Workbook for Desktop Users 2010-09-20 08:45
- SGI and Nimbis Services Announce Partnership 2010-04-14 10:36
- Nimbis Services in the News: Woodward to Tap IBM High Performance Cloud Services to Simulate Aircraft Component Design 2010-04-08 12:36
- Nimbis Services in the News: Supercomputing centers acknowledge Amazon influence 2009-11-20 04:48
- Nimbis Services and Ohio Supercomputer Center to offer ecommerce portal to industry 2009-11-05 01:00

[more...](#)

"HPC remains a largely under utilized competitiveness asset in the United States for the majority of companies. This represents a huge productivity opportunity for the nation and a competitiveness transformation challenge."



NIMBIS SERVICES, INC.

Workflow Summary

CASC Missing Middle Panel

Browse Catalog

Catalog

Select a Cloud Provider

Mathematica on Amazon EC2

Configure Job Options

Mathematica 7 on Amazon EC2 Standard Small

Pay for one Job

**Job Oriented
Single Notebook
Batch Submission**

Shopping cart

Submit One Job

Review order

View one Job

Job View

View all Jobs

My Jobs

Download Output

**Job = Your Notebook
+ Compute Resource
+ Mathematica +**

Time



NIMBIS SERVICES, INC.

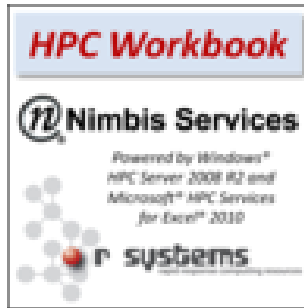
Page 8

2011.03.10

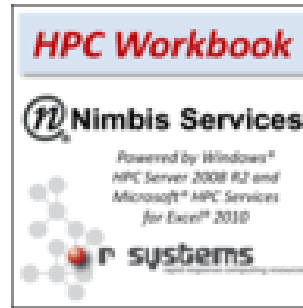
The screenshot shows the Mathematica 7.0 interface. A 'Download complete' dialog box is open, displaying a progress bar and options for downloading files. Below the dialog, a grid of 3D visualizations is shown, representing the output of a cellular automaton simulation. The visualizations are arranged in a 4x5 grid, showing various stages and perspectives of the automaton's growth.

SaaS HPC Workbook Service Levels

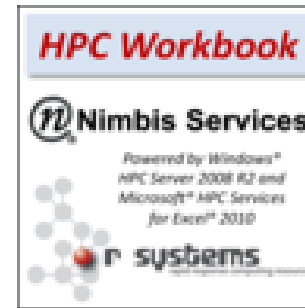
CASC Missing Middle Panel



Trial Service



Standard Service



Premium Service

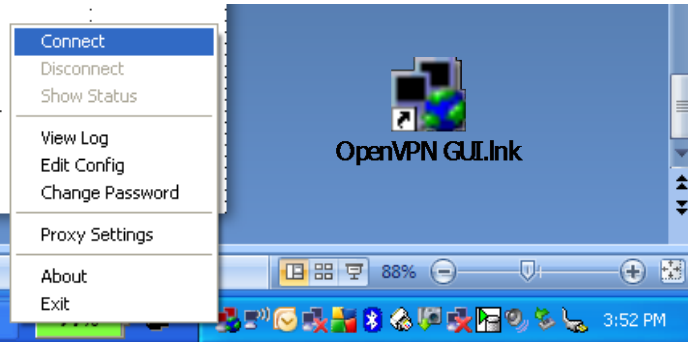
| Service Level | Use | Login Node | HPC Cluster |
|------------------|---|---|---|
| Trial Service | Intended for first time and experimental users to evaluate functionality. | Virtual, 1 week, \$20 | Virtual head node, 8 virtual compute cores, 1 week, \$0 |
| Standard Service | Intended as the standard upgrade after evaluation on the Trial Service. | Virtual, 1 month increments, \$20/mo. | Virtual head node; 8, 16, 32, or 64 physical compute cores; 1 day increments, \$31-\$246/day |
| Premium Service | Provides the highest level of performance by minimizing both job scheduling and compute time. | Physical, 1 month increments, \$450/mo. | Physical head node; 8, 16, 32, or 64 physical compute cores; 1 week increments, \$323-\$1828/week |



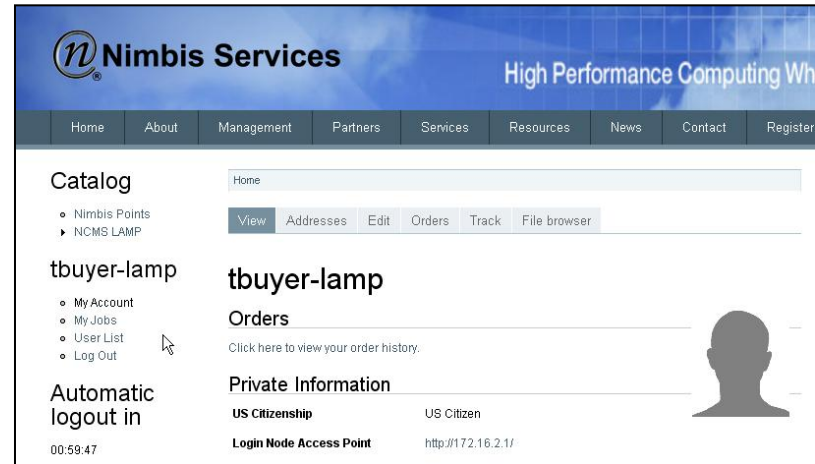
Example of a Nimbis Cloud Portal

CASC Missing Middle Panel

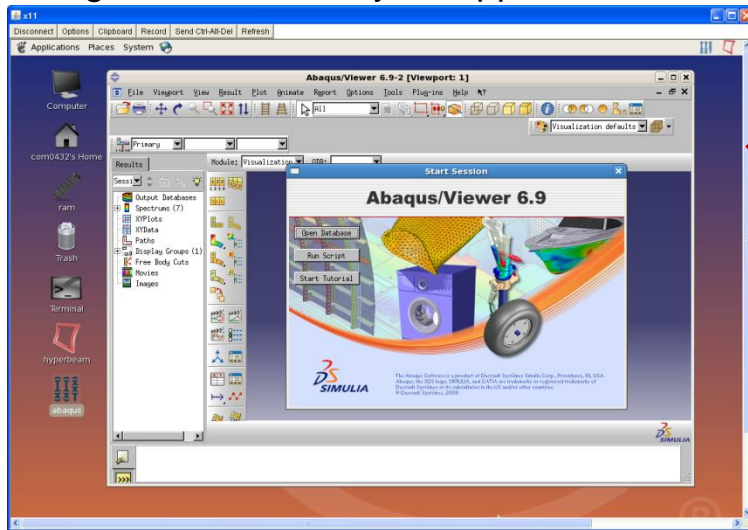
(1) Install OpenVPN on your machine and Open a VPN Tunnel to an HPC Center



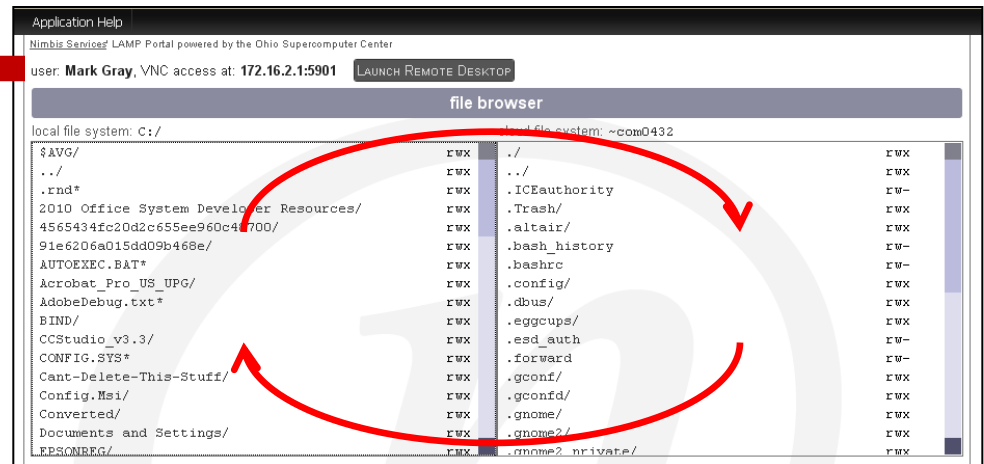
(2) With your web browser, login to your SSO Nimbis Account



(4) Launch a remote desktop GUI on your login node and run your apps

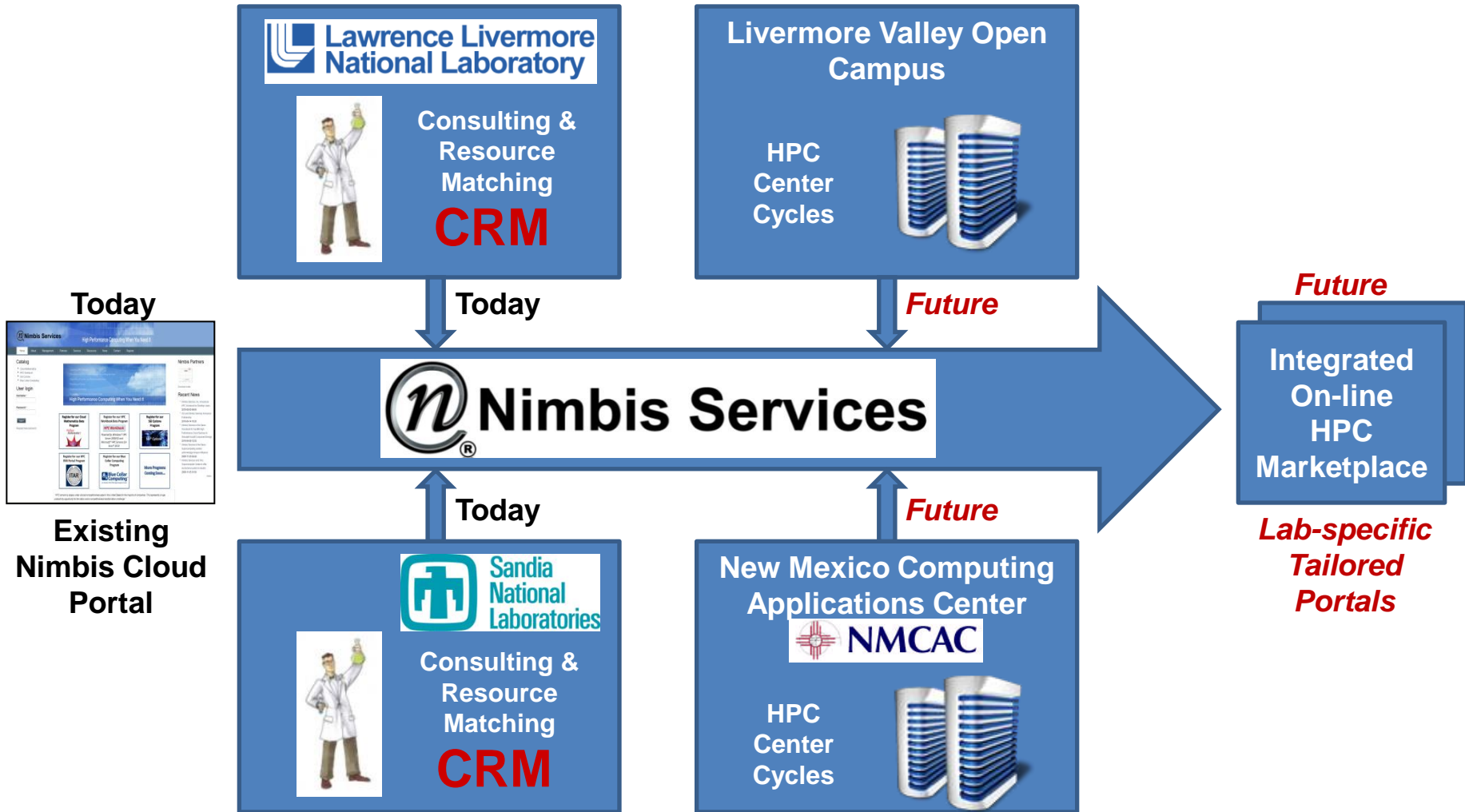


(3) Enter the Portal from your Nimbis account and drag/drop files to/from your remote login node



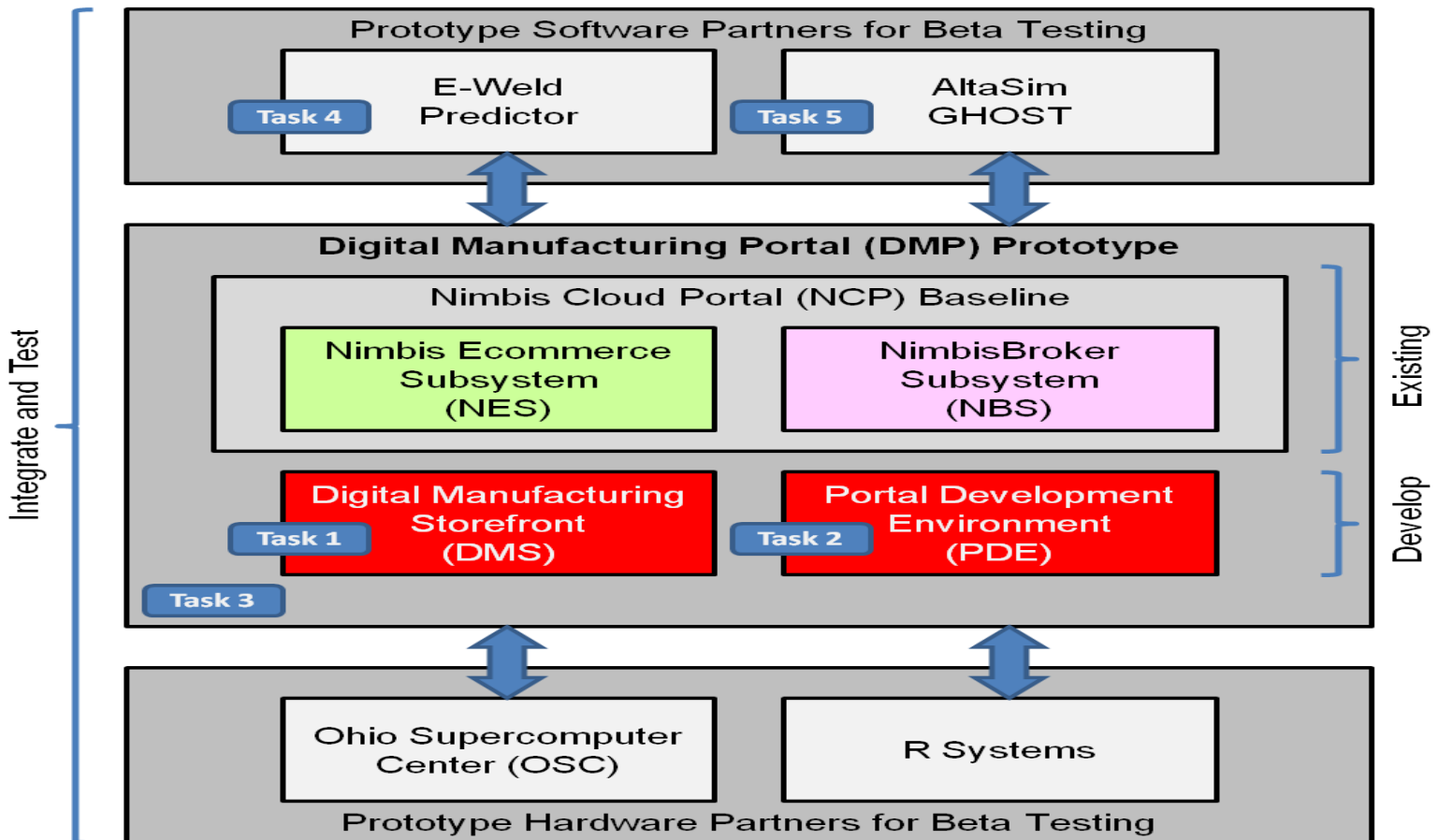
CRM & Regional Centers Integration Roadmap

CASC Missing Middle Panel



DARPA Phase 2 SBIR – Hosting of Vertical APPs

CASC Missing Middle Panel



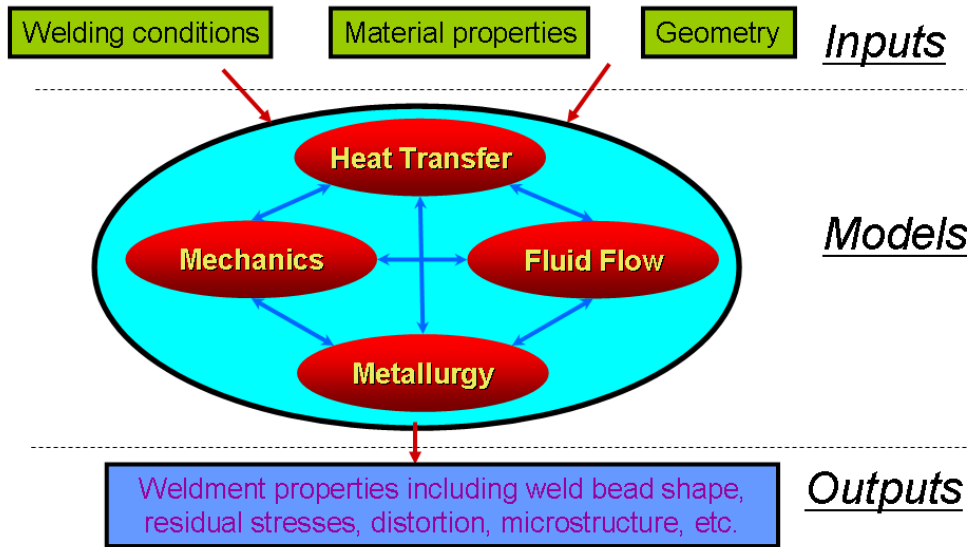
APP Developer Toolkit & APP Marketplace Hosting Service



Nimbis Vertical APPS Portal Example

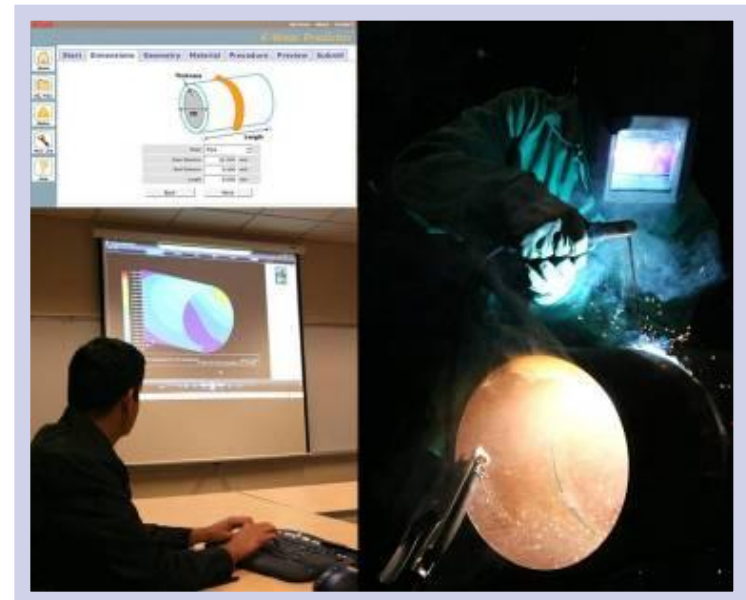
CASC Missing Middle Panel

E-Weld Predictor



Developed by OSC & EWI

| E-Weld Predictor Impact | | |
|-------------------------|------------|-------------------|
| | Previously | E-Weld |
| Expertise Needed | Ph.D. | B.S. |
| Run Time | 52 days | 4-5 days |
| Solution Time | 6-8 months | 1-2 months |



Nimbus - eCommerce Marketplace Infrastructure Provider

CASC Missing Middle Panel

