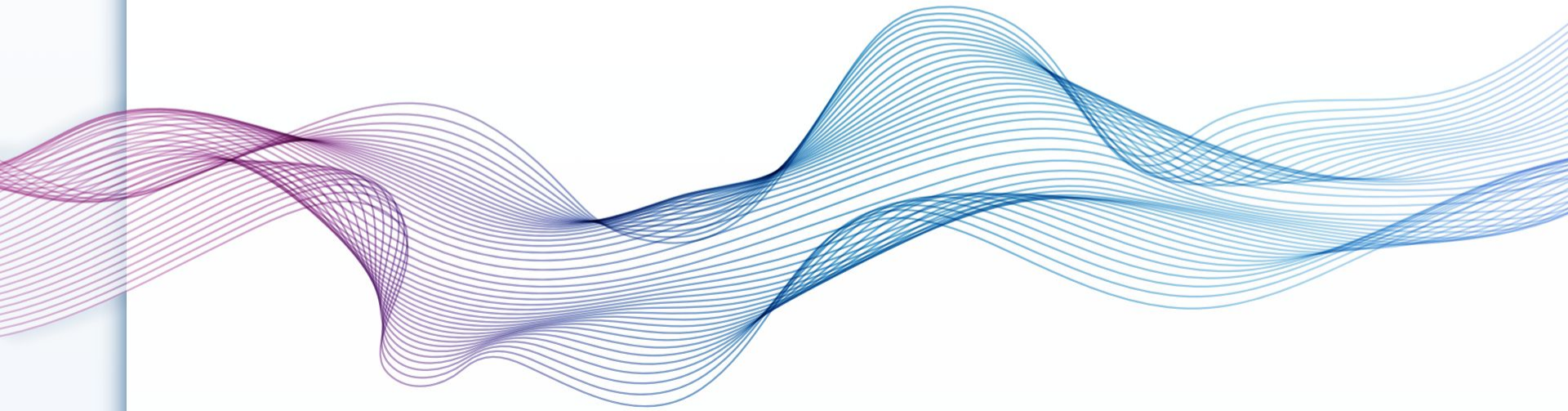
rescale Microsoft Azure

Rescale on Microsoft Azure:

The Modern Foundation for Engineering and Scientific Computing



Computing Drives Our Future

Sustainable Manufacturing

Efficient Transportation

Healthier Lives

Space Exploration

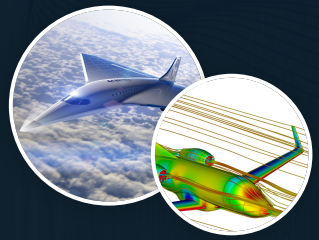
Energy Efficiency

Advanced Semiconductors

COMPUTATIONAL SCIENCE & ENGINEERING

Building Blocks

Aerospace

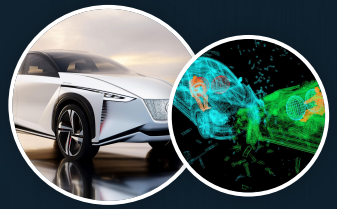


Propulsion

Aerodynamics

Acoustics

Automotive

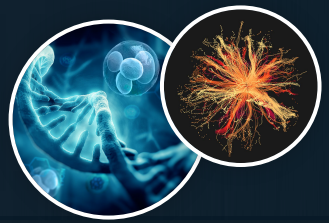


Crash Safety

Noise, Vibration, Harshness

Drive Train

Life Sciences

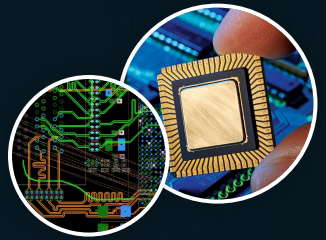


Medical Devices

Metabolomics

Drug Discovery

Semiconductor & EDA



Design Verification

Chip Layout

Classification

Earth Science & Energy

Climate & Weather Modeling

Drill & Pipeline Safety

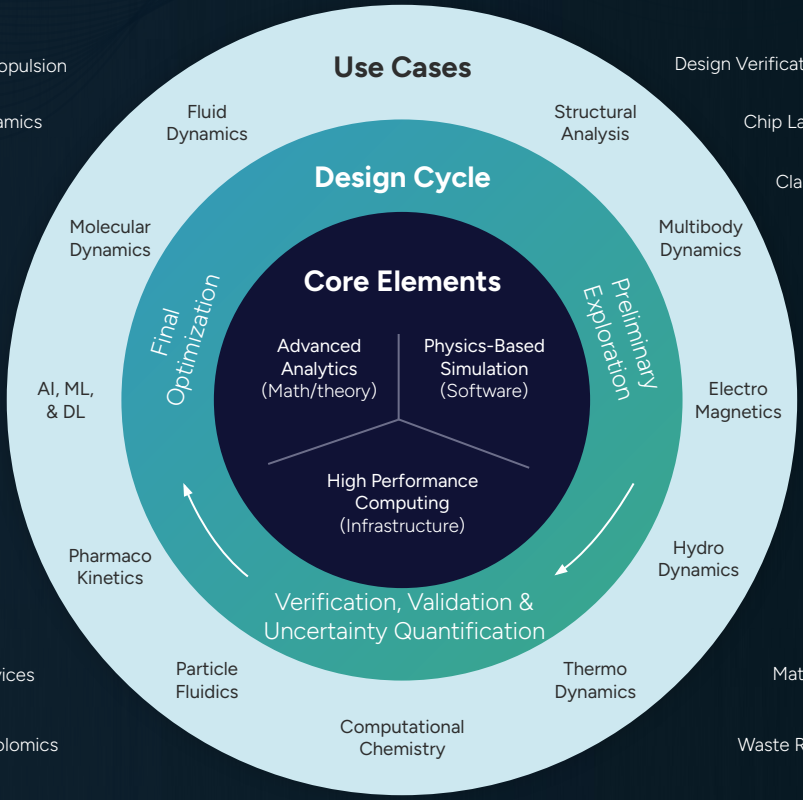
Seismic & Reservoir

Manufacturing

Materials Testing

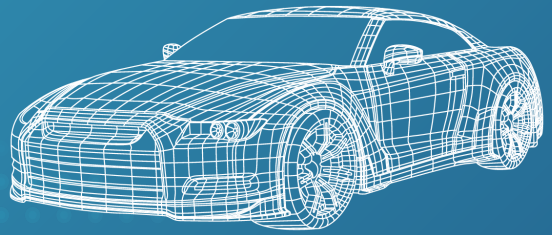
Waste Reduction

Factory Optimization



rescale

Commercializing new engineering breakthroughs is increasingly difficult



90%

Of R&D leaders find accelerating new technologies difficult, despite being a top priority

Gartner R&D Leadership Council 2021

R&D Innovation Has Been Underserved by Cloud

Cloud transformation accelerates software development

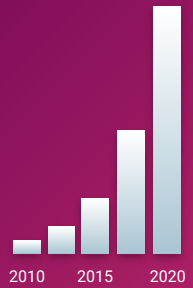
- Application developer-friendly tools
- Easy-access platform services (e.g., databases, message queues)
- Simple access to low-cost commodity hyperscale infrastructure

Traditional HPC strategies in the cloud continue to constrain engineering innovation

- Complex user experience and maintenance
- Disparate technology stacks and workflows
- Lacks flexible access to new, specialized hardware

Engineering and IT Orgs Increasingly Pursue Cloud Strategies to Accelerate Digital Initiatives

Cloud infrastructure choice and scale rapidly expanding



40%+ YoY

Growth in specialized HPC architectures released by cloud providers annually

Source: *2021 State of Cloud HPC Report*

Cloud cost-performance continuing to increase

30% increase YoY

Improvement in cloud cost-performance, reaching parity with on-premises

Source: *Benchmarking Cloud-HPC Hardware for R&D and Engineering Applications Report*

Majority of IT and Engineering have cloud HPC strategies

78% use cloud HPC

in some capacity for HPC, with 53% reporting consistent use

Source: *2022 State of Computational Engineering Report*

Delivering Measurable Business Outcomes with Compute

Increased Resource Efficiency

Months to Days	**reduction of time to deploy HPC** across full cloud and software ecosystem. – National Oilwell Varco

Enhanced User Productivity

30 HPC Tools	**unified into one single platform**, simplifying administration and end-user workflows. –Schaeffler

Enhanced Compliance and Control

60%	**increased speed of simulation** with a policy-driven environment across global divisions. –Eaton

Unlocking New Efficiencies and Methods with Data

50%

Accelerated R&D and Time-to-Market
faster R&D cycles by reducing manual simulation tasks to accelerate new products to market. –Daikin Industries

PBs

Unified Data for Faster Decisions
(petabytes) of simulation data and metadata managed automatically to aid collaboration and accelerate projects. –Kairos Power

10x

Simulation Efficiency
increase in simulation efficiency with 90% reduction in results wait time enabling 5x increase in new patents. –Sumitomo Corporation

Rescale Delivers Measurable Outcomes with AI-Driven R&D

Accelerate Time to Results

1000x **acceleration in time-to-answer** leveraging AI-enhanced simulation. –GM Motorsports

Improve Efficiency

Hours to ms **reduction in preprocessing data** for AI training from 8 hours to milliseconds. –Intelligent Energy

Expand Design Exploration

72,000 **times faster material exploration** with 99% accuracy using customer neural networks. –CPG Leader

Rescale + Microsoft Partnership

Microsoft | Partner Network

Top Tier Global Partner
HPC & Simulation Cloud Platform

M12 Microsoft

Microsoft M12 Partner

Marketplace Listing

Full stack integration with 1,200+ ISVs

Public Customer References on Azure

DENSO
general motors
NOV
EATON
LIBERTY UNIVERSITY
TechnipFMC
LEAR CORPORATION
DAIKIN
SCHAEFFLER
dinex
VERTICAL
DOOSAN
A2othBio
Exponent
kineticvision
bionano GENOMICS

Complete Engineering Platform Backed by Expert Support

Rescale Platform

Rescale AI
AI Physics | AI Training & Deployment | AI Inference | App & Model Marketplace | Design Optimization

Rescale Data
Data Management | Collaboration | Workflows | Connectors | Analytics | Search | Digital Thread | Governance

Rescale Compute
Batch Modeling & Simulation | Visualization | Design of Experiments

Software Management
- Commercial & open-source application catalog
- Testing, versioning, & custom software self-publishing
- License hosting & proxies

SIEMENS Ansys 1200+

Workload Orchestration
- Hardware-software configurations
- Open-cloud & multi-architecture
- Multi-node clusters with MPI
- File organization and tagging

Cost-Performance Optimization
- Service levels & cost models
- Hardware configuration tuning
- License queueing
- Sustainable computing
- Storage devices

IT Business Management
- Budget controls & billing reporting
- Multi-team & projects organization
- Security & access controls
- Policies & templates

Infrastructure Automation
- Virtual workstations
- Storage & backup
- Multi-region load balancing
- Bring your own cloud

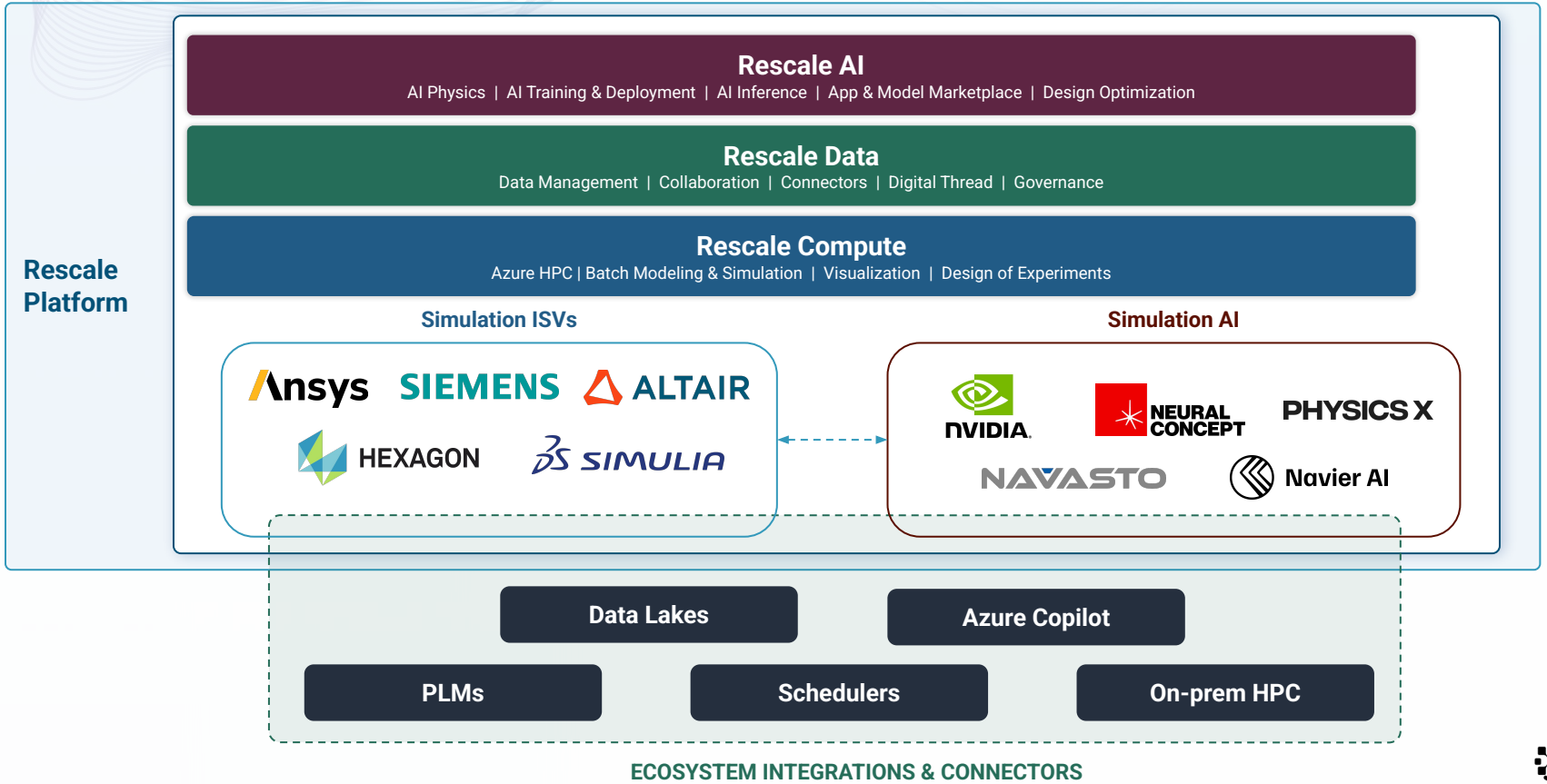
Microsoft Azure

End-to-End Security & Compliance
Encryption | Audits | Leading Compliance Certifications (SOC-2, ISO-27001 +) | Public Sector Authorizations (FedRAMP, ITAR +)

INTEGRATIONS & CONNECTORS

Full-Stack Support & Professional Services
Implementation & Onboarding | Application & OS Support | Benchmarking & Optimization | Training & Certification | Integrations

Rescale Ecosystem Architecture



Accelerate time to engineering engagement

Rescale Turnkey Platform

1-4 Weeks

Quick Start
Turnkey HPC capabilities, Right sized Support

Get Started
Begin running production workloads, minimal troubleshooting

Explore new R&D Use Cases
Multi-Disciplinary Design optimization, Physics-informed AI/ML

Optimize Resources
Hardware & Software Cost-Performance, Workflow automation

Discover Data Insights
Simulation process & data management

Accelerated time to Market
Commercialize New R&D Innovation faster

VS

Build / DIY cloud HPC

12-18 Months

Planning & Hiring
Capacity plan, requirements, hiring, etc. ~1 year

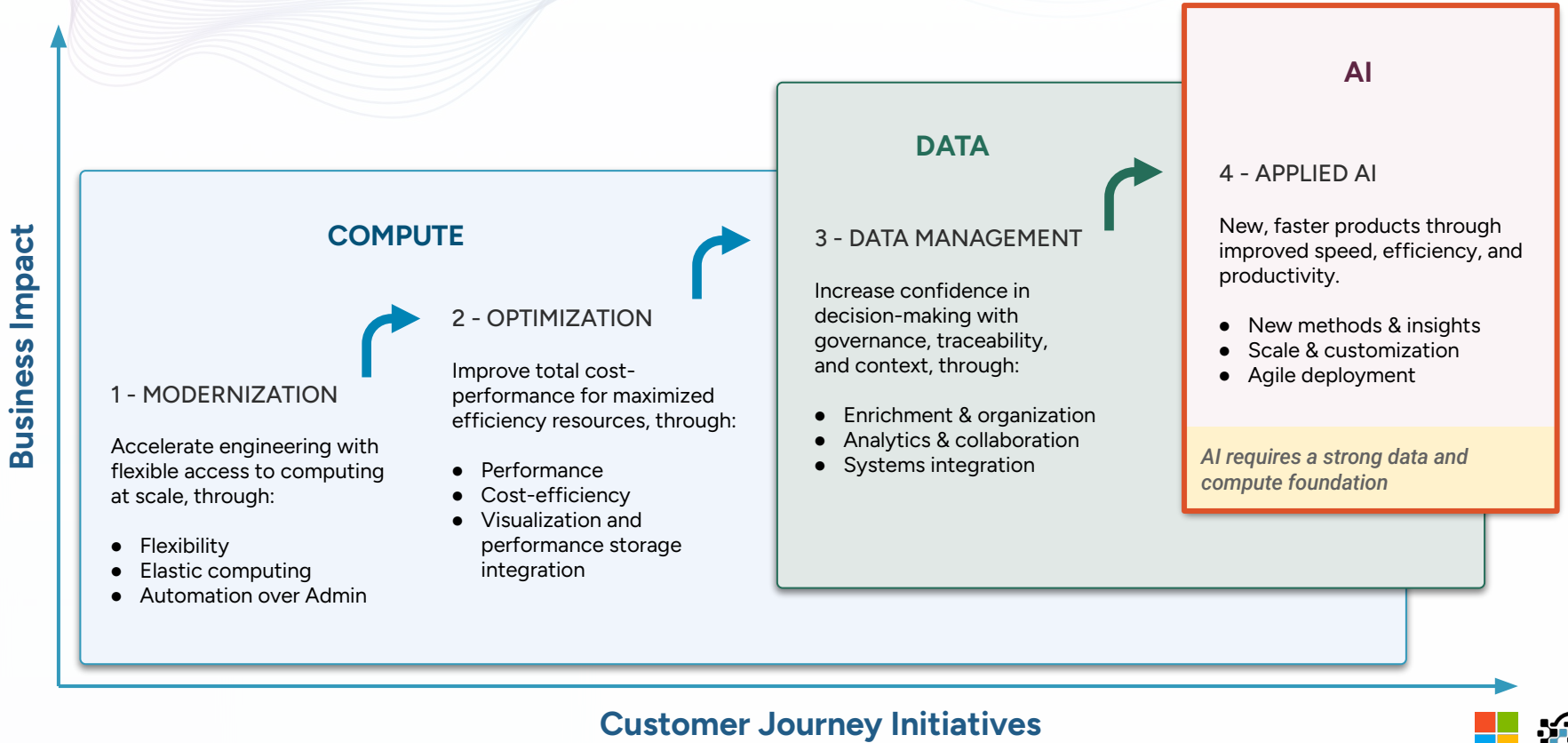
Setup Cloud Infrastructure
Select compute hardware, storage, networking

Build Utilities
Build Utilities, console, security & compliance

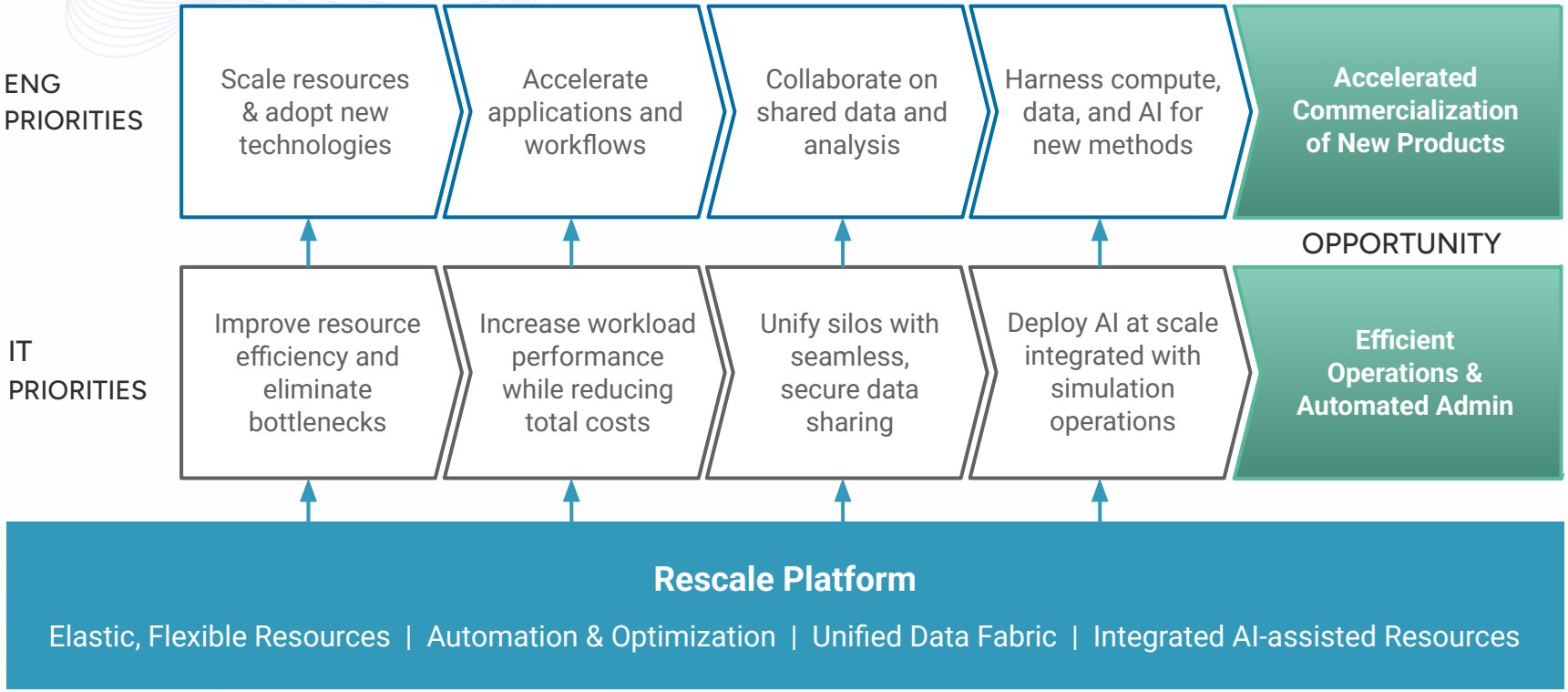
Setup Software
Determine commercial, open source, and/or build proprietary codes, Benchmark HW

Get Started
Begin running production workloads, troubleshooting

Supporting R&D and IT Teams at Each Stage of Their Journey



Delivering a Foundation for Modern Computational Engineering



general motors

Rescale
Customer Spotlight

Company: General Motors Motorsports
Industry: Automotive
Use Case: External Aerodynamics

GM Motorsports is pioneering new AI-accelerated aerodynamics optimization to dramatically **reduce R&D cycle time** and lap times on the track. In vehicle platform development for the Formula One racing series where milliseconds matter, Andretti Cadillac and GM Motorsports engineers leverage AI Physics on Rescale powered by NVIDIA to **optimize every aspect of chassis aerodynamics**.

This approach has led to more than **1000X acceleration** in design evaluation, achieving over **98% accuracy** compared to traditional CFD simulations, and an **85% improvement** in computing resource efficiency. These advancements allow GM Motorsports to iterate on designs faster, ensuring optimized performance on the track.

Rescale Customer Spotlight

rescale

EATON

Eaton Enables Digital Transformation of Engineering Capabilities Through Cloud-First HPC on Rescale

Industry: Industrial Manufacturing, Power Management
Use Cases: Digital Transformation, Industry 4.0, Computational Fluid Dynamics, Finite Element Analysis

"Eaton is focused on optimizing digital solution development and delivery for our customers, and we invest in Rescale to accelerate these capabilities and accelerate the R&D of new industry 4.0 technologies. Rescale enables our cloud-first strategy to flexibly equip our engineering teams with intelligent computing solutions they need while IT can easily governing a secure, compliant, and policy-driven environment across all of our regions and divisions."

— Katrina R. Redmond, Senior Vice President & CIO, Eaton

30-60%

Increased speed of engineering simulations

Strategic Business Outcomes:

- Turnkey HPC for R&D Acceleration
- Seamless Engineering Collaboration
- Intelligent Optimization for Best Cost-Performance
- Automated IT Management, Security, and Compliance

"Deploying cloud HPC across multiple software providers would have taken us 9 months, but with Rescale we were up and running in a matter of days. We also have assurance that Rescale optimizes our engineering efficiency and helps remove IT obstacles to get back to solving big problems."

— Matthew Robinson, Engineering Systems Administrator

100% license utilization
In HPC softwares and optimized licensing costs

95% deployment time reduction
In cloud HPC applications

80%+ cost reduction
In NOV's upfront HPC costs and reduced overall operational costs

rescale

Spotlight on innovation

Customer: National Oilwell Varco (NOV)
Industry: Energy, Oil & Gas, Renewables

Leading the Future of Energy by Reimagining Computing

NOV uses advanced computer-aided engineering (CAE) simulation to design and test new technologies pumps, regulators, and drill heads. NOV relies on high performance computing (HPC) resources to get accurate predictions on safety, durability, and economic viability of new products before they reach production operations. This led Engineering and IT teams to pursue a global cloud HPC strategy managed on Rescale that alleviated resource constraints and unlocked new capabilities in oil and gas and renewables R&D to bring new products to market faster.

"Being cloud-native gives NOV the advantage of improved agility and efficiency across our many areas of R&D from offshore to renewables. Rescale streamlined our cloud transformation and continues to help us find new ways to improve our engineers' productivity and develop new products faster."
— Matthew Robinson, Engineering Systems Administrator, NOV

SCHAEFFLER | Rescale Customer Spotlight

Company: Schaeffler
Industry: Automotive, Energy, Manufacturing
Use Case: CAE Simulation, IT management
Value Drivers: Accelerate Innovation
Products: Rescale Compute

12,000 simulations for a large-scale project in a matter of days

Rescale delivers Schaeffler a unified HPC solution, bringing together 20 to 30 previously separate solutions into one standardized platform where engineers can select the appropriate simulation application.

"It takes just a few clicks to configure the system for a given simulation. This is hugely advantageous in terms of administration, user-friendliness, and operability—something our colleagues really appreciate. Through this project, we've gained a better understanding of their needs and can now work with them to develop more custom solutions."

– Tobias Frömel, Product Owner, Hybrid Cloud Platforms

"Thanks to our new HPC solution based on Azure and the SaaS solution from our partner Rescale, we can complete our simulations a good deal faster. This means we can begin the next round of calculations sooner, detect errors earlier, and develop products far more quickly. That's a massive boost to our competitiveness and innovative strength."

– Markus Kießling, Product Owner, Systems Engineering Solutions

Faster and more efficient: Digital simulations at Schaeffler with Rescale

Read the Case Study