NVIDIA Transformational Use Cases by Industry

NVIDIA Partner Network

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Please read

Primary Audience: NVIDIA Partner Network (NPN) partners interested in learning about NVIDIA's full lineup of accelerated computing product offerings in order to help solve industry specific needs for their customers.

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Our Body of Work

NVIDIA pioneered accelerated computing to tackle challenges no one else can solve. Our work in AI and digital twins is transforming the world's largest industries and profoundly impacting society.

Industries

Click on an icon to learn more about NVIDIA in that industry.

ARCHITECTURE, ENGINEERING, CONSTRUCTION, AND OPERATIONS

AUTOMOTIVE

CONSUMER INTERNET

ENERGY

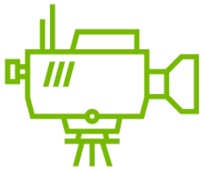
FINANCIAL SERVICES

HEALTHCARE AND LIFE SCIENCES

HIGHER EDUCATION AND RESEARCH

HPC / SUPERCOMPUTING

MANUFACTURING AND INDUSTRIALS



MEDIA AND ENTERTAINMENT

PUBLIC SECTOR (US)

PUBLIC SECTOR (GLOBAL)

RETAIL AND CPG

ROBOTICS

SMART CITIES AND SPACES

TELECOMMUNICATIONS

Key NVIDIA Use Cases by Industry - Overview

Architecture, Engineering, Construction, and Operations

- AI, Generative AI Software Development
- Real Time Raytracing
- Reality Capture
- CAE Simulation for Engineering Disciplines
- Virtual Facility Digital Twins
- XR
- Virtualization / VDI

Automotive

- Autonomous Vehicle CICD Optimization (Data Proc, AI Training, AV Replay)
- Generative AI specific: Accelerating Dev/Test of Self-Driving Vehicles, Enhancing In-Cabin User Experience, Improving Employee & Customer Service Efficiencies, Streamlining Design & Manufacturing
- Industrial Digitalization: Design / Engineering Review, Virtual Factory, Marketing & Sales Experiences, Defect and Presence / Object Detection, AV Simulation, Robotics

Consumer Internet

- Generative AI Platform Acceleration & Optimization (Text-to-Image, Text-to-Video, Text-to-Text Generation, Document Summarization, Chatbot, Cybersecurity, Autonomous Agents, Language Translation, Sentiment Analysis)
- Recommender Systems
- LLM Training
- Multimodal Training

Energy

- Subsurface Understanding: Reservoir Simulation, Seismic Processing, Geoscience Interpretation and Visualization
- Surface Operations: Renewable Energy Forecasting, Industrial Digital Twins
- Power and Utilities: Software-Defined Smart Grid, Utility Contact Center Agent Assist, Utility Substation Security and Visual Inspection

Financial Services

- Trading:
  HPC in Quantitative Finance
  LLM / Natural Language Processing (NLP) for Trading Research
  Data Processing Optimization
- Banking:
  Threat Detection
  Fraud Prevention, Compliance,
  Credit Risk Management
  Personalized Customer Service
  Risk Management
  Personalized Marketing and Customer Experience
- Payments:
  Transaction Fraud Prevention with End-to-End Data Science

Healthcare and Life Sciences

- BioPharma: Molecular Simulation, Structural Biology, Biomolecular AI Model Development, Generative AI Biomolecular Inference, Biomedical Imaging, Real World Evidence and Predictive Modeling
- Med Tech: Medical Image Reconstruction, Medical Imaging Device Calibration, Medical Imaging AI Development, non-Realtime and Real-time Clinical AI Inference, Medical Visualization (AR/VR), Robotic Control, Sensor Integration
- Genomics: Single Cell and Spatial Tertiary, NGS - Genomic Secondary Analysis, Spatial Genomic Secondary Analysis, Genomic Primary Analysis
- Cybersecurity Threat Detection, SW Securing Vulnerability Analysis

Higher Education and Research

- DNA & RNA Genomic Sequencing Analysis
- Weather and Climate Prediction
- Quantum Research
- GPU as-a-Service
- Robotics
- Campus IT “AI-as-a-Service”

HPC / Supercomputing

- Respond to Pandemic Scale Virus
- Digital Twin for Fusion Reactor with Integrated Research Infrastructure
- Converged Models for Advanced Material Science
- Quantum Computing

Key NVIDIA Use Cases by Industry - Overview

Manufacturing and Industrials

- Generative AI for Technician Support
- Intelligent Automation for Internal Product Innovation and Design Teams
- Faster Product Design, Full-fidelity Visualization and Real-time Photorealistic Rendering
- Virtual Factory
- Vision-based Automation & Safe Autonomous Systems
- Industrial Automation – Robotics
- AI and HPC-driven Field Ops & Service
- Accelerated Engineering Simulation
- XR for Design, Design Reviews, Global Collaboration

Media and Entertainment

- Film & Television: AI Foundry Services, Video AI, NLP/ASR, Data Analytics/ Recommenders/Personalization
- Live Media: Software-Defined Broadcast, Video AI, NLP/ASR, Data Analytics/Recommenders/ Personalization
- Gaming: Non-Player Characters, AI to Accelerate Game Asset Dev, Accelerate Code / Story Dev, Virtualization, Enable High Memory Workloads
- AdTech: AI Agents, Gen AI Ad & Marketing Content Creation, Apps & Services for 3D Content Supply Chain/ Consumer Interaction/Production Automation, Accelerated DS & AI

Public Sector (US)

- Enhanced Command & Control/ Decision Dominance/Enterprise Knowledge Discovery, Customized & Streamlined Public Service Delivery, Intelligent Automation – Order Management, Multi-Domain Modeling and Simulation
- GeoSpatial and GeoINT, Anomaly Detection and Threat Detection, Virtual Factory, Air Traffic Management Systems Radar and Signal Processing, Autonomous Systems Digital Proving Grounds, Resource Routing for Predictive Maintenance, Quantum Simulation

Public Sector (Global)

- Sovereign Foundation Models
- Radar and Signal Processing
- Digital Twins / Simulation
- GeoSpatial and GeoINT
- Quantum Computing

Retail and CPG

- Omnichannel: Hyper Personalization and Generative AI, Generative AI Employee Advisor, Generative AI Shopping Advisor
- Automated Product/Marketing Content Generation, Automated Order Taking, Optimize End-to-End Data Science Pipeline
- Intelligent Stores: Loss Prevention to Avoid Theft, Organized Retail Crime Theft Prevention, Store Analytics
- Intelligent Supply Chain: Inventory Management Optimization, Last Mile Delivery / Routing Optimization
- Insider Threat Detection

Robotics

- Robotics Generative AI
- Generic Autonomous Robots
- Robotics CICD Pipeline Acceleration

Smart Cities and Spaces

- Smart Safety and Security
- Operational Efficiency and Automation
- Public Agency Data Analytics and Intelligent Citizen Services
- Intelligent Traffic Management
- LVM – Video & Image Understanding

Telecommunications

- Generative AI Enhanced Customer Experience
- Generative AI Powered Network Operations
- Generative AI Enhanced Cognitive Search
- Regional / Sovereign AI Factories
- Data Processing Optimization
- Open Switching Fabric
- Cloud Infrastructure Acceleration

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Architecture, Engineering, Construction, and Operations Use Cases

Accelerating Transformation in Architecture, Engineering, Construction, and Operations

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		NVIDIA Accelerated Computing Full-Stack		
Use Case / Transformational Conversation	**Workloads**	**NVIDIA Platforms, Microservices, Application Frameworks, Dev Tools**	**NVIDIA Accelerated Computing**	**Key ISV's**
Use Case: AI, Generative AI Software Development **Benefit:** Accelerated development workflow, scalable full stack solution on prem and cloud (Understanding Diffusion Models – Essential Guide AEC) • NVIDIA AI Enterprise full-stack AI development, training, inference, and deployment tools • AI supercomputers, on-prem and cloud	Construction Management Design Optimization Operations Predictive Analytics Real Estate Generative AI: Visual Design	NVIDIA AI Enterprise NVIDIA NIMs RAPIDS (cuDF) NVIDIA AI Workbench, blog Picasso	Accelerated Computing Solutions Accelerated Networks DGX Cloud RTX-powered AI Workstations	Autodesk Bentley EvolveLab Hexagon OpenSpace Reconstruct Trimble
Use Case: Real Time Raytracing **Benefit:** Better informed decision-making, reduced errors, less time wasted (Studio 4D) • Real-time photorealistic visualization during the design process • Faster iteration on creation of photorealistic renderings for internal and external communications	Construction planning Design reviews Design Visualization Marketing Public communications Rendering / Ray Tracing	NVIDIA AI Enterprise CUDA, CUDA-X RTX technology	GPU Cloud Computing RTX visual computing platform	Bentley LumenRT Chaos V-Ray Enscape, Vantage Epic Twinmotion Lumion Unreal Engine
Use Case: Reality Capture **Benefit:** Visualize construction sites and as-built environment with photogrammetry and LIDAR reality capture • Process massive point clouds • Accelerated computation with CUDA-based features	Construction Progress LIDAR Monitoring Photogrammetry Quality and Safety Inspection Site Layout	NVIDIA AI Enterprise CUDA, CUDA-X Virtual GPU (vGPU) RTX technology	GPU Cloud Computing RTX visual computing platform	Bentley iTwin Capture Modeler, Epic RealityCapture, ESRI ArcGIS Reality, Hexagon Leica Cyclone, Matterport, Nubigon, Pix4D, 3DFLOW
Use Case: CAE Simulation for Engineering Disciplines **Benefit:** Accelerated time to results of HPC-based CAE simulation (CFD, FEA, DEM) for deep understanding of the forces of nature applied to building and infrastructure designs in the digital process • Smaller footprint and lower operational cost than CPU-only solutions • Meaningfully faster compute then CPU-only solutions	Computational Fluid Dynamics Environmental Simulation Finite Element Analysis Lighting Analysis Structural Engineering Ventilation / Thermal Comfort	NVIDIA AI Enterprise CUDA, CUDA-X Virtual GPU (vGPU) RTX technology	Accelerated Computing Solutions Accelerated Networks DGX Cloud GPU Cloud Computing RTX visual computing platform	Ansys, Altair Siemens Simulation, Dassault Systèmes Simulia, SimScale, OpenFoam, Rescale

Accelerating Transformation in Architecture, Engineering, Construction, and Operations

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		NVIDIA Accelerated Computing Full-Stack		
Use Case / Transformational Conversation	**Workloads**	**NVIDIA Platforms, Microservices, Application Frameworks, Dev Tools**	**NVIDIA Accelerated Computing**	**Key ISV's**
Use Case: Virtual Facility Digital Twins **Benefit:** Develop USD-based tools, applications, and data pipelines to support robust data collaboration across dispersed teams using multiple design applications, real-time photorealism, and simulation (UrsaLeo, Houseal Lavigne, OutdoorLiving3D, Woods Bagot, SiBORG Lab) • OpenUSD data pipeline • Real-time raytracing and PhysX simulation • Robust customization tools	City Simulation City Operations City Visualization Digital Twins IoT Smart Cities	Omniverse Enterprise RTX technology	Graphics Delivery Network (GDN) Omniverse Cloud OVX RTX Systems RTX visual computing platform	Autodesk Bentley LumenRT Hexagon Siemens Trimble
Use Case: XR **Benefit:** Better informed decision-making, reduced errors, deep familiarity with digital building and construction site (Lake|Flato, Theia Interactive, Theia Interactive Case Study) • Immersive design reviews • Most efficient training for construction procedures	Construction planning Design Review Marketing Public communications Training	CloudXR VRWorks RTX technology	GPU Cloud Computing RTX visual computing platform	Chaos Enscape Epic Unreal Engine Twinmotion Lumion Unity
Use Case: Virtualization / VDI **Benefit:** Enhanced mobility for productivity and global collaboration across remote teams; Data / IP security (HFA) • Huge models and datasets • Data / IP security for business continuity and disaster recovery • Fast on- and off-boarding of project team members	VDI	Virtual GPU (vGPU) RTX virtual Workstation (vWS)	Accelerated Networks GPU Cloud Computing RTX visual computing platform	Citrix HP Anywhere/Teradici Nutanix VMware

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Automotive Use Cases

Accelerating Transformation in Automotive

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NVIDIA Accelerated Computing Full-Stack

Use Case / Transformational Conversation	Workloads	NVIDIA Platforms, Microservices, Application Frameworks, Dev Tools	NVIDIA Accelerated Computing	Key ISV's
Use Case: Autonomous Vehicle CICD - Data Proc Optimization **Benefit:** 50% reduction in manual labeling efforts, 30% speed up in labeling throughput AV Data Factory Optimization • Faster labeling throughput • AV data preparation image processing speed-ups	Computer Vision / Video Analytics Data Analytics & Processing Data Science Synthetic Data Generation	CV-CUDA NVIDIA AI Enterprise DALI RAPIDS (cuDF) TAO (Train, Adapt, Optimize) TensorRT Triton	Accelerated Computing Solutions Data Center DGX Cloud GPU Cloud Computing	Kinetica Run:AI Snowflake Weights & Biases
Use Case: Autonomous Vehicle CICD - AI Training Model Optimization **Benefit:** Achieve 3x or greater training speed-up from Ampere to Hopper AV Training Optimization • Faster AV AI training at scale • Train, Adapt, Optimize Models in hours vs. months	Computer Vision / Video Analytics Data Analytics & Processing Data Science Synthetic Data Generation Video Streaming	NVIDIA AI Enterprise cuDNN DALI Model Training DLFW – PyTorch, TensorFlow TAO (Train, Adapt, Optimize)	Accelerated Computing Solutions Accelerated Networks Data Center DGX Cloud GPU Cloud Computing	ClearML Dataiku Domino Data Lab Run:AI Weights & Biases
Use Case: Autonomous Vehicle CICD – AV Replay Optimization **Benefit**: >6x speed-up of replay AV Replay Optimization • AV Replay on CPU is slow • Triton enables optimal GPU inferencing	AV Replay Computer Vision / Video Analytics Data Analytics / Processing Data Science Video Streaming	NVIDIA AI Enterprise DeepStream TensorRT Triton VPF	Accelerated Computing Solutions Data Center DGX Cloud GPU Cloud Computing	Kognic

Accelerating Transformation in Automotive

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NVIDIA Accelerated Computing Full-Stack

Use Case / Transformational Conversation	Workloads	NVIDIA Platforms, Microservices, Application Frameworks, Dev Tools	NVIDIA Accelerated Computing	Key ISV's
Use Case: Accelerating Development & Testing of Self-Driving Vehicles **Benefit:** End-to-end fused world models training on video data leveraging LLM NVIDIA Research Wins CVPR Autonomous Grand Challenge for End-to-End Driving) • Training custom foundation model or adapting existing model • Cloud inference • Embedded deployment leveraging NVIDIA DRIVE	Computer Vision / Video Analytics Data Analytics & Processing Data Science Generative AI Synthetic Data Generation	NVIDIA AI Enterprise DALI, cuDNN Model Training DLFW – PyTorch, TensorFlow NeMo, Riva, TAO, TensorRT, Triton, NVIDIA AI Workbench, blog, VPF NVIDIA DRIVE, DRIVE OS	Accelerated Computing Solutions Data Center DGX Cloud DGX NeMo LLM Solution Brief DRIVE AGX GPU Cloud Computing RTX-powered AI Workstations	
Use Case: Enhancing In-cabin User Experience **Benefit**: Leveraging LLMs and VLMs for enabling AI cockpit, 4.6x better inference performance for LLM's using TRT-LLM + H100, speedup lowers cost with faster pipelines, faster time to insight • Knowledge Co-pilot • Chatbot AI Workflow: Generative AI-Powered Chatbots Using RAG • Cabin, driver, and environment monitoring and guidance • Data Intelligent Vehicle Owners Manual, Intelligent Vehicle Navigation	Computer Vision / Video Analytics Generative AI: Reasoning Retrieval/RAG Speech AI /NLP Guardrails	NVIDIA AI Enterprise NVIDIA NIMs, ACE NIMs NeMo Retriever, Guardrails, Guardrails blog, RAG, RAPIDS (cuDF, cuGraph, cuML), RAPIDS Accelerator for Apache Spark, Riva, TensorRT, TensorRT-LLM,Triton Picasso	Accelerated Computing Solutions Data Center DGX Cloud DGX NeMo LLM Solution Brief GPU Cloud Computing RTX-powered AI Workstations	Cerence Cerence video Dataiku Soundhound
Use Case: Improving Employee and Customer Service Efficiencies **Benefit:** Gen AI are 2.6X more likely to increase revenue by 10% or more, save $100s Ms in costs per customer, $100s Ms in Quality cost reduction • Customer interactions such as contact centers • AI Workflows: Generative AI-Powered Chatbots Using RAG, AI Chatbot for Customer Service • Text generation such as Corporate E-mail, Public Relations • Code generation such as component design, requirements validation	Call Center Digital Assistant Engineering Knowledge Base Generative AI: Reasoning Retrieval/RAG Speech AI /NLP Guardrails	NVIDIA AI Enterprise NVIDIA NIMs, ACE NIMs NeMo Retriever, Guardrails, Guardrails blog, RAG Riva TRT, TRT-LLM , Triton Picasso	Accelerated Computing Solutions Data Center DGX Cloud DGX NeMo LLM Solution Brief GPU Cloud Computing	Dataiku
Use Case: Streamlining Design and Manufacturing Processes **Benefit:** Digital twins, simulation and immersive experiences • Call Visual Generative AI APIs into 3D Applications • Build Custom LLM Application for 3D Workflows	Digital Twin, Generative AI, Rendering / Ray Tracing Simulation / Modeling / Design, Synthetic Data Generation, Virtualization	NVIDIA AI Enterprise NVIDIA NIMs Virtual GPU (vGPU) Omniverse Enterprise RTX technology	Accelerated Computing Solutions Omniverse Cloud OVX RTX-powered AI Workstations	

Accelerating Transformation in Automotive

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NVIDIA Accelerated Computing Full-Stack

Use Case / Transformational Conversation	Workloads	NVIDIA Platforms, Microservices, Application Frameworks, Dev Tools	NVIDIA Accelerated Computing	Key ISV's
Use Case: Design/Engineering Review **Benefit:** Develop USD-based tools, applications, and data pipelines to accelerate design and engineering reviews	Digital Twin Rendering / Ray Tracing Simulation / Modeling / Design Virtualization	Omniverse Cloud Omniverse Enterprise RTX technology Virtual GPU (vGPU)	Accelerated Computing Solutions Omniverse Cloud OVX RTX Systems	Altair Ansys Dassault Systèmes (CATIA) Hexagon ParaView Rescale Siemens
Use Case: Virtual Factory **Benefit**: Develop USD-based tools, applications, and data pipelines to accelerate and unlock new possibilities (BMW, Mercedez Benz, Continental, Optimizing Intralogistics blog, Talk to Your Supply Chain Data Using NIM) • Factory planning • Process simulation • Robotics training • Operations • AI Workflow: Multi-Camera Tracking	Data Aggregation Digital Twin Optimizer Engine Rendering / Ray Tracing Simulation / Modeling / Design USD Data Pipeline Virtualization	Metropolis microservices NVIDIA AI Enterprise NVIDIA NIMs, cuOpt NIM, Modulus, Virtual GPU (vGPU) Omniverse Cloud Omniverse Enterprise Isaac Sim, Omniverse Replicator Reality Capture RTX technology	Accelerated Computing Solutions Microsoft Azure, Omniverse Cloud OVX RTX Systems RTX visual computing platform	Autodesk (FlexSim), Bentley (MicroStation), Dassault Systèmes (DELMIA, ENOVIA, CATIA), Hexagon, ipolog, Rockwell Automation, Siemens (Tecnomatix, Teamcenter, NX), SyncTwin, Visual Components
Use Case: Marketing and Sales Experiences **Benefit:** Reduce configurator development time by months / prepare data once and deliver for multiple outputs, accelerate content creation time by up to 40%. (Nissan, Katana Studio) • Digital Twin • Automation of Content Supply Chain • Automotive Marketing, Car Configurator • Aggregated and Accessible Automotive Marketing Pipelines	AR / VR / XR Cloud Streaming Digital Twin Rendering / Ray Tracing Simulation / Modeling / Design Virtualization	CloudXR Omniverse Cloud Omniverse Enterprise USD-Graphics Delivery Network (GDN) Publisher RTX technology RTX virtual Workstation (vWS)	Accelerated Computing Solutions Omniverse Cloud OVX RTX-powered Spatial Framework RTX Systems	Dassault Systèmes (3DEXCITE) OpenXR SteamVR Unity Unreal Engine

Accelerating Transformation in Automotive

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NVIDIA Accelerated Computing Full-Stack

Use Case / Transformational Conversation	Workloads	NVIDIA Platforms, Microservices, Application Frameworks, Dev Tools	NVIDIA Accelerated Computing	Key ISV's
Use Case: Defect and Presence, Object Detection with Synthetic Data Generation **Benefit:** Maximize designer productivity, better informed decision-making, and process efficiency • Digital Twin - Design & Engineering	Digital Twin Rendering / Ray Tracing Simulation / Modeling / Design Synthetic Data Generation Virtualization	Omniverse Cloud Omniverse Enterprise Omniverse Replicator DRIVE Replicator (Limited EA) RTX technology RTX virtual Workstation (vWS) Virtual GPU (vGPU)	Accelerated Computing Solutions Omniverse Cloud OVX	Ansys Rescale Siemens, SynthAI
Use Case: AV Simulation **Benefit:** Reduce road testing and improve AV stack performance (NVIDIA Research Wins CVPR Autonomous Grand Challenge for End-to-End Driving) • Digital Twin – Autonomous Vehicle Sensor Simulation	Synthetic Data Generation E2E Verification & Validation	Omniverse Cloud Omniverse Enterprise RTX technology RTX virtual Workstation (vWS)	Accelerated Computing Solutions Accelerated Networks Omniverse Cloud OVX	Ansys Carla dSPACE Foretellix MathWorks Morai
Use Case: Robotics **Benefit:** Maximize design, test, and training of AI-based robots (Vision AI tech blog) • Factory Digital Twin - Smart Factory – Robotics: Layout, Kinematics, Behavior Synthetic Data Generation • Train robots with the optimized routes	Digital Twin Edge Computing Optimizer Engine Rendering / Ray Tracing Simulation / Modeling / Design Synthetic Data Generation Virtualization	Metropolis microservices NVIDIA AI Enterprise cuOpt NIM Virtual GPU (vGPU) Omniverse Cloud Omniverse Enterprise Isaac Sim, Isaac Gym RTX technology RTX virtual Workstation (vWS)	Accelerated Computing Solutions Omniverse Cloud OVX	ROS Siemens Tecnomatix (Process Simulate) Visual Components

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Consumer Internet Use Cases

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Accelerating Transformation in Consumer Internet

NVIDIA Accelerated Computing Full-Stack

Use Case / Transformational Conversation	Workloads	NVIDIA Platforms, Microservices, Application Frameworks, Dev Tools	NVIDIA Accelerated Computing	Key ISV's
Use Case: Generative AI Platform Acceleration & Optimization **Benefit:** Generative AI – Optimize # images, video, and text generated per unit of cost; maximize output per unit of compute • Text-to-Image, Text-to-Video, Text-to-Text Generation • Document Summarization, Chatbot, Cybersecurity, Autonomous Agents, Language Translation, Sentiment Analysis • Enabling Generative AI platforms to reduce time to market, accelerate new product offering development and offer differentiated value in the market	Generative AI: Reasoning Retrieval/RAG Guardrails **Models:** ChatGPT, BARD, Pi, CoPilot, AI21, BingChat, Perplexity, MidJourney, Dall-E, Stable Diffusion, Imagen	NVIDIA AI Enterprise NVIDIA NIMs NeMo Retriever, Guardrails, Guardrails blog, RAG RAPIDS TRT-LLM Triton	Accelerated Computing Solutions Accelerated Networks Data Center DGX Cloud DGX NeMo LLM Solution Brief GPU Cloud Computing RTX-powered AI Workstations	Databricks Hugging Face Google Cloud Meta Mistral AI OpenAI Snowflake
Use Case: Recommender Systems **Benefit:** Enabling customers to accelerate and optimize the efficiency and accuracy of their core AI workloads • Improving customer outcomes for use cases including product advertising, streaming media, search optimization, social media feeds based on user profiles	Generative AI: Retrieval/RAG Speech AI/NLP Guardrails **Models:** RNN, CNN, LSTM, KNN, GAN	NVIDIA AI Enterprise NVIDIA NIMs NeMo Retriever, Guardrails, Guardrails blog, RAG RAPIDS TensorRT Triton	Accelerated Computing Solutions Accelerated Networks Data Center DGX Cloud DGX NeMo LLM Solution Brief GPU Cloud Computing RTX-powered AI Workstations	Databricks Snowflake
Use Case: Training **Frontier LLM Training** • General purpose, foundation models **Vertical LLM Training** • Application specific models	Generative AI: Retrieval/RAG Guardrails **Frontier Models:** GPT, Llama, Claude, NeMo, Mixtral, Bloom, Palm, **Vertical Models:** BloombergGPT, Weaviate, customer proprietary	NVIDIA AI Enterprise NVIDIA NIMs NeMo Retriever, Guardrails, Guardrails blog, RAG RAPIDS TensorRT Triton NVIDIA AI Workbench, blog	Accelerated Networks DGX Cloud DGX NeMo LLM Solution Brief GPU Cloud Computing RTX-powered AI Workstations	Databricks Hugging Face Snowflake Weights & Biases
Use Case: Multimodal Training **Benefit:** Extending the accuracy and usability of traditional LLM training models	Generative AI: Retrieval/RAG Guardrails **Models:** Gemini, Inworld, ImageBind	NVIDIA AI Enterprise NVIDIA NIMs NeMo Retriever, Guardrails, Guardrails blog, RAG	Accelerated Computing Solutions Data Center DGX Cloud DGX NeMo LLM Solution Brief GPU Cloud Computing RTX-powered AI Workstations	Databricks Hugging Face Snowflake

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Energy
Use Cases

Accelerating Transformation in Energy – Subsurface Understanding

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NVIDIA Accelerated Computing Full-Stack

Use Case / Transformational Conversation	Workloads	NVIDIA Platforms, Microservices, Application Frameworks, Dev Tools	NVIDIA Accelerated Computing	Key ISV's
Use Case: Reservoir Simulation **Benefit:** Optimize well placement, optimize production, and drive higher field-planning productivity and profitability (Stone Ridge Technology benchmark study, Case Study, GTC24 Panel: ExxonMobil, Shell, SLB, Petrobras) • HPC emerging workloads in carbon capture and storage unlock opportunities to reduce the carbon footprint from traditional oil and gas operations	HPC Simulation / Modeling Physics-ML	Energy SDK HPC SDK (cuFFT, cuBLAS) NVIDIA AI Enterprise CUDA Modulus RAPIDS (cuDF, cuML) RAPIDS Accelerator for Apache Spark, Accelerated Spark Analysis Tool Virtual GPU (vGPU)	Accelerated Computing Solutions Accelerated Networks Data Center DGX BasePOD for Energy DGX Cloud GPU Cloud Computing	Computer Modelling Group (CMG) SLB Stone Ridge Technology Rescale
Use Case: Seismic Processing **Benefit:** Optimize seismic algorithms for exploration, production, and CCUS monitoring (GTC talks: KAUST, BP, Saudi Aramco, Shell, Petrobras) • Leverage AI-enhanced 3D volumetric visualization frameworks and HPC. • This includes full waveform inversion (FWI) and reverse time migration (RTM), critical seismic imaging workflows. • Generative AI assistant for seismic data processing workflow	Generative AI: Reasoning Retrieval/RAG HPC Physics-ML	Energy SDK HPC SDK (cuFFT, cuBLAS) NVIDIA AI Enterprise NVIDIA NIMs, Modulus, NeMo Retriever, RAG RAPIDS (cuDF, cuML) RAPIDS Accelerator for Apache Spark, Accelerated Spark Analysis Tool	Accelerated Computing Solutions Accelerated Networks Data Center DGX BasePOD for Energy DGX Cloud GPU Cloud Computing	AspenTech Rescale Shearwater SLB Viridien (CGG)
Use Case: Geoscience Interpretation and Visualization **Benefit:** Visualization for optimized geological interpretation	RTX Visualization HPC Rendering / Ray Tracing Simulation / Modeling	Virtual GPU (vGPU)	RTX Systems RTX visual computing platform	AspenTech Halliburton SLB S&P Global Commodity Insights

Accelerating Transformation in Energy – Surface Operations

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NVIDIA Accelerated Computing Full-Stack

Use Case / Transformational Conversation	Workloads	NVIDIA Platforms, Microservices, Application Frameworks, Dev Tools	NVIDIA Accelerated Computing	Key ISV's
Use Case: Renewable Energy Forecasting **Benefit:** Maximize reliable production and supply of clean energy (Siemens Gamesa, Gigastack, Skycatch, Siemens Energy tech blog, Vision AI tech blog, HPC explained) • Climate Simulation • Weather Prediction • Wake Optimization	Data Science Edge Computing Generative AI: Reasoning Retrieval/RAG Guardrails HPC Physics-ML Simulation / Modeling Virtualization	Metropolis microservices NVIDIA AI Enterprise NVIDIA NIMs, Modulus, NeMo Retriever, Guardrails, Guardrails blog, RAG RAPIDS (cuDF / cuIO, cuML) Virtual GPU (vGPU) Omniverse Enterprise RTX technology RTX virtual Workstation (vWS)	Accelerated Computing Solutions Accelerated Networks Data Center DGX BasePOD for Energy DGX Cloud DGX NeMo LLM Solution Brief GPU Cloud Computing OVX RTX Systems	AVEVA (Schneider Electric) CPFD Hitachi Energy Kinetica Rescale Siemens Energy Sygnia TempoQuest
Use Case: Industrial Digital Twins **Benefit:** Reduce unplanned downtimes and protect worker health and safety (Honeywell, Gurobi Optimization GTC talk & blog, Optimizing Intralogistics blog, Talk to Your Supply Chain Data Using NIM, tech blog, HPC explained) • Autonomous Operations • Predictive Maintenance • Industrial Process Simulation • Maintenance and Operations Support	Data Science Edge Computing Generative AI: Reasoning Retrieval/RAG Guardrails HPC Optimizer Engine Physics-ML Rendering / Ray Tracing Simulation / Modeling Virtualization	Metropolis microservices NVIDIA AI Enterprise NVIDIA NIMs, cuOpt NIM, Modulus, NeMo Retriever, Guardrails, Guardrails blog, RAG RAPIDS (cuDF, cuIO, cuML) Virtual GPU (vGPU) Omniverse Enterprise RTX technology RTX virtual Workstation (vWS)	Accelerated Computing Solutions Accelerated Networks Data Center DGX BasePOD for Energy DGX Cloud DGX NeMo LLM Solution Brief Jetson OVX RTX Systems	AspenTech AVEVA (Schneider Electric) Bentley Systems Beyond Limits CPFD Dassault Systèmes Domino Data Lab GE Vernova Honeywell Rescale Rockwell Automation Siemens Energy

Accelerating Transformation in Energy – Power and Utilities

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NVIDIA Accelerated Computing Full-Stack

Use Case / Transformational Conversation	Workloads	NVIDIA Platforms, Microservices, Application Frameworks, Dev Tools	NVIDIA Accelerated Computing	Key ISV's
Use Case: Software-Defined Smart Grid **Benefit:** Manage distributed energy resources (DERs) using AI at the grid-edge for enhanced resiliency and reliability (Utilidata-UMTRI, GTC24 talks: Utilidata & Hubbel Inc, EPRI) • Grid Simulation • Grid Management • Grid-Edge Distributed Intelligence	Data Analytics / Data Processing Data Science Edge Computing Simulation / Modeling	NVIDIA AI Enterprise CUDA, CUDA-X Fleet Command	Jetson	DigSilent Utilidata
Use Case: Utility Contact Center Agent Assist **Benefit:** Support contact center agents with generative AI to improve customer resolution time and experience (AWS Case Study Minerva CQ) • Real-time dialogue suggestions • Customer sentiment analysis • Optimal customer experience journey	Data Analytics / Data Processing Data Science Generative AI: Reasoning Retrieval/RAG Guardrails	NVIDIA AI Enterprise NVIDIA NIMs NeMo Retriever, Guardrails, Guardrails blog, RAG CUDA, CUDA-X RAPIDS Riva	DGX Cloud DGX NeMo LLM Solution Brief GPU Cloud Computing RTX-powered AI Workstations	Minerva CQ, blog
Use Case: Utility Substation Security and Visual Inspection **Benefit:** Proactively monitor and secure critical grid infrastructure with vision AI (Multi-camera Tracking, Vision AI tech blog) • Substation Cyber/Physical Intrusion Detection • Substation Predictive Maintenance • Substation Access Control • Visual Inspection of Utility infrastructure • Field Technician Health and Safety • AI Workflow: Multi-Camera Tracking	Data Analytics / Data Processing Data Science Edge Computing	NVIDIA AI Enterprise Morpheus Metropolis microservices	Jetson	IronYun Noteworthy.ai

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Financial Services Use Cases

Accelerating Transformation in Financial Services – Trading

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NVIDIA Accelerated Computing Full-Stack

Use Case / Transformational Conversation	Workloads	NVNVIDIA Platforms, Microservices, Application Frameworks, Dev Tools	NVIDIA Accelerated Computing	Key ISV's
Use Case: HPC in Quantitative Finance **Benefit:** Maximize performance, speed-up and power efficiency (GTC24 talks: JP Morgan Chase, Hudson River Trading) • Expand scope and use of accelerated computing for HPC • Quant Finance, Risk Management, Systemic Algorithmic Trading • Price Discovery, Risk Valuation & Simulation, Portfolio Allocation, Algorithmic trading, Model Backtesting, Arbitrage	AI/ML Counterparty Risk Monte Carlo Risk Simulations Market Risk Market Generator and Simulator Simulation / Modeling	HPC SDK CUDA-X Math Libraries (cuBLAS, cuFFT, cuRAND, cuSolver)	Accelerated Computing Solutions Accelerated Networks BlueField-3 DPUs Data Center DGX BasePOD for Financial Services -> DGX SuperPOD DGX Cloud GPU Cloud Computing	Bloomberg CME FactSet KX LSEG Murex Nasdaq S&P Global
Use Case: LLM / Natural Language Processing (NLP) for Trading Research **Benefit**: Expand scope and use of accelerated computing in ML / LLM workloads (GTC24 talks: Nasdaq, Walleye Capital, Cohen & Steers, Generative AI in FSI with WAIFC, State of AI in Financial Services, Financial Analysis with NIM tech blog) • Trading Research • Idea Generation • AI Workflow: Generative AI-Powered Chatbots Using RAG	Data Analytics / Processing Data Science Generative AI: Reasoning Retrieval/RAG Speech AI/NLP Guardrails ML & LLM Algorithms	NVIDIA AI Enterprise NVIDIA NIMs NeMo Retriever, Guardrails, Guardrails blog, RAG RAPIDS (cuDF, cuGraph, cuML) RAPIDS Accelerator for Apache Spark, Accelerated Spark Analysis Tool Riva NVIDIA AI Workbench, blog	Accelerated Computing Solutions Accelerated Networks Data Center DGX BasePOD for Financial Services -> DGX SuperPOD DGX Cloud GPU Cloud Computing RTX-powered AI Workstations	Bloomberg CME Dataiku FactSet Kinetica KX LSEG Murex Nasdaq S&P Global
Use Case: Data Processing Optimization **Benefit:** Speedup lowers cost with faster time to insight; improve Data Science accuracy of models, productivity, and reduce cost Accelerated data processing in the Data Prep, ETL • Market, Trade, Fundamental • Pre-Calcs (Price & Risk), Research, Model Backtesting, Systemic Trading	Alternative Data Merge Cleansing (dedupe, extract HTML, compress) Data Analytics / Processing Data Science Normalization	NVIDIA AI Enterprise RAPIDS (cuDF, cuGraph, cuML) RAPIDS Accelerator for Apache Spark, Accelerated Spark Analysis Tool	Accelerated Computing Solutions Data Center DGX BasePOD for Financial Services-Run:ai, DGX SuperPOD DGX Cloud GPU Cloud Computing RTX-powered AI Workstations	Cloudera Dataiku Domino Data Lab Kinetica Run:ai Snowflake

Accelerating Transformation in Financial Services – Banking

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NVIDIA Accelerated Computing Full-Stack

Use Case / Transformational Conversation	Workloads	NVIDIA Platforms, Microservices, Application Frameworks, Dev Tools	NVIDIA Accelerated Computing	Key ISV's
Use Case: Threat Detection **Benefit:** Identify threats and anomalies to identify and respond quickly (insider threat detection and data breach) AI Powered Banking – Cybersecurity • Monitor transactions, account activity, in real-time • Monitor all users, devices, and data across the network • Data protection • AI Workflows: Digital Fingerprinting, Spear Phishing Detection	Cybersecurity / Fraud Data Analytics / Processing Detection Data Science Edge Computing Simulation / Modeling	NVIDIA AI Enterprise Morpheus RAPIDS (cuDF, cuGraph, cuML) RAPIDS Accelerator for Apache Spark, Accelerated Spark Analysis Tool	Accelerated Computing Solutions BlueField-3 DPUs Data Center DGX BasePOD for Financial Services -> DGX SuperPOD DGX Cloud GPU Cloud Computing RTX-powered AI Workstations	Crowdstrike, Dataiku, Domino Data Lab. FeatureSpace, Finestra, Jack Henry, Kinetica, Nice Actimize, Quantifind, SWIFT, Temenos
Use Case: Fraud Prevention, Compliance, Credit Risk Management **Benefit:** Better meet regulatory guidance and compliance requirements; improve Data Science productivity and reduce cost (BNY Mellon, State of AI in Financial Services) AI Powered Banking - Intelligent Automation and Cost Reduction • Automate fighting financial crime (Anti-Money Laundering - AML / Know Your Customer - KYC) • Improve credit risk modeling / optimizing reserves • Risk Management, Fraud Detection, Cost Reduction	Cybersecurity / Fraud Detection Data Analytics / Processing Data Science Generative AI: Reasoning Retrieval/RAG Speech AI/NLP Guardrails Simulation / Modeling	NVIDIA AI Enterprise NVIDIA NIMs NeMo Retriever, Guardrails, Guardrails blog, RAG RAPIDS (cuDF, cuGraph, cuML) RAPIDS Accelerator for Apache Spark, Accelerated Spark Analysis Tool Riva Deep Graph Library (DGL)	Accelerated Computing Solutions Data Center DGX BasePOD for Financial Services - Run:ai, DGX SuperPOD DGX Cloud DGX NeMo LLM Solution Brief GPU Cloud Computing RTX-powered AI Workstations	ComplyAdvantage, Dataiku, Domino Data Lab, FeatureSpace, Instabase, Kinetica, Nice Actimize, Run:ai, Securiti.ai, SWIFT
Use Case: Personalized Customer Service **Benefit:** Deliver more personalized and better customer experiences (BNP Paribas GTC talk, State of AI in Financial Services) AI Powered Banking - Customer Service • ChatBot assisted Call Center interactions • Recommendation systems • AI Workflows: Intelligent Virtual Assistant, Generative AI-Powered Chatbots Using RAG, AI Chatbot for Customer Service	Computer Vision / Video Analytics Data Science Generative AI: Reasoning Retrieval/RAG Speech AI/NLP Guardrails Recommenders / Personalization	NVIDIA AI Enterprise NVIDIA NIMs, ACE NIMs NeMo Retriever, Guardrails, Guardrails blog, RAG Merlin Riva Triton RTX technology	Accelerated Computing Solutions Data Center DGX Cloud DGX NeMo LLM Solution Brief DGX BasePOD for Financial Services -> DGX SuperPOD GPU Cloud Computing OVX RTX-powered AI Workstations	Dataiku Domino Data Lab H20.ai Kore.ai

Accelerating Transformation in Financial Services – Banking

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NVIDIA Accelerated Computing Full-Stack

Use Case / Transformational Conversation	Workloads	NVIDIA Platforms, Microservices, Application Frameworks, Dev Tools	NVIDIA Accelerated Computing	Key ISV's
Use Case: Risk Management **Benefit**: Speed up front/back-office functions by using AI; improve Data Science accuracy of models, productivity, and reduce costs (PingAn GTC24 talk, State of AI in Financial Services) AI Powered Banking – Speedup Front/Back Office • Underwriting (Credit, Products) (Front Office) • Cash Management Forecasting (Back Office) • Customer Behavior Prediction (Front Office)	Data Analytics / Processing Data Science Generative AI: Reasoning Retrieval/RAG Speech AI/NLP Guardrails	NVIDIA AI Enterprise NVIDIA NIMs NeMo Retriever, Guardrails, Guardrails blog, RAG Merlin RAPIDS (cuDF, cuGraph, cuML) RAPIDS Accelerator for Apache Spark, Accelerated Spark Analysis Tool Riva Triton	Accelerated Computing Solutions Data Center DGX BasePOD for Financial Services - Run:ai, DGX SuperPOD DGX Cloud DGX NeMo LLM Solution Brief GPU Cloud Computing RTX-powered AI Workstations	Dataiku Domino Data Lab H20.ai Instabase Kinetica Run:ai, Run:ai Webinar
Use Case: Personalized Marketing and Customer Experience (Capital One GTC24 talk, State of AI in Financial Services) AI Powered Banking - AI-Enabled Marketing • Incorporate multiple data streams into recommendation models to feed Generative AI models that generate text, images, emails, marketing creative • Create an enhanced personalized experience for the customer • Personalized recommendations for cross-selling additional products and services	Generative AI: Reasoning Retrieval/RAG Speech AI/NLP Guardrails Recommenders / Personalization	NVIDIA AI Enterprise NVIDIA NIMs NeMo Retriever, Guardrails, Guardrails blog, RAG Merlin Riva	Accelerated Computing Solutions Data Center DGX BasePOD for Financial Services -> DGX SuperPOD DGX Cloud DGX NeMo LLM Solution Brief GPU Cloud Computing RTX-powered AI Workstations	Dataiku Domino Data Lab H20.ai SWIFT

Accelerating Transformation in Financial Services – Payments

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NVIDIA Accelerated Computing Full-Stack

Use Case / Transformational Conversation	Workloads	NVIDIA Platforms, Microservices, Application Frameworks, Dev Tools	NVIDIA Accelerated Computing	Key ISV's
Use Case: Transaction Fraud Prevention with End-to-End Data Science **Benefit:** Improve Data Science productivity and reduce cost; optimize Throughput (offline models) and Latency (online models) (American Express, bung, PayPal, State of AI in Financial Services) AI Powered Payments - Fraud Prevention focusing on payments, real-time transactions, and ID verification • Accelerated data processing and end-to-end ML pipeline • Data Factory - Transformations (Feature Engineering, Dataset Curation) • Model Building - Training (XGBoost, RNN, Transformers, GraphNN) • Triton optimal inference serving **Applied to** • Business Payments Fraud Detection • Customer Transaction Fraud: credit card fraud, • Application Fraud • Chargeback/return fraud, account takeover, etc.	Anomaly Detection Cybersecurity / Fraud Data Analytics / Data Processing Data Science GNN Simulation / Modeling	NVIDIA AI Enterprise Deep Graph Library (DGL) DLFW: PyTorch, TensorFlow RAPIDS Accelerator for Apache Spark, Accelerated Spark Analysis Tool RAPIDS (cuDF, cuGraph, cuML) Triton	Accelerated Computing Solutions BlueField-3 DPUs Data Center DGX BasePOD for Financial Services -> DGX SuperPOD DGX Cloud GPU Cloud Computing RTX-powered AI Workstations	Adyen Brex Cloudera Dataiku Domino Data Lab FeatureSpace Fiserv FIS Klarna PayPal Plaid Snowflake Stripe

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Healthcare and Life Sciences Use Cases

Accelerating Transformation in Healthcare and Life Sciences – BioPharma

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NVIDIA Accelerated Computing Full-Stack

Use Case / Transformational Conversation	Workloads	NVIDIA Platforms, Microservices, Application Frameworks, Dev Tools	NVIDIA Accelerated Computing	Key ISV's
Use Case: Molecular Simulation **Benefit**: Accelerated Computing HPC for Molecular Dynamics Simulation • Lead Optimization • Molecular Dynamics • Quantum Chemistry	HPC Simulation / Modeling	cuQuantum NGC HPC Containers GPU Accelerated AMBER GPU Accelerated GROMACS GPU Accelerated NAMD GPU Accelerated VASP	Accelerated Computing Solutions Accelerated Networks Data Center DGX BasePOD for Healthcare and Life Sciences -> DGX SuperPOD DGX Cloud RTX visual computing platform	Dassault Systémes (BIOVIA) QuBit Pharmaceuticals Rescale AMBER, GROMACS, NAMD, VASP
Use Case: Structural Biology **Benefit**: Accelerated Computing HPC for Cryogenic Electron Microscopy (Cryo-EM) • Target Discovery • Image Processing • 3D Reconstruction	3D Reconstruction Image Processing HPC	NGC HPC Container (RELION) (REgularized LIkelihood OptimizatioN)	Accelerated Computing Solutions Accelerated Networks Data Center DGX BasePOD for Healthcare and Life Sciences -> DGX SuperPOD DGX Cloud	Structura Biotechnology (cryoSPARC)
Use Case: Biomolecular AI Model Development **Benefit**: Accelerated AI Biomolecular Model Training (Amgen, Amgen Case Study, Terray Therapeutics Case Study, Drug Discovery and Design blog) AI for Biomolecular Model Development • Virtual Screening • Protein Binder Design • De novo drug design • Molecular property prediction • Optimized molecule generation • Biomolecular AI Model Building • Biomolecular AI Model Training	Generative AI GenAI and AI Model Training Model Building AI Framework Guardrails	NVIDIA AI Enterprise NVIDIA NIMs, Healthcare NIMs, BioNeMo, BioNeMo Solution Overview NeMo Guardrails, Guardrails blog RAPIDS (cuDF, cuML) NVIDIA AI Workbench, blog	Accelerated Networks RTX-powered AI Workstations	Altos Labs Arsenal Biosciences Dyno Therapeutics Evozyme Genentech Relation Therapeutics Terray Therapeutics

Accelerating Transformation in Healthcare and Life Sciences – BioPharma

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NVIDIA Accelerated Computing Full-Stack

Use Case / Transformational Conversation	Workloads	NVNVIDIA Platforms, Microservices, Application Frameworks, Dev Tools	NVIDIA Accelerated Computing	Key ISV's
Use Case: Generative AI Biomolecular Inference **Benefit**: Accelerated AI biomolecular model inference (Recursion) AI for Biomolecular Model Inference • Virtual Screening / Drug Repositioning • Protein Binder Design • *De novo* Drug Design • Biomolecular Property Prediction • Biomolecular Molecule Generation	Generative AI: Inference Deployment Guardrails	NVIDIA AI Enterprise NVIDIA NIMs, Healthcare NIMs, BioNeMo, BioNeMo Solution Overview NeMo Guardrails, Guardrails blog	Accelerated Computing Solutions Accelerated Networks DGX BasePOD for Healthcare and Life Sciences -> DGX SuperPOD RTX-powered AI Workstations	Charm Therapeutics CytoReason Recursion Terray Therapeutics Weights & Biases
Use Case: Biomedical Imaging • Pre-Clinical, Clinical Image Analysis	Computer Vision Data Analytics / Processing	NVIDIA AI Enterprise MONAI, MONAI cloud APIs	Accelerated Computing Solutions Data Center DGX BasePOD for Healthcare and Life Sciences -> DGX SuperPOD DGX Cloud RTX-powered AI Workstations	Clear ML Dataiku Flywheel ProHawk Rhino Health Weights & Biases V7
Use Case: Real World Evidence and Predictive Modeling **Benefit:** End-to-end Data Analytics pipeline acceleration • Improve data analytics productivity and reduce cost	Data Analytics / Processing Data Science	NVIDIA AI Enterprise RAPIDS RAPIDS Accelerator for Apache Spark, Accelerated Spark Analysis Tool	Accelerated Computing Solutions Data Center DGX BasePOD for Healthcare and Life Sciences -> DGX SuperPOD DGX Cloud RTX-powered AI Workstations	Dataiku Domino Data Lab Run:ai Weights & Biases

Accelerating Transformation in Healthcare and Life Sciences – Med Tech

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NVIDIA Accelerated Computing Full-Stack

Use Case / Transformational Conversation	Workloads	NVIDIA Platforms, Microservices, Application Frameworks, Dev Tools	NVIDIA Accelerated Computing	Key ISV's
Use Case: Medical Image Reconstruction **Benefit:** 50x decrease in image reconstruction time Medical Imaging accelerated Medical Image Reconstruction • Image processing • 3D reconstruction	3D Reconstruction Image Processing Rendering	NVIDIA AI Enterprise CUDA TensorRT RTX technology	GPU Cloud Computing RTX-powered AI Workstations RTX visual computing platform	ProHawk
Use Case: Medical Imaging Device Calibration **Benefit:** 2x decrease in CT calibration time Improving device utilization by accelerating medical imaging and device calibration (Medical Imaging, Digital Surgery, Point of Care) (HPC explained) • Speedup of calibration, increase photon counting CT usage	HPC	NVIDIA AI Enterprise CUDA TensorRT RTX technology	RTX-powered AI Workstations RTX visual computing platform	
Use Case: Medical Imaging AI Development **Benefit:** Accelerated Clinical AI model development Medical Imaging, Digital Surgery • Synthetic Image Generation (tech blog) • Model Training Framework	Synthetic Data Generation Traditional AI Training Annotation and Labeling Federated Learning Generative AI: Reasoning Retrieval/RAG Guardrails	NVIDIA AI Enterprise MONAI Core, MONAI cloud APIs NVIDIA NIMs, Healthcare NIMs NeMo Guardrails, Guardrails blog, RAG Merlin NVIDIA AI Workbench, blog	Accelerated Computing Solutions Data Center DGX BasePOD for Healthcare and Life Sciences -> DGX SuperPOD DGX Cloud DGX NeMo LLM Solution Brief RTX-powered AI Workstations	Clear ML Dataiku Flywheel Rhino Health Weights & Biases
Use Case: Clinical AI Inference **Benefit:** Accelerated Clinical AI inferencing • non-realtime (Medical Imaging)	Computer Vision Traditional AI Inference Video Analytics	NVIDIA AI Enterprise MONAI TensorRT Triton RTX technology	IGX ConnectX Jetson RTX-powered AI Workstations RTX visual computing platform	Newton's Tree Nuance Prohawk

Accelerating Transformation in Healthcare and Life Sciences – Med Tech

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NVIDIA Accelerated Computing Full-Stack

Use Case / Transformational Conversation	Workloads	NVIDIA Platforms, Microservices, Application Frameworks, Dev Tools	NVIDIA Accelerated Computing	Key ISV's
Use Case: Real-time Clinical AI Inference **Benefit:** 2x faster time to market, 40% reduction in cost of engineering (Dev and Maintenance) Accelerated Clinical AI Inferencing at the edge (Medical Imaging, Digital Surgery, Point of Care) • Real-time streaming video • Ultra low latency AI inferencing (<10ms)	Computer Vision / Video Analytics Traditional AI Inference Video Streaming	Holoscan NVIDIA AI Enterprise TensorRT Triton RTX technology	IGX ConnectX Jetson RTX-powered AI Workstations RTX visual computing platform	ODM: Advantech ADLINK Dedicated Computing MBX (Ahead)
Use Case: Medical Visualization (AR/VR) **Benefit:** Medical Visualization (AR/VR) for Digital Surgery Assist and Smart Hospitals • Digital Twin of OR • Simulation of surgeries (University Hospital Bonn, Atlas Meditech) • Digital Twin of Hospital • AR Surgery Assist	AR / VR Cloud Streaming Data Aggregation HPC Physics-ML Rendering / Ray Tracing Simulation / Modeling USD Data Pipeline Video Streaming,Virtualization	Holoscan CloudXR NVIDIA AI Enterprise Modulus TensorRT Virtual GPU (vGPU) Omniverse Enterprise RTX technology RTX virtual Workstation (vWS)	Accelerated Computing Solutions GPU Cloud Computing IGX, ConnectX, Jetson RTX-powered Spatial Framework RTX Systems RTX visual computing platform	MagicLeap ProHawk
Use Case: Robotic Control (Computex PR) • Robotic Control for Medical Imaging, Digital Surgery (Atlas Meditech), Point of Care	Robotics	Holoscan Isaac SDK NVIDIA AI Enterprise TensorRT Triton RTX technology	IGX, ConnectX, Jetson RTX visual computing platform	ODM: Advantech ADLINK Dedicated Computing MBX (Ahead)
Use Case: Sensor Integration **Benefit:** Sensor data ingestion pipeline for Medical Imaging, Digital Surgery, Point of Care • Sensor Processing, IoT	IoT Sensor Data Processing	Holoscan Sensor Bridge NVIDIA AI Enterprise Clara	Accelerated Computing Solutions IGX, ConnectX, Jetson	FPGA Partners: Lattice Semiconductor Microchip

Accelerating Transformation in Healthcare and Life Sciences – Genomics

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NVIDIA Accelerated Computing Full-Stack

Use Case / Transformational Conversation	Workloads	NVIDIA Platforms, Microservices, Application Frameworks, Dev Tools	NVIDIA Accelerated Computing	Key ISV's
Use Case: Single Cell and Spatial Tertiary **Benefit:** Accelerated clustering and analytics, reduce analysis time from hours to minutes • Enable real-time data analysis • Iterate faster	Data Analytics / Processing HPC	NVIDIA AI Enterprise RAPIDS (cuCIM) TensorRT RTX technology	Accelerated Computing Solutions RTX-powered AI Workstations RTX visual computing platform	scVerse TGen
Use Case: NGS - Genomic Secondary Analysis **Benefit:** Alignment and Variant Calling - Next Generation Sequencing (AWS Case Study Agilent Technologies) • Increase Throughput • Decrease turn-around time • Reduce cost per sample • Improve accuracy with AI	Alignment Data Analytics / Processing Variant Calling	NVIDIA AI Enterprise NVIDIA NIMs (fq2bam, Parabricks – DeepVariant) Clara Parabricks RTX technology	Accelerated Computing Solutions GPU Cloud Computing RTX-powered AI Workstations RTX visual computing platform	Agilent Technologies SOPHiA GENETICS Genomics-as-a-Service: DNAnexus FormBio Terra
Use Case: Spatial Genomic Secondary Analysis **Benefit:** Accelerated Spatial Genomic Secondary Analysis • Faster cell segmentation • Higher Image Processing throughput • Faster 3D Reconstruction	3D Reconstruction Cell Segmentation Image Processing	NVIDIA AI Enterprise Clara TensorRT RAPIDS (cuCIM) RTX technology	Accelerated Computing Solutions RTX-powered AI Workstations RTX visual computing platform	Deep Cell Nanostring
Use Case: Genomic Primary Analysis **Benefit:** Accelerated Genomic Primary Analysis • Reduce instrument run time • Increase basecalling accuracy • Enable more data generation	Base Calling Sensor Processing	NVIDIA AI Enterprise CUDA TensorRT RTX technology	Accelerated Computing Solutions RTX-powered AI Workstations RTX visual computing platform	Oxford Nanopore PacBio Singular Genomics Ultima

Accelerating Transformation in Healthcare and Life Sciences

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NVIDIA Accelerated Computing Full-Stack

Use Case / Transformational Conversation	Workloads	NVIDIA Platforms, Microservices, Application Frameworks, Dev Tools	NVIDIA Accelerated Computing	Key ISV's
Use Case: Cybersecurity Threat Detection **Benefit**: Provide complete visibility to identify and respond to threats / vulnerabilities quickly • Cybersecurity - Monitor all users, devices, and data across the network • Insider threat detection • AI Workflow: Digital Fingerprinting	Cybersecurity / Fraud Detection	NVIDIA AI Enterprise Morpheus	Accelerated Computing Solutions BlueField DPUs GPU Cloud Computing RTX-powered AI Workstations	Crowdstrike
Use Case: Software Securing Vulnerability Analysis **Benefit**: Leverage generative AI agents and LLMs to reduce the time to analyze and address security vulnerabilities in software • AI Workflows: CVE Analysis • GTC24 talk How to Apply Generative AI to Improve Cybersecurity	Generative AI: AI Agents Retrieval/RAG Guardrails	NVIDIA AI Enterprise NVIDIA NIMs Morpheus NeMo, Retriever, Guardrails, Guardrails blog, RAG	Accelerated Computing Solutions BlueField DPUs GPU Cloud Computing RTX-powered AI Workstations	Crowdstrike Trend Micro Zscaler

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Higher Education and Research Use Cases

Accelerating Transformation in Higher Education and Research

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NVIDIA Accelerated Computing Full-Stack

Use Case / Transformational Conversation	Workloads	NVIDIA Platforms, Microservices, Application Frameworks, Dev Tools	NVIDIA Accelerated Computing	Key ISV's
Use Case: DNA & RNA Genomic Sequencing Analysis **Benefit:** Accelerate genomic research/discovery and enable research at scales and scopes not previously possible (Webinar Accelerating Gene Variant Detection with Deep Learning, Webinar Accelerating Large-Scale Genomics Research, HPC explained) • Genomic Research	HPC	NVIDIA AI Enterprise NVIDIA NIMs Clara Parabricks RAPIDS (cuCIM)	Accelerated Computing Solutions Accelerated Networks Data Center GPU Cloud Computing	Rescale
Use Case: Weather and Climate Prediction **Benefit:** Improve weather and climate prediction (blog researcher series, HPC explained) Digital Twins - Earth2 modeling • Climate Research	Data Analytics / Processing Data Science Digital Twin HPC Physics-ML Simulation / Modeling Virtualization	NVIDIA AI Enterprise Modulus Virtual GPU (vGPU) Omniverse Enterprise RTX technology RTX virtual Workstation (vWS)	Accelerated Computing Solutions Accelerated Networks Data Center GPU Cloud Computing OVX RTX-powered AI Workstations RTX Systems	Mathworks Rescale
Use Case: Quantum Research **Benefit:** Enable the advancement of Quantum research and simulation of Quantum H/W at scale (BASF, Juelich Supercomputing Centre) • Supercomputing to accelerate Quantum Computing research	Algorithm Development Quantum Computing Simulation / Modeling	CUDA-Q cuQuantum	Accelerated Networks DGX Quantum	
Use Case: GPU as-a-Service **Benefit:** Maximize system utilization, reduce researchers locking in entire nodes (University of Florida) • Shared AI infrastructure • Create granular segmentation of institute resources • Data Science	Data Science Computer Graphics & Visualization Virtualization	NVIDIA AI Enterprise Virtual GPU (vGPU) RTX technology RTX virtual Workstation (vWS)	Accelerated Networks Data Center	

Accelerating Transformation in Higher Education and Research

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NVIDIA Accelerated Computing Full-Stack

Use Case / Transformational Conversation	Workloads	NVIDIA Platforms, Microservices, Application Frameworks, Dev Tools	NVIDIA Accelerated Computing	Key ISV's
Use Case: Robotics **Benefit:** Full-stack acceleration for cloud-to-edge systems, acceleration libraries, and optimized AI models to develop, train, simulate, deploy, operate, and optimize robot systems and software (ORBIT-Surgical, NVIDIA Seattle Robotics Lab, NVIDIA and The AI Institute GTC24, Vision AI tech blog) • Digital Twin • Incorporating simulation systems with physical robots • Powering robotic systems with AI (NLP, computer vision) • Robotic Factory Digital Twin with Omniverse • Train robots with optimized decision making	Computer vision Edge computing HPC Simulation/Modeling Multimodal LLM Optimizer Engine Speech AI/NLP Physics-ML Visualization	Jetson modules/SDK, Jetson Software Metropolis microservices Deepstream NVIDIA AI Enterprise cuOpt NIM Riva, Riva – Robot Dog Demo Triton Omniverse Enterprise Isaac ROS Isaac SIM	Accelerated Computing Solutions Jetson Orin OVX RTX-powered AI Workstations	
Use Case: Campus IT "AI-as-a-service" **Benefit:** Self-hosted models and API access to leading edge GenAI architectures. Class registration, lecture summarization, RAG on research datasets • Success stories of GenAI in academic settings spread the art of the possible • RAG solutions for improving student outcomes, e.g. lecture summarization and personalized study/test tools. • Centralized AI infrastructure can serve both research purposes, and higher ed institutional compute needs.	Generative AI: Reasoning Retrieval/ RAG Model fine-tuning Inference	NVIDIA AI Enterprise NVIDIA NIMs NeMo Retriever, RAG TRT-LLM	Accelerated Computing Solutions GPU Cloud Computing	

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HPC / Supercomputing Use Cases

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Accelerating Transformation in HPC / Supercomputing

NVIDIA Accelerated Computing Full-Stack

Use Case / Transformational Conversation	Workloads	NVIDIA Platforms, Microservices, Application Frameworks, Dev Tools	NVIDIA Accelerated Computing	Key ISV's
Use Case: Respond to Pandemic Scale Virus Workflow that combines Genomic modeling with LLM, Molecular dynamics steered by AI with Diffusion models combined with generative proteomic models to predict variants and inform a self driving Biology Lab. (Argonne National Laboratory, Juelich Supercomputing Centre, HPC, Megatron-Core tech blog) • Converged Biology model with Digital Twin • Self Driving Biology Lab, robot training	Conventional ModSim LLM/Generative AI: Direct and Proximal Preference Optimization, Guardrails AI - DeepDriveMD for ensemble steering MD Simulations Edge Computing	Holoscan NVIDIA AI Enterprise NVIDIA NIMs, Clara Parabricks, Megatron, NeMo Retriever, Guardrails, Guardrails blog, RAG, RAPIDS Accelerator for Apache Spark, NVIDIA AI Workbench, blog Omniverse Enterprise, Isaac Sim	Accelerated Computing Solutions Accelerated Networks Data Center DGX NeMo LLM Solution Brief DGX SuperPOD GPU Cloud Computing OVX RTX-powered AI Workstations	AlphaFold Colmena OpenMM or NAMD
Use Case: Digital Twin for Fusion Reactor with Integrated Research Infrastructure Workflow that combines Conventional ModSim apps with Surrogate models along with ML Prediction and Control as part of the real time control system, where some models run at a remote data center. (UKAEA and University of Manchester, tech blog, HPC) • Converged plasma physics model with Digital Twin • Self Driving Physics Experiment, on-line self driving real time control, reinforcement learning trained with experiment data	Conventional ModSim Plasma Physics Models with Surrogates trained with simulated data Reinforcement Learning	Holoscan HPC SDK NVIDIA AI Enterprise Modulus RAPIDS Accelerator for Apache Spark Omniverse Enterprise	Accelerated Computing Solutions Accelerated Networks Data Center DGX SuperPOD GPU Cloud Computing OVX	CGYRO GEANT GTC GX simulator JOREK TGLF transport model XGC fusion simulation
Use Case: Converged Models for Advanced Material Science AI is used to achieve the fidelity of quantum-chemistry methods with the scale of classical molecular dynamics (SC21, HPC) • Model the plasma facing material in a fusion Reactor • Study radiation damage in semiconductors	Conventional Molecular Dynamics Ab Initio MoDSim Machine Learned Interatomic Potential Electronic Structure Methods	HPC SDK NVIDIA AI Enterprise RAPIDS Accelerator for Apache Spark	Accelerated Computing Solutions Accelerated Networks Data Center DGX SuperPOD GPU Cloud Computing	GAMESS Gaussian LAMMPS MLIP SNAP VASP
Use Case: Quantum Computing Quantum computing has the potential to offer giant leaps in computational capabilities. The ability of scientists, developers, and researchers to simulate quantum circuits on classical computers is vital to getting us there (Juelich Supercomputing Centre, tech blog)	Quantum circuit simulation Quantum machine learning Quantum chemistry	CUDA-Q cuQuantum SDK	Accelerated Networks DGX SuperPOD	Cirq, PennyLane, Qibo, Qiskit, QuEST, Qulacs, TorchQuantum, XACC

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Manufacturing and Industrials Use Cases

Accelerating Transformation in Manufacturing and Industrials

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NVIDIA Accelerated Computing Full-Stack

Use Case / Transformational Conversation	Workloads	NVIDIA Platforms, Microservices, Application Frameworks, Dev Tools	NVIDIA Accelerated Computing	Key ISV's
Use Case: Generative AI for Technician Support **Benefit:** Technician/ worker productivity augmentation (AT&T) • Industrial co-pilot (Continental)	Data Curation Distributed training Generative AI: Customization (prompt engineering, prompt learning, PEFT, fine-tuning) Inference Retrieval/RAG Guardrails	NVIDIA AI Enterprise NVIDIA NIMs NeMo Retriever, Guardrails, Guardrails blog, RAG NVIDIA AI Workbench, blog	Accelerated Computing Solutions Data Center DGX Cloud DGX NeMo LLM Solution Brief GPU Cloud Computing RTX-powered AI Workstations RTX Systems	FM model provider: Meta, Mosaic, Open AI, etc. Vector database: Faiss, Mango DB, Milvus, etc. Embedding model: E5 small, E5 large, etc.
Use Case: Intelligent Automation for Internal Product Innovation and Design Teams **Benefit:** Researcher/ engineer productivity augmentation • Generative AI for Chip Design (ChipNeMo)	Data Curation Distributed training Generative AI: Customization (prompt engineering, prompt learning, PEFT, fine-tuning) Inference Retrieval/RAG Guardrails	NVIDIA AI Enterprise NVIDIA NIMs NeMo Retriever, Guardrails, Guardrails blog, RAG	Accelerated Computing Solutions Data Center DGX Cloud DGX NeMo LLM Solution Brief GPU Cloud Computing	FM model: Meta, Mosaic, Open AI, etc. Vector database: Faiss, Mango DB, Milvus, etc . Embedding model: E5 small, E5 large, etc.
Use Case: Faster Product Design, Full-fidelity Visualization and Real-time Photorealistic Rendering **Benefit:** Maximize designer productivity, better informed decision-making, process efficiency (Alstom, M4 Engineering) • Concurrent design (CAD) with real-time interactive photorealistic visualization • AI-powered rendering denoising, Deep Learning for generative design, Generative AI for conceptual design iteration • Faster iteration on creation of compelling renders for design reviews, customer presentations • Interactive photorealistic visualization of products	Design Generative AI: Visual Design Rendering / Ray Tracing Virtualization	NVIDIA AI Enterprise Virtual GPU (vGPU) Omniverse Enterprise RTX technology RTX virtual Workstation (vWS)	Accelerated Computing Solutions Data Center OVX RTX visual computing platform	Autodesk Chaos (V-Ray, Vantage, Enscape) Dassault Systèmes Luxion KeyShot PTC Siemens Unreal Engine

Accelerating Transformation in Manufacturing and Industrials

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		NVIDIA Accelerated Computing Full-Stack		
Use Case / Transformational Conversation	**Workloads**	**NVIDIA Platforms, Microservices, Application Frameworks, Dev Tools**	**NVIDIA Accelerated Computing**	**Key ISV's**
Use Case: Virtual Factory **Benefit**: Develop USD-based tools, applications, and data pipelines to accelerate and unlock new possibilities (BMW, Mercedes Benz, Delta Electronics, Foxconn, Wistron, Continental, Pegatron, Optimizing Intralogistics blog, Talk to Your Supply Chain Data Using NIM) • Factory planning • Process simulation • Robotics training • Operations • AI Workflow: Multi-Camera Tracking	Data Aggregation Digital Twin Optimizer Engine Rendering / Ray Tracing Simulation / Modeling / Design USD Data Pipeline Virtualization	Metropolis microservices (Multi-camera Tracking) NVIDIA AI Enterprise cuOpt NIM, Modulus Virtual GPU (vGPU) Omniverse Cloud Omniverse Enterprise Isaac Sim, Omniverse Replicator Reality Capture RTX technology	Accelerated Computing Solutions Microsoft Azure, Omniverse Cloud OVX RTX Systems RTX visual computing platform	Autodesk (FlexSim), Bentley (MicroStation), Dassault Systèmes (DELMIA, ENOVIA, CATIA), Hexagon, ipolog, Rockwell Automation, Siemens (Tecnomatix, Teamcenter, NX), SyncTwin, Visual Components
Use Case: Vision-based Automation & Safe Autonomous Systems **Benefit:** Throughput improvement (10X for AOI, 100 picks per minutes for robotics), analytics accuracy improvement (99.8% accuracy on AOI), lower cost of development & support (5X model building speedup) (Pegatron, Soft Robotics, Verdant, Kawasaki Heavy Industries, Vision AI tech blog) Industrial automation and autonomous systems • More accurate and robust automation, safe autonomous systems • Customer in-house algorithms and partner solutions	Computer Vision / Video Analytics Optimizer Engine Robotics (sensor perception, mapping, path planning, human robot interaction, situational awareness, safety) Video Streaming	Holoscan SDK Isaac SDK Metropolis microservices NVIDIA AI Enterprise cuOpt NIM Omniverse Enterprise	Accelerated Computing Solutions (Inference) Data Center GPU Cloud Computing (Training) OVX AGX, IGX, Isaac Nova Orin	Cogniac Landing AI ProHawk
Use Case: Industrial Automation – Robotics **Benefit:** Accelerate Robotics Development & Simulation (Teradyne, Computex blog, tech blog) • Kinematics, Behavior, Synthetic Data Generation • Training Large Behavioral Models	Digital Twin Edge Computing Rendering / Ray Tracing Simulation / Modeling / Design Synthetic Data Generation Training Virtualization	NVIDIA AI Enterprise Omniverse Enterprise Isaac Sim RTX technology	Accelerated Computing Solutions OVX Jetson (Orin) Isaac Nova Orin IGX	ROS Siemens (Process Simulate) Visual Components ODMs: Advantech ADLINK

Accelerating Transformation in Manufacturing and Industrials

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NVIDIA Accelerated Computing Full-Stack

Use Case / Transformational Conversation	Workloads	NVIDIA Platforms, Microservices, Application Frameworks, Dev Tools	NVIDIA Accelerated Computing	Key ISV's
Use Case: **AI and HPC-Driven Field Operation and Service** **Benefit:** Increase in safety and efficiency, and a decrease in time and costs for inspection and maintenance. Estimated $218M saving across 7 major railway operators every year (Kawasaki Heavy Industries, Factory Digital Twin, Vision AI tech blog)	Object detection and identification Optimizer Engine Routing optimization	Metropolis microservices NVIDIA AI Enterprise cuOpt NIM	Accelerated Computing Solutions Accelerated Networks Data Center GPU Cloud Computing Jetson Orin OVX RTX Systems	
Use Case: Accelerated Engineering Simulation (CAE) **Benefit:** More design cycles, less physical testing; TCO savings on infrastructure, 5X or more speedups over CPU based solvers, Accelerated Computing allows more CAE throughput at lower cost and power consumption – Better Products Faster (Trek Bicycle, Mercedes Benz GTC24 talk) • CFD, Electromagnetics, Particle Simulations, Structural Mechanics (HPC explained) • Design Optimization	Simulation / Modeling / Design Virtualization HPC Physics-ML	HPC SDK NVIDIA AI Enterprise CUDA, CUDA-X Modulus Virtual GPU (vGPU) Omniverse Enterprise RTX technology RTX virtual Workstation (vWS)	Accelerated Computing Solutions AccAccelerated Networks Data Center GPU Cloud Computing OVX RTX Systems	Altair Ansys Cadence Dassault Systèmes Hexagon Rescale Siemens Synopsys
Use Case: XR for Design, Design Reviews, and Global Collaboration Across Remote Teams **Benefit:** Faster, better informed decision-making during design (Volvo Group), Photorealistic rendering for spatial computing (Apple Vision Pro) • Extended reality (XR) • Advanced XR innovations allow design teams to view high-fidelity augmented reality content • High-fidelity, immersive VR experiences with AIO headsets	AR / VR Cloud Streaming Design Rendering / Ray Tracing Virtualization	CloudXR NVIDIA AI Enterprise Virtual GPU (vGPU) RTX technology RTX virtual Workstation (vWS)	Accelerated Computing Solutions GPU Cloud Computing RTX visual computing platform	Autodesk Chaos Dassault Systèmes Luxion KeyShot PTC Siemens HMD vendors: HTC Vive, Meta, Pimax, Varjo

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Media & Entertainment Use Cases

Accelerating Transformation in Film & Television

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NVIDIA Accelerated Computing Full-Stack

Use Case / Transformational Conversation	Workloads	NVIDIA Platforms, Microservices, Application Frameworks, Dev Tools	NVIDIA Accelerated Computing	Key ISV's
Use Case: AI Foundry Services **Benefit**: Quick ideation, faster iterations, new opportunities (GenAI for M&E, GTC24: Next Gen AI Startups, Beyond the Screen) • Gen AI for accelerated content creation and personalization • Text generation, localization and summarization • Customer service intelligent chatbots and avatar • AI Workflows: Intelligent Virtual Assistant, Generative AI-Powered Chatbots Using RAG, AI Chatbot for Customer Service	Generative AI: Reasoning Retrieval/RAG Speech AI/NLP Visual Design Guardrails	CV-CUDA Picasso NVIDIA AI Enterprise NVIDIA NIMs, ACE NIMs NeMo Retriever, Guardrails, Guardrails blog, RAG Riva	Accelerated Computing Solutions Accelerated Networks DGX NeMo LLM Solution Brief GPU Cloud Computing	Adobe Bria Getty Images iStock Runway Shutterstock Stable Diffusion
Use Case: Video AI **Benefit**: Higher quality, deeper insights, higher customer engagement, more accessible, content search, personalized trailer creation (GenAI for M&E) • Audio, Video, and Augmented Reality Effects • Transcription, Translation, descriptive audio • Computer Vision (Move AI Markerless MoCap GTC23 talk) • Archive Content restoration • Video generation (Runway GTC24 talk)	Generative AI: Guardrails Video Post-Production Video Conferencing Video Captioning / Subtitling Live Broadcast and Streaming	CV-CUDA Rivermax RTX Super Resolution NVIDIA AI Enterprise NVIDIA NIMs, Maxine, Maxine blog, NeVa NeMo Guardrails, Guardrails blog, Riva	Accelerated Computing Solutions BlueField DPUs GPU Cloud Computing RTX-powered AI Workstations RTX visual computing platform	Adobe Premiere Text Based Editing (blog) Blackmagic Design (Davinci Resolve Neural Engine) Descript Cinnafilm
Use Case: Natural Language Processing (NLP) and Automatic Speech Recognition (ASR) **Benefit:** More accurate, more efficient, lower cost (GenAI for M&E) • Closed Captioning FCC mandate • News and script analysis for audience understanding • Translation of content for wider distribution	Computer Vision Generative AI: Speech AI / NLP Guardrails	NVIDIA AI Enterprise NVIDIA NIMs, ACE NIMs NeMo Guardrails, Guardrails blog Riva	Accelerated Computing Solutions GPU Cloud Computing	Descript Speechmatics VEED.IO
Use Case: Data Analytics, Recommenders, Personalization **Benefit**: Improve Data Science efficiency, effectiveness and lower cost • Analytics acceleration for faster insights • Churn Prediction to stay more competitive • GPU-acceleration for recommenders and customer personalization engines (GTC24 talk Recommendations)	Computer Vision / Video Analytics Data Analytics / Processing Data Science General AI	NVIDIA AI Enterprise RAPIDS (cuDF, cuGraph, cuML) RAPIDS Accelerator for Apache Spark, Accelerated Spark Analysis Tool	Accelerated Computing Solutions Accelerated Networks GPU Cloud Computing	Dataiku Domino Data Lab Kinetica Runway Weights & Biases

Accelerating Transformation in Live Media

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NVIDIA Accelerated Computing Full-Stack

Use Case / Transformational Conversation	Workloads	NVIDIA Platforms, Microservices, Application Frameworks, Dev Tools	NVIDIA Accelerated Computing	Key ISV's
Use Case: Software-Defined Broadcast **Benefit:** Enables greater flexibility, scalability, and agility in the deployment and management of live media services, and increase encoding performance (Cosm GTC24 talk, Cosm, Software-Defined Broadcast Solution) • Dynamically allocate resources • Efficiently handle diverse media formats • Integrate real-time analytics and personalized content delivery	Live Broadcast and Streaming SMPTE ST 2110 Encode / Decode Hyperpersonalization Immersion Interactivity	NVIDIA Holoscan for Media, Holoscan live media AI blog NVIDIA Rivermax Virtualization Visualization	Accelerated Networks GPU Cloud Computing OVX RTX visual computing platform	Beamr, Cinnafilm, Comprimato, EVS, Lawo, Pebble, RED Digital Cinema, RT Software, Speechmatics, Telestream, Twelve Labs, Vizrt (Viz Engine)
Use Case: Video AI **Benefit**: Higher quality, deeper insights, higher customer engagement (GenAI for M&E) • Audio, Video, and Augmented Reality Effects • Transcription, Translation • Computer vision • Content restoration	Generative AI Guardrails Video Post-Production Video Conferencing Video Captioning / Subtitling Live Broadcast and Streaming	Rivermax NVIDIA AI Enterprise NVIDIA NIMs NeMo Guardrails, Guardrails blog Maxine, Maxine blog Riva	Accelerated Computing Solutions BlueField DPUs GPU Cloud Computing RTX visual computing platform	Adobe Premiere Text Based Editing (blog) Cinnafilm Blackmagic Design (Davinci Resolve Neural Engine) Descript Twelve Labs
Use Case: Natural Language Processing (NLP) and Automatic Speech Recognition (ASR) **Benefit:** More accurate, more efficient, lower cost (GenAI for M&E) • Closed Captioning FCC mandate • News and script analysis for audience understanding • Translation of content for wider distribution	Generative AI: Speech AI / NLP Guardrails	NVIDIA AI Enterprise NVIDIA NIMs NeMo Guardrails, Guardrails blog Riva	Accelerated Computing Solutions GPU Cloud Computing	Descript Speechmatics VEED.IO
Use Case: Data Analytics, Recommenders, Personalization **Benefit**: Improve Data Science efficiency, effectiveness, lower cost • Analytics acceleration for faster insights • Churn Prediction to stay more competitive • GPU-acceleration for recommenders and customer personalization engines	Computer Vision / Video Analytics Data Analytics / Processing Data Science General AI	NVIDIA AI Enterprise DALI RAPIDS (cuDF, cuGraph, cuML) RAPIDS Accelerator for Apache Spark, Accelerated Spark Analysis Tool	Accelerated Computing Solutions Accelerated Networks GPU Cloud Computing	Dataiku Domino Data Lab Kinetica Runway Twelve Labs Weights & Biases

Accelerating Transformation in Game Development

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NVIDIA Accelerated Computing Full-Stack

Use Case / Transformational Conversation	Workloads	NVIDIA Platforms, Microservices, Application Frameworks, Dev Tools	NVIDIA Accelerated Computing	Key ISV's
Use Case: AI for Non-Player Characters (NPCs) **Benefit:** Enable new levels of player interaction and immersion (GenAI for M&E) • Create unique situational character dialog • Give all characters a unique voice • Automatically animate lip sync through the delivered dialog • (Kairos Gaming Reference Workflow, ACE tech blog)	Generative AI: Intelligence (Nemotron SLM & LLM) Speech (Text 2 Speech, Speech recognition, translation) Appearance (Audio2Face) Guardrails	Metropolis microservices NVIDIA AI Enterprise NVIDIA NIMs, ACE NIMs (Audio2Face, Riva ASR, NMT, TTS, Nemotron SLM (EA)), NeMo NeMoTron, Retriever, Guardrails, Guardrails blog, RAG NVIDIA AI Workbench, blog	Accelerated Networks DGX Cloud DGX NeMo LLM Solution Brief GPU Cloud Computing	Convai ElevenLabs Inworld
Use Case: AI to Accelerate Game Asset Development **Benefit:** Reduce the time spent on asset iteration (GenAI for M&E) • Concept art generated through natural language • 3D models and textures generated by reference and text • Localization of Text and speech through machine learning • Character facial animation automatically generated by dialog	AI Generative AI: Visual Design Guardrails	CV-CUDA NVIDIA AI Enterprise NVIDIA NIMs NeMo Guardrails, Guardrails blog Riva	Accelerated Computing Solutions Accelerated Networks DGX NeMo LLM Solution Brief GPU Cloud Computing RTX visual computing platform	Adobe (blog) Bria, Getty Images, iStock, Runway, Shutterstock, Stable Diffusion
Use Case: Accelerate Code and Story Development **Benefit:** Improve GenAI response accuracy, reduce latency, optimize throughput, reduce operations costs (GenAI for M&E) • Combine internal knowledge bases with foundation models, without having to train or fine-tune the model • Augment prompts with internal data (e.g. source code, lore) • Responses are more expansive, with source references	Generative AI: Reasoning Retrieval/RAG Guardrails	NVIDIA AI Enterprise NVIDIA NIMs NeMo Retriever, Guardrails, Guardrails blog, RAG	Accelerated Computing Solutions Accelerated Networks DGX NeMo LLM Solution Brief GPU Cloud Computing	Anthropic AI Google Cloud Meta OpenAI
Use Case: Virtualization for Data Center Migration **Benefit:** Provide improved Data/IP security and resource allocation to distributed team, high value assets stay within the data center • Dynamically distribute system resources for easier IT management and greater utilization	VDI Virtualization	Virtual GPU (vGPU) RTX Virtual Workstations (vWS)	Accelerated Computing Solutions Accelerated Networks GPU Cloud Computing RTX visual computing platform	Citrix HP Anywhere/Teradici Nutanix VMware
Use Case: Enterprise Hardware to Enable High Memory Workloads **Benefit:** Increase artist, animator, designer productivity • High GPU memory allows for smooth running of complex scenes on game engine, especially in multi-app workflows • Rendering large game scenes	Environment/Level design 3D model design MoCap Rendering	NVIDIA AI Enterprise	Accelerated Computing Solutions Accelerated Networks GPU Cloud Computing RTX visual computing platform	

Accelerating Transformation in AdTech & Digital Marketing

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NVIDIA Accelerated Computing Full-Stack

Use Case / Transformational Conversation	Workloads	NVIDIA Platforms, Microservices, Application Frameworks, Dev Tools	NVIDIA Accelerated Computing	Key ISV's
Use Case: AI Agents **Benefit:** Accelerate time-to-insight and create actionable intelligence from traditional analytics (GenAI for M&E) • Custom LLM and RAG workflows • Extract intelligence from existing data at rest • Create automations between manual processes	Audience Segmentation Generative AI: Reasoning Retrieval/RAG Guardrails LLM Model Fine Tuning LLM Model Serving SLM Model Training	NVIDIA AI Enterprise NVIDIA NIMs NeMo Retriever, Guardrails, Guardrails blog, RAG	Accelerated Computing Solutions BlueField DPUs GPU Cloud Computing RTX visual computing platform	Databricks Meta Mistral OpenAI Snowflake
Use Case: Generative AI for Ad & Marketing Content Creation **Benefit:** Improve GenAI response accuracy, reduce latency, optimize throughput, reduce operations costs (GenAI for M&E, WPP, Bria, Getty, L'Oréal) • Personalized content for different audiences, (i.e. tailored advertisements, social media posts, promotional videos) • Supercharging creatives & production teams • Brand & campaign specific Visual, Audio and Text AI Models • Guardrails for brand-safe creation	Generative AI: Reasoning Retrieval/RAG Guardrails Multimodal Model Fine Tuning Model Serving LLM Model Fine Tuning LLM Model Serving	Picasso, Edify NVIDIA AI Enterprise NVIDIA NIMs, ACE NIMs NeMo Retriever, Guardrails, Guardrails blog, RAG	Accelerated Computing Solutions Accelerated Networks GPU Cloud Computing RTX visual computing platform	Adobe Bria Grip.tools Haiper.ai tryPencil Synthesia Typeface.ai
Use Case: Applications and Services for 3D Content Supply Chain, Consumer Interaction and Production Automation **Benefit**: Evolve content production at scale, bring 3D & AI to interactive consumer engagements (GenAI for M&E, WPP, Media.Monks, Disney Media & Entertainment Distribution, Denza, Brett Danton, Katana, more demos GDN) • Scaled production • Data driven personalization	Consumer Interactive Avatars Generative AI: Reasoning, Retrieval/RAG, Speech AI / NLP Guardrails OpenUSD Pipeline Personalization Product Configurators	NVIDIA Omniverse NVIDIA AI Enterprise NVIDIA NIMs, ACE NIMs (Audio2Face, ACE Agent, Riva ASR, NMT, TTS), Maxine NeMo Retriever, Guardrails, Guardrails blog, RAG	Omniverse Cloud OVX GDN GPU Cloud Computing	Adobe (Adobe OpenUSD) Autodesk (Autodesk GTC talk) ElevenLabs SAP Synthesia
Use Case: Accelerated Data Science & AI **Benefit:** Faster, lower-latency, more accurate models + algorithms running on less compute with better TCO (Microsoft Bing, Taboola, Pinterest, Capitol One GTC talk) • Analytics, Programmatic, Recommendation	Predictive AI Deep KNN, GNN Hadoop, Apache Spark Generative Recommendation	NVIDIA AI Enterprise NVIDIA NIMs, NeMo Guardrails, Guardrails blog HugeCTR & blog, PyTorch, Triton, RAPIDS, RAPIDS Accelerator for Apache Spark	Accelerated Computing Solutions Accelerated Networks Data Center GPU Cloud Computing	Criteo Databricks Google Ads Snowflake theTradeDesk

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Public Sector (US) Use Cases

Accelerating Transformation in Public Sector (US)

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		NVIDIA Accelerated Computing Full-Stack		
Use Case / Transformational Conversation	**Workloads**	**NVIDIA Platforms, Microservices, Application Frameworks, Dev Tools**	**NVIDIA Accelerated Computing**	**Key ISV's**
Use Case: Enhanced Command & Control, Decision Dominance, and Enterprise Knowledge Discovery **Benefit:** Information advantage through accelerated time to insight, faster and more informed decisions, and knowledge acquisition from enterprise data • Operational Data Analysis, Summarization, and Visualization • Automated Report Generation • Semantic search and knowledge discovery through natural language prompts and enhanced human-machine interface	Data Analytics / Processing Data Science Generative AI: Reasoning Retrieval/RAG Guardrails Large Language Models	NVIDIA AI Enterprise NVIDIA NIMs NeMo Retriever, Guardrails, Guardrails blog, RAG	Accelerated Computing Solutions DGX NeMo LLM Solution Brief DGX SuperPOD	GAI IBM Lockheed Martin Northrop Grumman Palantir Pryon Inc ServiceNow SteamPunk Unstructured.io Yurts AI
Use Case: Customized and Streamlined Public Service Delivery **Benefit:** Provide citizens AI-assisted and customized access to government information and support services Intelligent Chatbots and Conversational Voice Assistants • Digital public service delivery enabling government services and information to be more accessible to citizens • Automated public sector workflows that enable enhanced problem-solving & efficiency of public sector services • Simulates human interaction with constituents • AI Workflow: Generative AI-Powered Chatbots Using RAG	Data Analytics / Processing Data Science Generative AI: Reasoning Retrieval/RAG Speech AI/NLP Guardrails Large Language Models	NVIDIA AI Enterprise NVIDIA NIMs NeMo Retriever, Guardrails, Guardrails blog, RAG Riva	Accelerated Computing Solutions DGX NeMo LLM Solution Brief DGX SuperPOD	GAI IBM ServiceNow
Use Case: Intelligent Automation - Order Management **Benefit:** Generative AI for more efficient decision-making, improved citizen engagement, and enhanced service delivery • Automation of admin tasks and document summarization • Create content, augment datasets, model scenarios, personalize services, and develop conversational interfaces • Communications automation	Generative AI: Reasoning Retrieval/RAG Speech AI/NLP Guardrails	NVIDIA AI Enterprise NVIDIA NIMs NeMo Retriever, Guardrails, Guardrails blog, RAG Riva	Accelerated Computing Solutions DGX NeMo LLM Solution Brief	MosiacML Scale.AI

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Accelerating Transformation in Public Sector (US)

NVIDIA Accelerated Computing Full-Stack

Use Case / Transformational Conversation	Workloads	NVIDIA Platforms, Microservices, Application Frameworks, Dev Tools	NVIDIA Accelerated Computing	Key ISV's
Use Case: Multi-Domain Modeling and Simulation **Benefit:** Improved engagement, enhanced service delivery, efficient decision-making • Autonomous drones / robotics (Vision AI tech blog) • Conversational interfaces • Risk management, incident response, training and awareness • Route optimization	Data Analytics / Processing Data Science Edge Computing Generative AI: Speech AI/NLP Guardrails Optimizer Engine Simulation / Modeling Virtualization	Metropolis microservices Deepstream NVIDIA AI Enterprise NVIDIA NIMs, cuOpt NIM NeMo Guardrails, Guardrails blog Riva Virtual GPU Omniverse Enterprise Isaac SIM RTX technology RTX virtual Workstation (vWS)	Accelerated Computing Solutions Omniverse Cloud OVX RTX Systems	Brightline Interactive Dataiku Domino Data Lab e.sigma Systems Lockheed Martin Northrop Grumman Run:ai Rescale

Accelerating Transformation in Public Sector (US)

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NVIDIA Accelerated Computing Full-Stack

Use Case / Transformational Conversation	Workloads	NVIDIA Platforms, Microservices, Application Frameworks, Dev Tools	NVIDIA Accelerated Computing	Key ISV's
Use Case: GeoSpatial and GeoINT **Benefit:** Time to insight, making faster, more informed decisions, performance acceleration of GeoINT workflows • Highly efficient, GPU-accelerated pre- and post-processing pipelines in cloud-scale Artificial Intelligence (AI) imaging and computer vision (CV) workloads • Visualization and simulation of geospatial environments for digital twins, autonomous systems, sensor / signal processing	Computer Vision / Video Analytics Edge Computing Simulation / Modeling Video Streaming	CV-CUDA NVIDIA AI Enterprise Deep Learning FW - PyTorch DeepStream TensorRT Omniverse Enterprise	Accelerated Computing Solutions Omniverse Cloud OVX	Blackshark.ai Cesium Chooch Crowd.ai ESRI Helsing.ai Hexagon SI Analytics
Use Case: Anomaly Detection and Threat Detection **Benefit:** CyberOps - Proactive defense, rapid incident response, enhanced protection against evolving cyber threats, and accelerate streaming ingest • Mitigating risks, protecting sensitive data • Data governance, data privacy • Risk management, incident response • Helps meet Enterprise ZeroTrust continuous Identification & analysis on every user / device participating on any classified / unclassified network in jurisdiction • Network Tap Monitoring, Continuous Authentication, Ransomware Detection – AI Workflow: Digital Fingerprinting	Cybersecurity / Threat Detection Data Analytics / Processing Data Science Edge Computing Simulation / Modeling	cuQuantum DOCA NVIDIA AI Enterprise Morpheus RAPIDS (cuDF, cuGraph, cuML) Triton TensorRT Omniverse Enterprise	Accelerated Computing Solutions BlueField DPUs OVX	Crowdstrike Dataiku Domino Data Lab Graphistry Kinetica ProHawk Run:ai
Use Case: Virtual Factory **Benefit**: Develop USD-based tools, applications, and data pipelines to accelerate and unlock new possibilities (Optimizing Intralogistics blog, Talk to Your Supply Chain Data Using NIM, Vision AI tech blog) • Factory planning • Process simulation • Robotics training • Operations • AI Workflow: Multi-Camera Tracking	Data Aggregation Digital Twin Optimizer Engine Rendering / Ray Tracing Simulation / Modeling / Design USD Data Pipeline Virtualization	Metropolis microservices (Multi-camera Tracking) NVIDIA AI Enterprise cuOpt NIM, Modulus, Virtual GPU (vGPU) Omniverse Cloud, Omniverse Enterprise, Isaac Sim, Omniverse Replicator, Reality Capture RTX technology	Accelerated Computing Solutions Microsoft Azure, Omniverse Cloud OVX RTX Systems RTX visual computing platform	Brightline Interactive, Cesium, Epic Unreal Engine, ESRI, Hexagon, Huntington Ingalls Newport News, Lockheed Martin, MAXAR, MITRE, Northrop Grumman, Raytheon

Accelerating Transformation in Public Sector (US)

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NVIDIA Accelerated Computing Full-Stack

Use Case / Transformational Conversation	Workloads	NVIDIA Platforms, Microservices, Application Frameworks, Dev Tools	NVIDIA Accelerated Computing	Key ISV's
Use Case: Air Traffic Management Systems Radar and Signal Processing **Benefit:** Time to insight, making faster, more informed decisions Radar and signal processing • GPU Accelerated implementation with SciPy API	Data Analytics / Processing Data Science Edge Computing Simulation / Modeling Video Analytics Video Streaming	Aerial SDK - cuVNF Aerial Research Cloud (ARC) cuSignal NVIDIA AI Enterprise Holoscan Omniverse Enterprise	Accelerated Computing Solutions Omniverse Cloud OVX	Ansys AGI e.sigma Systems HEAVY.AI Kinetica Raytheon Rescale
Use Case: Autonomous Systems Digital Proving Grounds **Benefit:** Enhance preparedness and operational effectiveness Training and simulation • Enable immersive training scenarios, realistic simulations, and efficient collaboration among government personnel • Faster enablement & skillset acquisition of resources in virtual environments	AR / VR Cloud Streaming Data Aggregation Edge Computing Rendering / Ray Tracing Simulation / Modeling USD Data Pipeline Virtualization	CloudXR Virtual GPU (vGPU) Omniverse Enterprise RTX technology RTX virtual Workstation (vWS)	Accelerated Computing Solutions Omniverse Cloud OVX RTX Systems	MITRE OpenXR Rescale SteamVR
Use Case: Resource Routing for Predictive Maintenance **Benefit:** Time to insight, making faster, more informed decisions, reduce cost Improve Data Science productivity and reduce cost • Accelerated data proc/ETL • AI Workflow: Route Optimization, (i.e.,Kawasaki Heavy Industries)	Data Analytics / Processing Data Science Edge Computing Optimizer Engine Simulation / Modeling	NVIDIA AI Enterprise CUDA cuOpt NIM RAPIDS (cuDF, cuGraph, cuML) RAPIDS Accelerator for Apache Spark, Accelerated Spark Analysis Tool Omniverse Enterprise	Accelerated Computing Solutions Omniverse Cloud OVX	Adarga.ai Dataiku Domino Data Lab HEAVY.AI Kinetica Run:ai
Use Case: **Quantum Simulation** Quantum • Supercomputing to accelerate Quantum Computing research	Quantum Computing Simulation / Modeling	cuQuantum	Accelerated Computing Solutions Accelerated Networks DGX SuperPOD	Rescale

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Public Sector (Global) Use Cases

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Accelerating Transformation in Public Sector (Global)

NVIDIA Accelerated Computing Full-Stack

Use Case / Transformational Conversation	Workloads	NVIDIA Platforms, Microservices, Application Frameworks, Dev Tools	NVIDIA Accelerated Computing	Key ISV's
Use Case: Sovereign Foundation Models **Benefit:** Automate and optimize public administration Generative AI for Government / Administration, Citizen Engagement and other Public Services (Sweden-Berzelius, Romania-ION) • CitizenGPT (i.e., study showing child welfare caseworkers spent 40% of their time on documentation and administration, and only 4-5 % on parent and child contact. This can improve.) • Judicial/legal chatbots • Compliance and regulatory assistance • AI Workflows: Generative AI-Powered Chatbots Using RAG, AI Chatbot for Customer Service	Edge Computing Generative AI: Reasoning Retrieval/RAG Speech AI/NLP Chat Language Generation Translation Guardrails	NVIDIA AI Enterprise NVIDIA NIMs NeMo Retriever, Guardrails, Guardrails blog, RAG Riva	Accelerated Computing Solutions Accelerated Networks DGX NeMo LLM Solution Brief	Humans.ai MosiacML Scale AI Silo.ai Weights & Biases
Use Case: Radar and Signal Processing **Benefit:** Enhance situational awareness, time to insight, making faster, more informed decisions; radar technology improves object detection and improves target tracking accuracy by 30-35% in difficult/obscured terrain AI for radar and signal processing over a 5G/6G network • Machine-to-machine communication • Object Detection/Asset Tracking • Infrastructure monitoring	Data Analytics / Processing Data Science Edge Computing Optimizer Engine Video Analytics Video Streaming	Aerial, Aerial SDK - cuVNF developer Aerial Aerial Research Cloud 6G Developer Program cuSignal NVIDIA AI Enterprise cuOpt NIM Holoscan	Accelerated Computing Solutions	Ansys AGI e.sigma Systems
Use Case: Digital Twins / Simulation **Benefit:** Maximize productivity, accelerate training, reduce costs, better decision-making for infrastructure, and decrease carbon footprint; 10% reduction in average planned downtime of 5 days for plants/heat recovery generators, saves up to $1.7 billion a year (Germany-DSD, Optimizing Intralogistics blog, tech blog) AI-enabled simulation that obeys the laws of physics • City and urban planning, facility location optimization • Climate impact modeling and simulation • Predictive maintenance • AI Workflow: Multi-Camera Tracking	Data Analytics / Processing Optimizer Engine Simulation Video Analytics Video Streaming	Metropolis microservices (Multi-camera Tracking) NVIDIA AI Enterprise cuOpt NIM Omniverse Enterprise Isaac	Accelerated Computing Solutions OVX	Bentley Hexagon RSS-Hydro

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Accelerating Transformation in Public Sector (Global)

NVIDIA Accelerated Computing Full-Stack

Use Case / Transformational Conversation	Workloads	NVIDIA Platforms, Microservices, Application Frameworks, Dev Tools	NVIDIA Accelerated Computing	Key ISV's
Use Case: GeoSpatial and GeoINT **Benefit:** Time to insight, making faster, more informed decisions, build disaster resilience (Germany-DFKI) • Satellite imagery analytics (i.e., damage assessment, deforestation, maritime surveillance, food security) • Predicting and monitoring natural disaster risks (i.e., flooding, landslides, wildfires, hurricanes) • Defense Intelligence (i.e., anomaly and threat detection) • $1Trillion global damage in the past 5 years	Computer Vision / Video Data Analytics / Processing Data Science Edge Computing Simulation / Modeling Video Streaming	CV-CUDA NVIDIA AI Enterprise DALI Deep Learning FW - PyTorch DeepStream RAPIDS (cuDF, cuML) RAPIDS Accelerator for Apache Spark TensorRT Triton	Accelerated Computing Solutions	Chooch Crowd.ai ESRI Helsing.ai Hexagon North.IO RSS-Hydro SI Analytics
Use Case: Quantum Computing **Benefit:** Accelerate quantum research, simulate quantum processing units, hybrid quantum-classical infrastructure (Juelich Supercomputing Centre, Tech blog, Enabling Quantum Computing with AI Tech blog) • Quantum Machine Learning • Quantum Chemistry (i.e., drug discovery, simulate chemical reactions to discover better battery designs) • Combinatorial Optimization	Quantum circuit simulation Error correction Hybrid quantum-classical computing platform Optimizer Engine	CUDA-Q cuQuantum NVQ++ NVIDIA AI Enterprise cuOpt NIM RAPIDS (cuDF, cuML) RAPIDS Accelerator for Apache Spark	Accelerated Computing Solutions	AWS Braket IBM Qiskit IonQ Google Quantum AI (Cirq, qsim) ORCA Computing QMware Quantum Brilliance Quantum Machines Rigetti

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Retail and CPG Use Cases

Accelerating Transformation in Retail and CPG

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		NVIDIA Accelerated Computing Full-Stack		
Use Case / Transformational Conversation	**Workloads**	**NVIDIA Platforms, Microservices, Application Frameworks, Dev Tools**	**NVIDIA Accelerated Computing**	**Key ISV's**
Use Case: Hyper Personalization and Generative AI **Benefit:** 10-20X cost savings, 2X speed up, higher revenue (State of AI in Retail and CPG) Omnichannel - Personalization to Drive Revenue • Personalized search - Gen AI • In-session recommendation • Personalization / Recommendation • Customer 360 & Segmentation • Ad personalization – Gen AI • Virtual product advisor – Gen AI	Data Analytics / Processing Data Science Generative AI: Speech AI/NLP Chat Reasoning Retrieval/RAG Guardrails Recommenders / Personalization	NVIDIA AI Enterprise NVIDIA NIMs NeMo Retriever, Guardrails, Guardrails blog, RAG RAPIDS Accelerator for Apache Spark, Accelerated Spark Analysis Tool Transformers4Rec (real-time in-session) RTX technology	DGX Cloud DGX NeMo LLM Solution Brief GPU Cloud Computing RTX-powered AI Workstations RTX visual computing platform	Adobe Bloomreach Bria Getty Images Publicis Dataiku Verneek WPP
Use Case: Generative Employee Advisor **Benefit:** Enhance operational efficiency & associate experience (State of AI in Retail and CPG) Omnichannel - Intelligent Automation • Backoffice / Corporate assistant • Store Associate knowledge advisor • Employee training • AI Workflow: Generative AI-Powered Chatbots Using RAG	Generative AI: Speech AI/NLP Chat Reasoning Retrieval/RAG Guardrails	NVIDIA AI Enterprise NVIDIA NIMs NeMo Retriever, Guardrails, Guardrails blog, RAG RAPIDS Accelerator for Apache Spark, Accelerated Spark Analysis Tool Riva, Transformers4Rec (real-time in-session)	DGX Cloud DGX NeMo LLM Solution Brief GPU Cloud Computing	Bloomreach, Bria, Homee.AI & demo, Dataiku, Elemental Cognition, LiveX.ai, L'Oreal – ModiFace, StateSet.io, Verneek , Writer
Use Case: Generative AI Shopping Advisor **Benefit:** Enhance operational efficiency and customer experience (State of AI in Retail and CPG) Omnichannel - Intelligent Automation • Personalized customer service • Shopping Advisor AI Workflows: Generative AI-Powered Chatbots Using RAG, AI Chatbot for Customer Service	Generative AI: Speech AI/NLP Chat Reasoning Retrieval/RAG Guardrails	NVIDIA AI Enterprise NVIDIA NIMs NeMo Retriever, Guardrails, Guardrails blog, RAG RAPIDS Accelerator for Apache Spark, Accelerated Spark Analysis Tool Riva, Transformers4Rec (real-time in-session)	DGX Cloud DGX NeMo LLM Solution Brief GPU Cloud Computing	Bloomreach, Bria, Dataiku, Homee.AI, LiveX.ai, L'Oreal – ModiFace, StateSet.io, Verneek , Writer

Accelerating Transformation in Retail and CPG

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		NVIDIA Accelerated Computing Full-Stack		
Use Case / Transformational Conversation	**Workloads**	**NVIDIA Platforms, Microservices, Application Frameworks, Dev Tools**	**NVIDIA Accelerated Computing**	**Key ISV's**
Use Case: Automated Product / Marketing Content Generation **Benefit:** Refine and enrich data; develop powerful personalized recommendation systems; create competitive advantage (State of AI in Retail and CPG) • Automating content generation (text, imagery, audio, video) • Product tagging and catologing • Personalization / Recommendation engines	Generative AI: Reasoning Retrieval/RAG Guardrails Recommenders / Personalization	NVIDIA AI Enterprise NVIDIA NIMs NeMo Retriever, Guardrails, Guardrails blog, RAG Transformers4Rec (real-time in-session) Triton Picasso	DGX Cloud DGX NeMo LLM Solution Brief GPU Cloud Computing	Adobe Bria Getty Images Publicis WPP
Use Case: Automated Order Taking **Benefit:** Improve customer experience and personalization, employee enablement (Speech AI blog) Intelligent QSR • Customer service and order taking digitalization • Autonomous shopping • Multi-modal personalization / recommendation • AI Workflows: Intelligent Virtual Assistant, Generative AI-Powered Chatbots Using RAG, Tokkio Showcase - Customer Service	Computer Vision / Video Analytics Edge Computing Generative AI: Speech AI/NLP Audio2Face, ASR, Chat, Reasoning Retrieval/RAG Guardrails Recommenders / Personalization	NVIDIA AI Enterprise NVIDIA NIMs ACE NIMs Merlin NeMo Retriever, Guardrails, Guardrails blog, RAG Riva Triton RTX technology	Accelerated Computing Solutions DGX NeMo LLM Solution Brief GPU Cloud Computing OVX RTX Systems	ConverseNow.ai Fingermark.ai Grubbrr Keenon Nuvilab Ottonomy
Use Case: Optimize End-to-End Data Science Pipeline **Benefit:** 5X faster execution, 4X lower cost Omnichannel - Data Science workload acceleration: • Data science team not meeting business SLAs • Data volume growing, compute intensive, need to get timely insights • Accelerate Retailer's compute intensive Apache Spark workloads	Data Analytics / Processing Data Science	NVIDIA AI Enterprise RAPIDS Accelerator for Apache Spark, Accelerated Spark Analysis Tool RAPIDS (cuDF)	GPU Cloud Computing	Dataiku

Accelerating Transformation in Retail and CPG

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NVIDIA Accelerated Computing Full-Stack

Use Case / Transformational Conversation	Workloads	NVIDIA Platforms, Microservices, Application Frameworks, Dev Tools	NVIDIA Accelerated Computing	Key ISV's
Use Case: Loss Prevention to Avoid Theft **Benefit:** Reduce1.4% shrinkage by 30-50% (Vision AI tech blog) Intelligent Stores • Current low accuracy of loss prevention models in self-checkout and aisles • Optimize and enhance store analytics • AI Workflows: Retail Loss Prevention, Retail Store Analytics, Multi-Camera Tracking	Computer Vision Digital Twin/Simulation Edge Computing	Metropolis microservices (Object Detection, Multi-camera Tracking) NVIDIA AI Enterprise DeepStream Deep Learning FW – PyTorch Pretrained Foundation Model TAO (Train, Adapt, Optimize) Triton Omniverse Enterprise	Accelerated Computing Solutions OVX	AiFi Briefcam Centific Everseen Focal Systems Grabit IronYun ProHawk Standard AI Signatrix Zippin
Use Case: Organized Retail Crime Theft Prevention - Safety, Security, Compliance **Benefit:** Reduce shrinkage loss and improve employee safety (Vision AI tech blog) Intelligent Stores • Intelligent management of organized retail crime, gang theft issues, shrinkage, loss • Optimize and enhance store analytics • AI Workflows: Retail Store Analytics, Multi-Camera Tracking	Computer Vision Edge Computing	Metropolis microservices (Object Detection, Multi-camera Tracking) NVIDIA AI Enterprise DeepStream TAO (Train, Adapt, Optimize) Triton	Accelerated Computing Solutions	AiFi Briefcam Face First ProHawk Standard AI Viisights ZeroEyes
Use Case: Store Analytics **Benefit:** Improve the revenue and profitability per store (Vision AI tech blog) Intelligent Stores • Customer 360 • Shelf Optimization • Planogram compliance • Associate Productivity • AI Workflow: Multi-Camera Tracking	Computer Vision/Video Analytics	Metropolis microservices (Multi-camera Tracking)	Accelerated Computing Solutions	Centific Graymatics Standard.ai

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Accelerating Transformation in Retail and CPG

NVIDIA Accelerated Computing Full-Stack

Use Case / Transformational Conversation	Workloads	NVIDIA Platforms, Microservices, Application Frameworks, Dev Tools	NVIDIA Accelerated Computing	Key ISV's
Use Case: Inventory Management Optimization **Benefit:** Enormous cost savings and waste reduction (Vision AI tech blog) Intelligent Supply Chain • Accelerate all data science workloads and reduce cost • Demand forecasting • Intelligent inventory management, inventory planning • Customer360 • AI Workflow: Multi-Camera Tracking	Computer Vision / Video Analytics Data Analytics / Processing Data Science Edge Computing	Metropolis microservices (Object Detection, Multi-camera Tracking) NVIDIA AI Enterprise RAPIDS Accelerator for Apache Spark, Accelerated Spark Analysis Tool	DGX Cloud GPU Cloud Computing	Antuit Blue Yonder Dataiku Exotec KoiReaderTechnologies KION Group o9 Solutions OCADO Group Peak Technologies (Siena Analytics)
Use Case: Last Mile Delivery / Routing Optimization **Benefit:** Reduce cost conservatively by 15% Intelligent Supply Chain - Route Optimization • Increase throughput with existing resources • Accelerate all data science workloads and reduce cost • Last mile delivery / routing optimization • Truck routing • AI Workflow: Route Optimization	Data Analytics / Processing Data Science Edge Computing Optimizer Engine	NVIDIA AI Enterprise CUDA cuOpt NIM RAPIDS Accelerator for Apache Spark	DGX Cloud GPU Cloud Computing	Blue Yonder FarEye FourKites o9 Solutions
Use Case: Insider Threat Detection **Benefit**: Provide complete visibility to identify, respond to threats quickly • Cybersecurity - Monitor all users, devices, and data across the network AI Workflow: Digital Fingerprinting	Cybersecurity / Fraud Detection	NVIDIA AI Enterprise Morpheus	Accelerated Computing Solutions BlueField DPUs GPU Cloud Computing	AiFi Briefcam Crowdstrike SureView

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Robotics Use Cases

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Accelerating Transformation in Robotics

		NVIDIA Accelerated Computing Full-Stack		
Use Case / Transformational Conversation	**Workloads**	**NVIDIA Platforms, Microservices, Application Frameworks, Dev Tools**	**NVIDIA Accelerated Computing**	**Key ISV's**
Use Case: Robotics Generative AI **Benefit:** Add flexibility and intelligence to robots, allowing robots to be used in more use cases and in collaborating with humans (Intrinsic, Foxconn, Teradyne, Boston Dynamics, Covariant, Collaborative Robotics, Sanctuary AI, Unitree Robotics, tech blog) • Foundation models for robotics instructions, perception, navigation, and motion control • Accelerate Robotics Development & Simulation	Generative AI / Generative Physical AI: Vision Foundation Models / Large Vision Models / Large Language Models, Models for Humanoids, Manipulators, AMRs Guardrails	NVIDIA AI Enterprise NVIDIA NIMs NeMo Guardrails, Guardrails blog Pretrained Models, Riva, TensorRT - Perception training Omniverse Enterprise Isaac Sim, Isaac Perceptor, Isaac Manipulator, project GR00T, Omniverse Replicator	Accelerated Computing Solutions DGX Cloud DGX NeMo LLM Solution Brief GPU Cloud Computing Omniverse Cloud OVX	Boston Dynamics, Boston Dynamics and AI Institute
Use Case: Generic Autonomous Robots **Benefit:** Inference compute on the edge / on-robot (Teradyne, Gideon, idealworks, RGo Robotics, Vention, ArcBest, Yaskawa Electric Corp.) Robotics Platforms: AMRs/ ARMs/ Humanoids • Leverage NVIDIA robotics stack that enables AI robots to be deployed in a wide variety of use cases • Pretrained models for robotics that enable inference at the edge / on-robot • Providing end-to-end full-stack solution to enable AMR / ARM / Humanoid ecosystem	Edge Computing Navigation stacks Perception Pretrained Models	Metropolis microservices NVIDIA AI Enterprise Pretrained Models TAO (Train, Adapt, Optimize) Functional Safety (IGX) Isaac Robot Operating System (ROS) Isaac, Isaac Perceptor, Isaac Nova Orin	Jetson (Orin) Isaac Nova Orin IGX Jetson Thor PCIe GPUs Embedded GPUs	ODMs: ADLINK Advantech
Use Case: Robotics CICD Pipeline Acceleration **Benefit:** Accelerate development of robots and time-to-market (Siemens, Intrinsic, Foxconn, Teradyne, idealworks, Solomon, Amazon Robotics, Techman Robot & blog, demo, GTC talk: Disney Research, tech blog) • Robotics Tools and Assets to accelerate application development • Faster adoption of NVIDIA Robotics applications that accelerates development of robots and time-to-market	Simulation / Modeling Computer Vision Optimizer Engine Physics-engine Simulation / Digital Twin / Motion Simulation / RL Synthetic Data Generation	Metropolis microservices NVIDIA AI Enterprise cuOpt NIM Omniverse Enterprise Physics simulation extension Isaac Tools and Assets Isaac SDK: Isaac ROS, Isaac Sim, Isaac Lab, Isaac Perceptor, Isaac Manipulator	Accelerated Computing Solutions GPU Cloud Computing Omniverse Cloud PCIe-A100/A30/ L40/L40S	FS Studio

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Smart Cities and Spaces Use Cases

Accelerating Transformation in Smart Cities and Spaces

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		NVIDIA Accelerated Computing Full-Stack		
Use Case / Transformational Conversation	**Workloads**	**NVIDIA Platforms, Microservices, Application Frameworks, Dev Tools**	**NVIDIA Accelerated Computing**	**Key ISV's**
Use Case: Smart Safety and Security **Benefit:** Keeping assets, employees and the public safe Public safety across cities, airports, stadiums, retail, industrial manufacturing, railways, seaports • Detect threats, anomalies, and intrusions with automated responses • Real-time, predictive analytics to decrease number of incidents • Rely on safety systems to identify, classify, and alert operations teams when there are unsafe working conditions and prevent accidents from occurring • Offset the chance of fire, spills, hazardous material, unsafe environments, and slip and fall through detection software. • Worker safety and access control • AI Workflow: Multi-Camera Tracking	Computer Vision / Video Analytics Data Analytics / Processing Data Science Digital Twin – Synthetic Data Edge Computing Generative AI: Reasoning Retrieval/RAG Speech AI/NLP Guardrails Optimizer Engine / Route Optimization	Metropolis microservices (Multi-camera Tracking, Vision AI tech blog) Jetson Platform Services NVIDIA AI Enterprise NVIDIA NIMs, ACE NIMs, cuOpt NIM, NeMo Retriever, Guardrails, Guardrails blog, RAG DeepStream Riva Omniverse Enterprise Isaac Sim	Accelerated Computing Solutions GPU Cloud Computing Jetson (Orin) RTX visual computing platform	A.I. Tech, AxxonSoft, Automotus, BriefCam, Cogniac, Drishti, DuosTech, FingerMark, Genetec, HelinData, Herta Security, IDEMIA, Imotion Analytics, Intelexvision, Ipsotek (Eviden), IronYun, ISS, K2K, Landing AI, Lumeo, Mariner, Milestone Systems, Motorola Solutions, Oosto, ProHawk, Two-I
Use Case: Operational Efficiency and Automation **Benefit:** Improved operations across all Smart Spaces (Smart Traffic Systems Case Study, ITS tech blog) • Campus (traffic/curbside/parking, access control) • Cities (roadways, public services, public safety) • Manufacturing (optical inspection, predictive maintenance) • Retail Ops (warehouse logistics, frictionless shopping, security) • Venues (parking, access control, public safety, retail) • AI Workflow: Multi-Camera Tracking				AiFi, Cyclope.ai, Derq, Ikara, IronYun, K2K, Mvision, NoTraffic, ProHawk, RCE Systems, SparkCognition, SmartCow, Wintics
Use Case: Public Agency Data Analytics and Intelligent Citizen Services **Benefit**: Provide citizens easy access to city data and services through LLM/RAGs • Public Access to city data (RAG), IT Operations, Legal, Citizen Services • Digital Avatar & Chatbots • AI Workflow: Generative AI-Powered Chatbots Using RAG				K2K OneMeta.ai Onetera Pryon Inc Uneeq (DigitalHumans)

Accelerating Transformation in Smart Cities and Spaces

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NVIDIA Accelerated Computing Full-Stack

Use Case / Transformational Conversation	Workloads	NVIDIA Platforms, Microservices, Application Frameworks, Dev Tools	NVIDIA Accelerated Computing	Key ISV's
Use Case: Intelligent Traffic Management **Benefit:** Creating less vehicle delay time and safer roads for drivers and pedestrians alike (Smart Roadways, Traffic Management, Toll Management, Parking Management, ITS tech blog) • Reduce congestion, increase vehicle throughput • Automated tolling and traffic enforcement • Optimize traffic-light management with edge-based computing, saving bandwidth and lowering latency • Vision AI to enable predictive models for prioritizing certain road users and decreasing chances of incidents • AI Workflow: Multi-Camera Tracking	Computer Vision / Video Analytics Data Science Edge Computing Generative AI: Speech AI/NLP Guardrails Optimizer Engine	Metropolis microservices (Multi-camera Tracking) Jetson Platform Services NVIDIA AI Enterprise NVIDIA NIMs cuOpt NIM DeepStream NeMo Guardrails, Guardrails blog Riva Omniverse Enterprise Isaac Sim	Accelerated Computing Solutions GPU Cloud Computing Jetson (Orin) RTX visual computing platform	Chooch CVEDIA IronYun K2K Nota NoTraffic Sprinx Vivacity
Use Case: LVM – Video & Image Understanding **Benefit:** Improved accuracy, adaptability, scalability (Vision AI, tech blog) • Visual Search and Recommendation • Multi-modal integration • Semantic understanding • Real-time video analysis • Enhanced content discovery • Continuous learning and adaptation • AI Workflow: Multi-Camera Tracking	Computer Vision / Video Analytics Data Science Edge Computing Generative AI: Speech AI/NLP, Vision Guardrails Optimizer Engine			Centific K2K JCI Linker Vision Twelve Labs

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Telecommunications Use Cases

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Accelerating Transformation in Telecommunications

NVIDIA Accelerated Computing Full-Stack

Use Case / Transformational Conversation	Workloads	NVIDIA Platforms, Microservices, Application Frameworks, Dev Tools	NVIDIA Accelerated Computing	Key ISV's
Use Case: Generative AI Enhanced Customer Experience **Benefit**: Reduce cost in call center and improve churn; with NVIDIA NIM, greatly reduce latency and improve accuracy of AI-generated responses, reduce volume of tokens in data preprocessing and inferencing while maintaining the same level of accuracy (AT&T, KT, T-Mobile, GTC24: KT, Verizon, Amdocs, ServiceNow) • Call and case summarization • Incident identification and resolution recommendation • Custom LLM for customer service (e.g., customer billing LLM ensures accurate explanations to billing questions) • Intelligent avatar for customer chatbots • Native multilingual Interaction • AI Workflows: Intelligent Virtual Assistant, Generative AI-Powered Chatbots Using RAG, AI Chatbot for Customer Service, Tokkio Customer Service Reference Workflow	Generative AI: Reasoning Retrieval/RAG Speech AI/NLP Guardrails Avatars	NVIDIA AI Enterprise NVIDIA NIMs, ACE NIMs NeMo Retriever, Guardrails, Guardrails blog, RAG Riva	Accelerated Computing Solutions Accelerated Networks Data Center DGX BasePOD for Telco DGX Cloud DGX NeMo LLM Solution Brief GPU Cloud Computing OVX	Amdocs ServiceNow Talkmap
Use Case: Generative AI Powered Network Operations **Benefit:** Improve productivity of Technician, reduce cost of network management (AT&T, State of AI in Telecom) • Identify top network events in last minutes/hours • Knowledge support for Field Technician Operations • Identify and generate alerts from Network Log Analysis • Recommend configuration of network designs • AI Workflow: Route Optimization	Generative AI: Reasoning Retrieval/RAG Speech AI/NLP Guardrails Optimizer Engine	NVIDIA AI Enterprise NVIDIA NIMs, cuOpt NIM NeMo Retriever, Guardrails, Guardrails blog, RAG RAPIDS	Accelerated Computing Solutions Accelerated Networks Data Center DGX BasePOD for Telco DGX Cloud DGX NeMo LLM Solution Brief	Amdocs ServiceNow Kinetica Mavenir
Use Case: Generative AI Enhanced Cognitive Search **Benefit:** Improve productivity of employees through better access to all proprietary content and current information (Telco GPT blog, State of AI in Telecom) • Knowledge support for all work disciplines • Intelligent avatar for customer chatbots • Speech, Text, or Image interface	Generative AI: Reasoning Retrieval/RAG Speech AI/NLP Guardrails	NVIDIA AI Enterprise NVIDIA NIMs NeMo Retriever, Guardrails, Guardrails blog, RAG	Accelerated Computing Solutions Accelerated Networks Data Center DGX BasePOD for Telco DGX Cloud DGX NeMo LLM Solution Brief	

Accelerating Transformation in Telecommunications

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NVIDIA Accelerated Computing Full-Stack

Use Case / Transformational Conversation	Workloads	NVIDIA Platforms, Microservices, Application Frameworks, Dev Tools	NVIDIA Accelerated Computing	Key ISV's
Use Case: Regional / Sovereign AI Factories **Benefit**: Enable Telcos to generate new revenue streams by becoming AI Factory providers as part of NVIDIA Cloud Partners Program (NCP) following NVIDIA Reference Architectures (Japan AIST (ABCI 3.0), Scaleway, Swisscom, Singtel, Indosat, India blog, Reliance, Tata Group, Telenor, Telcos – Sovereign AI Factories, State of AI in Telecom) • Provide AI infra/platform to government, national enterprises, and startups	AI Generative AI: Reasoning Retrieval (RAG) Speech AI/NLP Guardrails	NVIDIA AI Enterprise NVIDIA NIMs NeMo Retriever, Guardrails, Guardrails blog, RAG Riva	Accelerated Computing Solutions Accelerated Networks Data Center	
Use Case: Data Processing Optimization **Benefit:** Speedup lowers cost with faster pipelines, faster time to insight, reduces spend on Cloud, reductions in carbon footprint (AT&T, Accelerated Spark Analysis Tool) • Accelerated data processing in the Data Prep, ETL • Improve Data Science accuracy of models, productivity and reduce cost	Alternative Data Merge Cleansing (dedupe, extract HTML, compress) Data Analytics / Processing Data Science Normalization	NVIDIA AI Enterprise RAPIDS (cuDF, cuGraph, cuML) RAPIDS Accelerator for Apache Spark	Accelerated Computing Solutions Accelerated Networks Data Center DGX Cloud GPU Cloud Computing	Dataiku Domino Data Lab

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NVIDIA Accelerated Computing Full-Stack

Use Case / Transformational Conversation	Workloads	NVIDIA Platforms, Microservices, Application Frameworks, Dev Tools	NVIDIA Accelerated Computing	Key ISV's
Use Case: Open Switching Fabric **Benefit:** Improving fabric, better performance , lower latency, Lower power utilization, open ecosystem, reduce infrastructure cost (SONiC tech blog) • No Vendor lock in • Flexibility in configuration • More control over costs and power usage • Futureproof for AI and different fabric needs	Network switching/ routing AI fabric	Spectrum SDK SONiC HBN	Accelerated Networks BlueField-2, BlueField-3 DPUs Spectrum Ethernet Platform	SONiC - community
Use Case: Cloud Infrastructure Acceleration **Benefit:** Creating an advanced fabric capable of isolation, acceleration, and multi use case adoption Build infrastructure like the Tier 1 CSP • Create a tailored solution based on cloud needs. • Futureproof for AI and supports advanced SW capabilities.	K8s application and orchestration NVME over Fabric/TCP IPSEC Tunneling protocols	DOCA Framework DOCA Flow library	Accelerated Networks BlueField-2, BlueField-3 DPUs	3rd party Virtual Network Functions (VNF) Local security ISVs

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