



Re-Imagine Service Assurance Chatbots With LLMs and RAG (S62287)

Sujatha Gopal - Global CTO

Ravi Devarasetti - Consulting Partner



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With You Today





Sujatha Gopal - Global CTO

TCS Communications, Media & Information Services Business Unit

Sujatha Gopal is the Chief Technology Officer of Communication, Media & Information Service Business unit of Tata Consultancy Services. She is a seasoned technologist driving Domain and Tech strategy, Enterprise Architecture Transformation, Strategic road mapping for tech enabled business transformation, Platform strategies and new technology incubation. Sujatha has over 25 years of experience across various industries including Banking & Financial services, Manufacturing, Retail, Communications & Media. She is a Industry Advisor to several CXOs.

She also drives various initiatives such as Digital Ecosystem & Marketplace Strategies, People Experience through technology, Generative AI, NextGen Software Engineering, Hybrid Cloud, 5G Edge Computing, Metaverse, Sustainability solutions, Emerging technologies CoE and many more in the business unit . She is a speaker in multiple Industry Forums . Beyond time in technology , she is a classical dancer and avid miniature collector. She lives in Chennai with her husband, daughter, son & a fur baby



Ravi Devarasetti - Consulting Partner

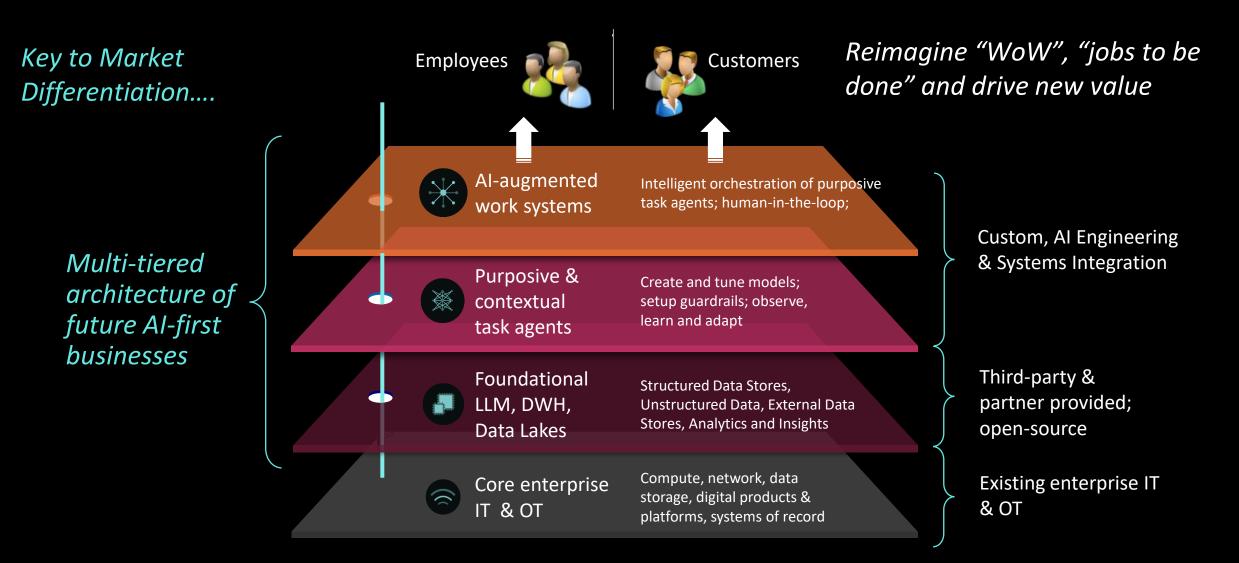
Lead Emerging Technology, TCS CMI CTO Office

Ravi Devarasetti is Consulting Partner, Leading Emerging Technology, and Innovation charter for CTO Office, of Communication, Media & Technology Business unit in TCS. Ravi has over 25 years of experience in Communications and IT sector, has worked on Architecture, Consulting, and E2E Solution engagements for several CPSs and MSOs across US and Europe. Ravi engages with customers in early stages of technology exploitation and incubation, through innovative design thinking during pilot execution, feasibility, and business case preparation. He is good at turning innovative technologies to successful businesses, building ecosystem and partnerships. He is a member of Open Group and Chair's AEA Colorado Chapter. Beyond emerging technology enthusiast, he loves travel and exploring new places.

Metaverse, Quantum Computing and Generative AI are his current key areas of focus.



TCS PoV | Al-first business architecture





Reimagine Business Operations with Generative AI for Telco Enterprise



Enhance and Improve Operational Efficiencies across Key Functions with LLMs (Large Language Models)

Marketing

- Marketing Content Generation
- Personalized email campaigns
- Custom Advertisements
- Purchase & Churn Predictions

Sales

- Lead Generation from content
- Virtual Assistant for Sales
- Forecast & Automate prospects
- Recommendation & NBAs

Service Fulfillment & Delivery

- Service Operations forecast and planning
- · Supply chain forecasting
- Visual Inspection
- Personalized Service updates

Customer Service & Service Assurance

- Virtual Assistant/ Chat Bots
- Call Summarization
- Technical Support Services
- Video Bills

Autonomous Network Operations

- Automated Infrastructure Documentation
- NOC operations assistant
- Data Mining for Network Logs
- GAI at the Edge (Text, Audio and Video)

IT and R&D

- Code Generation
- Synthetic Data creation
- Legacy Code Conversion
- Market Research
- Competitor Analysis

HR

- **Employee Onboarding**
- **HR Queries**
- Communication & Email Generation
- **Brand & PPT Templates**

Legal & Finance

- Contract Summarization
- Contract Generation
- Financial Modeling
- Templated report Generation

Improve Customer Engagement

Improve Productivity

Improve Operational Efficiency

Cost Take Out

Faster Time 2 Market

CS Research

CS Rapid Labs™

Significant Investments in AI Technology Research, Incubation and Rapid Prototyping



Gen Al Powered ServiceNow Service Assurance



Key Pain points

NLU Issues with Chat BOT

The current chat BOT works based on Key word Search and Pull multiple/less relevant articles

High Transfer Volume

Increased volume of Help desk calls transferred from chat BOT

Knowledge Surfacing

Huge Knowledge based management and ability to surface the right information on Demand

GenAl

Solution Approach

Prompt Tuning Provide Domain Context to the models, Input prompt tokens (samples) as parameters for model to address questions from KB Articles with few-shot learning

Model Customization

 Customize Pre-trained Foundational model to include domain-specific knowledge and functional skills.

Knowledge Embeddings Embed vector databased with new KB
 Articles/run-time knowledge for model
 to be able to retrieve up-to date
 information

Guardrails

 Exclude everything outside functional domain, eliminate bias and toxicity

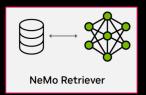
Business Outcomes

Improved First Time Resolution

Reduce Help Desk Call Volume

Improved Utilization of Knowledge Based







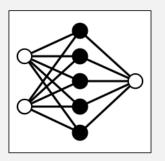
Solution Approach

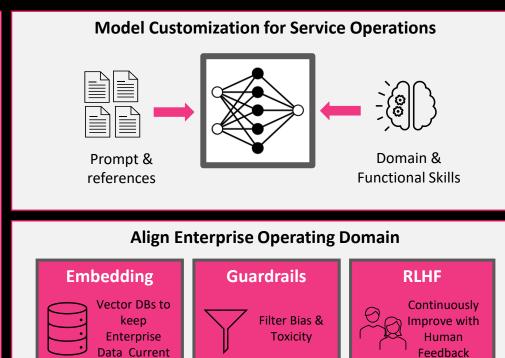


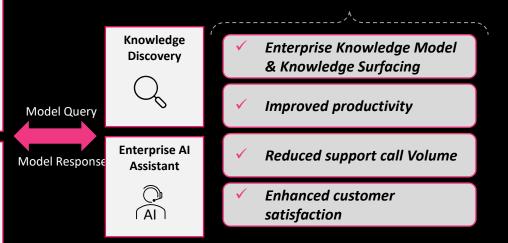
Knowledge surfacing with NVIDIA NeMo LLM & Retriever

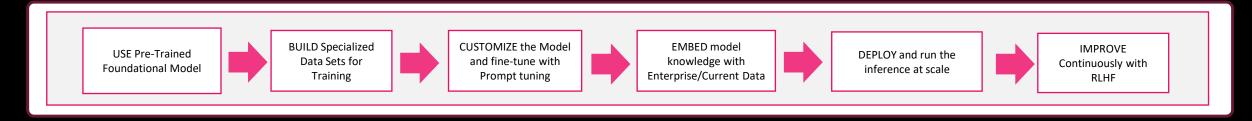
Knowledge Base & Retriever

NVIDIA Foundational Model





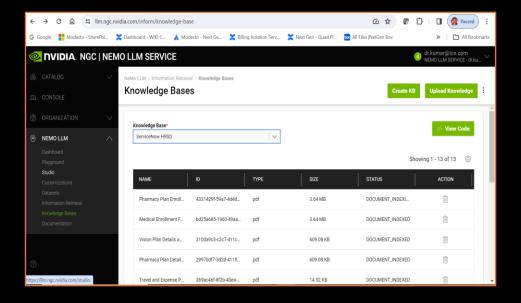


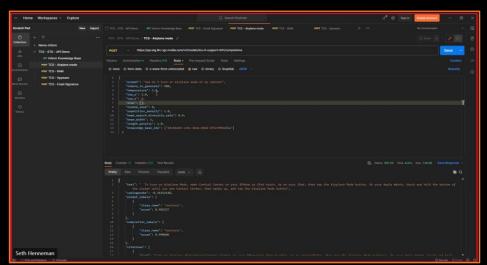


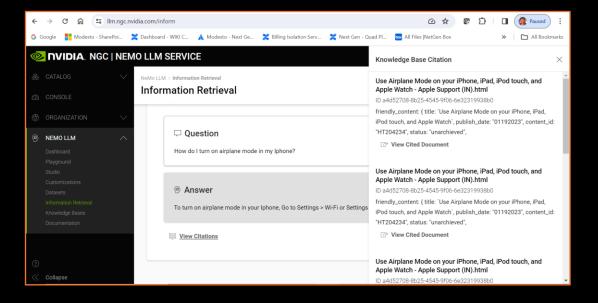


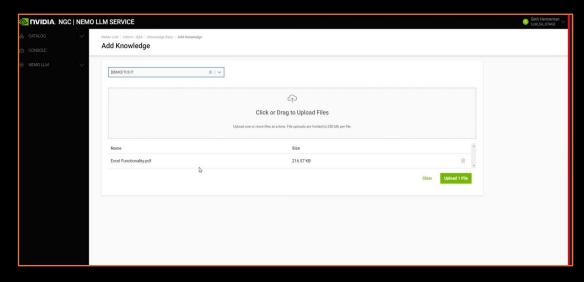
Gen Al Powered ServiceNow (ITSM) Virtual Agent







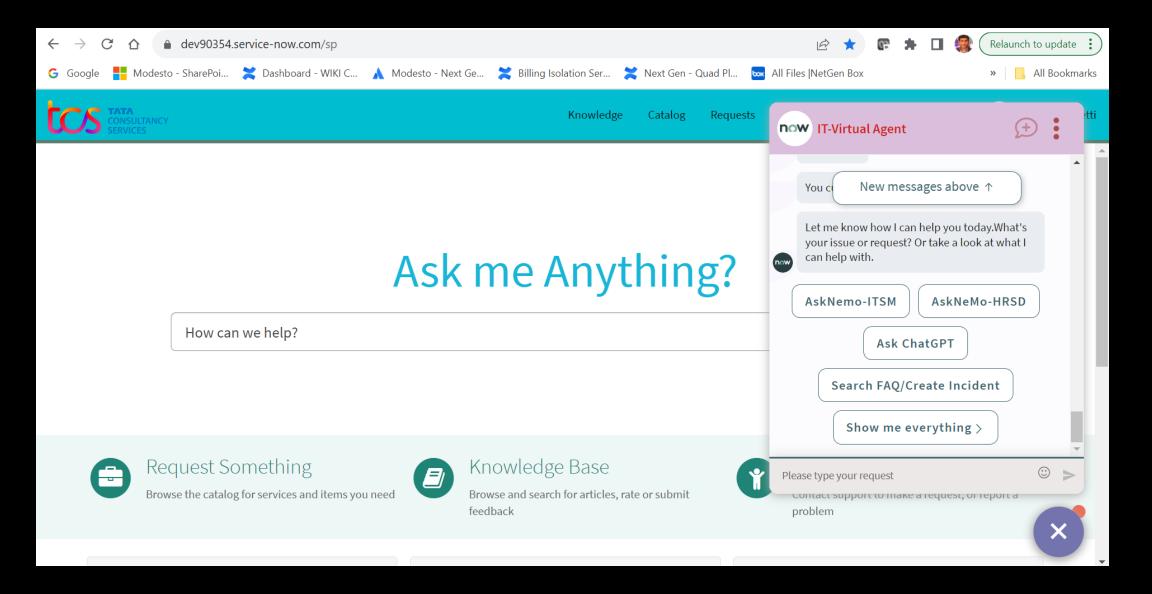






'NeMo' LLM Powered chat bot for Service Now



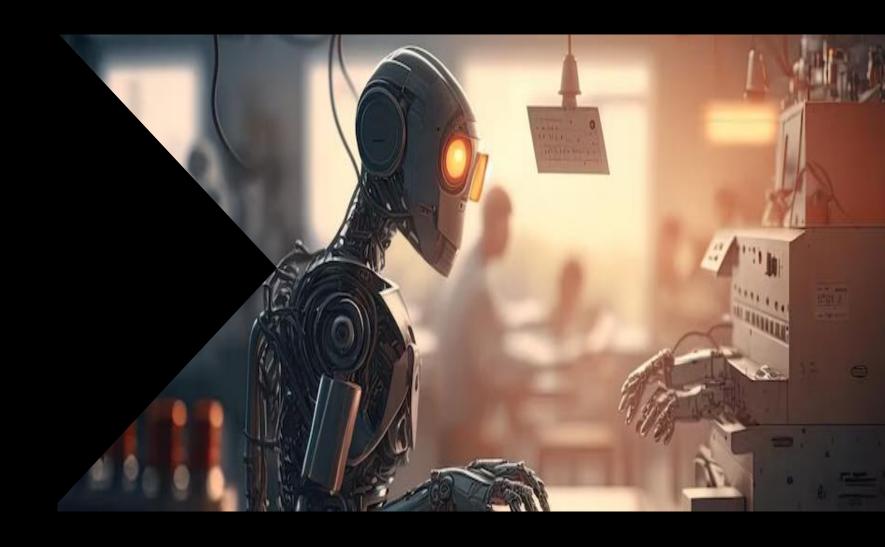






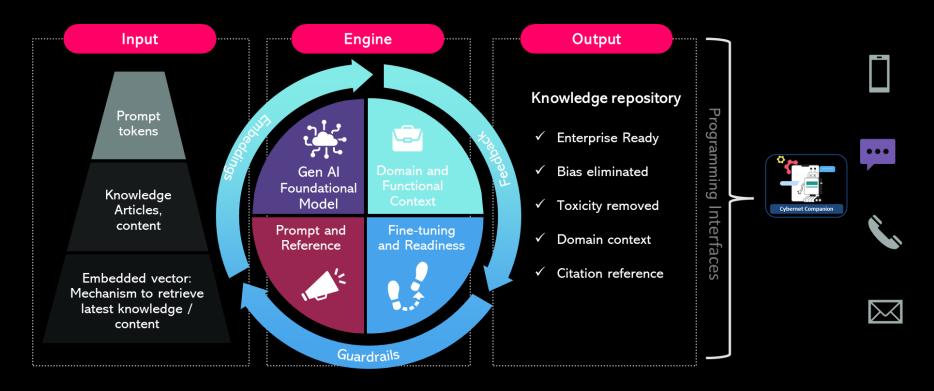
TVIDIA GTC

Demo - Video



Cybernet Companion

Gen Al powered game changing digital assistant and Business Benefits projected





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Business Benefits



Building on belief

Key Learning & Takeaways



- ✓ LLM are probabilistic and story-tellers (vs deterministic systems and fact-tellers)
- ✓ Domain contextualization and groundedness are key for enterprise adoption & scale
- ✓ Gen AI has high impacts on enterprise functions having 'Knowledge Concentration'
- ✓ Data Security & Guardrails
- ✓ Gen AI is an eco-system play.
- ✓ Mindful trade off between speed and agility vs strategic value.
- ✓ Gen Al is to augment

