LSO and Generative AI

Global NaaS Event
By MEF

Susan White
Netcracker, Head of Strategy
& Portfolio Marketing

A simple example how it could help telecoms
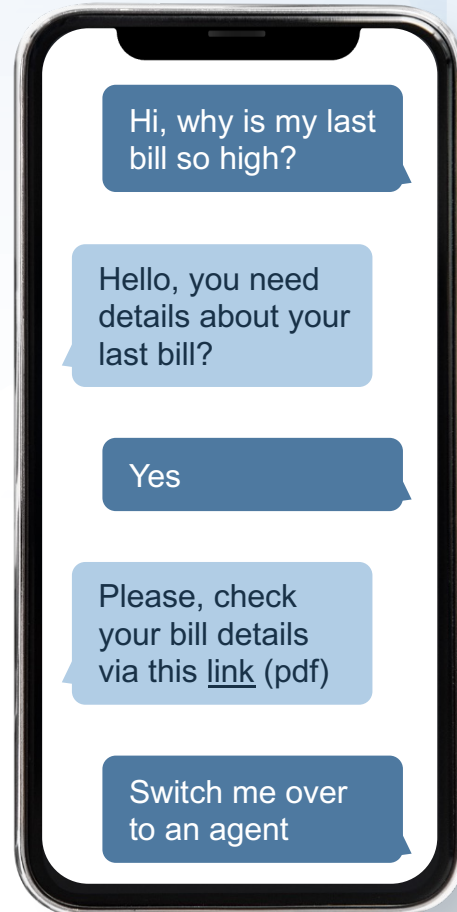
90%

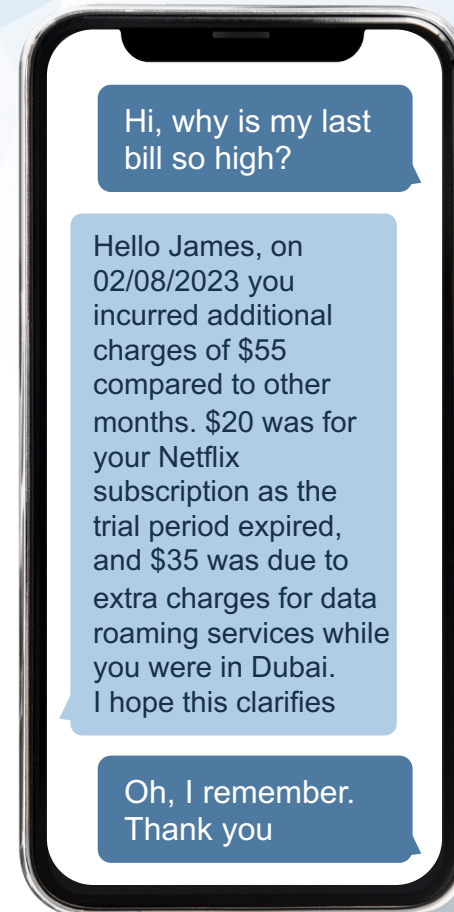of consumers find chatbot interactions frustrating or negative

30%

of customers are driven away by one negative chatbot experience

Source: Forbes

Traditional chatbot

Hi, why is my last bill so high?

Hello, you need details about your last bill?

Yes

Please, check your bill details via this link (pdf)

Switch me over to an agent

LLM-based assistant

Hi, why is my last bill so high?

Hello James, on 02/08/2023 you incurred additional charges of $55 compared to other months. $20 was for your Netflix subscription as the trial period expired, and $35 was due to extra charges for data roaming services while you were in Dubai. I hope this clarifies

Oh, I remember. Thank you

The GenAI model cannot do this by itself…

GenAI has the potential to significantly increase productivity across the entire telco business

GenAI use cases	Potential Productivity Increase
Customer Care: superior digital agents resolving more issues, better agent support tools	**50%** fewer human-services contacts
Sales and Guidance: faster lead to sale, VoC and sentiment analysis, personalization	**15-20%** increase in sales productivity
Business Operations: faster learning curve, easy configurations, content creation in multiple languages	Skilled people can work **35%** faster
Network Operations: more automated network planning, installation, configuration and operations	**35%** lower critical incidents, **60%** fewer network performance problems

Sources: TM Forum, McKinsey, Bloomberg

GenAI needs telco-specific knowledge to be effective

GenAI will only be revolutionary in telecoms with telco BSS/OSS integration

90%
of telco use cases need BSS/OSS

BSS/OSS Integration challenges

Issue #1

Public GenAI model

Not Secure

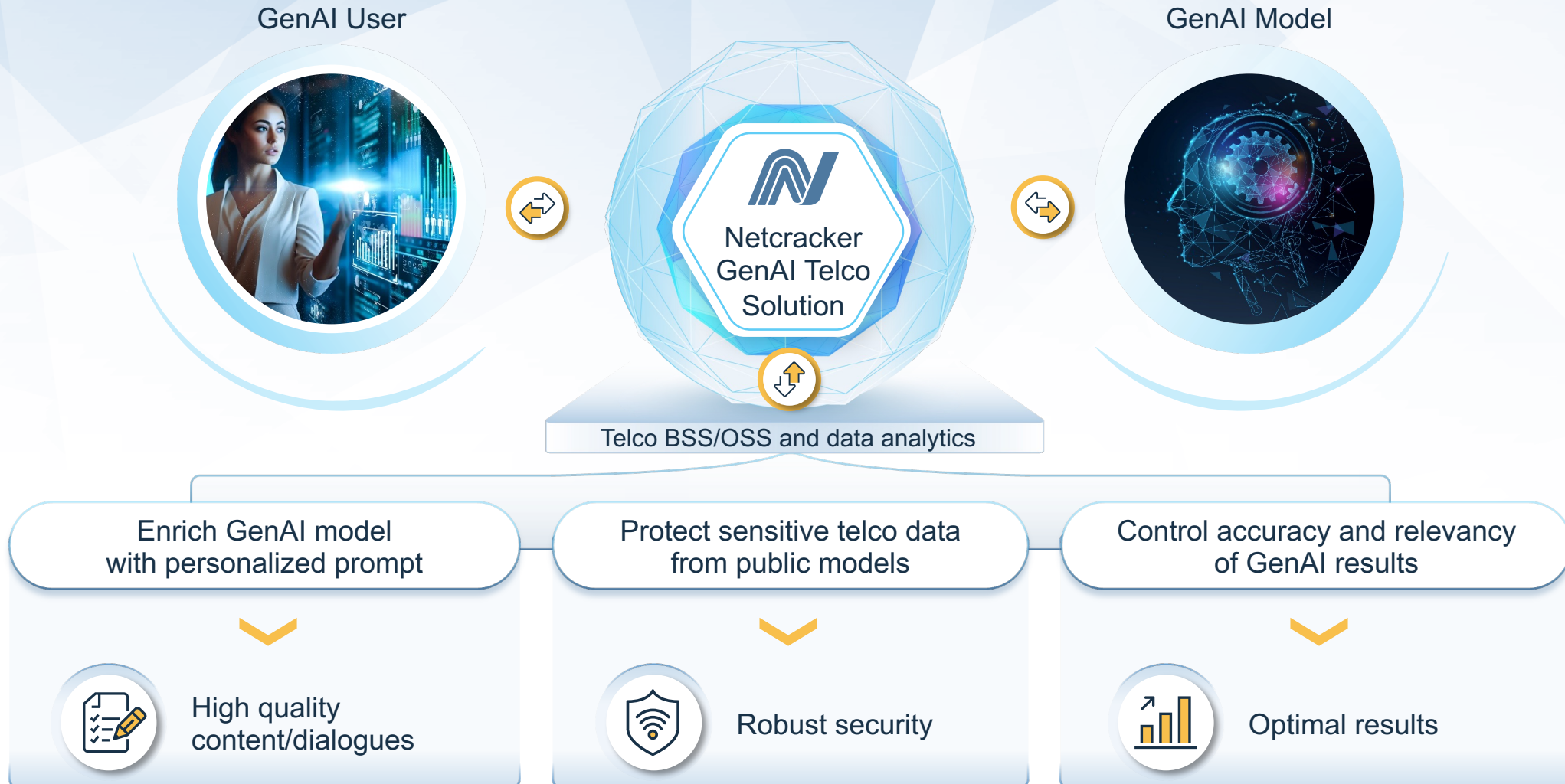**Issue #2**

Fine tune public model with telco data

Not Sufficient

Issue #3

Advanced private GenAI model

Very Costly

A different approach is needed

GenAI User

GenAI Model

Netcracker GenAI Telco Solution

Telco BSS/OSS and data analytics

Enrich GenAI model with personalized prompt	Protect sensitive telco data from public models	Control accuracy and relevancy of GenAI results
High quality content/dialogues	Robust security	Optimal results

What is a personalized prompt?

GenAI User: Julie

GenAI Model: ChatGPT4

Knowledge Base

Input
User: "Why is my last bill so high?"

Instructions
You are a CSR assistant. Answer the question using the details from **Anne's** last four bills and the context data below. Compare line items and their associated costs and provide an explanation of any differences. Keep the answer short and concise.

Context
Bill data, product history, usage, payment history, balance

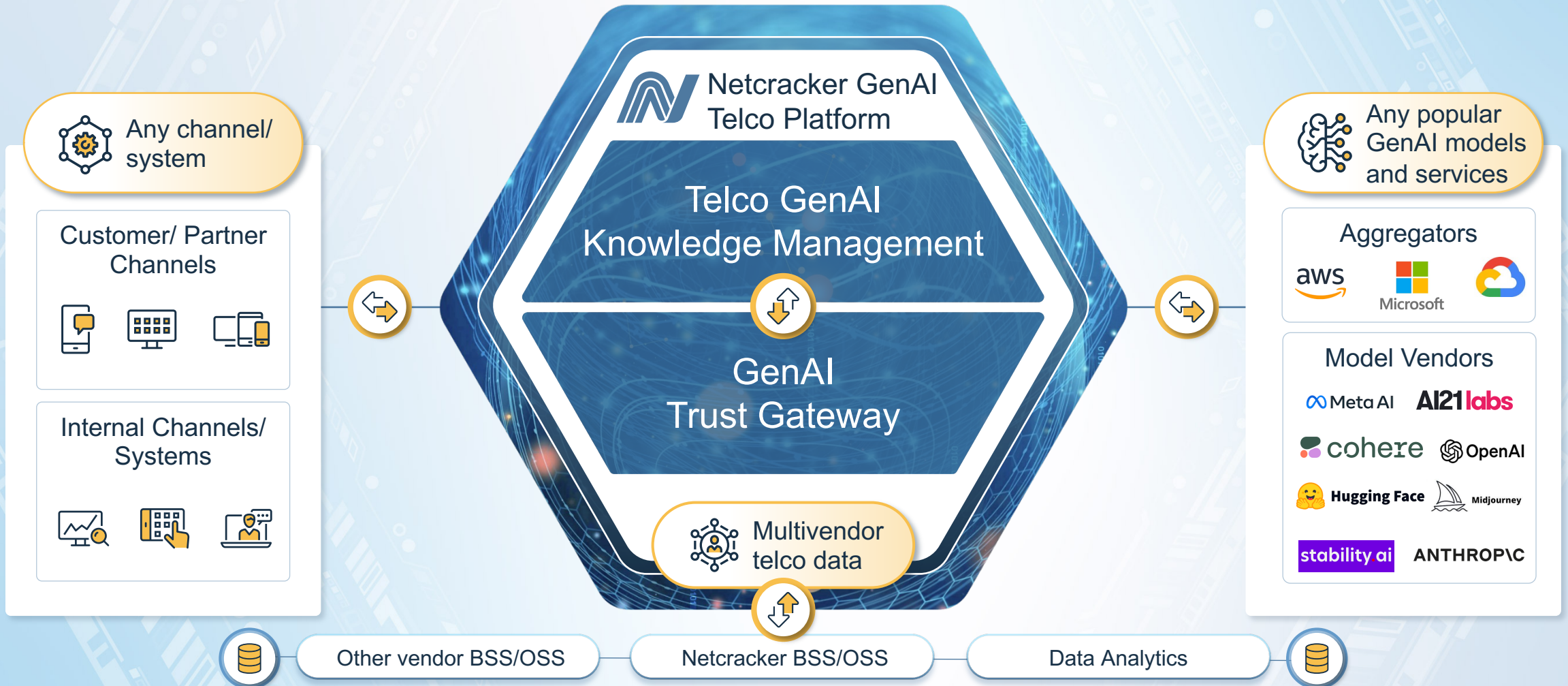Extensive knowledge base incorporating skills, instructions and data functions

Prompt engineering

Retrieval Augmentation Generation

Instruction fine-tuning

Fine tuning to optimize

Safely integrating GenAI with telecom data

Any channel/system

Customer/ Partner Channels

Internal Channels/ Systems

Netcracker GenAI Telco Platform

Telco GenAI Knowledge Management

GenAI Trust Gateway

Multivendor telco data

Any popular GenAI models and services

Aggregators

aws · Microsoft · Google Cloud

Model Vendors

Meta AI · AI21 labs · cohere · OpenAI · Hugging Face · Midjourney · stability ai · ANTHROP\C

Other vendor BSS/OSS · Netcracker BSS/OSS · Data Analytics

How it works: Digital operations technician

"Which Gig-E ports are available in Charlotte PoP"

Digital Operations Technician

Telco GenAI Knowledge Management

GenAI Trust Gateway

Netcracker GenAI Telco Platform

Active resource inventory, config mgt, network planning, fault management

1. Selects knowledge base data and skills

   - Skills: L3 management, network ops
   - Crawl knowledge graph to identify switch, active ports, reserved ports, alarms…

2. Build personalized prompt

3. Obfuscate data
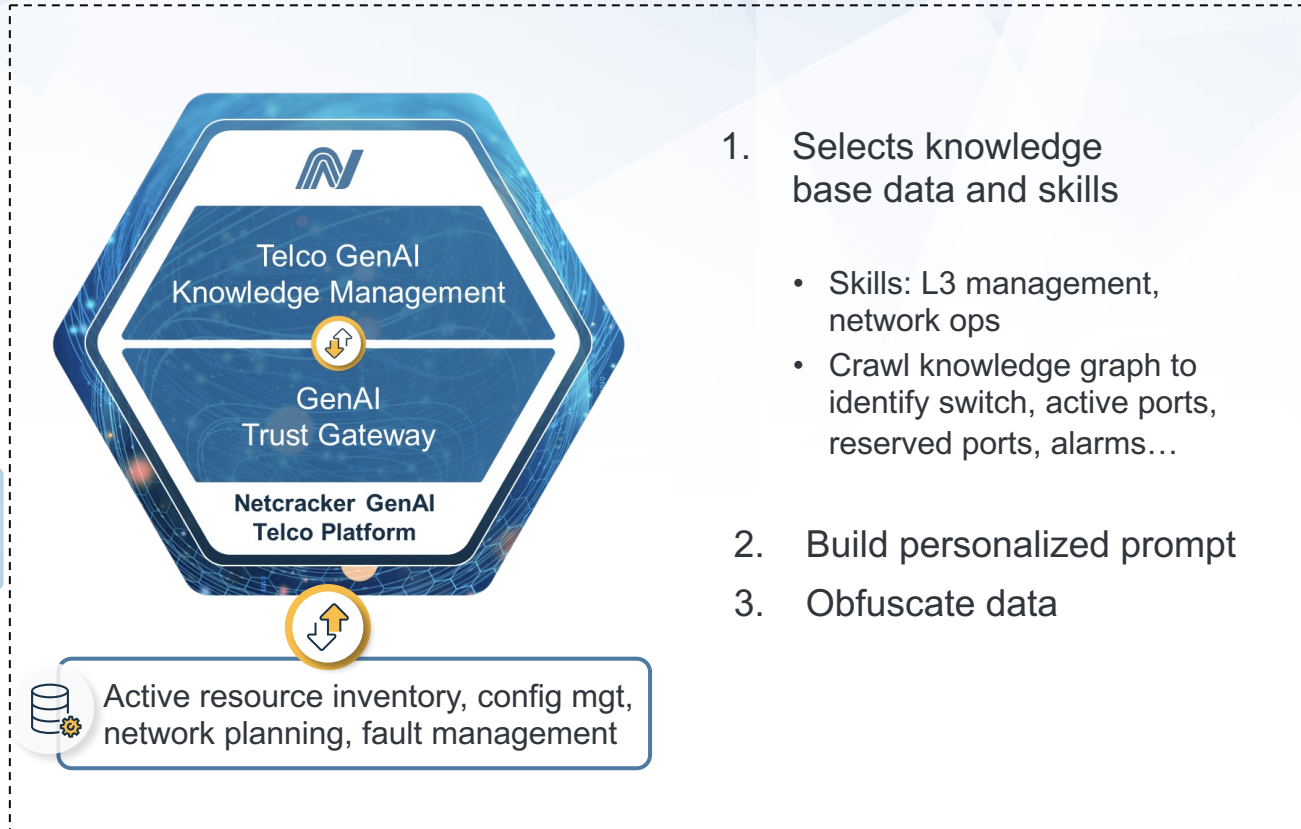
GenAI Model

These are the available ports in Charlotte PoP, each associated with specific network devices and port identifiers:

Port 101: Core Router A - GE1/0/1
Port 102: Core Router B - GE1/0/1
Port 103: Distribution Switch C - GE2/0/1
Port 104: Distribution Switch D - GE2/0/1
Port 105: Access Switch E - GE3/0/1
Port 106: Access Switch F - GE3/0/1

From hours to 10-15s with GenAI

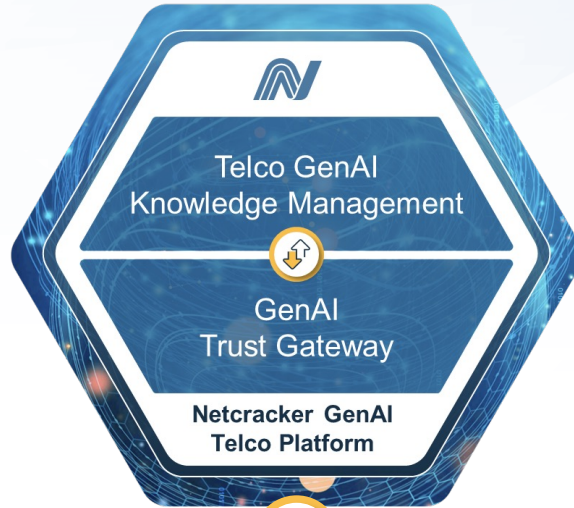# How it works: Streamlining ordering via LSO Cantata

"I'm interested in an E-Line service from Tristate Bank HQ to 2200 Lincoln Ct Berin CT with 1 Gbps bandwidth and 97% availability"

MEF Ordering Assistant

Telco GenAI Knowledge Management

GenAI Trust Gateway

Netcracker GenAI Telco Platform

BSS/OSS data

##Instructions##
Using customer context, validate addresses, translate speeds to Mbps, translate required SLA to SLS profiles, identify suitable CPEs with 1Gbps ports to support redundancy, order one subscriber ethernet product with these parameters and one CPE product.

```
{
  "externalId": "00193378ac",
  "note": [
    {
      "author": "Netcracker GenAI Ordering",
      "date": "2023-09-26T22:53:24.710Z",
      "id": "06027561fb",
      "source": "buyer",
      "text": "autogenerated"
    }
  ],
  "projectId": "047208a9c",
  "relatedContactInformation": [
    {
      "emailAddress": "it_svc@tristate.bank.us",
      "name": "Heather Coss",
      "number": "212-904-3001",
      "numberExtension": "1277",
      "organization": "TRISTATE SAVINGS BNK CORP",
      "postalAddress": {
```

From hours to 10-15s with GenAI and fewer skilled engineers

How it works: GenAI assisted partner onboarding

**CSP needs
a new partner
to expand footprint.**

**New partner
is validated by
procurement
with right profile**

30%+ greater process
automation with GenAI

STEP 1: Business Onboarding	STEP 2: Technical Onboarding

Retail CSP:

*Let's start the onboarding process.
I'm here to assist you…*

Business Onboarding
Assistant

Knowledge Base

- Define partnership, commercial models
- Define operational and process model
- Generate service agreement document including contextual information

BSS/OSS data

LLM (from Retail CSP):

Master service agreement generation

Retail CSP:

*Now let's configure integration parameters
for LSO Sonata and LSO Interlude…*

Technical Onboarding
Assistant

Knowledge Base

- Generate smart contract(s)
- Configure integration endpoints and related authorization and authentication
- Perform an integration test

BSS/OSS data

LLM (from Retail CSP):

Integration tests passed (see logs)

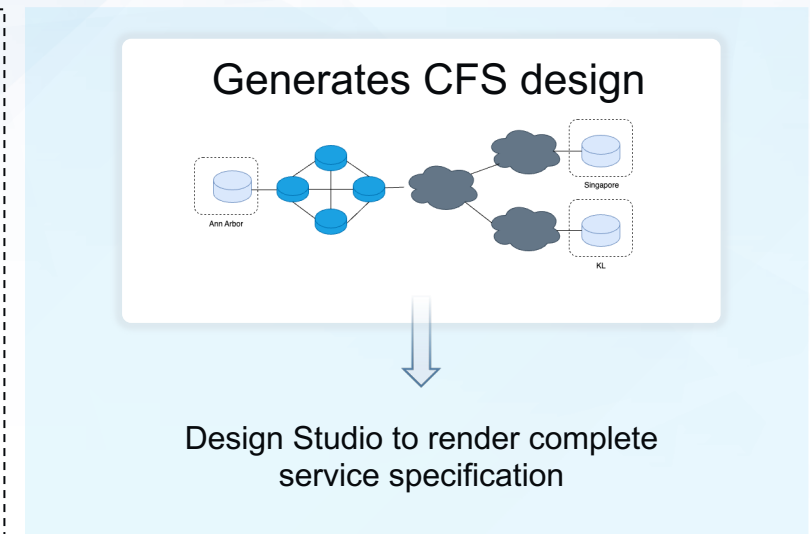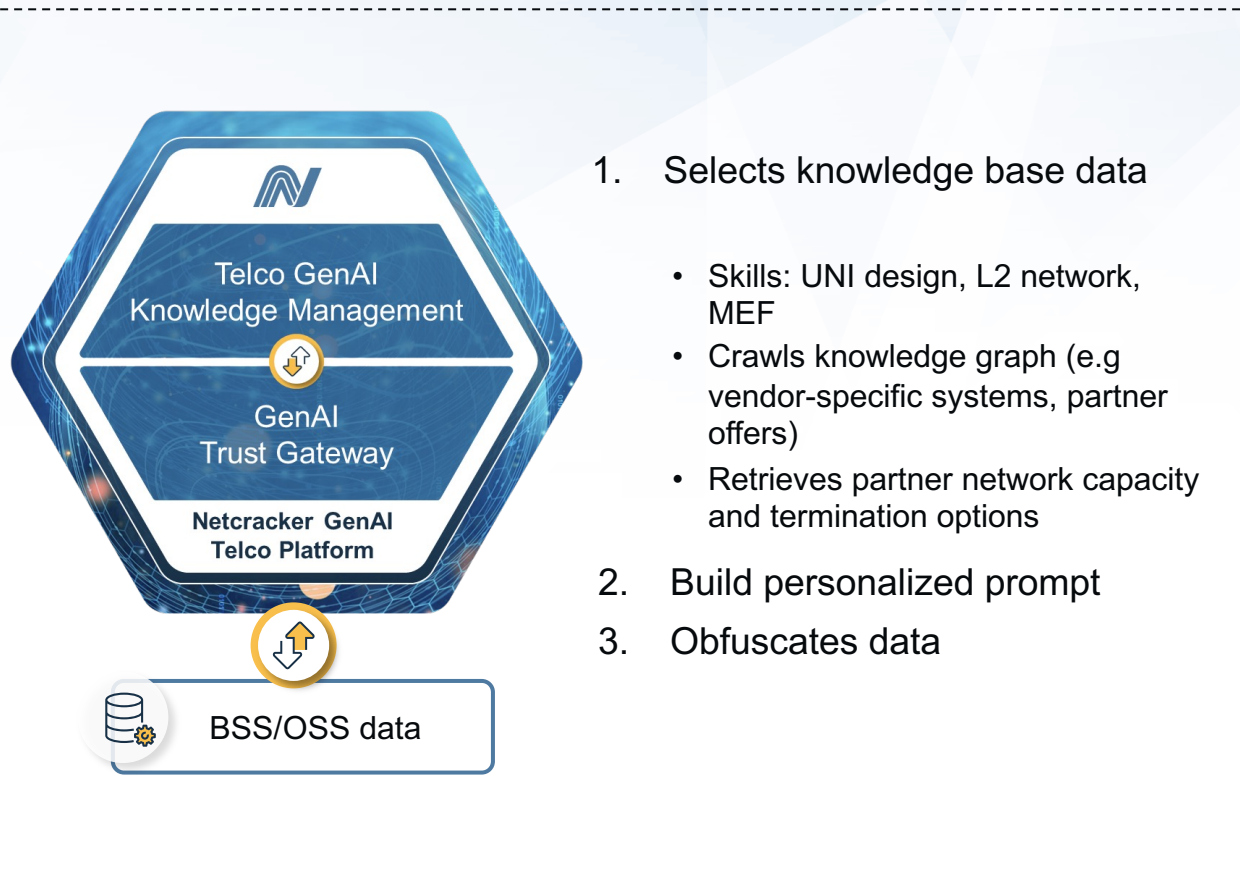# How it works: Prompted multi-CSP network design

STEP 1: Parse user request › **STEP 2:** Identify data to respond › **STEP 3:** Build personalized prompts › **STEP 4:** GenAI model generates design

"Create an E-LAN with locations at 500 Lancaster Ave Ann Arbor MI, 17 Ubi Rd 4, Singapore, 2, Jalan Gelugor, Pudu, 55200 Kuala Lumpur with CPE redundancy and next gen firewalls installed on every location. For Ann Arbor, I need availability of …"

GenAI extension to Design Studio

Telco GenAI Knowledge Management

GenAI Trust Gateway

Netcracker GenAI Telco Platform

BSS/OSS data

1. Selects knowledge base data

   - Skills: UNI design, L2 network, MEF
   - Crawls knowledge graph (e.g vendor-specific systems, partner offers)
   - Retrieves partner network capacity and termination options

2. Build personalized prompt

3. Obfuscates data

Generates CFS design

Ann Arbor   Singapore   KL

Design Studio to render complete service specification

From 3 days/1 week to 2 hours with GenAI and fewer skilled engineers

Making GenAI relevant in telecom

GenAI models need telecom domain expertise & BSS/OSS integration

⌄

Model enrichment increases quality

Robust security and control is critical

⌄

No personal/ proprietary data can be leaked to public

CSPs need a choice of different GenAI models

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Leverage best combination of GenAI models

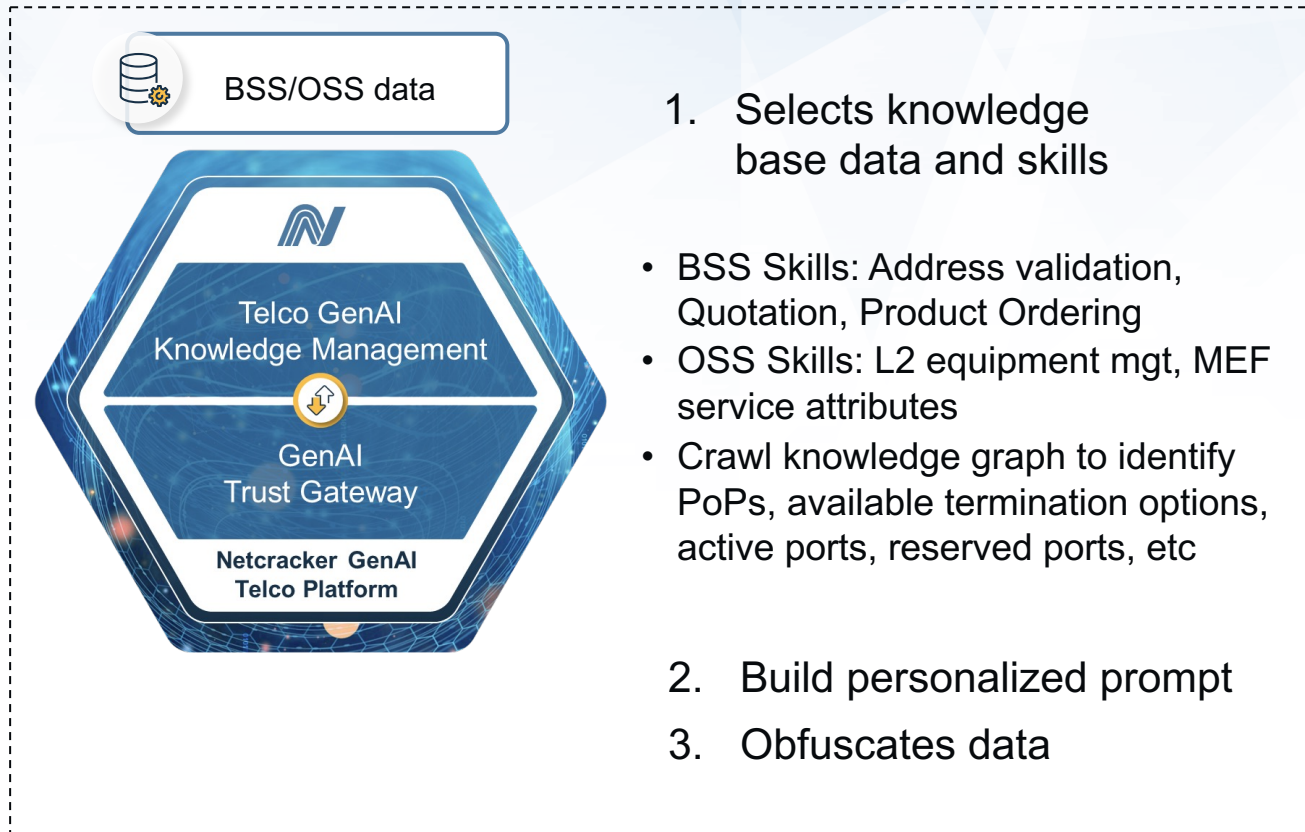# How it works: Streamlining ordering via LSO Cantata

STEP 1: Parse user request › **STEP 2:** Identify and collect data › **STEP 3:** Build personalized prompts › **STEP 4:** GenAI model generates LSO Cantata payload

"I'm interested in an E-Line service from Tristate Bank HQ to 2200 Lincoln Ct Berin CT with 1 Gbps bandwidth and 97% availability"

MEF Ordering Assistant

BSS/OSS data

Telco GenAI Knowledge Management

GenAI Trust Gateway

Netcracker GenAI Telco Platform

1. Selects knowledge base data and skills

- BSS Skills: Address validation, Quotation, Product Ordering
- OSS Skills: L2 equipment mgt, MEF service attributes
- Crawl knowledge graph to identify PoPs, available termination options, active ports, reserved ports, etc

2. Build personalized prompt

3. Obfuscates data

```
{
    "externalId": "00193378ac",
    "note": [
        {
            "author": "Netcracker GenAI Ordering",
            "date": "2023-09-26T22:53:24.710Z",
            "id": "06027561fb",
            "source": "buyer",
            "text": "autogenerated"
        }
    ],
    "projectId": "047208a9c",
    "relatedContactInformation": [
        {
            "emailAddress": "it_svc@tristate.bank.us",
            "name": "Heather Coss",
            "number": "212-904-3001",
            "numberExtension": "1277",
            "organization": "TRISTATE SAVINGS BNK CORP",
            "postalAddress": {
```

From hours to 10-15s with GenAI

Delivering the Digital Future

Netcracker

An NEC Company