

ANL Assessment and evidences of China Mobile Fujian on GB1059K_Individual Service Assurance

November 2025

Individual Service Assurance Questionnaire

Process	Cognitive Activity	Service Capability	Weight	Questions	Option A	Option B	Option C	Option D
Service assurance	Intent	Intent Translation & Fulfillment	10%	How does the System translate mobile Service intents (e.g., throughput, latency, availability) into network actions and evaluate their fulfillment?	The System automatically generates Service Assurance objectives (e.g., throughput targets, latency bounds) and policy actions based on mobile Service intents. The System evaluates intent fulfillment based on implementation effect.	The System processes Intent using predefined rules and policies. Intent fulfillment evaluation is manually validated.	Intent configuration and evaluation are entirely manual and rely on static KPIs and human expertise.	
	Awareness	Service Performance Monitoring & degradation Detection	10%	How does the System monitor mobile Service KPIs (e.g.: throughput, latency...) and detect performance degradation or anomalies?	The System continuously monitors mobile Service KPIs and detects anomalies or performance degradation, without human intervention.	The System monitors Service KPIs and detects anomalies or performance degradation based on predefined rules	Performance monitoring, Service degradation and anomaly detection are determined based on human expertise	
		Service Performance degradation Prediction	15%	How does the System predict Service performance degradation (e.g. Throughput, latency ...) and SLA violation before they affect Service performance?	The System uses AI Models to analyze mobile Service performance and predicts SLA violations before they impact the user.	The System uses dynamically programable policies to analyze performance patterns and predicts potential SLA violations	The System predicts SLA violations based on pre-defined rules.	SLA violation is manually detected and addressed based on performance reports.
	Analysis	Service Performance degradation Impact Analysis	10%	How does the System identify and analyze the impact of performance degradation (e.g., throughput, latency ...) on user experience or SLA compliance in the mobile network?	The System identifies and analyzes the impact of performance degradation, using AI models without human intervention.	The System identifies and analyzes the impact of mobile Service degradation using dynamically programable policies, but requires human confirmation to proceed.	The System identifies & analyzes impact of performance degradation, based on predefined rules	Impact of degradation is determined based on human expertise.
		Service Performance degradation Demarcation & Root Cause Analysis	10%	How does the System isolate the root cause of Service degradation across the network domains (i.e.: RAN, transport, and core)?	The System isolates and analyzes the root cause of mobile Service degradation across network domains using AI models, without human intervention.	The System isolates and analyzes the root cause of mobile Service degradation using dynamically programable policies, but requires human confirmation.	The System isolates & analyzes performance degradation Root Cause, based on predefined rules	Performance data and alarms are manually analyzed to determine the root cause.
		Solution Generation	15%	How does the System generate solutions to address Service degradation in mobile Services based on root cause analysis	The System generates corrective actions to address mobile Service degradation and continuously learns from past resolutions using AI models, without human intervention.	The System generates corrective actions using dynamically programable policies based on prior resolutions but requires human confirmation before execution.	The System suggests corrective actions based on predefined rules.	Solutions are manually created based on human expertise
	Decision	Solution Evaluation & Decision making	20%	How does the System evaluate solution and decide on the best solution to implement ?	The System evaluates multiple remediation options, analyzes risk and trade-offs, and selects the best solution using AI models, without requiring human decision-making.	The System assesses remediation options using dynamically programable policies and recommends the optimal choice, but requires human approval.	Remediation options, risk assessment and selection of appropriate solutions are manually done	
	Execution	Solution Implementation	10%	How does the System implement solution and apply fallback mechanisms in case of solution failure?	The System implements the selected corrective action and triggers fallback mechanisms in case of failure, without human intervention	The System applies corrective action and fallback mechanisms using pre-defined rules, based on human approval.	Implementation and fallback handling are manually executed	

China Mobile Self-Assessment 8A

Service Capability	Weight	Answer	Score
Intent Translation & Fulfilment	10%	A	4
Service Performance Monitoring & degradation Detection	10%	A	4
Service Performance degradation Prediction	15%	A	4
Service Performance degradation Impact Analysis	10%	A	4
Service Performance degradation Demarcation & Root Cause Analysis	10%	A	4
Solution Generation	15%	A	4
Solution Evaluation & Decision making	20%	A	4
Solution Implementation	10%	A	4
			4

Question How does the System translate mobile Service intents (e.g., throughput, latency, availability) into network actions and evaluate their fulfillment?

Options	Option A	Option B	Option C	Option D
	<p>✓ Option A</p> <p>The System automatically generates Service Assurance objectives (e.g., throughput targets, latency bounds) and policy actions based on mobile Service intents. The System evaluates intent fulfillment based on implementation effect.</p>	<p>The System processes Intent using predefined rules and policies. Intent fulfillment evaluation is manually validated.</p>	<p>Intent configuration and evaluation are entirely manual and rely on static KPIs and human expertise.</p>	<p>Option D</p>

Example evidence for option A:

Optimization agent supports intent translation and execution: Taking the Individual data service optimization in a specified area as an example, based on the intent recognition function of the wireless small u-optimization agent, first determine the current perception indicators of key services such as video, gaming, web browsing, and instant messaging in the area, then the system analyzes specific performance shortcomings. Subsequently, generate an issue list based on preset optimization goals and implement corresponding optimization measures. After completion, the system automatically outputs an optimization evaluation report to verify whether the service perception meets the initial intent requirements.

Agent achieves intent understanding

Users can express their personal service assurance requirements for a specific area using natural language.

Based on the identified intent, the system automatically generates personalized business analysis approaches for specified areas.

The system first automatically outputs overall metrics for services such as video, gaming, and web browsing within the region. Through comparative analysis, it further identifies the issue of poor downlink RTT latency for gaming services, primarily due to suboptimal user experience with the game 'Honor of Kings'.

Agent outputs operation policies

After identifying a service issue with 'Honor of Kings' gaming, the system prompts the user to input or define further optimization objectives.

The user specifies optimization goals and selects remote optimization as the primary implementation method.

The system automatically generates optimization suggestions, issue lists, and effect estimates for downlink RTT latency based on objectives.

Intelligent optimization effect evaluation

After completing the optimization of the issue list, the system will conduct a comprehensive evaluation of the optimization results based on user instructions.

The system outputs an evaluation report, confirming that the downlink RTT latency optimization has met the requirements.

The system automatically generates evaluation approaches based on requirements.

The full online network optimization workbench supports intent translation and execution: Achieves automated collection of alarm, performance, and perception data through the workbench, deploys intelligent rules, focuses on monitoring indicators such as rate and latency, dynamically detects various abnormal patterns (e.g., spikes/sudden changes) using machine learning algorithms like the K-sigma statistical model, automatically generates a list of problematic cells, identifies specific causes, automatically generates and executes solutions, and forms an automatic evaluation closed-loop for the execution results, achieving 100% full automation from problem discovery to evaluation and resolution.

您当前位置: 工单处理

1 数据采集 (100%自动化率) 2 质差识别 (100%自动化率) 3 质差分类 (100%自动化率) 4 根因定位 (100%自动化率) 5 方案生成 (100%自动化率) 6 指令操作 (100%自动化率) 7 现场人工操作 (100%自动化率) 8 效果评估 (100%自动化率)

基本工单信息

Intent understanding: The system detects network issues based on intelligent rules, outputs specific problematic cells, and automatically identifies root causes.

Automated operation strategy output: Based on location results, the system leverages Tuling capabilities to generate multiple optimization solutions, selecting the best one for execution via a digital twin model.

Automated effect evaluation: After executing the solution, the system automatically evaluates the results to confirm optimization effectiveness.

工单流转信息

基本信息 问题类型: 5G_5G低用户上行速率(一般) 对象号: 460-00-2105651-2 对象名称: 行... HRH...	根因分析 主要原因: 弱覆盖-MR弱覆盖 主要原因描述: MR弱覆盖占比:14.0497 其他次要原因描述: ["上行弱覆盖占比:20", "过远接入_TA占比:39...	方案制定 基础维度方案: 针对性参数方案: 图灵方案: COVERAGE SCENARIO:DEFAULT;TILT:6;	优化执行 基础维度方案执行结果: 针对性参数方案执行结果: 图灵方案执行结果: 成功	效果评估 问题是否解决: 是 自优化前指标值: 上行用户平均速率(RLC层)(Mbps):1.3627 自优化后指标值: 上行用户平均速率(RLC层)(Mbps):4.3621	归档办结 是否办结: 是 问题是否统计: 否
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Question

How does the system monitor key performance indicators (KPIs) of mobile services (e.g., throughput, latency...) and detect performance degradation or anomalies?

Options

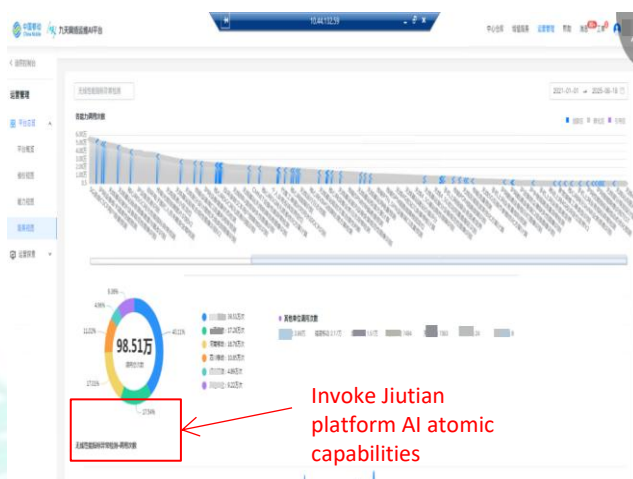
Options	Option A	Option B	Option C	Option D
	<p>✓ Option A</p> <p>The System continuously monitors mobile Service KPIs and detects anomalies or performance degradation, without human intervention.</p>	<p>The System monitors Service KPIs and detects anomalies or performance degradation based on predefined rules</p>	<p>Performance monitoring, Service degradation and anomaly detection are determined based on human expertise</p>	<p>Option D</p>

Example evidence for option A:

KPI monitoring: based on the fully online network optimization workstation, automatically collecting alarm, configuration, performance, and big data perception data, and focusing on monitoring KPIs such as throughput and latency by deploying intelligent rules, enabling continuous tracking of key indicators in critical areas.

Performance degradation detection: Based on monitored cell throughput/latency data, machine learning algorithms such as K-sigma and iForest are used to dynamically detect various anomaly patterns like spikes, sharp changes, gradual changes, and step jumps, outputting a detailed list of problematic cells (including metrics, timestamps, etc.).

Invoke atomic capability: Wireless performance metric anomaly detection



Embedded in the workstation, continuously monitors and automatically outputs a list of degraded cells.



Question

How does the System predict Service performance degradation (e.g. Throughput, latency ...) and SLA violation before they affect Service performance?

Options

Options	✓ Option A	Option B	Option C	Option D
	The System uses AI Models to analyze mobile Service performance and predicts SLA violations before they impact the user.	The System uses dynamically programable policies to analyze performance patterns and predicts potential SLA violations	The System predicts SLA violations based on pre-defined rules.	SLA violation is manually detected and addressed based on performance reports.

Example evidence for option A:

Predicting cell service performance degradation using algorithm capabilities of the Jiutian platform: invoking the platform's atomic capability for wireless metric prediction, building a predictive model based on time series algorithms for input cell metrics (such as PRB utilization, proportion of low CQI), to assess the trend of cell metrics in future periods. Furthermore, combining AI capabilities to intelligently analyze the prediction results, automatically identifying performance degradation and its potential impact on user experience.

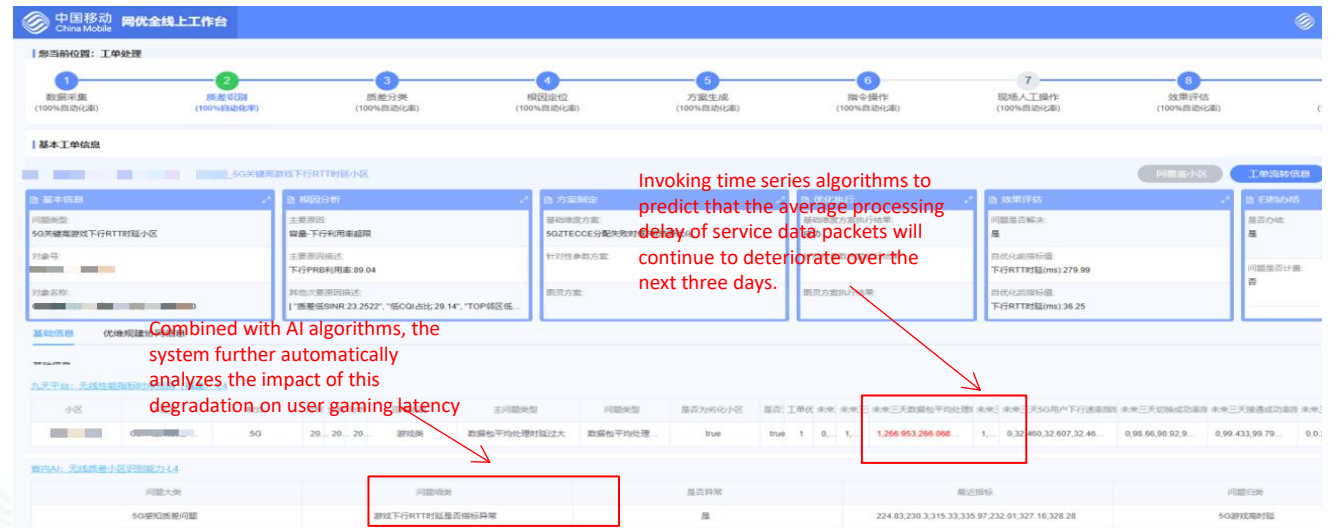
Invoking atomic capability (prediction): Time-series prediction of wireless performance metrics



Invoking atomic capability (anomaly detection): Poor-quality wireless cell identification capability.



Embedded in the workbench, it automatically outputs the future rate and latency metrics of cells over a certain period.



Question

How does the System identify and analyze the impact of performance degradation (e.g., throughput, latency ...) on user experience or SLA compliance in the mobile network?

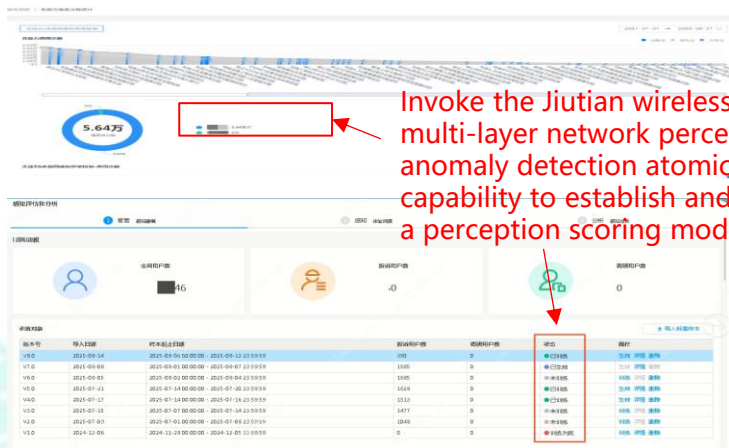
Options

Options	✓ Option A	Option B	Option C	Option D
	The System identifies and analyzes the impact of performance degradation, using AI models without human intervention.	The System identifies and analyzes the impact of mobile Service degradation using dynamically programmable policies, but requires human confirmation to proceed.	The System identifies & analyzes impact of performance degradation, based on predefined rules	Impact of degradation is determined based on human expertise.

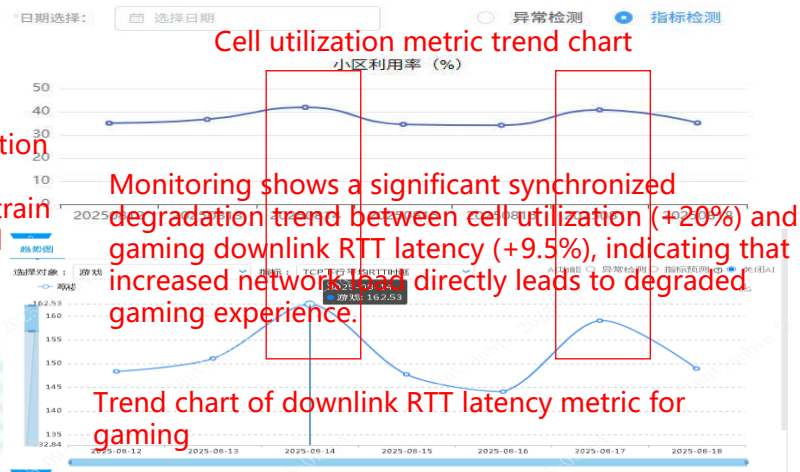
Example evidence for option A:

Service performance degradation impact analysis: invoking Jiutian's atomic capability for multi-layer wireless network perception anomaly detection, using AI algorithms (ResNet model) to learn the correlation patterns between performance metrics (e.g., utilization, proportion of low CQI) and perception metrics (e.g., RTT latency). Training a perception scoring model based on historical and sample data, thereby achieving quantitative modeling of user perception. Finally, the system automatically identifies and analyzes the impact of performance metric degradation on user experience by monitoring the decline in perception scores and the increase in the proportion of poor-quality users.

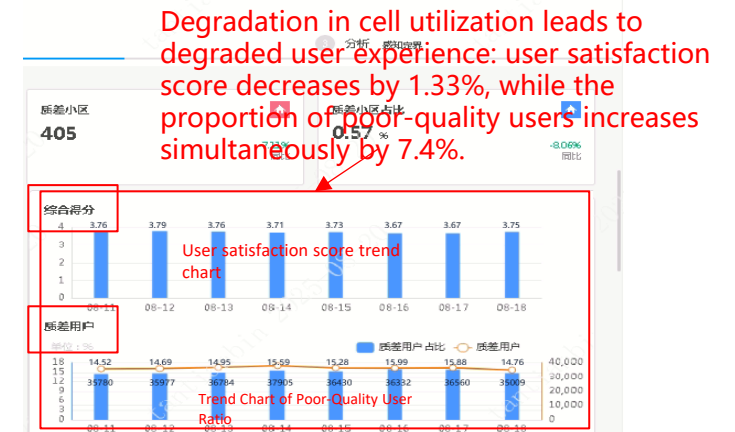
Invoking atomic capability: Multi-layer wireless network anomaly detection.



Embedded in the workstation, performing correlation analysis between performance and perception metrics



Performance metric degradation accompanied by impact on user experience



Question

How does the System isolate the root cause of Service degradation across the network domains (i.e.: RAN, transport, and core)?

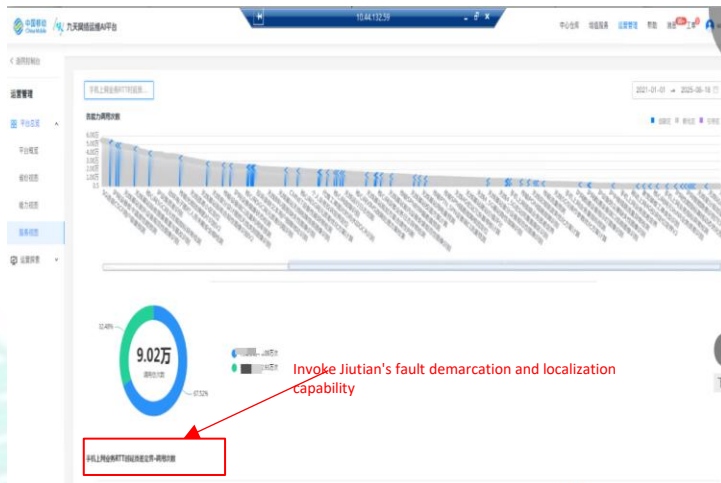
Options

✓ Option A	Option B	Option C	Option D
The System isolates and analyzes the root cause of mobile Service degradation across network domains using AI models, without human intervention.	The System isolates and analyzes the root cause of mobile Service degradation using dynamically programmable policies, but requires human confirmation.	The System isolates & analyzes performance degradation Root Cause, based on predefined rules	Performance data and alarms are manually analyzed to determine the root cause.

Example evidence for option A:

Cross-domain fault demarcation and localization based on the Jiutian platform: first, performing Pearson correlation analysis between service perception metrics (e.g., RTT latency) and pipeline-type metrics (e.g., TCP downlink latency) using multi-dimensional data at hourly granularity, such as wireless cells and core network elements. Then, dynamically calculating the deviation and negative impact degree of poor perception metrics using Gaussian Bayesian algorithms. Finally, constructing a fault demarcation decision tree model based on the above analysis to output specific demarcation and localization results for poor-performing cells.

Invoke atomic capability: Mobile internet service RTT latency poor-quality demarcation



Embedded in the workstation, automatically performs cross-network domain fault demarcation and location for cells



Cross-domain demarcation and location based on the Jiutian platform: Analyzes the correlation between service perception metrics (e.g., TCP downlink latency) and pipeline indicators across dimensions like wireless cells and core network elements at an hourly granularity using the Pearson algorithm. The Gaussian Bayesian algorithm dynamically calculates the deviation and negative impact of perception Indicator degradation, constructing a demarcation decision tree model to output specific results (**distinguishing wireless side, core network elements, transmission side, etc.**).

Embedded in the workbench, automatically performs cross-network domain demarcation and positioning for cells.

Cell service performance degradation. Based on RTT latency and pipeline metrics, AI capabilities are invoked to automatically demarcate and localize specific wireless causes (e.g., suspected external interference).

Cell service performance degradation. Based on RTT latency and pipeline metrics, AI capabilities are invoked to automatically demarcate core-side high latency and identify specific core network elements.

Cell service performance degradation. Based on RTT latency and pipeline metrics, AI capabilities are invoked to automatically demarcate high packet loss at the transport layer and identify specific problematic transmission links.

Question How does the System generate solutions to address Service degradation in mobile Services based on root cause analysis?

Options	Option A	Option B	Option C	Option D
	<p>✓ Option A</p> <p>The System generates corrective actions to address mobile Service degradation and continuously learns from past resolutions using AI models, without human intervention.</p>	<p>The System generates corrective actions using dynamically programmable policies based on prior resolutions but requires human confirmation before execution.</p>	<p>The System suggests corrective actions based on predefined rules.</p>	<p>Solutions are manually created based on human expertise</p>

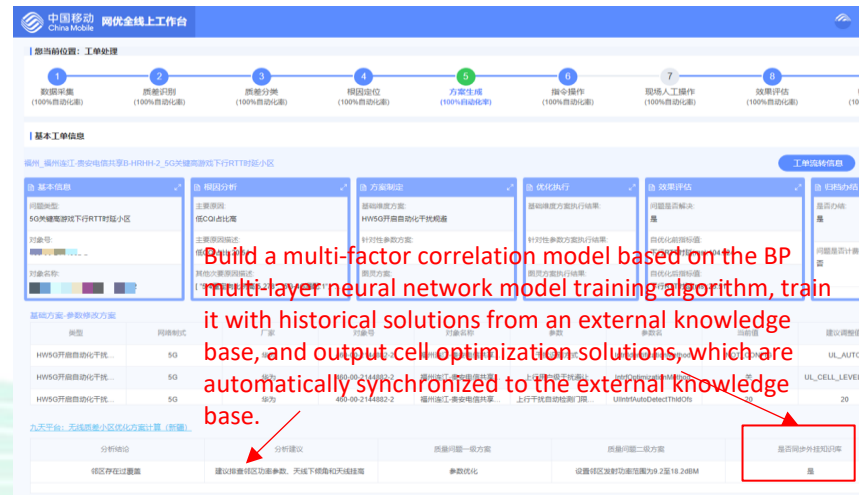
Example evidence for option A:

Generating optimization plans based on the Jiutian platform: the system has built a three-layer AI correlation model of 'performance degradation → analysis and localization → optimal solution selection'. After training with historical solutions from an external knowledge base, it can generate optimal measures for cells, including parameter adjustment, transmission troubleshooting, interference detection, and antenna feeder adjustment. The new solutions are automatically fed back into the knowledge base, forming a closed-loop optimization.

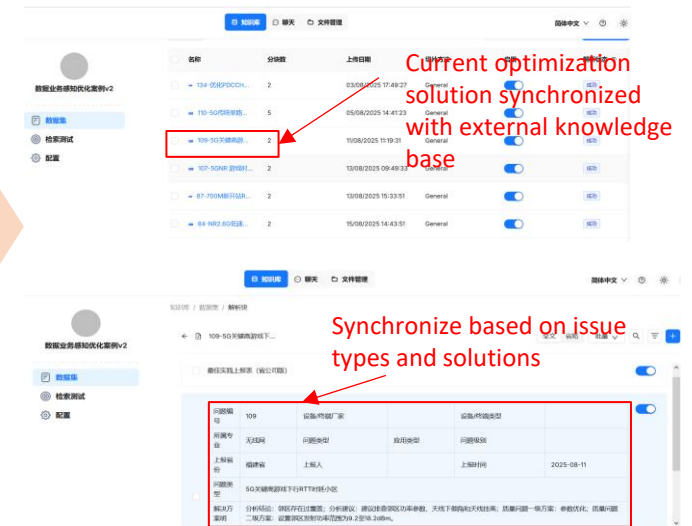
Invoke atomic capability: Calculation of Optimization Solutions for Wireless Poor-Quality Cells



Embedded in the workbench, it references historical solutions to output current optimization recommendations.



Current optimization Solution synchronized with external knowledge base



Question How does the System evaluate solution and decide on the best solution to implement?

Options	✓ Option A	Option B	Option C	Option D
	The System evaluates multiple remediation options, analyzes risk and trade-offs, and selects the best solution using AI models, without requiring human decision-making.	The System assesses remediation options using dynamically programable policies and recommends the optimal choice, but requires human approval.	Remediation options, risk assessment and selection of appropriate solutions are manually done	

Example evidence for option A:

Leveraging digital twin capabilities to screen optimal solutions: The network optimization workstation automatically generates multiple optimization solutions, and uses digital twin technology to simulate and evaluate their effectiveness and associated impacts, thereby selecting the best one for implementation. This achieves automatic generation and deduction of solutions, effectively ensuring optimization results and reducing operational risks.

Embedded in the workstation, leveraging digital twin simulation capabilities to recommend the optimal solution

The system automatically generates multiple optimization solutions

Using digital twin simulation capabilities, the system assesses the benefits of three different solutions and selects the one with the highest score as the final solution.

方案列表	对象号	对象名称	参数	参数名	当前值	建议调整值	评估得分
1	2	北...	NRDUCELLTRPBEAM	COVERAGESCENARIO	水平110度垂直窄波束	DEFAULT	73.59
2	2	北...	NRDUCELLTRPBEAM	TILT	12	0	83.45
3	2	北...	NRDUCELLALGOSWITCH	CommChnIntrfAvoidSwitch	开	UL_ACCESS_INTRF_AVOID_SW-1	91.76

对象号	对象名称	参数	参数名	当前值	建议调整值
4	2	NRDUCELLALGOSWITCH	CommChnIntrfAvoidSwitch	开	UL_ACCESS_INTRF_AVOID_SW-1

Question

How does the System implement solution and apply fallback mechanisms in case of solution failure?

Options

Options	Option A	Option B	Option C	Option D
	<p>✓ Option A</p> <p>The System implements the selected corrective action and triggers fallback mechanisms in case of failure, without human intervention</p>	<p>The System applies corrective action and fallback mechanisms using pre-defined rules, based on human approval.</p>	<p>Implementation and fallback handling are manually executed</p>	<p></p>

Example evidence for option A:

Solution implementation: The full-online workstation integrates OMC parameters from multiple vendors and electrical tilt antenna data, enabling automated batch processing of data—including automatic verification, configuration, modification, and rollback. Additionally, the platform incorporates self-optimization effect evaluation capabilities; when a solution failure is detected, it automatically rolls back parameters or antenna weights to ensure no degradation in user perception.

The system automatically executes solutions and evaluates optimization effects

The screenshot shows a workflow with 8 steps: 1. Data Collection (100% automated), 2. Solution Identification (100% automated), 3. Solution Classification (100% automated), 4. Solution Positioning (100% automated), 5. Solution Generation (100% automated), 6. Solution Execution (100% automated), 7. Manual Operation (100% automated), 8. Effect Evaluation (100% automated). Step 6 is highlighted with a red box and an arrow pointing to the text: "The system automatically implements parameter optimization schemes." Below the workflow, there are several panels: "Basic Work Order Information", "Automatic Evaluation of Metrics After Parameter Self-Optimization", and "Automatic Comparison of Post-Optimization Metrics, Determine Whether Degradation Has Occurred, Confirm Metric Degradation, and Initiate Automatic Rollback of Self-Optimization Actions". A red box highlights a table with columns for "Before Optimization", "After Optimization", and "Rollback".

After self-optimization leads to indicator degradation, the self-optimization actions are automatically rolled back.

流转信息

操作时间	操作人	工作组	操作 (节点名称)
2025-05-28 01:50:01	系统	系统	10M
2025-05-28 01:50:03	系统	系统	针对性参数-5G-数据质差-评估数...
2025-05-28 01:50:06	系统	系统	针对性参数-5G-数据质差-评估
2025-05-28 01:50:06	系统	系统	评估结果解析
2025-05-28 01:50:07	系统	系统	中端-回退-针对性-小区集团参数修改
2025-05-28 01:50:07	系统	系统	参数赋值ZDXOMCCSXGHT_code
2025-05-28 01:50:07	系统	系统	参数赋值Message_3193hm0callJ...
2025-05-28 01:50:09	系统	系统	中端-回退-针对性添加集团参数接...

Verification of optimization parameter rollback results



Thank you!