TM Forum

ANLAV Report

Vodafone Türkiye

GB1523E – IP Network Fault Management

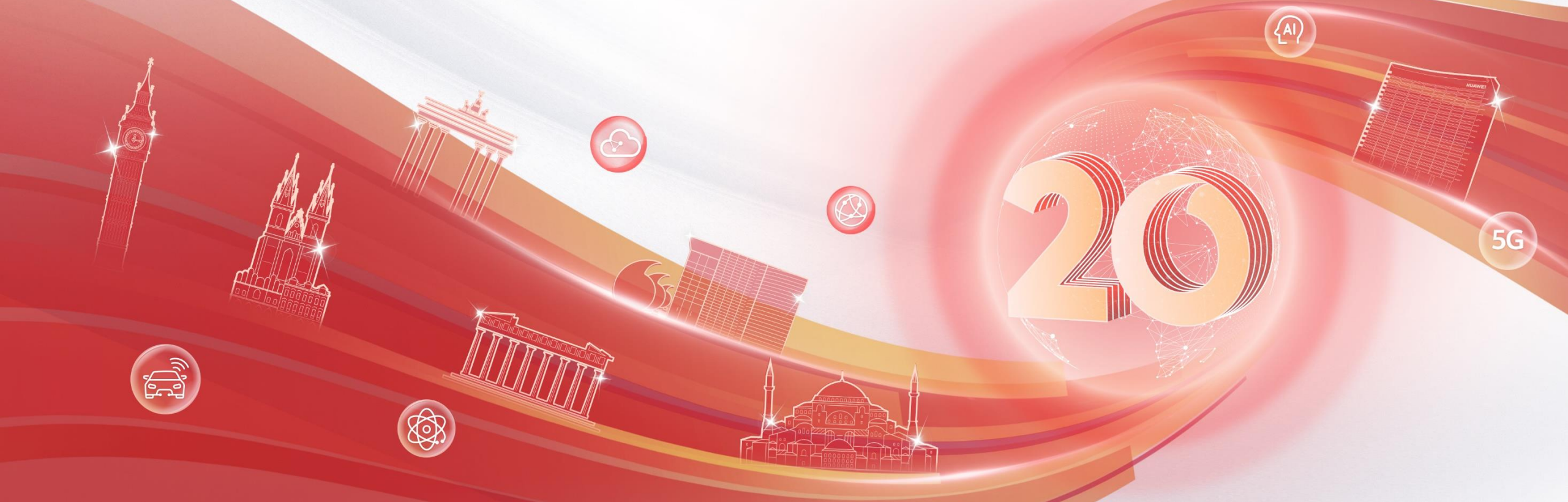
Version: 2.0.0

Score: 3.4

Vodafone Türkiye IP Network Fault Management

ANL Assessment

GB1523E_IP_Network_Fault_Management_Questionaire_v2.0.0



IP Fault Management ANL Assessment Overall Score

Cognitive Activities (IAADE)	Service capability	Weight	Question	Answer			Final Score
				Optical Module Failure or Optical Power Abnormal	Port Failure	Protocol State Abnormal (should include but not limit to IGP and BGP peer state abnormal, BFD session abnormal)	
				16%	64%	4%	
Intent	Intent Translation & Fulfillment	10%	How does the System translate and process intents & ensure intent fulfilment ? Note: 1) Intent could be fault management requirements such as MTTR (mean time to repair) , troubleshooting priority (e.g., emergency restoration in highest priority), customized troubleshooting preference based on fault impact scope and severity, etc. 2) Fault management target include alarm severity, alarm threshold, alarm aggregation rules, fault notification rules, etc.	A	A	A	3.4
Awareness	Data Collection& Alarm filtering	10%	How does the System support data collection, alarms correlation and fileting? Note: All types and fault-related indicators mentioned in options should be covered when choosing a related option	A	B	A	
Analysis	Fault Identification ,Risk identification, impact analysis	15%	How does the System support fault identification, risk identification and subsequent impact analysis? Note: These four sub-scenarios are required to consider potential risk: Optical Module Failure or Optical Power Abnormal, High Error Rate, Protocol State Abnormal, VPN Degradation.	B	B	B	
	Fault Demarcation	15%	How does the system support fault demarcation? Note: 1) Examples of demarcation involve pinpointing the exact roles of malfunctioning routers, like identifying whether they are access routers, aggregation routers, or Autonomous System Boundary Router (ASBR).	A	A	A	
	Fault Locating and Root Cause Analysis	15%	How does the system support root cause analysis? Note: 1) Examples of detailed causes of identified faults, including the smallest replaceable unit, software modules, and ports.	A	A	A	
	Solution Generation	10%	How does the System support generation of fault recovery solutions?	B	B	B	
Decision	Solution Evaluation & Decision Making	15%	How does the System support evaluation & decision of fault recovery solutions?	A	A	A	
Execution	Solution Implementation	10%	How does the system support automatic solution implementation and on-site instructions?	B	B	A	

IP Fault Management Sub-scenario Evidence

Alarm Name	Counting	proportion	Fault Category
ETH_LOS	334	56.13%	Port Failure
Optical Invalid	92	15.46%	Optical Module Failure
Link Down	44	7.39%	Port Failure
Output rate alarm notification	30	5.04%	
IS-IS Adjacency Changed	25	4.20%	Protocol State Abnormal
Input rate alarm notification	22	3.70%	
MPLS LDP Session Down	21	3.53%	
PW VC Down	17	2.86%	
BGP Status Changed	2	0.34%	
Time synchronization failed	2	0.34%	
Clock Source Check Fail	2	0.34%	
Crc error alarm notification	2	0.34%	
CCC VC Status Changed to Down	1	0.17%	
The state of clock source is failed	1	0.17%	
Total	**595**	**100%**	

Sub-scenario	Weight
Optical Module Failure	16%
Port Failure	64%
Protocol State Abnormal	4%
Total	**84%**

Based on trouble ticket statistics for one month.

Intent Translation & Fulfillment-1

Optical Module Failure or Optical Power Abnormal	Port Failure	Protocol State Abnormal
A	A	A

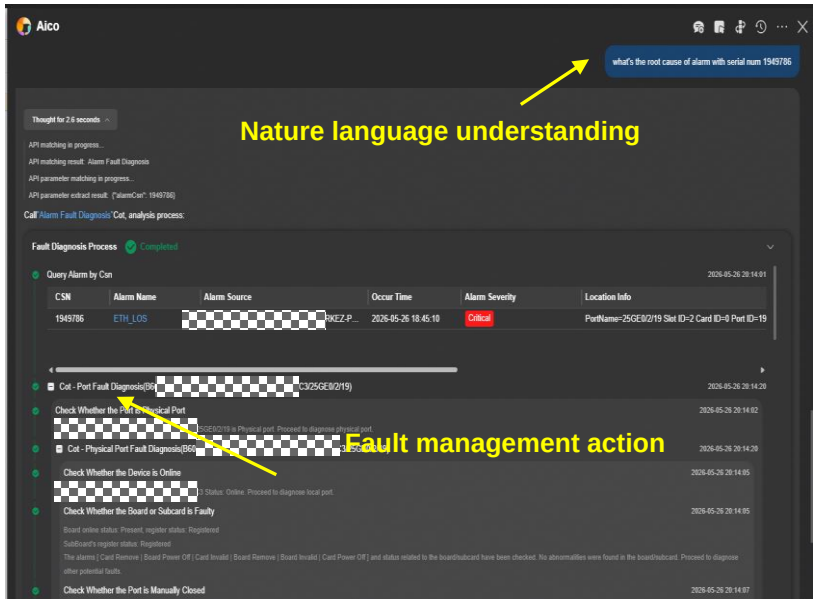
Service capability	Weight	Question	Option A	Option B	Option C	Option D
Intent Translation & Fulfillment	10%	How does the System translate and process intents & ensure intent fulfilment ? Note: 1) Intent could be fault management requirements such as MTTR (mean time to repair) , troubleshooting priority (e.g., emergency restoration in highest priority), customized troubleshooting preference based on fault impact scope and severity, etc. 2) Fault management target include alarm severity, alarm threshold, alarm aggregation rules, fault notification rules, etc.	The system supports the input of fault management intent by simplified human-system interaction (e.g., nature language user interface provided by system), system automatically translates the intent into fault management targets . The System evaluates intent fulfillment based on the implementation effect, providing overview of fault management results, including automatically fault-handling results and the suggestions for faults that required manually handling, etc.	The System processes Intent through the execution of predefined Rules and Policies. Intent fulfillment is manually evaluated	Fault management task targets and policies are manually defined based on expertise. Manually evaluate the effect after the intention is implemented.	Manually set fault management targets based on expertise(such as setting alarm severity and classification) .

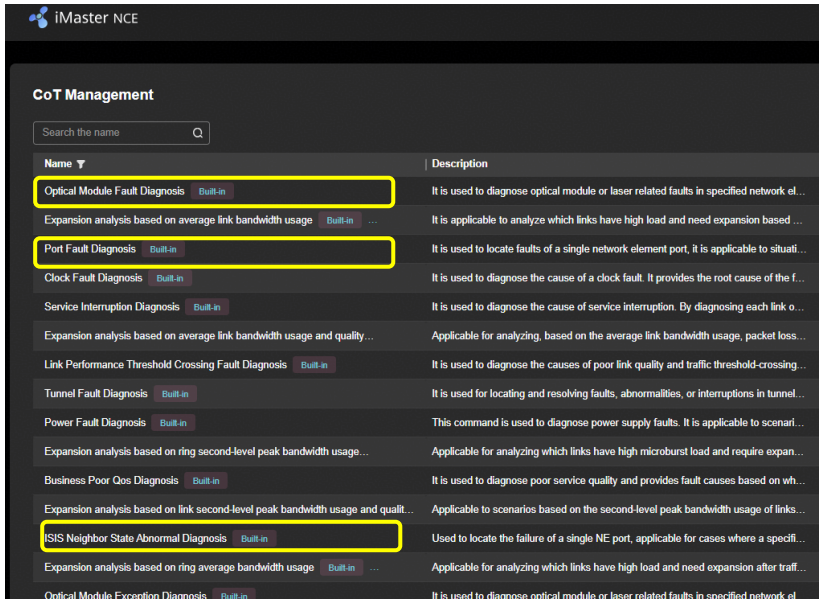
Example evidence for option A:

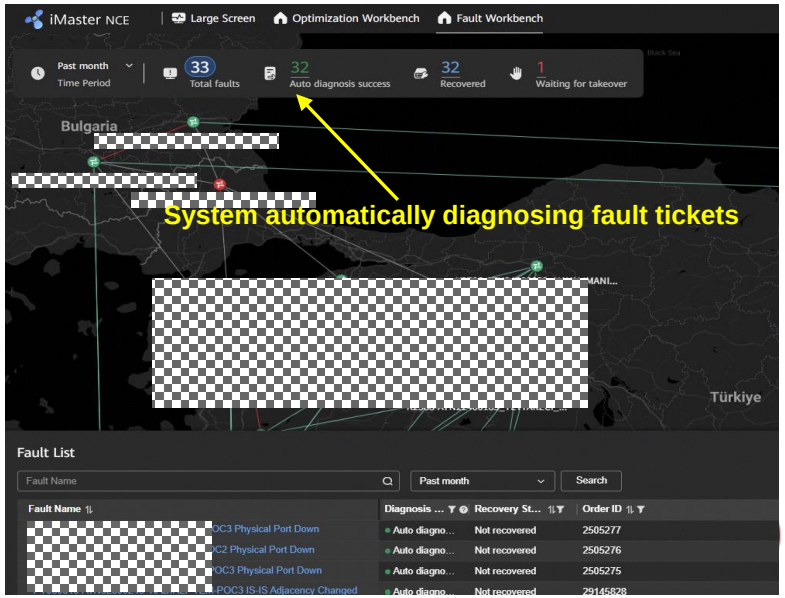
1、The system support nature language based fault management, the system automatically translates the intent into fault management target and take action.

2、The system supports fault management and provides diagnostic CoT for various types of faults. The supported fault CoT includes Port Failure, Optical Module Failure, Optical Power Abnormal, Protocol Abnormal etc.

3、When a fault occurs, the system automatically takes over the fault ticket, understands the intent of the ticket, automatically loads the corresponding fault diagnosis CoT, performs fault demarcation and localization, and generates a repair solution, thereby realizing the automated disposal of the fault process.





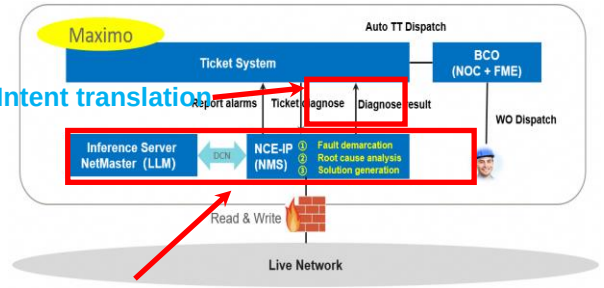


Intent Translation & Fulfillment-2

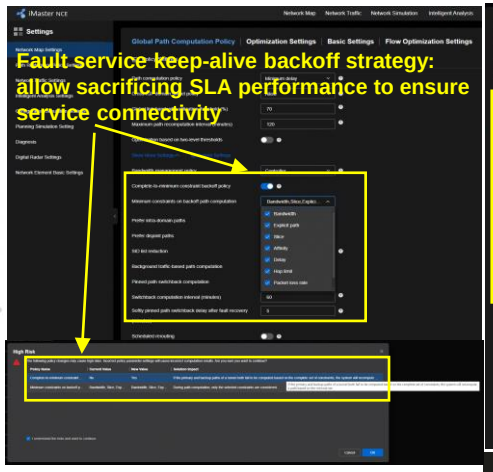
Optical Module Failure or Optical Power Abnormal	Port Failure	Protocol State Abnormal
A	A	A

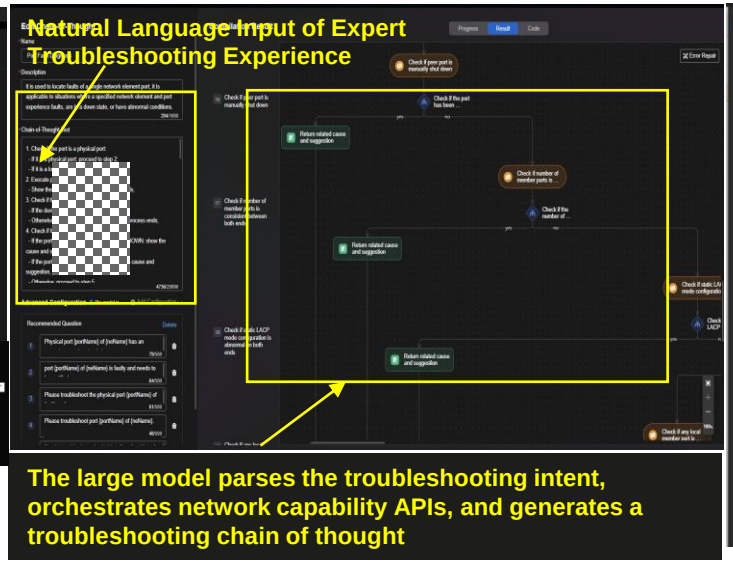
Service capability	Weight	Question	Option A	Option B	Option C	Option D
Intent Translation & Fulfillment	10%	How does the System translate and process intents & ensure intent fulfilment ? Note: 1) Intent could be fault management requirements such as MTTR (mean time to repair) , troubleshooting priority (e.g., emergency restoration in highest priority), customized troubleshooting preference based on fault impact scope and severity, etc. 2) Fault management target include alarm severity, alarm threshold, alarm aggregation rules, fault notification rules, etc.	The system supports the input of fault management intent by simplified human-system interaction (e.g., nature language user interface provided by system), system automatically translates the intent into fault management targets . The System evaluates intent fulfillment based on the implementation effect, providing overview of fault management results, including automatically fault-handling results and the suggestions for faults that required manually handling, etc.	The System processes Intent through the execution of predefined Rules and Policies. Intent fulfillment is manually evaluated	Fault management task targets and policies are manually defined based on expertise. Manually evaluate the effect after the intention is implemented.	Manually set fault management targets based on expertise(such as setting alarm severity and classification) .

Example evidence for option A:



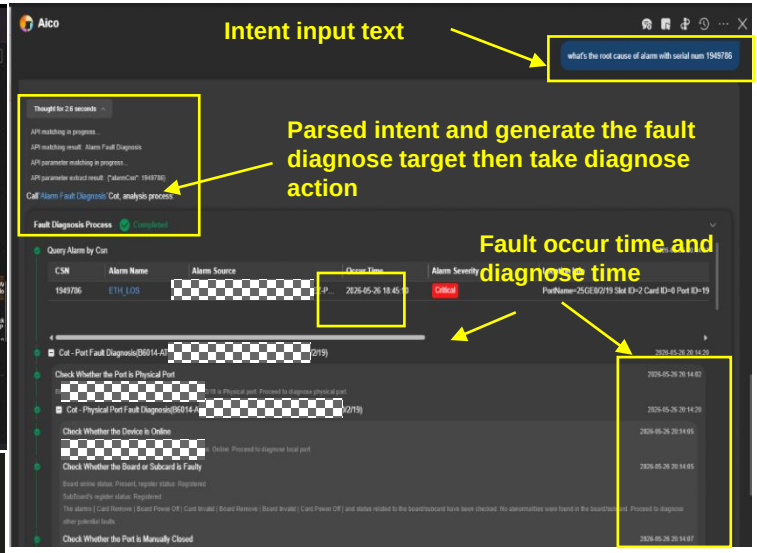
Fault diagnose task has been done automatically by NMS with AI, no need human confirmation.





The large model parses the troubleshooting intent, orchestrates network capability APIs, and generates a troubleshooting chain of thought

Scenario 1：Diagnose task invocated by human intent input



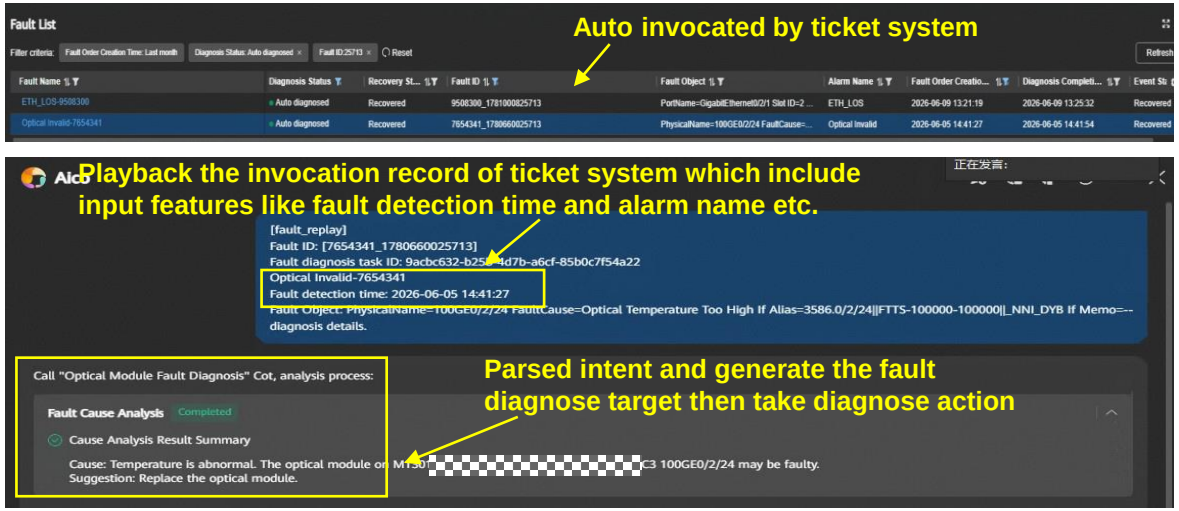
Intent Translation & Fulfillment-3

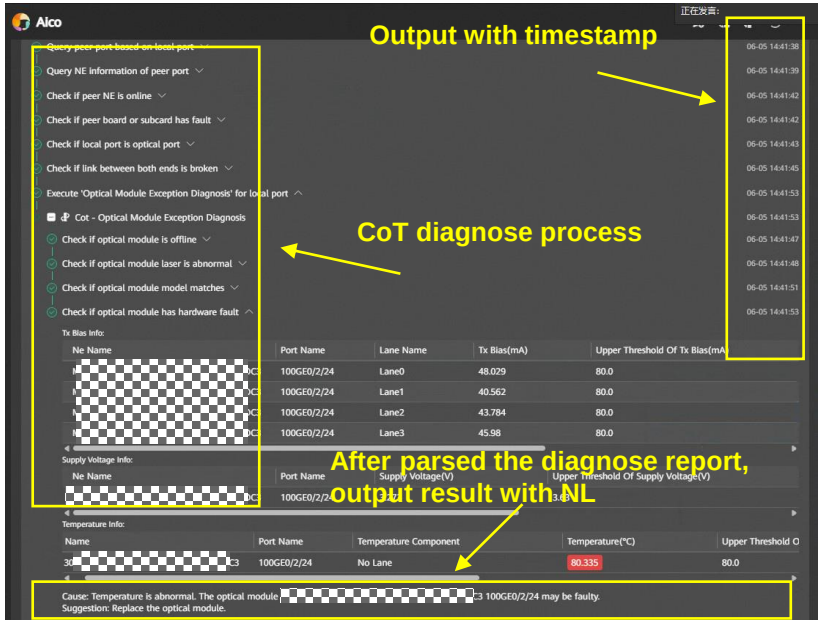
Optical Module Failure or Optical Power Abnormal	Port Failure	Protocol State Abnormal
A	A	A

Service capability	Weight	Question	Option A	Option B	Option C	Option D
Intent Translation & Fulfillment	10%	How does the System translate and process intents & ensure intent fulfilment ? Note: 1) Intent could be fault management requirements such as MTTR (mean time to repair) , troubleshooting priority (e.g., emergency restoration in highest priority), customized troubleshooting preference based on fault impact scope and severity, etc. 2) Fault management target include alarm severity, alarm threshold, alarm aggregation rules, fault notification rules, etc.	The system supports the input of fault management intent by simplified human-system interaction (e.g., nature language user interface provided by system), system automatically translates the intent into fault management targets . The System evaluates intent fulfillment based on the implementation effect, providing overview of fault management results, including automatically fault-handling results and the suggestions for faults that required manually handling, etc.	The System processes Intent through the execution of predefined Rules and Policies. Intent fulfillment is manually evaluated	Fault management task targets and policies are manually defined based on expertise. Manually evaluate the effect after the intention is implemented.	Manually set fault management targets based on expertise(such as setting alarm severity and classification) .

Example evidence for option A:

Scenario 2：Diagnose task invocated by ticket system





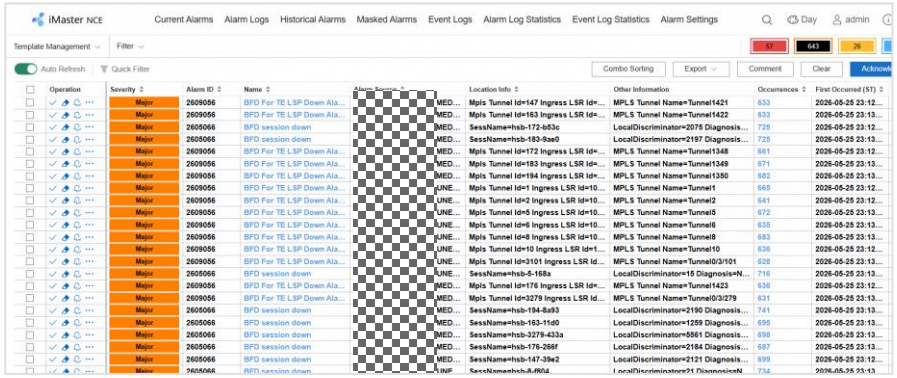
Data Collection& Alarm filtering-1

Optical Module Failure or Optical Power Abnormal	Port Failure	Protocol State Abnormal
A	B	A

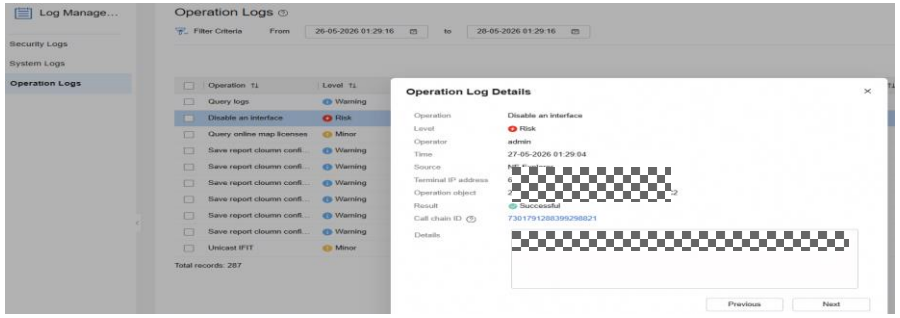
Service capability	Weight	Question	Option A	Option B	Option C	Option D
Data Collection& Alarm filtering	10%	How does the System support data collection, alarms correlation and fileting? Note: All types and fault-related indicators mentioned in options should be covered when choosing a related option	The system automatically collects fault-related indicators including alarms, logs, performance, and OAM data, detecting service and network status in minutes, and automatically associates alarms, filters & correlates alarms. For specific sub-scenarios, data awareness at higher precision is needed for accurate root cause analysis: 1) For sub-scenario "device offline", millisecond-level optical power data is needed. 2)For sub-scenario "Port Failure", data collection of OTDR is needed.	The system automatically collects fault-related indicators including alarms, logs, performance, detecting service and network status within 15 minutes or 24 hours, associates alarms, filters & correlates alarms based on manually defined rules.	Manually select and use the System to collect data and filter out invalid/redundant alarms	Data collection and alarm filtering of invalid / redundant alarms are manually done.

Example evidence for option A:

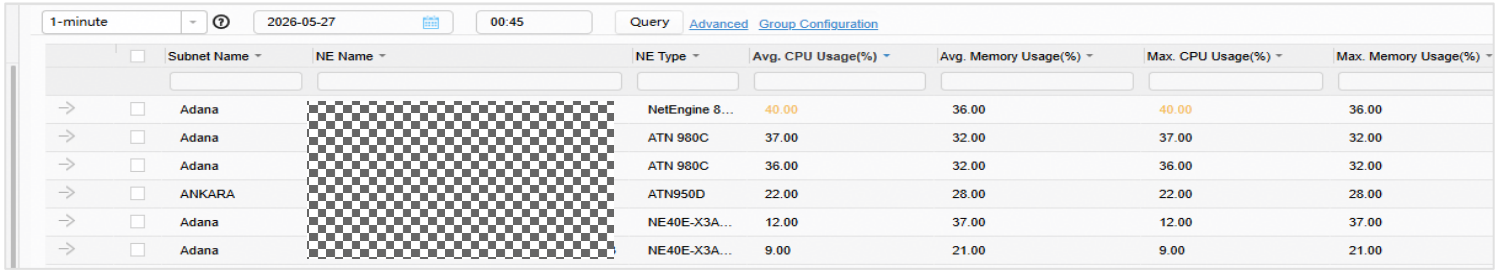
Real-time Fault & Performance Alarm Management



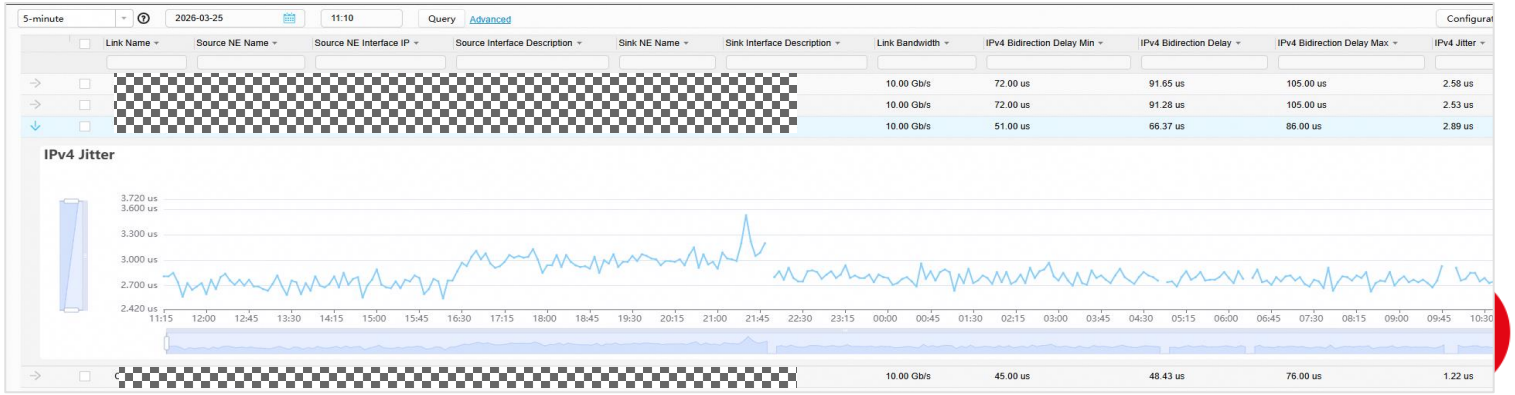
Log Management



Minute-level OAM data (Packet Loss, Delay, Jitter, etc.)



Minute-level performance data (CPU/Memory Usage, etc.)



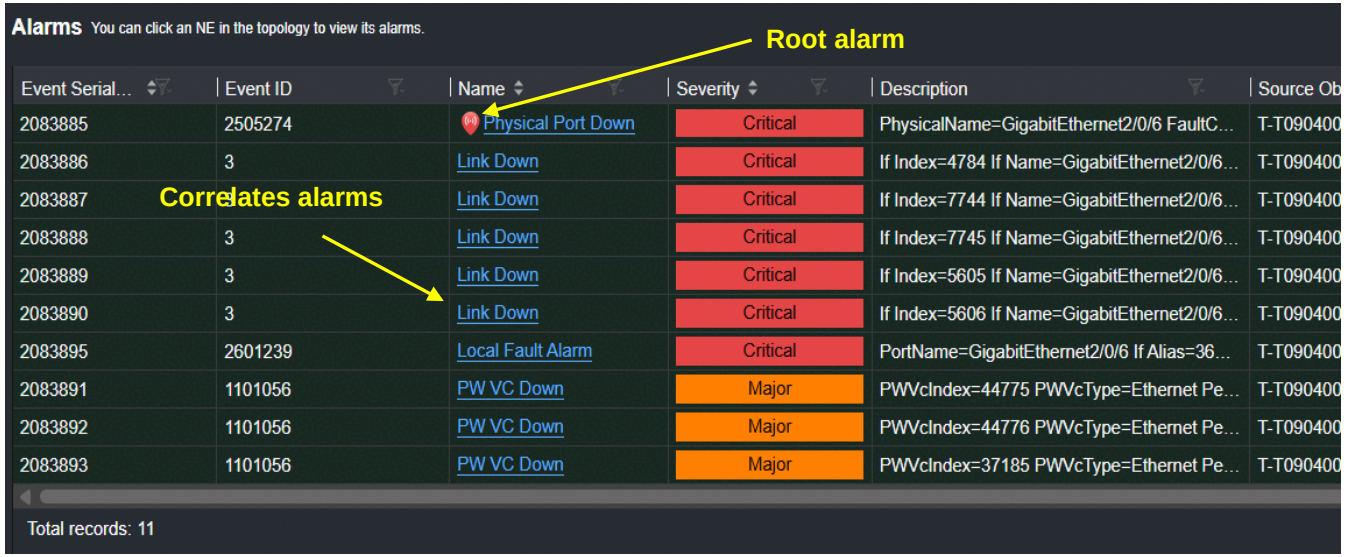
Data Collection& Alarm filtering-2

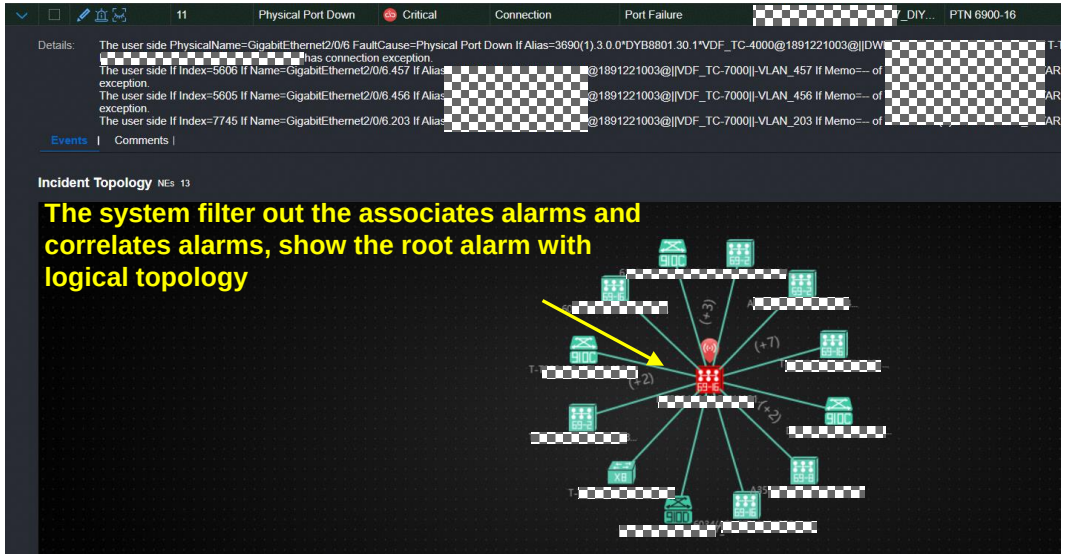
Optical Module Failure or Optical Power Abnormal	Port Failure	Protocol State Abnormal
A	B	A

Service capability	Weight	Question	Option A	Option B	Option C	Option D
Data Collection& Alarm filtering	10%	How does the System support data collection, alarms correlation and fileting? Note: All types and fault-related indicators mentioned in options should be covered when choosing a related option	The system automatically collects fault-related indicators including alarms, logs, performance, and OAM data, detecting service and network status in minutes, and automatically associates alarms, filters & correlates alarms. For specific sub-scenarios, data awareness at higher precision is needed for accurate root cause analysis: 1) For sub-scenario "device offline", millisecond-level optical power data is needed. 2)For sub-scenario "Port Failure", data collection of OTDR is needed.	The system automatically collects fault-related indicators including alarms, logs, performance, detecting service and network status within 15 minutes or 24 hours, associates alarms, filters & correlates alarms based on manually defined rules.	Manually select and use the System to collect data and filter out invalid/redundant alarms	Data collection and alarm filtering of invalid / redundant alarms are manually done.

Example evidence for option A:

The system support automatically associates alarms, filters & correlates alarms.





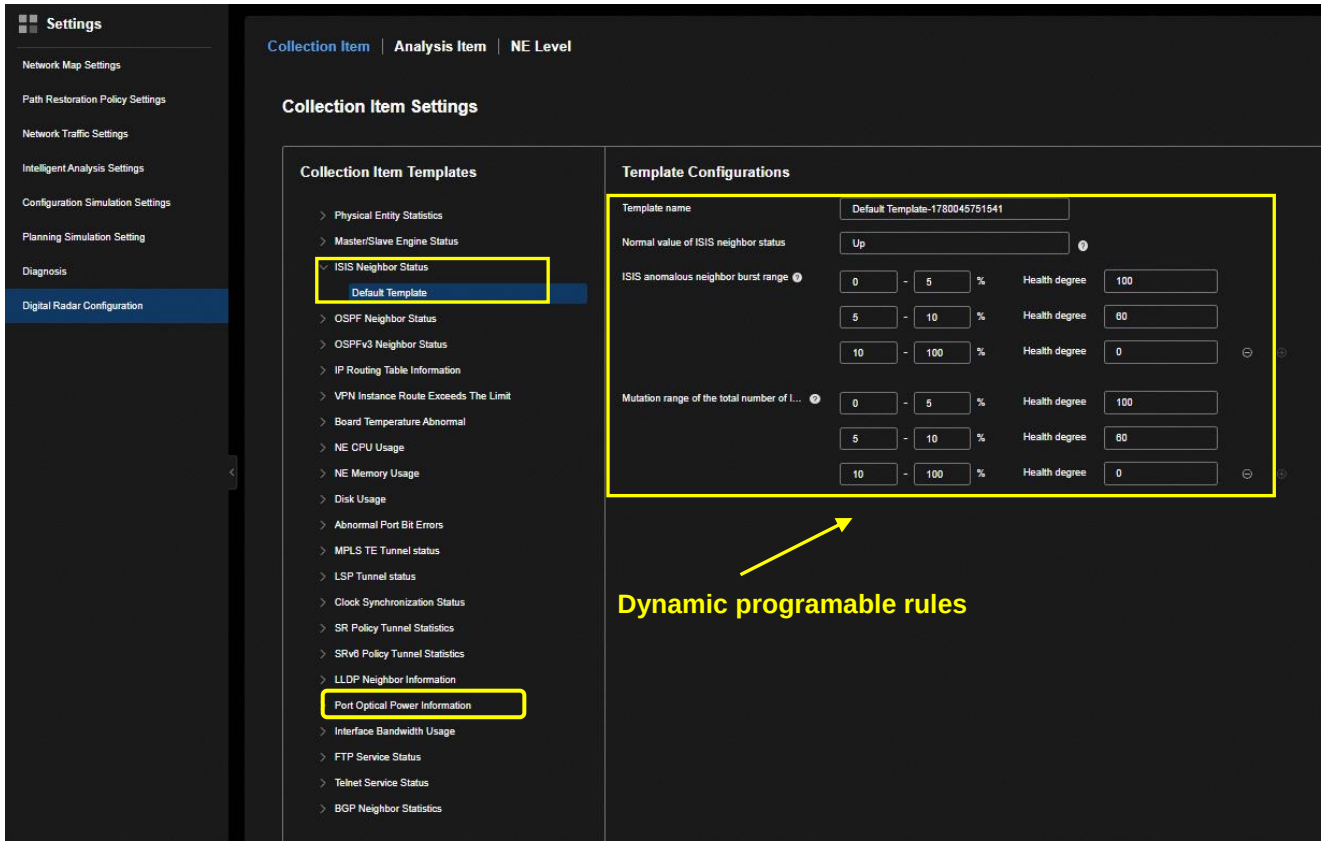
Note: VF Turkey can not collect the fiber cut distance with OTDR tool automatically on port failure scenario, option B for port failure.

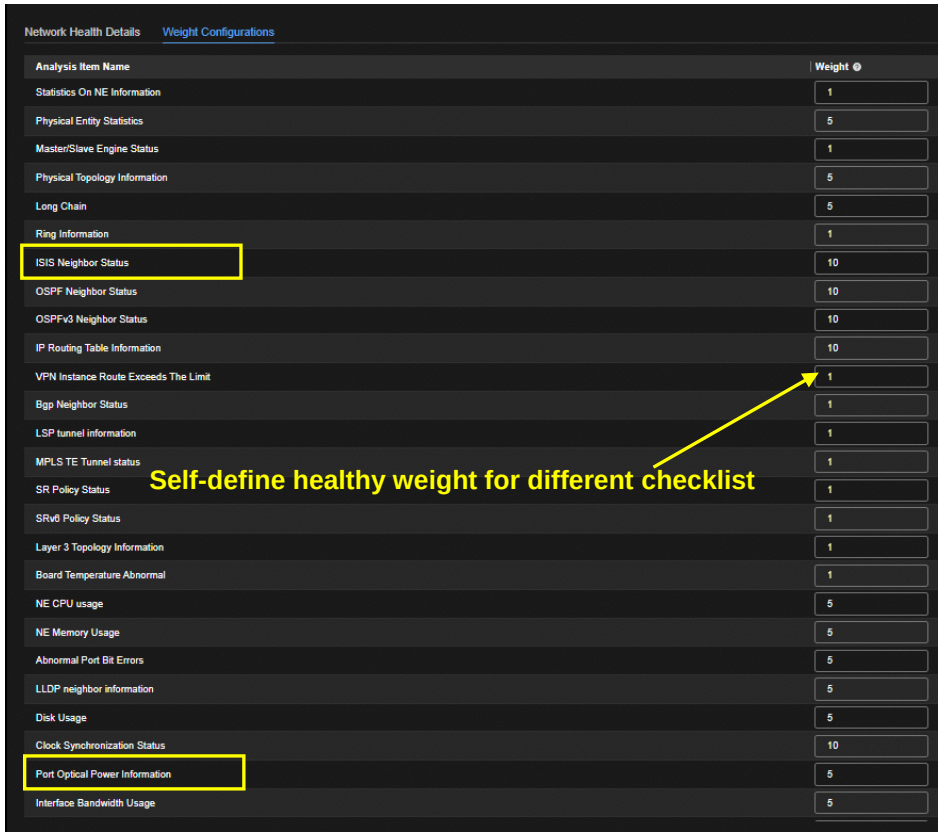
Fault Identification ,Risk identification-1

Optical Module Failure or Optical Power Abnormal	Port Failure	Protocol State Abnormal
B	B	B

Service capability	Weight	Question	Option A	Option B	Option C	Option D
Fault Identification ,Risk identification, impact analysis	15%	How does the System support fault identification, risk identification and subsequent impact analysis? Note: These four sub-scenarios are required to consider petential risk: Optical Module Failure or Optical Power Abnormal, High Error Rate, Protocol State Abnormal, VPN Degradation.	The system identifies faults, potential risk and subsequent impact with severity based on AL modes without need for Human intervention. Note: The AI models should conduct analysis based on multi-dimensional data including service topology (e.g., consists of L2VPN, L3VPN, L2EVPN, L3EVPN, SRv6-Policy, etc.), physical topology, performance data, alarm correlations, etc.	The System identifies faults, potential risk and subsequent impact based on Dynamic programable rules (configurable or ML), but may needs human confirmation	The System identifies faults, potential risk and subsequent impact based on manually defined rules	Faults,potential risk and impact need to be manually identified based on human expertise or through the execution of manual written procedures.

Example evidence for option B:



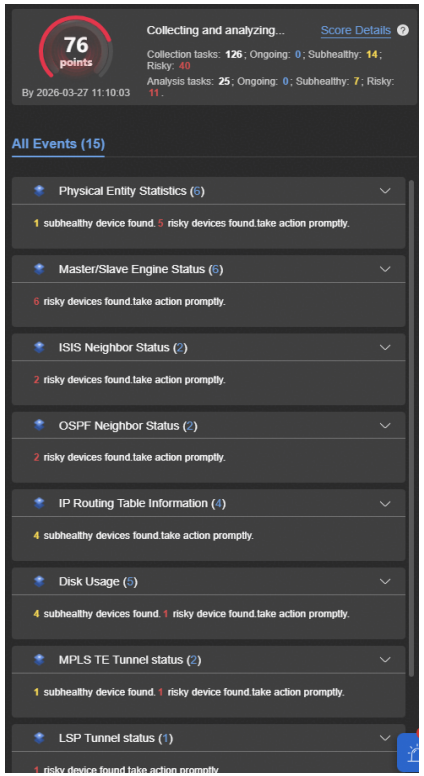


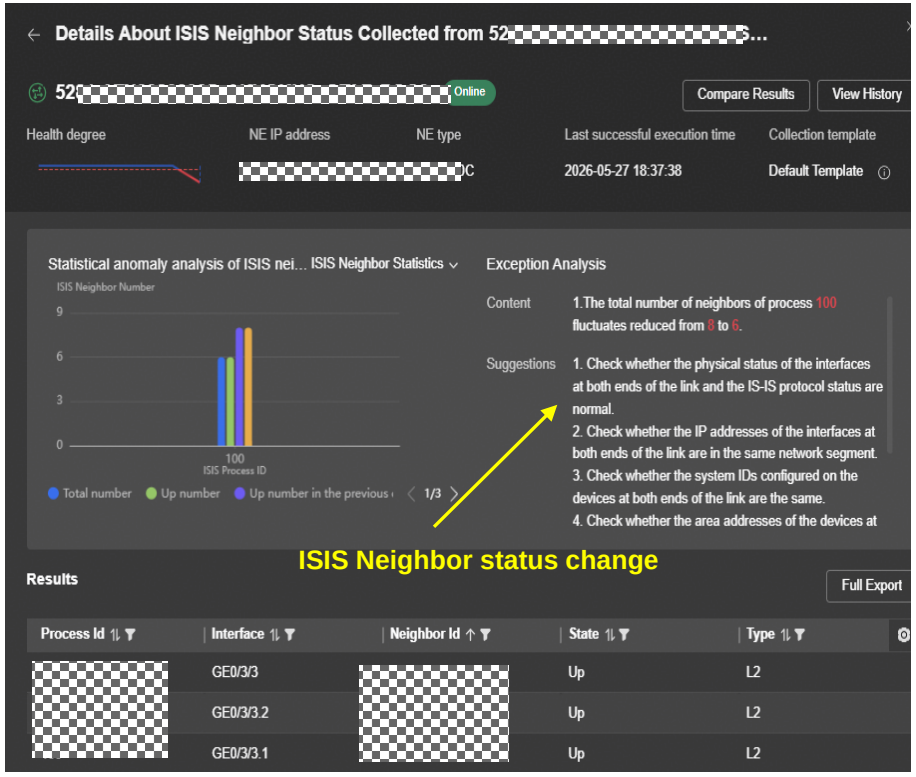
Fault Identification ,Risk identification-2

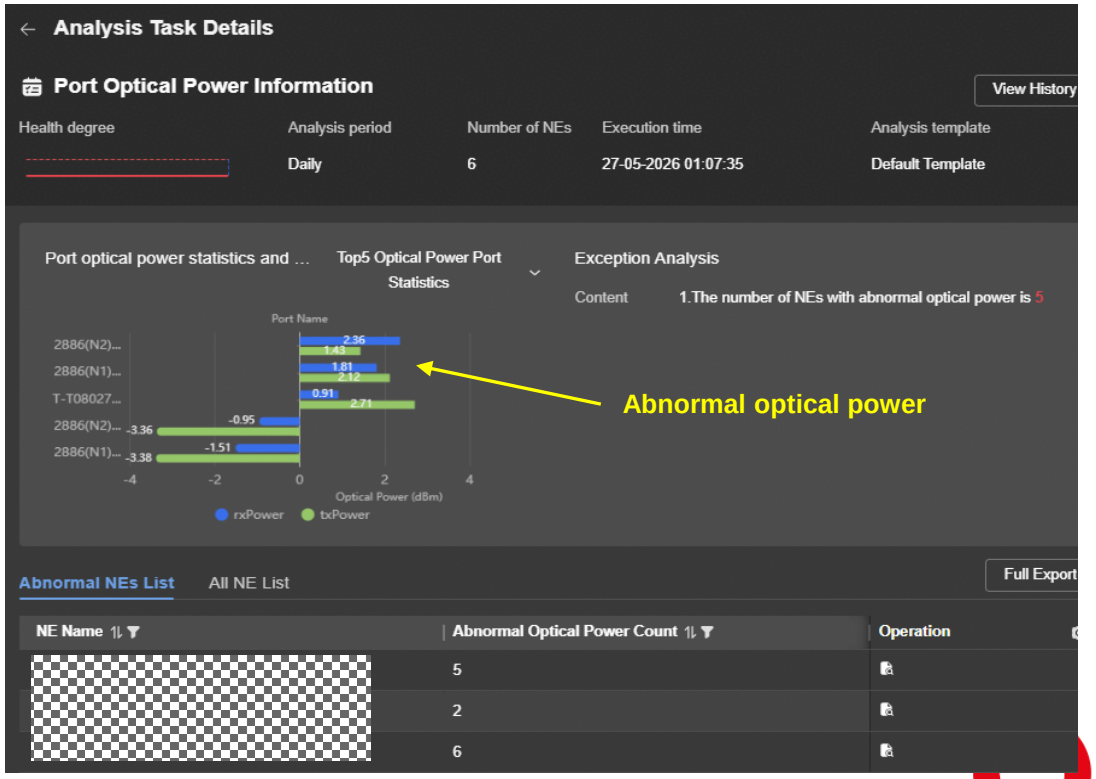
Optical Module Failure or Optical Power Abnormal	Port Failure	Protocol State Abnormal
B	B	B

Service capability	Weight	Question	Option A	Option B	Option C	Option D
Fault Identification ,Risk identification, impact analysis	15%	How does the System support fault identification, risk identification and subsequent impact analysis? Note: These four sub-scenarios are required to consider petential risk: Optical Module Failure or Optical Power Abnormal, High Error Rate, Protocol State Abnormal, VPN Degradation.	The system identifies faults, potential risk and subsequent impact with severity based on AL modes without need for Human intervention. Note: The AI models should conduct analysis based on multi-dimensional data including service topology (e.g., consists of L2VPN, L3VPN, L2EVPN, L3EVPN, SRv6-Policy, etc.), physical topology, performance data, alarm correlations, etc.	The System identifies faults, potential risk and subsequent impact based on Dynamic programable rules (configurable or ML), but may needs human confirmation	The System identifies faults, potential risk and subsequent impact based on manually defined rules	Fault, potential risk and impact need to be manually identified based on human expertise or through the execution of manual written procedures.

Example evidence for option B:







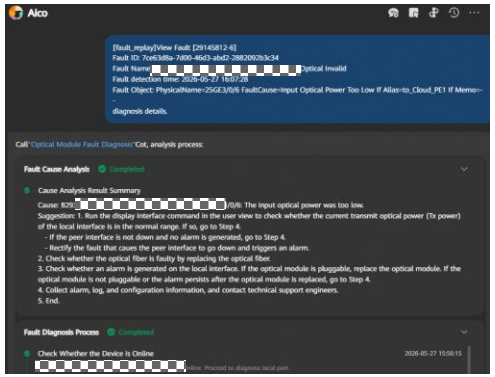
Fault Demarcation-1

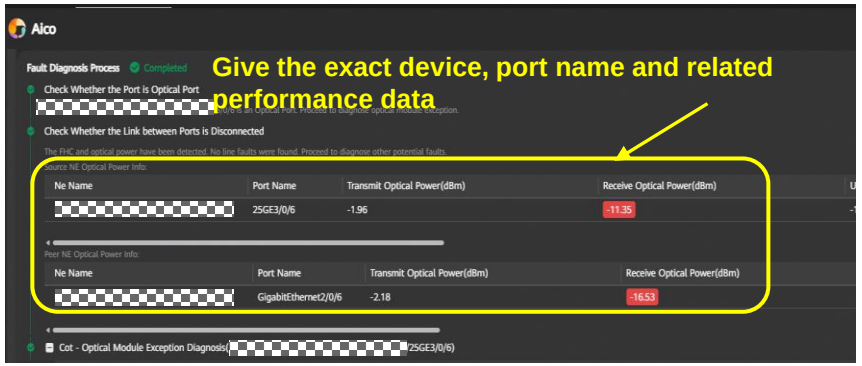
Optical Module Failure or Optical Power Abnormal	Port Failure	Protocol State Abnormal
A	A	A

Service capability	Weight	Question	Option A	Option B	Option C	Option D
Fault Demarcation	15%	How does the system support fault demarcation? Note: 1) Examples of demarcation involve pinpointing the exact roles of malfunctioning routers, like identifying whether they are access routers, aggregation routers, or Autonomous System Boundary Router (ASBR).	The system automatically demarcates the faults based on AI models without manual intervention.	The system demarcates the faults based on Dynamic programable rules (configurable or ML), results may need manually confirmation.	The system demarcates the faults based on manually defined rules, results need manually confirmation.	Manually demarcates the fault based on data such as operation logs and captured packets.

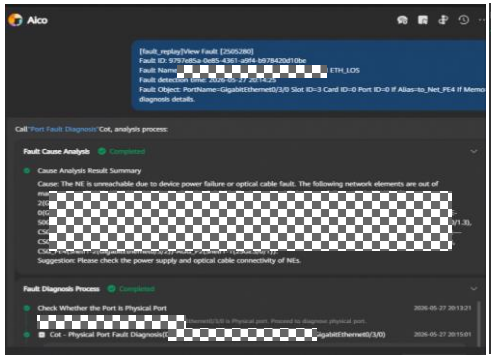
Example evidence for option A: The system intelligently demarcate for the exact device that cause the fault by invoking dynamic generated COT by LLM

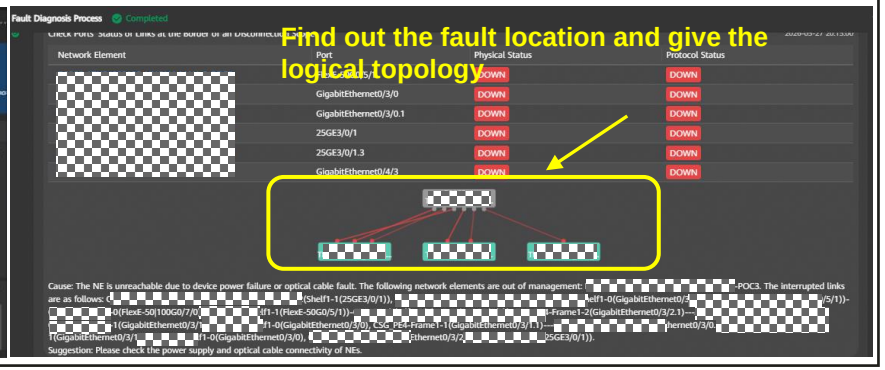
Sub-scenario: Optical Module Failure



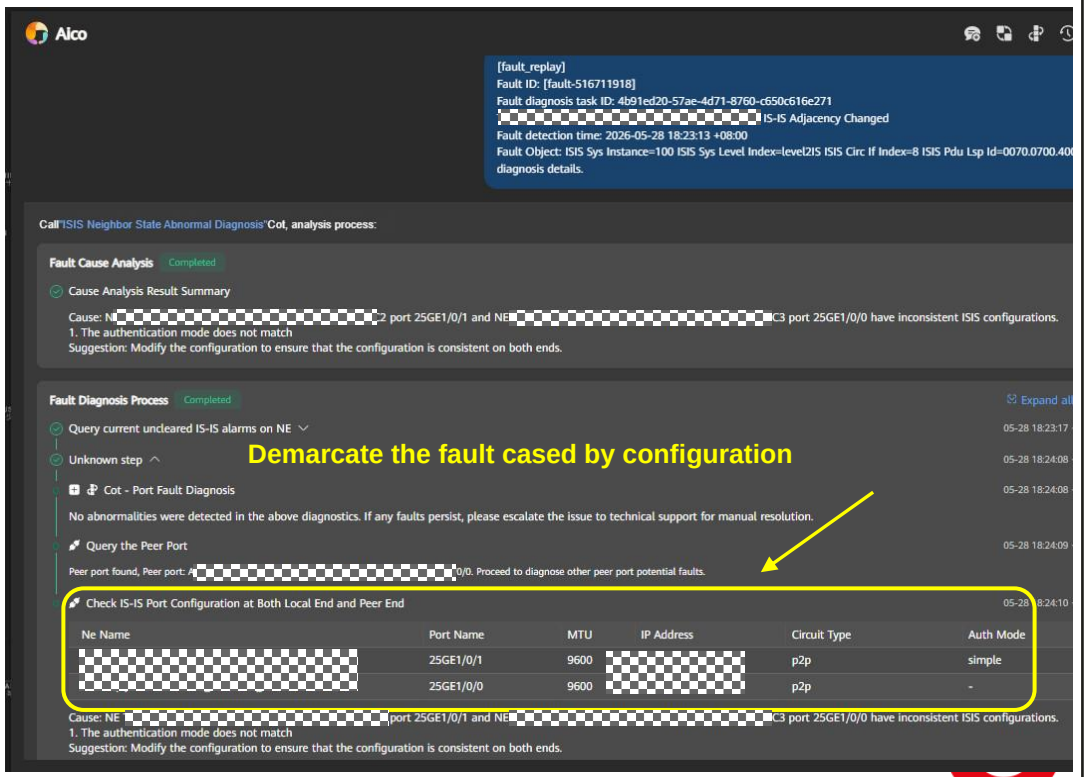


Sub-scenario: Port Failure





Sub-scenario: IS-IS Adjacency Changed



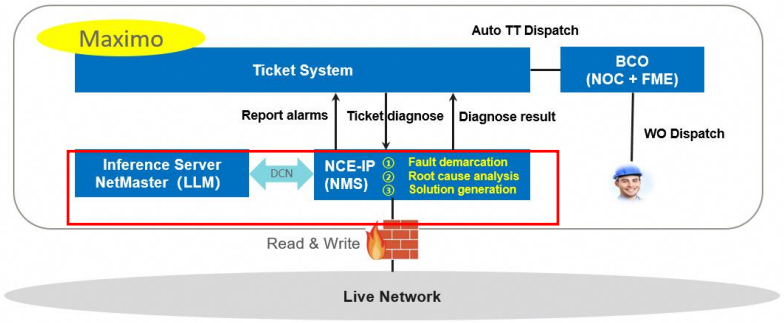
Fault Demarcation-2

Optical Module Failure or Optical Power Abnormal	Port Failure	Protocol State Abnormal
A	A	A

Service capability	Weight	Question	Option A	Option B	Option C	Option D
Fault Demarcation	15%	How does the system support fault demarcation? Note: 1) Examples of demarcation involve pinpointing the exact roles of malfunctioning routers, like identifying whether they are access routers, aggregation routers, or Autonomous System Boundary Router (ASBR).	The system automatically demarcates the faults based on AI models without manual intervention.	The system demarcates the faults based on Dynamic programable rules (configurable or ML), results may need manually confirmation.	The system demarcates the faults based on manually defined rules, results need manually confirmation.	Manually demarcates the fault based on data such as operation logs and captured packets.

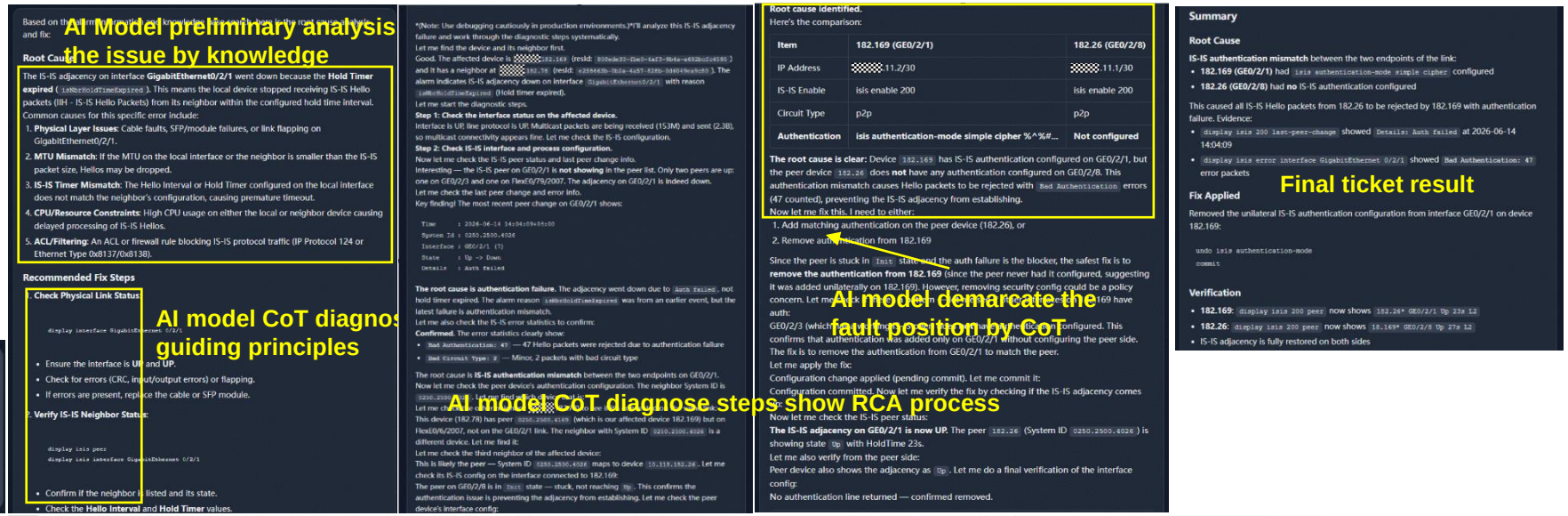
Example evidence for option A: The system intelligently demarcate for the exact device that cause the fault by invoking dynamic generated COT by LLM

Scenario: IS-IS Adjacency Changed



Locate the root cause and fix the following fault:
Alarm Source: T-T030276(M1)[redacted]-POC2
IP Address:[redacted]182.169
Name: IS-IS Adjacency Changed
Other Information: T-T030276(M1)[redacted]-POC2: ISIS Circ Index=5 ISIS Adj State=down If Name=GigabitEthernet0/2/1 Reason=isNbrHoldTimeExpired

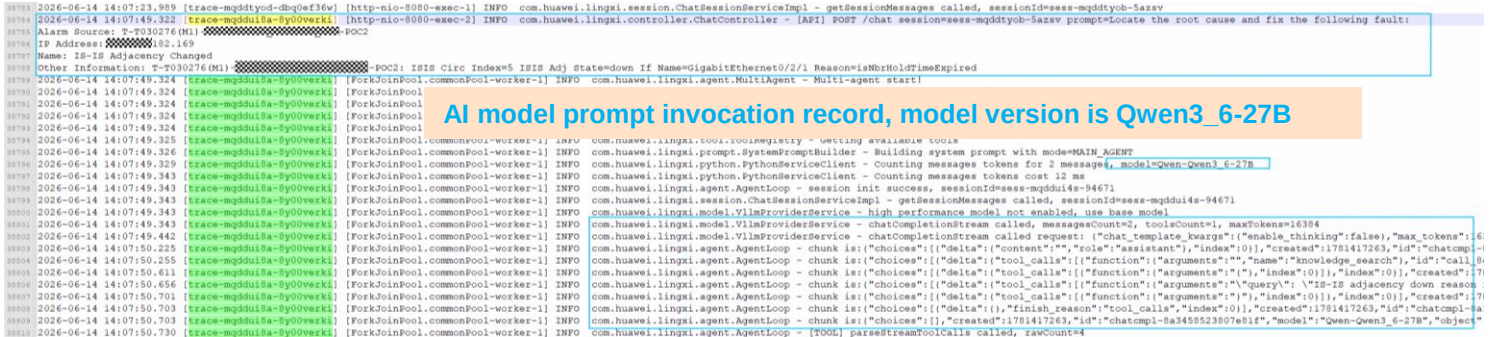
Input features



Fault demarcation task has been done automatically by NMS with AI, no user action history.

The other scenarios are the same way to invocate the AI model

AI model prompt invocation record, model version is Qwen3_6-27B

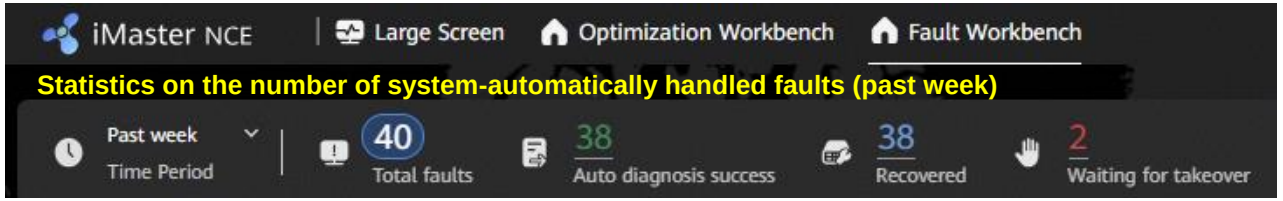


Fault Locating and Root Cause Analysis-1

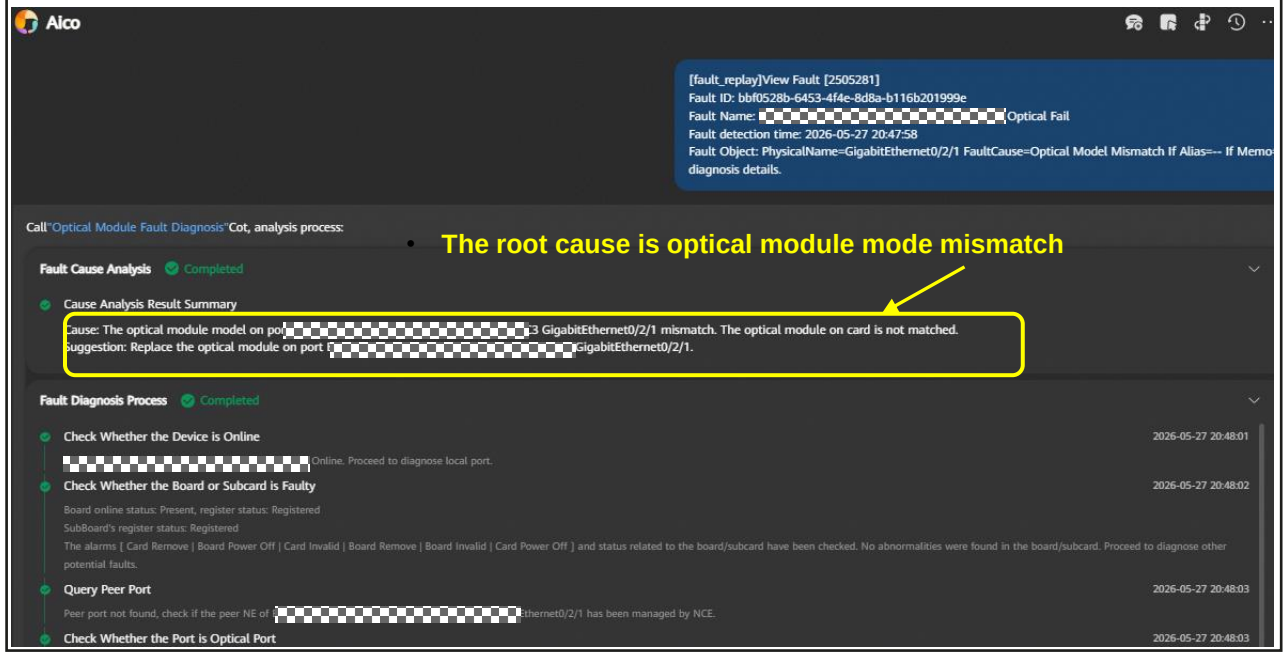
Optical Module Failure or Optical Power Abnormal	Port Failure	Protocol State Abnormal
A	A	A

Service capability	Weight	Question	Option A	Option B	Option C	Option D
Fault Locating and Root Cause Analysis	15%	How does the system support root cause analysis? Note: 1) Examples of detailed causes of identified faults, including the smallest replaceable unit, software modules, and ports.	The system automatically analyzes root cause based on AI models without manual intervention.	The system provides one or more suspected causes based on Dynamic programable rules (configurable or ML), results may need human confirmation.	The system provides cause analysis based on manually defined rules, manually analyze and confirm the root cause.	Manually analyze root cause based on expertise.

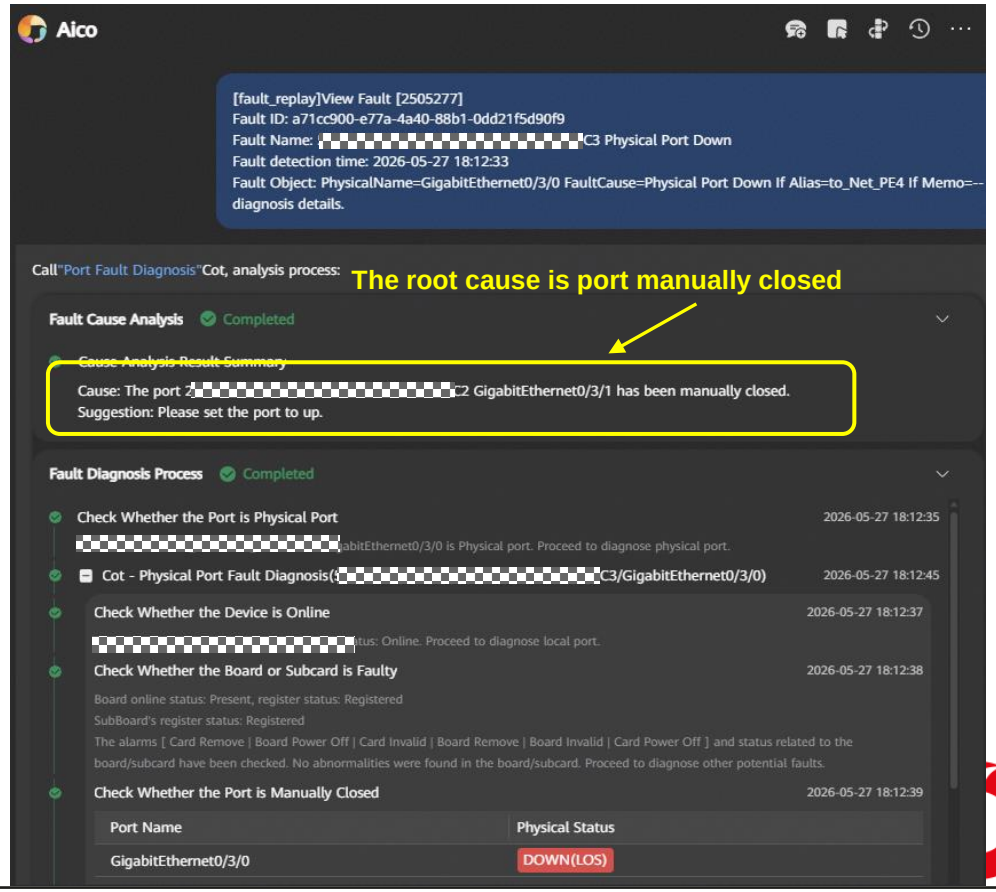
Example evidence for option A: Base on the diagnosis COT, further analyze for the root cause



Sub-scenario: Optical Module Failure



Sub-scenario: Port Failure



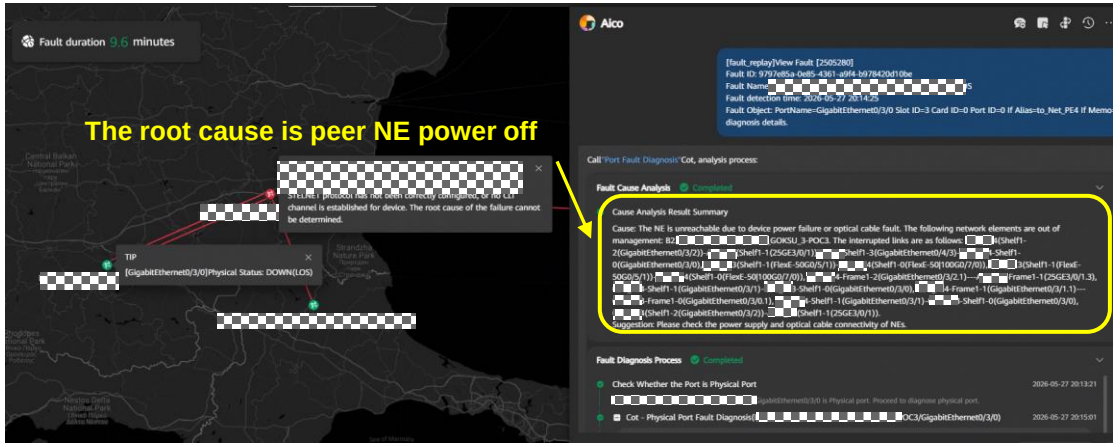
Fault Locating and Root Cause Analysis-2

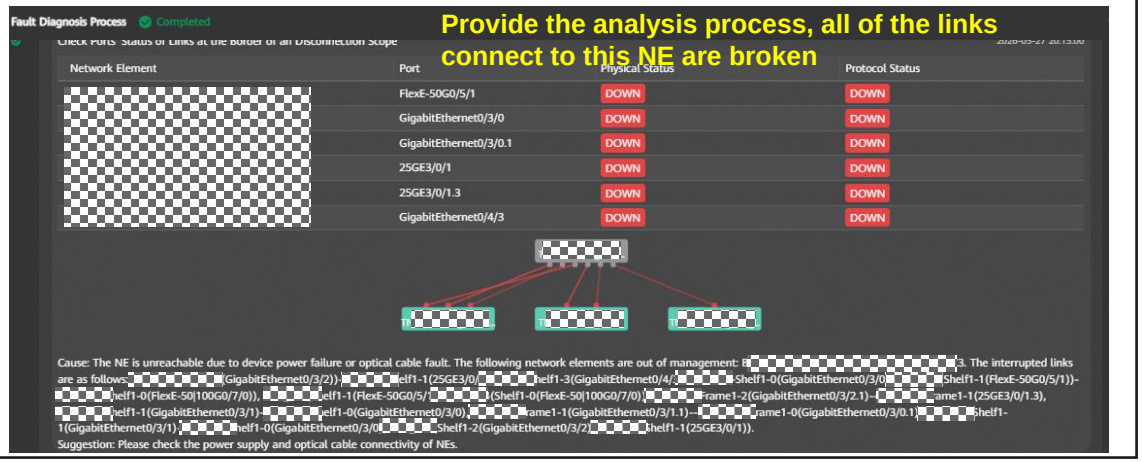
Optical Module Failure or Optical Power Abnormal	Port Failure	Protocol State Abnormal
A	A	A

Service capability	Weight	Question	Option A	Option B	Option C	Option D
Fault Locating and Root Cause Analysis	15%	How does the system support root cause analysis? Note: 1) Examples of detailed causes of identified faults, including the smallest replaceable unit, software modules, and ports.	The system automatically analyzes root cause based on AI models without manual intervention.	The system provides one or more suspected causes based on Dynamic programable rules (configurable or ML), results may need human confirmation.	The system provides cause analysis based on manually defined rules, manually analyze and confirm the root cause.	Manually analyze root cause based on expertise.

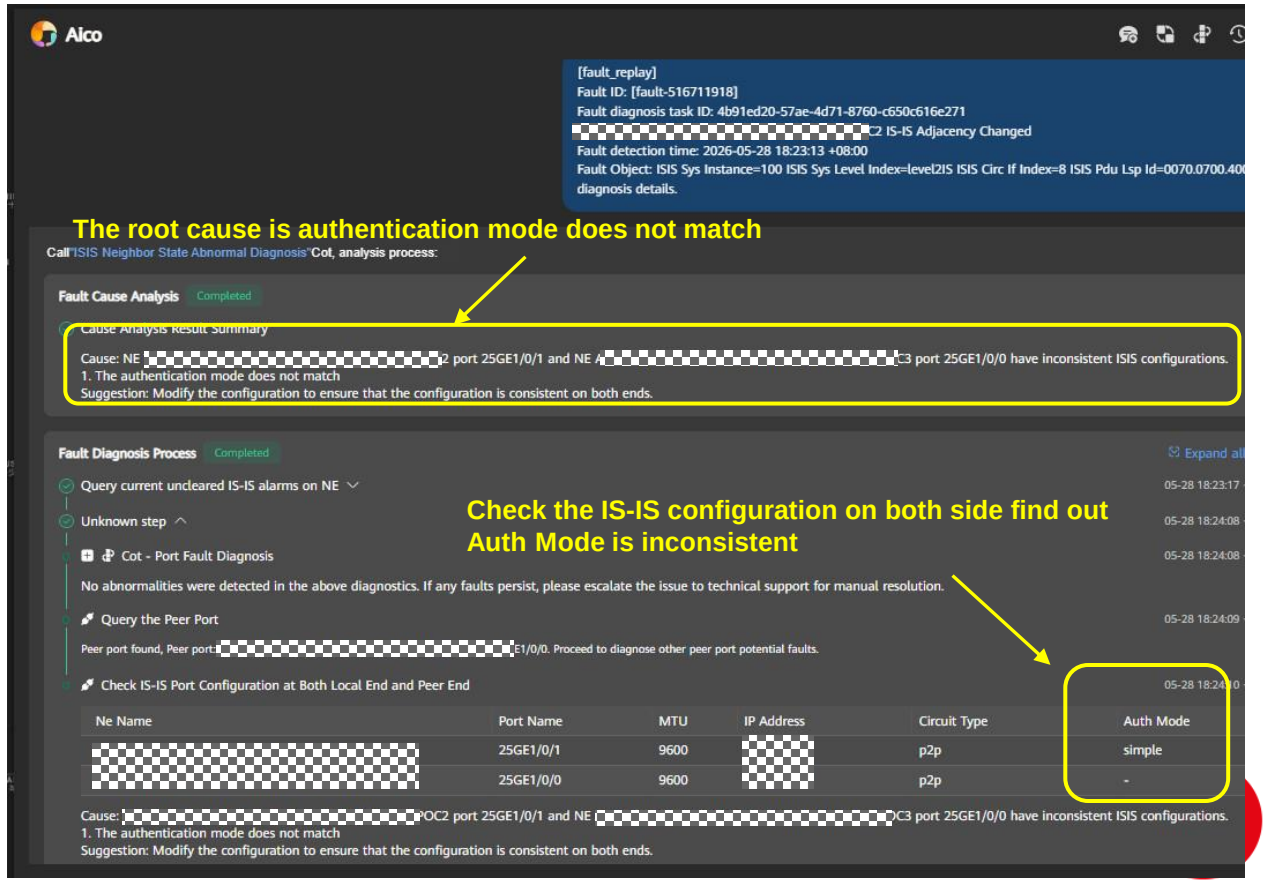
Example evidence for option A: Base on the diagnosis COT, further analyze for the root cause

Sub-scenario: Port Failure





Sub-scenario: Protocol State Abnormal



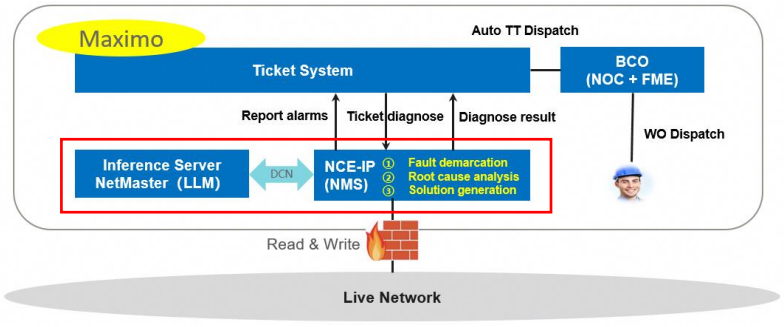
Fault Locating and Root Cause Analysis-3

Optical Module Failure or Optical Power Abnormal	Port Failure	Protocol State Abnormal
A	A	A

Service capability	Weight	Question	Option A	Option B	Option C	Option D
Fault Locating and Root Cause Analysis	15%	How does the system support root cause analysis? Note: 1) Examples of detailed causes of identified faults, including the smallest replaceable unit, software modules, and ports.	The system automatically analyzes root cause based on AI models without manual intervention.	The system provides one or more suspected causes based on Dynamic programable rules (configurable or ML), results may need human confirmation.	The system provides cause analysis based on manually defined rules, manually analyze and confirm the root cause.	Manually analyze root cause based on expertise.

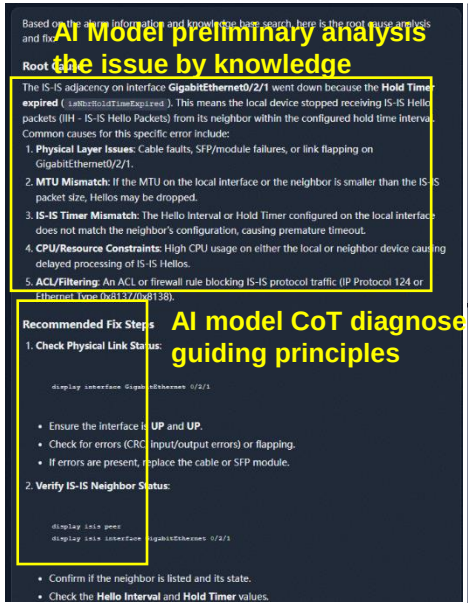
Example evidence for option A: Base on the diagnosis COT, further analyze for the root cause

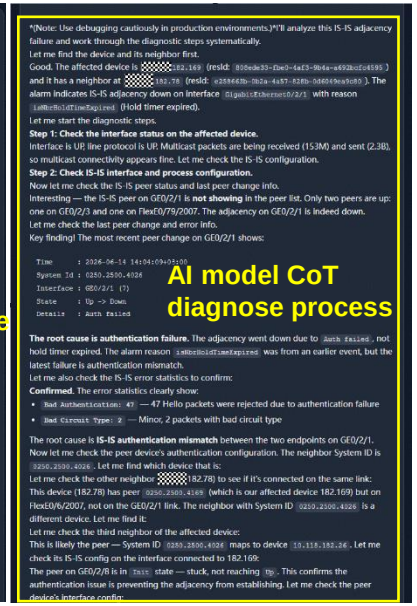
Scenario: IS-IS Adjacency Changed

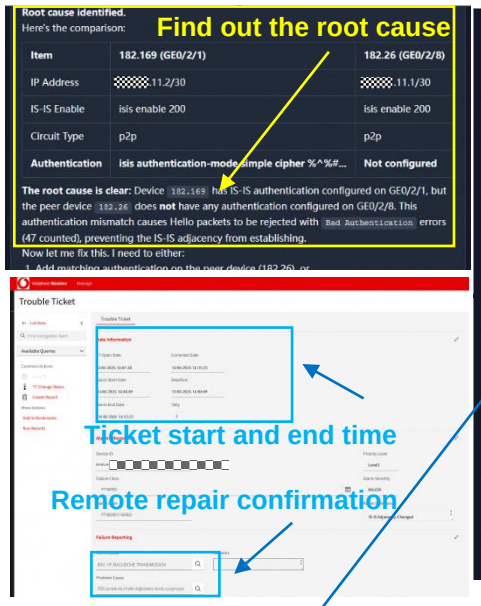


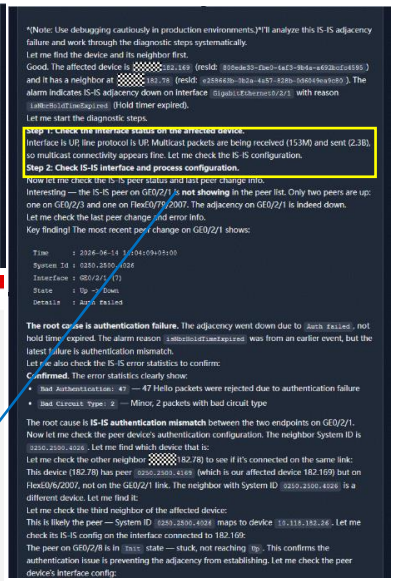
Locate the root cause and fix the following fault:
Alarm Source: T-T030276(M1[redacted]-POC2
IP Address: [redacted].182.169
Name: IS-IS Adjacency Changed
Other Information: T-T030276(M1)[redacted]-POC2: ISIS Circ Index=5 ISIS Adj State=down If Name=GigabitEthernet0/2/1 Reason=isNbrHoldTimeExpired

Diagnose task invocate AI Model

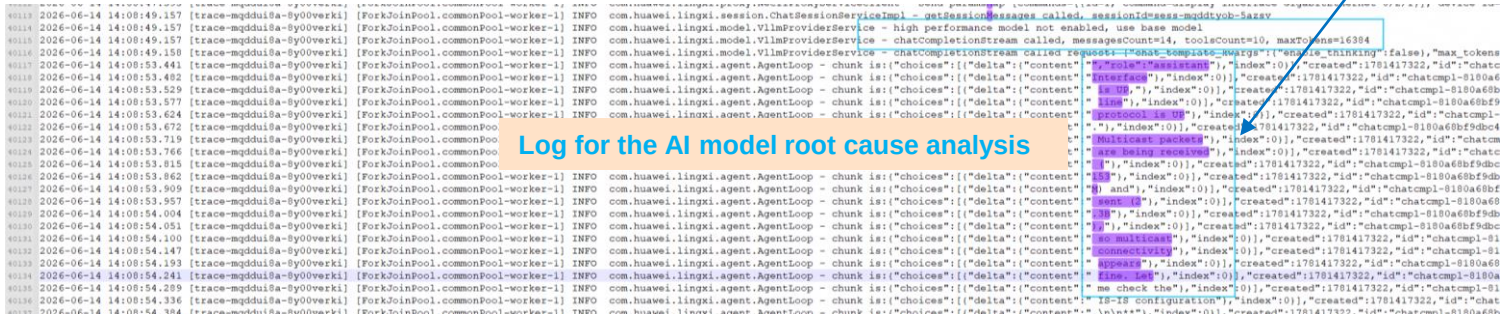








The other scenarios are the same way to invocate the AI model



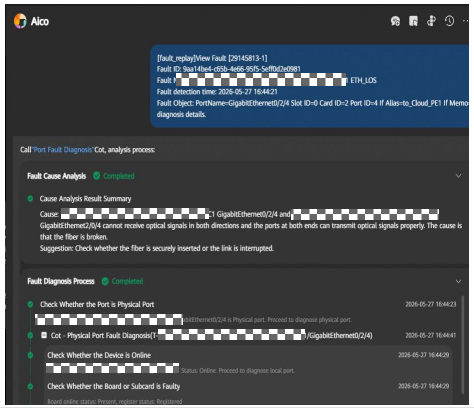
Solution Generation-1

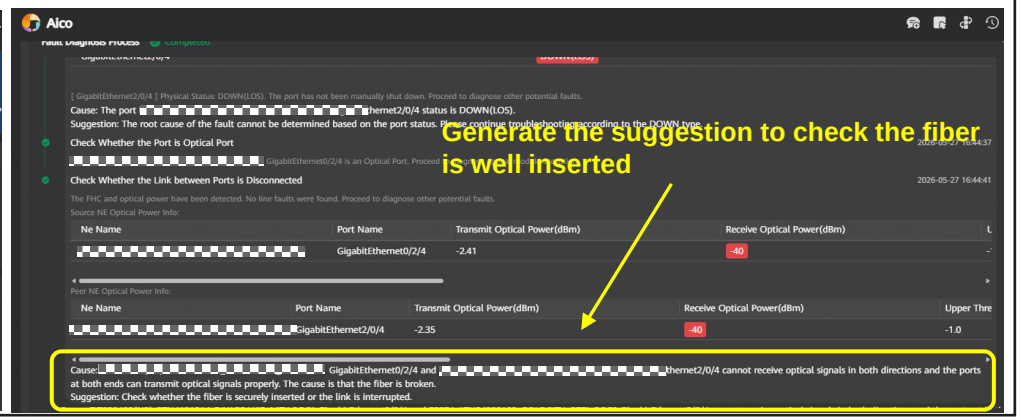
Optical Module Failure or Optical Power Abnormal	Port Failure	Protocol State Abnormal
B	B	B

Service capability	Weight	Question	Option A	Option B	Option C	Option D
Solution Generation	10%	How does the System support generation of fault recovery solutions?	The System generates the optimal recovery or fault rectification solution based on AI models without the need for Human confirmation	The System generates multiple possible recovery or rectification solutions, but may need human confirmation.	The System generates the optimal recovery or fault rectification solution through predefined rules and needs Human confirmation	The recovery solution needs to be manually generated based on human expertise

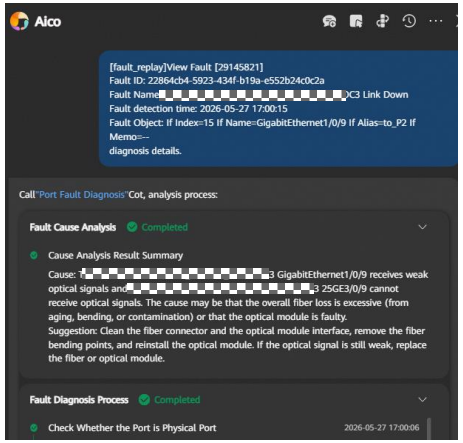
Example evidence for option B: The system automatically generate the close-loop recovery solution or rectification suggestion

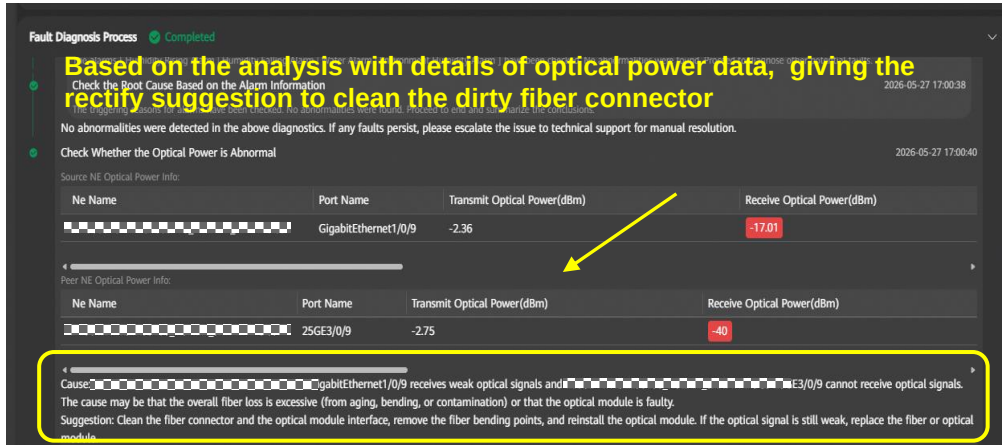
Sub-scenario: port failure



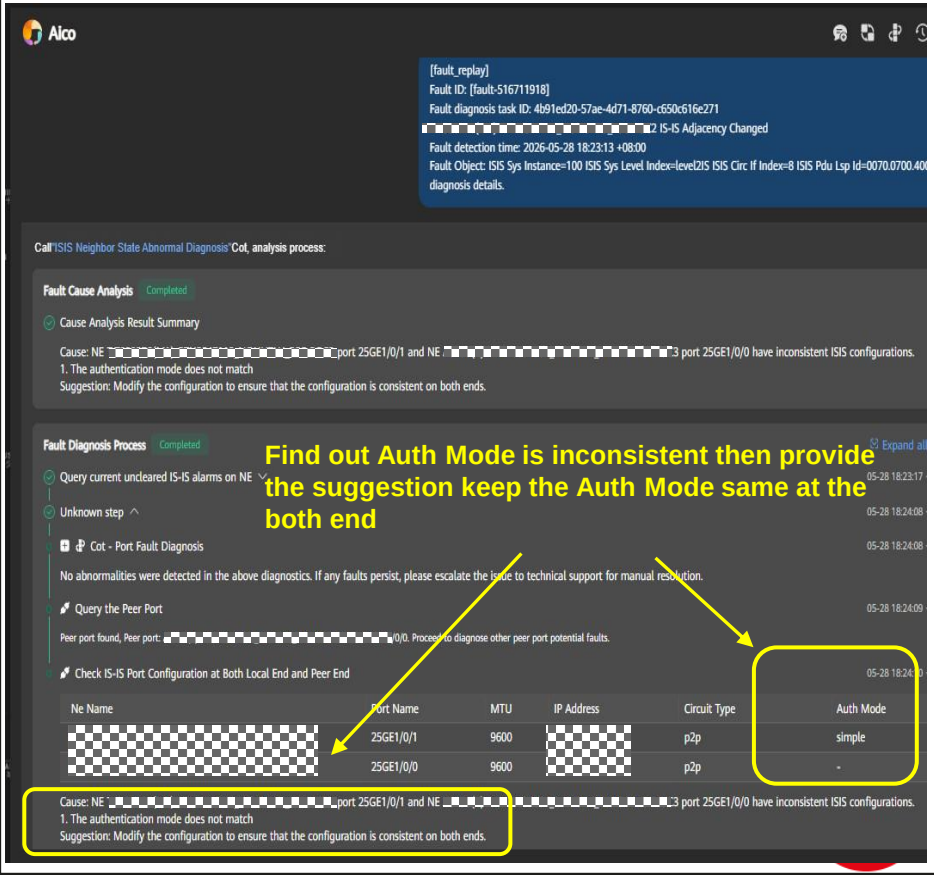


Sub-scenario: Optical Module Failure





Sub-scenario: Protocol State Abnormal



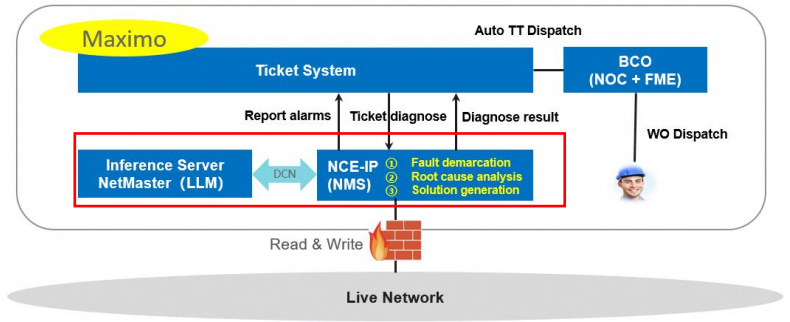
Solution Generation-2

Optical Module Failure or Optical Power Abnormal	Port Failure	Protocol State Abnormal
B	B	B

Service capability	Weight	Question	Option A	Option B	Option C	Option D
Solution Generation	10%	How does the System support generation of fault recovery solutions?	The System generates the optimal recovery or fault rectification solution based on AI models without the need for Human confirmation	The System generates multiple possible recovery or rectification solutions, but may need human confirmation.	The System generates the optimal recovery or fault rectification solution through predefined rules and needs Human confirmation	The recovery solution needs to be manually generated based on human expertise

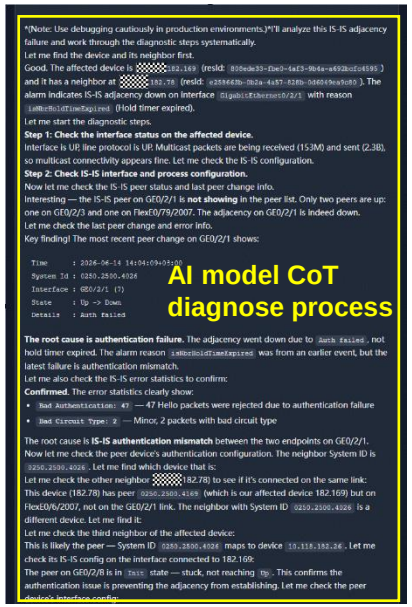
Example evidence for option B: The system automatically generate the close-loop recovery solution or rectification suggestion

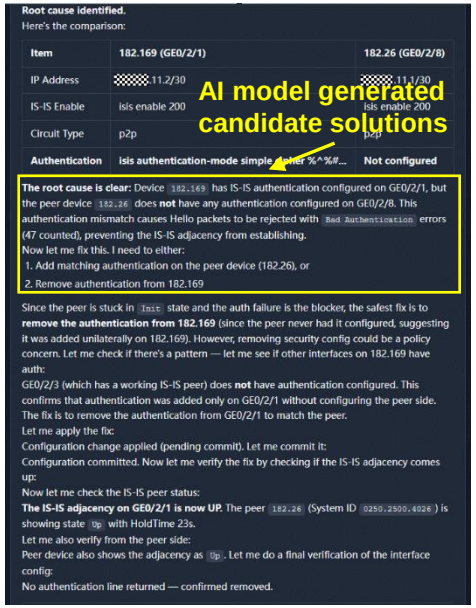
Scenario: IS-IS Adjacency Changed

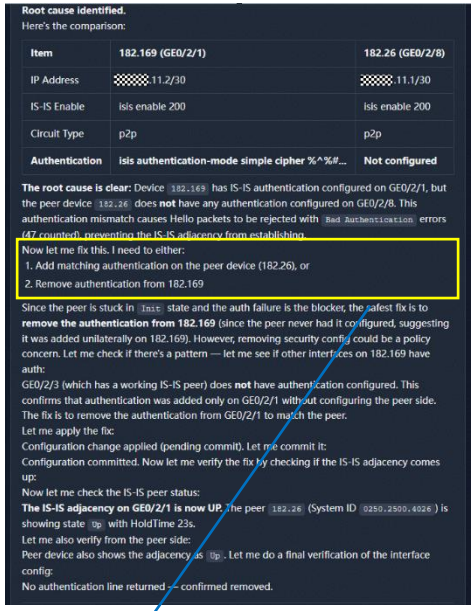


Locate the root cause and fix the following fault:
Alarm Source: T-T030276(M1[redacted]-POC2
IP Address:[redacted].182.169
Name: IS-IS Adjacency Changed
Other Information: T-T030276(M1)-[redacted]-POC2: ISIS Circ Index=5 ISIS Adj State=down If Name=GigabitEthernet0/2/1 Reason=isNbrHoldTimeExpired

Diagnose task invocate AI Model







The other scenarios are the same way to invocate the AI model

Log for the AI model generate candidate solution

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41788 2026-06-14 14:11:25.477 [trace-mqddui8a-8y00verki] [ForkJoinPool.commonPool-worker-1] INFO  com.huawei.lingxi.agent.AgentLoop - chunk is:{"choices":[{"delta":{"content":"Now"},"index":0}],"created":1781417466,"id":"c
41789 2026-06-14 14:11:25.527 [trace-mqddui8a-8y00verki] [ForkJoinPool.commonPool-worker-1] INFO  com.huawei.lingxi.agent.AgentLoop - chunk is:{"choices":[{"delta":{"content":" let me fix"},"index":0}],"created":1781417466
41790 2026-06-14 14:11:25.577 [trace-mqddui8a-8y00verki] [ForkJoinPool.commonPool-worker-1] INFO  com.huawei.lingxi.agent.AgentLoop - chunk is:{"choices":[{"delta":{"content":" this"},"index":0}],"created":1781417466,"id":
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41792 2026-06-14 14:11:25.676 [trace-mqddui8a-8y00verki] [ForkJoinPool.commonPool-worker-1] INFO  com.huawei.lingxi.agent.AgentLoop - chunk is:{"choices":[{"delta":{"content":" to either:"},"index":0}],"created":1781417466
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41794 2026-06-14 14:11:25.776 [trace-mqddui8a-8y00verki] [ForkJoinPool.commonPool-worker-1] INFO  com.huawei.lingxi.agent.AgentLoop - chunk is:{"choices":[{"delta":{"content":" Add matching authentication"},"index":0}],"cr
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41798 2026-06-14 14:11:25.977 [trace-mqddui8a-8y00verki] [ForkJoinPool.commonPool-worker-1] INFO  com.huawei.lingxi.agent.AgentLoop - chunk is:{"choices":[{"delta":{"content":"26),"},"index":0}],"created":1781417466,"id":"
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Solution Evaluation & Decision Making-1

Optical Module Failure or Optical Power Abnormal	Port Failure	Protocol State Abnormal
A	A	A

Service capability	Weight	Question	Option A	Option B	Option C	Option D
Solution Evaluation & Decision Making	15%	How does the System support evaluation & decision of fault recovery solutions?	The System evaluates and determines the optimal recovery or fault rectification solution to be executed based on AI models, without the need for Human confirmation	The System evaluates multiple possible recovery or fault rectification solutions and determines the optimal solution to be executed based on Dynamic programable rules (configurable or ML) , but may need Human confirmation	The recovery of fault rectification solution is manually evaluated and determined	

Example evidence for option A: After receiving the fault ticket, the system automatically generates emergency restoration and solutions.

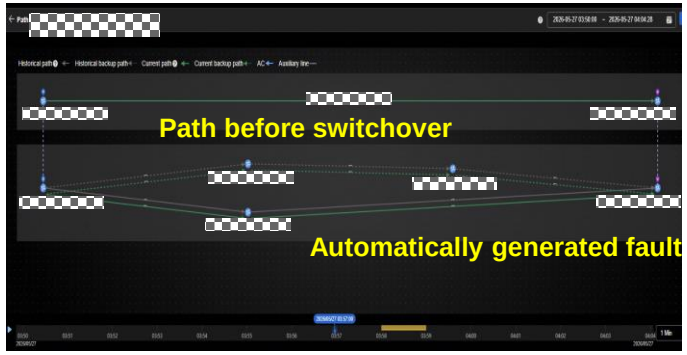
The system automatically generates an emergency repair solution based on information such as the fault cause and location. The repair solution includes capabilities for two phases:

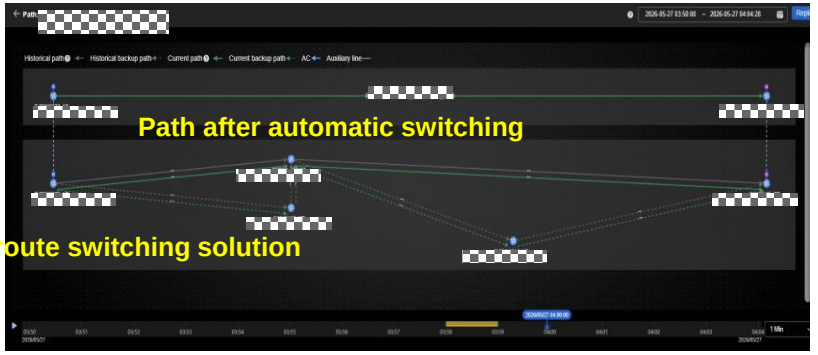
Phase 1: The system can automatically calculates alternative paths to restore the service which was interrupted by Link or port fault.

Phase 2: The physical faults requiring on-site manual handling, the system provides a detailed repair suggestion to guide maintenance personnel in conducting accurate on-site operations, thereby improving on site work efficiency.

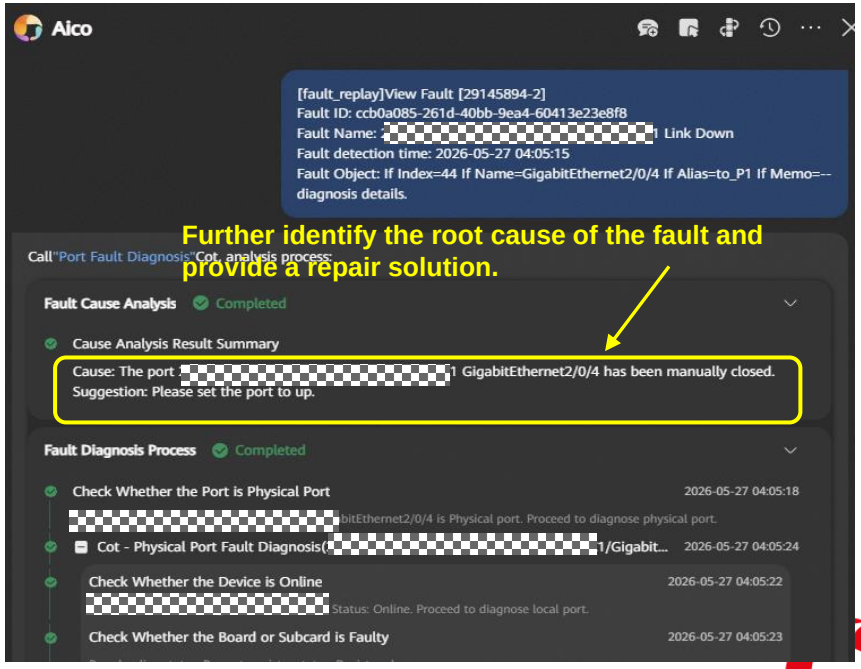
Sub-scenario 1: Link Down fault cause the protect service switch

Major	2620021	SR Policy Candi Path Down	2886(A2)-PTN3221...	Destination Address=2023:23::3 Colors=2241 Protocol Source=BGP(20) N...	1	2026-05-27 03:59:10	2026-05-27 03:59:10
Major	2616033	SR Policy Down	2886(A2)-PTN3221...	Endpoint=2023:23::3 Color=2241	1	2026-05-27 03:59:10	2026-05-27 03:59:10
Major	2620021	Sr Policy Candi Path Down	2886(A2)-PTN3221...	Destination Address=2023:23::3 Colors=1003 Protocol Source=BGP(20) N...	1	2026-05-27 03:59:10	2026-05-27 03:59:10
Major	2616033	SR Policy Down	2886(A2)-PTN3221...	Endpoint=2023:23::3 Color=1003	1	2026-05-27 03:59:10	2026-05-27 03:59:10
Critical	3074752	Physical Port Down	2886(A2)-PTN3221...	PhysicalName=GigabitEthernet2/0/4 If Alias=to_P1 If Memo=--	1	2026-05-27 03:59:10	2026-05-27 03:59:10
Major	2620021	Sr Policy Candi Path Down	2886(A2)-PTN3221...	Destination Address=2.1.23.3 Colors=100 Protocol Source=BGP(20) Node ...	1	2026-05-27 03:59:11	2026-05-27 03:59:11
Major	2616033	SR Policy Down	2886(A2)-PTN3221...	Endpoint=2.1.23.3 Color=100	1	2026-05-27 03:59:11	2026-05-27 03:59:11
Critical	3	Link Down	2886(A2)-PTN3221...	If Index=3764 If Name=GigabitEthernet2/0/4.4000 If Alias=to_P1 If Mem...	1	2026-05-27 03:59:09	2026-05-27 03:59:09
Critical	3	Link Down	2886(A2)-PTN3221...	If Index=4218 If Name=GigabitEthernet2/0/4.3 If Alias=-- If Memo=--	1	2026-05-27 03:59:09	2026-05-27 03:59:09
Critical	3	Link Down	2886(A2)-PTN3221...	If Index=3902 If Name=GigabitEthernet2/0/4.164 If Alias=-- If Memo=--	1	2026-05-27 03:59:09	2026-05-27 03:59:09
Critical	3	Link Down	2886(A2)-PTN3221...	If Index=44 If Name=GigabitEthernet2/0/4 If Alias=to_P1 If Memo=--	1	2026-05-27 03:59:09	2026-05-27 03:59:09
Critical	3	Link Down	2886(A2)-PTN3221...	If Index=4183 If Name=GigabitEthernet2/0/4.2 If Alias=-- If Memo=--	1	2026-05-27 03:59:09	2026-05-27 03:59:09
Critical	3	Link Down	2886(A2)-PTN3221...	If Index=4180 If Name=GigabitEthernet2/0/4.1 If Alias=-- If Memo=--	1	2026-05-27 03:59:09	2026-05-27 03:59:09
Major	1100882	IS-IS Adjacency Changed	2886(A2)-PTN3221...	ISIS Sys Instance=100 ISIS Sys Level Index=level2IS ISIS Circ If Index=44 IS...	1	2026-05-27 03:59:10	2026-05-27 03:59:10
Major	1100882	IS-IS Adjacency Changed	2886(A2)-PTN3221...	ISIS Sys Instance=100 ISIS Sys Level Index=level2IS ISIS Circ If Index=4180...	1	2026-05-27 03:59:10	2026-05-27 03:59:10





Automatically generated fault route switching solution



Further identify the root cause of the fault and provide a repair solution.

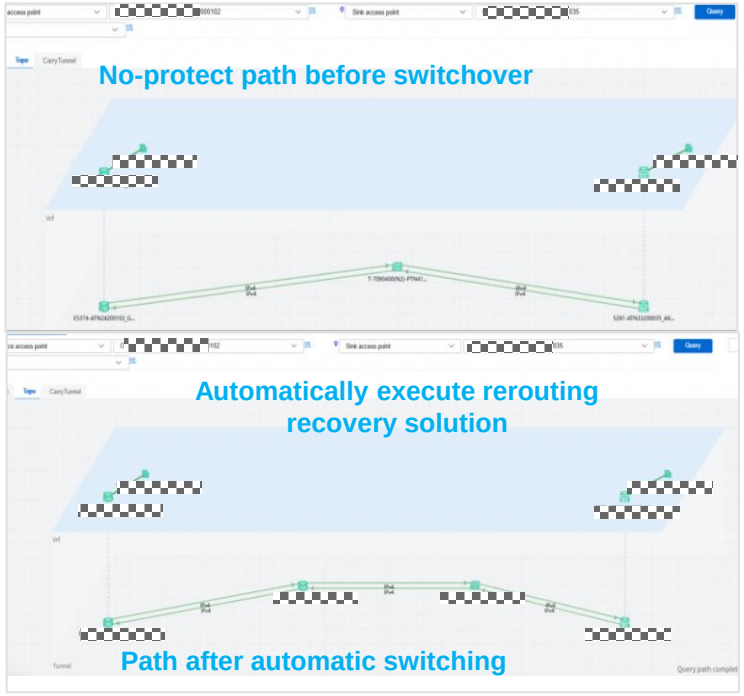
Solution Evaluation & Decision Making-2

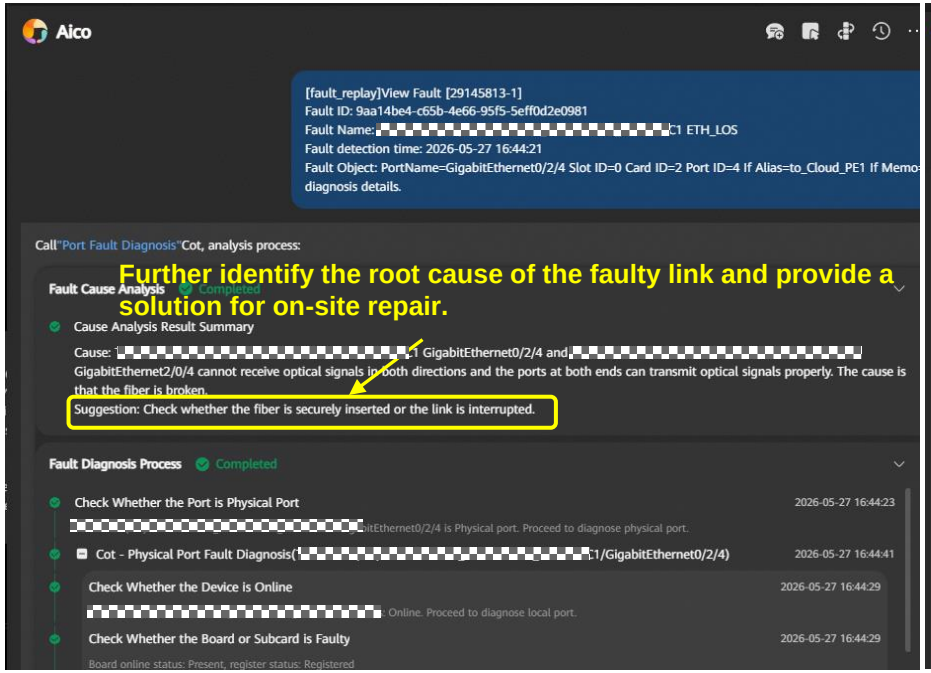
Optical Module Failure or Optical Power Abnormal	Port Failure	Protocol State Abnormal
A	A	A

Service capability	Weight	Question	Option A	Option B	Option C	Option D
Solution Evaluation & Decision Making	15%	How does the System support evaluation & decision of fault recovery solutions?	The System evaluates and determines the optimal recovery or fault rectification solution to be executed based on AI models, without the need for Human confirmation	The System evaluates multiple possible recovery or fault rectification solutions and determines the optimal solution to be executed based on Dynamic programable rules (configurable or ML) , but may need Human confirmation	The recovery of fault rectification solution is manually evaluated and determined	

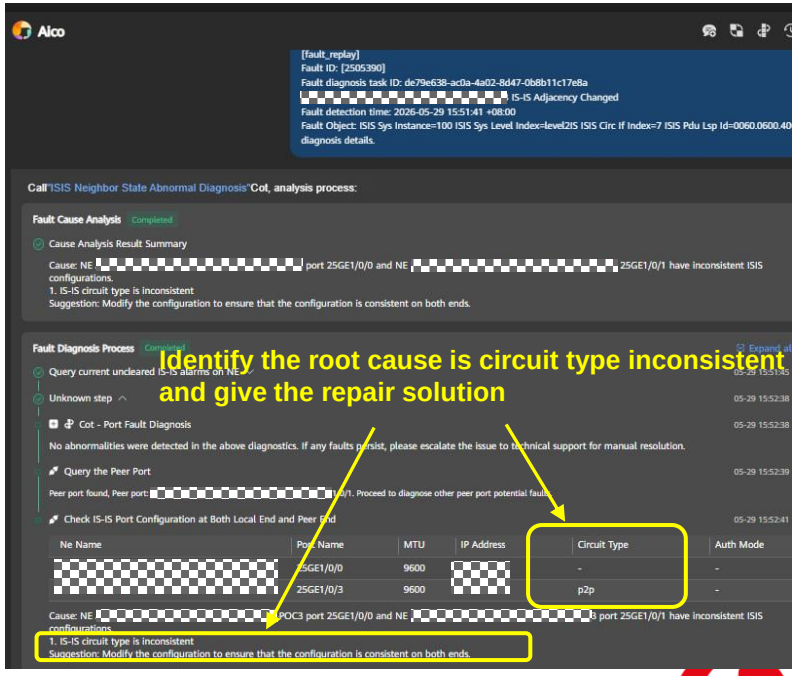
Example evidence for option A: After receiving the fault ticket, the system automatically generates emergency restoration and solutions.
The system automatically generates an emergency repair solution based on information such as the fault cause and location. The repair solution includes capabilities for two phases:
Phase 1: The system can automatically calculates alternative paths to restore the service which was interrupted by Link or port fault.
Phase 2: The physical faults requiring on-site manual handling, the system provides a detailed repair suggestion to guide maintenance personnel in conducting accurate on-site operations, thereby improving on site work efficiency.

Sub-scenario 2: ETH_LOS fault cause the no-protect service reroute





Sub-scenario 3: Protocol State Abnormal



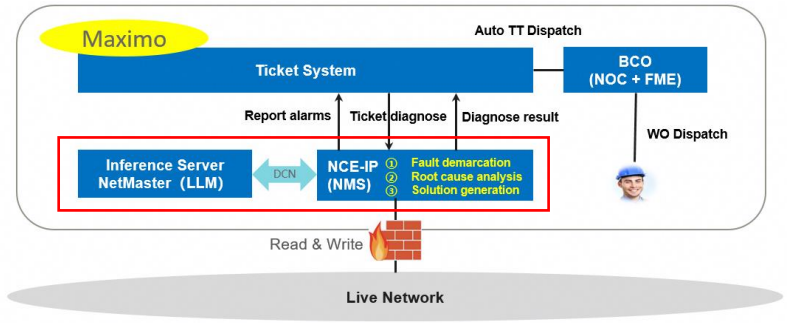
Solution Evaluation & Decision Making-3

Optical Module Failure or Optical Power Abnormal	Port Failure	Protocol State Abnormal
A	A	A

Service capability	Weight	Question	Option A	Option B	Option C	Option D
Solution Evaluation & Decision Making	15%	How does the System support evaluation & decision of fault recovery solutions?	The System evaluates and determines the optimal recovery or fault rectification solution to be executed based on AI models, without the need for Human confirmation	The System evaluates multiple possible recovery or fault rectification solutions and determines the optimal solution to be executed based on Dynamic programable rules (configurable or ML) , but may need Human confirmation	The recovery of fault rectification solution is manually evaluated and determined	

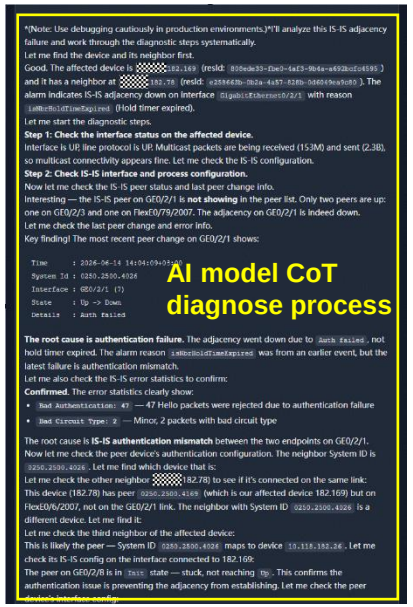
Example evidence for option A: After receiving the fault ticket, the system automatically generates emergency restoration and solutions.

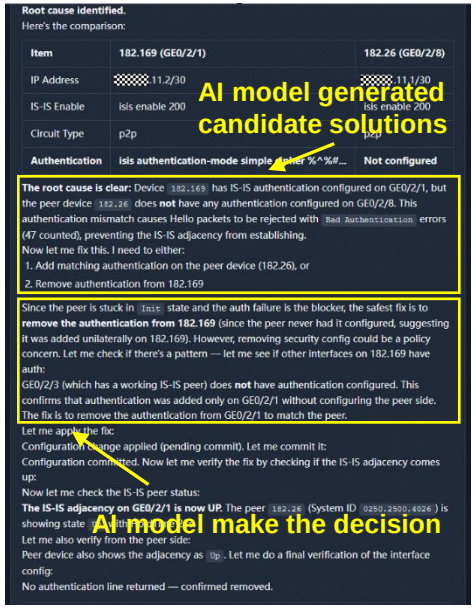
Scenario: IS-IS Adjacency Changed

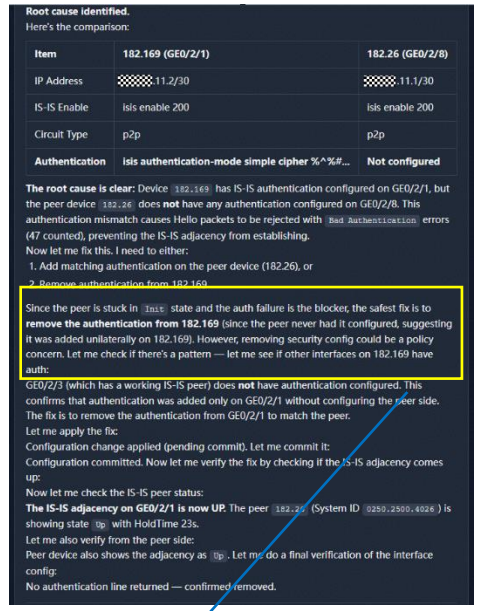


Locate the root cause and fix the following fault:
Alarm Source: T-T030276(M1[redacted]-POC2
IP Address:[redacted]182.169
Name: IS-IS Adjacency Changed
Other Information: T-T030276(M1)[redacted]-POC2: ISIS Circ Index=5 ISIS Adj State=down If Name=GigabitEthernet0/2/1 Reason=isNbrHoldTimeExpired

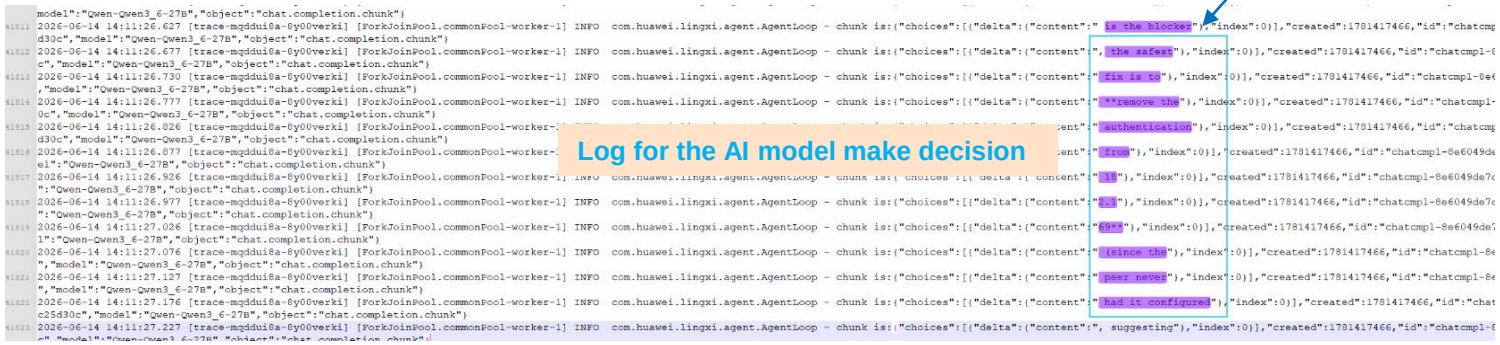
Diagnose task invocate AI Model







The other scenarios are the same way to invocate the AI model



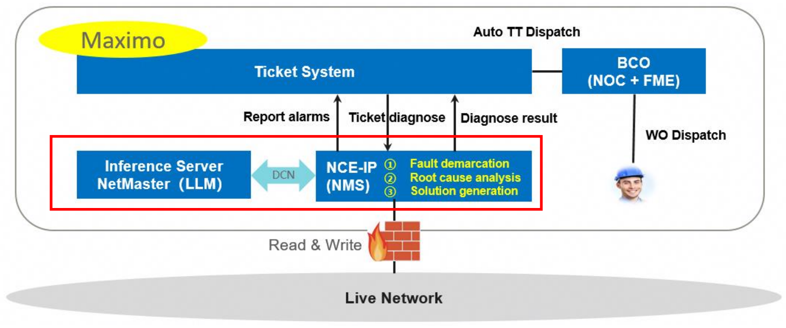
Solution Implementation-1

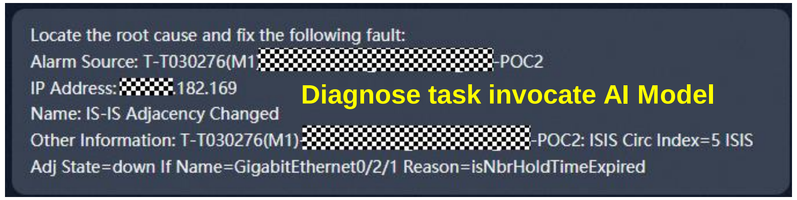
Optical Module Failure or Optical Power Abnormal	Port Failure	Protocol State Abnormal
B	B	A

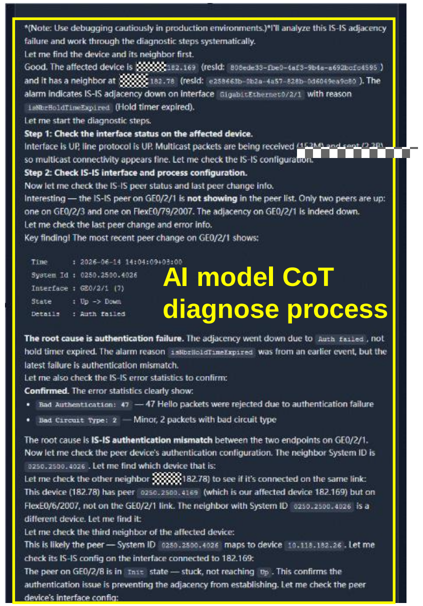
Service capability	Weight	Question	Option A	Option B	Option C	Option D
Solution Implementation	10%	How does the system support automatic solution implementation and on-site intructions?	1) The system automatically executes the recovery or rectification solution(Automatic repair excludes the faults that on-site handling is necessary, such as power supply failure, board fault, fiber cut). 2) The system support intelligent on-site instruction and efficient information query based on simplified human-system interaction, independent from NOC assistance.	1)The system executes the recovery solution with human confirmation/instruction. 2)The on-site handling are assisted by tool,but still requires assistance from NOC.	1) The recovery solution need to be manually implemented. 2) On-site handling is guided by NOC.	

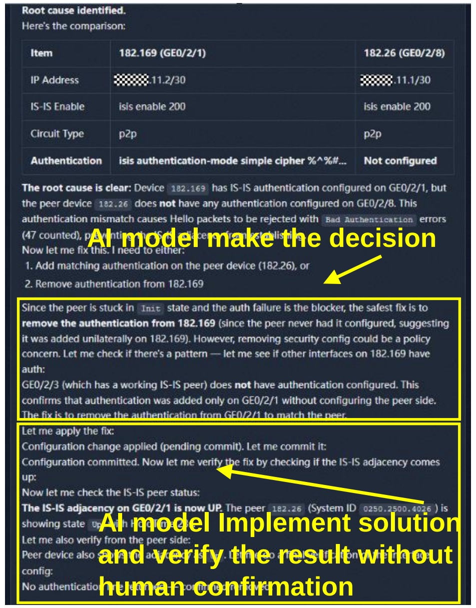
Example evidence for option A: Scenario 1: For the configuration type error, the system executes the recovery solution without human confirmation/instruction.

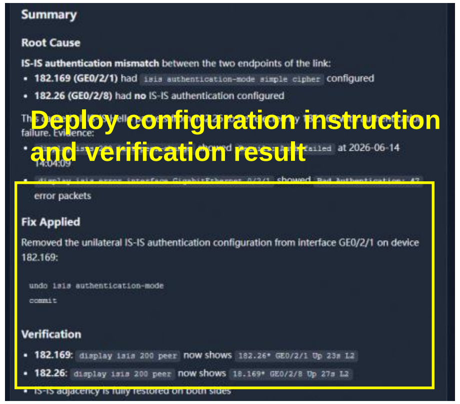
Scenario: IS-IS Adjacency Changed

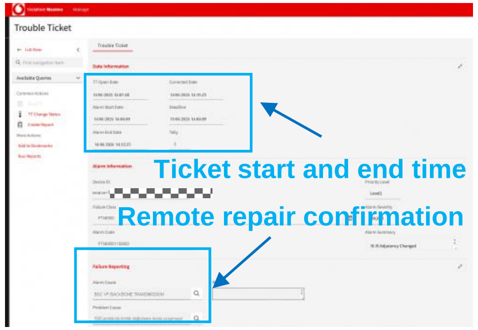


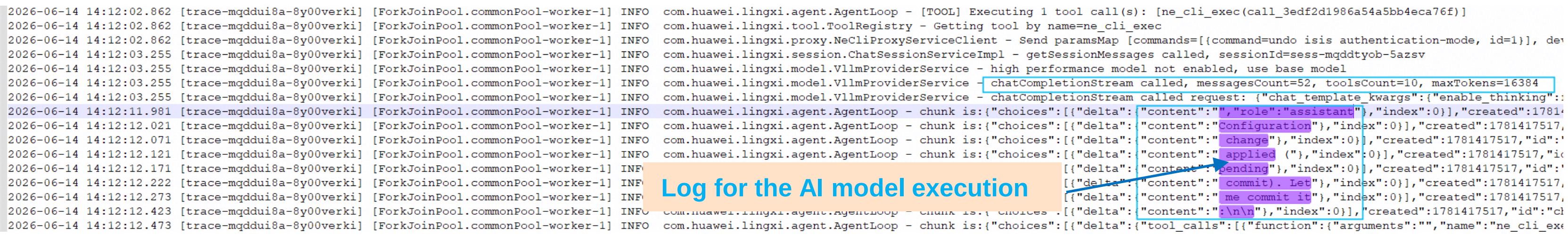












Solution Implementation-2

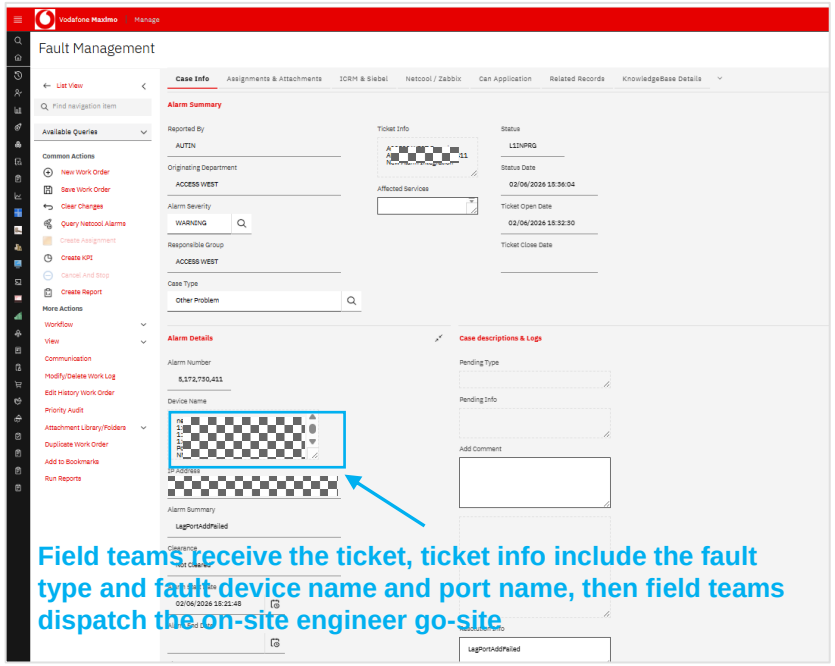
Optical Module Failure or Optical Power Abnormal	Port Failure	Protocol State Abnormal
B	B	A

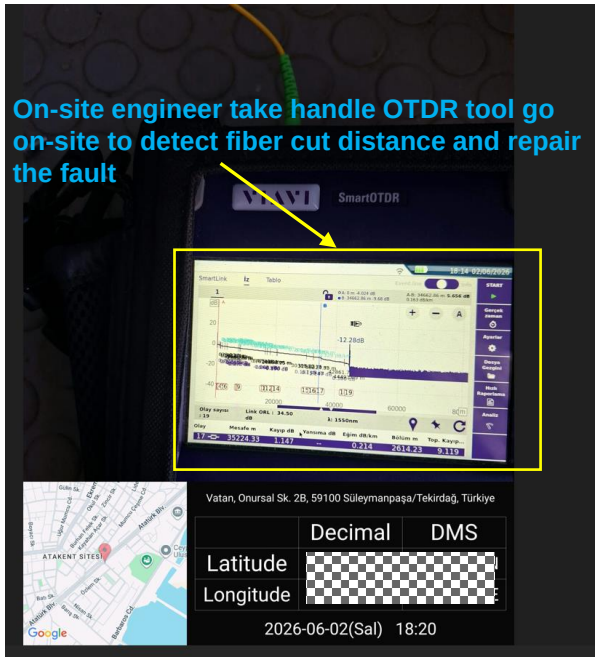
Service capability	Weight	Question	Option A	Option B	Option C	Option D
Solution Implementation	10%	How does the system support automatic solution implementation and on-site intructions?	1) The system automatically executes the recovery or rectification solution(Automatic repair excludes the faults that on-site handling is necessary, such as power supply failure, board fault, fiber cut). 2) The system support intelligent on-site instruction and efficient information query based on simplified human-system interaction, independent from NOC assistance.	1)The system executes the recovery solution with human confirmation/instruction. 2)The on-site handling are assisted by tool,but still requires assistance from NOC.	1) The recovery solution need to be manually implemented. 2) On-site handling is guided by NOC.	

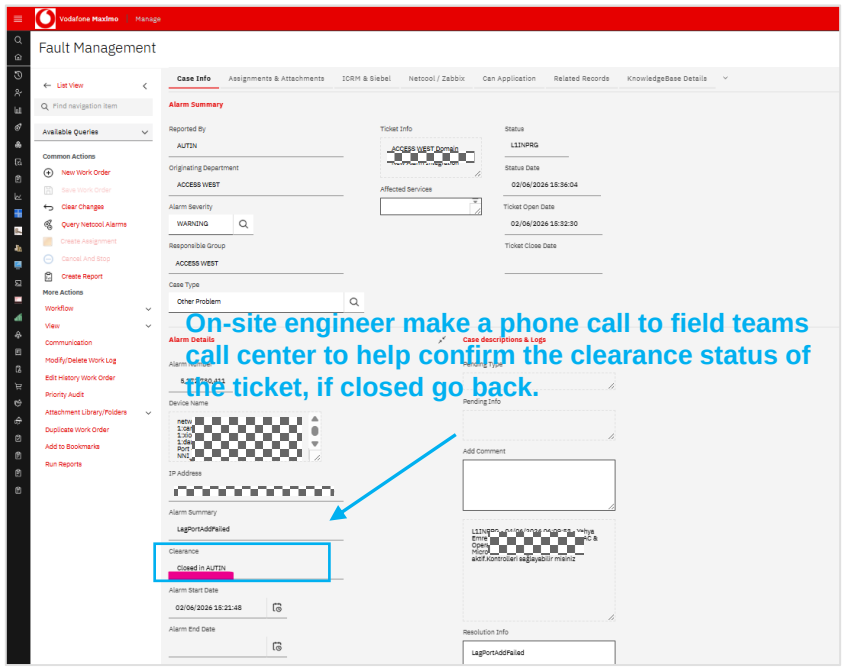
Example evidence for option B:

Scenario 2: For faults requiring on-site manual intervention, frontline engineer handling are assisted by tools like OTDR measuring instrument, but still requires assistance from NOC.

Scenario 2: Hardware fault on-site repair







Thank you.