

TM Forum

ANLAV Report

Indosat Ooredoo Hutchison (IOH)

Scenario: GB1505A – Individual Service Fault Management

Sub-scenarios: Service Outage (70%) + Service Degradation (30%)

Maturity Level: Beta

Date: 19/06/2026

Region: Indonesia (National)

Score: 3.80 (Capability 70%) – highest validated to date

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Executive Summary - 19 June 2026

IOH's GB1505A submission documents an AI-driven Individual Service Fault Management solution built on a Huawei multi-cloud architecture [REDACTED]: [REDACTED] Build, RAG Engine; [REDACTED], - ateway w t API/MCP/A2A protocols; OP IOH local: [REDACTED]. The AI Application layer comprises a Fault Monitor and Demarcation Agent, RAN Fault Agent, IP Fault Agent, FO Copilot and FME Copilot. Data feeds are sourced from EMS (RAN/IP/TRX/CORE) via an Alarm/Performance/Resource/MML probe, and from OP-side FM/WFM/SDM and PM/IM/CM@OP databases ([REDACTED]).

The submission covers two sub-scenarios. Sub-1 Service Outage (weighted 70%) is evidenced by incident INC-20260330-00021248 — 13 sites down under [REDACTED], severity CRITICAL, TT duration 1h 32m 48s, root cause patchcore cut at ODP [REDACTED] with double link down on [REDACTED]. Sub-tickets INC-20260330-00022557 and INC-20260330-00021639 are also cited. Sub-2 Service Degradation (weighted 30%) is evidenced by incident INC-20260411-00012200 — Major severity, 7 sites down under 2 [REDACTED] [REDACTED], root cause Ethernet physical LOS on [REDACTED] [REDACTED] TT duration 3h 15m 02s.

IOH self-rates Option A across all eight capability questions for Service Outage, and Option A across seven capability questions plus Option C on Solution execution & verification for Service Degradation. On final validation: Service Outage = 3.89 (sole downgrade — Intent-driven Sub-1 from Option A to Option B); Service Degradation = 3.57 (as self-declared, including Option C on Solution execution); validated Capability score (70% weighting) = **3.8** (3.79) — **the highest validated on this scenario to date**.

Validation focuses on whether the slide-level evidence (source code, [REDACTED] console screenshots, LLM output panels, DTN topology renderings, work-order JSON, [REDACTED] copilot UI, performance KPI charts and agent operation logs) matches the descriptor of the claimed option. Strong AI/ML evidence is present for Anomaly detection (Spatialtemporal Entropy algorithm, PMAI machine-learning predict model), Root-cause analysis & demarcation (DTN forward/backward propagation, COT-orchestrated agents), Service Impact Analysis, Root-cause locating (IP Incident Handling Agent self-diagnosis), Solution generation ([REDACTED] + [REDACTED]) Standard with explicit COT and confidence_score outputs), and Evaluation & decision making (RAG-based confidence scoring with deduction rules visible in production).

Final outcome: every capability is validated at the self-declared option except Intent-driven Sub-1, which is assessed at Option B — severity is assigned by deterministic count-based thresholds with VIP / B2B / SLA override flags, programmable and automated but not the runtime-dynamic assignment Option A requires. **This is also aligned with other validations.** Intent-driven Sub-2 is confirmed at Option A, with level thresholds computed from configurable per-dimension weights at runtime. Solution execution & verification is validated as self-declared — Option A for Service Outage (onsite recovery via the [REDACTED] AI-copilot; remote execution accepted) and Option C for Service Degradation.

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Final Review Cycle - 19 June 2026

High-Value Scenario	Cognitive Activity (IAADE)	Service Capability	Weight	Question	Method 1: Average (Official use)												Capability final score(70%)
					Criteria				Answer		Service outages			Service degradation			
											70%			30%			
											Option A	Option B	Option C	Option D	Service outages	Service degradation	
Individual Service – Fault Management	Intent	Intent-driven	10%	How does the operations translate service impact analysis of a root-cause alarm (example traffic impact, customer impact, and so forth) into problem resolution service level (priority and service	4	3	2	1	B	A	3	3	3. 89	4	4	3. 57	3. 79
	Awareness	Anomaly detection	10%	From monitoring to detection, the activities include data collection, alarm filtering, and anomaly detection which include risk prediction. The question is to find out if the activities are done manually assisted by system or automated.	3	2	1		A	A	3	3. 857143		3	3. 714286		
	Analysis	Root-cause analysis and demarcation	15%	For alarm correlation, root-cause analysis, and demarcation, the question is to find out if the activity is done manually assisted by system, or automated by rules and policy, or managed through AI model and AI algorithm.	4	3	2	1	A	A	4	4		4	4		
		Service Impact Analysis	10%	Upon root-cause demarcated, the question is to find out if the service impact analysis activity is done manually assisted by system, or automated by rules and policy, or managed through AI model and AI algorithm.	4	3	2	1	A	A	4	4		4	4		
		Root-cause locating	10%	For trouble ticket creation, ticket assignment, fault diagnosis and root-cause fault locating, the question is to find out if the activities are done manually assisted by system, or automated by rules and policy, or managed through AI agent.	4	3	2	1	A	A	4	4		4	4		
		Solution generation	10%	For the fault recovery solution generation, the question is to find out if the activity is done manually assisted by system, or automated by rules and policy, or managed through AI capability and digital twin networks	4	3	2	1	A	A	4	4		4	4		
	Decision	Evaluation and decision making	15%	For the solutions evaluation and decision making, the question is to find out if the activity is done manually assisted by system, or automated by rules and policy, or managed through AI agent and digital twin network.	4	3	2	1	A	A	4	4		4	4		
	Execution	Solution execution and verification	20%	The solution execution activities include remote resolution, work order creation and closure, workforce scheduling and field engineer dispatch for onsite resolution. The question is to find out if the solution execution activities are done manually assisted by system, or automated by rules and policy, or managed through Agentic AI capability.	4	3	2	1	A	C	4	4		2	2		

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Final Review Cycle - 19 June 2026

Capability Area	Capability	Score Claimed	Score Validated	Provided Evidence	TMF (GB1505A) requirements	Questions
Intent	Intent-driven	A / A	B / A	Sub-1 Outage: An Agent Knowledge Configuration screen ('COT name: Massive Incident', 'Inference Step: Knowledge') showing the Diagnosis knowledge prompt as an editable 40,000-character text field — a Core Rules / Mandatory Output Fields / Input Structure / Phase 1 Incident Scale Classification block, then a Priority Impact Rules (CRITICAL OVERRIDE) block layering VIP / B2B / VIP+B2B overrides on top of the base severity, then a Phase 4 SLA Validation block with per-tier MTTA / MTTE. A DTN Engine secondary-aggregation topology diagram with the slide caption stating that DTN dynamically aggregates outage alarms before the severity classification step. A production OWS panel showing live Massive-Incident TTs being agent-managed across multiple regions. A second scripts customization editor (c_FMAgentCustomize) holding the same severity-band logic as a JavaScript function in an operator-editable script. A B2B service-impact panel for the cited incident showing CID-based VIP identification (CID Silver tier, SR# reference, customer name). Sub-2 Degradation: An OWS Degradation Intent Definition / COT configuration screen + the JavaScript source code of the level-classification function. This function computes the level thresholds dynamically from configurable per-dimension weights (KPI / VIP / Degrade ratio) and a totalWeight sum (L1=3×totalWeight, L2=2×, L3=1×). A Priority Principle table mapping the three dimensions to Level 1/2/3 bands, accompanied by an ML scatter chart showing historical / normal / abnormal KPI values against a PMAI-derived calculated threshold envelope.	Option A: Operations automatically and dynamically assign problem resolution service level to service impact alarm. Option B: Operations automate the assigning of problem resolution service level based on predefined static rules. The key distinction is 'dynamically' (Option A) versus 'predefined static rules' (Option B); both are automated.	Q1.1 — Service Outage: validated Option B (final). Severity is assigned from count-based thresholds Emergency , vs e n o e agnosis knowledge prompt and the operator-editable JavaScript, with VIP / B2B / SLA override flags layered on top. This is deterministic, programmable threshold-and-flag logic — automated, but not the runtime-dynamic assignment Option A requires. The DTN secondary-aggregation step is dynamic but sits upstream of the classification. Assessed at Option B. Also aligns with similar validations for other members. Q1.2 — Service Degradation: validated Option A (final). The level-classification thresholds are computed from configurable per-dimension weights (KPI / VIP / Degrade ratio) at runtime — genuinely dynamic. CLOSED. Q1.3 — CID-based VIP weighting confirmed as configurable Priority-Flag categories, not hard-coded customer IDs. CLOSED.

IOH Response:

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Final Review Cycle - 19 June 2026

Capability Area	Capability	Score Claimed	Score Validated	Provided Evidence	TMF (GB1505A) requirements	Questions
Awareness	Anomaly detection	A / A	A / A	Sub-1 Outage: A statement that alarm collection and link/topology data collection are full automated. Production [REDACTED] screenshots showing the full DTN topology for the cited incident with RAN and IP layers both annotated, a suspected-root-cause panel naming candidate NEs, an [REDACTED] Root Cause Inference Results panel populated with device / alarm counts and first / last occurrence timestamps, an AI Model panel showing the Inference and Training stages of the [REDACTED] algorithm including Frequency monitoring and Fault Propagation Topology training assets, and RAN / IP alarm-table screenshots feeding into auto-generated sub-tickets. Sub-2 Degradation: A production [REDACTED] Task configuration screen for the PMAI predict model (KPI, training object, training data window and execution interval), with a paginated list of trained entities all reported as successfully trained. An OWS Performance Monitoring panel showing the degradation event intelligent agent automatically detecting a KPI that exceeds its historical range,	Option A: Operation adopted dynamic and programmable rules and policy, ML for the monitoring and detection without human intervention. Option B: Event monitoring to anomalous event detection is automated through predefined rules. (No Option D defined.) Note: Slide 2 scoring shows Original=3, Compensated=4 for Outage and Original=3, Compensated=3.71 for Degradation.	Q2.1 — ML evidence is direct ([REDACTED] algorithm for Outage, [REDACTED] predict model for Degradation), so Option A is supported. The compensation adjustment from Original=3 to Compensated=4 (Outage) / 3.71 (Degradation) on the scoring summary is unexplained in the decks — please document the compensation rule applied.

IOH Response: .

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Final Review Cycle - 19 June 2026

Capability Area	Capability	Score Claimed	Score Validated	Provided Evidence	TMF (GB1505A) requirements	Questions
Analysis	Root-cause analysis and demarcation	A / A	A / A	Sub-1 Outage: A Fault Propagation Graph (zoom-out and zoom-in views) with  clustering, showing the equipment-room cross-layer fault-propagation-paths overlays for the cited incident. A production  Multi Site Down Demarcation output panel stating that the demarcation result is cross-NE fault with confidence 100, followed by a per-fault listing of root-cause alarm, root-cause NE and first-occurrence timestamp. A Root Cause panel and a Diagnosis Summary with the automation start time. An Associated Tickets table linking the parent and sub-tickets. Sub-2 Degradation: An  DTN topology view annotated with five numbered IP fault markers and a demarcation conclusion panel stating that AI-agent DTN query identified the root cause as the IP-network failures, with per-fault alarm naming.	Option A: Operation adopted AI model and AI algorithm to perform root-cause analysis and achieve high accuracy of demarcation. Option B: Automated through programmable or dynamic policy and rules.	No additional clarification required. Both in-scope sub-scenarios CLOSED.

IOH Response:

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Capability Area	Capability	Score Claimed	Score Validated	Provided Evidence	TMF (GB1505A) requirements	Questions
Analysis	Service Impact Analysis	A / A	A / A	Sub-1 Outage: A production  Service Affected tab listing the affected sites (count and per-site IDs), site class, hub type, impact scope (2G BTS / 4G eNodeB / 5G gNodeB counts) and B2B impact (CID tier). A DTN topology + Massive Down Ticket panel populated with the matching figures. A caption stating the AI agent automatically queries DTN for service impact via a forward-propagation AI algorithm. Sub-2 Degradation: An OWS Issue Sites map view and a production agent-output panel enumerating the neighbouring sites queried within the impact window, with per-site eNodeB out-of-service counts. An incident summary card showing TT number, severity, MTTA, service impact counts (2G / 4G / 5G) and a side panel quantifying the affected site's VIP status, degradation ratio and assigned degradation level.	Option A: Operation adopted AI model, AI algorithm and digital twin networks to perform service impact analysis with high accuracy and to prioritize problem resolution. Option B: Automated through programmable or dynamic policy and rules including topology based rules.	No additional clarification required. Both in-scope sub-scenarios CLOSED.

IOH Respo nse:

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Final Review Cycle - 19 June 2026

Capability Area	Capability	Score Claimed	Score Validated	Provided Evidence	TMF (GB1505A) requirements	Questions
Analysis	Root-cause fault locating	A / A	A / A	Sub-1 Outage: A production  Execution View for the cited incident with the agent's output panel showing the located root cause, reason for outage, root alarm NE, occurrence window and detail string. A caption stating that the IP Incident Handling Agent located the root cause via self-diagnosis and passed the information to the service AI agent. Sub-2 Degradation: A production  Multi Site Down Diagnosis panel with a full Chain-of-Thought trace visible — site-by-site assessment, device-offline rule evaluation and the derived unmanaged-status conclusion — followed by a locating-output box naming the root cause, root alarm NE and occurrence time.	Option A: Operation orchestrates AI agent or other agentic AI capability to perform diagnosis and root-cause locating with high accuracy. Option B: Automated through programmable or dynamic policy and rules.	No additional clarification required. Both in-scope sub-scenarios CLOSED.

IOH Response:

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Capability Area	Capability	Score Claimed	Score Validated	Provided Evidence	TMF (GB1505A) requirements	Questions
Analysis	Solution generation	A / A	A / A	Sub-1 Outage: A production [REDACTED] IP Incident Handling panel showing the Multi Site Down Diagnosis Chain-of-Thought reasoning (role definition, workflow constraints, current-status rule), and a Remote Handling Suggestion pop-up output by the agent. An [REDACTED] Model Parameter Configuration screen confirmin the underl in LLM is selectable between [REDACTED] and [REDACTED], accompanied by a Diagnosis Knowledge JSON containing the COT instructions and operational constraints. A structured-output panel showing fault_reason, alarm details, handling suggestions, input_suggestion and a numeric confidence_score, plus a ticket-progress entry confirming downstream field action. Sub-2 Degradation: A production [REDACTED] LLM output panel reusing the same architecture — step-by-step reasoning, output_category, fault_reason JSON, alarm details, an optical-power query result with measured values vs thresholds, and an explicit handling-suggestions block.	Option A: Operation adopted AI agent and/or AI-copilot to generate possible solutions in collaboration with digital twin networks and RAG technique to retrieve the solutions from LLM. Option B: Automates solution generation through programmable or dynamic policy and rules.	Q6.1 — Outage evidence is comprehensive (LLM model selection, COT JSON, confidence-scored output). Degradation evidence is briefer but shows the same [REDACTED] / [REDACTED] architecture with COT an structured JSON output, so Option A is supported. CLOSED.

IOH Resp onse:

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Capability Area	Capability	Score Claimed	Score Validated	Provided Evidence	TMF (GB1505A) requirements	Questions
Decision	Evaluation and decision making	A / A	A / A	Sub-1 Outage: Three Handling Records panels visualising the confidence-scoring and evaluation logic as it runs in production — including the agent's reasoning over output structure, the rule-based confidence_score derivation and a low_confidence_reason gating rule. Sub-2 Degradation: Two Handling Records panels showing the explicit confidence-scoring rule-set — score range, category-specific maximum caps, per-side deductions for missing RSL information, base-score arithmetic and a final low_confidence_reason gating rule.	Option A: Operation adopted AI Models and digital twin network to evaluate solution options, and then recommend the best choice, leveraging AI's ability to process data and predict results based on probabilistic outcomes. Option B: System automates evaluation, recommends the optimal solution using dynamic rules and policy and may require human approval.	Q7.1 — Both sub-scenarios show explicit confidence-score outputs with rule-driven deductions and category-specific caps. The summary caption text is identical on Outage slide 21 and Degradation slide 13 — this is acceptable as the same RAG / LLM mechanism is used. CLOSED.

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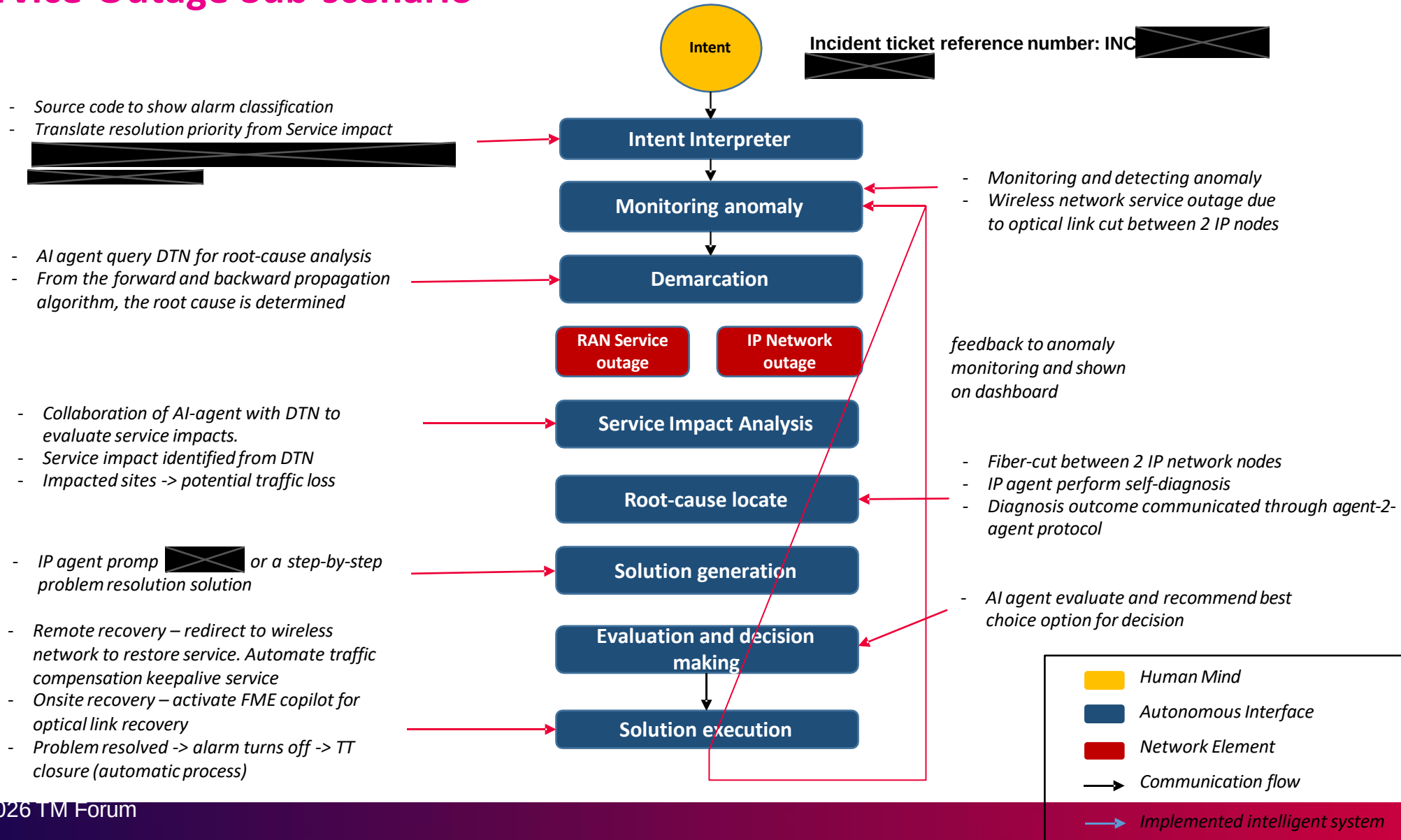
Final Review Cycle - 19 June 2026

Capability Area	Capability	Score Claimed	Score Validated	Provided Evidence	TMF (GB1505A) requirements	Questions
Execution	Solution execution and verification	A / C	A / C	Sub-1 Outage: A production [REDACTED] view of the cited incident with the Demarcation / Locating / Repairing / Recovery stages all marked complete. A note that for this fiber-cut incident, remote recovery is not applicable; the trouble ticket automatically generated and assigned a Corrective Maintenance Work Order and a Fiber Link Provider Work Order to the corresponding FME and FLP. A WO JSON payload visible in the deck. Three [REDACTED] copilot mobile-app screenshots showing AI-assisted diagnostic dialogue used by the field engineer onsite, including step-by-step diagnostic methods and a follow-up BO Ticket dialogue. An Agent Operation Logger console listing the auto-generated activity rows tied to the cited incident, and a DTN topology view of the post-recovery state with recovery markers across all sites. Sub-2 Degradation: A production [REDACTED] Performance Monitoring panel including the affected KPI (down load speed) chart showing a clear drop-and-recover curve. A note stating that the performance issue auto-closed once the KPI returned to normal, that FME dispatch was automatic, that DIOC escalated a Corrective Maintenance Work Order automatically, and that the TT was automatically closed after the impacted node recovered and neighbouring-cell performance recovered. A topology view of the post-recovery state showing the sites returned to normal.	Option A: Remote recovery — operation adopted AI agent / agentic AI to remotely execute the solution (e.g. cell outage compensation, IP traffic redirect). Onsite recovery — FME adopts AI-copilot technology. Option B: Remote recovery — system automatically executes via dynamic rules and policy (automatic repair excludes faults that require onsite handling: power supply failure, board fault, fiber cut). Onsite recovery — system supports on-site instruction through NOC assistance. Option C: Remote recovery — predefined rules with human confirmation; onsite recovery — on-site handling assisted by tool	Q8.1 — Service Outage: validated Option A (final). Onsite recovery via the [REDACTED] AI-copilot fits the Option A description, and the remote-execution capability is accepted. Remote intervention — remote execution of a generated solution with no field dispatch — has been identified in submissions from other programme members. A representative example is a remote antenna-parameter adjustment: on detecting coverage or capacity degradation, the system autonomously applies a remote electrical-tilt (and/or azimuth/beam) change through the antenna line device to re-optimize coverage and offload congestion on the affected and neighbouring cells, with no field visit. This is the class of self-healing / self-optimisation action that marks the highest remote-execution maturity, and is the natural next step for lifting the degradation-side execution. Q8.2 — Service Degradation: validated Option C (final), as self-declared — the remote-recovery path follows predefined rules with human confirmation and onsite handling is tool-assisted with NOC assistance, consistent with Option C.

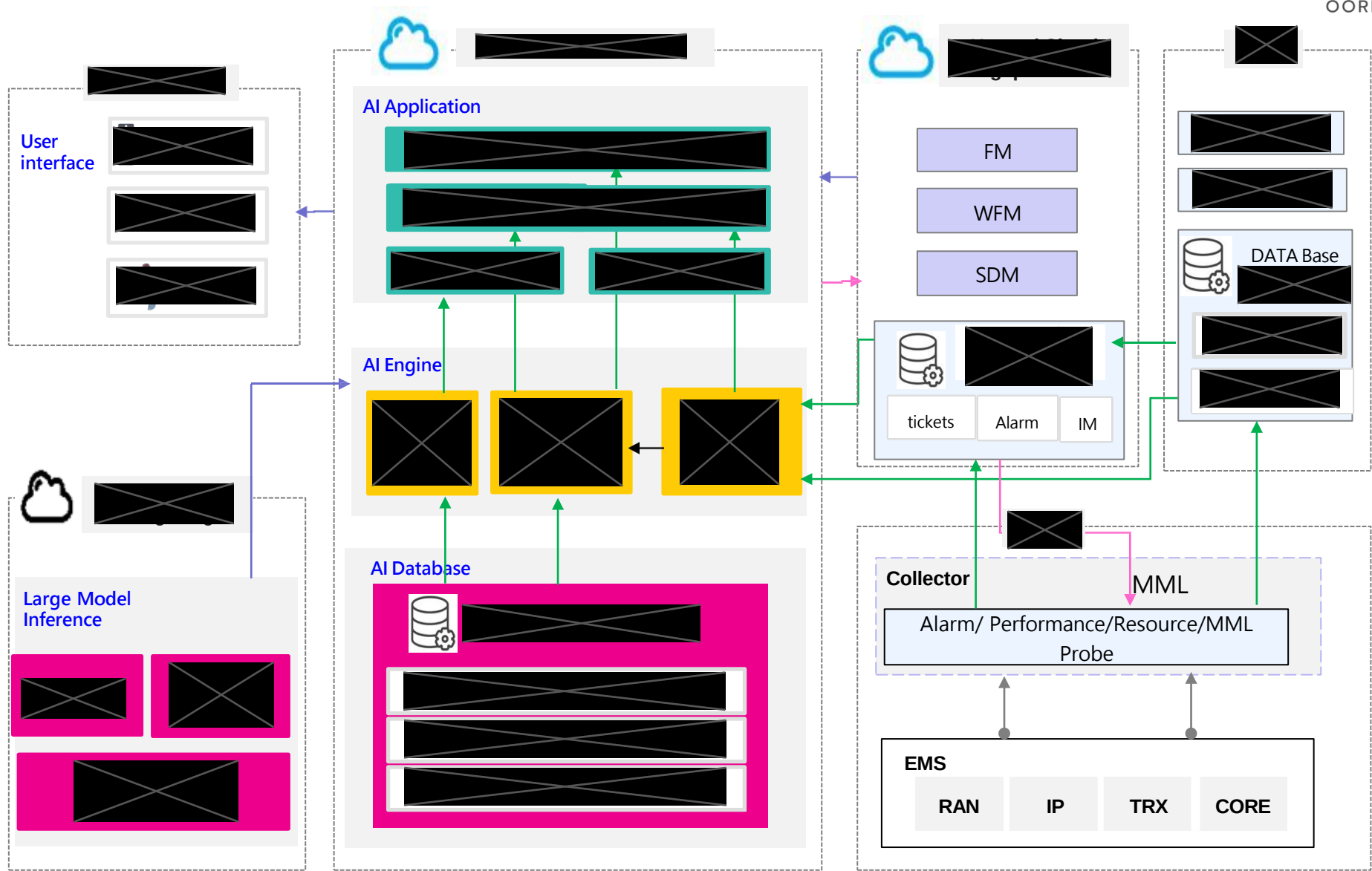
IOH Response:

IOH Individual Service Fault Management

Service Outage Sub-scenario



AI Agent Architecture



Q: How does the operations translate service impact analysis of a root-cause alarm (example traffic impact, customer impact, and so forth) into problem resolution service level (priority and service availability)?

Cognitive Activity	Service Capability	Weight	Questions	Option A	Option B	Option C	Option D
Intent	Intent-driven	10%	How does the operations translate service impact analysis of a root-cause alarm (example traffic impact, customer impact, and so forth) into problem resolution service level (priority and service availability)?	(A) The operations automatically and dynamically assign problem resolution service level to service impact alarm.	(B) The operations automate the assigning of problem resolution service level to service impact alarm based on predefined static rules.	(C) The operations assign problem resolution service level to service impact alarm based on manual process, assisted by tools and system.	(D) Manually set problem resolution service level targets based on expertise (such as setting service impact category and priority) .

Intent Definition Writing

indosat OWS Console

Common Query

Incident Overview

Incident Monitoring Configura...

Incident Han...

Configuration

Co-Site Alarm Configuration

Co-Ne Alarm Configuration

Alarm Knowledge Configur...

Alarm Query Configuration

Agent Knowledge Configur...

Model Parameter Configur...

Diagnosis Log

* COT name

Inference Step

Visible

Diagnosis knowledge

indosat OWS Console

Common Query

Incident Overview

Incident Monitoring Configura...

Incident Han...

Configuration

Co-Site Alarm Configuration

Co-Ne Alarm Configuration

Alarm Knowledge Configur...

Alarm Query Configuration

Agent Knowledge Configur...

Model Parameter Configur...

Diagnosis Log

* COT name

Inference Step

Visible

Diagnosis knowledge

indosat OWS Console

Common Query

Incident Overview

Incident Monitoring Configura...

Incident Han...

Configuration

Co-Site Alarm Configuration

Co-Ne Alarm Configuration

Alarm Knowledge Configur...

Alarm Query Configuration

Agent Knowledge Configur...

Model Parameter Configur...

Diagnosis Log

* COT name

Inference Step

Visible

Diagnosis knowledge

Phase 4: SLA VALIDATION (TIME CONTROL)

Q: How does the operations translate service impact analysis of a root-cause alarm (example traffic impact, customer impact, and so forth) into problem resolution service level (priority and service availability)?

Cognitive Activity	Service Capability	Weight	Questions	Option A	Option B	Option C	Option D
Intent	Intent-driven	10%	How does the operations translate service impact analysis of a root-cause alarm (example traffic impact, customer impact, and so forth) into problem resolution service level (priority and service availability)?	(A) The operations automatically and dynamically assign problem resolution service level to service impact alarm.	(B) The operations automate the assigning of problem resolution service level to service impact alarm based on predefined static rules.	(C) The operations assign problem resolution service level to service impact alarm based on manual process, assisted by tools and system.	(D) Manually set problem resolution service level targets based on expertise (such as setting service impact category and priority) .

DTN Engine dynamically aggregates (including secondary aggregation) outage alarms, and then identifies the level of service impact (Emergency/ Critical/Major) according to the aggregation results.

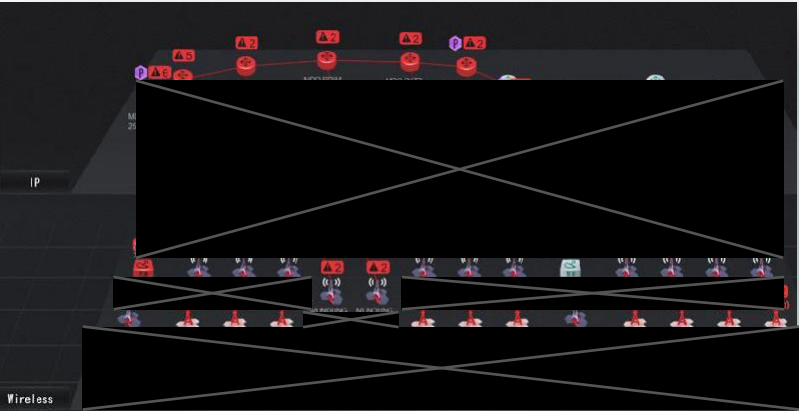
Definition of problem resolution priority

Severity	Time window	Mean-Time-to-escalate by agent (MTTA)

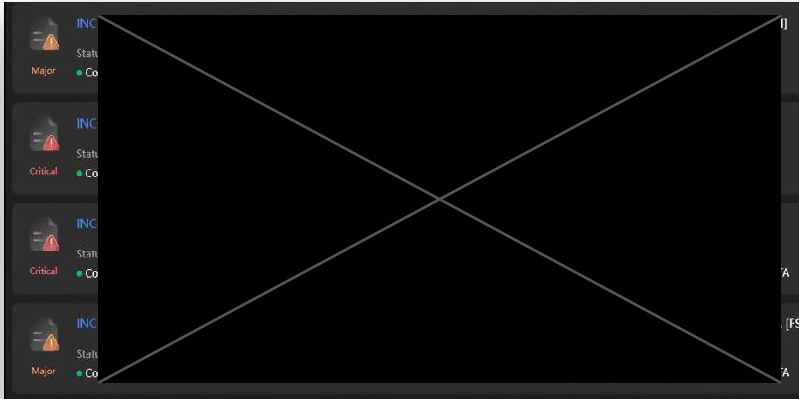
Severity based
on Service impact

Time window to
escalate
problem
resolution based
on priority

Aggregation of Outage Alarms



Massive Incident Generation

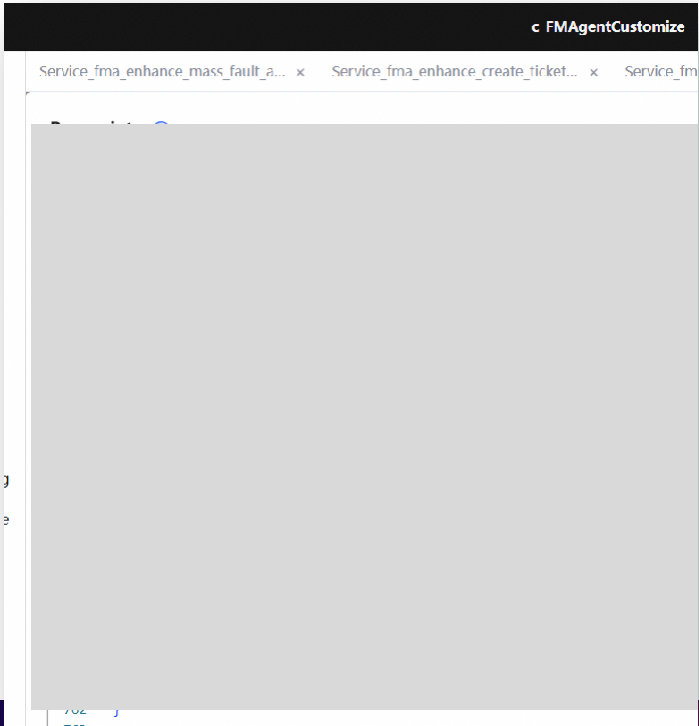


Outage leads to number of sites impacted + service impact derived from site details - > Alarm severity (Emergency / Critical / Major)

Q: How does the operations translate service impact analysis of a root-cause alarm (example traffic impact, customer impact, and so forth) into problem resolution service level (priority and service availability)?

Cognitive Activity	Service Capability	Weight	Questions	Option A	Option B	Option C	Option D
Intent	Intent-driven	10%	How does the operations translate service impact analysis of a root-cause alarm (example traffic impact, customer impact, and so forth) into problem resolution service level (priority and service availability)?	(A) The operations automatically and dynamically assign problem resolution service level to service impact alarm.	(B) The operations automate the assigning of problem resolution service level to service impact alarm based on predefined static rules.	(C) The operations assign problem resolution service level to service impact alarm based on manual process, assisted by tools and system.	(D) Manually set problem resolution service level targets based on expertise (such as setting service impact category and priority) .

Priority Rules in OWS



Massive Incident Generation Result with Priority

A screenshot of the 'Incident Overview' dashboard in the OWS system. It displays a top navigation bar with various tool icons. The main area shows '16 / 38592' tickets managed by an agent, with a breakdown of '9' tickets 'To be confirmed' and '7' tickets 'Agent processing'. Below this, there's a 'Historical TTs' section with a search bar and a list of tickets. The list includes columns for 'Occurrence Time', 'Status', and 'Domain'. Three tickets are visible, all marked as 'Completed' with a green dot. The first two are labeled 'Major' and 'Critical', while the third is 'Critical'. A red dashed box highlights the first two tickets. On the right, a yellow callout box contains text about prioritization rules.

The trouble tickets are prioritized based on service impact.

1. Highest priority given to critical alarm in outer Jakarta. Time escalated at 00:57
2. The problem resolution priority followed by critical alarm in Kalimantan. Time escalated at 05: 00
3. Least priority given to major alarm. Time escalated at 09:30

Intent-driven

Q: How does the operations translate service impact analysis of a root-cause alarm (example traffic impact, customer impact, and so forth) into problem resolution service level (priority and service availability)?

Cognitive Activity	Service Capability	Weight	Questions	Option A	Option B	Option C	Option D
Intent	Intent-driven	10%	How does the operations translate service impact analysis of a root-cause alarm (example traffic impact, customer impact, and so forth) into problem resolution service level (priority and service availability)?	(A) The operations automatically and dynamically assign problem resolution service level to service impact alarm.	(B) The operations automate the assigning of problem resolution service level to service impact alarm based on predefined static rules.	(C) The operations assign problem resolution service level to service impact alarm based on manual process, assisted by tools and system.	(D) Manually set problem resolution service level targets based on expertise (such as setting service impact category and priority) .

B2B Service Impact

B2B Service Impact included in Massive Down based on impacted devices

* B2B Impact: 1 CID [Silver]

* IT Impact: N/A

* FTTH Impact: N/A

The service impact is determined by the customer affected by the service outage. Each VIP whose service being monitored is recognized by a Customer Identification (CID)

Anomaly detection



Q: From monitoring to detection, the activities include data collection, alarm filtering, and anomaly detection. The question is to find out if the activities are done manually assisted by system or automated.

Cognitive Activity	Service Capability	Weight	Questions	Option A	Option B	Option C	Option D
Awareness	Anomaly detection	10%	From monitoring to detection, the activities include data collection, alarm filtering, and anomaly detection. The question is to find out if the activities are done manually assisted by system or automated.	(A) The operation adopted dynamic and programmable rules and policy, ML for the monitoring and detection without human intervention.	(B) The event monitoring to anomal event detect operation is automated through predefined rules.	(C) The anomal event monitoring to detection is a manual process. Human is assisted by tools or systems for the monitoring and detection.	

Alarm Data Collection

Alarm Repo	Alarm Name	EMS Name	Ticket ID	Alarm SN	Alarm Source	First Occurred On	First Received by Datab	First Received by Tunnel On	First Processing Time
Real Time	Huawei 2G NE Down	MAE3_10.54.253.5	INC-20260401-00026890	732226434	TANGKILKULON_EB	2026-04-01 19:45:21	2026-04-01 19:50:28	2026-04-01 19:50:26	2026-04-01 19:50:26
Real Time	CSL Fault								
Real Time	BTS O&M LINK FAILURE								
Real Time	Rectifier Failed								
Real Time	Mains Failure								
Real Time	Rectifier Failed								
Real Time	Rectifier Failed								

R
A
N



Fully automate on alarm collection



Fully automate on link data collection and topology recovery

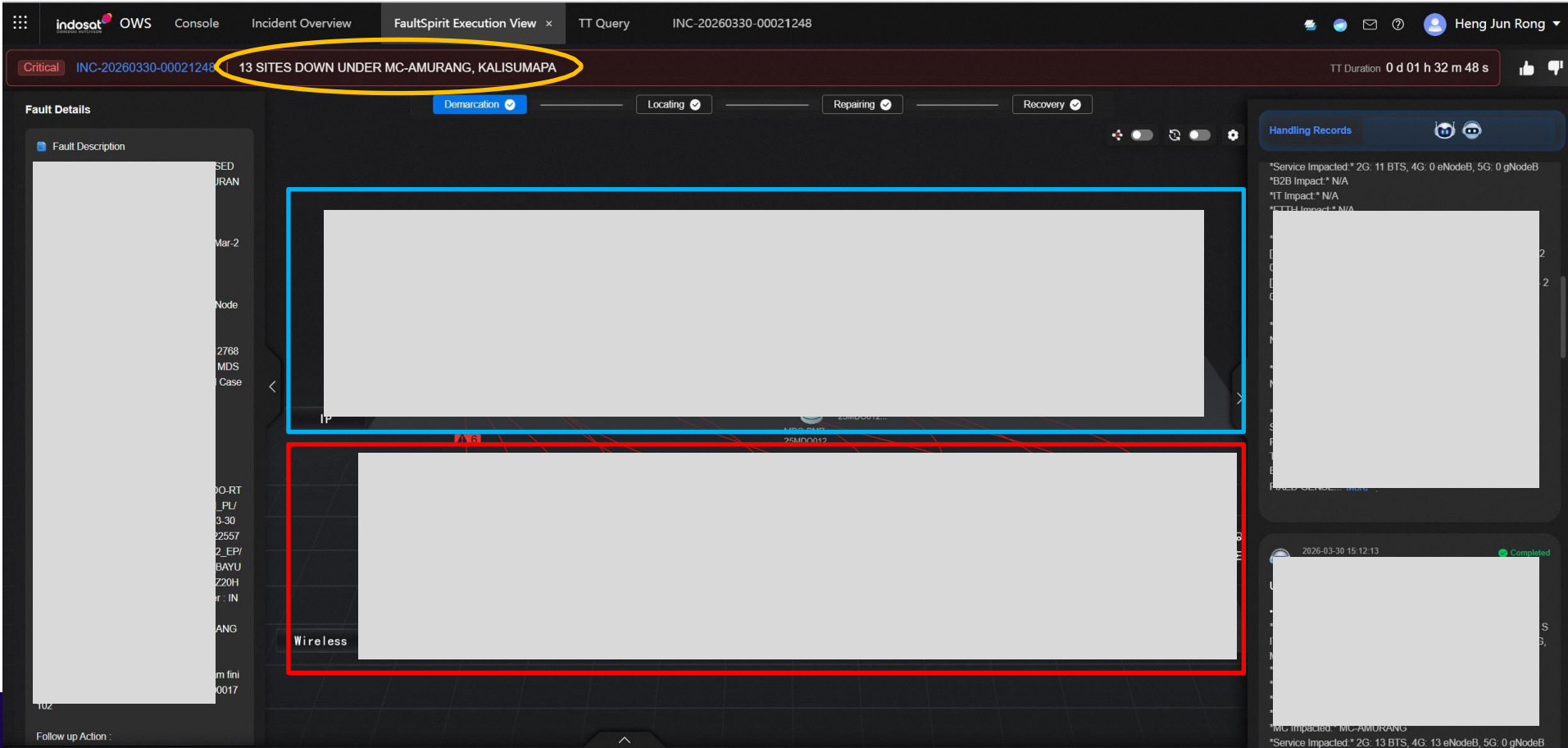
I
P

Alarm Repo	Alarm Name	EMS Name	Ticket ID	Alarm SN	Alarm Source	First Occurred On	First Received by Datab	First Received by Tunnel On	First Processing Time
Real Time	Ethernet Physical (ETP) Remote dying gasp ...	ZTE_10.29.30.53	INC-20260401-00028601	1600939143050	PTK-TBUP-EN1-7201S	2026-04-01 20:11:29	2026-04-01 20:11:33	2026-04-01 20:11:32	2026-04-01 20:11:32
Real Time	SWI_SWITCH_DOWN	EPNM_CISCO_10.34.28...	INC-20260401-00028486	35506498352	PWT-PRME-EN1-C516Z	2026-04-01 20:05:32	2026-04-01 20:05:17	2026-04-01 20:05:15	2026-04-01 20:05:15
Real Time	cseShutdownNotify	FPNM_CISCO_10.34.28...	INC-20260401-00028486	35506498219	PWT-PRMF-EN1-C516Z	2026-04-01 20:02:43	2026-04-01 20:02:26	2026-04-01 20:02:26	2026-04-01 20:02:26
Real Time	LINK_DOWN	EPNM_CISCO_10.34.28...	INC-20260401-00028486	35506498220	PWT-CDWL-EN1-C516Z	2026-04-01 20:02:43	2026-04-01 20:02:26	2026-04-01 20:02:26	2026-04-01 20:02:26
Real Time	SWT_SWITCH_DOWN	FPNM_CISCO_10.34.28...	INC-20260401-00028122	35506204410	TGI-WIFD-EN1-C516Z	2026-04-01 19:47:12	2026-04-01 19:46:59	2026-04-01 19:46:56	2026-04-01 19:46:57
Real Time	LINK_DOWN	EPNM_CISCO_10.34.28...	INC-20260401-00028106	35506204033	IGL-SBW1-EN1-C516Z	2026-04-01 19:42:32	2026-04-01 19:42:16	2026-04-01 19:42:14	2026-04-01 19:42:15
Real Time	SWT_SWITCH_DOWN	EPNM_CISCO_10.34.28...	INC-20260401-00028026	35506204028	PWT-KRTN-EN1-C516Z	2026-04-01 19:42:20	2026-04-01 19:42:05	2026-04-01 19:42:03	2026-04-01 19:42:03
Real Time	SWT_SWITCH_DOWN	EPNM_CISCO_10.34.28...	INC-20260401-00028017	35506204030	PWT-PBBS-EN1-C506Z	2026-04-01 19:42:20	2026-04-01 19:42:05	2026-04-01 19:42:03	2026-04-01 19:42:03
Real Time	Device Powered Off	NCE_SDN_10.31.229.43	INC-20260401-00027955	2142551890	JKT-DYUH-EN1-910C	2026-04-01 19:36:44	2026-04-01 19:36:47	2026-04-01 19:36:45	2026-04-01 19:36:45
Real Time	Device Powered Off	NCE_SDN_10.31.229.43	INC-20260401-00027950	2142551850	JKT-KAGO-OPT-I1910D	2026-04-01 19:36:44	2026-04-01 19:36:47	2026-04-01 19:36:46	2026-04-01 19:36:46

Anomaly detection

Q: From monitoring to detection, the activities include data collection, alarm filtering, and anomaly detection. The question is to find out if the activities are done manually assisted by system or automated.

Cognitive Activity	Service Capability	Weight	Questions	Option A	Option B	Option C	Option D
Awareness	Anomaly detection	10%	From monitoring to detection, the activities include data collection, alarm filtering, and anomaly detection. The question is to find out if the activities are done manually assisted by system or automated.	(A) The operation adopted dynamic and programmable rules and policy, ML for the monitoring and detection without human intervention.	(B) The event monitoring to anomal event detect operation is automated through predefined rules.	(C) The anomal event monitoring to detection is a manual process. Human is assisted by tools or systems for the monitoring and detection.	



RAN – Anomaly Detection
Multiple Site Down in MC-AMURANG

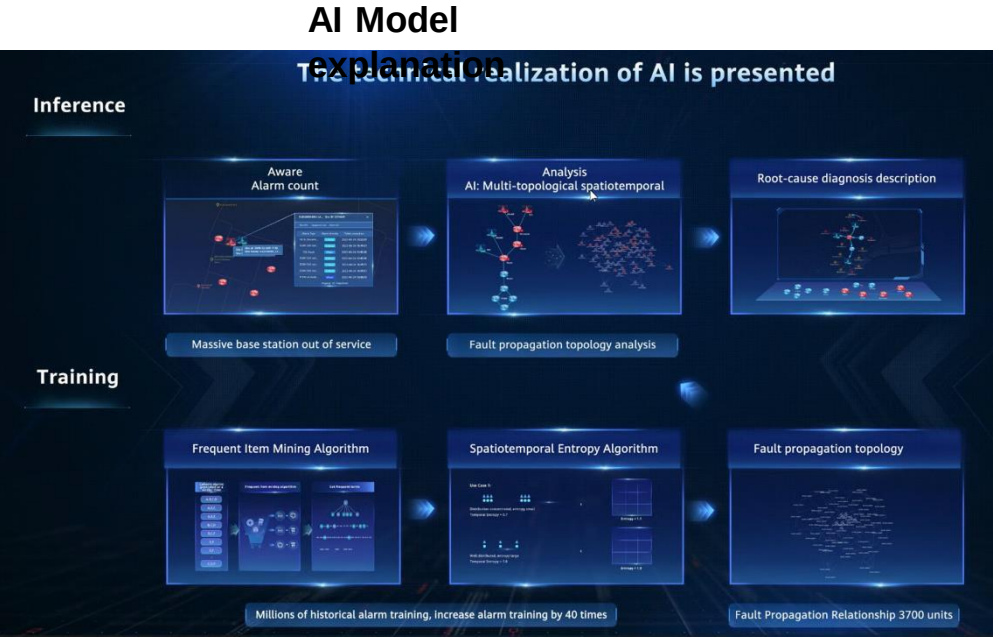
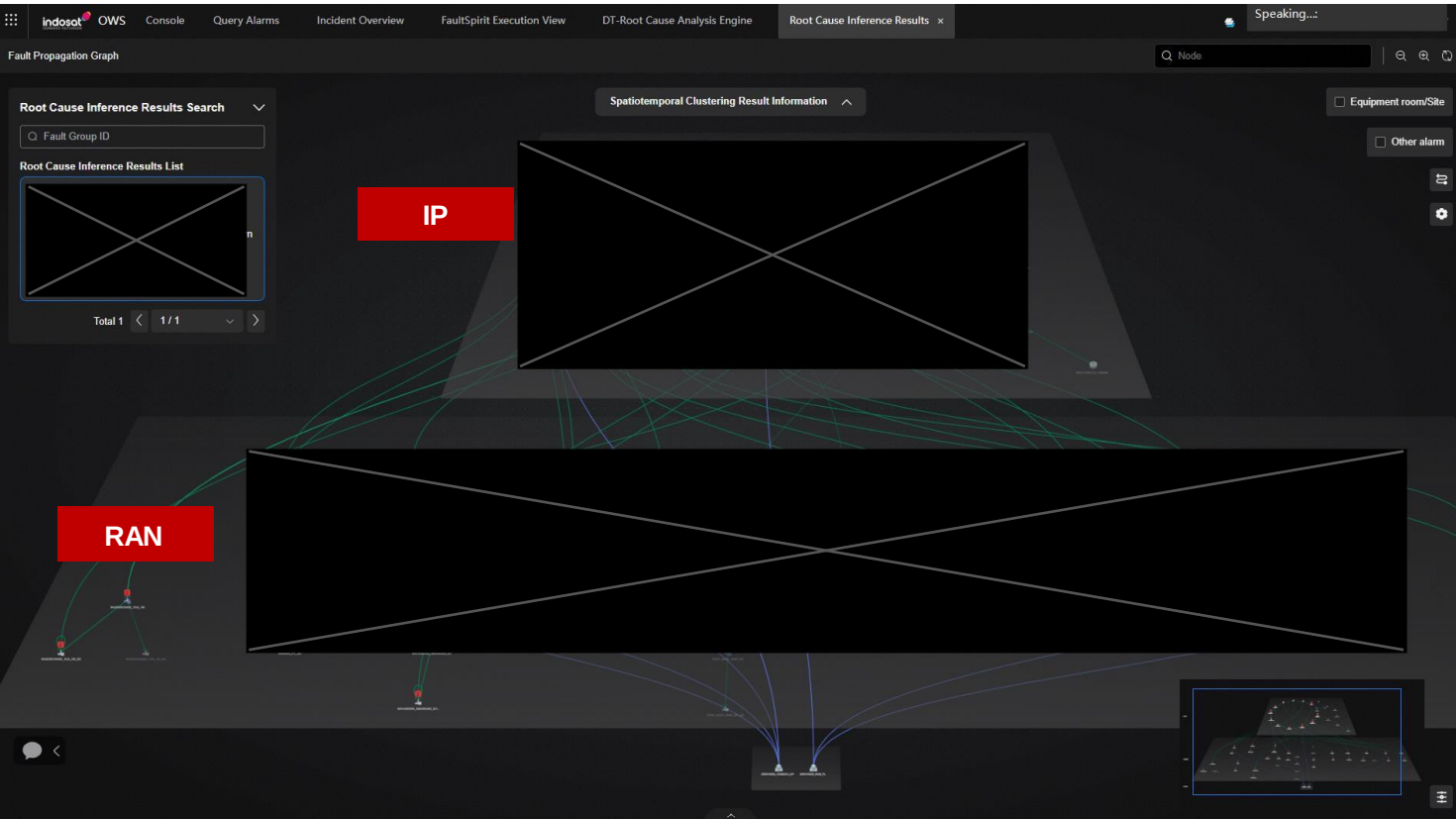
IP - Anomaly Detection
Detected IP outages (Link Down and Router Unmanaged) on IP Layer

Anomaly detection



Q: From monitoring to detection, the activities include data collection, alarm filtering, and anomaly detection. The question is to find out if the activities are done manually assisted by system or automated.

Cognitive Activity	Service Capability	Weight	Questions	Option A	Option B	Option C	Option D
Awareness	Anomaly detection	10%	From monitoring to detection, the activities include data collection, alarm filtering, and anomaly detection. The question is to find out if the activities are done manually assisted by system or automated.	(A) The operation adopted dynamic and programmable rules and policy, ML for the monitoring and detection without human intervention.	(B) The event monitoring to anomal event detect operation is automated through predefined rules.	(C) The anomal event monitoring to detection is a manual process. Human is assisted by tools or systems for the monitoring and detection.	



- The anomaly event is detected based on machine learning trained through millions of historical alarm patterns.
- The AI model adopted is the Spatialtemporal Entropy algorithm.
- Through fault propagation topology in training environment, anomaly events are detected and root-cause is inferred in the production environment

Q: From monitoring to detection, the activities include data collection, alarm filtering, and anomaly detection. The question is to find out if the activities are done manually assisted by system or automated.

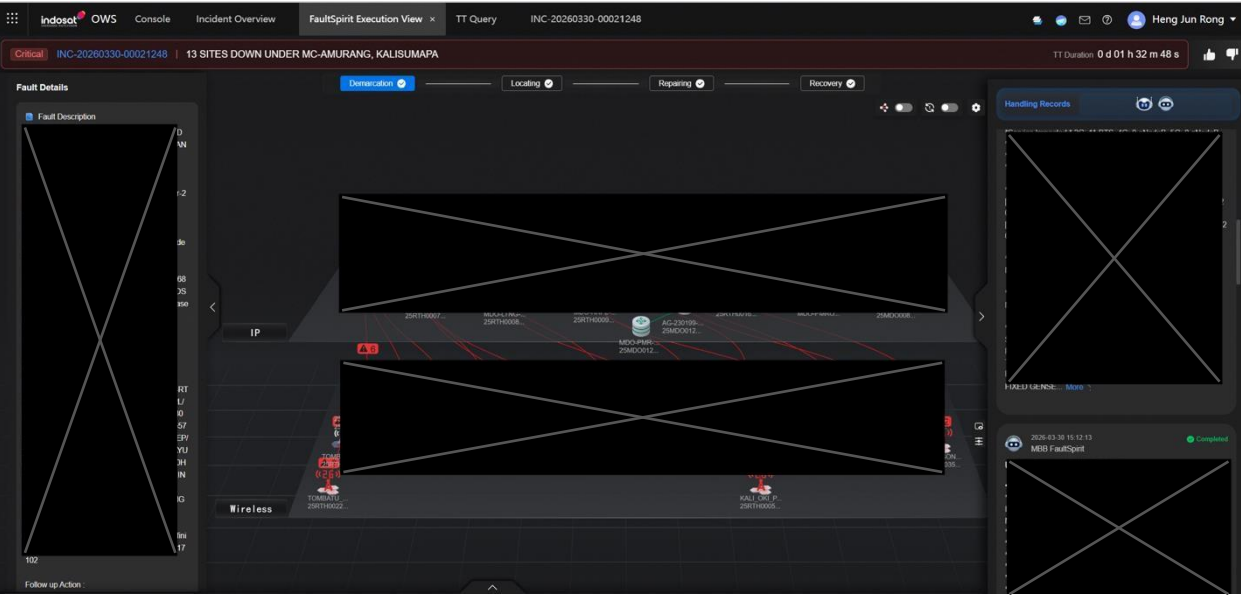
Cognitive Activity	Service Capability	Weight	Questions	Option A	Option B	Option C	Option D
Awareness	Anomaly detection	10%	From monitoring to detection, the activities include data collection, alarm filtering, and anomaly detection. The question is to find out if the activities are done manually assisted by system or automated.	(A) The operation adopted dynamic and programmable rules and policy, ML for the monitoring and detection without human intervention.	(B) The event monitoring to anomaly detect operation is automated through predefined rules.	(C) The anomaly event monitoring to detection is a manual process. Human is assisted by tools or systems for the monitoring and detection.	

RAN

Alarm Name	Domain	Alarm SN	Ticket ID	aggfaultclusterid	Fault Cluster ID	First Occurred On	Alarm Source	Site Name	Cleared On
NE Is Disconnected	RAN					2026-03-30 16:39:32			2026-03-30 16:39:32
NE Is Disconnected	RAN					2026-03-30 16:39:24			2026-03-30 16:39:24
NE Is Disconnected	RAN					2026-03-30 16:39:24			2026-03-30 16:39:24
NE Is Disconnected	RAN					2026-03-30 16:40:52			2026-03-30 16:40:52
NE Is Disconnected	RAN					2026-03-30 16:40:52			2026-03-30 16:40:52
NE Is Disconnected	RAN					2026-03-30 16:39:24			2026-03-30 16:39:24
NE Is Disconnected	RAN					2026-03-30 16:39:24			2026-03-30 16:39:24
NE Is Disconnected	RAN					2026-03-30 16:39:28			2026-03-30 16:39:28
NE Is Disconnected	RAN					2026-03-30 16:39:24			2026-03-30 16:39:24
NE Is Disconnected	RAN					2026-03-30 16:39:24			2026-03-30 16:39:24
NE Is Disconnected	RAN					2026-03-30 16:40:39			2026-03-30 16:40:39
NE Is Disconnected	RAN					2026-03-30 16:41:15			2026-03-30 16:41:15
NE Is Disconnected	RAN					2026-03-30 16:41:15			2026-03-30 16:41:15
CSL Fault	RAN-2G					2026-03-30 16:39:11			2026-03-30 16:39:11
CSL Fault	RAN-2G					2026-03-30 16:39:06			2026-03-30 16:39:06

IP

Alarm Name	Domain	Alarm SN	Ticket ID	aggfaultclusterid	Fault Cluster ID	First Occurred On	Alarm Source	Site Name	Cleared On
BN EMS Alarm NIE Communication Failure	IP					2026-03-30 16:39:27			2026-03-30 16:39:27
Ethernet Physical (ETP) Port down	IP					2026-03-30 18:33:47			2026-03-30 18:33:47
BN EMS Alarm NIE Communication Failure	IP					2026-03-30 16:39:22			2026-03-30 16:39:22
Ethernet Physical (ETP) Port down	IP					2026-03-30 17:28:54			2026-03-30 17:28:54
Ethernet Physical (ETP) LOS	IP					2026-03-30 17:21:55			2026-03-30 17:21:55
BN EMS Alarm NIE Communication Failure	IP					2026-03-30 16:40:37			2026-03-30 16:40:37
BN EMS Alarm NIE Communication Failure	IP					2026-03-30 16:41:03			2026-03-30 16:41:03
BN EMS Alarm NIE Communication Failure	IP					2026-03-30 16:41:10			2026-03-30 16:41:10
BN EMS Alarm NIE Communication Failure	IP					2026-03-30 16:40:39			2026-03-30 16:40:39
BN EMS Alarm NIE Communication Failure	IP					2026-03-30 16:39:22			2026-03-30 16:39:22
BN EMS Alarm NIE Communication Failure	IP					2026-03-30 16:39:19			2026-03-30 16:39:19
BN EMS Alarm NIE Communication Failure	IP					2026-03-30 16:41:05			2026-03-30 16:41:05
BN EMS Alarm NIE Communication Failure	IP					2026-03-30 16:39:27			2026-03-30 16:39:27
BN EMS Alarm NIE Communication Failure	IP					2026-03-30 16:41:24			2026-03-30 16:41:24



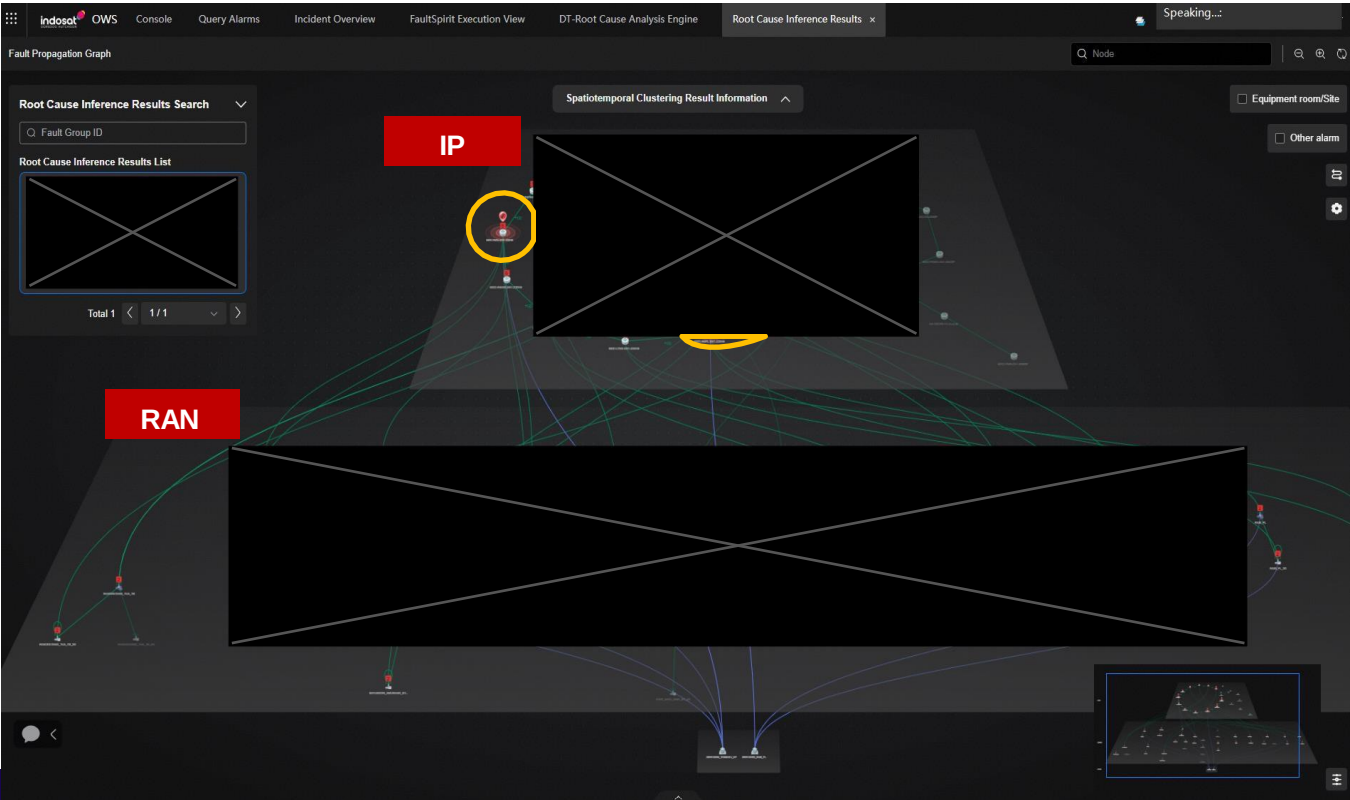
INC-20260330-00022557,INC-20260330-00021639 are sub TT from INC-20260330-00021248

Root-cause analysis and Demarcation

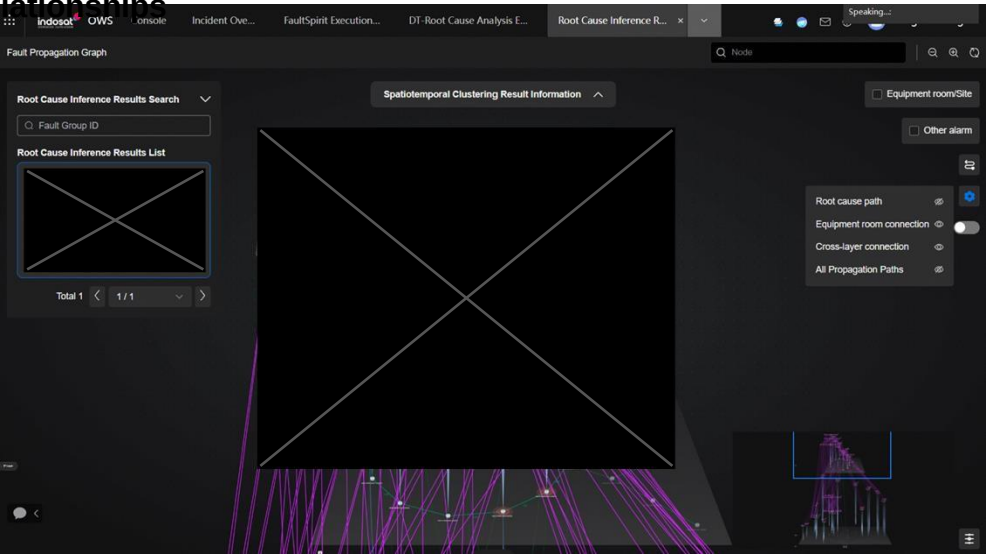
Q: For alarm correlation, root-cause analysis, and demarcation, the question is to find out if the activity is done manually assisted by system, or automated by rules and policy, or managed through AI model and AI algorithm.

Cognitive Activity	Service Capability	Weight	Questions	Option A	Option B	Option C	Option D
Analysis	Root-cause analysis and demarcation	15%	For alarm correlation, root-cause analysis, and demarcation, the question is to find out if the activity is done manually assisted by system, or automated by rules and policy, or managed through AI model and AI algorithm.	(A) The operation adopted AI model and AI algorithm to perform root-cause analysis and achieve high accuracy of demarcation.	(B) The operation automates the root-cause analysis and demarcation through programmable or dynamic policy and rules.	(C) The operation automates the root-cause analysis and demarcation through predefined static rules.	(D) The root-cause analysis and demarcation are primarily handled by manual process, assisted by tools and system.

ZOOM Out View



ZOOM In View This model provides detailed alarm propagation relationships



Demarcation



Based on the forward propagation AI algorithm, the operations automatically identified that the service outage occurred at the RAN is due to the root cause outage at the IP network (circled in Yellow and marked in RED P)

Q: For alarm correlation, root-cause analysis, and demarcation, the question is to find out if the activity is done manually assisted by system, or automated by rules and policy, or managed through AI model and AI algorithm.

Cognitive Activity	Service Capability	Weight	Questions	Option A	Option B	Option C	Option D
Analysis	Root-cause analysis and demarcation	15%	For alarm correlation, root-cause analysis, and demarcation, the question is to find out if the activity is done manually assisted by system, or automated by rules and policy, or managed through AI model and AI algorithm.	(A) The operation adopted AI model and AI algorithm to perform root-cause analysis and achieve high accuracy of demarcation.	(B) The operation automates the root-cause analysis and demarcation through programmable or dynamic policy and rules.	(C) The operation automates the root-cause analysis and demarcation through predefined static rules.	(D) The root-cause analysis and demarcation are primarily handled by manual process, assisted by tools and system.

indosat OWS

Console

IP Incident Han...

Manage Automatic Proce...

Incident Over...

FaultSpirit Execution ...

CTTB-20260330-0000...

Heng Jun Rong

Critical

INC-20260330-00021248

13 SITES DOWN UNDER

TT Duration 0 d 01 h 32 m 48 s

Fault Details

Demarcation

Locating

Repairing

Recovery

Handling Records

2026-03-30 14:09:16

MBB FaultSpirit

Multi Site Down Demarcation

Report

Associate Tickets

Associated Tickets

Correlated Alarms

Troubleshooting Progress

Associated CM WOs

No.

Ticket ID

Title

Status

Ticket Type

Creator

Current Handler

Phase

Created On

1

INC-20260330-00022557

2

INC-20260330-00021639

3

INC-20260330-00021248

Total 3

5 / page

1

Go to

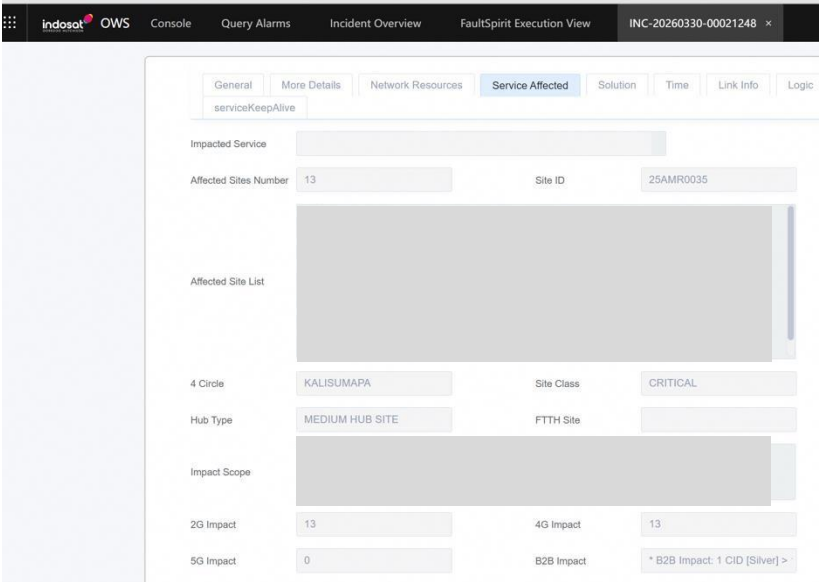
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Demarcation

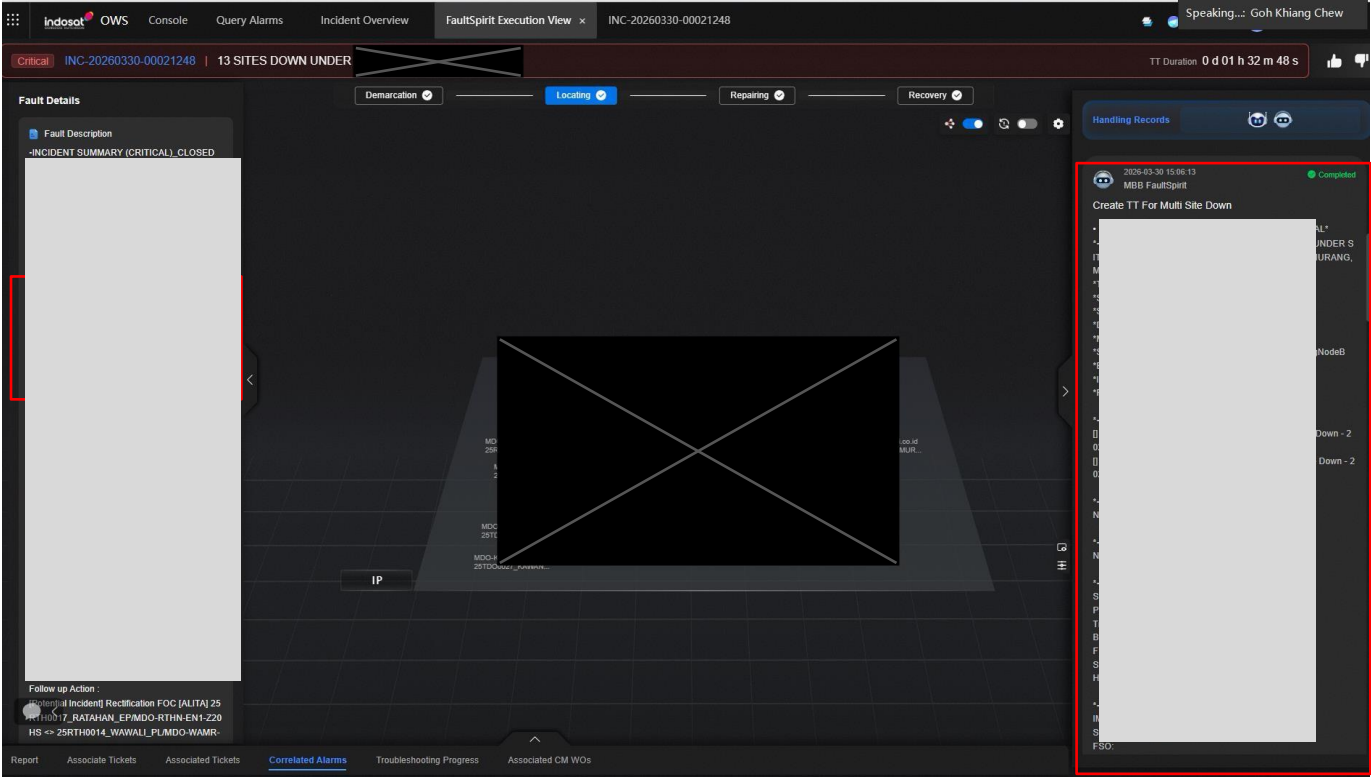
- Through the Chain of Thought (COT), the AI agent was orchestrated to query the digital twin networks (DTN) that returned with root-cause.
- With the AI model and DTN, demarcation is automatically performed with high accuracy.

Q: Upon root-cause demarcated, the question is to find out if the service impact analysis activity is done manually assisted by system, or automated by rules and policy, or managed through AI model and AI algorithm.

Cognitive Activity	Service Capability	Weight	Questions	Option A	Option B	Option C	Option D
Analysis	Service Impact Analysis	10%	Upon root-cause demarcated, the question is to find out if the service impact analysis activity is done manually assisted by system, or automated by rules and policy, or managed through AI model and AI algorithm.	(A) The operation adopted AI model, AI algorithm and digital twin networks to perform service impact analysis with high accuracy and to prioritize problem resolution.	(B) The operation automates the service impact analysis through programmable or dynamic policy and rules which includes topology based rules	(C) The operation automates the service impact analysis through predefined static rules.	(D) The service impact analysis is primarily handled by manual process, assisted by tools and system.



The DTN returned with the service impact details - 13 sites impacted BTS, enodeB and customer ID

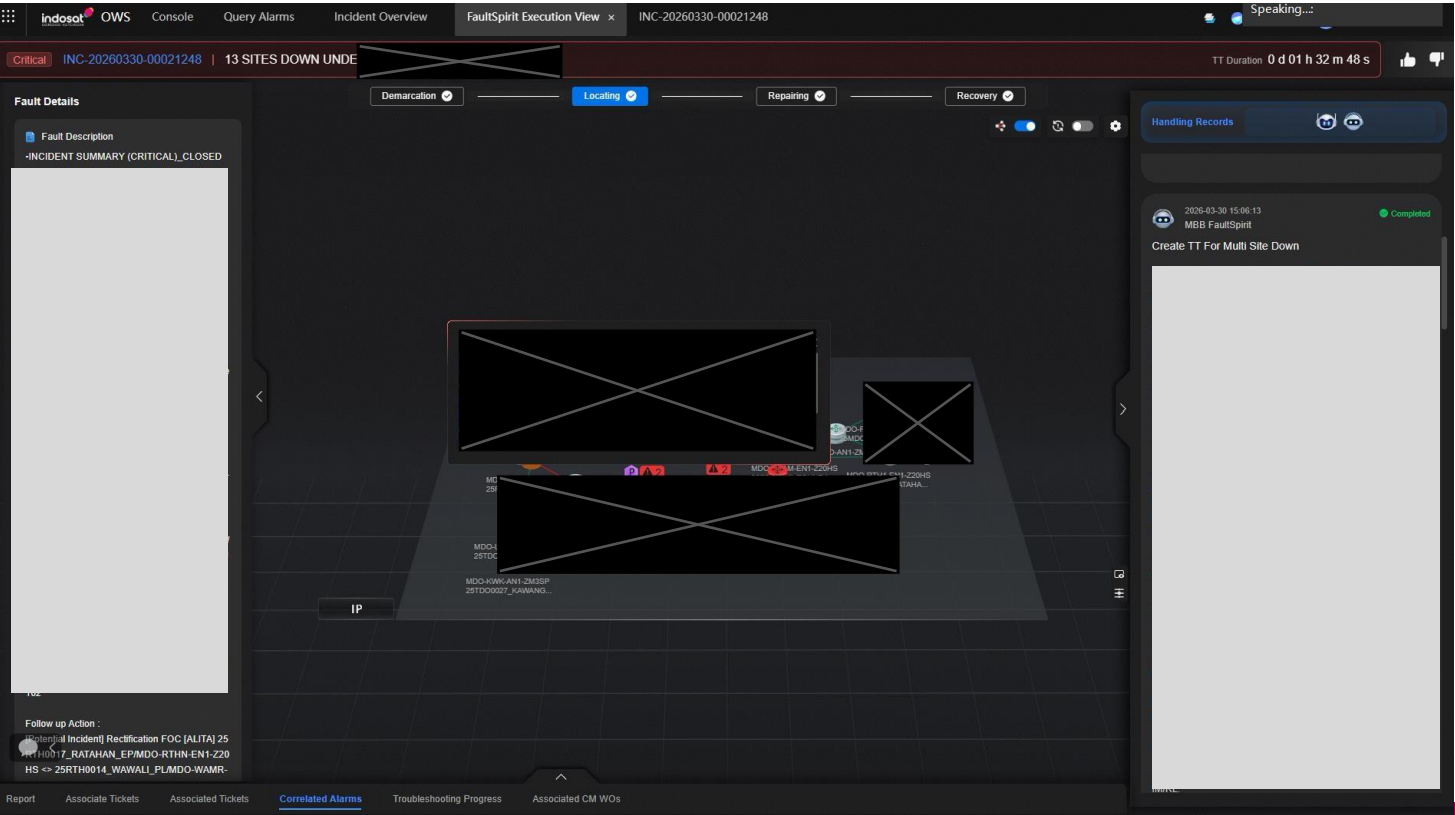


AI Agent automatically query DTN for Service Impact performed through AI model (forward propagation AI algorithm)

Root-cause fault locating

Q: For trouble ticket creation, ticket assignment, fault diagnosis and root-cause fault locating, the question is to find out if the activities are done manually assisted by system, or automated by rules and policy, or managed through AI agent.

Cognitive Activity	Service Capability	Weight	Questions	Option A	Option B	Option C	Option D
Analysis	Root-cause fault locating	10%	For trouble ticket creation, ticket assignment, fault diagnosis and root-cause fault locating, the question is to find out if the activities are done manually assisted by system, or automated by rules and policy, or managed through AI agent.	(A) The operation orchestrates AI agent or other agentic AI capability to perform diagnosis and root-cause locating with high accuracy.	(B) The operation automates the diagnosis and root-cause locating through programmable or dynamic policy and rules.	(C) The operation automates the diagnosis and root-cause locating through predefined static rules.	(D) The diagnosis and root-cause locating are primarily handled by manual process, assisted by tools and system.



> root cause : Patchore cut at ODP

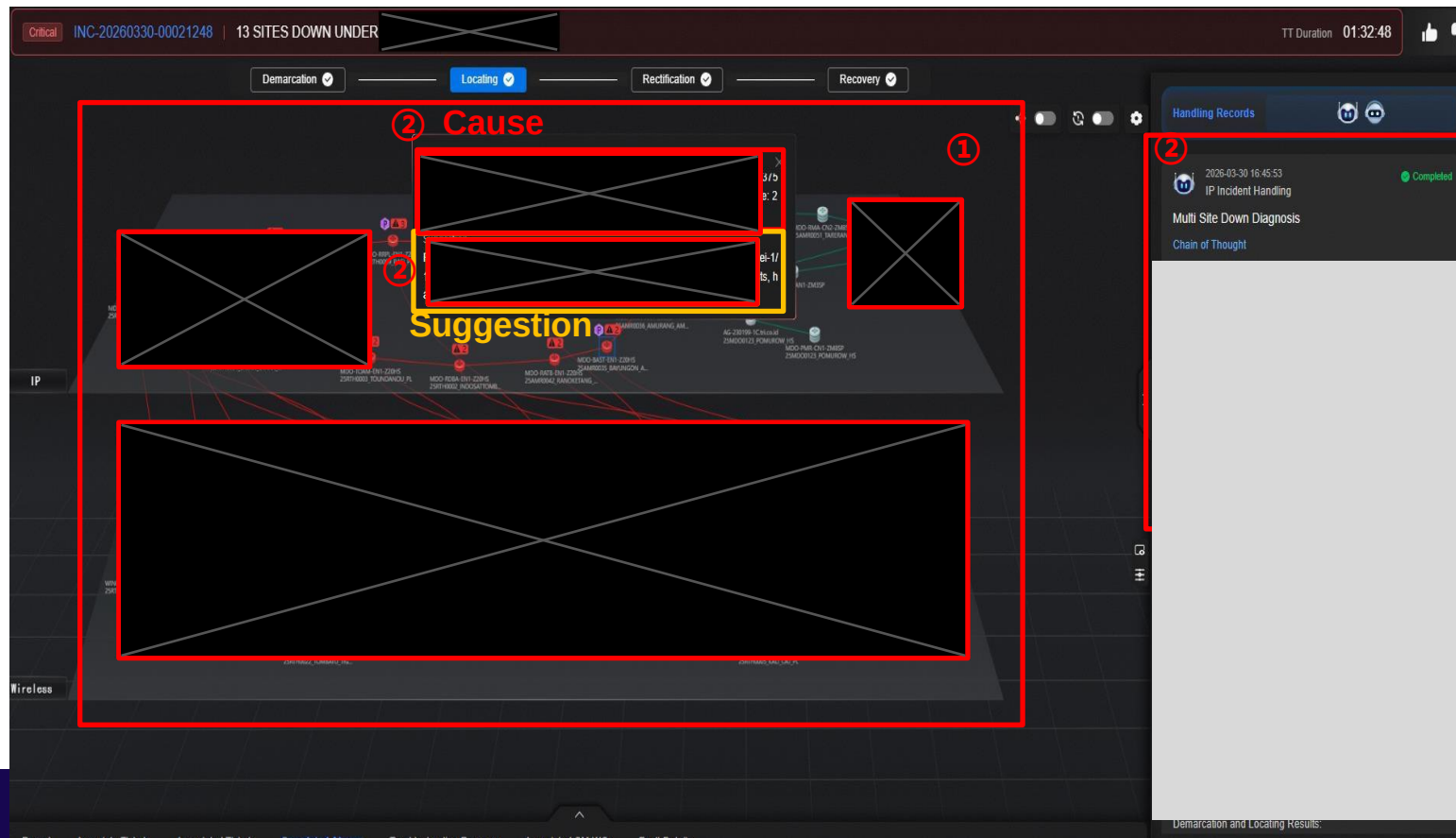
Through self-diagnosis, the IP Incident Handling Agent located the root-cause and passed the following information to the service AI-agent:

- Root-cause: Patchore cut at ODP Amurang
- Reason for outage: Double link down
- Root alarm NE:
- Occur Time: 2026-03-30 15:17:03~2026-03-30 15:21:33
- Details: Transmission fault in the same equipment room or site.
Ethernet physical interface loss of signal

Solution generation

Q: For the fault recovery solution generation, the question is to find out if the activity is done manually assisted by system, or automated by rules and policy, or managed through AI capability and digital twin networks.

Cognitive Activity	Service Capability	Weight	Questions	Option A	Option B	Option C	Option D
Analysis	Solution generation	10%	For the fault recovery solution generation, the question is to find out if the activity is done manually assisted by system, or automated by rules and policy, or managed through AI capability and digital twin networks	(A) The operation adopted AI agent and/or AI-copilot to generate possible solutions in collaboration with digital twin networks and RAG technique to retrieve the solutions from LLM.	(B) The operation automates the solution generation; example self-healing, self-restore or self-optimization through programmable or dynamic policy and rules.	(C) The operation automates the solution generation through predefined static rules.	(D) The solution generation is primarily handled by manual process, assisted by tools and system.

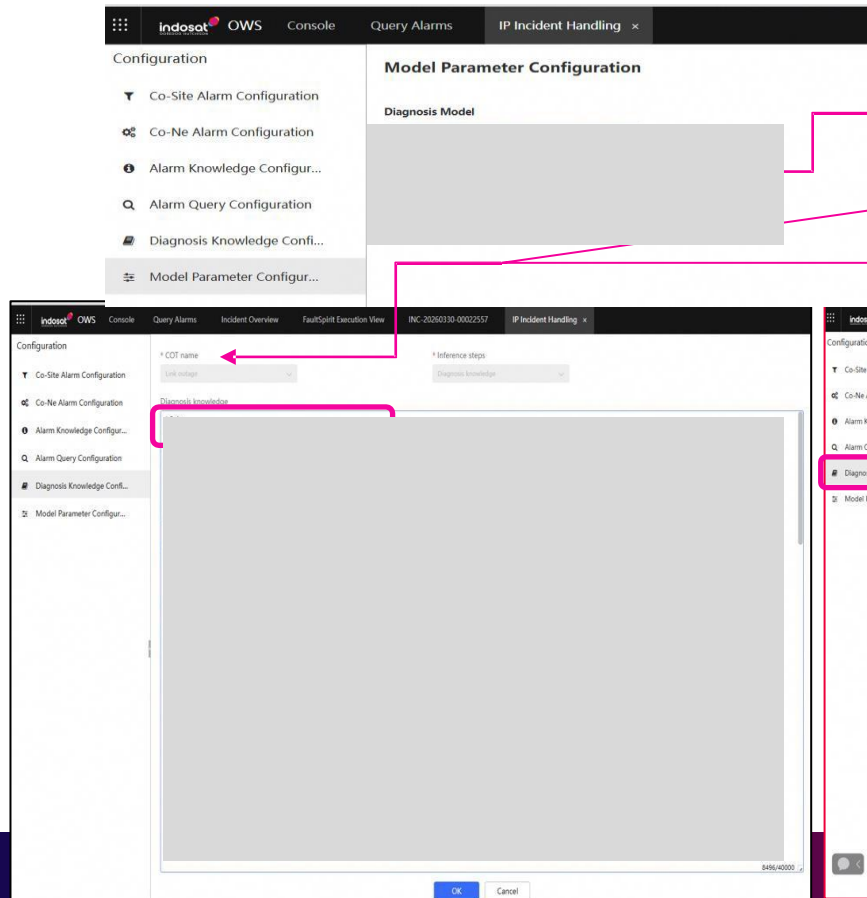


1. DTN provides virtual replica of the cross-domain physical topologies; service paths (rings formed by IP devices connected to base stations), and fault propagation relationships (batch base station disconnections caused by faults on the ring).
2. The IP incident handling agent outputs troubleshooting solutions from LLM response based on the knowledge of historical fault handling. The chain of thought (COT) guided the troubleshooting approach.

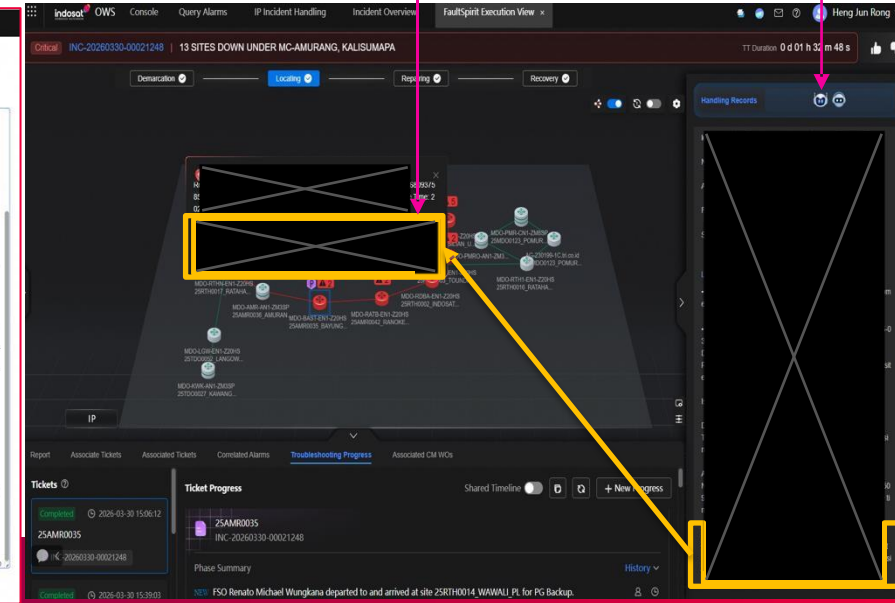
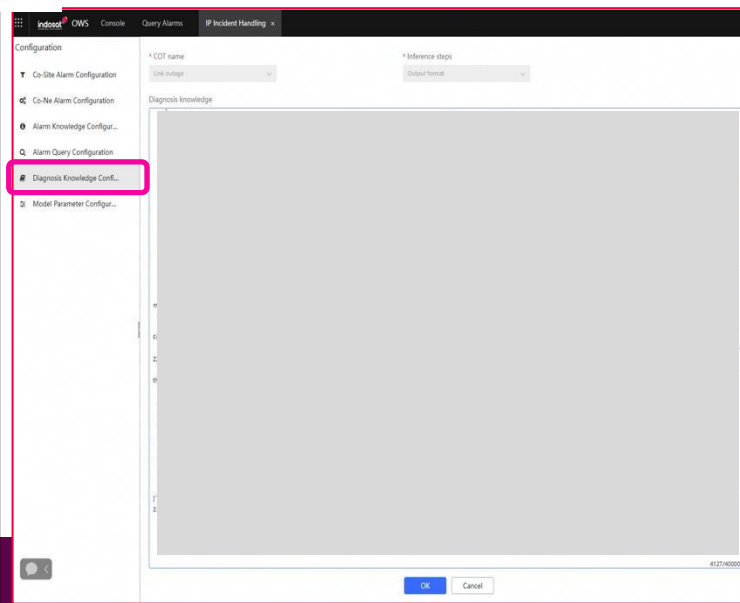
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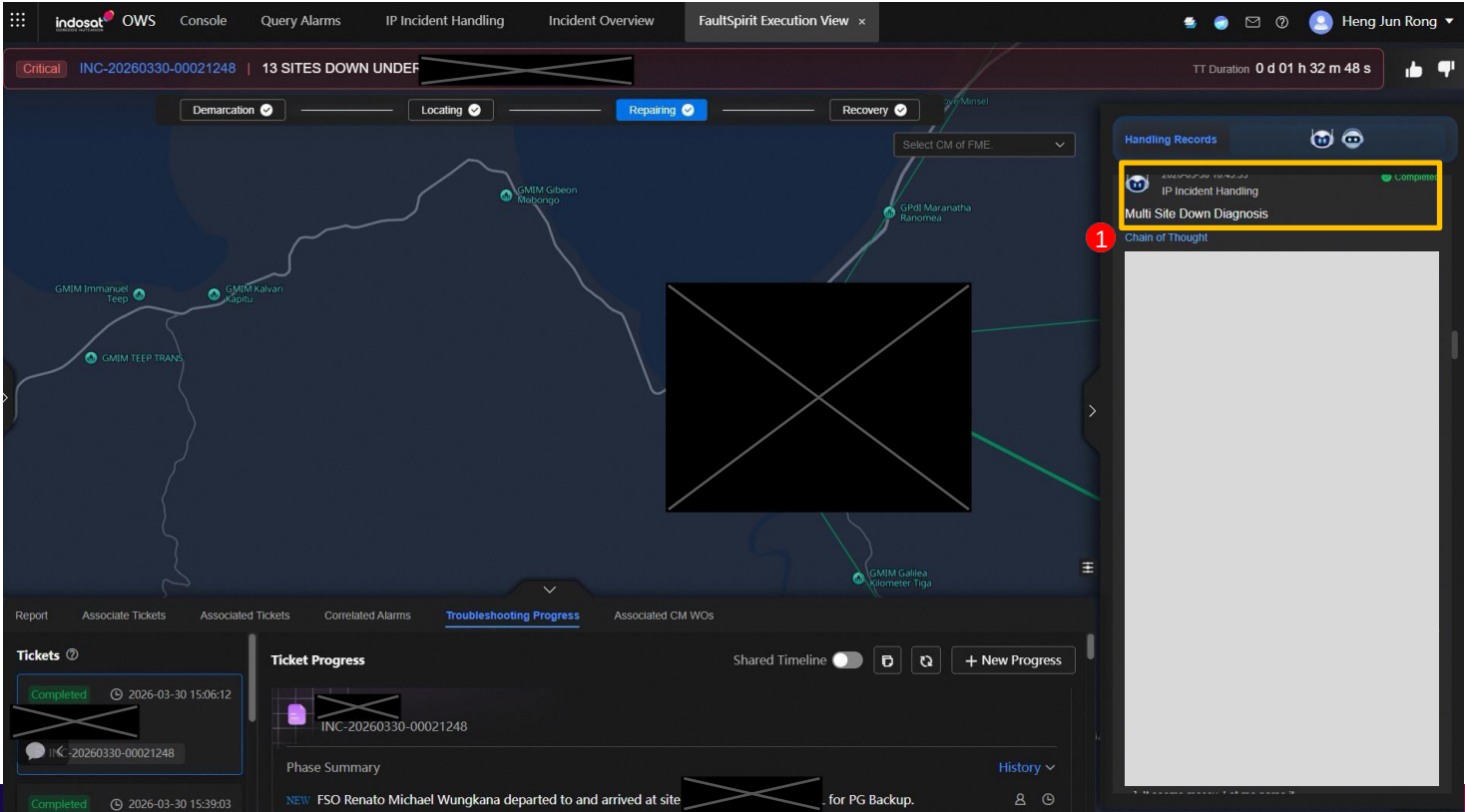


- With the diagnosis outcome as the input, role based AI agent (eg IP network expert) prompted LLM for an appropriate solution. The LLM is made up of a foundational large model that is based on Deepseek and a network operations domain specific large model.
- The AI agent is orchestrated with built-in Chain of Thought (COT) technique. This mimics a human's troubleshooting technique.
- The LLM automatically responded the AI-agent with possible step-by-step solutions.

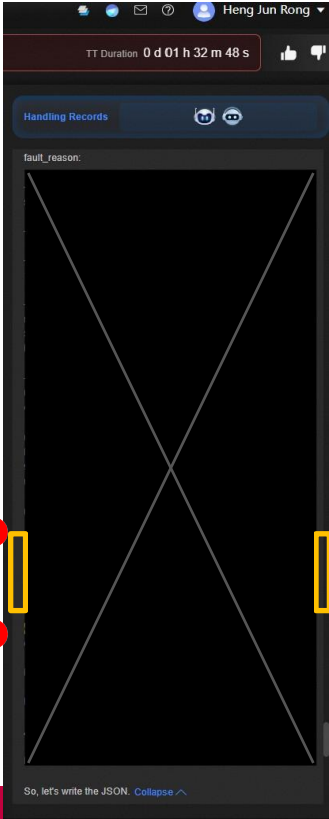


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Cognitive Activity	Service Capability	Weight	Questions	Option A	Option B	Option C	Option D
Analysis	Solution generation	10%	For the fault recovery solution generation, the question is to find out if the activity is done manually assisted by system, or automated by rules and policy, or managed through AI capability and digital twin networks	(A) The operation adopted AI agent and/or AI-copilot to generate possible solutions in collaboration with digital twin networks and RAG technique to retrieve the solutions from LLM.	(B) The operation automates the solution generation; example self-healing, self-restore or self-optimization through programmable or dynamic policy and rules.	(C) The operation automates the solution generation through predefined static rules.	(D) The solution generation is primarily handled by manual process, assisted by tools and system.

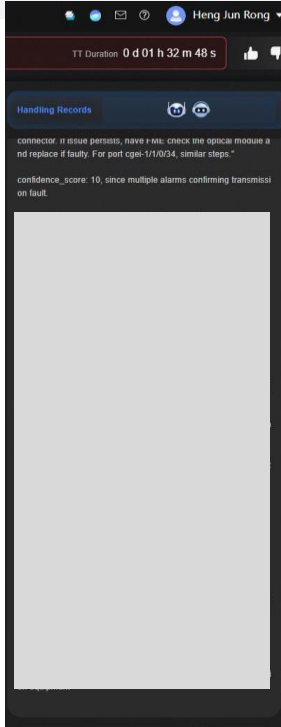
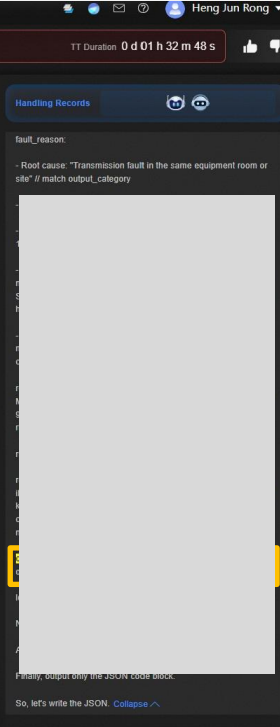
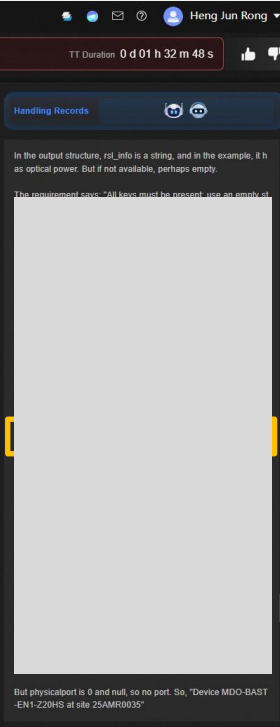
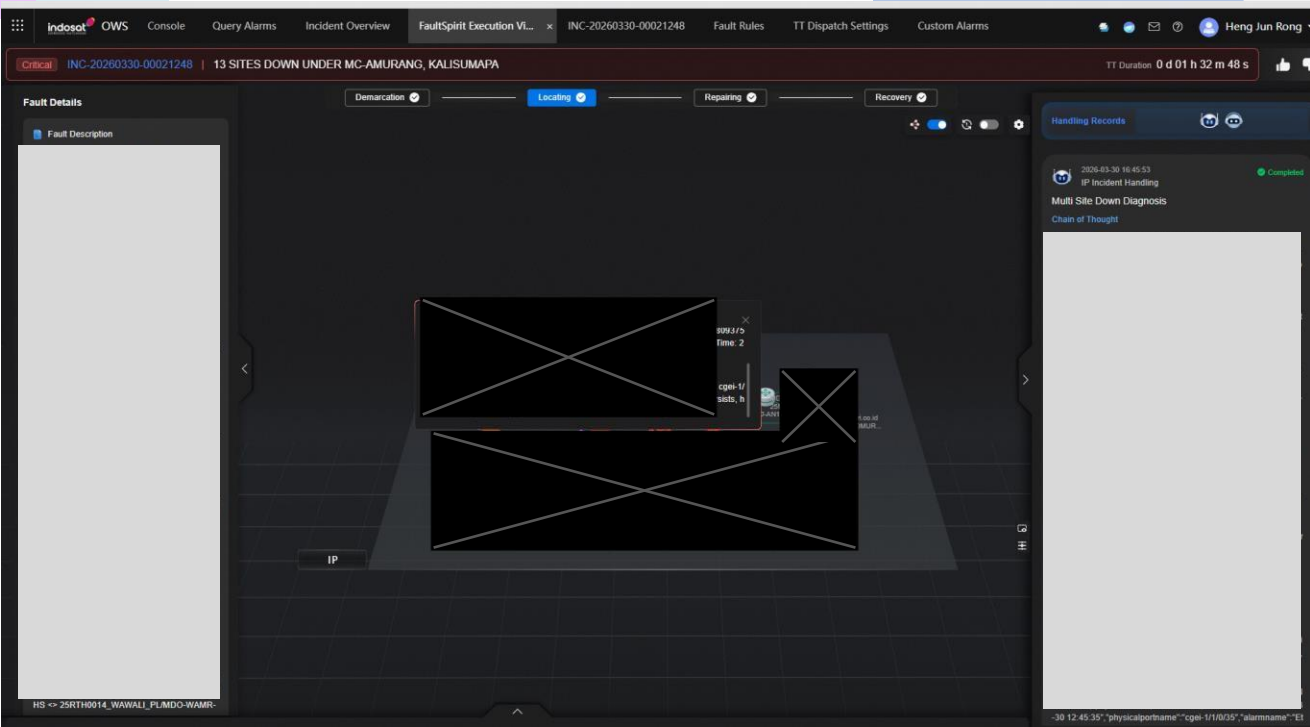


- 1
- The role-based IP network expert is orchestrated by the COT in performing the solution generation.
- 2
- The AI-agent prompted the LLM which responded with possible solutions.
- 3
- Each of the possible solution is evaluated with a confidence score.



Q: For the solutions evaluation and decision making, the question is to find out if the activity is done manually assisted by system, or automated by rules and policy, or managed through AI agent and digital twin network.

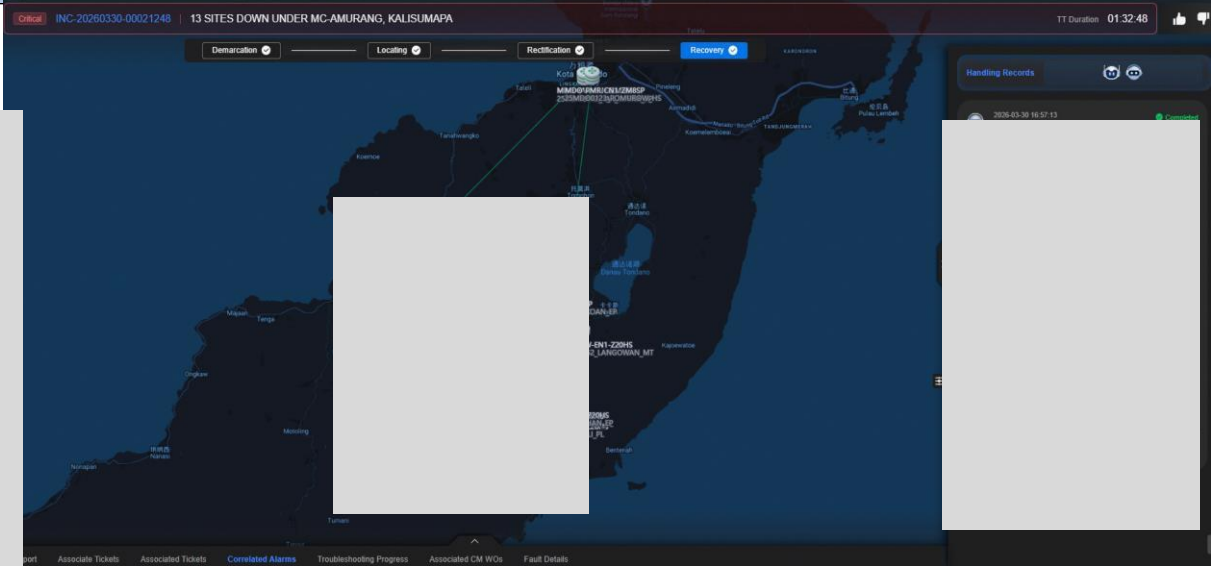
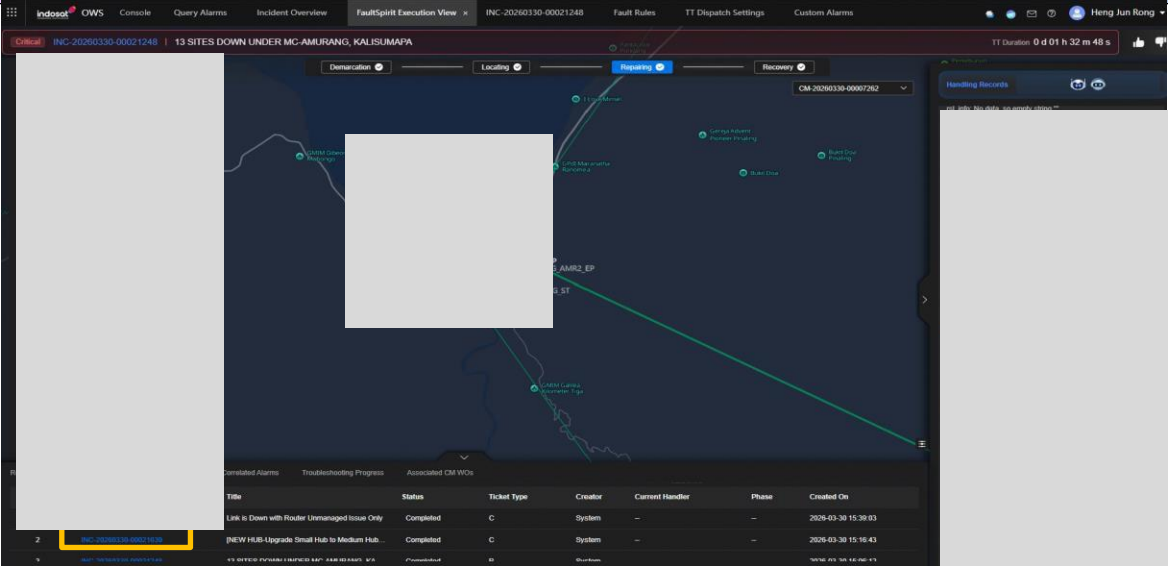
Cognitive Activity	Service Capability	Weight	Questions	Option A	Option B	Option C	Option D
Decision	Evaluation and decision making	15%	For the solutions evaluation and decision making, the question is to find out if the activity is done manually assisted by system, or automated by rules and policy, or managed through AI agent and digital twin network.	(A) The operation adopted AI Models and digital twin network to evaluate solution options, and then recommends the best choice, leveraging AI's ability to process data and predict results based on probabilistic outcomes.	(B) The System automates the evaluation of solution generation, recommends the optimal solution to be executed using dynamic rules and policy and may require human approval.	(C) The operation automates the evaluation of solution generation, recommends an optimum solution and configuration through script based for self-recovery and may require human approval.	(D) Remediation options, risk assessment and selection of appropriate solutions are manually done



The LLM analyzes historical alarm data to correlate past fault phenomena (alarms) with the measures (solutions) that ultimately solved the problem. The system calculates its similarity to historical patterns and provides a confidence score for the suggested solution. Using RAG technology, LLM summarize a set of operational guidelines most suitable for the current situation based on the most similar cases (confidence score)

Q: The solution execution activities include remote resolution, work order creation and closure, workforce scheduling and field engineer dispatch for onsite resolution. The question is to find out if the solution execution activities are done manually assisted by system, or automated by rules and policy, or managed through Agentic AI capability.

Cognitive Activity	Service Capability	Weight	Questions	Option A	Option B	Option C	Option D
Execution	Solution execution	10%	The solution execution activities include remote resolution, work order creation and closure, workforce scheduling and field engineer dispatch for onsite resolution. The question is to find out if the solution execution activities are done manually assisted by system, or automated by rules and policy, or managed through Agentic AI capability.	(A) Remote recovery. The operation adopted AI agent or agentic AI capability to remotely execute the solution; example cell outage compensation and IP traffic redirect and so forth. Onsite recovery. The field maintenance engineer adopted AI-copilot technology to assist in problem resolution.	(B) Remote recovery. The system automatically executes the recovery or rectification solution through dynamic rules and policy (Automatic repair excludes the faults that on-site handling is necessary, such as power supply failure, board fault, fiber cut, etc). Onsite recovery. The system support on-site instruction and efficient information through NOC assistance.	(C) Remote recovery. The system automates the recovery solution through predefined rules with human confirmation. Onsite recovery. The on-site handling are assisted by tool, but still requires assistance from NOC.	(D) Remote recovery. The recovery solution need to be manually implemented. On site recovery. On-site manual handling is guided by NOC.



Remote recovery: Not applicable

Onsite recovery: The trouble ticket automatically generated a corrective maintenance (CM) and Fiber Link Order (WO) and automatically assigned WO to corresponding FME & Fiber Link Provider.

- Auto close for the sub ticket (WO) when issue recovered
- Massive Incident ticket closed after issue resolved

Solution execution & verification



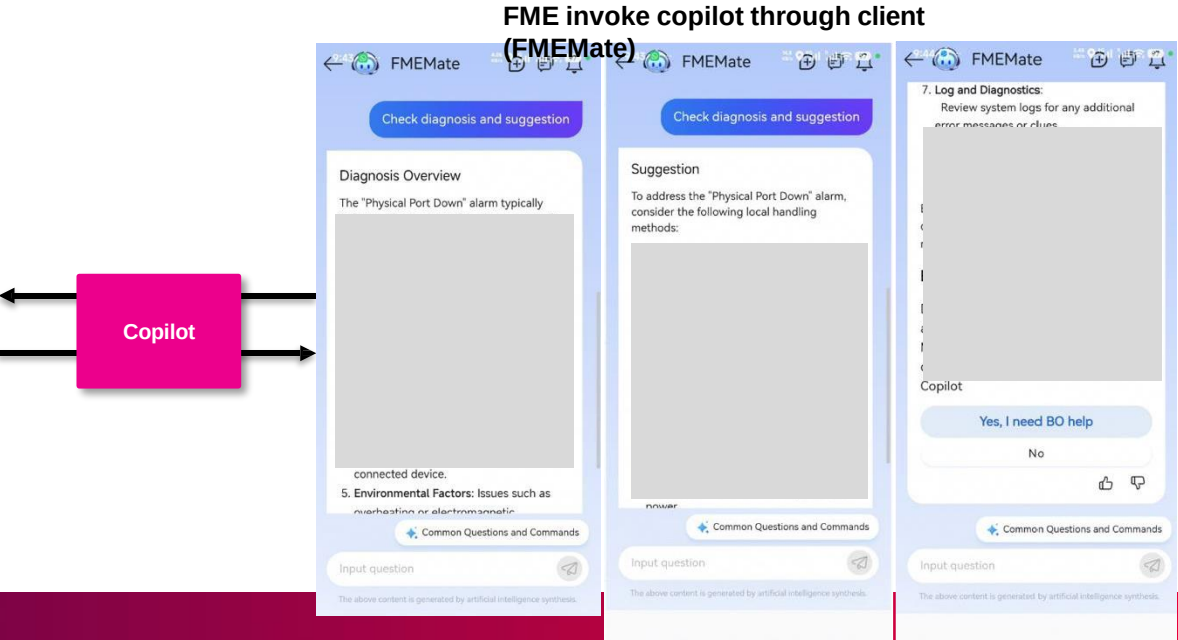
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Cognitive Activity	Service Capability	Weight	Questions	Option A	Option B	Option C	Option D
Execution	Solution execution	10%	The solution execution activities include remote resolution, work order creation and closure, workforce scheduling and field engineer dispatch for onsite resolution. The question is to find out if the solution execution activities are done manually assisted by system, or automated by rules and policy, or managed through Agentic AI capability.	(A) Remote recovery. The operation adopted AI agent or agentic AI capability to remotely execute the solution; example cell outage compensation and IP traffic redirect and so forth. Onsite recovery. The field maintenance engineer adopted AI-copilot technology to assist in problem resolution.	(B) Remote recovery. The system automatically executes the recovery or rectification solution through dynamic rules and policy (Automatic repair excludes the faults that on-site handling is necessary, such as power supply failure, board fault, fiber cut, etc). Onsite recovery. The system support on-site instruction and efficient information through NOC assistance.	(C) Remote recovery. The system automates the recovery solution through predefined rules with human confirmation. Onsite recovery. The on-site handling are assisted by tool, but still requires assistance from NOC.	(D) Remote recovery. The recovery solution need to be manually implemented. On site recovery. On-site manual handling is guided by NOC.

```

{
  "orderid": "FLP-20260330-00000497",
  "identifier": "1774850529000_6203a07ebca50662374fecba3b3d9631eb2a494187f556a6451b66bebb6826b8"
}

```



Q: The solution execution activities include remote resolution, work order creation and closure, workforce scheduling and field engineer dispatch for onsite resolution. The question is to find out if the solution execution activities are done manually assisted by system, or automated by rules and policy, or managed through Agentic AI capability.

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Indosat OWS

Console

Query Alarms

TT Query

INC-20260330-00021248

Agent Operation Logger

Data Export Logs

TT Order Id

confirm_to_close_ik

Operation Order Id

2026-03-30 00:00:00

2026-03-30 23:59:59

Search

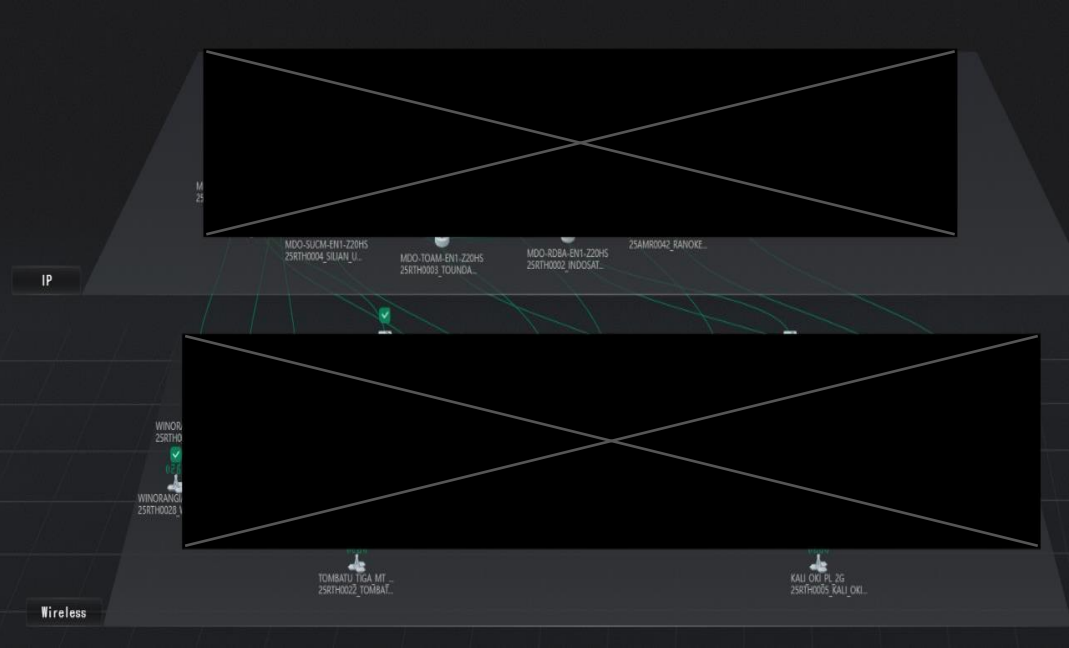
Today

The Past Week

The Past Four Weeks

Export

No.	TT Order Id	Activity Id	Activity Name	Operation Ord...	Operation Star...	Operation End ...	Activity Content	Operation Input Parameter Snapshot	Operate Output...	Error Information	User Defined E...
41	INC-20260330...	confirm_to_close_ik	FLP								
42	INC-20260330...	confirm_to_close_ik	FLP								
43	INC-20260330...	confirm_to_close_ik	FLP								
44	INC-20260330...	confirm_to_close_ik	FLP								
45	INC-20260330...	confirm_to_close_ik	FLP								
46	INC-20260330...	confirm_to_close_ik	FLP								
47	INC-20260330...	confirm_to_close_ik	FLP								
48	INC-20260330...	confirm_to_close_ik	FLP								
49	INC-20260330...	confirm_to_close_ik	FLP								
50	INC-20260330...	confirm_to_close_ik	FLP								
51	INC-20260330...	confirm_to_close_ik	FLP								
52	INC-20260330...	confirm_to_close_ik	FLP								
53	INC-20260330...	confirm_to_close_ik	FLP								
54	INC-20260330...	confirm_to_close_ik	FLP								
55	INC-20260330...	confirm_to_close_ik	FLP								
56	INC-20260330...	confirm_to_close_ik	FLP								
57	INC-20260330...	confirm_to_close_ik	FLP								
58	INC-20260330...	confirm_to_close_ik	FLP								
59	INC-20260330...	confirm_to_close_ik	FLP								
60	INC-20260330...	confirm_to_close_ik	FLP								

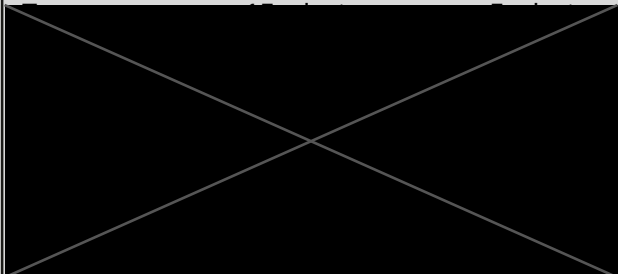


Effective Indicator	Weight	Description	Option A	Option B	Option C	OptionD
Mean Time to Repair (MTTR)	50%	What is the average mean time for the fault repair (time period between fault recovery time and fault detected time)? This duration includes the time taken for fault awareness, analysis, solution generation, and repair. Calculation formula: $\text{MTTR Benchmark} = (\text{Fault recovery time} - \text{Fault detected time}) / \text{Number of trouble tickets within a specific period of time}$ Definition: Fault recovery time is the time when the impacted network equipment reports that the alarm is cleared. Fault detected time is the time when the fault occurred and alarm detected. Notes: 1. CSP to provide one month trouble tickets and log file. 2. Each of the trouble ticket needs to be recorded with fault detect and recovery time. 3. MTTR Benchmark refers to remote recovery of fault (critical and major alarms).	<=1 hour	> 1 hour, < 4 hour	> = 4 hour	> = 8 hour
Zero-touch Trouble Ticket(TT) ratio	50%	What is the percentage of trouble tickets without NOC manual intervention among all trouble tickets? Formula: $\text{Zero-touch TT ratio} = \text{Number of trouble tickets without NOC manual intervention} / \text{Number of trouble tickets within a specific period of time}$ Notes: 1. CSP to provide one month trouble tickets and log information. 2. No manual intervention with NOC means that no NOC human employee effort on O&M activities such as correlation, root cause analysis, diagnosis, network configuration, etc. The activities exclude information review and decision approval.	30% - 40%	10% - 30%	5% - 10%	< 5%

Effective Indicator	Weight	Description	Option A	Option B	Option C	OptionD
Mean Time to Repair (MTTR)	50%	What is the average mean time for the fault repair (time period between fault recovery time and fault detected time)? This duration includes the time taken for fault awareness, analysis, solution generation, and repair. Calculation formula: $\text{MTTR Benchmark} = (\text{Fault recovery time} - \text{Fault detected time}) / \text{Number of trouble tickets within a specific period of time}$ Definition: Fault recovery time is the time when the impacted network equipment reports that the alarm is cleared. Fault detected time is the time when the fault occurred and alarm detected . Notes: 1. CSP to provide one month trouble tickets and log file. 2. Each of the trouble ticket needs to be recorded with fault detect and recovery time. 3. MTTR Benchmark refers to remote recovery of fault (critical and major alarms).	<=1 hour	> 1 hour, < 4 hour	> = 4 hour	> = 8 hour

Massive Down TT	Column Labels				
Row Labels	<= 1HR	<= 4HR	<= 8HR	> 8HR	Grand Total
Grand Total	4,77 /0	60,32 /0	23,62 /0	3,07 /0	100,00 /0

Massive Down TT	Column Labels				
Row Labels	<= 2HR	<= 4HR	<= 8HR	> 8HR	Grand Total
Grand Total	4,77 /0	60,32 /0	23,62 /0	3,07 /0	100,00 /0

Severity	Time window	Mean-Time-to-escalate by agent (MTTA)
		

Effective Indicator	Weight	Description	Option A	Option B	Option C	OptionD
Zero-touch Trouble Ticket(TT) ratio	50%	What is the percentage of trouble tickets without NOC manual intervention among all trouble tickets? Formula: Zero-touch TT ratio = Number of trouble tickets without NOC manual intervention / Number of trouble tickets within a specific period of time Notes: 1. CSP to provide one month trouble tickets and log information. 2. No manual intervention with NOC means that no NOC human employee effort on O&M activities such as correlation, root cause analysis, diagnosis, network configuration, etc. The activities exclude information review and decision approval.	30% - 40%	10% - 30%	5% - 10%	< 5%

	Detection Based on Ticket Creation		Process Based on Ticket Process/Modify		Closure Based on Ticket Process/Modify	
Agent	2586	93%	1318	47%	1318	47%
Manual	195	7%	1463	53%	1463	53%
Total	2781		2781		2781	

IOH Individual Service Fault Management

Service Degrade Sub-scenario

Incident ticket reference number: INC-20260610-00000547

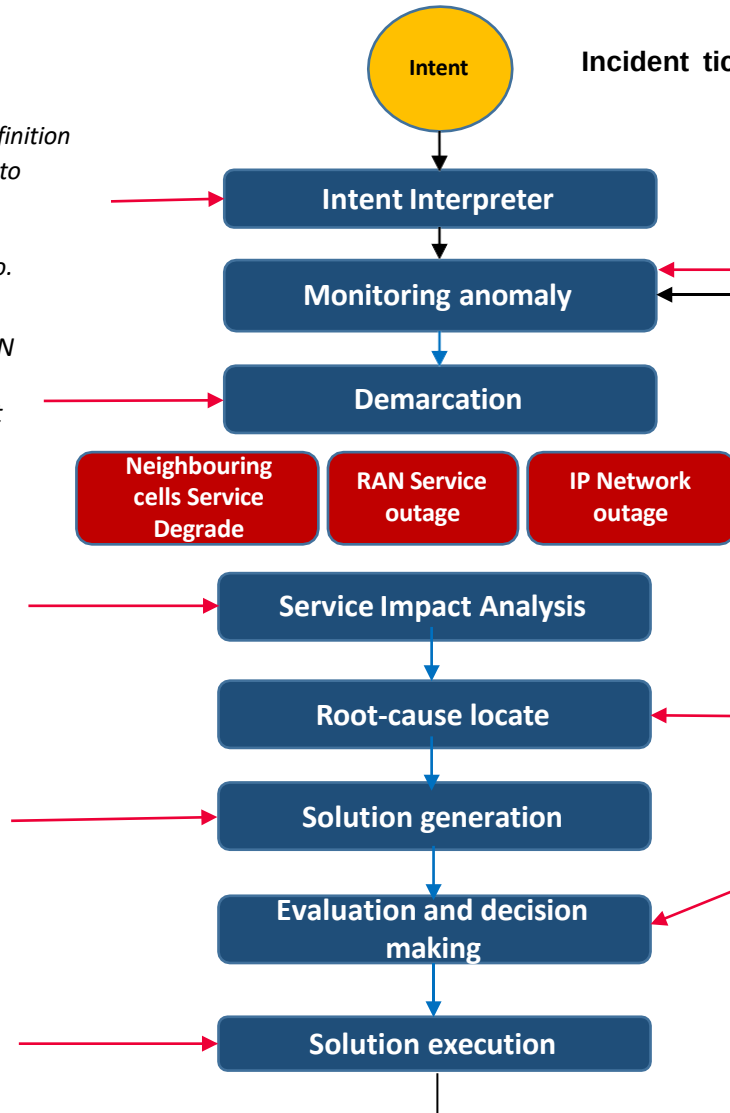
- Source code to show the service degradation level definition
- Translate resolution priority from Service impact due to service degrade.
- Service degradation is assessed from 3 dimensions; Performance KPI, VIP identification, and degrade ratio.

- Fault – performance alarms correlation via DTN
- AI agent query DTN for root-cause analysis
- From the fault propagation algorithm, the root cause is determined

- The service degradation level is determined through the dynamic weighting of KPI, VIP and Service Degrade ratio.
- Service degrade led to service impact was identified from DTN

- AI agent prompt GTS-LLM for a step-by-step problem resolution solution

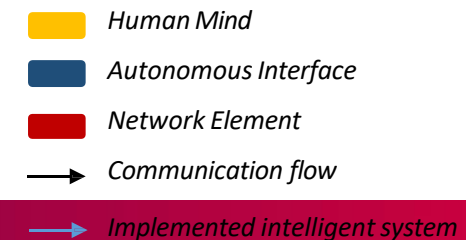
- Automatic dispatch FME onsite for transmission fault recovery.
- Problem resolved -> performance KPI recovered -> alarm turns off -> TT closure (automatic process)



- Monitoring and detecting anomaly from Machine Learning
- Wireless neighbouring cells service degrade due to impacted faulty wireless site.
- Wireless failure is a result of a transmission fault (IP link down)

feedback to anomaly monitoring and shown on dashboard

- Transmission fault (IP link down)
- AI agent perform self-diagnosis
- Diagnosis outcome communicated through agent-2-agent protocol
- AI agent query DTN to locate transmission root-caused and failure details.
- AI agent evaluate and recommend best choice option for decision based on confidence score



Q: How does the operations translate service impact analysis of a root-cause alarm (example traffic impact, customer impact, and so forth) into problem resolution service level (priority and service availability)?

Cognitive Activity	Service Capability	Weight	Questions	Option A	Option B	Option C	Option D
Intent	Intent-driven	10%	How does the operations translate service impact analysis of a root-cause alarm (example traffic impact, customer impact, and so forth) into problem resolution service level (priority and service availability)?	(A) The operations automatically and dynamically assign problem resolution service level to service impact alarm.	(B) The operations automate the assigning of problem resolution service level to service impact alarm based on predefined static rules.	(C) The operations assign problem resolution service level to service impact alarm based on manual process, assisted by tools and system.	(D) Manually set problem resolution service level targets based on expertise (such as setting service impact category and priority) .

Definition of service degrade in source code

```

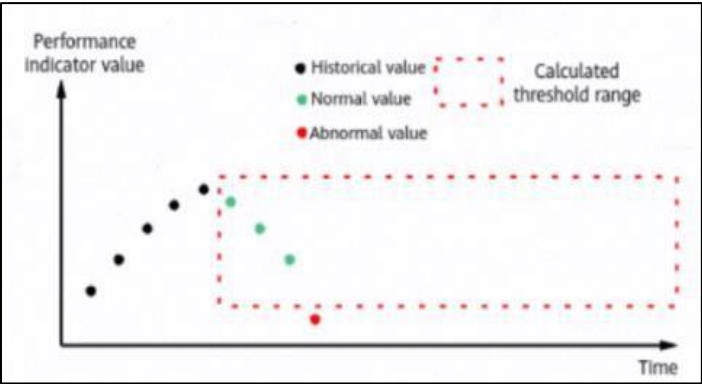
160 function calculateLevel(isVip, kpiInfo) {
161     // VIP weight
162     var
163     var
164
165     //
166     var
167     var
168     if (
169
170
171 }
172
173 //
174 var
175 var
176 if (
177     metricConfig = getMetricConfig(kpiInfo.indicatorName);
178     metricScore = metricConfig.coefficient * metricConfig.weight;
179 }
180
181 // Total score
182 var totalScore = vipScore + degradeScore + metricScore;
183
184 //
185 var
186 var
187 var
188 var
189
190 //
191 var
192 if
193 } e
194 } e
195 } e
196 } e
197 } e
198 } e
199 }

```

Degrade Agent assess the Priority based on below principle

	Level 1	Level 2	Level 3	Weight
KPI				
VIP Site				
Degrade Ratio				
Service degrad				

- Service degradation is assessed from 3 dimensions; Performance KPI, VIP identification, and degrade ratio.
 - The problem resolution priority is determined based on the service degrade score.
 - The service degrade score is dependent on the weight of the dimension assigned.
- Dynamic Level threshold**
- The performance threshold is dynamic. The upper and lower threshold range will be determined through machine learning based on historical performance counters behaviour pattern shown in the diagram on the right.



PMAI [Machine Learning]

Machine learning performance behavior pattern based on historical performance counters. The output marks the Upper and Lower Limit of performance KPI threshold of monitoring sites.

Anomaly detection

Q: From monitoring to detection, the activities include data collection, alarm filtering, and anomaly detection. The question is to find out if the activities are done manually assisted by system or automated.

Cognitive Activity	Service Capability	Weight	Questions	Option A	Option B	Option C	Option D
Awareness	Anomaly detection	10%	From monitoring to detection, the activities include data collection, alarm filtering, and anomaly detection. The question is to find out if the activities are done manually assisted by system or automated.	(A) The operation adopted dynamic and programmable rules and policy, ML for the monitoring and detection without human intervention.	(B) The event monitoring to anomal event detect operation is automated through predefined rules.	(C) The anomal event monitoring to detection is a manual process. Human is assisted by tools or systems for the monitoring and detection.	

OWS

Home Page

Query Performance

Dashboard

TCA Rules

Advanced

Performance Alarms

AI task update

Detect Short-period Exceptions

Basic Information

AI Task Name

AI Task Type

Description

Indicator configuration

Domain

MO type

Training indicator

Period

Set Algorithm Parameters

* Trained data (day)

* Direction

Configure Execution Plan

Frequency

Interval (day)

OK

Cancel

Monitor KPI

Train Data Window

The PMAI output the predict model based on **KPI + Object + Train Data** via **Machine Learning**. When the latest performance out of upper/lower limit of predict model -> Anomaly detected automatically

OWS

Home Page

Query Performance

Dashboard

TCA Rules

Advanced

Performance Alarms

AI Training on Indicators

Detect Short-period Exceptions

Status: Enabled

Task type: All

Task name: 7

Q Search

+ Create

Disable

AI Task Name	AI Task Type	Domain	Managed Object	Indicator	Interval	Description	Operation

Total 210/page

Train model

Entity name

Q Search

Executing: 0

Init: 0

Received: 0

Success: 424

Failed: 70

Timeout: 0

No.	Entity name	Indicator	Interval	Trained On	Status	Operation
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

Total 49410/page

Monitor Sites

Q: From monitoring to detection, the activities include data collection, alarm filtering, and anomaly detection. The question is to find out if the activities are done manually assisted by system or automated.

Cognitive Activity	Service Capability	Weight	Questions	Option A	Option B	Option C	Option D
Awareness	Anomaly detection	10%	From monitoring to detection, the activities include data collection, alarm filtering, and anomaly detection. The question is to find out if the activities are done manually assisted by system or automated.	(A) The operation adopted dynamic and programmable rules and policy, ML for the monitoring and detection without human intervention.	(B) The event monitoring to anomal event detect operation is automated through predefined rules.	(C) The anomal event monitoring to detection is a manual process. Human is assisted by tools or systems for the monitoring and detection.	

indosat OWS Console FaultSpirit Execution View Degradation event Intelligent age...

IOH DL USER THROUGHPUT 4... x IOH DL USER THROUGHPUT 4... IP Incident Handling

INC-20260610-00000547

Demarcation Location Repairment Recovery & Verification

Degradation detection from PMAI

Handling Records Degradation event intelligent agent

2026-06-10 00:00:00 Completed

Considered as a performance degradation.

Severity level of impacting degree:

2026-06-10 00:00:00 Completed

Deterioration demarcation conclusion:

Demarcation Processes

Searching for neighboring sites:

Correlated Alarms

indosat OWS Console FaultSpirit Execution ... Incident Over... FaultSpirit Execution ... Degradation event Intelligent ag x IOH DL USER THROUGHPUT ... IP Incident Hand...

31 / 32 Managed by agent / Degradation event 0 To be manually confirmed 1 Agent processing 1 Degradation event intelligent agent Today's c

Q Enter an alarm name or select an attribute to filter

Level L1

OWS Home Page Collector AI Training on Indicators Detect Short-period Exceptions x Detect Short-period Exceptions

Home Page

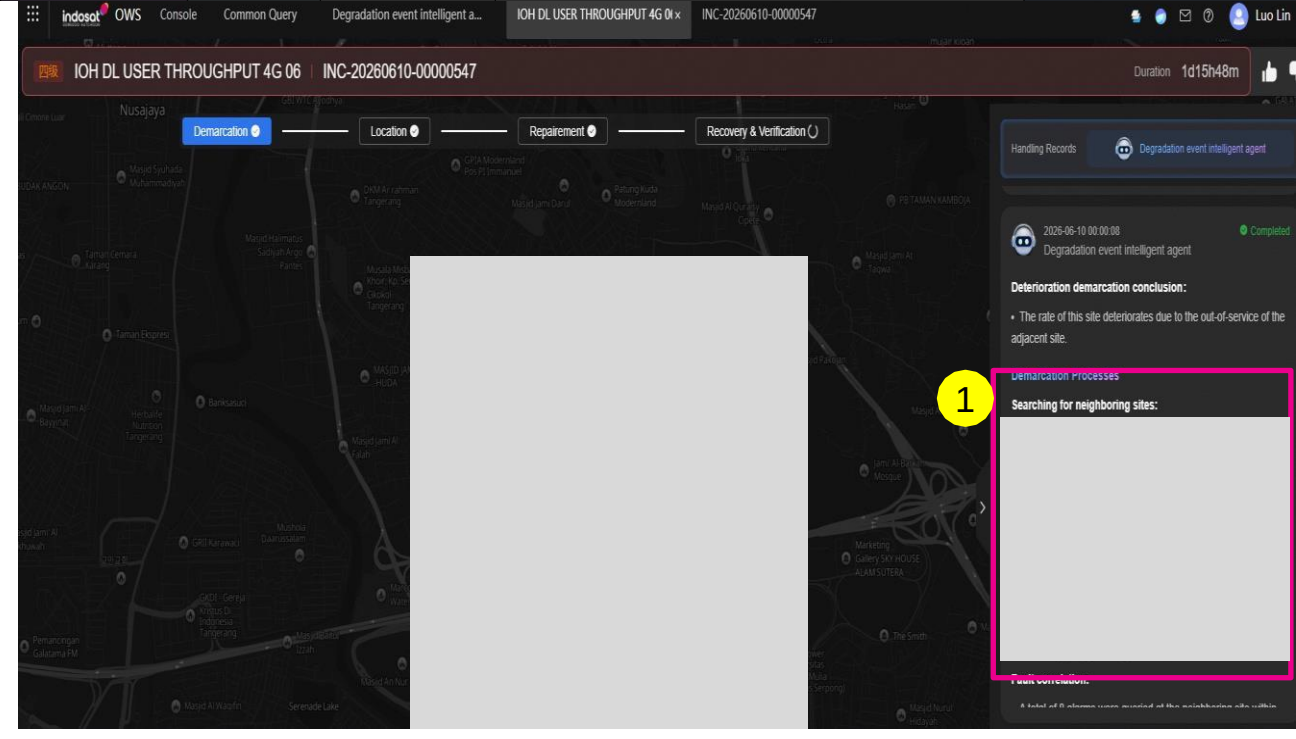
* Start time 2026-06-10 00:00:00 * End time 2026-06-11 09:19:42 Entity name 11TGR0170 Q Search

No.	Time	Entity name	IOH_DL_USER_THROUGHPUT_4G_AI_ANLA	Upper Limit	Lower Limit
1					
3					
4					
5					

Root-cause analysis and Demarcation

q: For alarm correlation, root-cause analysis, and demarcation, the question is to find out if the activity is done manually assisted by system, or automated by rules and policy, or managed through AI model and AI

Cognitive Activity	Service Capability	Weight	Questions	Option A	Option B	Option C	Option D
Analysis	Root-cause analysis and demarcation	15%	For alarm correlation, root-cause analysis, and demarcation, the question is to find out if the activity is done manually assisted by system, or automated by rules and policy, or managed through AI model and AI algorithm.	(A) The operation adopted AI model and AI algorithm to perform root-cause analysis and achieve high accuracy of demarcation.	(B) The operation automates the root-cause analysis and demarcation through programmable or dynamic policy and rules.	(C) The operation automates the root-cause analysis and demarcation through predefined static rules.	(D) The root-cause analysis and demarcation are primarily handled by manual process, assisted by tools and system.



1

Degradation event intelligent agent

Deterioration demarcation conclusion:

Searching for neighboring sites:

2

Fault correlation:

3

Fault demarcation:

INC-20260610-00000547

1

Degradation event intelligent agent

A total of 8 alarms were queried at the neighbouring site within the specified time period.

2

The impacted neighbouring network sites includes

11TGR0456

11TGR0443

11TGR0163

alarm

11TGR0180

11TGR0451

alarm.

11TGR0193

11TGR0164

11TGR0142

2 eNodeB out of service

alarm.

11TGR0162

2 eNodeB out of service

3

Create TT for Multi-site down (11TGR0142)

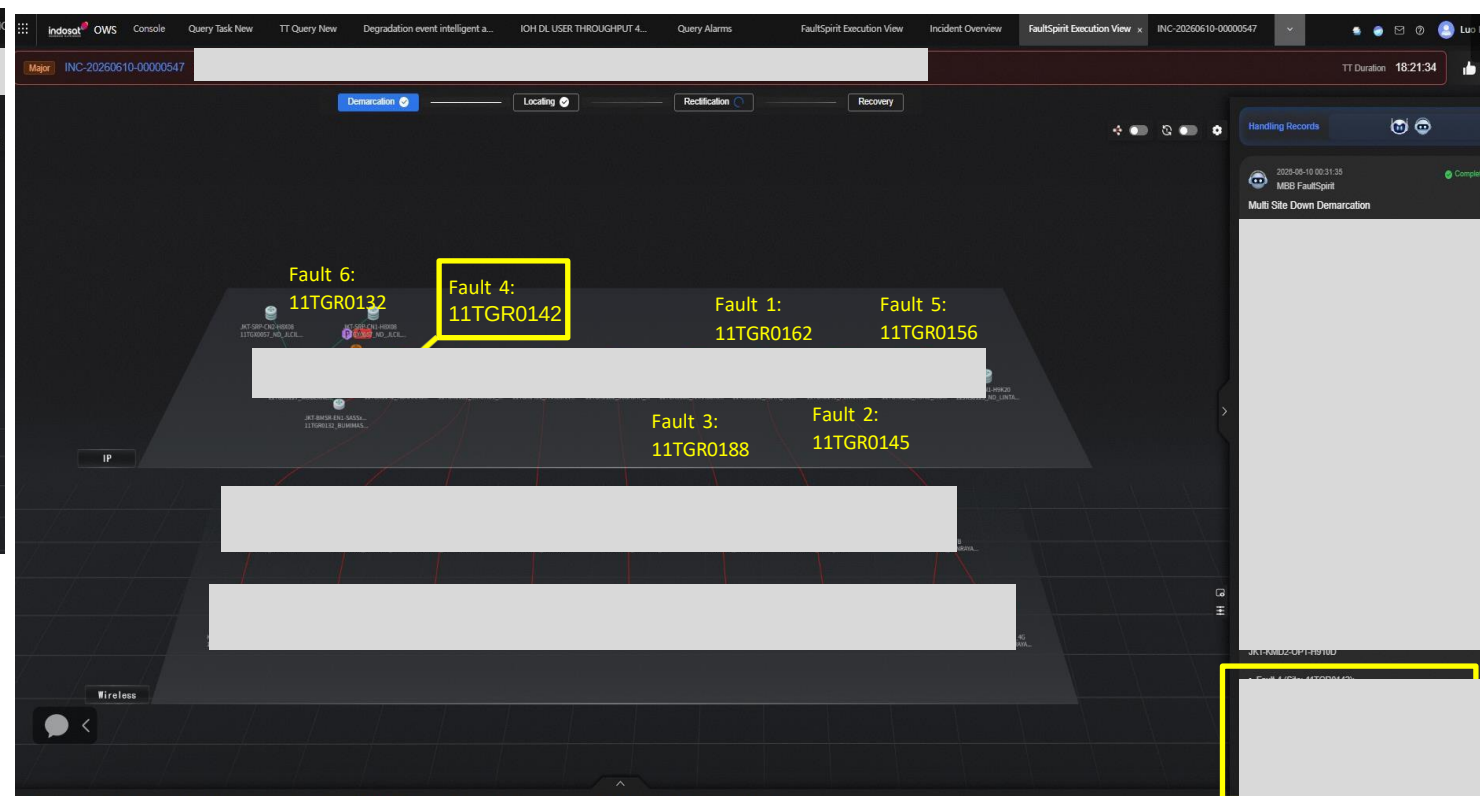
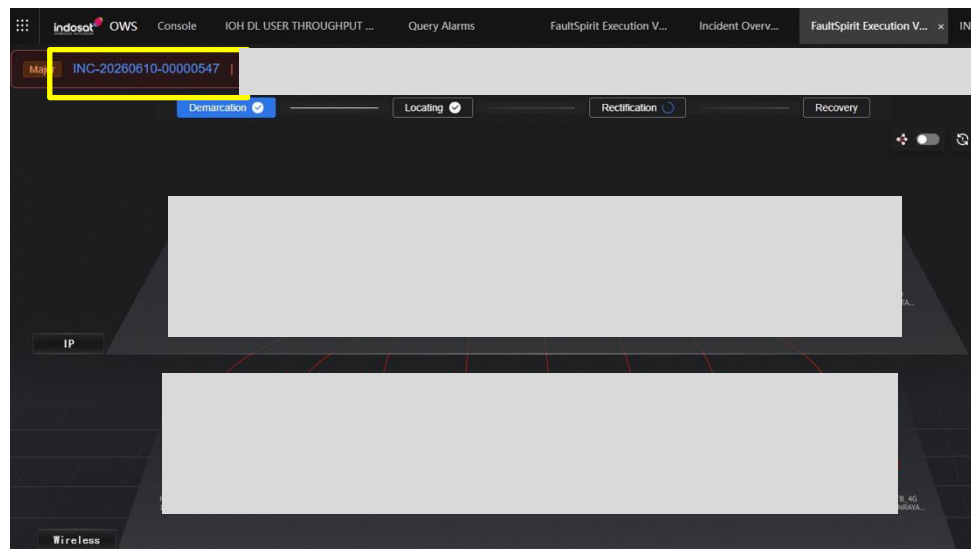
INCIDENT SUMMARY (Major)_DETECT POTENTIAL

TT Number: INC-20260610-00000547

Root-cause analysis and Demarcation

Q: For alarm correlation, root-cause analysis, and demarcation, the question is to find out if the activity is done manually assisted by system, or automated by rules and policy, or managed through AI model and AI

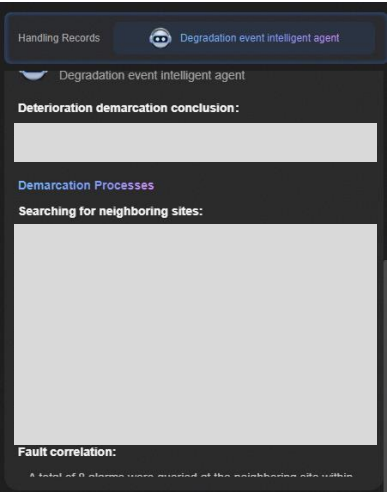
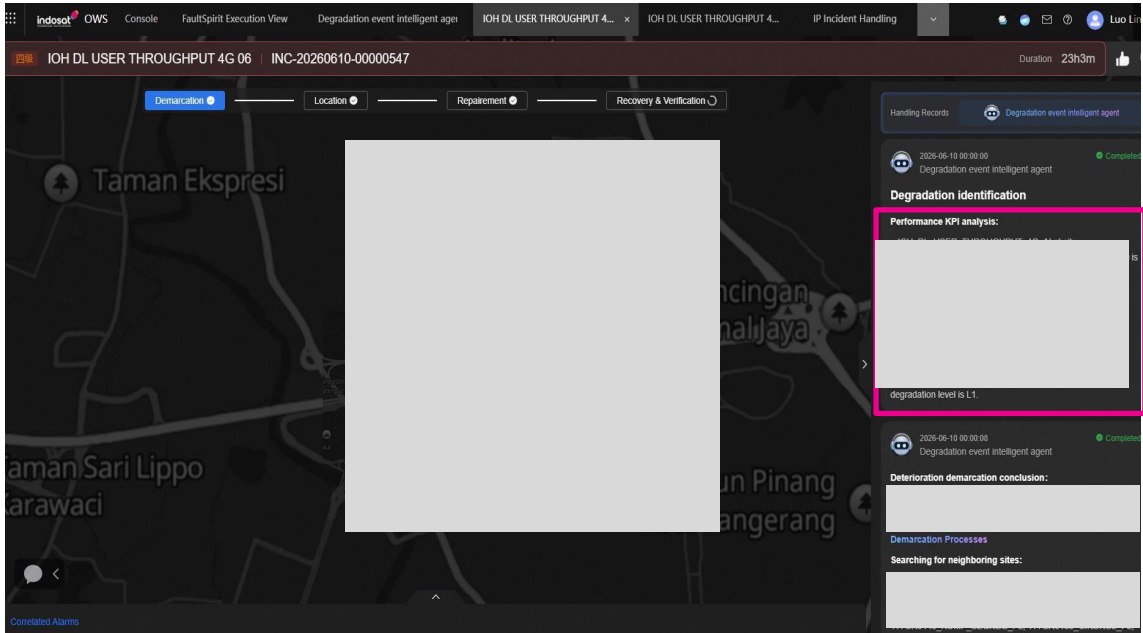
Cognitive Activity	Service Capability	Weight	Questions	Option A	Option B	Option C	Option D
Analysis	Root-cause analysis and demarcation	15%	For alarm correlation, root-cause analysis, and demarcation, the question is to find out if the activity is done manually assisted by system, or automated by rules and policy, or managed through AI model and AI algorithm.	(A) The operation adopted AI model and AI algorithm to perform root-cause analysis and achieve high accuracy of demarcation.	(B) The operation automates the root-cause analysis and demarcation through programmable or dynamic policy and rules.	(C) The operation automates the root-cause analysis and demarcation through predefined static rules.	(D) The root-cause analysis and demarcation are primarily handled by manual process, assisted by tools and system.



- The AI modelled DTN provides a high accuracy of demarcation (95% confidence).
- The above diagram showed the impacted mobile neighbouring mobile cells degraded which is due to the IP network failure marked with <P>.
- The AI-agent query the DTN, discovered that the root-caused is due to the 6 faulty IP networks.
- The Fault 4 of router  at site  showed that the ETH_LOS.

Q: Upon root-cause demarcated, the question is to find out if the service impact analysis activity is done manually assisted by system, or automated by rules and policy, or managed through AI model and AI algorithm.

Cognitive Activity	Service Capability	Weight	Questions	Option A	Option B	Option C	Option D
Analysis	Service Impact Analysis	10%	Upon root-cause demarcated, the question is to find out if the service impact analysis activity is done manually assisted by system, or automated by rules and policy, or managed through AI model and AI algorithm.	(A) The operation adopted AI model, AI algorithm and digital twin networks to perform service impact analysis with high accuracy and to prioritize problem resolution.	(B) The operation automates the service impact analysis through programmable or dynamic policy and rules which includes topology based rules	(C) The operation automates the service impact analysis through predefined static rules.	(D) The service impact analysis is primarily handled by manual process, assisted by tools and system.

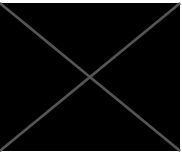


Degradation event Intelligent agent

- A total of 8 alarms were queried at the neighbouring site within the specified time period.

The impacted neighbouring network sites includes

11TGR0456	
11TGR0443	
11TGR0163	2 eNodeB out of service
alarm	
11TGR0180	
11TGR0451	2 eNodeB out of service
alarm.	
11TGR0193	
11TGR0164	2 eNodeB out of service



Service impact Analysis of site :

- VIP site Not a VIP site
- Degradation ratio 53.36%

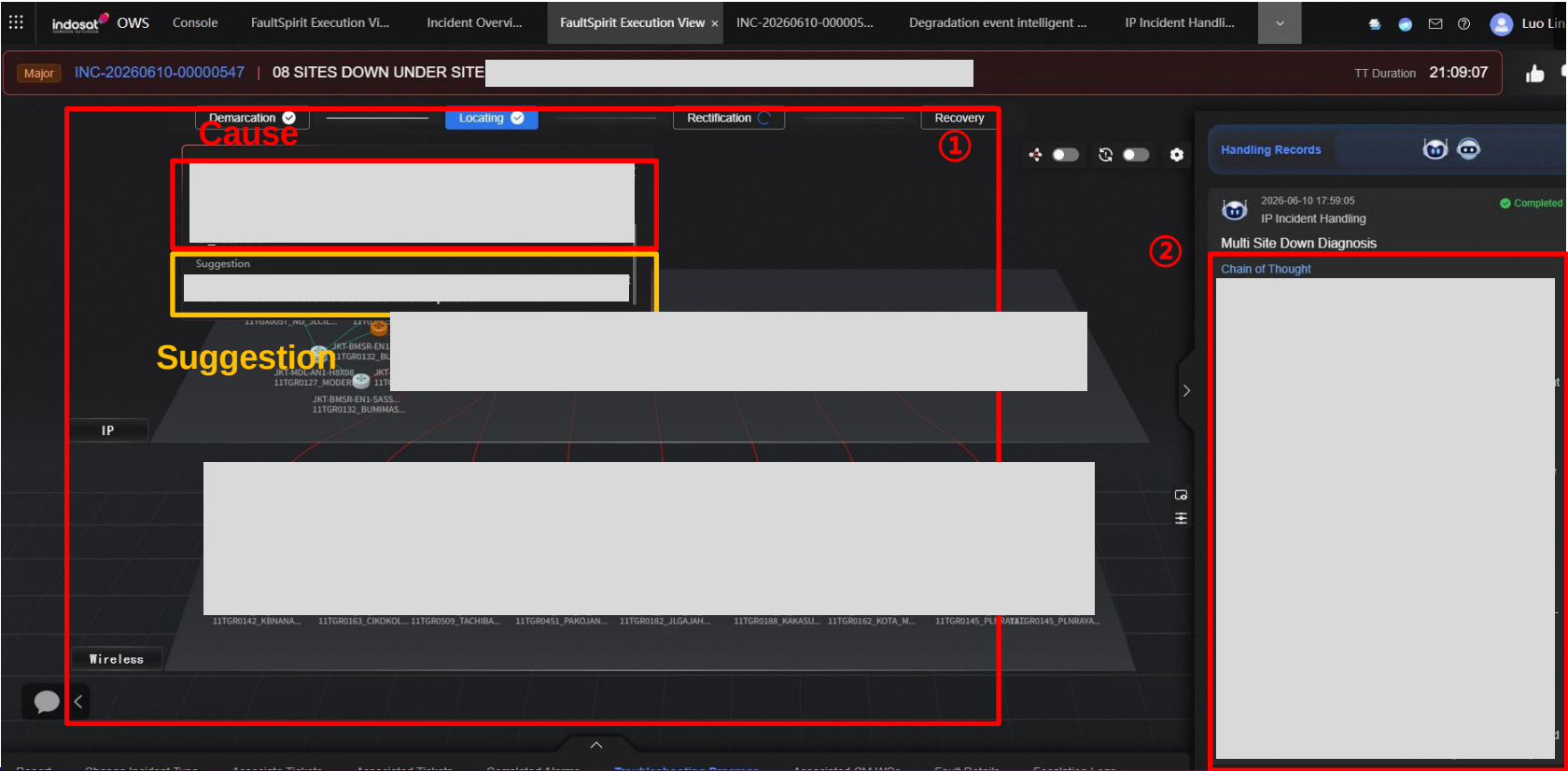
Based on the Service Impact definition, the degradation level is Level 1.

Solution generation



q: For the fault recovery solution generation, the question is to find out if the activity is done manually assisted by system, or automated by rules and policy, or managed through AI capability and digital twin networks.

Cognitive Activity	Service Capability	Weight	Questions	Option A	Option B	Option C	Option D
Analysis	Solution generation	10%	For the fault recovery solution generation, the question is to find out if the activity is done manually assisted by system, or automated by rules and policy, or managed through AI capability and digital twin networks	(A) The operation adopted AI agent and/or AI-copilot to generate possible solutions in collaboration with digital twin networks and RAG technique to retrieve the solutions from LLM.	(B) The operation automates the solution generation; example self-healing, self-restore or self-optimization through programmable or dynamic policy and rules.	(C) The operation automates the solution generation through predefined static rules.	(D) The solution generation is primarily handled by manual process, assisted by tools and system.

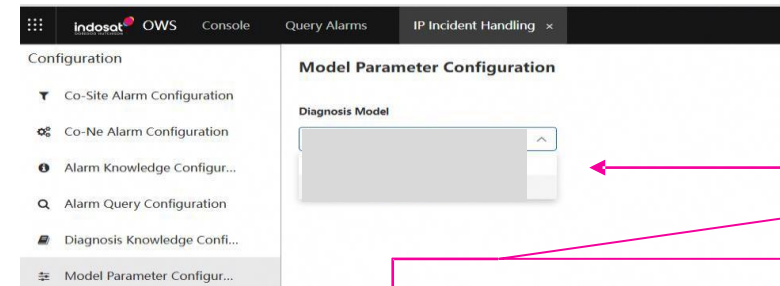


- DTN provides virtual replica of the cross-domain physical topologies; service paths (rings formed by IP devices connected to base stations), and fault propagation relationships (batch base station disconnections caused by faults on the ring).
- The IP incident handling agent outputs troubleshooting solutions from LLM response based on the knowledge of historical fault handling. The chain of thought (COT) guided the troubleshooting approach.

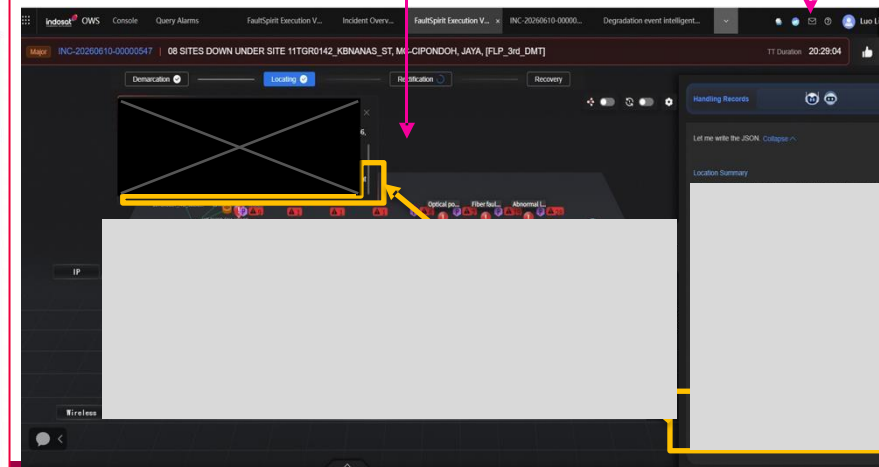
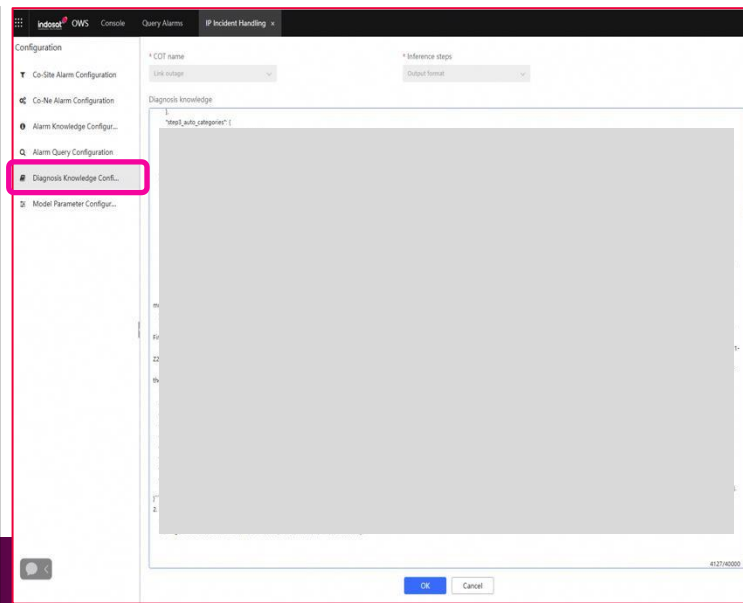
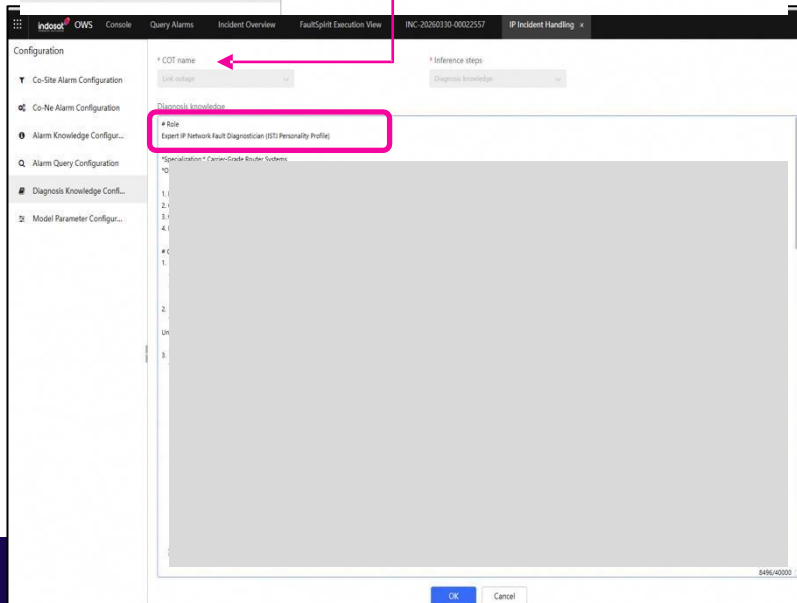
Solution generation

Q: For the fault recovery solution generation, the question is to find out if the activity is done manually assisted by system, or automated by rules and policy, or managed through AI capability and digital twin networks.

Cognitive Activity	Service Capability	Weight	Questions	Option A	Option B	Option C	Option D
Analysis	Solution generation	10%	For the fault recovery solution generation, the question is to find out if the activity is done manually assisted by system, or automated by rules and policy, or managed through AI capability and digital twin networks	(A) The operation adopted AI agent and/or AI-copilot to generate possible solutions in collaboration with digital twin networks and RAG technique to retrieve the solutions from LLM.	(B) The operation automates the solution generation; example self-healing, self-restore or self-optimization through programmable or dynamic policy and rules.	(C) The operation automates the solution generation through predefined static rules.	(D) The solution generation is primarily handled by manual process, assisted by tools and system.



- With the diagnosis outcome as the input, role based AI agent (eg IP network expert) prompted LLM for an appropriate solution. The LLM is made up of a foundational large model that is based on Deepseek and a network operations domain specific large model (GTS LLM)
- The AI agent is orchestrated with built-in Chain of Thought (COT) technique. This mimic a human' troubleshooting technique.
- The LLM automatically responded the AI-agent with possible step-by-step solutions.



Solution generation

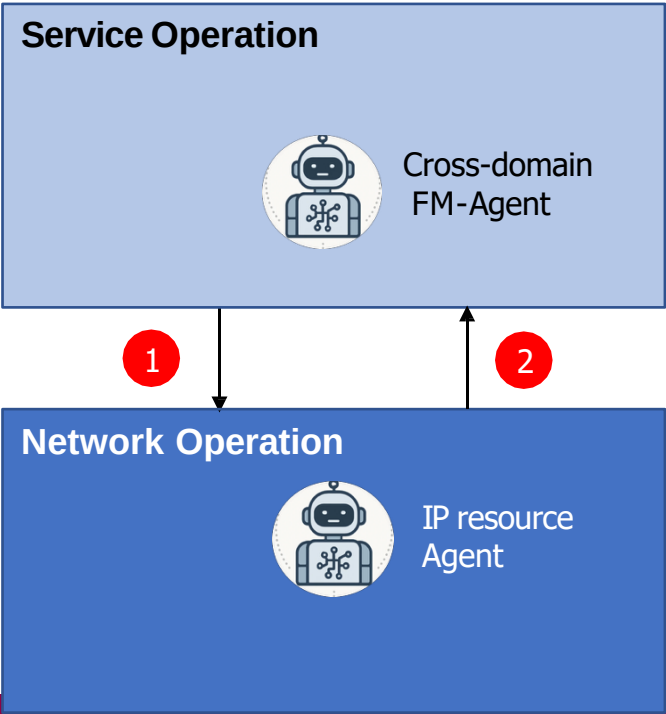
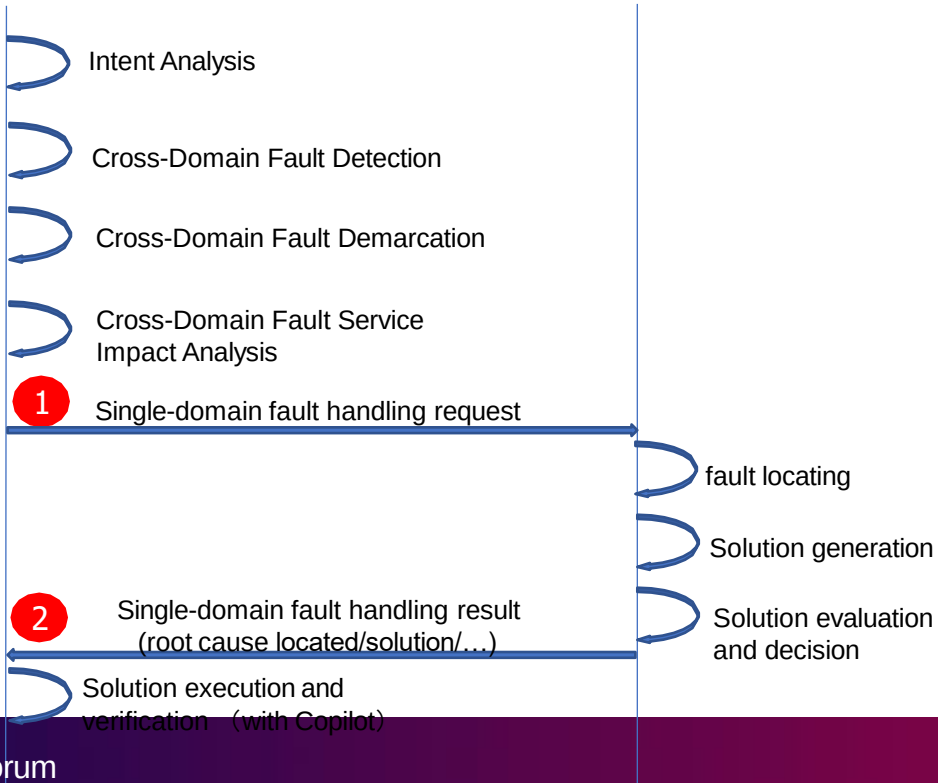
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Analysis	Solution generation	10%	For the fault recovery solution generation, the question is to find out if the activity is done manually assisted by system, or automated by rules and policy, or managed through AI capability and digital twin networks	(A) The operation adopted AI agent and/or AI-copilot to generate possible solutions in collaboration with digital twin networks and RAG technique to retrieve the solutions from LLM.	(B) The operation automates the solution generation; example self-healing, self-restore or self-optimization through programmable or dynamic policy and rules.	(C) The operation automates the solution generation through predefined static rules.	(D) The solution generation is primarily handled by manual process, assisted by tools and system.

Cross-domain FM-Agent

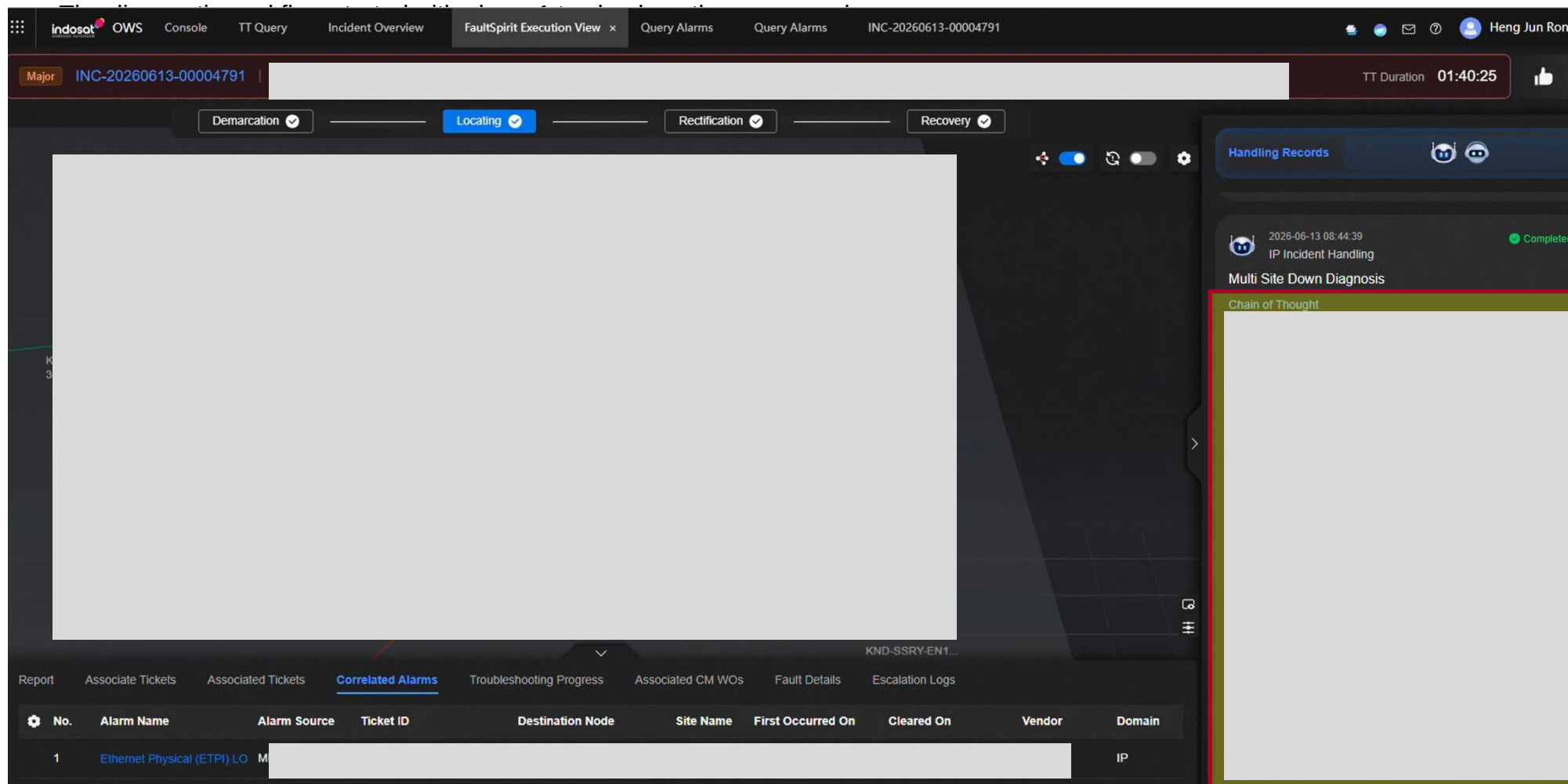
IP Resource Agent

UML sequence and logical diagram on multi-agents collaboration



Solution generation

The Chain of Thought (COT) orchestrating AI-agent to query network information and service state from the DTN. This mimics the human trouble shooting process.

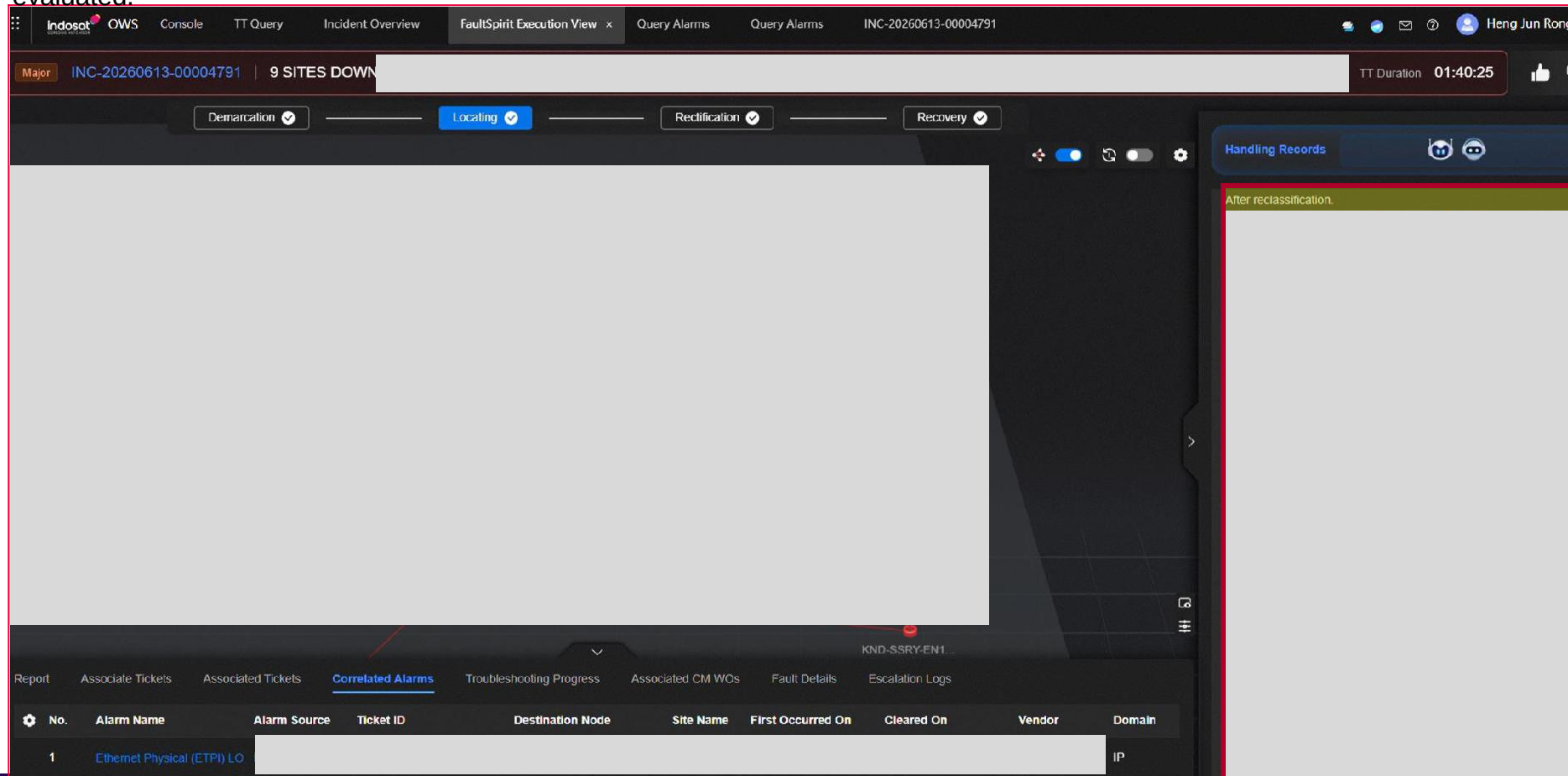


The screenshot displays the Indosat OWS FaultSpirit Execution View interface. The top navigation bar includes tabs for Console, TT Query, Incident Overview, FaultSpirit Execution View (active), Query Alarms, and INC-20260613-00004791. The main content area shows a large, empty box for the Chain of Thought (COT) visualization. The right sidebar displays Handling Records, including a record for 2026-06-13 08:44:39, IP Incident Handling, Multi Site Down Diagnosis, which is marked as Completed. The bottom section shows a table of Correlated Alarms.

No.	Alarm Name	Alarm Source	Ticket ID	Destination Node	Site Name	First Occurred On	Cleared On	Vendor	Domain
1	Ethernet Physical (ETPI) LO	M							IP

Solution generation

The system will continue to check on the health and performance of a ethernet port of the wireless network interface. Guided by COT, AI-agent queried DTN for the optical power metrics such as radio signal level (rsl). Executing on the algorithm, there is no intermediate confidence score given to each probable solution until the most viable solution is evaluated.



Indosat OWS Console TT Query Incident Overview FaultSpirit Execution View x Query Alarms Query Alarms INC-20260613-00004791 Heng Jun Rong

Major INC-20260613-00004791 | 9 SITES DOWN TT Duration 01:40:25

Demarcation Locating Rectification Recovery

Handling Records

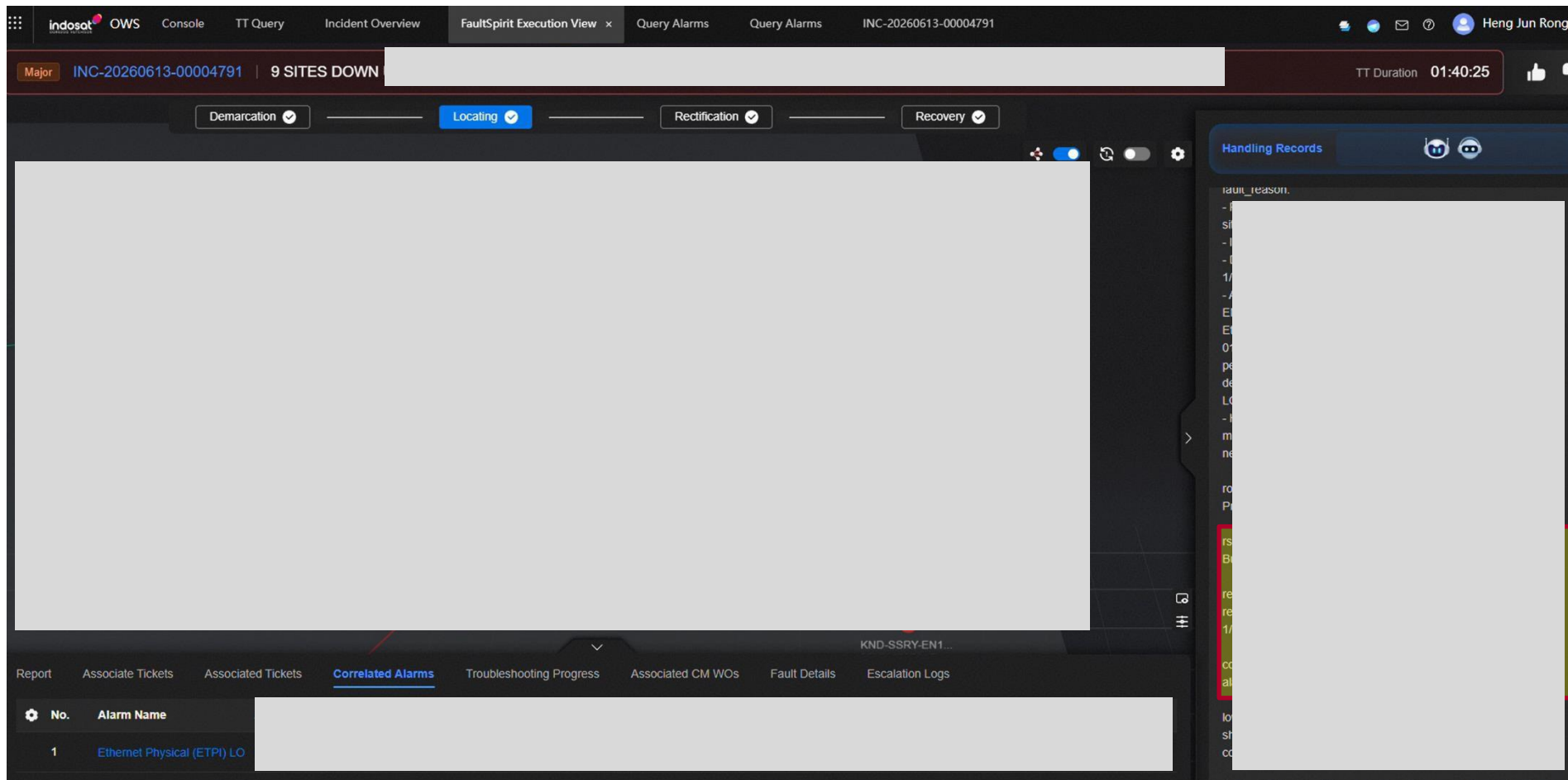
After reclassification.

Report Associate Tickets Associated Tickets Correlated Alarms Troubleshooting Progress Associated CM WOs Fault Details Escalation Logs

No.	Alarm Name	Alarm Source	Ticket ID	Destination Node	Site Name	First Occurred On	Cleared On	Vendor	Domain
1	Ethernet Physical (ETPI) LO								IP

Solution generation

The algorithm built in LLM will compute the probability of the fault on the transmission link between port cgei-1/1/0/34 and cgei 1/1/0/36 and provided a high confidence score of 9 since there are clear transmission alarm.



indosat OWS Console TT Query Incident Overview FaultSpirit Execution View x Query Alarms Query Alarms INC-20260613-00004791 Heng Jun Rong

Major INC-20260613-00004791 | 9 SITES DOWN TT Duration 01:40:25

Demarcation ✓ Locating ✓ Rectification ✓ Recovery ✓

Handling Records

fault_reason.

Report Associate Tickets Associated Tickets Correlated Alarms Troubleshooting Progress Associated CM WOs Fault Details Escalation Logs

No.	Alarm Name
1	Ethernet Physical (ETPI) LO

Evaluation and decision making

q: For the solutions evaluation and decision making, the question is to find out if the activity is done manually assisted by system, or automated by rules and policy, or managed through AI agent and digital twin network.

Cognitive Activity	Service Capability	Weight	Questions	Option A	Option B	Option C	Option D
Decision	Evaluation and decision making	15%	For the solutions evaluation and decision making, the question is to find out if the activity is done manually assisted by system, or automated by rules and policy, or managed through AI agent and digital twin network.	(A) The operation adopted AI Models and digital twin network to evaluate solution options, and then recommend the best choice, leveraging AI's ability to process data and predict results based on probabilistic outcomes.	(B) The System automates the evaluation of solution generation, recommends the optimal solution to be executed using dynamic rules and policy and may require human approval.	(C) The operation automates the evaluation of solution generation, recommend an optimum solution and configuration through script based for self-recovery and may require human approval.	(D) Remediation options, risk assessment and selection of appropriate solutions are manually done

indosat OWS Console

FaultSpirit Execution VI... Incident Overv... FaultSpirit Execution View x INC-20260610-00000547 Degradation event intelligent ... IP Incident Handl...

Major INC-20260610-00000547 | 08 SITES DOWN

Demarcation Locating Rectification Recovery

Cause Transmission fault in same equipment room or site

Root cause: transmission fault in same equipment room or site

JKT-SRP-CQ2-H9100 11TGR007_AD_AJCL...

JKT-SRP-EN1-H9100 11TGR012_BUM...

JKT-MDL-AN1-H9100 11TGR012_BUM...

JKT-SRG-EN1-SAS...

JKT-SRG-EN1-BUM...

IP

Wireless

Handling Records

2026-06-10 17:59:05

IP Incident Handling

Multi Site Down Diagnosis

Chain of Thought

First, I need to understand the input structure and follow the

Now, the diagnostic workflow starts with Phase 1: Alarm Prioritization.

Phase 1A: Power/Environment Fault

- Check if there are site_power_alarms, site_power_alarm should be True if there are Commercial Power Outage, UPS Battery,

Handling Records

rst_info: Optical power metrics, but in this case, the alarms are for Ethernet links, not necessarily optical. The example has optical

In the site_active_alarms, the Link Down alarms occurred at 00:25:43, and device offline at 00:26:01, so link down might have triggered device offline.

Handling Records

root_alarm_info: Similar to alarm details, for the root cause alarm.

"NE-433277956"

Time

rst_info

appl

repa

che

issu

conf

clea

offlin

work

Rule

occu

othe

low

Now

extra text

Handling Records

Let me write the JSON. Collapse ^

Location Summary

• [Diagnostic Root Cause] Transmission fault in same equipment room or site

• [Diagnostic Summary] [Automation]-Diagnosis start time 2026-06-10 04:12:24, diagnosis end time 2026-06-10 04:17:13, Demarcation and Locating Results: Root cause: Transmission fault

Issue site: 11TGR0142

Description: Transmission link failures on ports including Eth-Trunk101 and 25GE0/2/9 for NE JKT-KBNA-OPT-H9100, contributing to device offline.

Alarm details: NE: JKT-KBNA-OPT-H9100; alarm serial number: 433277956, alarm name: Link Down, first occurrence time: 2026-06-10 00:25:43.

Handling suggestions: Check physical connectivity and fiber optics for the affected links; verify port status and coordinate with transmission team for restoration.

The LLM analyzes historical alarm data and patterns to correlate past fault phenomena (alarms) with the measures (solutions) that ultimately solved the problem. The system calculates its similarity to historical patterns and provides a confidence score for the suggested solution. Using RAG technology, LLM summarize a set of operational guidelines most suitable for the current situation based on the most similar cases (confidence score).

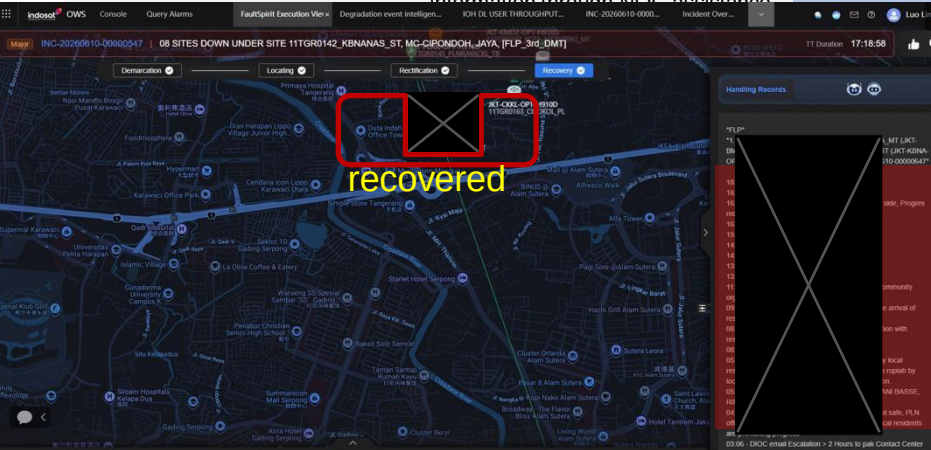
In this case, there is only one option and therefore the system will automatically recommend the solution without comparison.

Q: The solution execution activities include remote resolution, work order creation and closure, workforce scheduling and field engineer dispatch for onsite resolution. The question is to find out if the solution execution activities are done manually assisted by system, or automated by rules and policy, or managed through Agentic AI capability.

Cognitive Activity	Service Capability	Weight	Questions	Option A	Option B	Option C	Option D
Execution	Solution execution	20%	The solution execution activities include remote resolution, work order creation and closure, workforce scheduling and field engineer dispatch for onsite resolution. The question is to find out if the solution execution activities are done manually assisted by system, or automated by rules and policy, or managed through Agentic AI capability.	(A) Remote recovery. The operation adopted AI agent or agentic AI capability to remotely execute the solution; example cell outage compensation and IP traffic redirect and so forth. Onsite recovery. The field maintenance engineer adopted AI-copilot technology to assist in problem resolution.	(B) Remote recovery. The system automatically executes the recovery or rectification solution through dynamic rules and policy (Automatic repair excludes the faults that on-site handling is necessary, such as power supply failure, board fault, fiber cut, etc). Onsite recovery. The system support on-site instruction and efficient information through NOC assistance.	(C) Remote recovery. The system automates the recovery solution through predefined rules with human confirmation. Onsite recovery. The on-site handling are assisted by tool, but still requires assistance from NOC.	(D) Remote recovery. The recovery solution need to be manually implemented. On site recovery. On-site manual handling is guided by NOC.



Performance issue auto closed after the throughput KPI such as the download speed returned to normal level.



Onsite Recovery:

- The fault is due to ETH_LOS(Optical fiber cut due to cables damaged in a fire involving PLN cables at site)
- Automatic generate a corrective maintenance WO to dispatch FME for onsite recovery.
- TT automatic closed after impacted node recovered. The network performance of the neighboring cells recovered subsequently.

Thank you

ANLAV Validator

ANLAV Validation Team