Contact Center: Personalized AI Routing

AI Transparency Technical Note

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Feature	Webex Contact Center Personalized AI Routing
AI Model PM	CX Product Management
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At Cisco, we believe that Artificial Intelligence (AI) can be leveraged to power an inclusive future for all. We also recognize that, by applying this technology, we have a responsibility to mitigate potential harm. That is why Cisco adheres to our Responsible AI Framework, which is based on six principles: Transparency, Fairness, Accountability, Privacy, Security and Reliability. Cisco translates the Framework Principles into product development requirements, which form part of the product development lifecycle alongside Cisco's Security by Design, Privacy by Design, and Human Rights by Design processes.

Accordingly, Webex by Cisco (Webex) features that leverage AI are built with transparency, fairness, accountability, privacy, security, and reliability at their core. Each feature powered by AI undergoes an AI Impact (AII) Assessment, a review of how the technical underpinnings of the functionality measure against the Framework Principles.

Personalized AI Routing was built with the Framework Principles at the center of how Cisco delivers AI-powered technology. This Technical Note describes Personalized AI Routing and how Cisco responsibly leverages AI to deliver the functionality.

Feature Overview

Webex Contact Center Personalized AI Routing helps contact centers move from static, rule-based routing to outcome-driven matching. The feature uses Cisco native AI/ML models to recommend eligible agents for an incoming interaction based on real-time interaction context, customer and agent insights, queue and skill eligibility, historical operational outcomes, and an administrator-selected business objective such as handle time, customer satisfaction (CSAT), or a configured custom KPI such as conversion or upsell etc.

The feature is designed to improve customer experience, reduce unnecessary transfers, support faster resolutions, and lower administrative overhead by reducing the need for highly specialized static queues. Administrators can analyze, evaluate, and then activate AI Routing so they can compare potential AI-routed outcomes against existing routing behavior before using the feature in live routing.

Personalized AI Routing is available for Webex Contact Center. It is optional and administrator-controlled. The feature operates with Webex Contact Center routing configuration and is not intended for use outside Webex applications, Cisco devices, or Cisco-provided Webex Contact Center services.

The core routing model is Cisco native and proprietary. No third-party foundation model is required for the core agent recommendation function. Where a customer chooses to provide external, CRM, customer journey, transcript, intent, sentiment, or third-party AI-derived signals as input context, those signals are treated as customer-configured inputs to the customer's routing workflow.

Model Overview

Introduction

Personalized AI Routing is a predictive routing feature, not a conversational generative AI experience. The model estimates expected outcomes for candidate agent and interaction pairings for the KPI selected by the administrator. The routing service then provides a recommended set of agents for optimizing the business outcome that is used to route the contact by Webex Contact Center routing logic.

The model functions in conjunction with existing routing configuration, queue eligibility, skill requirements, agent availability, and Webex Contact Center controls. It is intended to enhance routing decisions, not to replace administrator-defined eligibility rules or operational safeguards.

Model Architecture

At a high level, Personalized AI Routing combines historical operational data, real-time interaction context, agent context, and configured business goals to estimate which eligible agent is likely to produce the desired outcome for a contact. The following table describes the model architecture:

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Stage	Processing	Controls and outputs
1. Data preparation	Historical interaction records, queue configuration, skills, customer profile context where enabled, global variables, agent information, and selected KPI outcomes are transformed into model-ready features.	Customer organization scoping; data minimization through configured fields; pre-processing validation.
2. Model training	Customer organization and KPI-specific model artifacts are trained and evaluated against held-out data.	Model metadata, versioning, evaluation metrics, and rollback-capable storage.
3. Runtime agent context	When agents are logged in, the service prepares agent-side context from configuration and recent agent history.	Agent data and context are stored for the selected KPI target.
4. Runtime contact context	For each routing event, the service prepares contact-side context from the interaction, queue, required skills, priority, channel, customer history, and optional configured customer journey or CRM signals.	Predicted KPI values are generated for candidate agents.
5. Routing and fairness layer	The routing layer receives a recommended set of eligible agents and applies Webex Contact Center routing logic.	Longest Available Agent (LAA) distribution and Agent Wellness, when enabled, help balance assignments across the team.
6. Monitoring and improvement	Predicted outcomes can be compared with actual outcomes through analytics and serviceability tools.	Evaluation mode, dashboards, model metadata, RMSE-style monitoring, and controlled activation support ongoing review.

Usage Guidelines

- Personalized AI Routing should be used to support contact routing within Webex Contact Center for business, customer experience, and operational KPIs selected by the customer administrator.
- Administrators should use analysis and evaluation mode to validate the feature against their routing goals before activating AI-assisted routing in production.
- The feature should not be used for employment, compensation, or disciplinary decisions about agents.
- Customers should avoid configuring protected characteristics or sensitive personal attributes as routing inputs unless the use is legally permitted, business-relevant, and reviewed under the customer's own compliance obligations.
- AI outputs are predictions and recommendations. Customers should monitor results and maintain appropriate operational fallbacks, routing configuration, and administrator oversight.

Model Inputs and Outputs

The feature may use different signals depending on customer configuration, available channels, queue setup, and selected KPI targets. Typical inputs and outputs are summarized below.

Category	Examples	Purpose
Administrator configuration	Selected KPI target and objective; queue and routing strategy; skill requirements; agent attributes; feature enablement.	Defines the business outcome and eligible routing population.
Real-time interaction context	Organization, queue, interaction ID, channel, created timestamp, contact priority, required skills, global variables, and other configured interaction context.	Describes the contact to be routed and the routing constraints that must be honored.
Historical operational data	Recent interaction history, last agent, last queue, connected duration, selected KPI outcomes such as AHT or CSAT, and agent/customer history used for the customer's model.	Allows the model to learn organization-specific patterns and compare predicted outcomes with actual outcomes.

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Category	Examples	Purpose
Optional configured insights	Customer journey data, customer progressive profile (where applicable) from CJDS. External source data, transcript-derived context or third-party AI-derived insights where the customer has configured those inputs.	Adds business context that may improve routing relevance when appropriate and permitted.
Model outputs	Recommended eligible agent set; model metadata and evaluation metrics for administrators and serviceability.	Supports routing decisions, evaluation mode, analytics, monitoring, and controlled activation.

Data Sources for Training and Evaluation

Personalized AI Routing uses customer organization-specific operational data to train and evaluate routing behavior for that same customer organization and selected KPI. Typical training and evaluation data includes historical interaction records, agent and queue configuration, required skills, selected KPI outcomes, and optional configured customer journey or profile context.

Customer data is not used to develop, improve, or train routing models for other customers. Development and internal testing may also use Cisco-generated synthetic or internal test data. The feature does not use Retrieval Augmented Generation (RAG) to retrieve external knowledge for responses, and it does not generate natural-language answers for end users.

When a customer configures third-party, CRM, transcript-derived, intent, sentiment, or customer journey insights as input signals, those inputs should be reviewed by the customer for appropriateness, data minimization, and applicable consent requirements before use.

Model Evaluation and Performance

Cisco assesses Personalized AI Routing through product development testing, AI Impact Assessment review, and operational evaluation before and after activation. The product supports static analysis and evaluation modes so administrators can inspect whether a queue has sufficient data and whether AI-assisted routing is likely to provide value before enabling live routing.

Evaluation includes comparison of predicted outcomes against actual historical or observed outcomes for the selected KPI. Model metadata, versioning, and rollback support controlled maintenance of deployed models.

Humans are involved in product review, testing, quality assurance, and release readiness. Customer administrators remain responsible for deciding whether to activate AI Routing for their environment and should monitor results after activation.

Safety and Ethical Considerations

Cisco assessed Personalized AI Routing and its use of AI against Cisco’s Framework Principles through an AI Impact Assessment. Through that process, Cisco analyzes safety and ethical considerations, including whether the feature may create unintended bias, whether it integrates fairness controls, and whether it may affect human rights or agent wellbeing.

The feature is intended to route interactions for customer experience and business outcomes. It should not be used as a standalone basis for employment, compensation, disciplinary, legal, health, credit, or similarly impactful decisions. AI predictions can be inaccurate or incomplete, and administrators should validate critical routing behavior before and after activation.

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Please contact Cisco if you have concerns or feedback about your experience with Personalized AI Routing.

Fairness

Personalized AI Routing is designed to operate within the set of agents who are eligible for a contact under customer-defined routing configuration, skills, and availability. The system recommends a separate pool or separate set of recommended agents for each customer interaction, and the Webex Contact Center routing layer can use Longest Available Agent (LAA) behavior to help distribute work fairly across eligible agents.

Agent Wellness, when enabled, adds another balancing signal intended to help avoid concentrating work on a subset of agents and to support healthier assignment patterns across the team. Administrators can evaluate the feature before activation, monitor results, change configuration, disable the feature, or roll back model versions if outcomes do not meet expectations.

Customers should configure KPIs and input signals in ways that are business-relevant and should avoid using protected characteristics or sensitive personal attributes for routing optimization unless the use is appropriate, permitted, and subject to the customer's compliance review.

Privacy and Security

Webex addresses processing and security around personal data, including retention periods, in the applicable Webex Contact Center Offer Disclosures available through the Cisco Trust Portal.

Personalized AI Routing processes customer data within the Webex Contact Center service context to deliver the feature. Data may include customer and agent identifiers, interaction metadata, queue configuration, selected KPI outcomes, and configured customer journey or profile attributes. Access to feature data and serviceability tooling should be limited to authorized roles and governed by Cisco security controls.

Customers wanting to optimize for custom outcomes are expected to ensure that personal data is not pushed into global variables during/after the interaction is complete.

The current service design includes secure transport, authentication, access control, model artifact storage, model metadata, model versioning, rollback support, runtime monitoring, and auditability. The local implementation also includes pruning of per-customer and per-agent routing history and limits the amount of history used during model processing; final publication language should be checked against the then-current Trust Portal retention disclosures.

Updates and Maintenance

Cisco may update Personalized AI Routing to improve model quality, routing performance, reliability, security, and user experience. Ongoing Cisco updates will be made to this document and product release documents based on significant product updates and improvements. Cisco may also use customer email notifications, Webex Help Center documentation, release notes, blogs, or videos to inform customers of product changes.

Model maintenance is supported through evaluation metrics, model metadata, versioning, monitoring, and rollback. Customers should review release notes and evaluate routing performance after significant configuration or operational changes.

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License

The Personalized AI Routing model is proprietary and not publicly available. Cisco uses it to deliver this feature only in the context of Webex Contact Center, Webex applications, Cisco devices, or Cisco-provided Webex Contact Center services.

References

- Cisco RAI Framework
- Cisco Principles for Responsible AI
- Cisco Trust Portal
- Webex Contact Center Offer Disclosures
- Webex Contact Center Personalized AI Routing product documentation and release notes, when published

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