Routing in Unified CCE Deployments

Different Cisco Unified CCE Deployments

Cisco Unified CCE reports help to monitor operational effectiveness, customer experience and contact center agent performance across your enterprise.

In order to effectively run your call center using the data provided by enterprise reports, it is important to understand the different Cisco Unified CCE deployments.

The Peripheral Gateway component in a Unified CCE system is used to interface with peripherals at the different call centers in your enterprise.

The capabilities provided by the Unified CCE software when connected by a traditional TDM PG to a legacy TDM ACD differ from the capabilities provided by a Gateway PG and a Unified CM PG.

Unified CCE can be deployed with different types of Peripheral Gateways to meet the call center needs in your enterprise.

Deployments with Enterprise Routing

In this deployment, Unified CCE is configured with PGs that can connect to legacy ACDs using any of the supported TDM PGs (Aspect, Avaya, and so forth) as well as the Unified CCE Gateway PGs.

When Unified CCE is configured with these types of PGs, the call treatment and queuing (ACD queuing) is provided *by the ACD*. That is, it is the ACD that controls the queuing and chooses the agent required to handle the call.

Unified CCE software is primarily used for intelligent call routing to sites and consolidated reporting for these ACDs. Optionally Unified CCE software can be used to provide initial call treatment and/or enterprise queuing (Enterprise queue). In this case the call is routed to a site when an agent becomes available.

The ACD offers the call to agents based on skill definitions on the ACD. If an agent is not available, the ACD queues the call (in the ACD queue) and then directs the call when an agent becomes available.

This illustration shows a Unified CCE system connected to two PGs for legacy ACDs and to a network VRU.

Figure 1: Deployments with Enterprise Routing
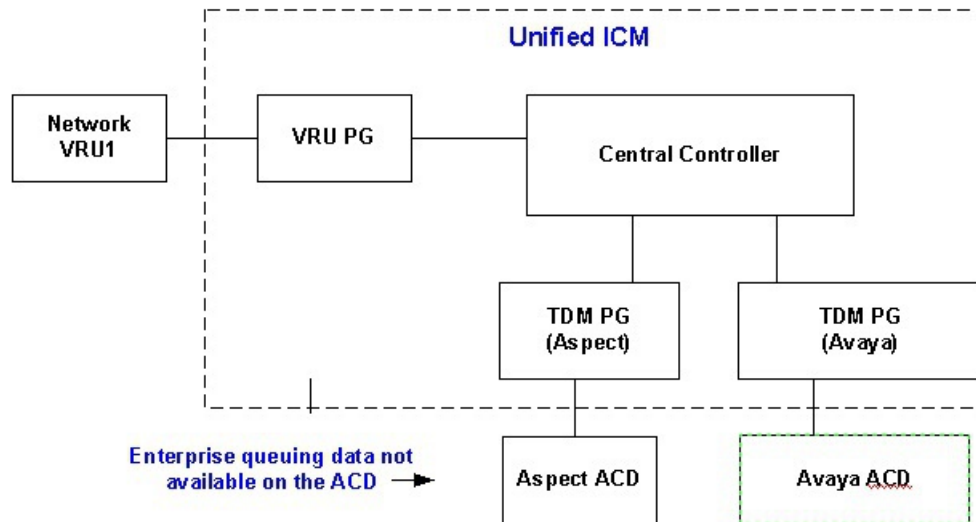
- When calls are routed to an ACD, call treatment is provided on the ACD and the ACD controls the queuing.

- Network VRU1 can be any Service Control VRU that can be used to provide initial call treatment and serve as the telephony platform for queuing calls across all call center ACDs. VRU1 can also be used for information gathering and self-service.

Routing and Scripting

In this deployment, Cisco Unified CCE software uses real-time reporting statistics gathered from the different peripherals (ACDs) to make routing decisions to route calls to the ACD at a site that is best suited to answer the call.

The following routing capabilities can be provided in this deployment.

- **Site-based Routing:** Cisco Unified CCE software, using ICM routing capabilities, can use real time reporting statistics gathered from the different peripherals (ACDs) to make routing decisions to route calls to the ACD at a site that is best suited to answer the call.

    Site selection can be scripted using real time Service and Skill Group metrics provided by the PG.

    Several metrics can be used to make the selection, such as Agent availability, CallsInProgress, and a Minimum Expected Delay (MED) calculation.

    > **Note** Cisco Unified CCE scripts provide a predefined MED (Minimum Expected Delay) calculation that can be used only with ICM Services.

- **Agent Level Routing:** Not Supported.

A typical script used to route calls in this deployment is illustrated and explained below.

- The script is associated with a Call Type. The example is shown for an enterprise that has two sites (Boston and New York), each running a call center.

- The call center at either site can provide call treatment to handle "Support" calls. "Support" is configured as a Service in Unified CCE.

- Both call centers have agents trained to handle calls for either "Laptop Support" or "Server Support". These categories are configured as Skill Groups in Unified CCE. The relationship of the Service to Skill Groups is configured as Service Members in Cisco Unified CCE.

- The Boston call center has an Avaya ACD (peripheral) connected with an Avaya PG, and the New York call center has an Aspect ACD (peripheral) connected with the Aspect PG. Service and Skill Groups are configured for each peripheral in Unified CCE.

Figure 2: Sample Script for Enterprise Routing
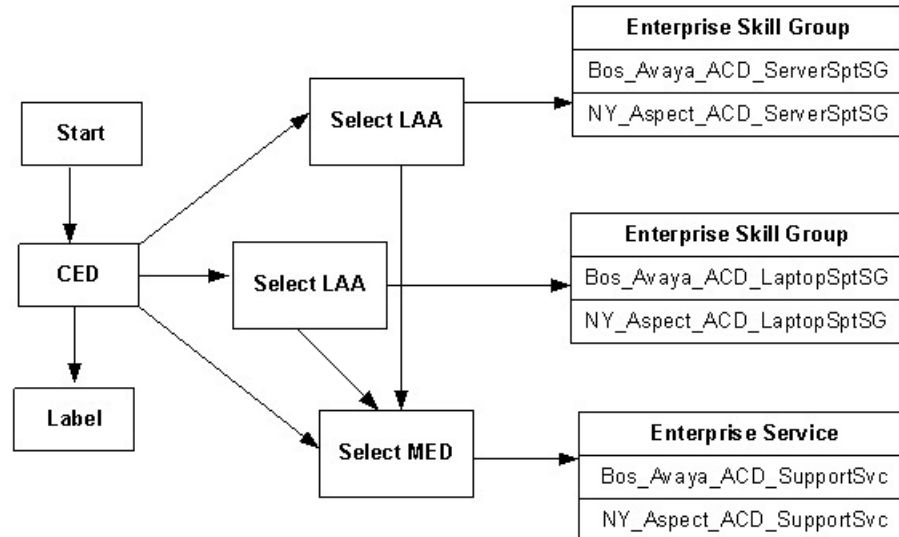
The script illustrated above shows an example of pre-routing and ACD queuing, processed as follows:

1. The script is associated with a Call Type to route Support calls.

2. The script uses caller entered digits (CED) to determine the skill group (Laptop Support or Server Support) required to handle the call and/or the Service treatment (Support) required by the caller.

3. The script uses the LAA (longest available agent) node to look for an available agent across the enterprise who can handle the call.

   Unified CCE software routes the call to the call center site that has an available agent. The ACD at that site picks an agent and assigns the call.

4. If an agent is not available, the script uses the MED (Minimum Expected Delay) node to select a site that can handle the call with minimum delay.

   Once the site with the least expected wait time is selected, the call is routed to the ACD at that site.

After the call arrives on the ACD, call treatment is provided by the ACD. If an agent is available, the ACD assigns the call to that agent.

If an agent is not available, the ACD will queue the call to a skill group to wait for an available agent.

Reporting Considerations

This section is an overview of reporting categories to use to meet the reporting needs for your enterprise in this deployment.

Two key factors that affect reporting are:

- Are you using ACD queuing or Enterprise queuing?

- Are you using Translation Routing to route calls to the ACD?

The information is therefore presented based in the four scenarios described in this section.

Scenario One: Calls Are Queued on the ACD and Are Not Translation Routed

For Enterprise reporting, use the following report categories:

- Use Enterprise Service reports for an enterprise view of reporting statistics for the application.

- Use Enterprise Skill Group reports for enterprise view of reporting statistics routed to a particular skill group.

This table shows other report categories and the statistics they provide.

Table 1: Calls Are Queued on the ACD and Are Not Translation Routed

Report Focus	Reporting Statistics Needed	Report Template	Key Statistics
Application	Before the call is routed to the ACD	Call Type	Number of calls routed Number of calls received Number of calls that encountered an error or received default treatment
	After the call is routed to the ACD, calls queued on the ACD	Peripheral Service Enterprise Service	Queue Statistics (ACD Queue) Abandons Service Level RONA
	After the call is answered by agent	Peripheral Service Enterprise Service	ASA Calls Handled Avg. Handle Time Transfers

Report Focus	Reporting Statistics Needed	Report Template	Key Statistics
Skill Group	For calls routed to skill groups and queued calls	Peripheral Skill Group Enterprise Skill Group	Queue Statistics (ACD Queue) Abandons RONA
	After the call is answered by agent	Peripheral Skill Group Enterprise Skill Group	ASA Calls Handled Avg. Handle Time Avg. Talk Time
	Agent Info	Peripheral Skill Group Enterprise Skill Group	FTEs and Percent Utilization
Agents	Agent Info	Agent	Agent's current state Duration in state Agents logged out Calls Handled Avg. Handle Time Avg. Talk Time

Scenario Two: Calls Are Queued on the ACD and Are Translation Routed

The report categories to use are the same as for Scenario One: Calls Are Queued on the ACD and Are Not Translation Routed, with the additional statistics available for Call Type (cradle-to-grave):

Table 2: Calls Are Queued on the ACD and Are Translation Routed

Report Focus	Reporting Statistics Needed	Report Template	Key Statistics
Application	After the call is routed to the ACD, calls queued on the ACD	Call Type	Abandons
	After the call is answered by agent	Call Type	ASA Calls Handled

Note Call Types cannot report on *queued metrics* for calls queued on the ACD (ACD queue), such as the number of calls queued on the ACD.

Scenario Three: Calls Are Enterprise Queued and Are Not Translation Routed

For Enterprise reporting, use the following report categories:

- Use Enterprise Service reports for an enterprise view of some reporting statistics for the application.
- Use Call Type and Enterprise Skill Group reports for an enterprise view of queued and abandon in queue statistics for the application and skill group respectively.
- Use Enterprise Skill Group reports for enterprise view of reporting statistics when routed to a particular skill group.

Skill Group and Agent reporting are the same as for Scenario One: Calls Are Queued on the ACD and Are Not Translation Routed.

This table shows other report categories and the statistics they provide.

Table 3: Calls Are Enterprise Queued and Are Not Translation Routed

Report Focus	Reporting Statistics Needed	Report Template	Key Statistics
Application	Before the call is routed to the ACD, queued in the enterprise	Call Type	Number of calls routed Number of calls received Number of calls that encountered an error Enterprise Queue Statistics and Abandon in Enterprise Queue
	After the call is routed to ACD	Peripheral Service Enterprise Service	Abandons RONA
	After the call is answered by the agent	Peripheral Service Enterprise Service	Calls Handled Avg Handled Time Transfers

Note Skill Groups report on Enterprise queue statistics.

Related Topics
Effect of enterprise queues on reporting

Scenario Four: Calls Are Enterprise Queued and Are Translation Routed

For Enterprise reporting, use the following report categories:

- Use Call Type reports for enterprise view of reporting statistics for the application.
- Use Call Type and Enterprise Skill Group reports for enterprise view of queued and abandon in queue statistics for the application and skill group respectively.

- Use Enterprise Skill Group reports for enterprise view of reporting statistics when routed to a particular skill group.

Skill Group and Agent reporting are the same as for Scenario One: Calls Are Queued on the ACD and Are Not Translation Routed.

This table shows other report categories and the statistics they provide.

Table 4: Calls Are Enterprise Queued and Are Translation Routed

Report Focus	Reporting Statistics Needed	Report Template	Key Statistics
Application	Before the call is routed to the ACD, queued in the enterprise	Call Type	Number of calls routed Number of calls received Number of calls that encountered an error Queue Statistics and Abandon in Queue
	After the call is routed to the ACD	Call Type	Abandons Service Level **Note** RONA calls are reported on services and are not available for Call Types.
	After the call is answered by agent	Call Type	Calls Handled Avg Handled Time ASA

**Note** Skill Groups report on Enterprise queue statistics.

Related Topics

Effect of enterprise queues on reporting

Deployments with Hybrid Routing

In this deployment, Unified CCE includes both TDM PGs for Enterprise Routing to legacy ACDs and Cisco Call Manager PGs to provide the Agent Routing Integration (ARI) to an ACD/PBX such as Avaya.

Figure 3: Deployments with Hybrid Routing
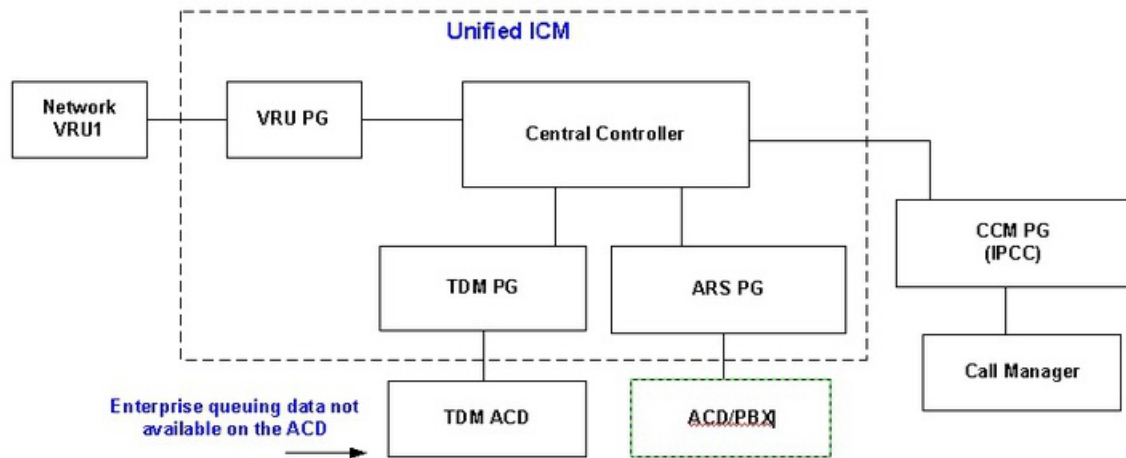
Routing and Scripting

The manner in which you configure and script your Unified CCE system in this deployment greatly affects the accuracy and usefulness of your reporting metrics. This section assumes that calls are shared and routed across call centers for the application and are managed the same way.

Follow these guidelines for configuring and scripting Unified CCE to ensure that your reports display correct and relevant metrics for your "hybrid" contact center implementation.

Guidelines:

1. Ensure all calls are routed by Unified CCE software.

2. Deploy a Service Control VRU to provide treatment and to queue calls in the enterprise while waiting for an available agent in a skill group.

   In other words, queue calls to skill groups in Unified CCE (Enterprise queuing) for all call centers. Avoid using ACD queues.

3. For legacy ACDs where Unified CCE software is used for Enterprise Routing, consider the following:

   • Ensure all calls are routed by Unified CCE software.

   • Use Translation Routes for routing calls to the legacy ACD. Always use translation routing when routing calls between ACDs.

   • Once the call is routed by Unified CCE and is terminated on the legacy ACD, make sure no treatment occurs at the ACD.

   • Avoid having agents transfer calls directly to other agent stations or agent IDs. Instead, use post routing capabilities to have Unified CCE provide treatment and queuing for transferred calls.

   • Avoid handling Redirection on No Answer (RONA) situations on the ACD. Instead use post routing capabilities to have the RONA calls routed by Unified CCE.

4. Plan for Call Type Reporting. To execute this type of reporting:

- Configure a separate call type for each type of treatment offered. For example: Create a separate call type for treating Support calls and Sales calls across all ACDs in your call centers.

- If you want to separate Information Gathering VRU metrics from queue metrics, configure a separate call type for queuing.

- Configure a separate call type associated with Redirection on No Answer situations. This enables you to direct calls that Ring No Answer to a routing script designed for this situation. This also enables you to use Call Type reports to report on this Redirection on No Answer and to see how calls that redirect on no answer are eventually handled.

- Configure a separate call type associated with call transfers. This enables you to direct the transfer to a different routing script.

5. Create a custom formula using skill group metrics for site selection based on expected delay. This is required as the predefined MED (Minimum Expected Delay) calculation provided by Unified CCE scripts is not applicable for Agent Level Routing configurations.

6. Configure Enterprise Skill Groups for Enterprise Skill Group reporting. Avoid grouping skill groups from the same peripheral into an Enterprise Skill Group.

A typical ICM script used to route calls in this deployment is shown below.

In this example:

- The enterprise has two sites (Boston and New York), each running a call center.

- A Call Type is defined that is associated with the routing script. This Call Type is used to define the treatment provided by the call centers.

- The call treatment to handle "Support" calls is provided by Unified CCE software through the call type and script association.

- The call center at each site has agents who are skilled to handle calls for either "Laptop Support" or "Server Support". These categories are configured as Skill Groups in the ICM.

  The Boston call center has an Avaya ACD (peripheral) connected with an ARS PG. The New York call center has an Aspect ACD (peripheral) connected with an ACD PG.

- Skill Groups are configured for each peripheral in the ICM.

Figure 4: Sample Script for Hybrid Routing
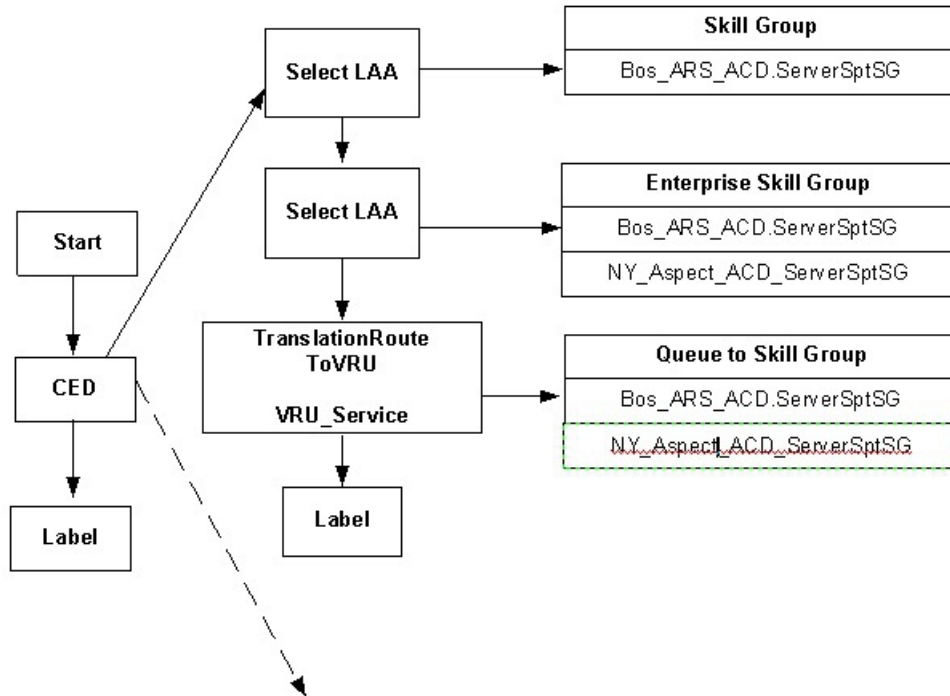
The script above is used for the following:

1. The script is associated with a Call Type to route support calls. The call type is used to define the treatment provided by the call centers.

2. The script uses Caller entered digits (CED) to determine the skill group (Laptop Support or Server Support) required to handle the call.

3. The script uses the LAA (longest available agent) node to look for an available agent at a particular call center. In this case the call may have arrived at the Boston call center, and you prefer to look for an available agent from that call center first.

4. If an agent is not available, the script uses the LAA (longest available agent) node to look for an available agent across the enterprise.

5. If an agent is not available, the script instructs the ICM software to translation route the call to the VRU and queue the call (Enterprise queuing).

6. Depending on the call center where there is an available agent, the ICM software does the following:

    • If an agent is available at the New York call center, the call routes to the Aspect ACD. The ACD at the site then picks an agent and assigns the call.

    • If an agent is available at the Boston (ARS) call center, Unified CCE software selects the agent and provides instructions to the routing client (VRU) to direct the call to the agent.

Reporting Considerations for Hybrid Routing Deployments

In order to get accurate and useful reporting metrics in this type of deployment, it is important to consider several factors that affect reporting. For more information, see Reporting Considerations.

Some of these factors include:

- Two reporting models used to provide reporting statistics for the application: Services are used for Enterprise Routing and Call Types for Agent Level Routing.

- The use of a Service Control VRU in your deployment to provide initial call treatment and enterprise queuing when sharing queues (skill groups) across call centers. This entails queuing calls to skill groups waiting for an available agent across your enterprise.

- The reporting on **queuing** statistics—ACD queues and Enterprise queues.

- The use of the Translation Routing mechanism to route calls to legacy ACDs for enterprise routing. This allows for call types to be used to provide reporting statistics for the application (Cradle to Grave). Translation Routing is implicit with Agent Level Routing.

- Routing scripts set up for your call center operations.

The table below defines the report categories to use to meet the reporting needs for your enterprise.

Enterprise Reporting

- Use Call Type reports for an enterprise view of reporting statistics for the application, including queue statistics.

- Use Enterprise Skill Group reports for an enterprise view of reporting statistics when calls are routed to a particular skill group, including queue statistics.

Report focus	Reporting Statistics Needed	Report Template	Key Statistics
Application	Before call is routed to an agent	Call Type	Number of calls routed. Number of calls received. Number of calls that encountered an error. Queue Statistics and Abandons.
	After call is routed to an agent	Call Type	Abandons Service Level Redirection on No Answer (RONA)
	After call is answered by an agent	Call Type	ASA Calls Handled Transfers

Report focus	Reporting Statistics Needed	Report Template	Key Statistics
Skill Group	Calls routed to a skill group Queued calls	Peripheral Skill Group & Enterprise Skill Group	Queue Statistics Abandons RONA Service Levels
	After call is answered by an agent	Peripheral Skill Group & Enterprise Skill Group	ASA Calls Handled Avg.TalkTime Avg.HandleTime
	Agent Info	Peripheral Skill Group & Enterprise Skill Group	Full Time Equivalent Agents (FTE) Percent Utilization.
Agents	Agent Info	Agent by individual, team, peripheral or skill group	Agent's current state Duration in a state Agents logged out Calls Handled Avg.Talk Time Avg.Handle Time