

## Innovations in Avaya IQ

Advances in contact center reporting to help you solve problems

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### Section 1: Introduction

Intelligence in the computer realm is modeled after the marvelous human brain. Like the brain, computers have memory and analytical power. Brains do much more: In a changing environment, they grow and form new connections to make their owners more effective. Computers are far from competing intellectually with humans. But with the advent of Avaya IQ, they've come one step closer.

If your business depends on a contact center, you know reports are necessary for survival. You also know that the environment is constantly changing. To adapt, you need real-time data to assess the moment. You need accurate historical reports that can summarize your operations, as well as reports that let you drill into the details of specific contacts or interactions. And you need a solution that scales with your growth.

A reporting solution faces some significant challenges in meeting these criteria. If you have multiple contact centers around the world, your need for analytics may be hampered by time and distance. You need one cohesive picture of your contact centers -- by location, region, division, and worldwide.

Fortunately, some of the smartest brains on the planet have been working on the next generation of contact center reporting and analytics. Avaya IQ contains many innovative solutions to challenging problems. In the following sections you will learn about some of these innovations.

### Section 2: How We Innovate at Avaya

When we started planning Avaya IQ, we created the Avaya Customer Advisory Panel. This group consists of over 70 diverse companies, small to large enterprises, spanning industries such as financial, technology, insurance, medical and education. The panel was tapped to find out how customers are using software tools for contact center reporting today. If those tools had shortcomings, these advisors told us about them.

We actively solicited suggestions for new features that would improve contact center operations. We previewed new technologies that would help with business problems. We tested our proposed solutions with the panel and used

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## WHAT IS AVAYA IQ?

Avaya IQ is a reporting and analytics platform that helps companies share one view of the truth, to make faster, better decisions and create a consistent customer experience.

Customers and analysts have acknowledged Avaya Call Management System (CMS) as the gold standard for contact center reporting. Customers asked Avaya to provide the next step in the evolutionary path of reporting, and the answer is Avaya IQ.

Avaya IQ is the cornerstone for embedding communication in the enterprise. It is rich in features to ensure that it will adapt to the future. Its extensible data model makes it ready to evolve with the needs of the business – in the contact center and beyond.

their feedback to fine tune these solutions to meet your needs. The result was Avaya IQ, the next generation contact center reporting product designed by our customers.

## Section 3: Data Innovations in Avaya IQ

Your contact center's memory, its database, is full of useful data – providing information on what happened and when. This helps determine if everything is running normally, or whether a problem needs your attention. Avaya IQ turns this data into information – giving you the analytical insight that you need to take intelligent action.

### Communication Data Mart

Some reporting tools collect streams of data from multiple sources in the contact center, but leave them separate. It is up to you to sort out how the pieces fit together -- and in some cases it may not be possible to accurately correlate them. And in some cases it may not be possible for you to accurately correlate the data. Avaya IQ reports on data from its own Communication Data Mart. It normalizes the events coming into the Communications Data Mart from multiple sources, and stores them using a single common data model.

The Communication Data Mart serves as a photographic memory for your communication applications. It remembers precise details and stores them in a database, modeled as a multi-dimensional star schema to enable analytics. Data is normalized across sources, representing each resource only once in the Communication Data Mart.

For example, an agent is represented once in the database, even if that agent handles inbound calls from Avaya Communication Manager and outbound calls from Avaya Proactive Contact. Other channels, such as email, will be blended into this common data model.\* Regardless of whether the contacts are voice or other media, they are represented uniformly. This makes reports more consistent and easier to interpret.

Avaya IQ provides a data export mechanism, allowing you to copy information to other applications, such as wallboards or workforce management systems, without redundant effort to normalize it.

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\*Email, chat and other media will be added in the next phase

## Multi-Dimensional Star Schema in Avaya IQ

Multi-dimensional views of data are very useful in analyzing large volumes of time-based business activities. Unlike relational databases, multi-dimensional structures provide a high degree of flexibility in the definition of unit relationships and dimensions. Relational databases are, however, the most common data management system in use today.

The star schema makes multi-dimensional database functionality possible using a relational database. It consists of a fact table with a compound primary key, with one segment for each dimension. Additional columns contain facts. The name reflects the schema diagram, shaped like a star.

Avaya IQ uses the star schema to give fast access to consistent reports. Dimensions – such as agents, queues and routing points – are surrounded by facts, such as agent trace data. You can organize those facts based on the dimension that is most meaningful for you.

## Proactive Contact integration

If you run a call center with blended inbound/outbound agents, you already know how difficult it is to get a report that shows exactly what an agent did. You create an inbound report and an outbound report on different systems, and manually reconcile the differences. This is not only labor intensive, it is too easy to double-count time or misinterpret an agent's state.

Imagine how useful it would be to see the agent's work blended into one report — Avaya IQ provides this blended report. Though the data comes from multiple sources, Avaya IQ sorts out the state changes to determine exactly what the agent is doing. You can run a real-time report and see the current state of each agent, regardless of whether he or she is handling inbound calls from Avaya Communication Manager, or outbound calls from Avaya Proactive Contact. And you can run an historical report to see each agent's performance across each channel and as a whole.

To achieve our customers' desired goals in Avaya IQ, we had to solve some very challenging technical issues to merge multiple real-time event streams, manage timestamp synchronization and latency, and determine when to ignore redundant events. The result is a uniform data model with blended inbound and outbound data.

## Voice Portal integration

Customers are beginning to welcome self-service as an alternative to waiting in queue for an agent. But did your self-service menu provide the desired result of giving customers answers to their inquiries? Are agent talk times reduced as a result of self-service? Learn the answers to these questions with the cradle-to-grave reporting in Avaya IQ.

## Detailed data and related contacts

The Avaya IQ data model stores much more detail about contacts and agent interactions than does a typical contact center reporting tool. It's like having call history turned on for all agents and all contacts all the time. When a contact is transferred or conferenced, Avaya IQ ties the multiple contacts together for reporting using a concept we call Related Contacts. This provides you with the full picture of the customer's experience.

From a summary report you can drill through to the details, to find out exactly what is behind the totals. Use this to analyze the root cause of an event. If a caller is unhappy, is it because he or she was on hold too long? Was he or she bounced around in several self-service menu trees before opting out to an agent in frustration? Did the agent transfer the call back to the same routing point to avoid handling the call? Simply drill through the summary data into layers of detail to explore everything that is happening in your contact center.

## Data extensibility

Avaya IQ allows you to import relevant business data into the Communication Data Mart. Placeholders for specific business data items are already in the data model, and standard reports show business results. Some examples of business data you might import are revenue per contact, quality score for each contact, and a link to the call recording for quality monitoring.

You import business data into the Avaya IQ database using standard database tools, so no knowledge of special programming environments is necessary.

Safely import your business data at any time. Avaya IQ implements a mechanism that virtually eliminates database contention during the import. Even if you use a tool that locks an entire table for exclusive access, Avaya IQ is able to continue operating without loss of performance.

### **Support for multilingual contact centers**

Your company is global, your contact center operates in multiple languages and your supervisors should get reports in theirs. Typical global software applications have not addressed this issue. They allow users to display the application itself in a selected language, but the content in the database shows up in a single language. For example, you may have assigned names for “Lunch,” “Break” and “Training” In English. A manager in Paris can run an agent activity report in French, but the output of common reporting applications will show the agent activity state “Lunch” in English.

Avaya IQ provides multilingual display name management, allowing you to define multiple names for the same resource. When an agent goes on lunch break, you can display “Déjeuner” for your French users and “Almoço” for your Brazilian users. Each user will see the reports with the content in his or her preferred language.

## **Section 4: Time Innovations in Avaya IQ**

If your company is global, operating multiple contact centers in different time zones, you may have additional issues to resolve in your reporting – most importantly: “What time is it?”

### **Multiple time zone support**

A common practice in data warehouse applications is to summarize data for time periods when the details are no longer needed. On the assumption that users want to see the data summarized by a specified time period, such as hourly or daily, the data is pre-summarized into those periods and detail data is discarded.

This simplistic approach does not address the needs of users in different time zones. If the system-wide “day” has been defined to begin at midnight Eastern time, daily reports make sense for users on the east coast of the U.S., but west coast users are always three hours off.

Should you want to compare results between your Denver, Colorado and Pune, India contact centers, you must account for a time difference of 11 1/2 hours plus a probable date change. This can skew daily and monthly reports: if data is summarized in Eastern Daylight Time, a daily report for June 30 includes two hours of June 29 data for Denver, while the Pune data includes 9 1/2 hours of July 1 data.

Avaya IQ solves this problem by enabling you to define multiple time zones for reporting. When you run a daily report for a time zone, Avaya IQ selects the proper set of intervals, allowing you to compare results for the natural day of each contact center. The detail underlying those intervals remains available for you to drill into, while maintaining time zone integrity. Avaya IQ stores event data in Universal Coordinated Time, or UTC, and then translates it to the user’s preferred time zone for reporting.

### Real-time sliding window and start of day

Contact center reporting applications present real-time data in intervals, typically 15, 30, or 60 minutes in length. Counts are accumulated during the interval, so you can see, for example, how many calls have been handled thus far during the interval. With many other reporting applications, however, counts are reset to zero to begin the next interval (see Figure 1). This makes it difficult to see trends in real time.

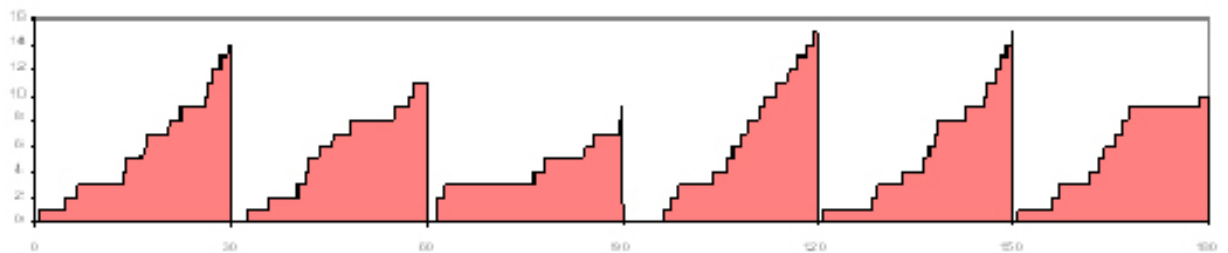


Figure 1. Typical contact center reporting system resets to zero every 30 minutes

Avaya IQ implements a sliding time window. When you run a real-time report you choose a sliding window size. Each time the report is refreshed, the sliding window is adjusted to show you the accumulated counts during the interval. If you choose a sliding window of 30 minutes, the report always displays counts for the most recent 30 minutes (see Figure 2).

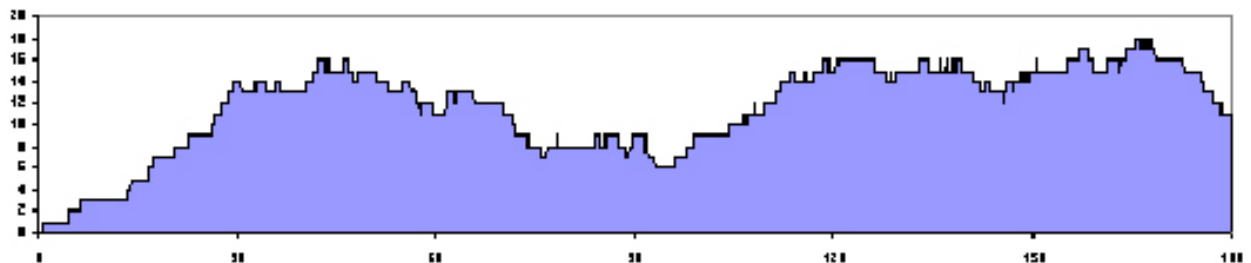


Figure 2. Avaya IQ's "sliding time window" shows the current rate

Real-time reports also accumulate counts from the start of the day, according to a start time you select when you run the report. Use this to track in real time what is happening for an entire shift, or starting at any significant point in time.

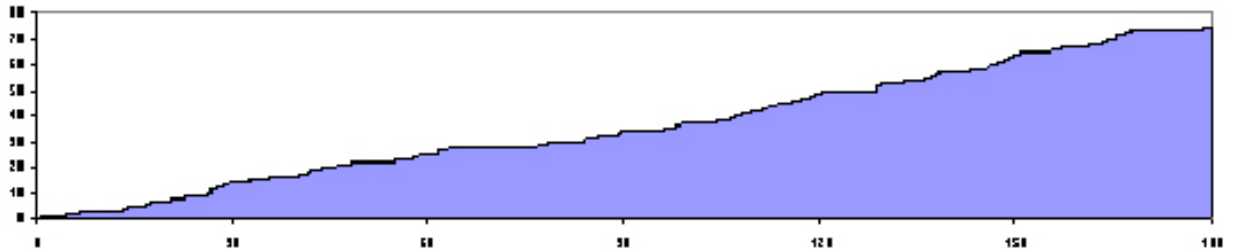


Figure 3. Avaya IQ's "since start of day" shows the growing total

## Section 5: Agent Behaviors Innovations in Avaya IQ

Agent behavior reporting is a new way to manage your contact center. Avaya IQ identifies role model behaviors as well as out-of-bounds patterns that may indicate problems — agents trying to avoid calls, routing rules set up incorrectly, or agents who need additional training. Behaviors include disconnects from hold, transfers, and long or short handle times.

In traditional contact center reporting products you must search the data for these behaviors on your own, often requiring you to scan multiple reports to identify these behaviors yourself. Avaya IQ identifies agent behavioral patterns and presents the data in a simple format, no searching required. The agent behavior reports also allow you to see whether the behaviors apply to individual agents or to entire groups of agents. You can drill into more detail to spot trends, look for patterns, and see the root cause of any out-of-bounds customer experience. Once you understand the root cause, you can take immediate action. For instance, you can recognize agents with model behavior, contact customers to assure them that a situation has been corrected, or schedule additional agent training or coaching.

## Section 6: Conclusion

Avaya worked with customers just like you to design Avaya IQ, the next-generation contact center reporting platform, so that Avaya IQ provides intelligent solutions for the business problems you face every day. More than a dozen patents were filed during development of the first release, including the advances described in this paper.

These are just a few of the innovations in Avaya IQ. For more information on how Avaya can boost the IQ of your enterprise, contact your Avaya Client Executive or Authorized Avaya BusinessPartner, or visit us at [www.avaya.com](http://www.avaya.com)

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## About Avaya

Avaya is a global leader in enterprise communications systems. The company provides unified communications, contact centers, and related services directly and through its channel partners to leading businesses and organizations around the world. Enterprises of all sizes depend on Avaya for state-of-the-art communications that improve efficiency, collaboration, customer service and competitiveness. For more information please visit [www.avaya.com](http://www.avaya.com).

The Avaya logo consists of the word "AVAYA" in a bold, red, sans-serif font. The letters are closely spaced, and the 'A's have a distinctive shape with a small gap at the top.

INTELLIGENT COMMUNICATIONS

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