

The Aspect® Unified IP® Five 9s Environment

Business Capabilities and Benefits

As technology advances continually increase system capabilities and the overall benefit for organizations, they also increase reliance on these systems to be available for use at all times. System reliability and availability, which has always been a core attribute for any organization, has become even more important with the evolution of the next-generation consumer who is empowered more than ever by choice, influence and control in a 24x7 marketplace.

Service availability and reduction of unplanned downtime collectively contribute to a customer's overall sense of the availability and reliability of a system. A system designed to ensure that customers can always contact an organization and complete a desired interaction while continuously maintaining the "conversation" will result in a highly satisfactory customer experience. The use of redundant system components reduces the detrimental effects of isolated failures and even physical component failures.

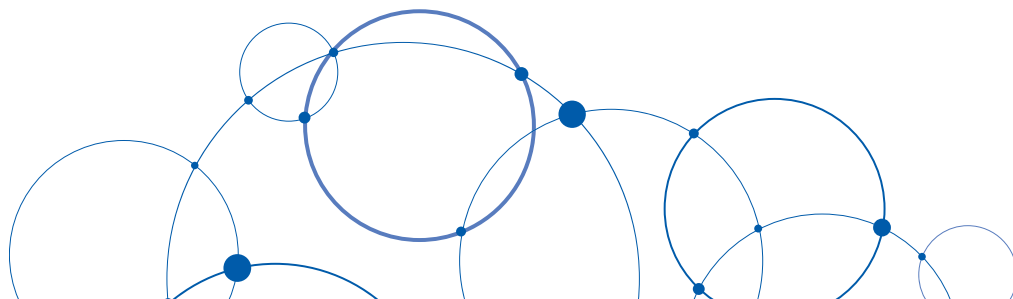
Availability is often evaluated as a percentage of uptime maintained over a measurable time period, and also typically ties to an organization's service level agreements (SLA) between business units and across the organization. Different services and systems within the business may have different SLA requirements that are typically determined by the overall cost/benefit analysis associated with the system and its consumers. Service level is, of course, also a very familiar contact center metric and represents one measure of the contact center's efficiency for responding to a customer's initial inquiry.

High availability (HA) for contact center systems typically targets 99.999% availability or Five 9s. An environment that achieves the Five 9s industry standard for high availability delivers significant benefits to organizations by minimizing downtime that often incurs undesirable financial and customer relations costs.

What is High Availability and Five 9s?

High availability is a design and implementation approach for ensuring a system meets a certain level of operational performance. Simpler systems with fewer failure points may appear to support higher availability but cannot sustain operations when key components fail. Parallel systems/service operations provide a very powerful mechanism for making a highly reliable system from many distributed components/services. To achieve high reliability, mission critical systems are designed with redundant components. The HA configuration for Aspect Unified IP ensures the system is resilient to common failure scenarios and isolated network disruptions, and the automated recovery processes support an availability standard for Five 9s.

Five 9s or 99.999% reliability means no more than 5.26 minutes of unscheduled downtime per year for a given computer system. As a measure of uptime, Five 9s data points include mean time between failures (MTBF) and mean time to recover (MTTR). Vendors or system owners may calculate this metric somewhat differently, making direct comparisons challenging.



Five 9s, High Availability and the Enterprise-Wide Aspect® Unified IP® 7 Solution

Aspect Unified IP applications provide Five 9's reliability for contact center processes that include:

- Sustain maximum capacity and availability
- Maintain in-progress conversations between customers and agents
- Preserve contacts in a queue
- Safeguard that the system is always reachable for customers initiating new inquiries
- Ensure quality of interactions is maintained by preserving recording/monitoring of customer interactions
- Retain contact information for reporting

The Aspect Unified IP solution is designed to maintain call delivery and call routing reliability of 99.999% uptime. The Aspect Unified IP HA architecture provides redundancy to ensure that HA components take over the processing responsibility in the event of a failure, and that appropriate functions are load balanced to reduce the risk and impact of any localized failure.

The following table details the level of resiliency that Aspect Unified IP offers under various potential failure scenarios:

Potential Failure Scenarios	Aspect Unified IP High Availability Behavior
Failure of a physical server where Aspect Unified IP software applications are running	<ul style="list-style-type: none"> - If a primary physical server fails, the Aspect Unified IP high availability (HA) components on the other physical server(s) will take over operation of the system to ensure that no active contacts are dropped, no agents are logged out, and all contact statistics are preserved - Alerts are delivered to administrators to notify them of the physical server failure - Customers are advised to repair the physical server as expeditiously as possible
Failure of the Aspect Unified IP primary database	<ul style="list-style-type: none"> - The Aspect Unified IP primary database is the main repository for user information, configuration data and business rules in the Aspect Unified IP architecture - If the Aspect Unified IP primary database fails, the Aspect Unified IP reporting database will take the role of the primary; no active contacts, agents or contact statistics are affected - An alert is sent to administrators notifying them of the database failure, and the failure incident is logged for tracking and troubleshooting purposes - The primary database is automatically restarted to bring it back to an operational condition
Failure of the Aspect Unified IP reporting database	<ul style="list-style-type: none"> - The Aspect Unified IP reporting database is the historical data repository of the Aspect Unified IP platform and also serves as the HA component for the primary database - If the reporting database fails, no active contacts, agents or contact statistics are affected - Access to historical reports and scheduled reporting tasks are temporarily unavailable until the Aspect Unified IP reporting database is back online - An alert is sent to administrators notifying them of the reporting database failure, and the failure incident is logged for tracking and troubleshooting purposes - The reporting database is automatically restarted to bring it back to an operational condition

Potential Failure Scenarios	Aspect Unified IP High Availability Behavior
<p>Failure of the primary Aspect® Unified IP® Unified Command and Control® Real-Time Reporting application</p>	<ul style="list-style-type: none"> - The Aspect Unified IP primary Unified Command and Control Real-Time Reporting server handles the real-time data in the Aspect Unified IP architecture - If the primary Aspect Unified IP Unified Command and Control Real-Time Reporting server fails, no active contacts, agents or contact statistics are affected - The redundant or HA Unified Command and Control Real-Time Reporting Server is available to provide real-time information - Both the primary and HA Aspect Unified IP Unified Command and Control Real-Time Reporting server are normally operational at the same time, and user sessions are typically load balanced across both active servers so that only the users who were connected to the primary real-time reporting server would be affected by the failure of that server - Supervisors or other users who were accessing real-time dashboards connected to the primary Aspect Unified IP Unified Command and Control Real-Time Reporting server can connect to the HA Unified Command and Control Real-Time Reporting server, to continue receiving real-time statistics - An alert is sent to administrators notifying them of the primary Aspect Unified IP Unified Command and Control Real-Time Reporting failure, and the failure incident is logged for tracking and troubleshooting purposes - The primary Aspect Unified IP Unified Command and Control Real-Time Reporting database is automatically restarted to bring it back to an operational condition
<p>Failure of the Aspect Unified IP recording database</p>	<ul style="list-style-type: none"> - The Aspect Unified IP recording database is the repository for call recordings and screen recordings in the system - If the Aspect Unified IP recording database fails, no active contacts, agents or statistics are affected; call recordings and screen recordings continue and are temporarily stored locally with the Aspect digital communication processor or telephony media server - Recording search and playback functionality is temporarily suspended until the server is brought back online - An alert is sent to administrators notifying them of the Aspect Unified IP recording database failure, and the failure incident is logged for tracking and troubleshooting purposes - The Aspect Unified IP recording database is automatically restarted to return to a normal operating condition
<p>Failure of the Aspect Unified IP primary Advanced List Management database</p>	<ul style="list-style-type: none"> - The Aspect Unified IP primary Advanced List Management database is the repository for contact lists used for proactive contact or outbound voice, email or short message service (SMS) campaigns - If the Aspect Unified IP primary Advanced List Management database fails, no active contacts, agents or statistics are affected; outbound records continue to be dialed from the HA Advanced List Management database; and active replication ensures that the information and contact status for outbound contacts is persisted between the primary and HA Advanced List Management databases - An alert is sent to administrators notifying them of the Aspect Unified IP primary Advanced List Management database failure, and the failure incident is logged for tracking and troubleshooting purposes - The Aspect Unified IP primary Advanced List Management database is automatically restarted to return to a normal operating condition

Potential Failure Scenarios	Aspect Unified IP High Availability Behavior
<p>Failure of the Aspect® Unified IP® Unified Command and Control® Administration</p>	<ul style="list-style-type: none"> - The Aspect Unified IP Unified Command and Control Administration application handles user and business rule provisioning in the system - If the primary Unified Command and Control Administration application fails, no active contacts, agents or contact statistics are affected - The HA component for Unified Command and Control Administration is available to continue handling provisioning changes in the system - Supervisors or administrators who were connected to the primary Unified Command and Control Administration application can connect to the HA Unified Command and Control Administration application to continue making provisioning changes - The Aspect Unified IP Unified Command and Control Administration primary and HA components support load balancing to equally distribute sessions between the primary and HA elements, preventing an impact to all supervisors and administrators - An alert is sent to administrators notifying them of the Aspect Unified IP primary Advanced List Management database failure, and the failure incident is logged for tracking and troubleshooting purposes - The Aspect Unified IP primary Unified Command and Control Administration application is automatically restarted and brought back to a normal operating condition
<p>Failure of an Aspect Unified IP telephony media server or digital communication processor</p>	<ul style="list-style-type: none"> - The Aspect Unified IP telephony media server (TMS) or digital communication processor (DCP) is the telephony interface of the system - If a TMS fails, the active calls on that TMS are affected - Agents connected on the failed TMS are reconnected to other available telephony media servers - For HA, the telephony media servers are deployed in an N+1 configuration with resource groups spread between multiple telephony media servers; this ensures that a failure of any one TMS does not impact the entire service or campaign, and calls can be distributed among the remaining telephony media servers - A proper N+1 configuration of telephony media servers and resource groups across multiple telephony media servers ensures that no more than 20% of resources are event-affected by a telephony failure - An alert is sent to administrators notifying them of the TMS failure, and the failure incident is logged for tracking and troubleshooting purposes

Conclusion

High availability and the optimal Five 9s reliability standard is a central component of Aspect® Unified IP® 7, which delivers significant automation around recovery and maintaining system operations to limit or eliminate the experience of downtime for customers interacting with the contact center. The system's resiliency to isolated failures significantly reduces unplanned downtime. For configurations that meet Aspect's HA requirements, reliability up to 99.999% can be achieved, which translates to increased customer satisfaction, better resource utilization, and more financial benefits to the bottom line.

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