



INFORTEL SELECT APPLICATION NOTE

AVAYA SURVIVABLE CDR

DECEMBER 5, 2007

Over two and a half decades ago Avaya's switches first began producing CDR (Call Detail Record or Call Detail Recording) data. At that time all CDR records were delivered in a single format via a 1200 baud serial connection. In recent years Avaya switches produced CDR data in a multitude of different formats which are delivered to the Infortel Select via IP links using what is known as Reliable Session Protocol. After receiving data, Infortel Select processes the CDR records and generates the reports that the end customer requires.

In this configuration the main server generates all of the CDR records and then "pushes" them to Infortel Select for processing. Infortel Select functions in a "Listen Only" mode receiving whatever CDR records the switch sends its way. This is the CDR architecture which has been employed in most Avaya switches up through Communication Manager Release 3.X.

Early in 2001 the concept of a Local Spare Processor (later re-named to Local Survivable Processor) was introduced to provide a backup for the call processing activities of a S8700 or S8300 server which was controlling one or more G700 gateways. In the event that either the server or the communications link between the server and the gateway failed, the LSP could take over the call processing responsibility so the G700 could continue to serve its users. About two and half years later development of the Enterprise Survivable Server (ESS) was started with the goal of providing similar functionality for port networks which were controlled by S8500 or S8700 servers.

The development of both the LSP and the ESS provided wonderful increases in overall system reliability and availability by allowing the pieces of a switch to continue to provide telephony service independently even when the switch or its communication links experienced one or more failures causing the switch to no longer be capable of functioning as an integrated unit.

When all of the port networks and gateways that make up the switch are functioning under the control of the "main" server, the CDR records continue to be produced as they historically have been. However when the system becomes fragmented due to a communications link or server failure,

the generation and collection of CDR records becomes a little more complex. Instead of having a single entity (the “main”) handling all of the call processing activities and producing all of the CDR records, now each LSP and/or ESS that is “in-service” provides call processing functions and generates CDR records for that portion of the switch which it controls.

Today there are mechanisms in place to deliver CDR records from the LSPs or ESSes in a fragmented network to the CDR adjunct but with the high probability that the initial system fragmentation occurred due to the failure of an IP link, it becomes highly unlikely that the LSPs and/or ESSes will be able to communicate with the CDR adjunct over those same IP links.

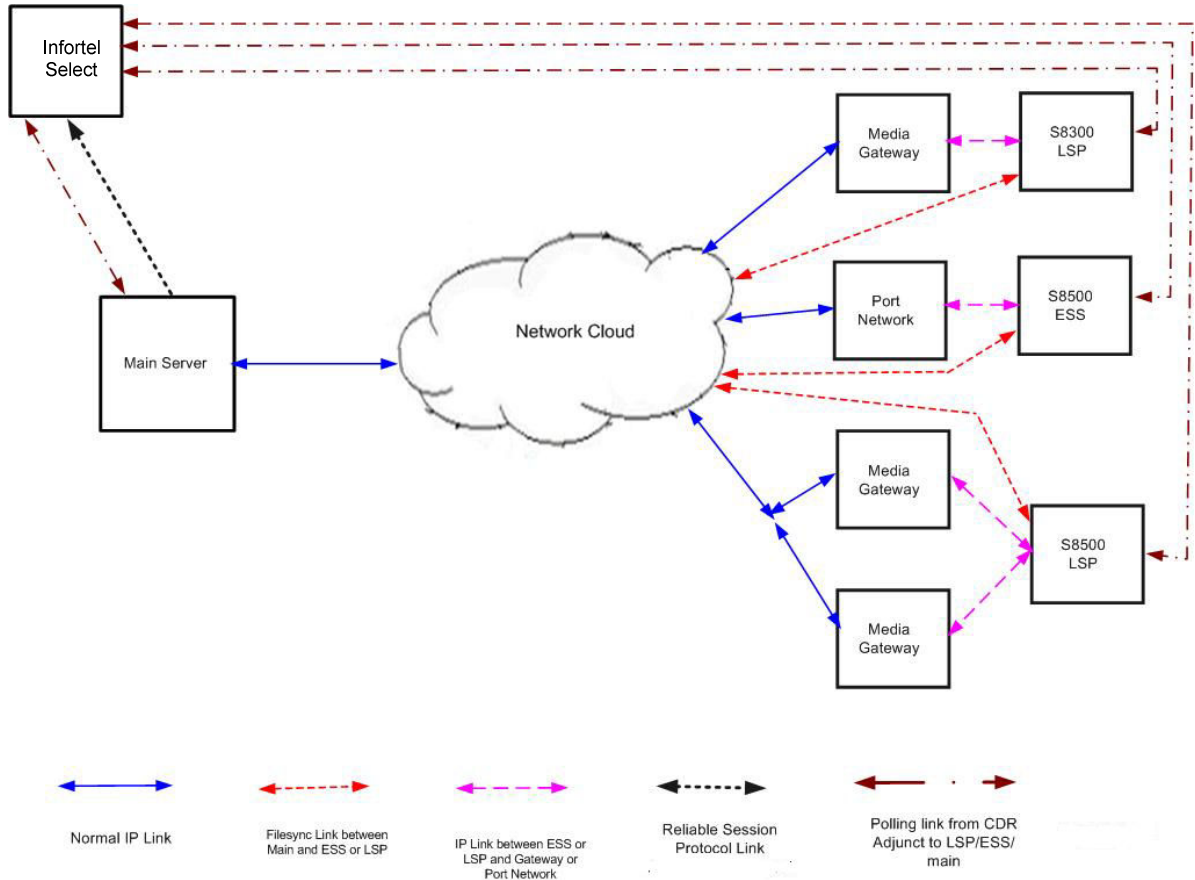
One of the most obvious solutions to this problem was to provide a buffer box or collection server in close proximity to each main, each LSP and each ESS. As a general rule this option was judged to be much too expensive and difficult to maintain, therefore a different solution had to be identified. Enter the “Survivable CDR” feature.

The primary reason for the “Survivable CDR” feature is to provide a method to preserve the CDR records associated with calls that occur while a gateway or port network is under the control of an LSP or ESS. As a part of Communication Manager 4.0, a new feature known as “Survivable CDR” is available on all “main”, LSP, and ESS Communication Manager platforms.

When the “Survivable CDR” feature is properly administered, when an LSP or ESS loses connectivity to the main, the switch will save its CDR records on its local hard drive. Periodically, Infortel Select will log on to each of the “Survivable CDR” administered platforms and retrieve whatever CDR data files are available.

Infortel Select logs into the switch via a special login and password that the switch administrator has created especially for this purpose. For security reasons the special login used by the CDR adjunct is only given access to the directory where the CDR records are stored.

SURVIVABLE CDR ARCHITECTURE



The drawing above depicts a typical system employing the “Survivable CDR” feature. Under normal operation, all CDR is served directly to Infotel Select by the main server over a link using Reliable Session Protocol.

When ESS’s or LSP’s enter survivable mode, no CDR is sent to the main server. The CDR is captured on the local disk. Infotel Select will periodically log into each server to retrieve any records that were stored on the local disk. This is done through the use of Secure FTP (SFTP). In the case of a network failure, it is assumed that the login will fail. When the network is functional again, Infotel Select will successfully retrieve the records and delete those records successfully retrieved.

SYSTEM REQUIREMENTS

The following minimum switch requirements must be met in order to support the “Survival CDR” functionality described in this Application Note:

- The platform must be a S8300, S8400, S85XX or S87XX switch platform operating as a “main”, a LSP or an ESS.
- The switch must be running Communication Manager 4.0 or a subsequent release
- There must be IP connectivity between Infortel Select and the target server, LSP or ESS platform at least from time to time to allow remote collection of the CDR data files.

Infortel Select version 7.5 or higher supports Survivable CDR. Version 7.5 systems must be updated with the latest updates to support this feature.

SECURITY

The “Survivable CDR” functionality on Avaya’s switches has two primary security related aspects switch/network administrators should be aware of.

1. Due to the potentially sensitive nature of CDR records, Avaya highly recommended that a secure transport mechanism be utilized for all communications between the call accounting system and the switch. Based on this recommendation, ISI has chosen to use Secure FTP as the means of communicating with the switch.
2. If there are firewalls implemented anywhere between Infortel Select and the various switch platforms (mains, LSPs or ESSes) it may be necessary to “punch” pinholes in those firewalls to allow communications between Infortel Select and the switch platforms.



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