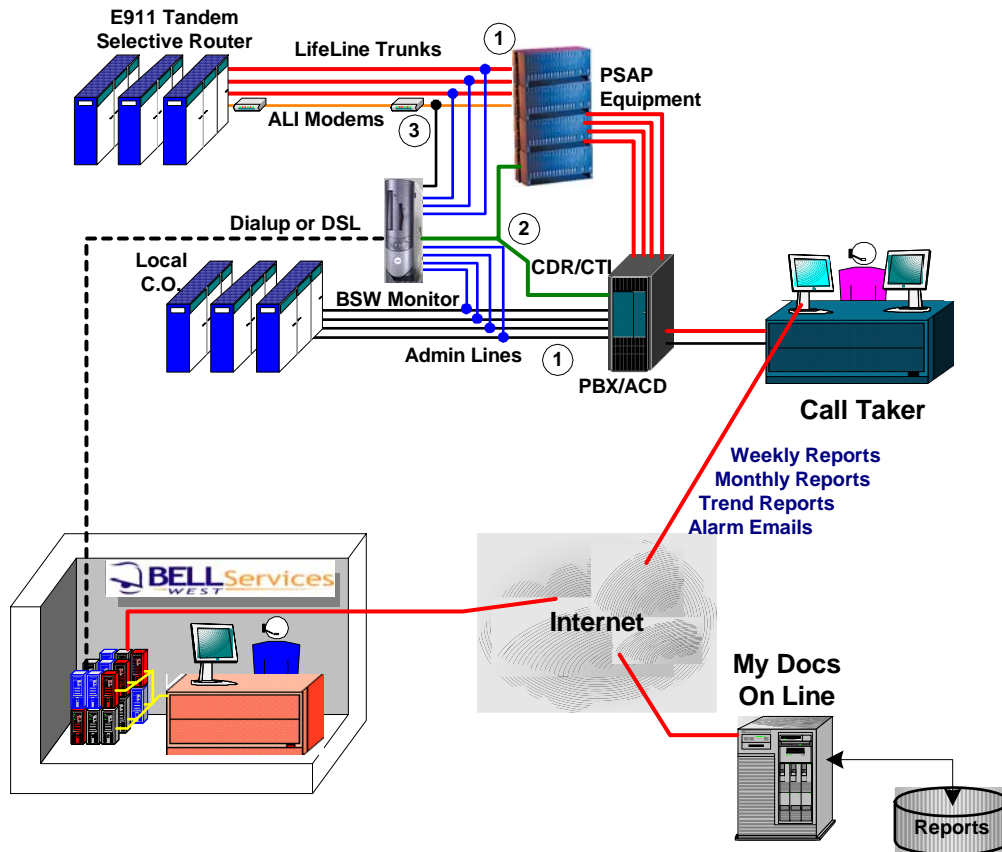


# E911 Network Management

Figure 1 shows a BSW monitoring system deployment. The BSW System hardware resides at the PSAP and is remotely accessed via high speed Internet connection or dial up modem.

Analog or Digital Trunks and Lines (LifeLine Trunks, PSAP Equipment, PBX/ACD circuits and Analog Administration lines) are connected BSW monitors *non-intrusively* ①.



**Figure 1 – Automatic E9-1-1 Network Monitoring Example**

An RS232 “Y” cable is used to connect the BSW Controller to the PSAP CDR/CTI or PBX/ACD Maintenance ports②. Additional RS232 “Y” cables are connected to the ALI Modems③.

The BSW System collects call events, unattended, until the user or control application ends the live session. If a trouble is detected, an Alert or Alarm is generated and sent to PSAP Center managers and the BSW Customer Care Center. If a trouble is reported by a call taker or citizen, BSW Customer Care Technicians can “go back in time” to find the call that failed. Problem circuits can be made busy until they can be repaired, avoiding future failures.

Every day, the BSW System retrieves the collected data and analyzes it. Users can then access Call Records, Call Taker Logs, ALI statistical information and reports. All data is accessible via the Internet. Users can download Call Record, Call Taker Record, Queue Log, and ALI Record data to perform additional analysis or generate custom reports.

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## Full Time Trunk and Line Monitoring

Full time monitoring is performed on a monthly basis. At midnight every day, the BSW monitoring system will retrieve the results from the prior day. These results will be processed and reviewed by BSW technicians. Weekly status reports will be generated and emailed to the customer contact. The status report will include the following information:

- Number of Lifeline calls by day
- Number of Lifeline Trouble calls by day
- Total number of Lifeline Calls for the week
- Total number of Trouble Calls for the week

- Number of Admin calls by day
- Number of Admin Trouble calls by day
- Total number of Admin Calls for the week
- Total number of Admin Calls for the week

At the end of each monthly report period, up to 40 plus reports are generated and an email message sent to the customer contact notifying them that the reports are available. Customer's can then log on to the BSW Customer Reports<sup>1</sup> web page to review the reports on line or download reports to their local PC. A special report viewer (Snapviewer.exe) application is provided to view reports on the customers PC. The viewer is free from Microsoft and can be downloaded to any PC as required. It is also available on the BSW website. The viewer allows customers to print reports as well as email reports.

A BSW representative will review the first month's reports with the customer. At this time, the customer can request modifications to the reports or request different reports. Depending on the request, there may be an additional charge for the report(s) creation and generation.

Customers can also contact BSW's Customer Care Center any time they need a report explained or want to order additional reports.

If BSW Technicians detect any problem with the circuits being monitored, they will assist the customer in resolving any trouble identified by the PS-TARS system.

*1. Some reports can be quite large (2 to 35 megabytes each)*

## **Call Detail Record Monitor (Option 1)**

If the customer has ordered the CDR monitor, CDR data will be correlated with Call Monitor data. The resulting data will be used to produce the 21 reports listed in Appendix 1.

The CDR data also helps BSW Technicians isolate a trouble and facilitate repairs.

## **Local Alert/Alarm Full Time Monitor (Option 2)**

While Lifeline trunks are monitored, calls are continuously analyzed for trouble scenarios. Once trunks have been benchmarked, a BSW representative will review the possible Alerts and Alarms that can be monitored based on the benchmark results. The customer will select up to 15 Alerts and up to 25 Alarms that be enabled. This information will be passed to a BSW Technician who will update the monitor system. The customer will also identify contacts that they want the Alerts and Alarms to be sent to. Alerts and Alarms can be delivered by email, numeric pager or text based pager.

When an Alert or Alarm condition is detected, Alert or Alarm messages will be sent to the identified contacts. Alert and Alarm conditions are also displayed on the BSW Alarm consol. A BSW Technician will call the main customer contact to verify if the Alarm was received by the customer and will offer to assist them is resolving the Alarm. BSW Technicians will not contact the main customer contact for Alert conditions. However, customers can call the BSW Customer Care Center if they have questions about the Alerts or need technical support in resolving the Alert.

BSW will generate monthly Alert and Alarm History Reports and email them to the main customer contact.

BSW Tech support is available 24 by 7 to help customers resolve Alarm conditions. A live technician will be available during normal business hours (6:00AM to 6:00PM PST) Out of hours coverage is provided via pagers. A BSW Technician will respond to pager messages within 30 minutes of receiving the page.

Because of the wide variety of Admin Line protocols and the two-way nature of the circuits used to carry Admin Line traffic, only basic Alarms are provided. This is done to reduce the number of potential nuisance Alarms that can be generated on these types of circuits. As BSW characterizes the customers Admin Line traffic and performance, additional Alarms will be added as needed.

All Admin Line Alarms will be handled in the same manner as the Life Line trunks.

## BSW Tech support

BSW Tech support is available 24 by 7 to help customers resolve Alarm or trouble conditions. A live technician will be available during normal business hours (6:00AM to 6:00PM PST). Out of hours coverage is provided via pagers. A BSW Technician will respond to pager messages within 30 minutes of receiving the page.

BSW Technicians also use the Monthly Trend Reports (Historical Data) to identify potential problems in an effort to prevent troubles. If a potential problem is identified, special tracking reports are implemented to alert the PSAP Manager when a condition exists that could harm their network or impair service performance.

BSW Technicians will also act as your advocate with Service Providers and CPE Vendors to help resolve troubles quickly or even prevent trouble from occurring. BSW has over 200 years of telecom experience in PBX repair and maintenance, Switching Network maintenance including SS7, ISDN, Translations and VOIP implementation.

## Report Data Archive

BSW will archive all report data in a stand-alone MS Access™ database for the duration of the service contract. Customers can access this data via the BSW Customer Reports web page or download the entire database via FTP.

Monthly report data will be appended to the database. The report database consists of two tables. Call Record and Statistics.

## Results Data Archive

BSW will archive Processed and Raw Event data in a separate stand-alone MS Access™ database for a rolling three-month period. Customers can access this data via the BSW Customer Reports web page or download the entire database via FTP.

Physical event data will be archived at the local BSW controller. This data will be stored for a rolling one-week period. The physical event data is used by BSW Technicians to help resolve complex troubles and is not available to the customer. BSW Technicians may provide signal traces or audio files to the customer, as evidence, to support trouble analysis results.



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