

Linux, Layering and Listening: What to Look for in a Call-Recording System

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The most revolutionary enhancements to enter the call-recording/quality-monitoring market since the first digital recorder in the early 90's are the moves to a Linux operating system and new software architecture. By using Linux, logging manufacturers are able to produce systems that are more powerful, flexible, secure and reliable. The operating system, the foundation and core component of any call-recording or quality-monitoring solution, serves as the engine for its intelligence and the backbone for all system functionality. Linux is quickly becoming the new industry standard when a reliable, secure platform is required to run mission-critical applications. As a result, it has been adopted by many departments of the Federal government, State governments and major corporations. Due to Linux's enhanced functionality, adaptability and robustness, it has become the main alternative to all proprietary operating systems used today.

Linux is defined as "open-source" software and non-proprietary because it can be modified and customized by manufacturers to meet changing requirements. In fact, as markets become more competitive, the manufacturer can continue to improve the product through an ongoing update process, thus prolonging the product's life expectancy, reducing costs and eliminating the need to replace systems sooner than necessary. Additionally, manufacturers can tailor Linux to meet current applications as well.

Linux's reliability ideally satisfies mission-critical applications because its solutions have been reviewed, continually developed and improved. It offers a stable, multi-user, multi-tasking platform for systems with TCP/IP operation, a built-in networking capability, compatibility with all SQL databases such as Oracle or MS SQL 2000 Server, and is especially optimized for MySQL. MySQL speeds up the call-retrieval process while managing over 20 million call records. It can keep track of over 30,000 calls per hour, more than adequate for the most active contact centers in the world.

Security and the prevention of unauthorized access to recording systems are of paramount importance to all organizations. Linux offers the most secure platform available and is protected from hacking by a built-in firewall, programmed to allow access only to pre-approved traffic. All applications are segregated from the operating system, and Linux is not susceptible to the increasingly devastating Windows viruses. Linux's outstanding user administration also contributes to its security. The Administrator, equipped with all rights, is defined as the "root user," and other access rights may be created with unique limitations.

In most hectic contact-center environments, when finding and replaying a call is critical, this powerful system really performs. It maximizes the hardware it is being run on and does not require specific platforms. It provides advanced graphical user interfaces and is compatible with many general-interest desktop applications, including web browsers, email programs and file managers. After a power failure, it boots up instantly and is operational in less than one minute with no annoying, time-consuming, check-disc procedures.

Linux recording systems incorporate a layered software approach to meet today's complex requirements. Organizations may purchase only the modules they require, "a-la-carte," if you wish, and thus accommodate or leverage existing network infrastructure. Software applications may be run on existing hardware to provide a stable, multi-user, multi-tasking platform on inexpensive PCs.

The media layer is considered critical in modern call-recording systems. In addition to traditional voice traffic, i.e., digital ISDN lines, digital extensions, etc., many contact centers record voice over IP (VoIP), screen data from Video Graphic Array Adapter and call-index information from other sources, such as CRM and scheduling software. The media layer provides the flexibility to record these different formats while remaining prepared for future needs. In fact, existing hardware platforms may be adapted to record VoIP traffic using a software-only architecture to reduce costs as well as system maintenance and support.

Layering makes applications more flexible than ever before. They can be run either on a single-server platform (single site) or a central server (distributed enterprise environments). The call data may be stored for a predetermined amount of time on a separate server or be sent to a customer server to provide a unique disaster-recovery option.

Smaller organizations may purchase a stand-alone, “all-in-one” configuration with everything self-contained in one chassis. The recorder houses the database, a hard drive for local storage, and archive drives for long-term purposes. These systems can utilize existing storage components such as the customer file-server to store recordings online. The database of calls can be run by a flexible archive-manager application, programmed to decide where and how long to store them.

For larger companies, especially ones with multiple locations, the enterprise configuration provides greater flexibility. Calls can be recorded, stored on the hard drive for the interim, and then transferred to a customer-provided, off-the-shelf storage device. With the rapidly increasing compliance requirements, this additional online storage is crucial. Additionally, many companies are moving their data to secure, central IT departments or disaster-recovery sites for an extra level of centralized management.

Modern call-recording systems scale from eight to hundreds of channels with the ability to network thousands. They come standard with large hard drives with more online storage to eliminate the need to playback calls from archive media. The fastest growing trend in the contact-center market today provides online access to all calls, reducing the need to ever interact with discrete archive media. This method provides the quickest access to calls and allows disputes to be resolved quickly.

For the same reason, advanced compression rates are further increasing the amount of calls you can store on the standard hard drive. To maintain sound quality, look for a rate of 4.8 to 1 to store 50,000 hours on a 120 GB drive. Additionally, to store calls for extended periods of time, the latest call-recording systems can be attached to Storage Area Networks (SAN) and Hierarchical Storage Management (HSM) devices for an unlimited online capacity.

In addition to the media layer, the system’s interaction layer is also critical in call-recording architecture. It provides connectivity to other systems and the ability to interface with data from other contact-center applications. Specific data such as customer number and order number can be tagged to the recorded call as additional search criteria using an open Application Programming Interface (API). APIs in C++, JAVA and HTTP/XML minimize the effort and cost to integrate these tags.

A layering approach also helps improve the reliability of the recording system. Consider redundant hard drives to record call data with a dual controller. This allows 100 percent functionality even in the event of a drive failure. To increase the reliability of the power source, a redundant, hot-swap, dual-input, load-sharing power supply should be added. Be sure to specify industrial instead of low-end PC components. Carefully examine and stress the mean time before failure (MTBF) of the total solution and avoid the low price of off-the-shelf components. The system chassis and all the layers must be maximized for a recording system and tested in a stringent environment, critical for all business applications. In the event of a database error, today’s systems are able to reconstruct lost information from the archive media.

Other industry trends involve browser-based system watch, selective recording, powerful client applications and agent interaction. They operate best in a Linux environment and are built into the system architecture. For example, remote service dispatch provides the ability to remotely control the system via a secure LAN/WAN connection with no additional third-party software.

Selective recording allows management to record only those calls required to evaluate agent skills. Rules-based recording is based on predetermined criteria such as the date, number dialed, customer-account number and call duration. If you are concerned about the total customer experience or protection from liability, then total or bulk recording is the preferred method. Additional options include a record-on-demand application to initiate recording or to save or delete a recorded call. For some specialized applications dealing with sensitive information, parts of a recorded call may even be muted.

Client applications are becoming as powerful as the system architecture itself. Retrieving calls remotely via a web browser allows users access to the system data from any secure PC in the world with a valid user ID and password. Search and replay, also via a browser interface, provides widespread access and system deployment with limited resources and reduced support. The graphic user interfaces (GUIs) require minimal training, allowing even the occasional operator the ability to use the system. Powerful LAN/ WAN clients offer more sophisticated features not available through a browser interface such as multi-channel replay and live monitoring to recreate a complete customer interaction. Systems today let managers instantly hear current or previous calls with the touch of a button.

Recording systems are also proving a boon to personnel departments and the convenience of agents. Many contact centers running multiple shifts need the ability to support free-seating environments. This can now be facilitated with CTI integration or a flexible call-tagging application to leverage existing login IDs provided by widely used networks such as Microsoft Windows.

Additional agent interaction tools enhance productivity and offer immediate feedback. Live monitoring and listening real-time to calls provide information for self-improvement and quality assurance, thus increasing customer retention.

In summary, Linux-based systems are more powerful, reliable, secure and feature-rich and are a very easy upgrade path from your current technology.

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