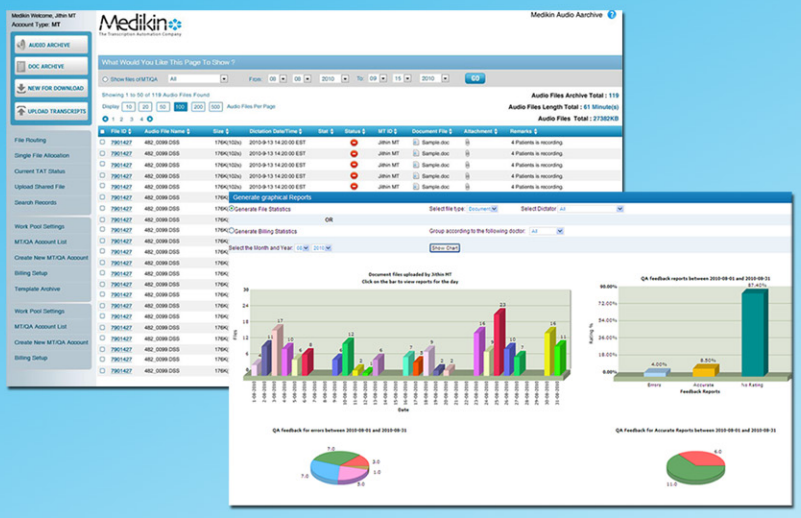
Medikin Online Technical Specifications

Medikin Online offers a secure, flexible web-based transcription workflow management system in a hosted SaaS model. The Medikin application suite is a proprietary application developed with and running on open source technologies such as Perl, PHP and Java as well as Linux, Apache, MySQL, Xen, Asterisk, Mirth, etc. Medikin's flexible design is illustrated by the fact that, in addition to uploading audio files via the browser, doctors are able to dictate and upload audio into the system via any of the following methods:



ANY PHONE DICTATION

Doctors call a toll-free number - a private number dedicated just for that doctor, a number dedicated to the physician group or hospital, or a number shared by other authors of the transcription company - from any phone with a standard keypad which is used to log in and control the record, playback and other functions. Asterisk, an open source telephony system, forms the basis for Medikin's Any Phone Dictation Service.

AUDIO FILE OUTBOX

Doctors or Medical Records Managers running Medikin's cross-platform Nexus application can automatically send new audio files that have been transferred to the computer via syncing of a handheld digital recorder. Nexus, which also automatically downloads completed transcripts as soon as they are ready, is developed in RealBasic.

SMARTPHONE DICTATION

Doctors with a compatible smartphone dictation app can record on the go in high quality and instantly upload files when they have WiFi or 3G/4G service. Medikin supports the Dictamus app for iPhone and Medikin's own Android dictation app.

Medikin
The Transcription Automation Company

MEDIKIN ONLINE EDITOR

Medikin Online is accessible via Internet Explorer, Mozilla Firefox, Google Chrome and Apple Safari. The Medikin Online Editor accessible via Internet Explorer which enables typing and editing documents from within the browser.

MODULAR CODE BASE

Medikin's code is developed with CodeIgniter, an open source MVC compliant PHP web application framework. MVC is a method of modular application development which separates the code into three distinct components referred to as the Model, the View and the Controller. MVC coding is the preferred method for complex software design projects because MVC software is modular and adaptable and therefore easier to extend, debug and support.

PHYSICAL SERVERS

Medikin's servers are powered by quad-core Intel Xeon processors with multiple hot-swappable hard drives in RAID 1 configurations and dual power supplies. Remote control of the servers is maintained via KVM-over-IP switches. This enables systems administrators to remotely access the servers at the BIOS level which is helpful in case of any critical issues with the base operating system.

VIRTUAL SERVERS

Medikin utilizes the open source Xen Hypervisor virtualization technology to provision services to its clients via virtual servers running the latest stable version of the Debian distribution of the Linux open source operating system. Virtualization enables Medikin to scale up very quickly and without interruption to existing services. Virtualization provides many other benefits such as datacenter flexibility, more efficient use of computing resources and greater application security.

Medikin Online Technical Specifications

Medikin
The Transcription Automation Company

HIPAA COMPLIANT CLOUD COMPUTING

Cloud computing is popular because it employs virtualization technology. But cloud computing vendors stripe the data and applications of their various clients across a shared server infrastructure which obscures the verifiability of the privacy of their clients' data. Although there is an initiative to resolve this problem by developing an industry standard audit assessment API, it may not be HIPAA compliant to utilize such public cloud services. Medikin has therefore elected to build and operate its own private HIPAA compliant cloud computing infrastructure.

SYSTEMS MONITORING

Physical and virtual servers as well as critical services are monitored 24X7 by a customized implementation of the open source Nagios monitoring software. Alerts are sent to qualified on-call engineers via email and SMS.

TICKETING AND BUG TRACKING

Medikin uses OTRS and Bugzilla for online trouble ticket management and bug tracking. These are open source tools which enable us to support our clients effectively while maintaining a searchable archive of issues that aids in the debugging and further development of the code base.

DATABASE SYSTEMS

The databases reside on servers dedicated exclusively for reading from and writing to the database tables. Multiple database servers handle the active client data, and standby servers are updated nightly to provide fault tolerance at the database processing layer. Medikin utilizes the most advanced open source database software - PostgreSQL and MySQL, and the AFS file system for enhanced security, scalability and efficiency.

DATA STORAGE

All client audio and document data as well as virtual server image and code repository updates are backed up to a storage system consisting of a large redundant array (RAID 5) of hot-swappable disks which stripe the data across the drives to ensure continuity in case of a disk failure. A secondary incremental backup is transmitted nightly via VPN to a storage server in Medikin's secondary datacenter. Off-site backup to fixed media such as tape or DVD is available upon request.

DATACENTERS

Medikin's primary datacenter is a SAS-70 Type II accredited datacenter which provides secure and reliable rackspace via tight physical security, advanced environmental controls and redundant sources of utility, battery and diesel generated power. Medikin's IP network is managed by Internap's patented route optimization technology which intelligently routes data across multiple Tier-1 Internet backbones, insulates traffic from network outages and provides low-latency connectivity, dynamically identifying optimal paths for business-critical data. Internap provides Medikin with the highest possible uptime guarantee and 24X7 direct access to certified network engineers. The aggregated features of the datacenter facility, Internap's operational support and Medikin's own monitoring systems include:

- 24X7 Physical Site Monitoring
- Security: Access Card, Fingerprint Scan, Video Surveillance, On-duty Patrol
- Backup Power: Redundant Uninterruptible Power Supply Battery Banks
- Diesel Generator for continuous supply of alter nate backup power
- Diesel Fuel Reserve: 2 days, with multiple vendors on call
- Fire Protection: Pre-action Sprinkler with Integrated Smoke Detection System
- Floors: Slab with overhead cable trays
- Secure vented cabinets with dual locks for Medikin Online servers
- Redundant cross-connected Gigabit switches
- Redundant 20 AMP power from distinct utility power sources
- Redundant power supplies in servers to receive power from distinct power sources
- Redundant Domain Name Servers
- Redundant 100 Mb Internet connections via Internap's route optimized Internet access
- 100% Uptime Guarantee for Power and Internet
- 24X7 Server Monitoring with SMS Notification
- 24X7 access to Internap's Network Operations Center
- 24X7 access to Medikin's Systems, Network and Coding Engineers

Medikin Online
Technical Specifications

Medikin
The Transcription Automation Company

SYSTEMS SECURITY

Medikin employs a variety of systems security measures including:

- Using the Debian Branch of Security-Enhanced Linux
- Hardened Wrapper Deployment via DenyHosts Blacklisting
- Whitelisting that limits access to servers that require access from a limited set of addresses
- Automatic Security Updates With Rollback Failsafe
- Rootkit Defense via Rootkit Hunter
- Host Based Intrusion Detection
- Password Rotation Schema

APPLICATION SECURITY

Access to Medikin Online is secured via:

- Unique user IDs and passwords
- Logged and verified ID modifications
- Access privileges associated by username
- Transmissions made via SSL or Secure FTP

TRANSMISSION SECURITY

Medikin secures the transmission of audio and document files via 256-bit SSL encryption. All the access points to audio and document files are identified and authenticated by a username and password combination. Web-based login is secured by a GeoTrust's True BusinessID SSL Certificate.

INTERFACES

Medikin has developed interfaces via protocols such as XML and HL7 to integrate with partners which provide services such as: Electronic Medical Records, Medical Billing Software, Hospital Systems, Natural Language Processing, Voice Recognition, Toll-Free Telephony Service, Smartphone Applications and Transcription Company FTP Servers.

TRUST

Confidentiality of client data and Protected Health Information (PHI) is of prime importance to Medikin. As a provider of outsourced IT services to its clients Medikin provides a HIPAA compliant Software-as-a-Service by adopting the aforementioned security measures. But technical measures are not sufficient. Medikin employees sign a confidentiality agreement which addresses the confidentiality of PHI, and are nonetheless restricted in their access level according to the requirements of their roles.

EXPERIENCE

Medikin's technologists have many decades of experience in Healthcare IT, Network Security, Telecommunications and the design, development and support of mission critical applications. Medikin maintains a "Five 9's" – 99.999% uptime track record and has been a continuous service provider for more than 8 years to some of its more prestigious hospital and transcription company clients.