

Data Systems Integration Group, Inc. at a Glance

DSIG provides professional Information Technology consulting services and software solutions to Fortune 500 corporations and government agencies to enable clients to utilize technology to improve operational goals.

Our Healthcare solutions bring additional value to our customers and have been implemented in multiple organizations to meet the needs for managing Electronic Health Records (EHR) as well as Laboratory Information Management Systems (LIMS).

RevolutionDx Software Solution

DSIG's LIMS software, RevolutionDx, is a Cloud-based, HIPAA-compliant, Meaningful Use 2 certified solution that was developed specifically for managing laboratory orders, result tracking and reporting back to the requesting provider and patient.

The RevolutionDx solution is a highly efficient, easy-to-use, cloud-based laboratory information system with features that include interfacing to any instrument/device, auto-verification, auto-coding, reflex testing, role-based access, auto-facing, and an integrated physician and client portal for orders and results.

RevolutionDx enables organizations to be highly effective supporting laboratory order processing and technician daily tasks through an easy-to-use dashboard. Features include Patient tracking, Lab Order workflow, Prescribed Medication documentation and Insurance Claims Management.

RevolutionDx Capabilities at a Glance

- Ability for the Hospital/Practice to submit an order and receive results from/into their EHR/EMR system.
- For small practices, secure email and faxing are available for report delivery and orders via the client portal.
- Ability to integrate with any laboratory instrument using secure and standard laboratory communication protocols.
- Ability to securely transmit results to respective providers.
- Ability to provide quality assurance controls for instruments.
- Device Insights can be used to monitor temperature for compliance reporting and proactive notification when parameters are out of tolerance.
- The Client portal allows access from anywhere to submit / manage orders and view laboratory results.
- Use of HL7 standards for integration to EHR systems and billing applications or sending results to CDC, APHL and other public health networks.
- Ability to create reports and documentation to meet regulatory standards.
- Flexible analytics, reporting and dashboard configuration capabilities.
- Integrated Billing Module for electronic claims submission and remittance processing.
- Billing Scrubs and intelligent denial management module to ensure claims pass with minimal denials.
- Detailed financial and billing reporting with customizable reporting capabilities.

RevolutionDx Module Descriptions

Laboratory Module

- Create, manage, and assign tasks to colleagues and co-workers.
- Efficient and secure communications portal for staff, colleagues, and patients.
- Automatically print required labels and send the order to an instrument.
- Bar code scanning for managing specimen tracking.
- Ability to create custom accession numbers and to customize and flag the specimens based on type of test ordered.
- Direct interface with lab instrumentation for collecting results.
- Ability to recall specimens for repeated testing and direct specimen dilutions.
- Perform reflexive testing processes and add-on requests.
- Ability to configure profiles/assays with rule-based logic for results, interpretation and auto reflex configuration.
- Workbench module allows technicians to create runs/batch and release reports as a batch.
- Integrated Quality Control (QC) module that allows technicians to review QC data and approve/reject QC.

Orders & Results Portal Module

- Secure, HIPAA-compliant access.
- Appointment messaging for clients and providers.
- Ability for the hospital/practice/field agent to electronically send the order from their Electronic Health Records/Electronic Medical Records system.
- Results reporting interfaces with the integrated web portal, fax, secure email, or delivery of a physical report.
- Ability to gather informed consent from the patient directly at the time of collecting samples.
- Capability to remove patient identification and codify specimens for research and track the specimen location throughout the pre-analytic, analytic, and post-analytic phases.
- Tracking of transportation to various sections of the laboratory or external sites.
- Specimen storage management.
- Ability to create laboratory-specific workload lists to facilitate batch processing and to track orders that have not been completed.

Practice Insights Module

- Simplified data collection menu and processes allow the provider to concentrate on the client.

Device Insights Module

- Logging of device's operational condition.
- Ability for text notifications when devices are out of tolerance.
- Quality Assurance (QA) / Quality Control (QC) functions for laboratory instruments.
- Reports can be quickly pulled from system, saving staff hours of work.
- Monitoring cold unit temperatures and logging at intervals defined by the user.
- Notification through text messaging that temperature or humidity is out of normal range.
- Automatically populate correct sample record, eliminating possible human error.

Billing Module

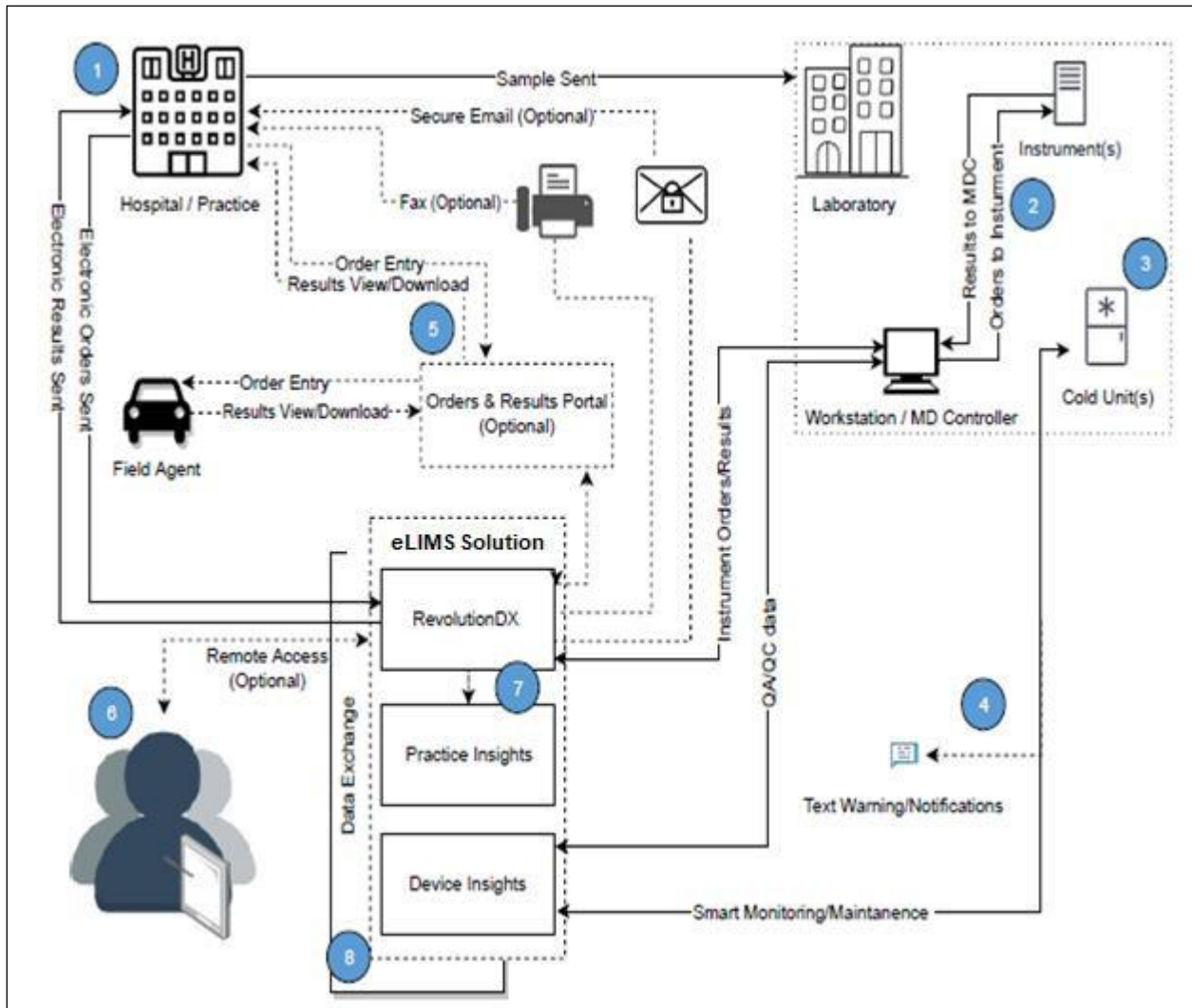
- **Electronic Claims** – Bill direct to Medicaid, Medicare and many major commercial payers, reducing denials and improving financial management.
- **Remittance** – Increase productivity and accuracy posting payments, denials, and adjustments with Electronic Payment Posting; automatically transfer claim balance to secondary payors.
- **Eligibility** – Verify a consumer's health benefits directly, in real-time during intake or patient registration to ensure services are covered.
- **Authorizations** – Referrals and provider services authorizations electronically transmitted and tracked.
- **Denial Management** – Highly effective scrubbing engine to ensure claims are correct and on time and to facilitate reduction of denials and payment issues.
- **Billing and Financial Reporting** – Detailed billing reports providing comprehensive revenue breakdowns and custom reporting to assist in meeting audit requirements and regulations.

Integration

- Integration with Laboratory and diagnostic providers using our HL7/ FHIR capabilities for electronic lab orders and results.
- Capabilities to integrate with external Health service providers using industry standard EHR transactions.
- Data Exchange provides an ability to integrate with other vendors/devices in various file formats such as CSV, XML, text, and JSON.

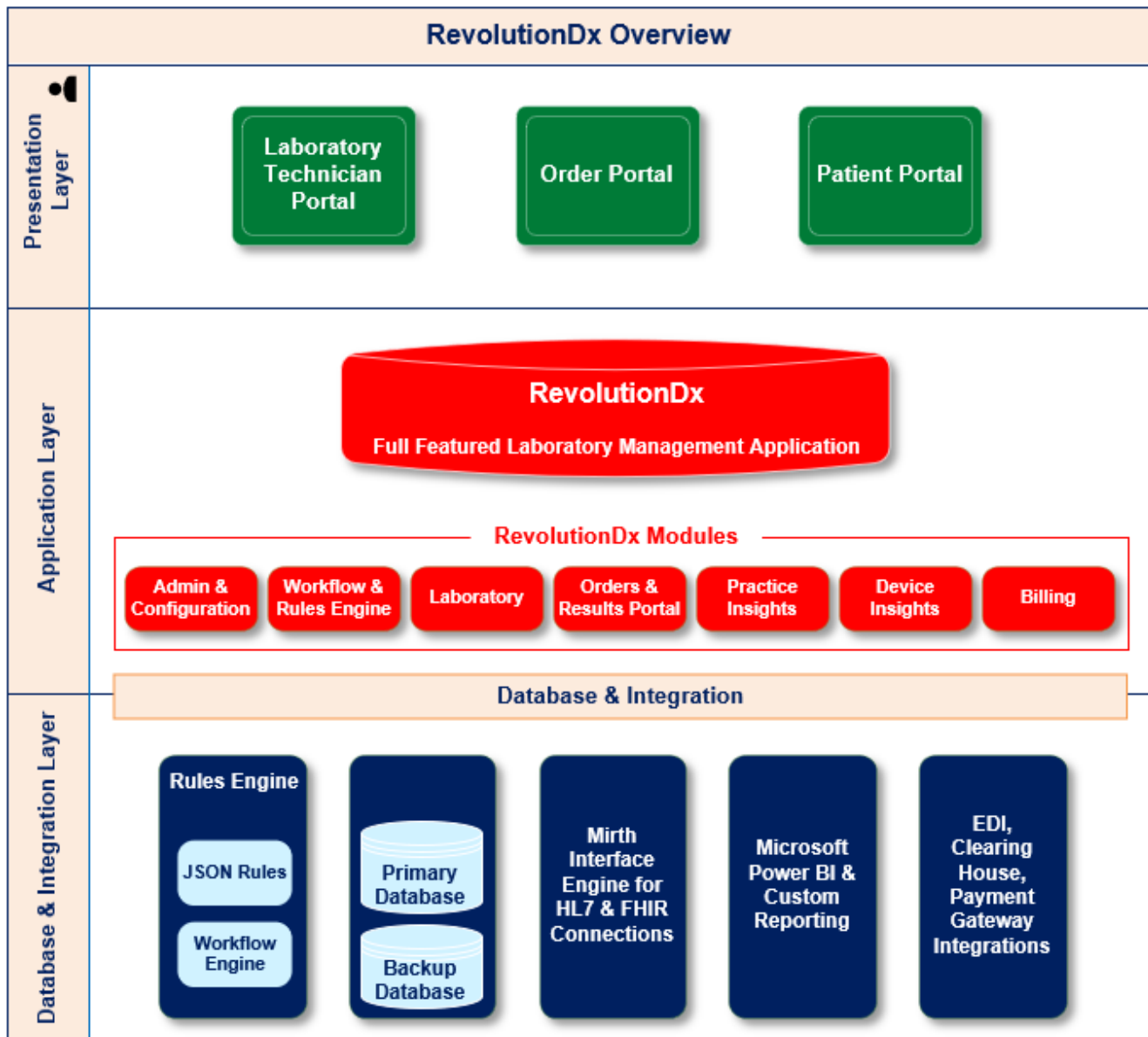
Laboratory Workflow Capabilities

The diagram below provides a high-level example of RevolutionDx's Laboratory workflow capabilities.



Technical Overview

The diagram and additional details below provide a high-level technical view of the RevolutionDx solution.



- Amazon Web Services (AWS) is our recommended cloud hosting solution.
- Users navigate to the secure website where, based on traffic and how “busy” the servers are (EC2), the Elastic Load Balancer decides which will provide the best experience to the user.
- The servers sit behind a Virtual Private Cloud (VPC) which is dedicated to the client account to configure security to be HIPAA compliant.

- The application utilizes a master database (DB) and in the event of an issue, there is a secondary DB for failover (RDS DB Standby).
- The architecture utilizes High Availability RDS (Availability Zones). Each zone maintains a synchronous standby replica to provide redundancy to protect against failures.
- Administrators securely access the Bastion server to maintain and configure the system.
- Additional AWS resources utilized but not displayed are: IAM, AWSKMS, S3, CloudTrail, Lambda, Simple Notification, and Amazon CloudWatch.
- CloudWatch provides for actionable insights on performance and application operational processing, provides management to system-wide performance changes, optimizes resource utilization, and provides a unified view of operational health.
- AWS CloudTrail is a service that enables governance, compliance, operational auditing, and risk auditing. CloudTrail is used to detect unusual activity and security analysis and provides detailed event logging and history.
- AWS SNS is a messaging service to send notifications while monitoring high availability, performance changes & downtime.
- AWS Identity and Access Management (IAM) provides secure access management to application and system resources. Access control leverages permissions based on groups and roles to ensure secure access and controls for regulatory requirements.
- AWS KMS (Key Management Service) is integrated with the AWS Encryption SDK to enable for data encryption & protection at rest and transmission.
- The Elastic Load balances with Autoscaling enable the application to scale as the user load grows to ensure performance is optimized.