



Highlights

- Mergers and acquisitions in healthcare are at an all-time high creating a priority to integrate disparate IT systems and their data
 - Zato Health provides a platform to simultaneously access healthcare data from different locations across multiple networks without the need to copy or transport information to a central location
 - IBM Power Systems are optimized for the type of analytics processing performed by Zato Health to accelerate the generation of decentralized analysis for improved business insight
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IBM and Zato Health Revolutionize Healthcare Data Interoperability

The number of mergers and acquisitions in global healthcare set new records in 2014. Those records were broken again in 2015. The pace is expected to continue as healthcare providers and pharmaceutical companies move to capture market share, and as healthcare payers and insurers demand improved efficiencies of scale and cost effectiveness.

Attaining a useful degree of integration among disparate IT systems and data is now a critical success factor. Hospitals and organizations often go through acquisitions that result in mixes of different Electronic Health Record (EHR) systems, in which huge capital, training, and implementation investments have been made. These EHR products provide advanced data collection, but with different technology architectures, data definitions and formats; they were not designed to interoperate or to easily share data.

The lack of interoperability makes it hard to analyze or report information across multiple EHR vendor systems and other healthcare application data repositories.

The benefits from improving patient outcomes and cost effectiveness of care are significant enough that providers and payers are actively seeking new IT solutions to quickly and effectively query and correlate data across disparate EHR data repositories. The capability to make the right data available at the right time to the right people across existing data silos represents a solution to these healthcare information needs, which will provide multiple returns on investment.



Zato Health—Connecting the Disconnected

Zato Health provides an edge processing solution that combines medical natural language processing, advanced medical coding, extraction of medical concepts, a comprehensive integrated medical ontology, and cooperative federated analysis, reporting, and alerts across normalized indexes.

The software solution executes concurrently on edge servers across diverse text-rich doctor and nurse notes and highly structured clinical and lab data stored in multiple EHR information silos. Also, data stored by other healthcare applications, including claims data and genomic variant data, are part of the Zato solution, whether the data sources are all located in the same data center or in multiple de-centralized data centers.

Zato Health principals invented the most successful and heavily used natural language and coding software tools to have been deployed in the healthcare industry for processing clinical data. The interoperability platform combines advances in these healthcare data processing techniques with advanced information fusion technology that has been applied by Zato Health principals to connect information in data silos across the U.S. intelligence community.

Data Interoperability

Zato’s software platform is highly differentiated in that it does not need to move data into a separate consolidated data center with the associated high costs and time delays. Instead it creates a virtual data center that effectively accesses disparate data silos across multiple networks and fuses results across data centers in an ultra secure healthcare information sharing environment—more like a hybrid cloud architecture (figure 1).

Semantic Interoperability

The Zato Health software understands and integrates data using legacy and site specific coding systems, acronyms, and nomenclature, without transforming or changing the data or removing meaning, preserving local data context and integrity. These techniques leverage a comprehensive medical ontology including coded designations, descriptions, lexical morphology and synonyms, concepts, concept synonyms, semantic categories, linguistic composition and scoping, and ontological relationships for clinical anatomy, symptoms, findings and procedures.

Using Zato Health edge processing techniques, some processes that in the past required repetitive sequential user actions and thousands of hours of user time were reduced to 30 minutes or less.

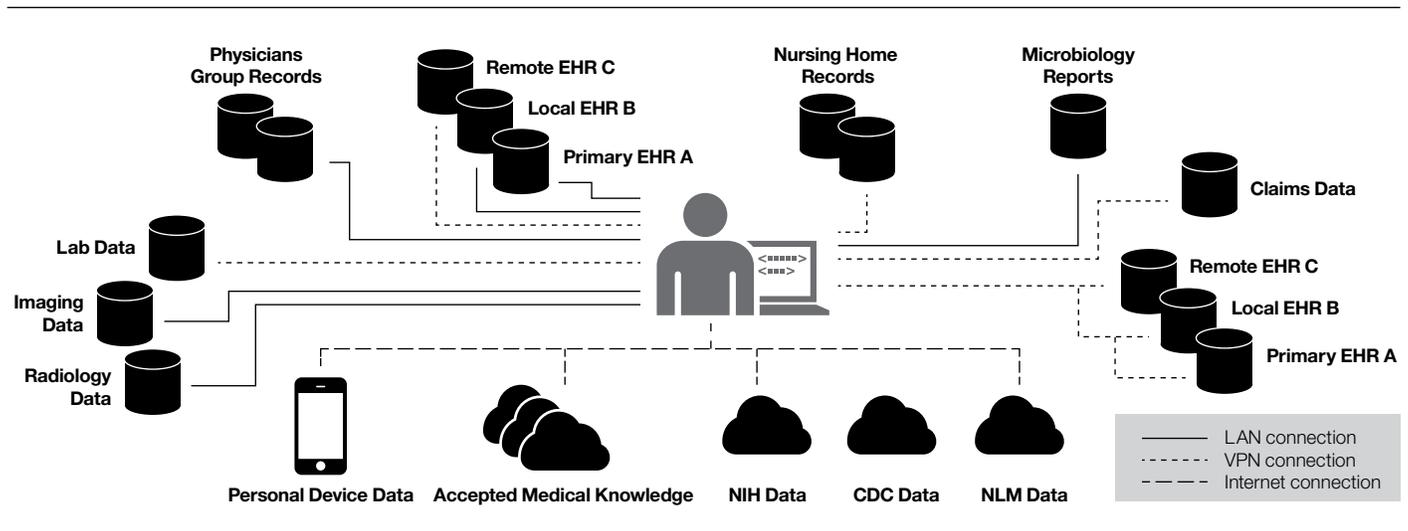


Figure 1: The Zato Health platform provides analysis, reporting in parallel with alerts across applications, data centers, organizations, and networks.

Zato Health applications available on IBM POWER8

- Clinical Documentation Improvement (CDI)
 - Automated coding and billing to ICD-10-CM standards
 - DRG Dashboard for proactive monitoring of Diagnostic Related Groups
 - Clinical quality measure reporting: CQMs, GPRO for ACOs, MU, etc.
 - Cross clinical and genomic variant data analysis simultaneously
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Deploying Zato Health Software on IBM Power Systems

IBM® Power Systems™ are optimized for the type of analytics processing performed by the Zato Health software platform. Power Systems with the IBM POWER8® processor can be pre-installed with Zato Health software to enable expandable edge processing environments spanning increasingly larger volumes of health record data across multiple provider applications to achieve data liquidity.

For massive data applications using the Zato Health software, the IBM POWER8 processor has achieved a unique position for cost effectiveness and the ability to process more data, more quickly, in a smaller physical space with less power and cooling, and higher availability—becoming the servers of choice for the most demanding, data-intensive workloads.

POWER8 systems deliver computing power with 50 percent more cores, twice the simultaneous threads per core, and with more cache and I/O bandwidth than the previous system generation—making the IBM and Zato platform the optimum environment to deliver verifiable improvements in healthcare quality and cost effectiveness. The POWER8 servers can be of any size and configuration and sit in front of existing production systems from servers to cloud computing clusters to mainframes.

Faster Insights, Improved Outcomes

The Zato Health software solution takes full advantage of Linux on Power for distributed processing of massive volumes of diverse healthcare data. The huge advantage over x86 processors in multithreading and memory bandwidth make POWER8 a strong choice for high-end servers running memory-intensive workloads.

According to a Cabot Partners' analysis, clients who invest in IBM Power Systems for big data analytics could lower the total cost of ownership with fewer, more reliable servers compared to x86 alternatives.¹ For analytics, users of IBM Power Systems receive two times more query results per core per hour than on x86 servers.²

The technology in POWER8 processor-based servers introduces a new tier of memory that combines lightning quickness with massive capacity. For the most intense computing loads, the POWER8 server can combine IBM's Coherent Accelerator Processor Interface (CAPI) technology with flash memory and other available accelerator technology to manage dramatically higher processing loads many times faster than x86 server platforms. The POWER8 platform provides users of the Zato Health Interoperability Platform with more cost effective edge processing, accelerating the generation of decentralized analysis for improved business insight.

“The Zato Health software platform for data liquidity and system interoperability will accelerate benefits to patients, providers, and payers from next generation medical record processing, automated coding, and reporting of quality measures leveraging the uniquely efficient and cost effective architecture of IBM POWER8 servers.”

— Paul McOwen,
Chief Executive Officer, Zato Health

Why IBM and Zato Health

IBM and Zato Health have combined Linux on Power and Zato Health software to create a solution designed to address several pressing and related needs in the healthcare sector, including an unprecedented spike in mergers, new requirements to report verifiable measures of clinical quality, and a shift in US healthcare payments based on comparisons of care measures and patient outcomes.

When addressing these needs, the concept of analysis becomes different when big data can be massive collections in many different places over different networks in different organizations—all accessed from a unified interface (a single ‘pane of glass’) for highly productive user interactions. The more data silos that can be accessed and processed at the same time based on security controls, the more useful and cost effective the analysis.

Together, IBM Power Systems and Zato can connect data sets that are decentralized—in different agencies, different data centers, on different security networks—providing invaluable insight that can improve organizational performance, help achieve quality metric targets, and mitigate losses through fraud detection.

For more information

To learn more about IBM Power Systems and Zato Health, contact your IBM representative or IBM Business Partner, or visit ibm.com/power



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1 “High Value Insights with Big Data Analytics on IBM Power Systems.” Chari, S. October, 2014. Cabot Partners. [Web](#).

2 2.03X more query results is based on IBM internal testing of a sample analytic workload; current as of October 20, 2015. Performance improvement figures are cumulative of all queries in the workload. Individual results will vary depending on individual workloads, configurations and conditions. IBM Power System S822LC; 20 core s / 80 threads, POWER8; 3.5GHz, 768 GB memory, DB2 10.5 / Ubuntu 14.04. Competitive stack: Intel x86 2-socket server with 36 cores / 72 threads; 2xIntel E5-2699 v3; 2.3 GHz; 768 GB; DB2 10.5 / RHEL 7.2



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