



Service-oriented Architecture in Public Health

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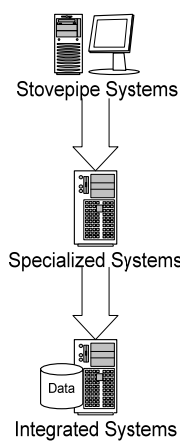
- Evolution of Public Health Systems
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Public Health Systems



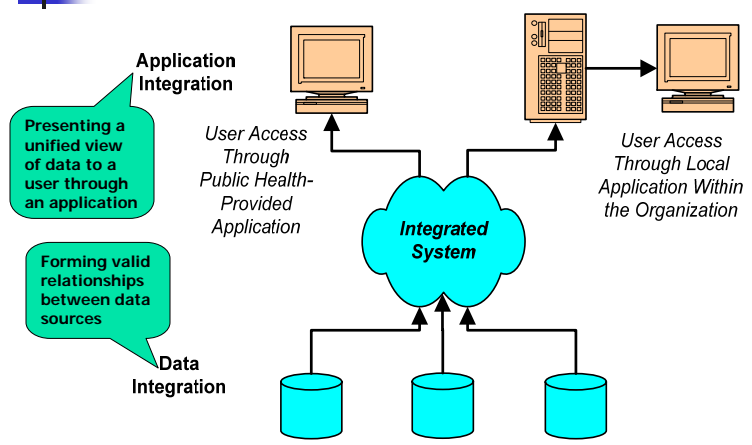
- Began as program-specific, stovepipe systems, often PC- or mainframe-based
- Evolved into more robust specialized systems
- In some cases became integrated systems, either patient-centric or case-centric

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Two Types of Integration

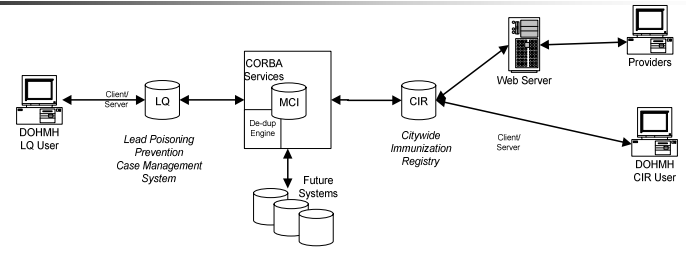


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Case Study: NYC MCI



- LeadQuest and CIR developed independently
- Integrated by sharing a Master Patient Index
- Other systems may join in the future
- Both Data and Application Integration

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A new phenomenon is arising:

The Health Information Exchange Network (HIEN)
operated by
The Regional Health Information Organization (RHIO)

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What is a Health Information Exchange Network (HIEN)?



- HIENs come in different sizes and shapes, but usually share these core components
- Shift is from system **integration** to system **interoperability**
- Together they will form Nationwide Health Information Network (NHIN)

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Three Imperatives for Public Health:

1. Embrace emerging national standards for system interoperability
2. Enable "special functions" of public health systems to be accessed directly by user systems
3. Organize an informatics focus in the agency to engage in and support local, regional and national initiatives.

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Enable Special Features: An Example

- Immunization Information Systems (IIS) serve a jurisdiction by providing a common repository for immunization information
- IIS provides specialized features not typically found in an EMR, like:
 - Recommendations of next immunizations due
 - Reminder and recall to ensure that patients return
 - Vaccine ordering and order processing
 - Practice-level assessment of up-to-date status

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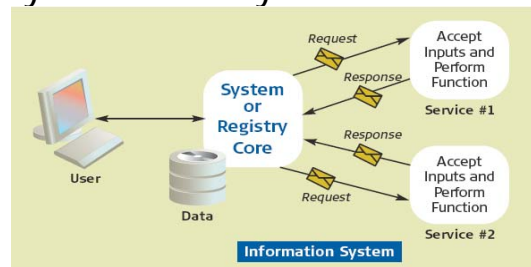
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Enable Special Features: One Suggested Solution

Service-oriented Architecture (SOA): a building block approach to systems design that allows discreet functions to be accessed by any authorized system



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Enabling Special Features: A Case Study

- KIDSNET, the integrated child health system in RI, did not have a robust immunization predictor algorithm
- Decided to use a version of the algorithm developed in CA (with permission)
- Deployed algorithm as a web service rather than absorbed into KIDSNET
- Other applications could now easily make use of the service

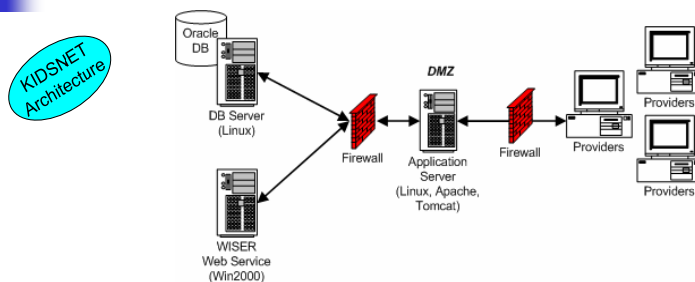
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Enabling Special Features: A Case Study *(continued)*



- Web service is called in real time from KIDSNET application when needed.
- Core KIDSNET system (Linux/Oracle) interoperates with Microsoft-based Web Immunization Service Evaluation and Recommendation (WISER) without issue.

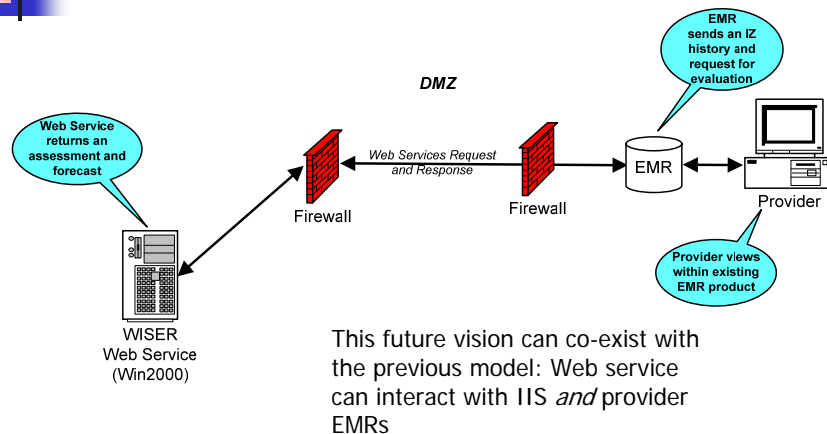
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Enabling Special Features: A Possible Future



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Enabling Special Features: A Possible Future

- **HL7 Clinical Decision Support Technical Committee Decision Support Service Project** has selected the immunization forecast as the first service description to define as a DSS profile
- Join effort of HL7 and OMG

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Selected Technical Sources

- HL7: <http://www.hl7.org/>
- PHIN: <http://www.cdc.gov/phin/>
- SOA: <http://www.webservices.org/>
- WWW: <http://www.w3.org/2002/ws/>