

Information Security and the Healthcare Digital Transformation

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Information Volume and Complexity are Exploding



Patient



Hospital

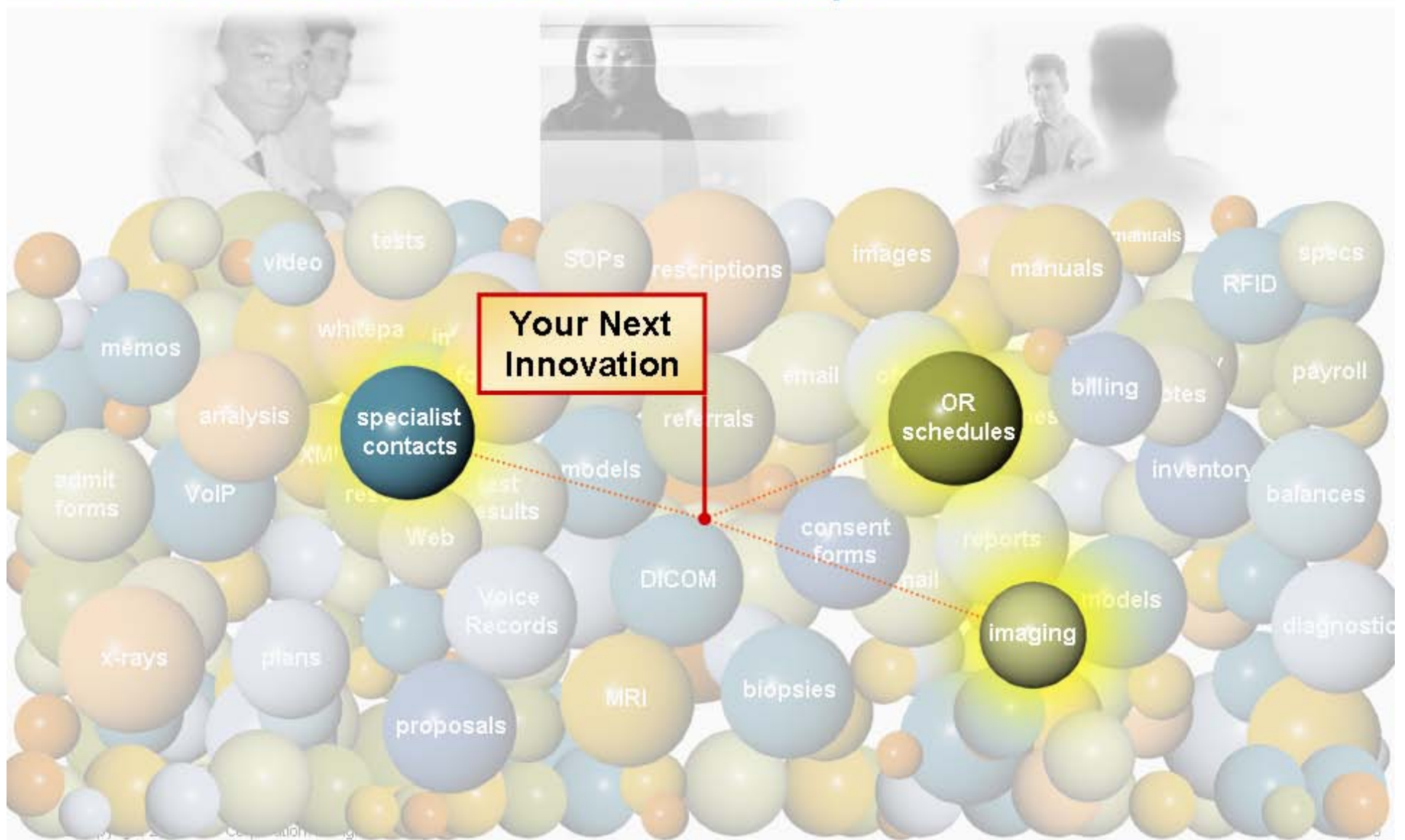


Others/NHS

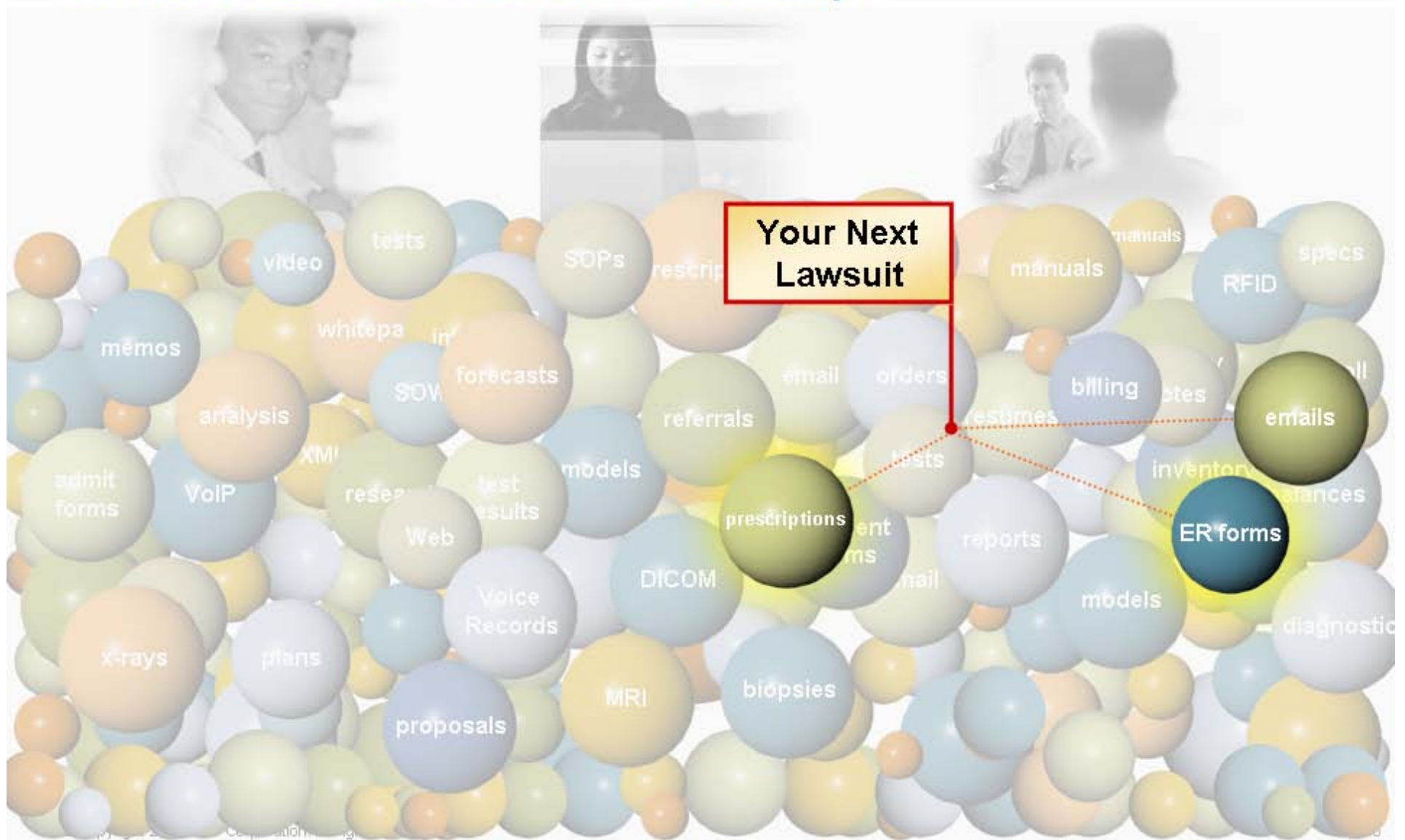
Information Volume and Complexity are Exploding



Is Information an Asset or a Liability?



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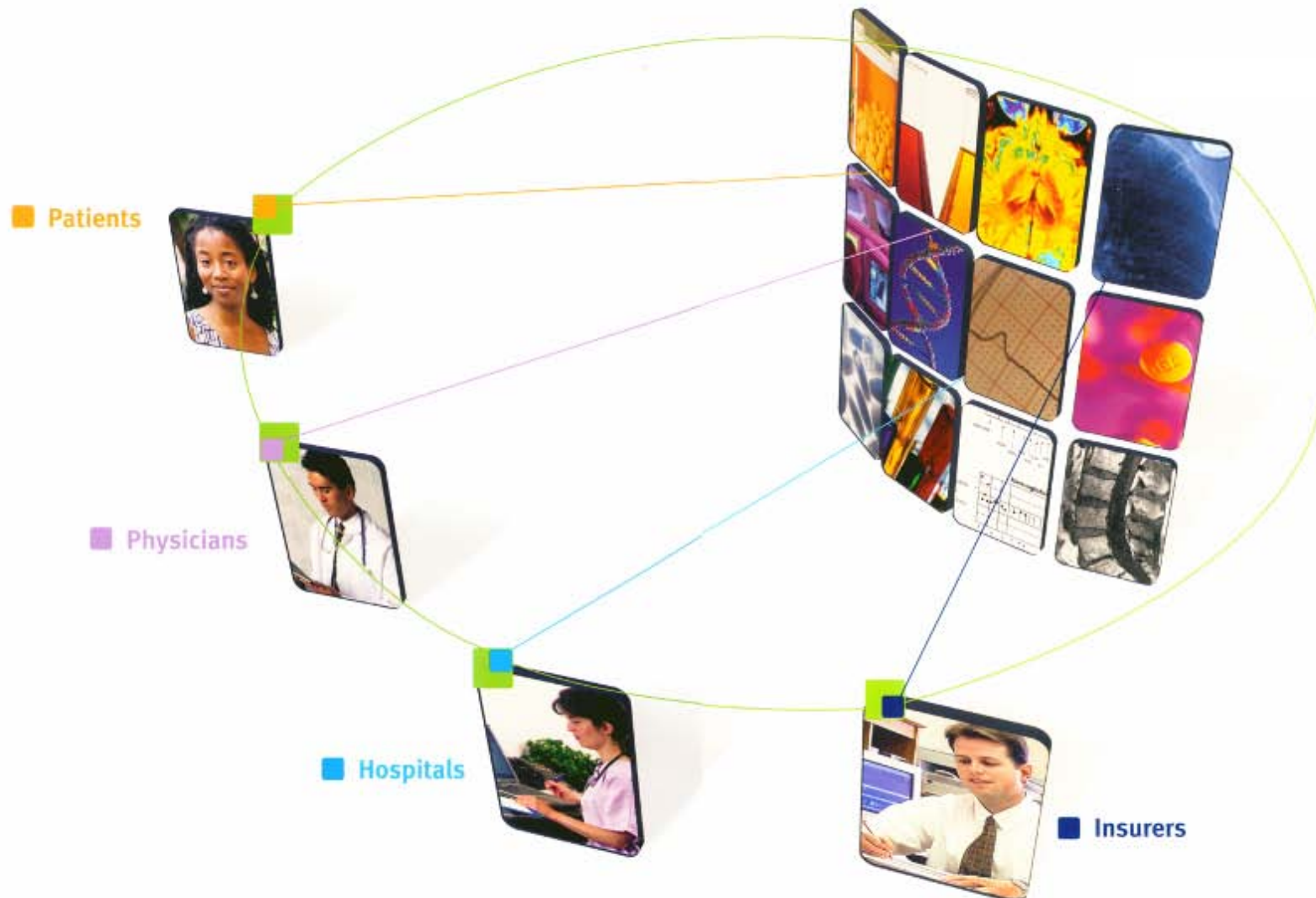
Information Trends in Healthcare

Trend	Asset	Liability
Health info stored on disk growing 60% - 70% annually	More information about patient health than ever before	Can't control or exploit this new information
Rapid increase in number of regulations pertaining to health data	Increase in patient privacy, greater accountability by providers	Tremendous complexity in required processes and support technology
More uses for information than ever before – PACS, data mining, KM, etc.	More comprehensive view of patient health on individual and group levels	Silos of information prevent correlation and limit sharing
"Anywhere" electronic access to patient data	Ability to share among providers quickly and efficiently	Potential security nightmare

The Liabilities Can be Significant

- **98,000 U.S. deaths annually from avoidable medical errors**
 - Would rank as 5th leading cause of death in US
 - More than from motor vehicle accidents, breast cancer, AIDS
- **Medical errors cost US \$37.6 billion each year**
 - ~\$17 billion of those costs are associated with preventable errors
 - >\$8B of these costs are for DIRECT health care costs
- **7,000 people per year are estimated to die from medication errors alone**
 - More than deaths from work-related injuries
- **Massachusetts State Board of Registration in Pharmacy estimated that 2.4 million prescriptions are filled improperly each year in Massachusetts**

We Need to Put Information at the Center

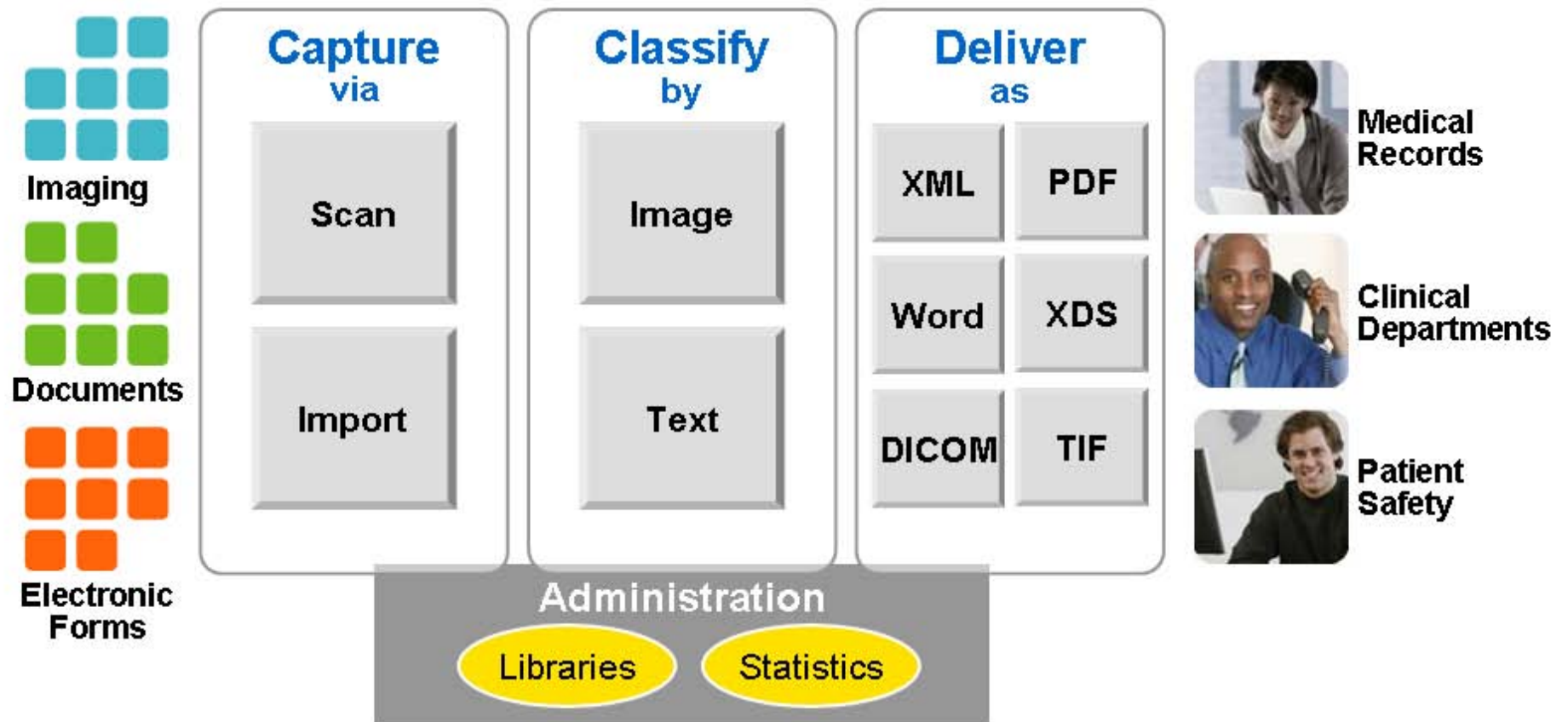


Creating an Information-centric Healthcare Culture

- **Capture and consolidate records**
 - Standardized data models
 - All digital
- **Authoritative data model**
 - Master records
 - Determinate information
- **Federate data to “applications”**
 - Information proxies
 - Flexible, scalable, and dynamic
 - Accurate
- **Information-centric security**
 - Identity and access management
 - Encryption/Protection of data in rest and in flight

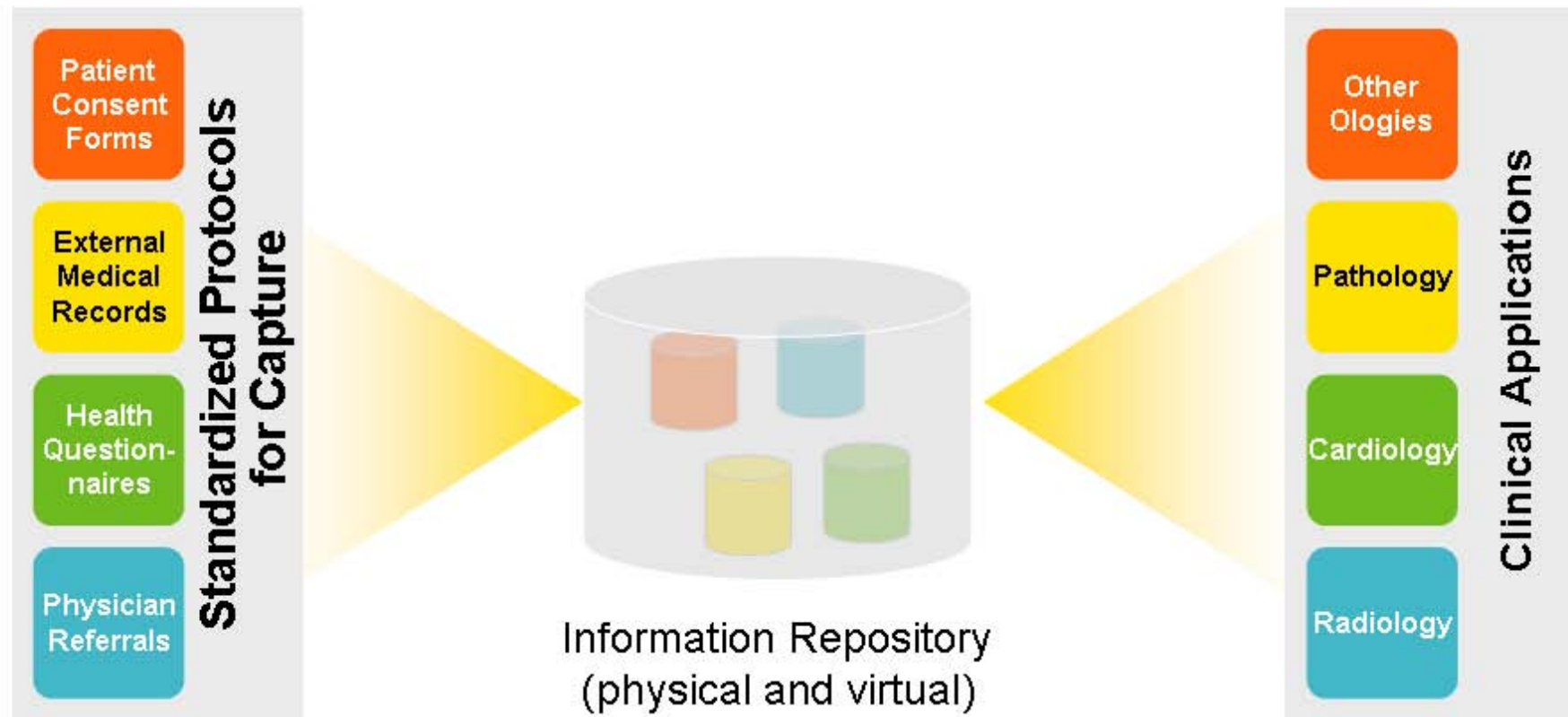
Common Input Platform

Standardized Data Models



Content Consolidation

Creation of a Digital Repository



Authoritative Data Model

Problem: Inconsistent and Duplicate Collection and Retention Of Data

Old Physician



1999 Medical
Questionnaire



1999-2004 Records



2001 EKG tests

Hospital



2001 Medical
Questionnaire



2001 blood test

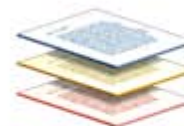


Angioplasty Records

New Physician



2004 Medical
Questionnaire



2004-2006 Records



2005 EKG tests

Specialist



2006 Medical
Questionnaire



2006 blood test



2006 EKG tests

Authoritative Data Model

Creating a central, persistent record of patient data

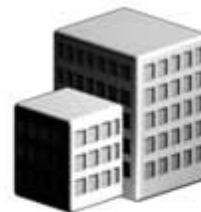
Central
Repository

Old Physician

Hospital

New Physician

Specialist



Authoritative
Questionnaire



Complete Records
1999-2006



2001 EKG tests



2001 blood test



Angioplasty Records



2005 EKG tests



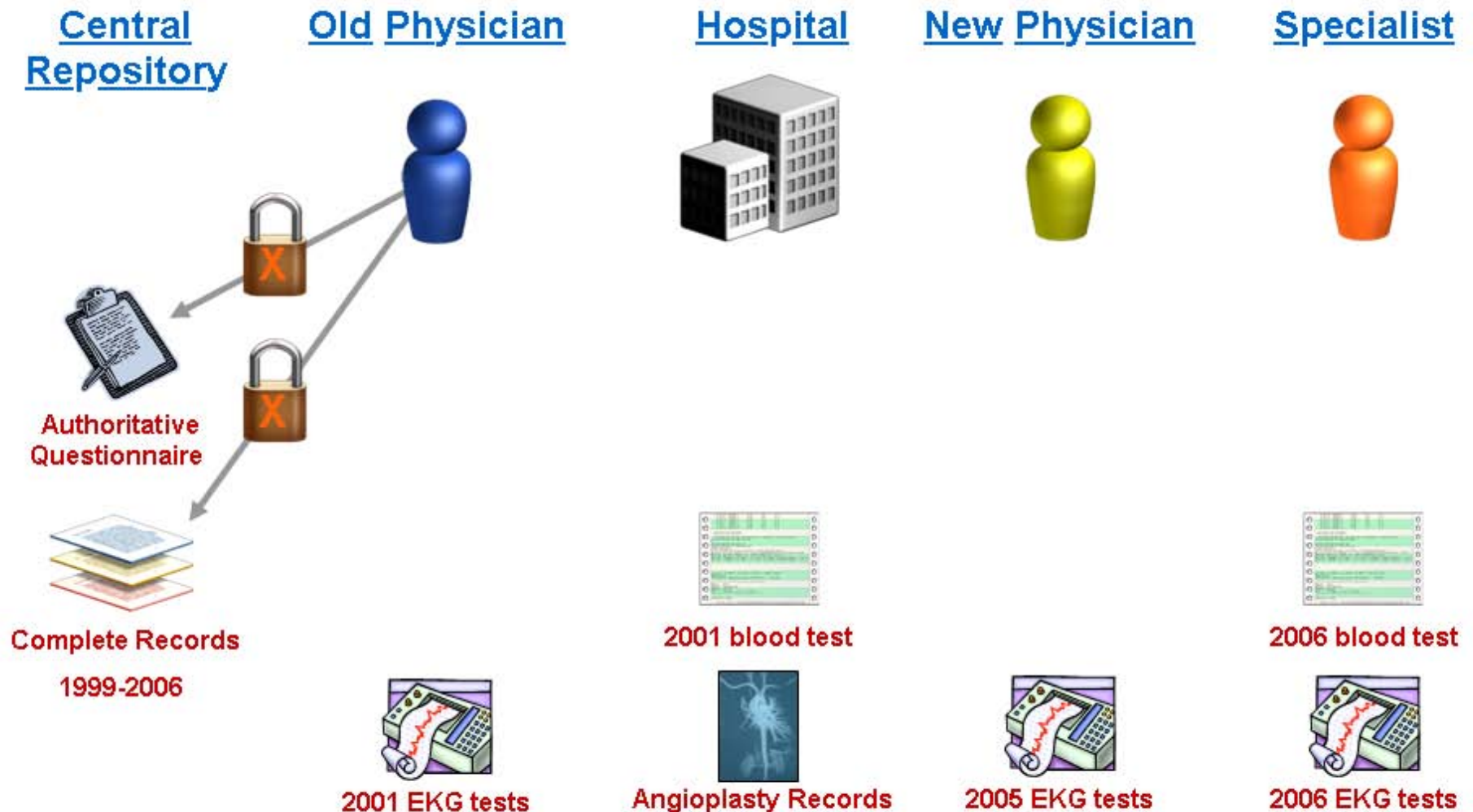
2006 blood test



2006 EKG tests

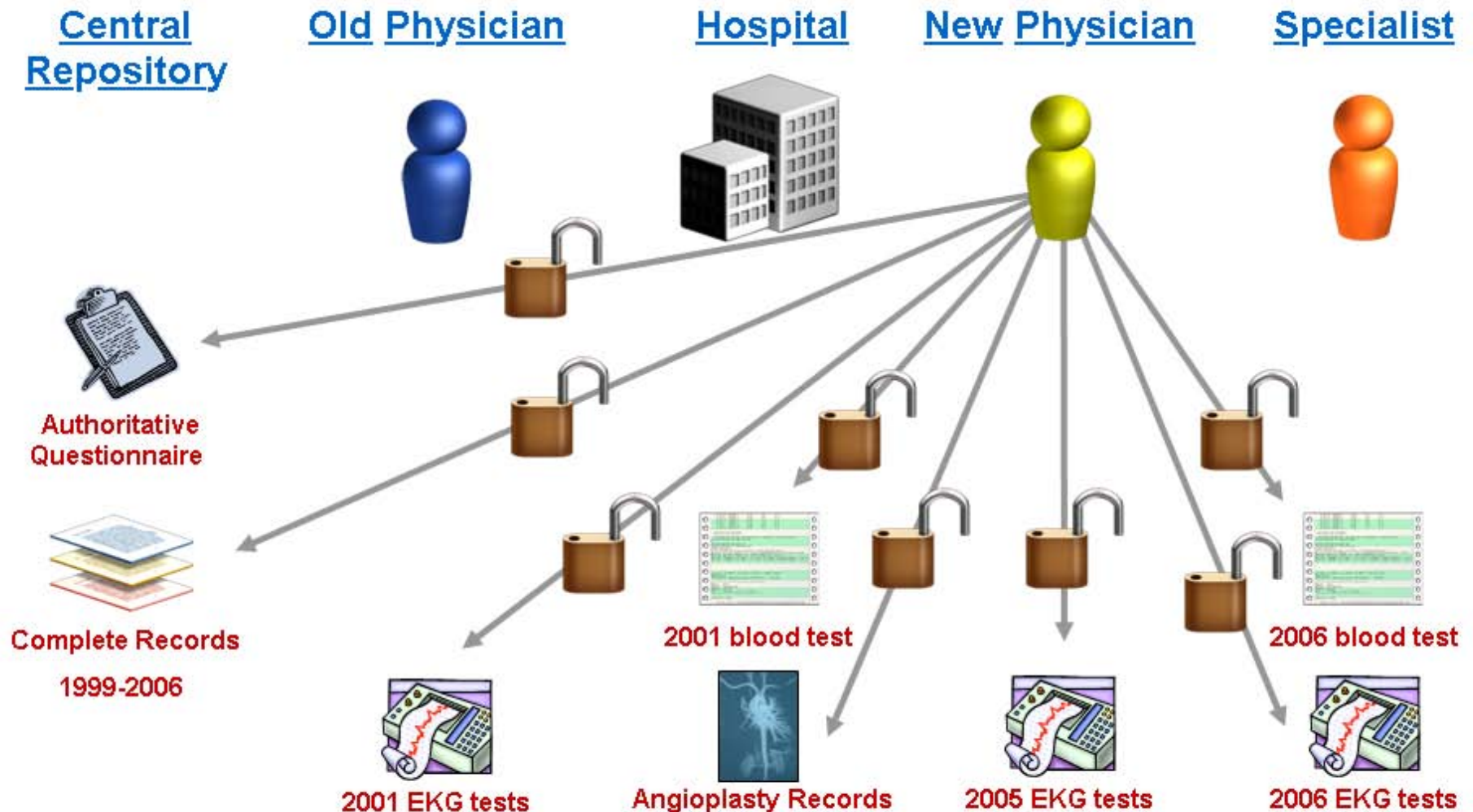
Federating Data

Enabling a complete, secure view of patient information, wherever it is



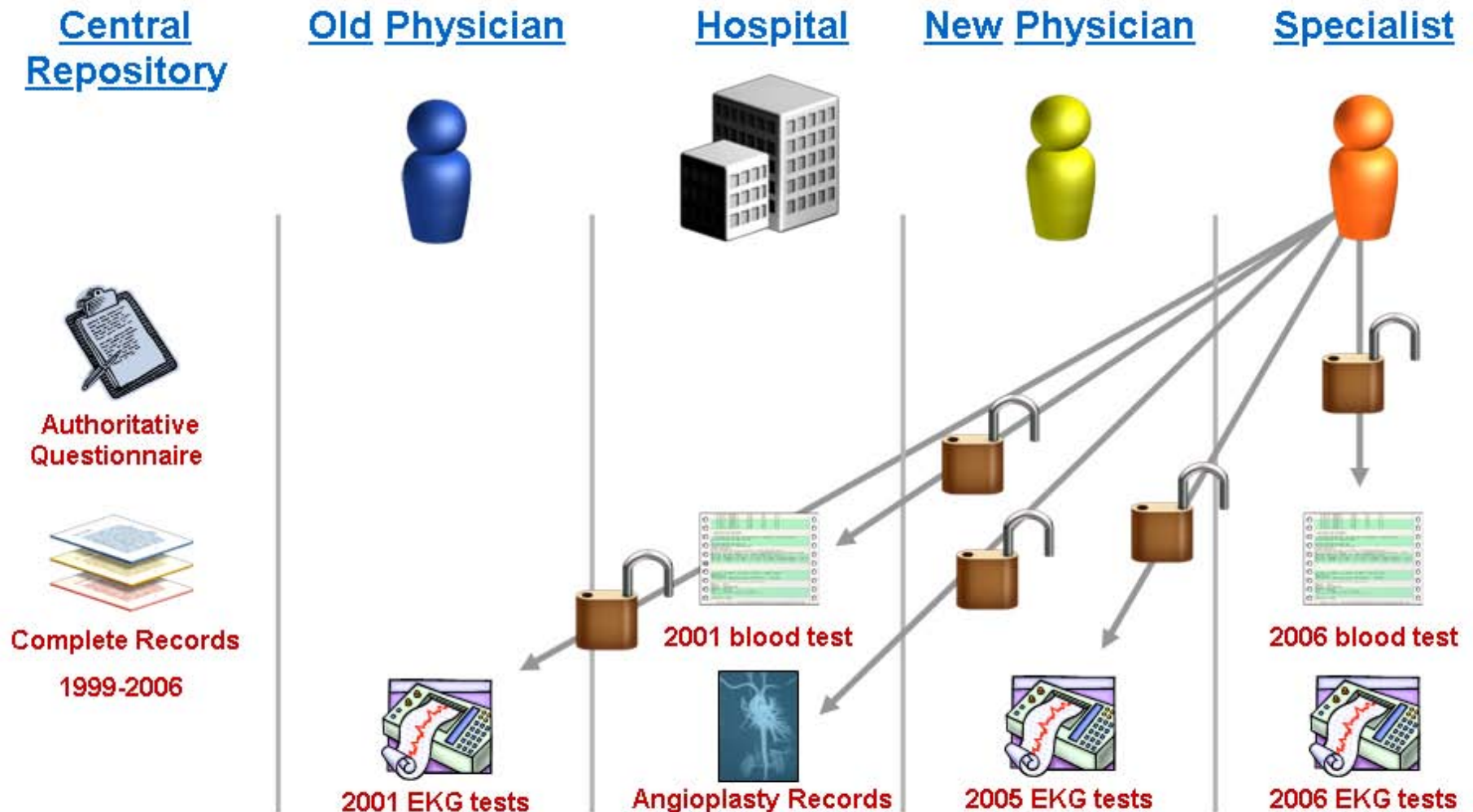
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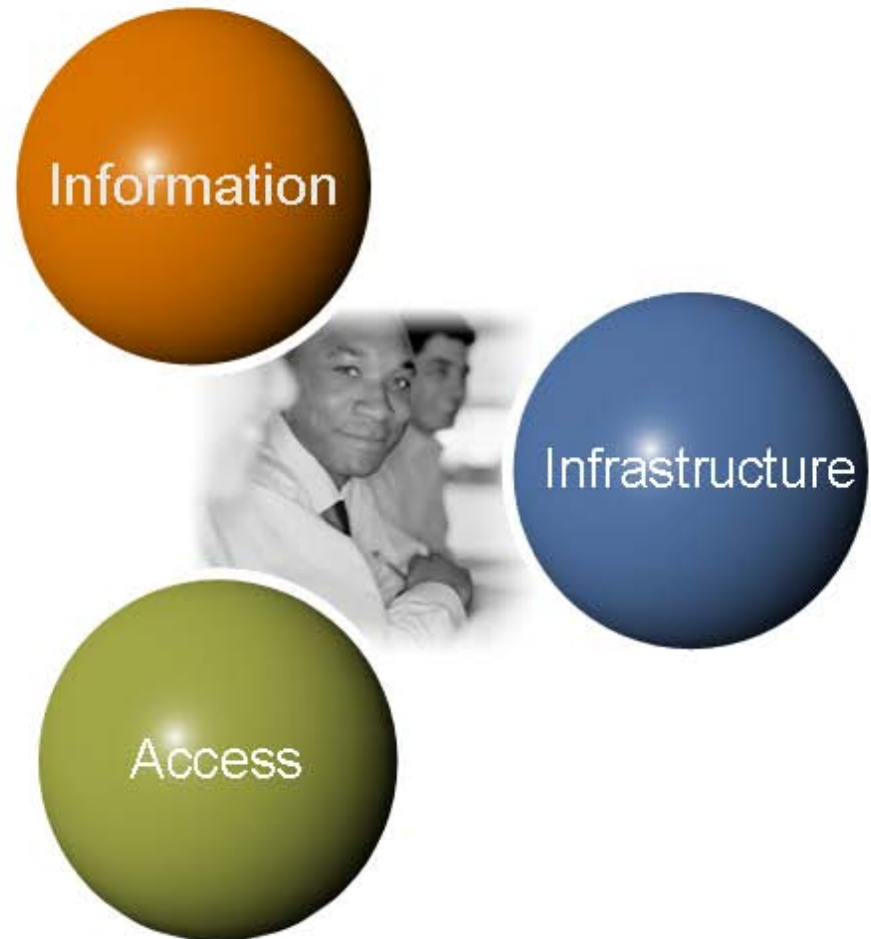
Federating Data

Enabling a complete, secure view of patient information, wherever it is



Information-centric Security

- **Securing the Information**
 - Information must be secure regardless of where it resides
- **Securing the Infrastructure**
 - Secure storage infrastructure
 - Embedded, unobtrusive
- **Managing Access**
 - Manages access to data and systems
- **Managing Identity**
 - Federated management of identities, roles and teams



Security and Control at the Document Level

Active Rights Management Platform

- Enables healthcare organizations to share confidential patient files securely with key stakeholders in accordance regulatory requirements
- Outgoing email can be automatically scanned for Protected Health Information (PHI), encrypted, and protected without impacting how users send and receive email
- External associates can reply securely allowing full collaboration



Summary

- This is a tough problem, but...
- It could be transformational for healthcare, significantly reducing one of the largest causes of death in the US
- It will require a complete change in how healthcare information is managed, secured, and delivered
- It will require a cultural and values-based change on the part of the healthcare industry to enhance information technology as a critical healthcare tool
- The costs will be significant but the overall savings are enormous!
- It could be the one of the single best investments we could make to improve Healthcare in the US

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where information lives[®]