



# Data Migration An Art Not a Science



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## Slide 1

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Targeted Audience:

Primary - Hospital or Group IT Management (CIO, Dir IT)

Secondary - Rad Director, PACS Admin

General Outline

- Intro slides
- Industry Forces
- Problems we're solving ("Challenges of Managing Clinical Data...")
- PACS Place in the problem...
- Acuo's Philosophy
- Product Positioning
- Acuo Background
- Solution Description
- Migration Example

thiggins, 28/09/2009



## Data Migration – Traditional

### § What is it?

- Migration of DICOM image data from one DICOM archive to another
- *An art, not a science*
  - Customers have unique and sometimes changing requirements
  - Appropriate technology and expertise

### § Why do customer's need it?

- Consolidate image data to new PACS
- Eliminates cost of maintaining legacy archive
  - Service Contracts Cost
  - Personnel efficiency
- Cleansing meta-data
  - Based on RIS or Rules

## Data Migration – Value Added Data

### § VAD - What is it?

- Reports – HL7 ORU, DICOM SR
- Notes – DICOM KIN
- Annotations – DICOM GSPTS
- *Most often this data is not stored in a standardized format*

### § Why do customer's need it?

- Value Added Data typically is relevant at the time of reporting
- Will the new PACS have access to prior VAD, what about newly created VAD



Control

# Strategic Inflection Point

## Vendor Neutral Infrastructure

Integrating Clinical Content



**Innovation**

Standards Based

**PACS 1.0**

**Legacy Shutdown**

Tsunami of Data



## Information Needed by Data Migration Vendors

- § How much data
  - Number of studies
  - Total terabytes – not necessarily used
- § Where does the Data Reside (online/offline)?
  - What type of media
  - How many available drives for migration
  - Can we use a media set ID/media numbers to control the migration process?
- § Hours of operation (day vs. night)
- § Special cleansing requirements
  - RIS vs Rules
- § Non-DICOM Objects
  - Reports, Presentation States, Notes



## Data Migration Process – DICOM/Media

### § Pre-Verification

- Pre-Verification of any studies already migrated excluding them from the scheduled migration (Phase 3)

### § Phase 1: Configure & Find

- Identify the number of studies to migrate

### § Phase 2: Filter

- Filtering for data that has already been moved (pre-verification) or is not required to be moved

### § Phase 3: Move

- Migration on/off times is automated through a configurable schedule
- Prefetch will bump the priority for returning patients or the priority may be bumped manually on an ad hoc basis



## Data Migration Process (Cont.)

### § Phase 4: Verify

- Verification and validation using DICOM queries of the source system and the destination system

### § Summarize: Detailed completion report provided

- Studies Identified
- Studies Migrated
- Studies Requiring Manual Migration
- Duplicate DICOM Study UID's
- Other Unsuccessfully Migrated Studies
- Statistics provided based upon unique requirements on a site by site basis



## Value Added Data

§ Often a very non-standardized process

- Focus on brute force effort for conversion
- Requires vendor or strong customer interaction
- Build adapters

§ Strategy – export standard objects

- Vendor Neutral Format
- Legacy Shutdown

## Preparing Your Customer: Potential Roadblocks

- § Source Archive Service Contract
  - Data Migration Integration & Set-up often requires configuration changes on source archive
  - If Service Contract is not in place, customer may have time and materials cost
- § Query / Retrieve Functionality of Source Archive
  - Recommend Study Root, although can operate at Patient Root
  - Maximum responses on C-FIND
- § VPN Functionality
- § Cleansing Rules and Data Export
- § Onsite Hardware Requirements



## Common Customer Questions

- § Will 100% of the data be migrated?
  - Not necessarily, bad tapes, bad DICOM data, destination archive may not accept data
- § Can the data be cleaned?
  - Yes, can rules and data exports be generated
- § What resources are required by the customer?
  - Basic migration requires almost no resources
  - Data cleansing requires more up front planning and possibly exception processing
- § What is the network impact?
  - Service needs to be configurable to deal with daytime vs. nightly load to the network
- § How long will the migration take?
  - Largely based upon the speed of the source archive



## Do I Need Data Cleansing

- § Clear contents of tag values
- § Delete tags from data stream
- § Copy/Move/Replace contents of tag values
- § Create new tags using existing tag or imported data set
- § Append/Prepend data to tags
- § Normalize data not conforming to DICOM standard



## Example of Data Cleansing



### 1. Modality Type DR

- Problem: Modality DR needs to be replaced with DX
- Solution: Replace any instance of DR with DX using Tag Mapping
- File Format: None required



### 2. No Accession Number

- Problem: Accession number may not be entered at modality (no modality worklist).
- Solution: Match against a master list and do exception processing: look up by, id, dob, modality, dos.
- File Format: MRN, DOB (20070215), MODALITY, DOS, CORRECT ACCESSION #



## Customer Requirements

- § Ability to migrate around the site's scheduling requirements, manual and automatic
- § Ability to request immediate migration of a patient or study, manual, Modality Worklist, HL7
- § Modification of Move algorithm to efficiently deal with source archive vendor characteristics, jukebox characteristics, being forgiving or demanding as necessary
- § Filtering for data that has already been moved or is not required to be moved using pre-verification
- § Remote Migration Management over VPN
- § Automated phone home/support notifications
- § Detailed reporting and statistics

A 3D rendering of a bowling ball rack. The balls are arranged in a standard triangular pattern. The ball in the center of the front row is a vibrant blue, while all other balls are a dark, reflective grey. The balls are highly reflective, showing highlights and shadows. The background is a plain, light grey.

Let's Get Started!

Thank you.

