

- RIS + PACS
- PACS Only
- DATA CENTRE Only Connection
- RIS Only
- DATA CENTRE

SHETLAND

HEBRIDES

GRAMPIAN

DUMFRIES



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Scotland is one of the first examples of a true national radiology system. Sites spread across the length and breadth of Scotland are now able to store and access data from Scotland's National Archive—from Dumfries in the south to Shetland in the far north, Grampian in the east to the Hebrides in the far west.

## Overview

### The Challenge

- Provide a national system of electronic health records and telecare via a common IT system in every hospital across Scotland
- Offer the same features and functionality for all hospitals—rural areas, Highlands and Islands and city centres
- Migration from legacy PACS and integration of 3rd party PACS
- Connection to Scotland's Master Patient Index (MPI) across all sites

### The Solution

- A complete system for digital management within each hospital radiology department
- An enterprise, multi-site configuration to provide a common and synchronized workflow using grid computing
- A centralised, multisite national archive to drive information sharing and distribution across a shared infrastructure
- A failover data centre solution to ensure security and availability of data

### The Benefits

- Cross-site exchange of data via a single clinical system
- Access by authorised users in every hospital across the region to prior images and reports regardless of where they were generated
- All studies from all hospitals stored in a national archive so no matter where a patient has an episode within Scotland, the treating clinician can query and retrieve their studies via the PACS
- A long term information management system to maintain accessibility to health records over time



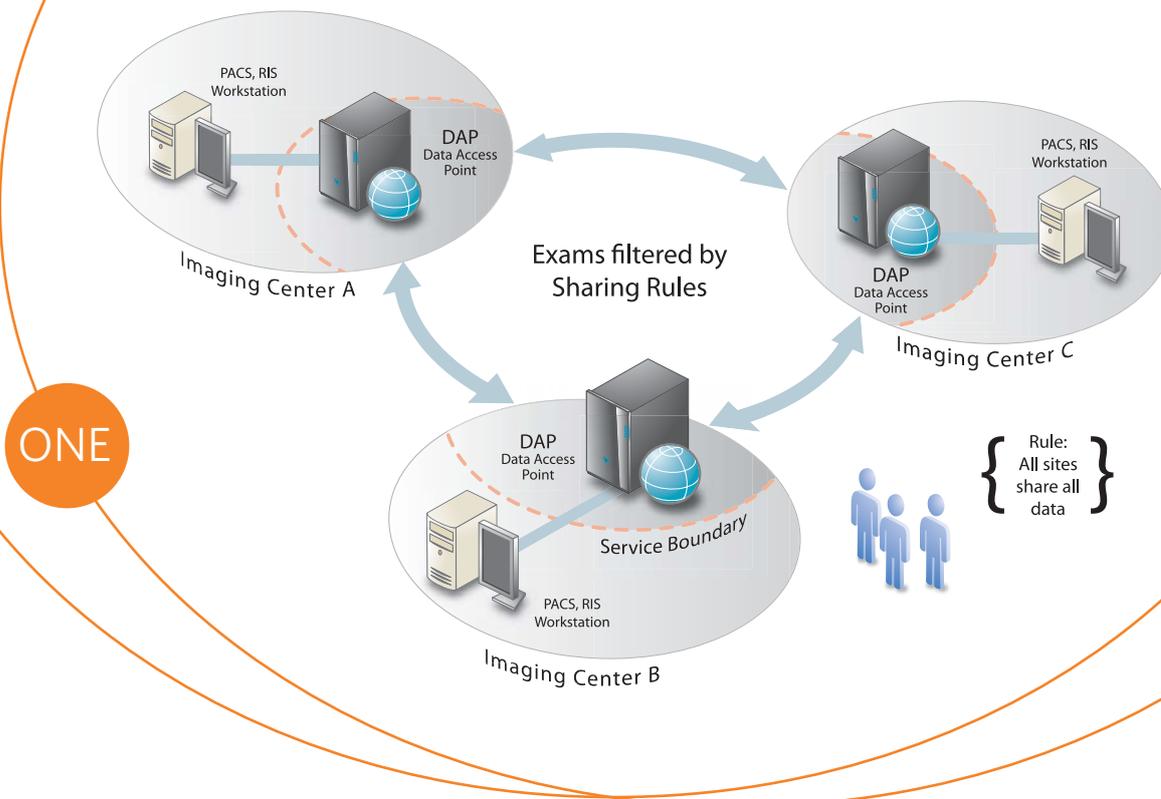
**Dr Raj Burgul,**  
Consultant Radiologist at  
Stirling Royal Infirmary

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**“The main advantage is speed. You can make a decision for tertiary centre transfer in well under an hour.”**

## Scotland—The Facts

- **Population**—5 Million people living in a mixture of dense urban areas such as Glasgow and Edinburgh and remote rural communities in the highlands and Islands
  - **15 Health Boards**—39 Hospital Sites with local PACS systems and connected to smaller satellite imaging departments
  - 3.8 million new radiology studies per year
- Common user interface across all hospitals with access to same features and functionality
  - Projected managed storage totalling 2 Petabytes
  - 20,000 registered users
  - Installation of 320, 3 monitor 3MP diagnostic workstations for use in radiology
  - Web-based image viewing in over 2000 wards
  - Mirrored National Image/Report Archive
  - Solution built as standard bundles based on annual exam volume, ranging from 50,000 to more than 100,000



**"We really can act as a nationwide community using PACS."**

**Dr Raj Burgul**, Consultant Radiologist at Stirling Royal Infirmary

## National ID

- Implementation of the Community Health Index (CHI), Scotland's national patient identification system, across both new and legacy systems
- This unique number is the primary identifier in the PACS, with each study checked against a demographic database as it enters the archive
- Carestream Health's solution verifies that only images with a valid CHI are shared throughout Scotland
- Carestream Health's solution keeps track of local PIDs to enable sites not yet compliant to smoothly and progressively integrate into the architecture



**Norma Wilson**, Area Imaging Services Manager, Forth Valley Health Board

**"No matter where the patient is examined, the availability of images at clinics is guaranteed."**

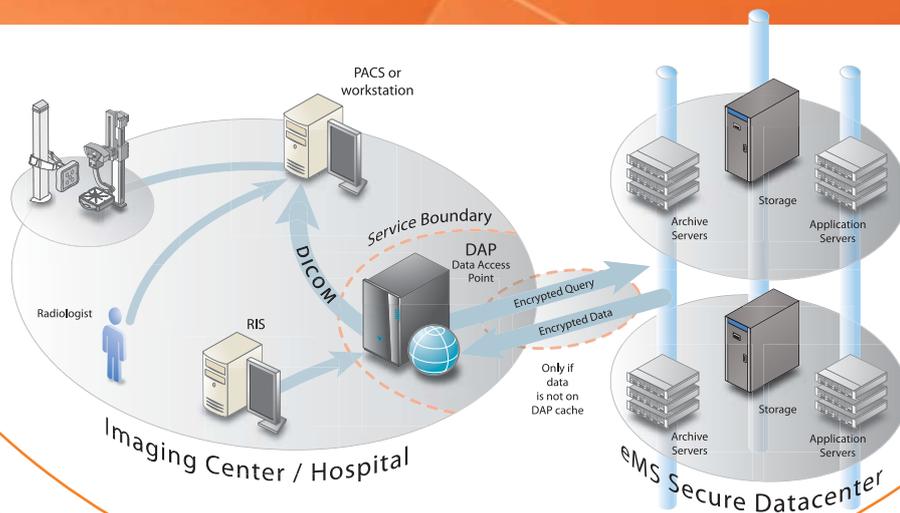
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**"There are time savings at all steps of the workflow journey."**

# Workflow Grid Computing

- Scalable workflow grid computing drives functionality and provides a common and synchronized virtual workflow throughout Scotland's multi site enterprise
- The National Archive facilitates both data sharing between sites and as a back-up for the local PACS server in each local hospital, which has capacity to store 18 months of images
- On completion of an examination, the National Archive receives the information (metadata and pixel data) from the relevant hospital and automatically updates the other sites in the enterprise with Metadata only creating a virtual workflow enterprise
- Virtually all types of multi-media clinical information is managed in patient centric files including radiology images, laboratory results, video files and other non-DICOM data
- In response to a local RIS query, the grid automatically fetches matching studies and associated data from the National Archive
- The Grid solution allows automatic and transparent switching between the two data centres

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