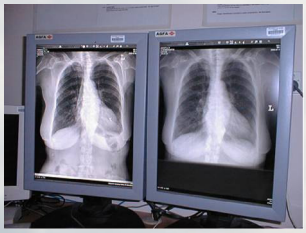
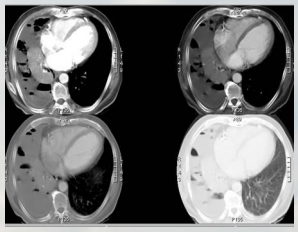
WAPACS

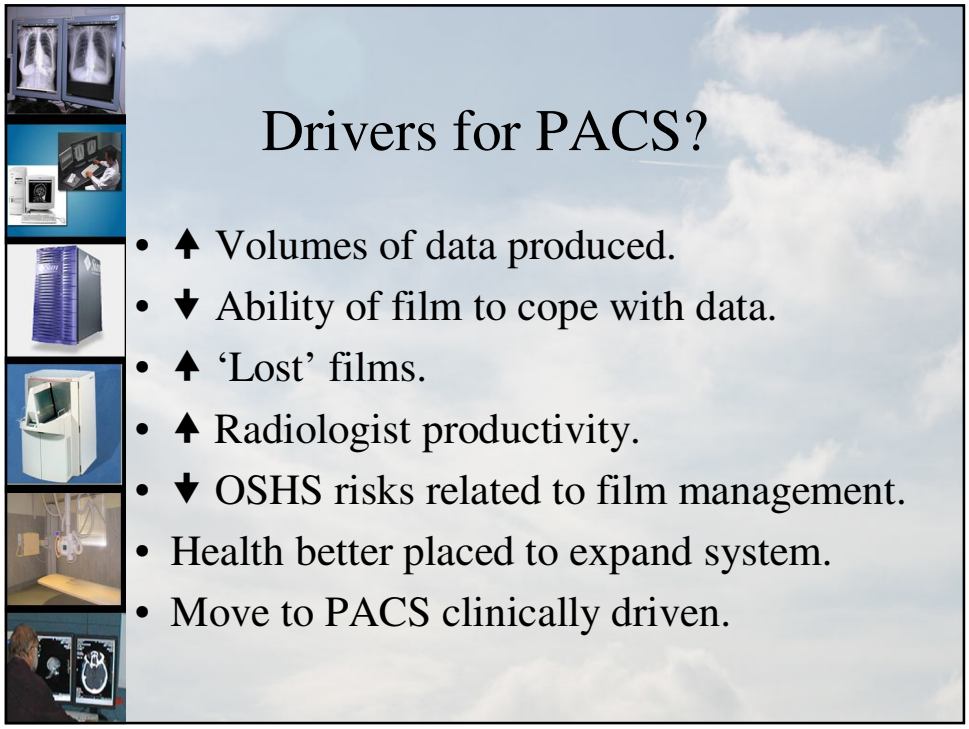
Where it's been
Where it's going

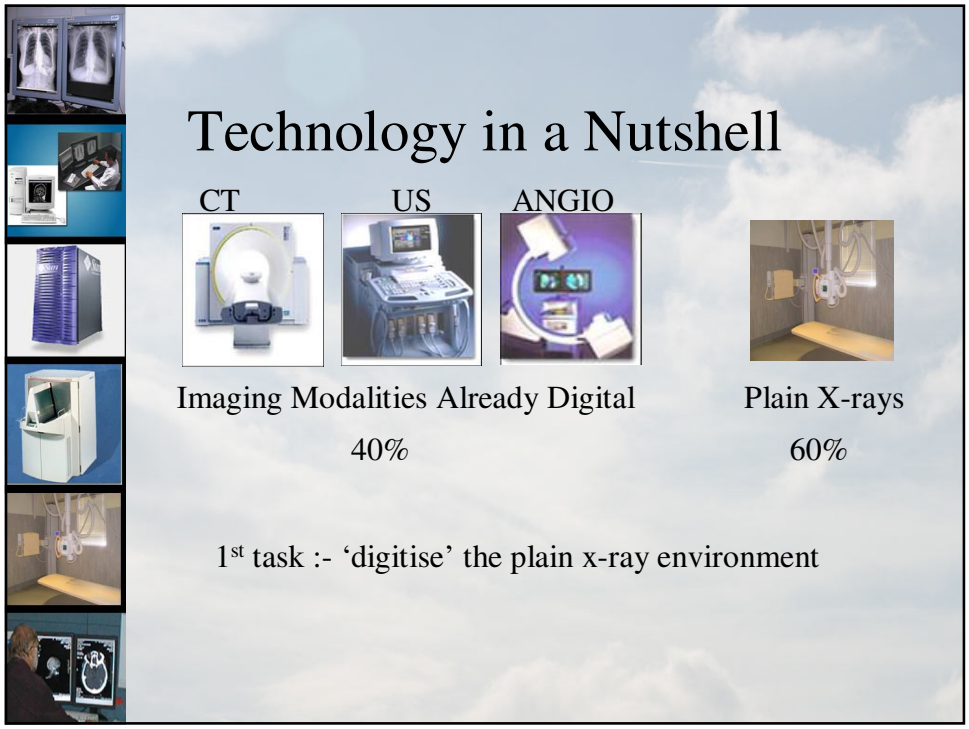


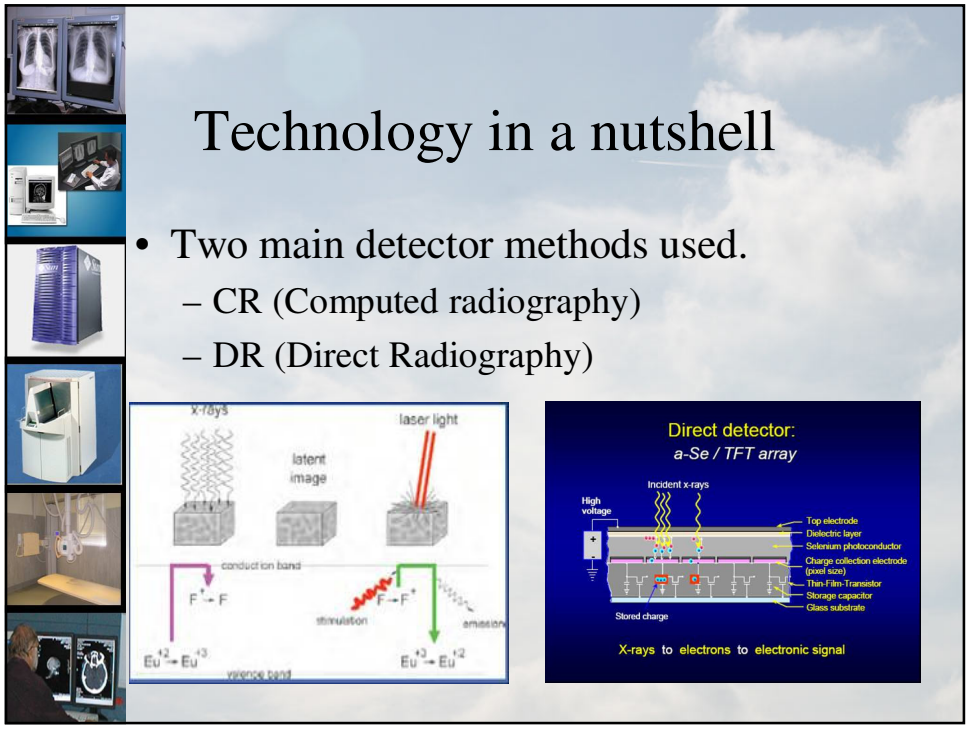


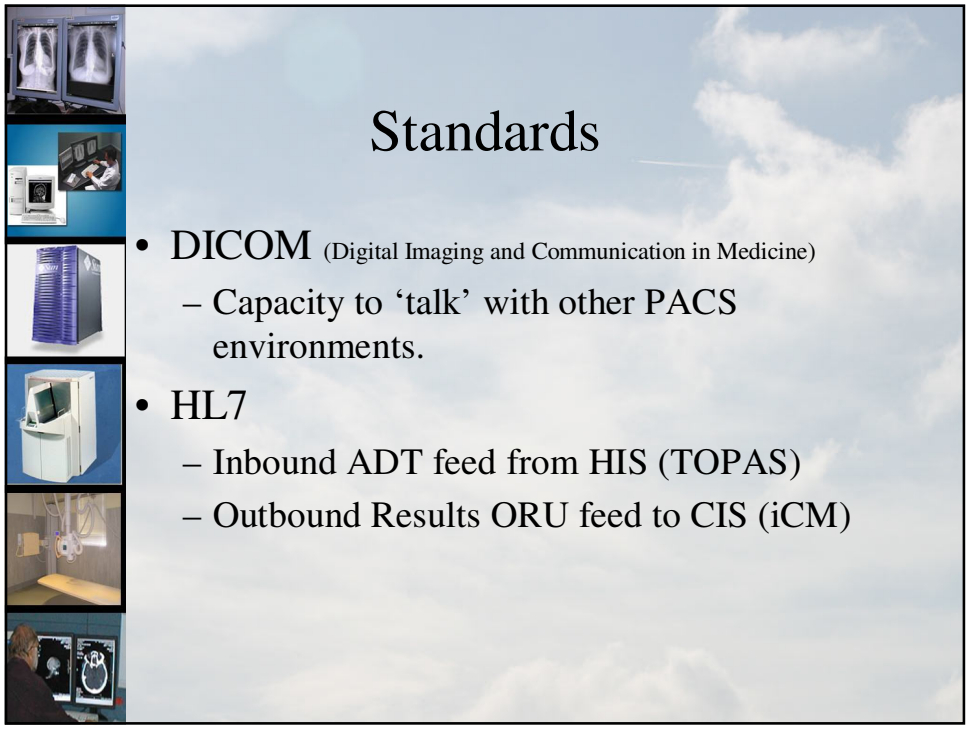
What is PACS?

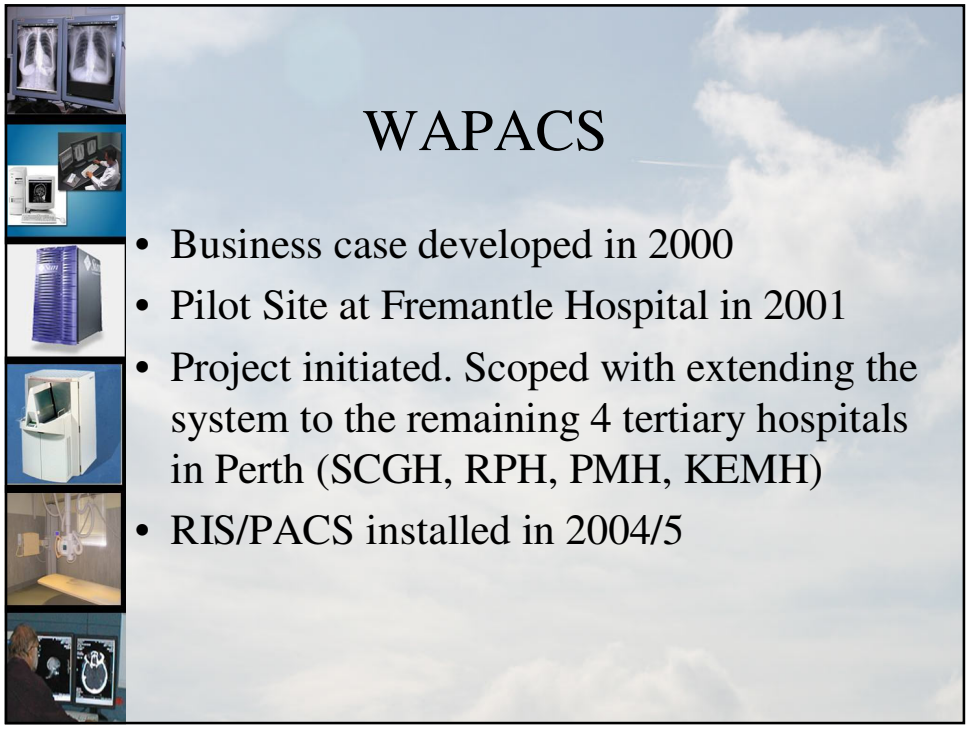
- Picture Archiving and Communication System
  - Initially developed as a Radiology Image Management system.
  - Increasing use by other 'ologies' in health.
  - Integrated with a RIS (Radiology Information system)
  - Transitions the Radiology department work process (Analogue to digital)

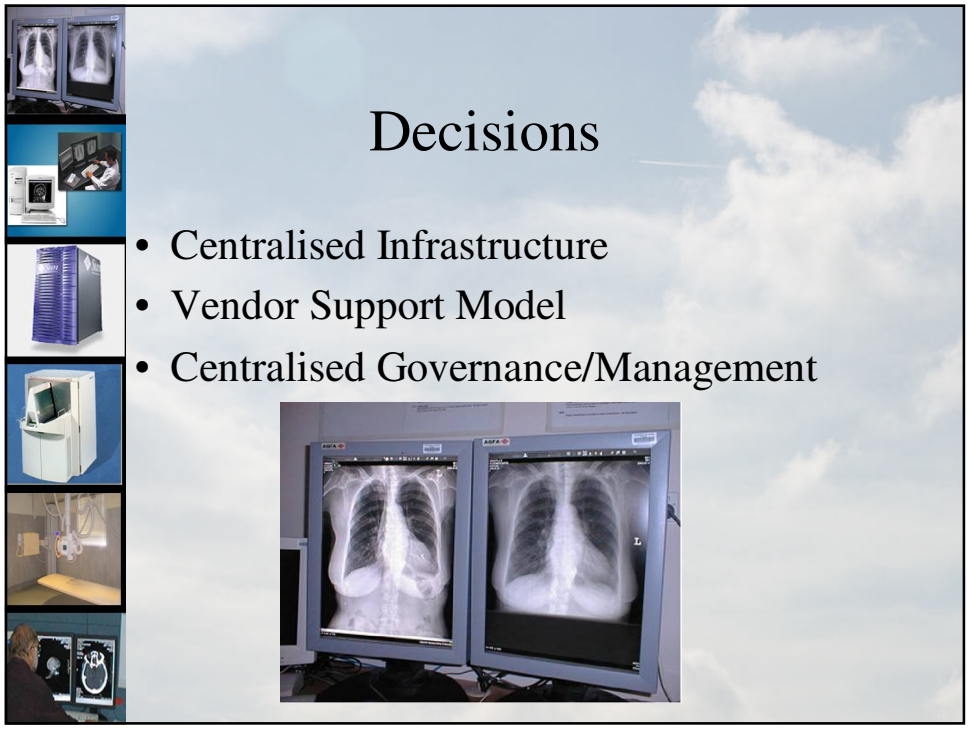

Drivers for PACS?
• ↑ Volumes of data produced.
• ↓ Ability of film to cope with data.
• ↑ 'Lost' films.
• ↑ Radiologist productivity.
• ↓ OSHS risks related to film management.
• Health better placed to expand system.
• Move to PACS clinically driven.

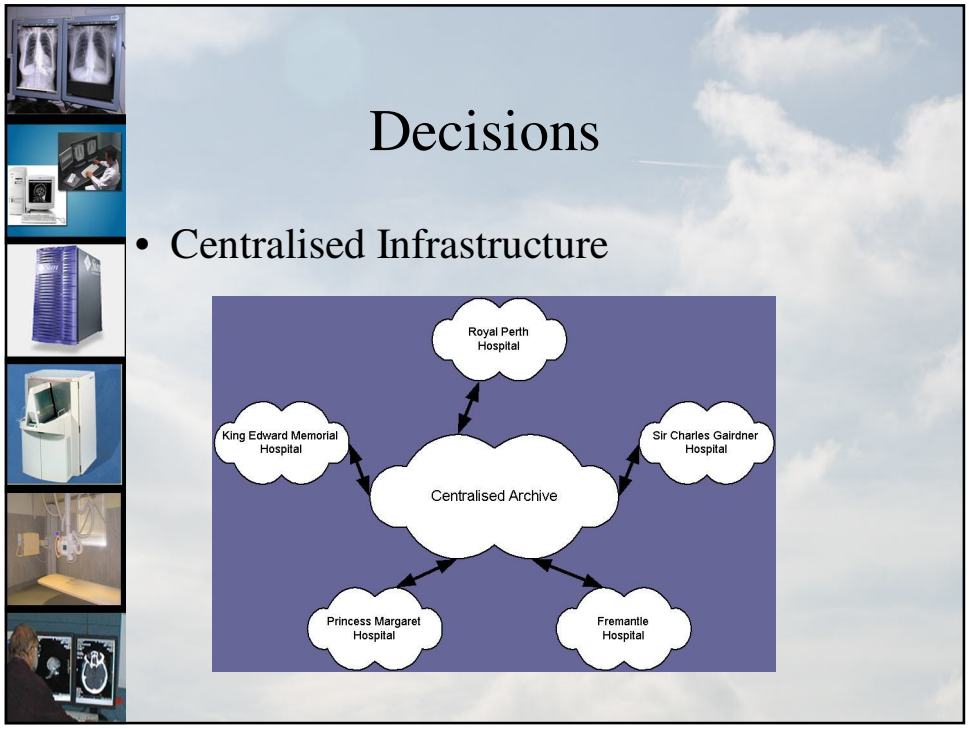

Technology in a Nutshell
CT
US
ANGIO
Imaging Modalities Already Digital
40%
Plain X-rays
60%
1st task :- 'digitise' the plain x-ray environment

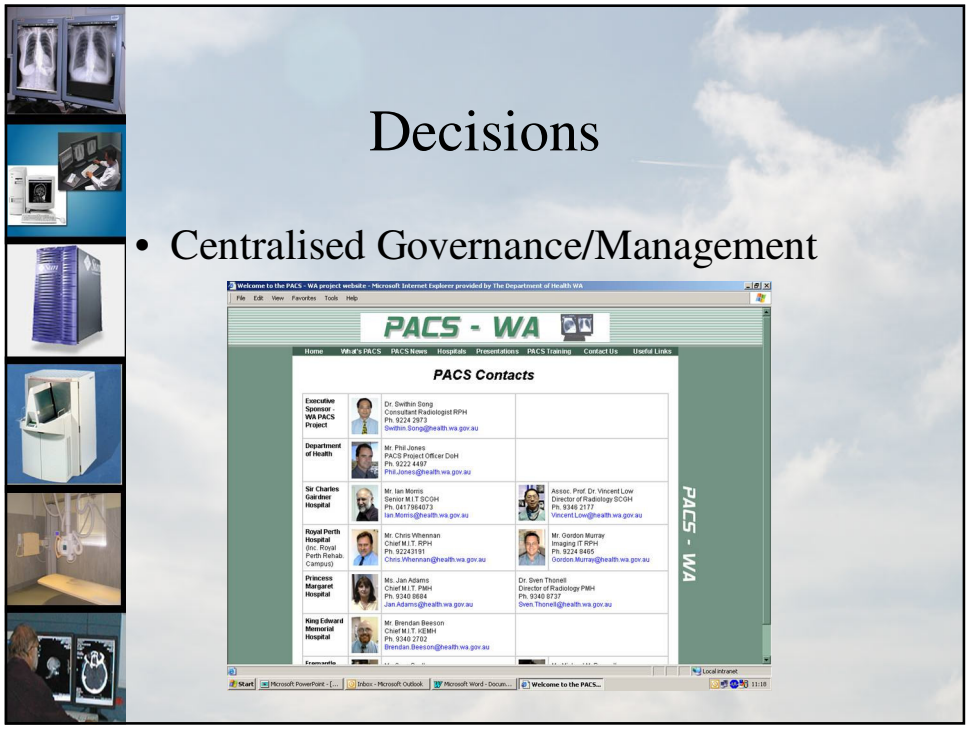

Technology in a nutshell
• Two main detector methods used.
– CR (Computed radiography)
– DR (Direct Radiography)
x-rays
laser light
latent image
conduction band
stimulation
emission
valence band
Direct detector:
a-Se / TFT array
Incident x-rays
High voltage
Top electrode
Dielectric layer
Selenium photoconductor
Charge collection electrode (pixel size)
Thin-Film-Transistor
Storage capacitor
Glass substrate
Stored charge
X-rays to electrons to electronic signal


Standards
• DICOM (Digital Imaging and Communication in Medicine)
– Capacity to 'talk' with other PACS environments.
• HL7
– Inbound ADT feed from HIS (TOPAS)
– Outbound Results ORU feed to CIS (iCM)


WAPACS
• Business case developed in 2000
• Pilot Site at Fremantle Hospital in 2001
• Project initiated. Scoped with extending the system to the remaining 4 tertiary hospitals in Perth (SCGH, RPH, PMH, KEMH)
• RIS/PACS installed in 2004/5

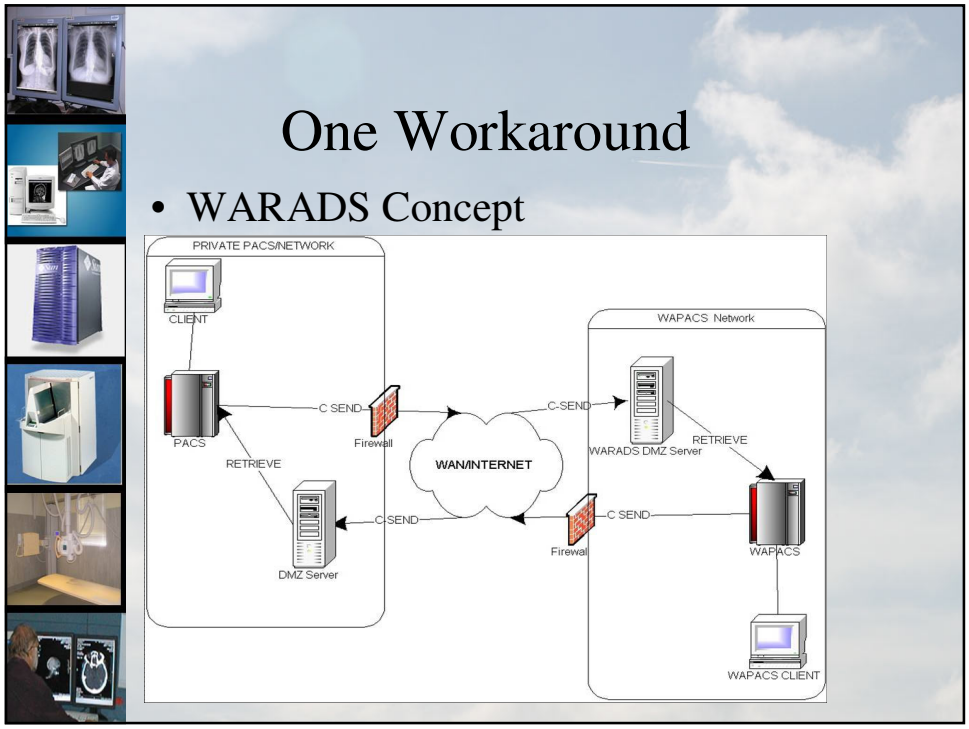

Decisions
• Centralised Infrastructure
• Vendor Support Model
• Centralised Governance/Management

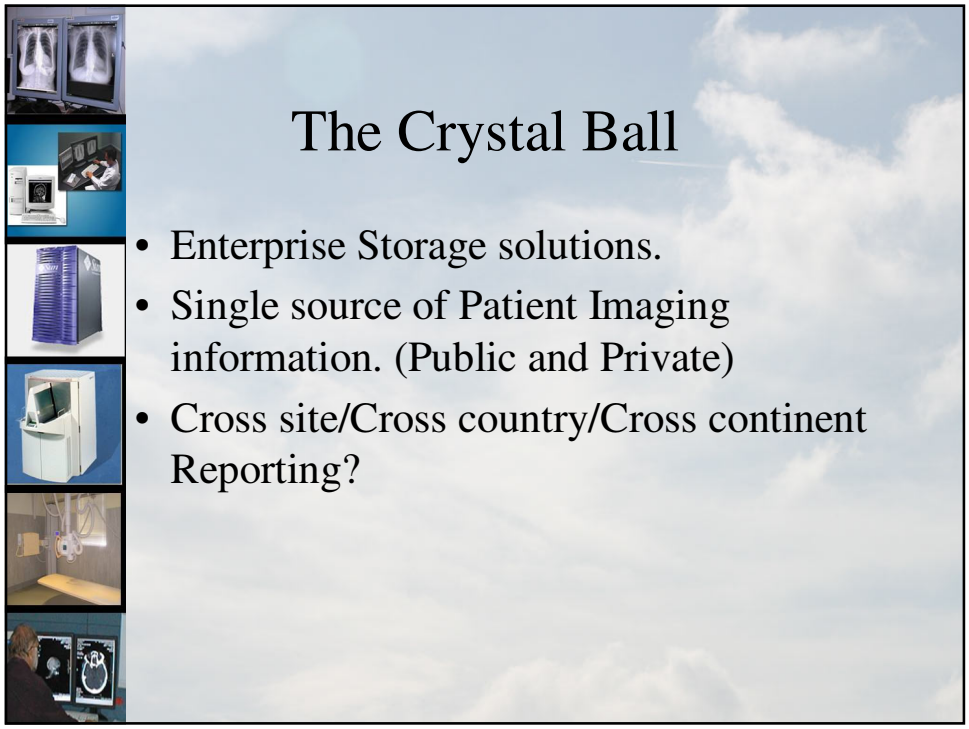

Decisions
• Centralised Infrastructure
Royal Perth Hospital
King Edward Memorial Hospital
Sir Charles Gairdner Hospital
Centralised Archive
Princess Margaret Hospital
Fremantle Hospital


Decisions
• Centralised Governance/Management
PACS - WA
PACS Contacts


Challenges
• Site autonomy
• Uniformity of Display hardware.
• Policy Development
• Network Infrastructure
• Reporting environment
• Single Patient level Identifier (UMRN)


4 years on
• Incremental storage costs.
• Application performance.
• Addition of new metro sites.
• Demand for better external access.
• Expanding PACS to regional rural areas /BSWA.
• Stream lining Public/Private Image transfer.
• Electronic distribution of Radiology reports
• Workarounds?


One Workaround
• WARADS Concept
PRIVATE PACS/NETWORK
CLIENT
PACS
C SEND
RETRIEVE
Firewall
DMZ Server
C-SEND
WAN/INTERNET
C SEND
Firewal
WAPACS Network
WARADS DMZ Server
RETRIEVE
WAPACS
WAPACS CLIENT


The Crystal Ball
• Enterprise Storage solutions.
• Single source of Patient Imaging information. (Public and Private)
• Cross site/Cross country/Cross continent Reporting?