IHE

Integrating the Healthcare Enterprise

Basic Image Review (BIR)

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BIR – Profile Abstract

- *"define the appropriate baseline functionality & behaviors for viewing software on CD"*

- *"defines baseline functions and user interface relevant to simple review of DICOM images"*

- *"potentially applicable to all Image Displays"*

- *"specific requirements that pertain to the use of Image Displays included on PDI media"*

- *"a named option for the PDI Profile"*

BIR – Problem Statement

- Physician frustration:
    - viewers do not run successfully
    - viewers do not load the images successfully
    - the viewer loads too slowly
    - the viewer claims to be "not of diagnostic quality"
    - functions critical to review are missing from the viewer
    - viewers have unique user interfaces that do not provide obvious access to basic functions
- Impact
    - delayed care
    - inaccessible information
    - repeat examination and irradiation
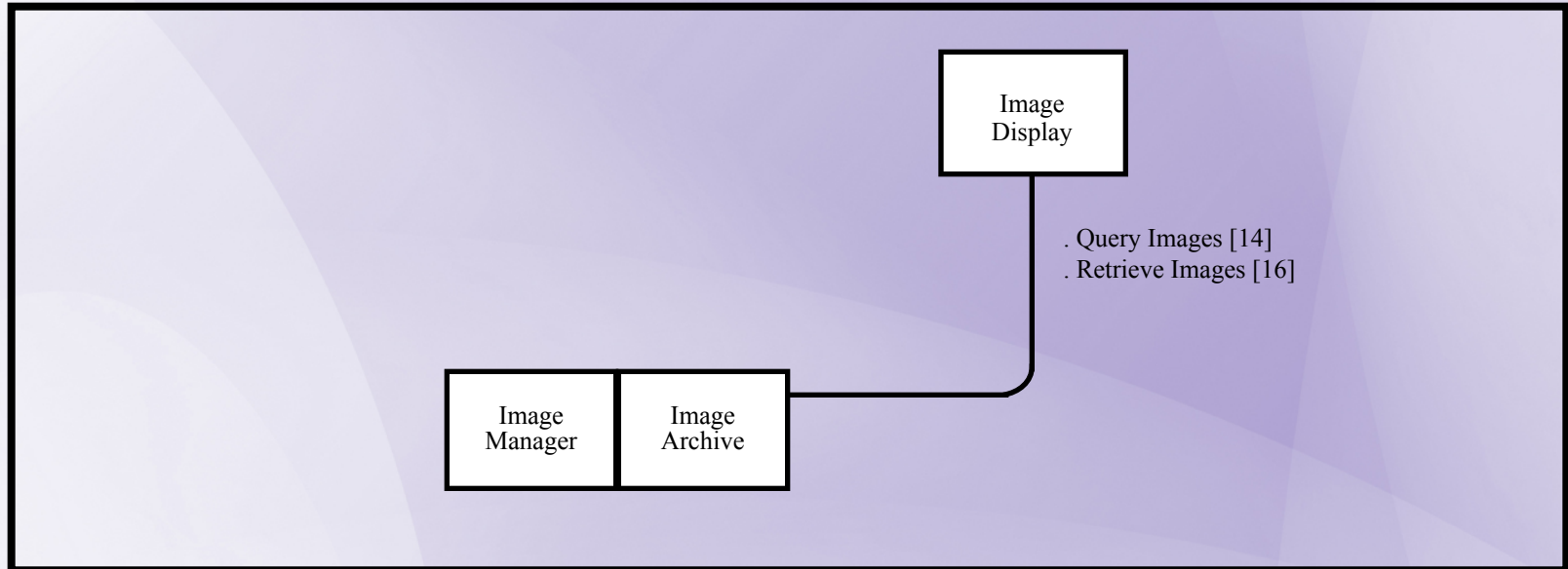   - poor use of valuable clinician time

BIR – Use cases

- Basic Viewer Option (PDI Profile - Media Creator)
    - physician viewing of media
    - operating Room viewing of media
    - patient viewing of media
- Basic Imaging Review Profile
    - viewing from PACS/VNA within the enterprise
    - viewing from PACS/VNA outside the enterprise
    - viewing from other enterprise
    - viewing from regional/national archive
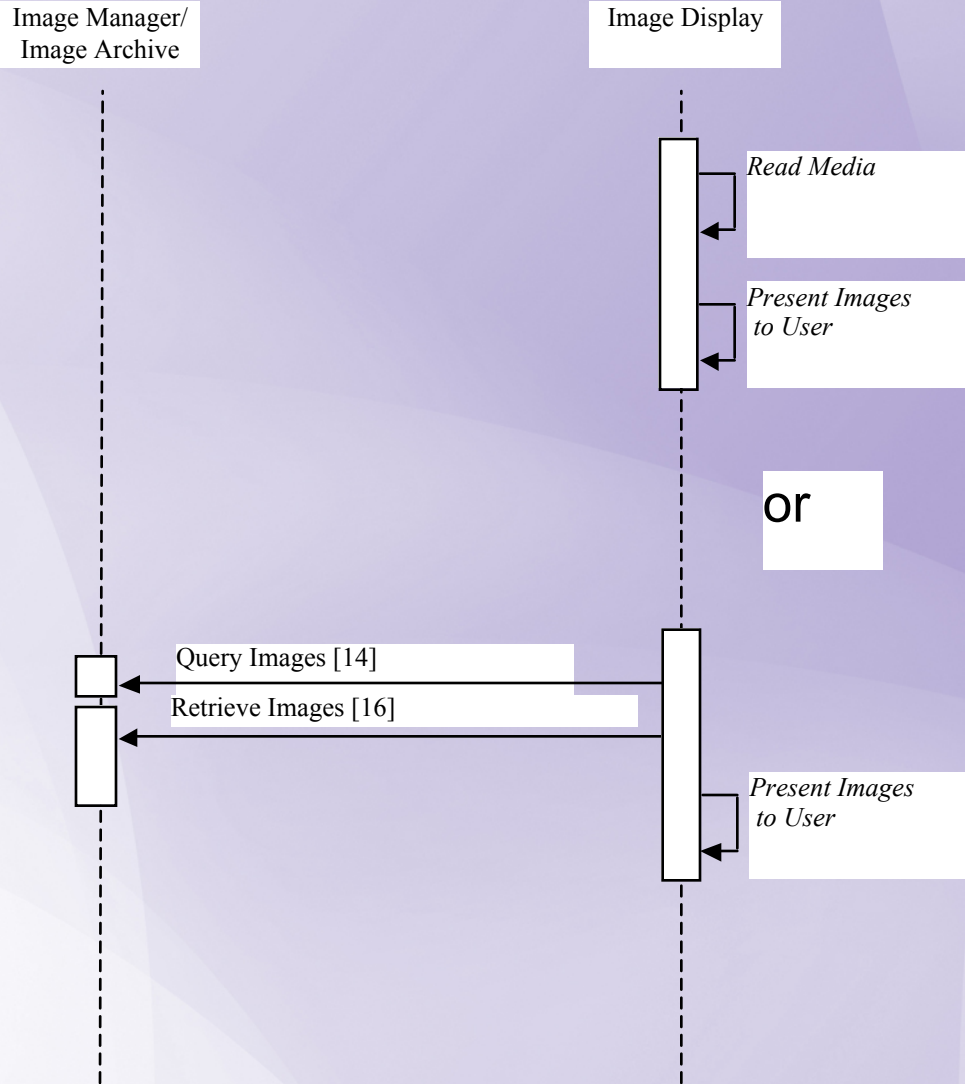   - viewing through EHR/PHR

BIR – Value Proposition

- Increase physician satisfaction
- Increase physician efficiency
- Reduce training burden
- Reduce technical support burden
- Reduce repeat studies
- Reduce delays & errors in patient care

BIR – Actors and Transactions

Image
Display

. Query Images [14]
. Retrieve Images [16]

Image
Manager

Image
Archive

BIR – Process Flow

Image Manager/
Image Archive

Image Display

Read Media

*Present Images
to User*

or

Query Images [14]

Retrieve Images [16]

*Present Images
to User*

BIR – Image Display – Behavior - I

- Display of grayscale and color images from any modality

- Cross-sectional modalities like CT, MR and PET

- Projection radiography modalities like CR, DX, XA and XRF

- Ultrasound and nuclear medicine

- Basic rendering of the images as encoded

- Without additional image processing

- No pseudo-coloring, MPR, volume rendering, fusion
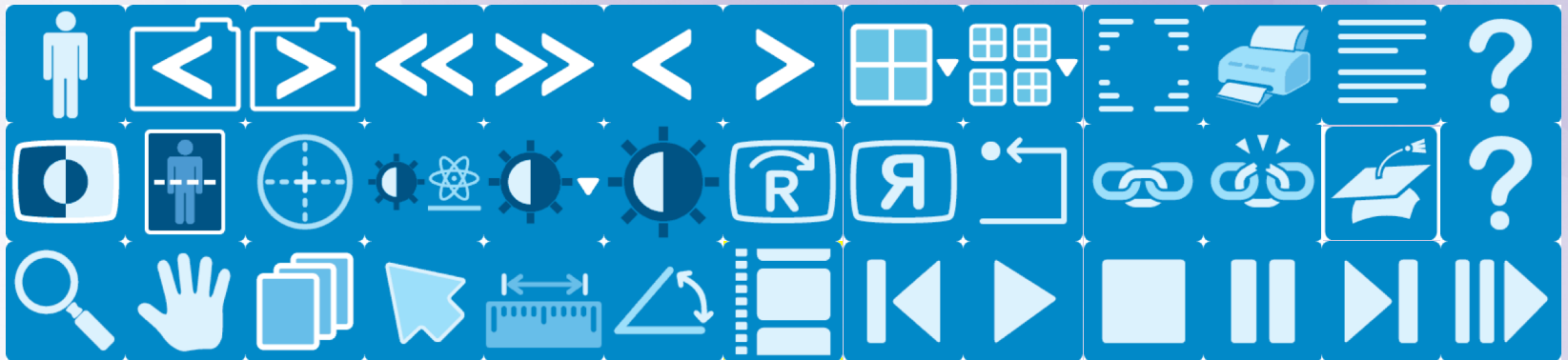
BIR – Image Display – Behavior - II

- Visual navigation of series of single and multi-frame images using thumbnails

- Side-by-side comparison of at least two sets of images, whether they be multi-frame images, series from the same study, or different studies

- Synchronized scrolling, panning and zooming

- Annotation of laterality, orientation

- Spatial localization of cross-sectional images for anatomic reference

- Annotation of demographics, management and basic technique information

BIR – Image Display – Behavior - III

- Simple measurements of linear distance and angle as used by clinicians for change detection and treatment planning

- Cine capability to allow review of multi-frame images that involve cardiac motion (e.g., cardiac US, XA, CT or MR)

- NO ADDITIONAL FUNCTIONALITY PERMITTED

- OK to have a tool to select "advanced mode"

BIR – Standard User Interface Behavior

- Direction of mouse movement (e.g., windowing, scrolling)

- Mouse actions (left button click)

- Keyboard shortcuts

- Icons – "*not intended to be used exactly with the bitmap illustrated … as long as they are recognizable as being the same symbol*" – based on IEC 60878 symbols if possible

BIR - Conclusion

- BIR improves user experience for both CD/DVD viewers and "on-line" viewers

- Minimum set of features defined by expert panel of representative referring physicians

- Too much, too little or just right?

- Does not preclude vendor-specific added value through "advanced mode" but does require adherence to design principles and standard user interface requirements in "standard mode"

- Challenging where there is an installed base of viewers or existing "look and feel"