Application Hosting

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Targets

- Standardized API for Interchanging Data Between Two Applications
  - Hosting Application launches a Hosted Application
  - Data inputs and outputs described using DICOM Semantics
  - DICOM messages/objects may not be used directly, instead the API may give access to parts of the objects

- Meta-data to Describe an Application
  - Type of application
  - Expected input data
  - Output data generated
  - Resources needed by the application
  - Version, license restrictions, etc.
  - Validation results
Typical Plug-in Concept

A → E → F
B → E
C → E

... → E

D → E
Extended Plug-in Concept
A ‘bright dot’ in the image is not sufficient

Ideal is a quantitative number, with normal ranges derived from population, as now done in lab analysis

Newer agents will require more sophisticated analysis:
- Agent uptake/decay rates
- Pre/post comparisons
- Comparisons with surrounding tissue
- Calibration
- ...

Hundreds of new agents anticipated
Potential Workflow

- Image Workstation
  - Plug-in Extension

Molecular Imaging Plug-in Server
- Agent Specific Acquisition/Recon
- Agent Specific Image Analysis

- MR
- CT
- PET
- SPECT

PACS
Possible Deployment Strategy

Apps in Portable Intermediate Language

Application Server

Workstation

Cached Apps Translated to Native Code for This Workstation

Request ID of latest version, based on agent ID, etc.

If app not cached, transmit Latest Version

Apps in Portable Intermediate Language
Other Use Cases

- SOP Class Specific Post Processing
- Screening Plug-Ins
- Customized Reporting and Display
- Print Composing
- Mammography Image Storage
- Analysis of Image Data in Repositories
- Multi-Site Collaborative Research
Research Support

Custom Research/University Prototype

Custom Classes

OEM Classes
(e.g. watsyn™, IDL)

Prototype Plug-In Development Environment

API (Plug)

API (Socket)

Hosting Application (e.g. Medical Workstation)
Commercialization

Hosted Application (Plug-in)

API (Plug)
API (Socket)

Hosting Application (e.g. Medical Workstation)
Development Scenarios

- Base Services and Libraries
- Vendor Specific Development Platform
- Vendor Specific Applications
- Prototype Plug-In
- Plug-in Development Platform
- Industry Standard Plug-in
- Commercial Post-Processing

- Researchers and University Collaborators
- Vendor Internal
Suggested Staging

- Stage one – Access to DICOM Datasets and Results Recording
- Stage Two – Access to Non-Interactive Application Services (e.g. print, archive)
- Stage Three – Access to Interactive Application Services (e.g. GUI, ‘skins’, rendering)
- Stage Four – Standard Workflow Descriptions, and Interactions Between Hosted Software
Work Cycle

1. Define Use Cases
2. Derive Requirements
3. Review available technology
4. Create draft for public comment
5. Freeze for trial use
6. Revise after feedback from implementers
7. Ballot
Volunteers Solicited

WG 23 welcomes your input. We would be even happier with your assistance in creating this new standard.

– Join the mailing list
– Join us at future meetings
  (next is Nov. 7-8 in Arlington, VA)