

IHE-RO

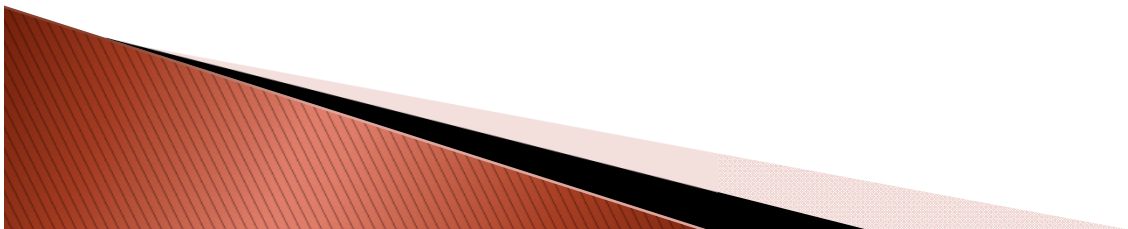
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IHE-RO Goals

- ▶ Improve the connectivity of various radiation oncology hardware and software products
- ▶ Improve radiation oncology work flow
- ▶ Help end users select products based on features, productivity and cost efficiency

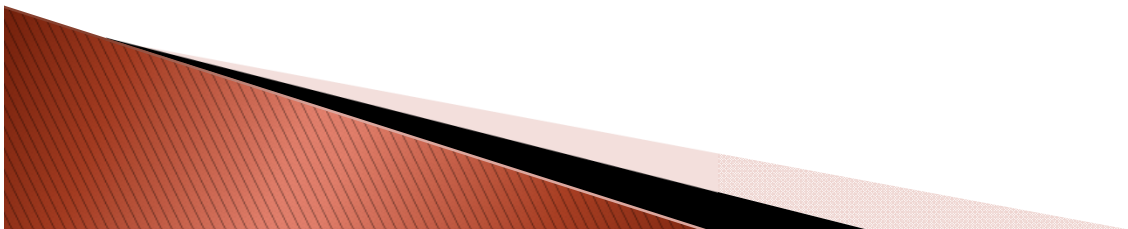
Improve patient care



Steps of IHE Process

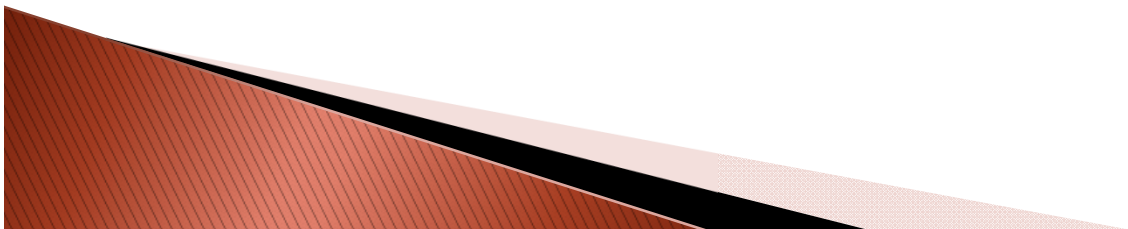
A defined, coordinated process for standards adoption.

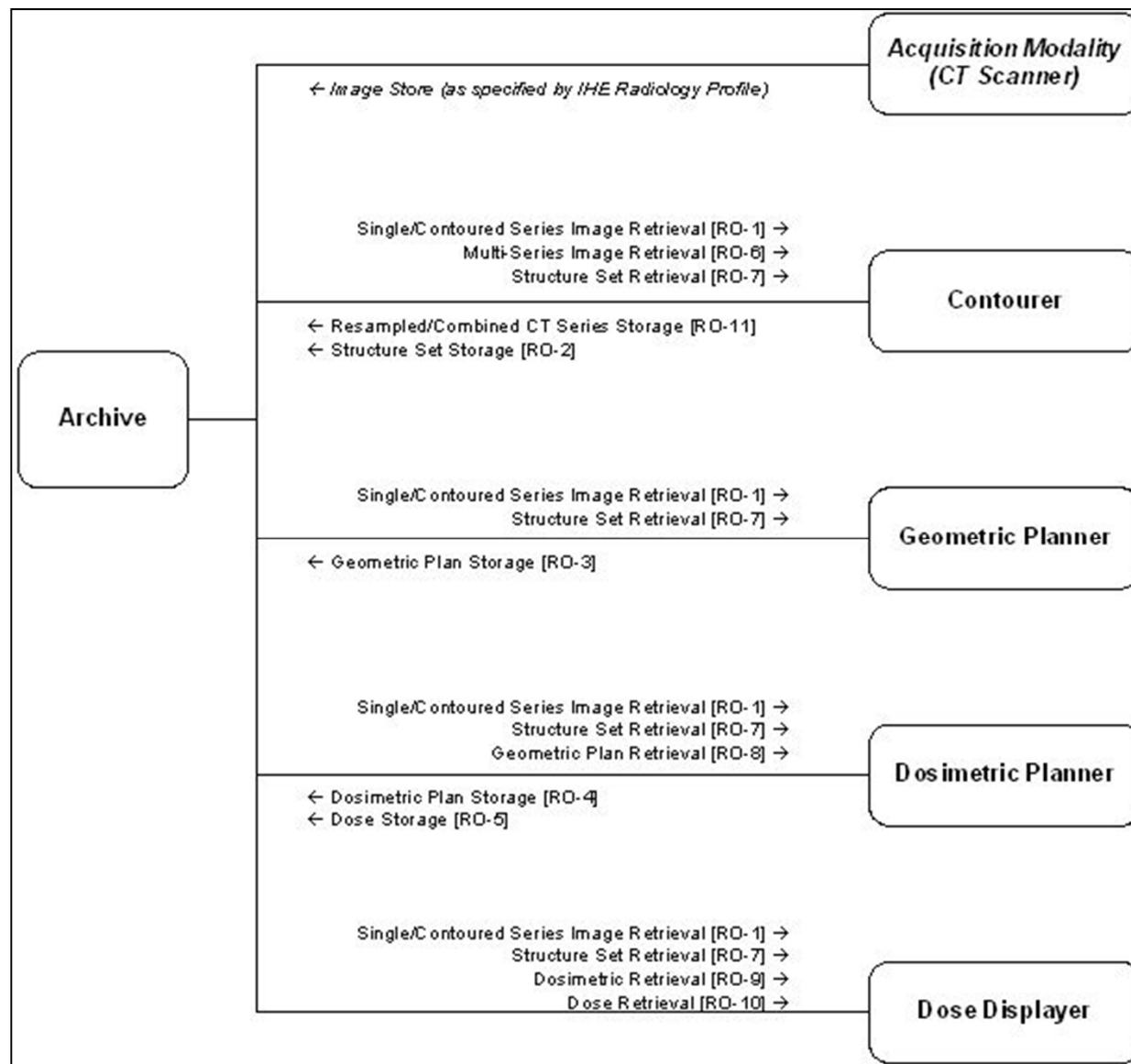
- Repeated annually, promoting steady integration
- ▶ Identify Interoperability problems – use cases
- ▶ Specify Integration Profiles – solutions
- ▶ Develop test tools for these profiles – in house testing
- ▶ Test systems at Connectathon against profiles
- ▶ Publish Integration profiles for use in RFPs
- ▶ Publish Users success stories



Completed Use Cases

- ▶ Simple treatment planning use case
 - Basic RT Objects Integration Profile
 - Tested in 2007
 - Illustrates basic functionality for transferring data between treatment planning systems.
 - 5 Treatment planning systems passed this profile.

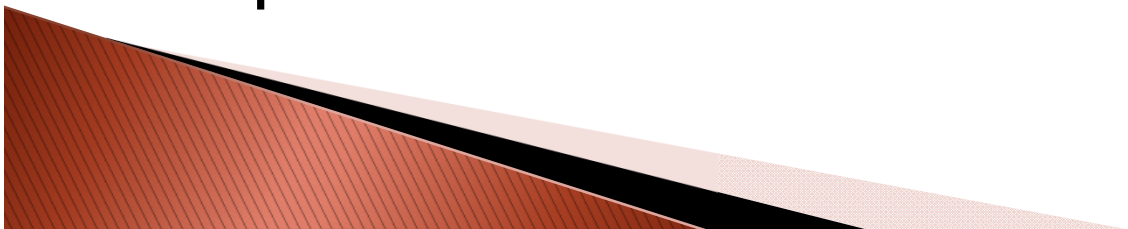


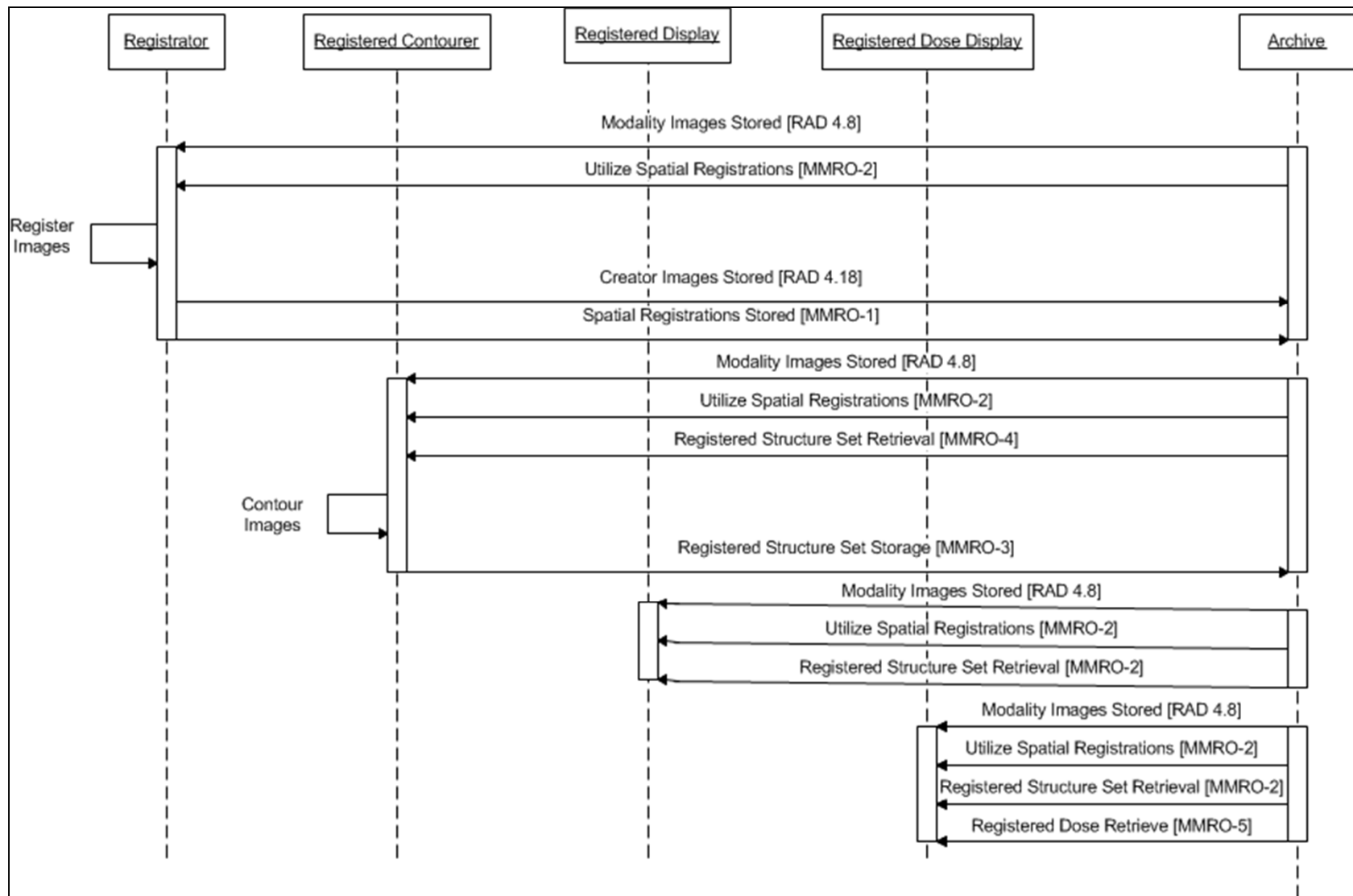


Basic RT Objects Integration profile

Completed Use Cases

- ▶ Multimodality image registration for Radiation Oncology use case
 - Multimodality registration Integration Profile
 - Tested in 2008
 - Illustrates functionality for transferring multimodality registration data between treatment planning systems.
 - 5 Treatment planning systems passed this profile.

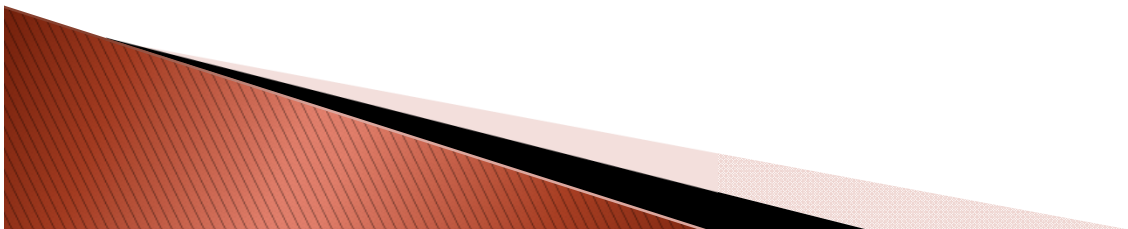




Multimodality Image Registration for Radiation Oncology

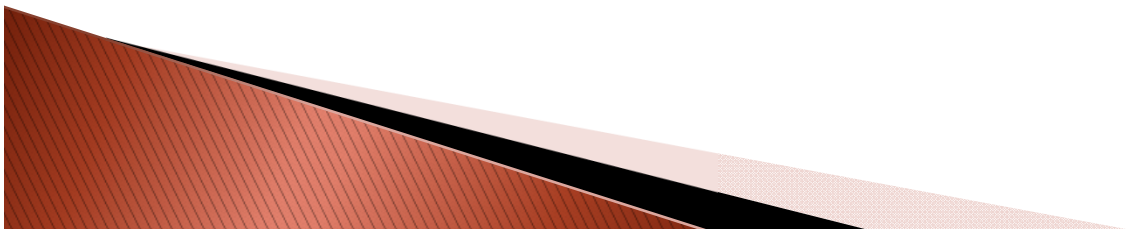
Completed Use Cases

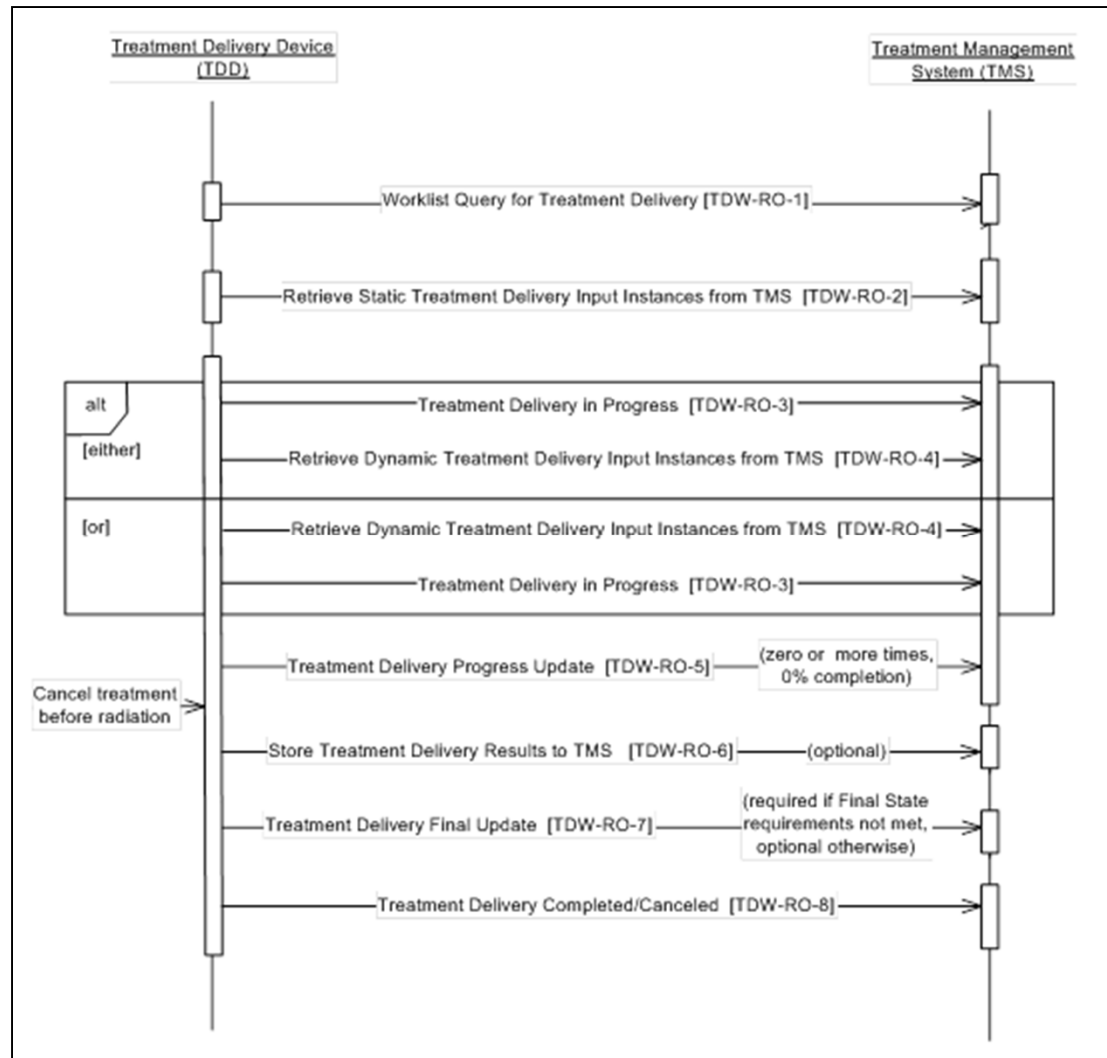
- ▶ Advanced treatment planning use case
 - Advanced RT Integration Profile
 - Tested in 2009, 2010
 - This is an extension to the basic treatment planning profile.
 - 4 Treatment planning systems passed this profile.



Completed Use Cases

- ▶ RT Treatment workflow use case
 - Treatment delivery workflow Integration Profile
 - Tested in 2009, 2010
 - First step towards departmental workflow management.
 - 2 Treatment management systems & 2 treatment delivery devices passed this profile.

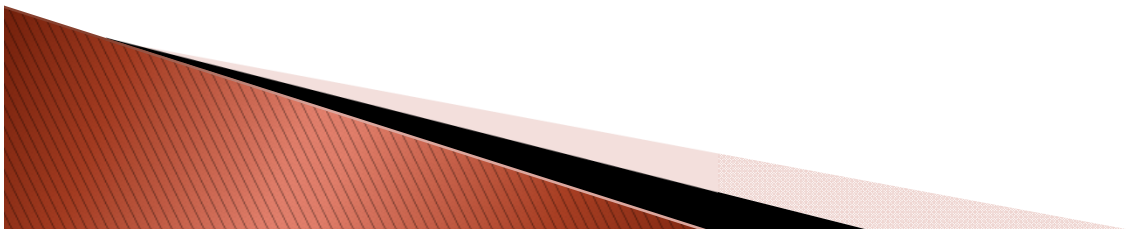


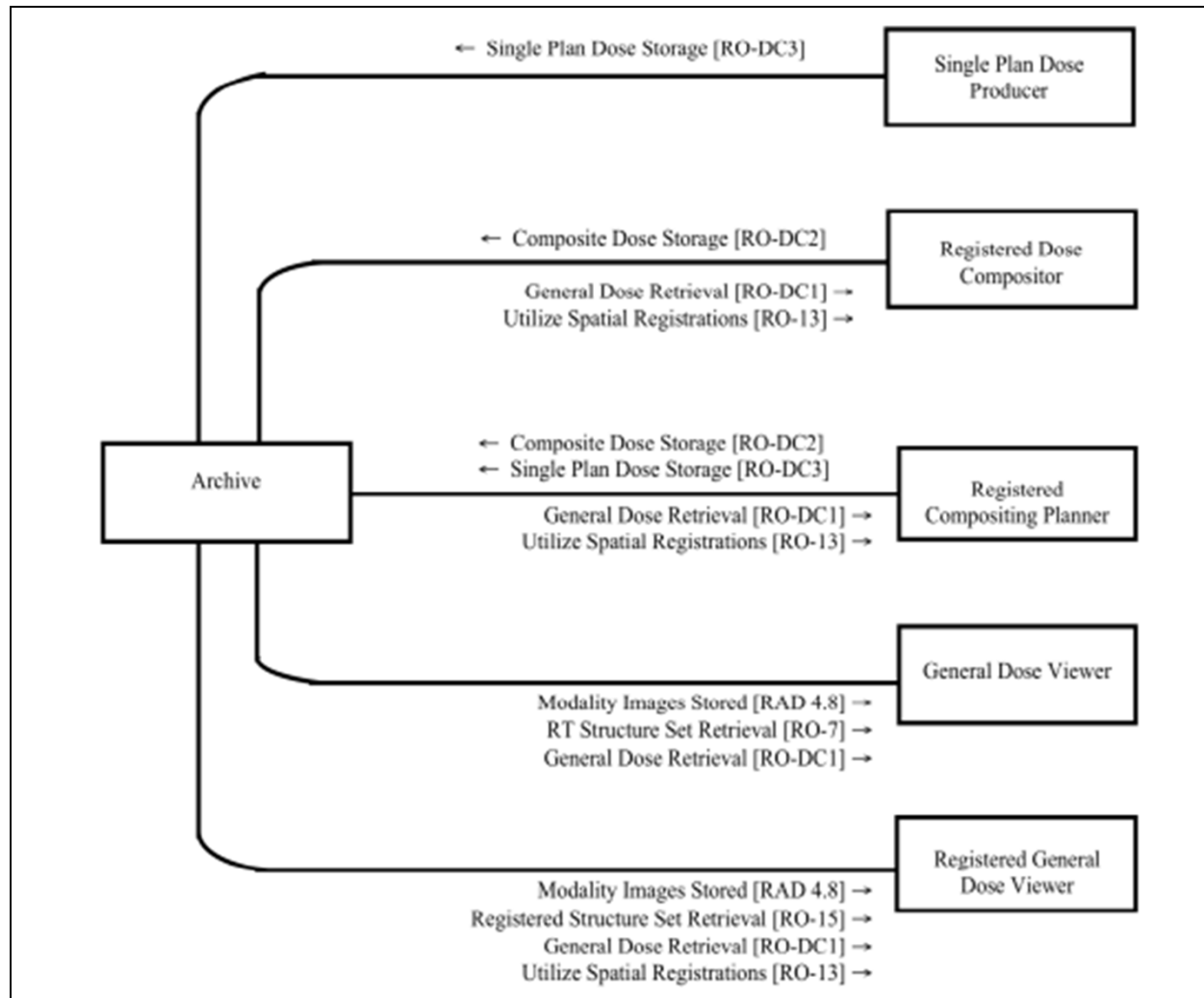


Treatment delivery workflow profile

Use Cases Being Developed into Integration Profiles

- ▶ Dose Compositing use case
 - Dose Compositing Integration Profile
 - Summing multiple dose distributions defined in a common frame of reference.
 - Should have been tested in 2010/2011 ?





Dose Compositing profile

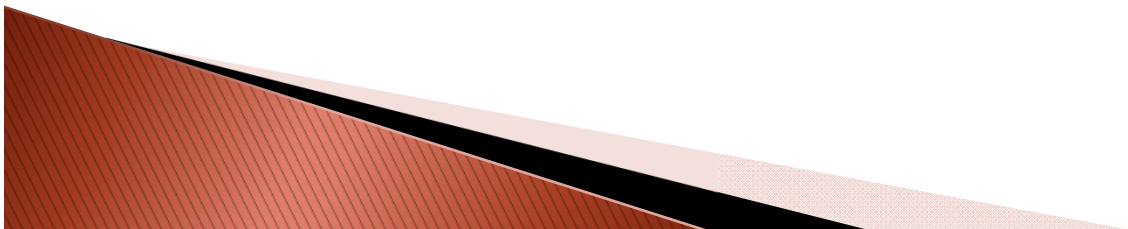
Use Cases Being Developed into Integration Profiles

- ▶ Structure template creation use case
 - Consistent naming of organs at risk and target volumes
 - Clinical workflow – to facilitate automation in prescription and plan evaluation
 - Clinical trials and data registries – to facilitate quality assurance and outcomes analysis across subjects
 - TC working on a structured XML template.
 - Standardized structure names to be used for segmentation.
 - Clinical and clinical trials workflow, including prescription, planning, plan analysis, plan review, and automated QA.



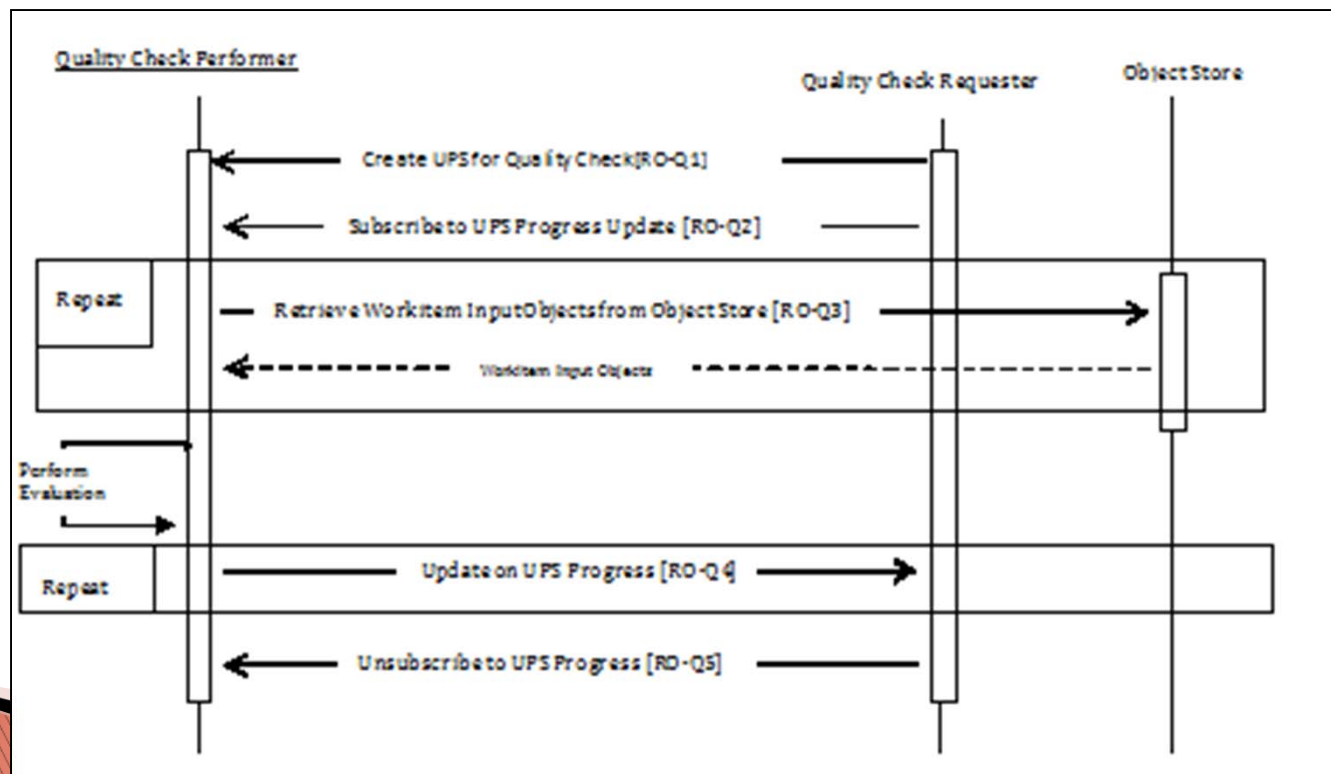
Use Cases Being Developed into Integration Profiles

- ▶ Radiation Oncology workflow exchange with HIS use case
 - Transfer of patient demographics data between HIS and each system in the RT workflow.
 - Active sub-group working on this use-case.
 - CT-Simulator receive demographics from TMS
 - Moving towards workflow based profiles.



Use Cases Being Developed into Integration Profiles

- Integrated Patient QA checker use case
 - Quality Assurance with Plan Veto Profile



[IHE-RO Composite Results](#)
[2010 IHE-RO Connectathon Result](#)
[2009 IHE-RO Connectathon Result](#)
[2008 IHE-RO Connectathon Result](#)
[2007 IHE-RO](#)

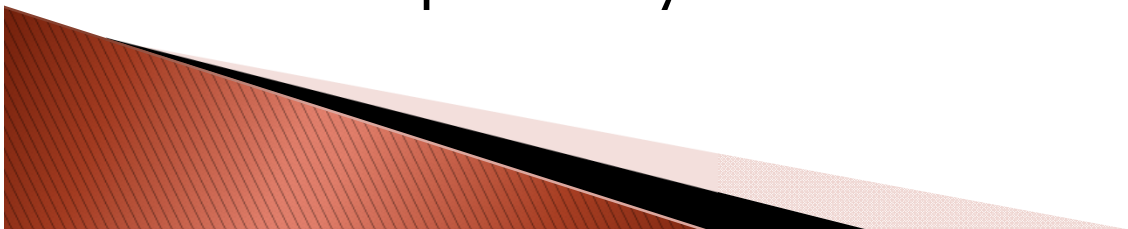
IHERO Helper

What is it?

- A Web application that allows users to evaluate interconnectivity and interoperability (IHERO Compliance) of radiotherapy devices in a straightforward and intuitive manner

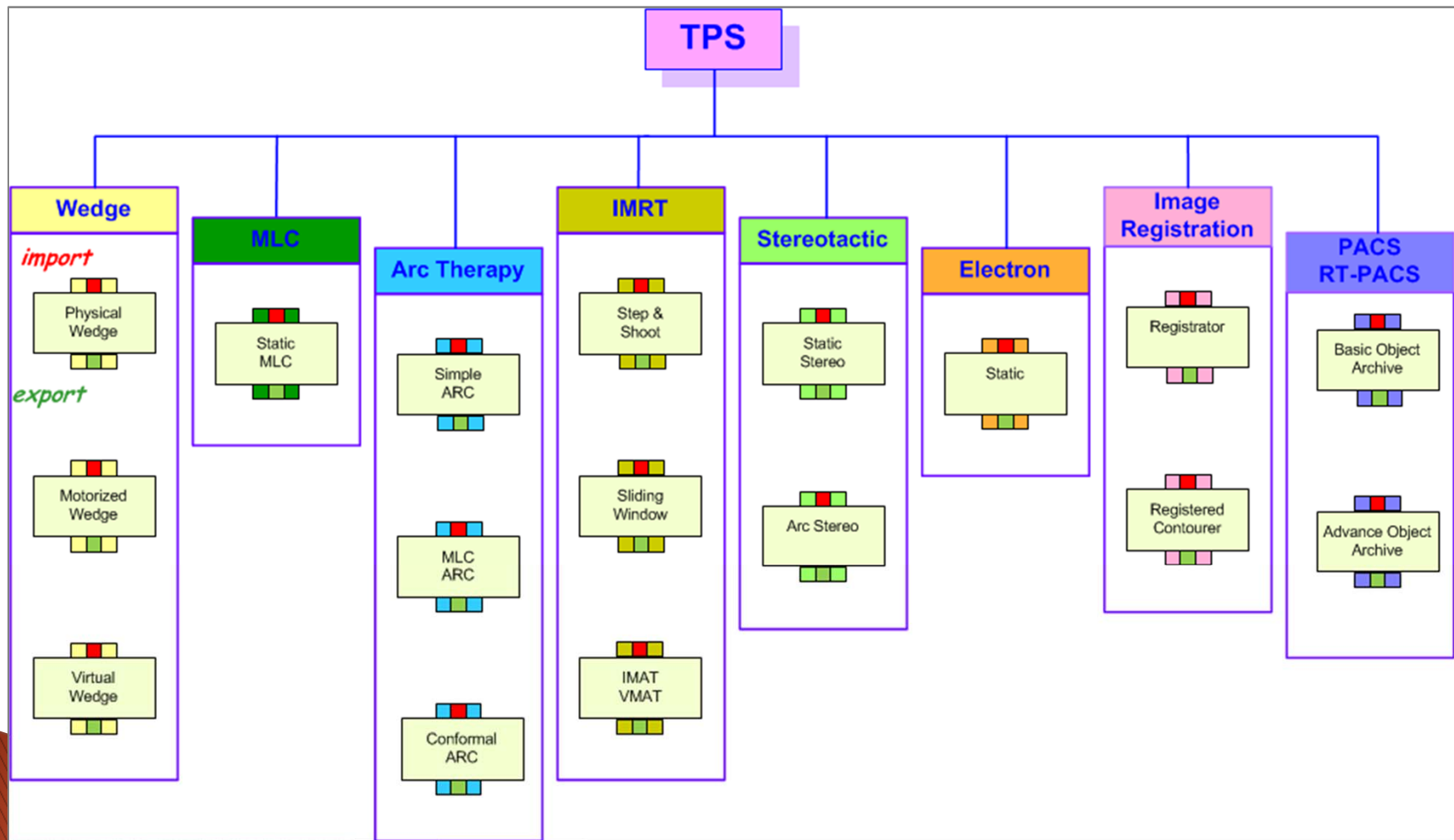
Specific Objectives:

- Provide ready access to connectathon results of Clinical Use Cases
- Present technical results in the context of clinical application
- Allow proactive assessment of connectivity issues for
 - new equipment purchase
 - Provide language for interconnectivity and interoperability in a RFP



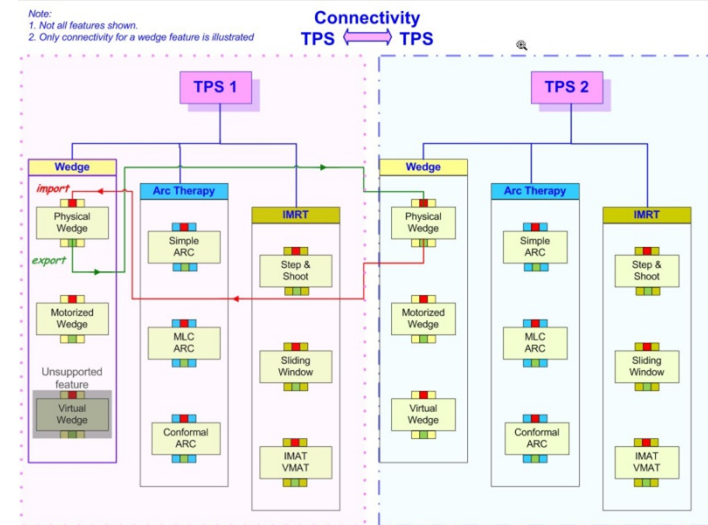
Modeling of the Treatment Planning System

Features and Functionalities



IHERO Helper – Conceptual Model

Connectathon Results >> Clinical Context >> Connectivity Chart

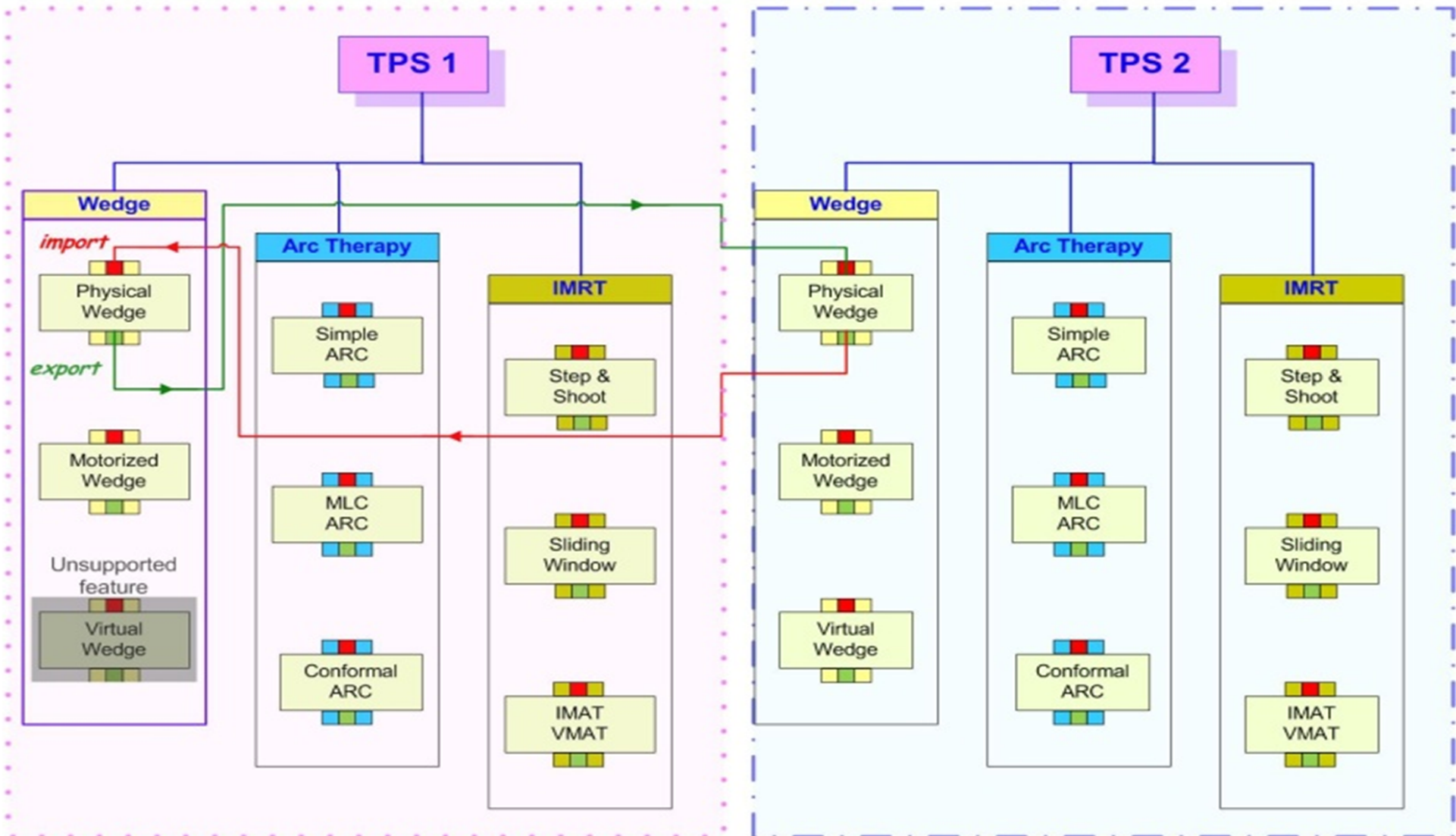
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IHERO Helper – Conceptual Model

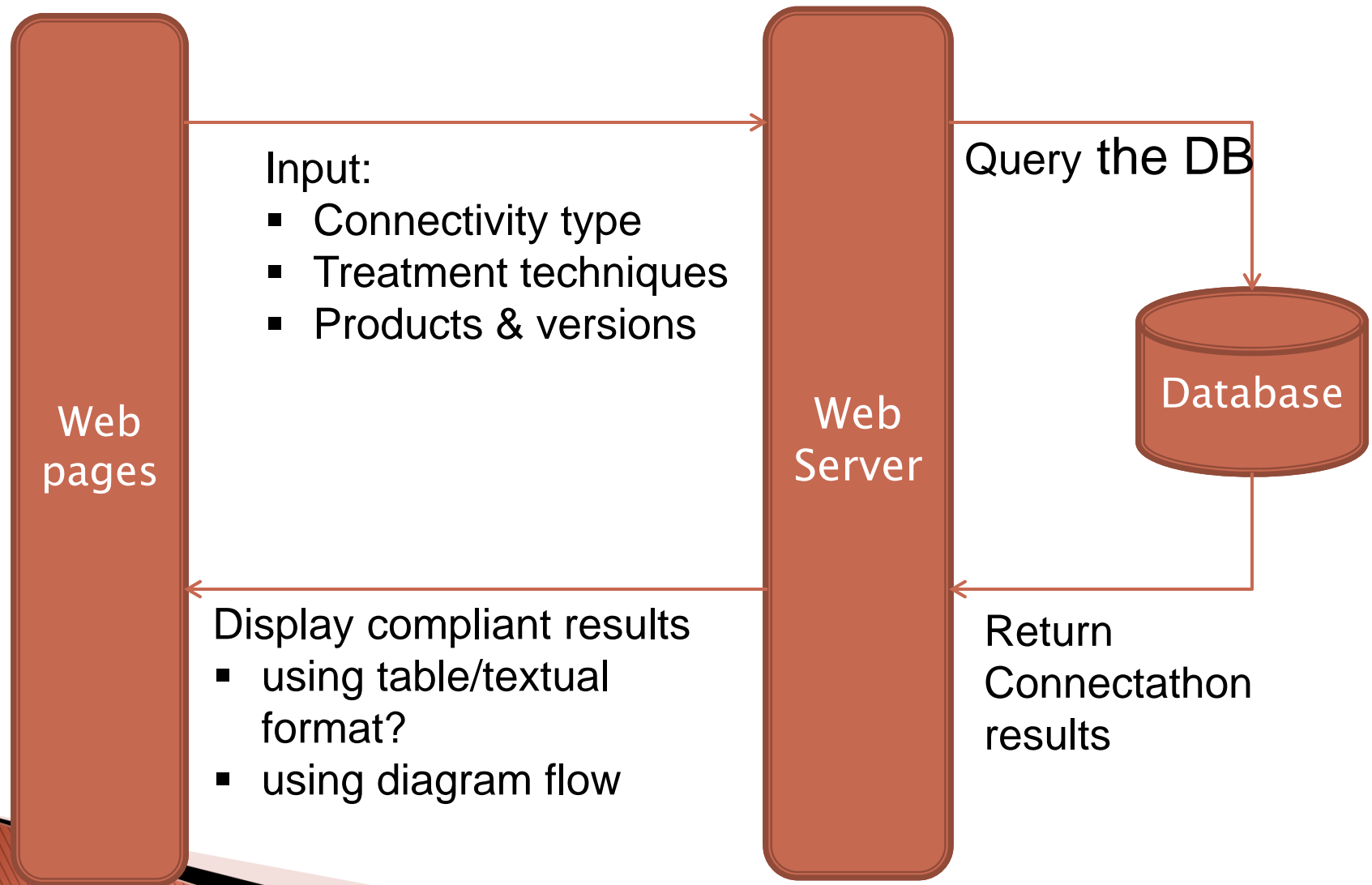
Note:

1. Not all features shown.
2. Only connectivity for a wedge feature is illustrated

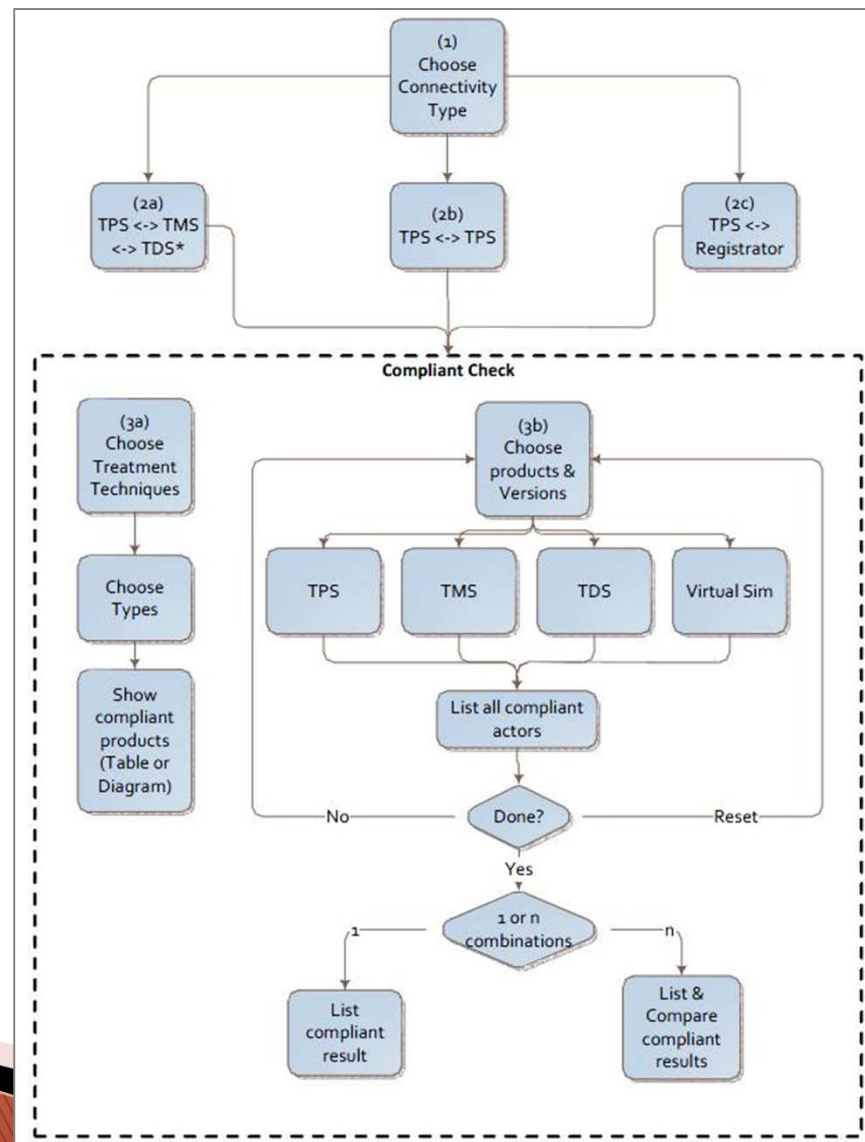
Connectivity
TPS ↔ TPS



IHERO Helper – Web Architecture



IHERO Helper – Application Flow



Thanks!!

