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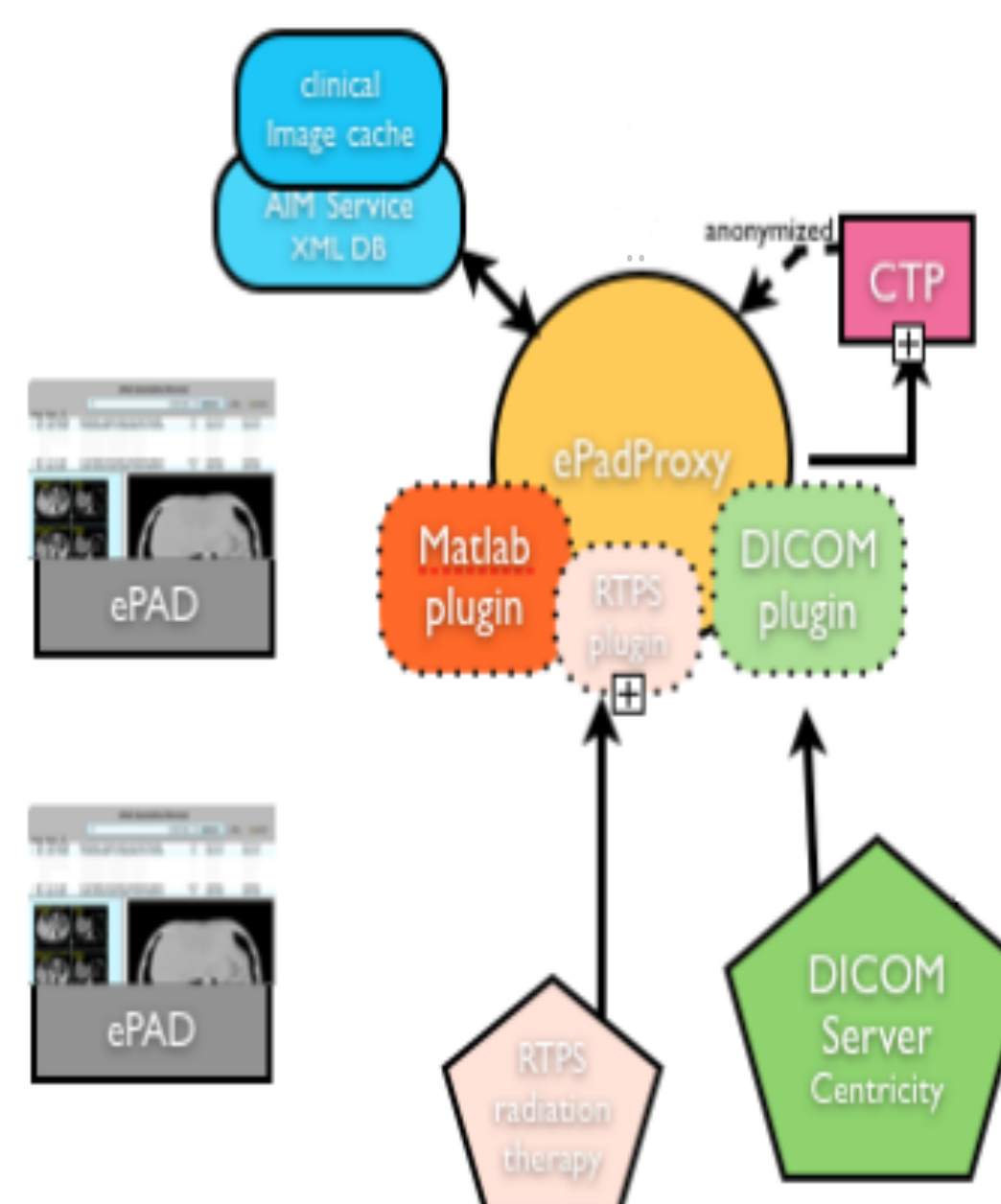
OBJECTIVES

1. To provide a freely-accessible method of universal access to radiology image metadata compliant with the Annotation and Image Markup (AIM) standard.
2. To provide an implementation of AIM in a rich Web client architecture that runs on Web browsers and provides semantic image annotation on any platform and any image workstation.
3. To catalyze adoption, collection, dissemination, and use of quantitative imaging data and empower radiologists with the benefits of image metadata sharing and interoperability.

EVALUATION

We have created ePAD (the electronic Physician Annotation Device), an implementation of AIM in a rich Web client architecture. ePAD is a freely-available tool that runs on modern Web browsers and provides semantic image annotation on any platform and within any image workstation environment, including the Apple iPad. The ePAD tool accesses images within any image viewing workstation, it can extract quantitative information and radiologist's annotations on the images and ~~it~~ **and** saves these metadata in AIM format.

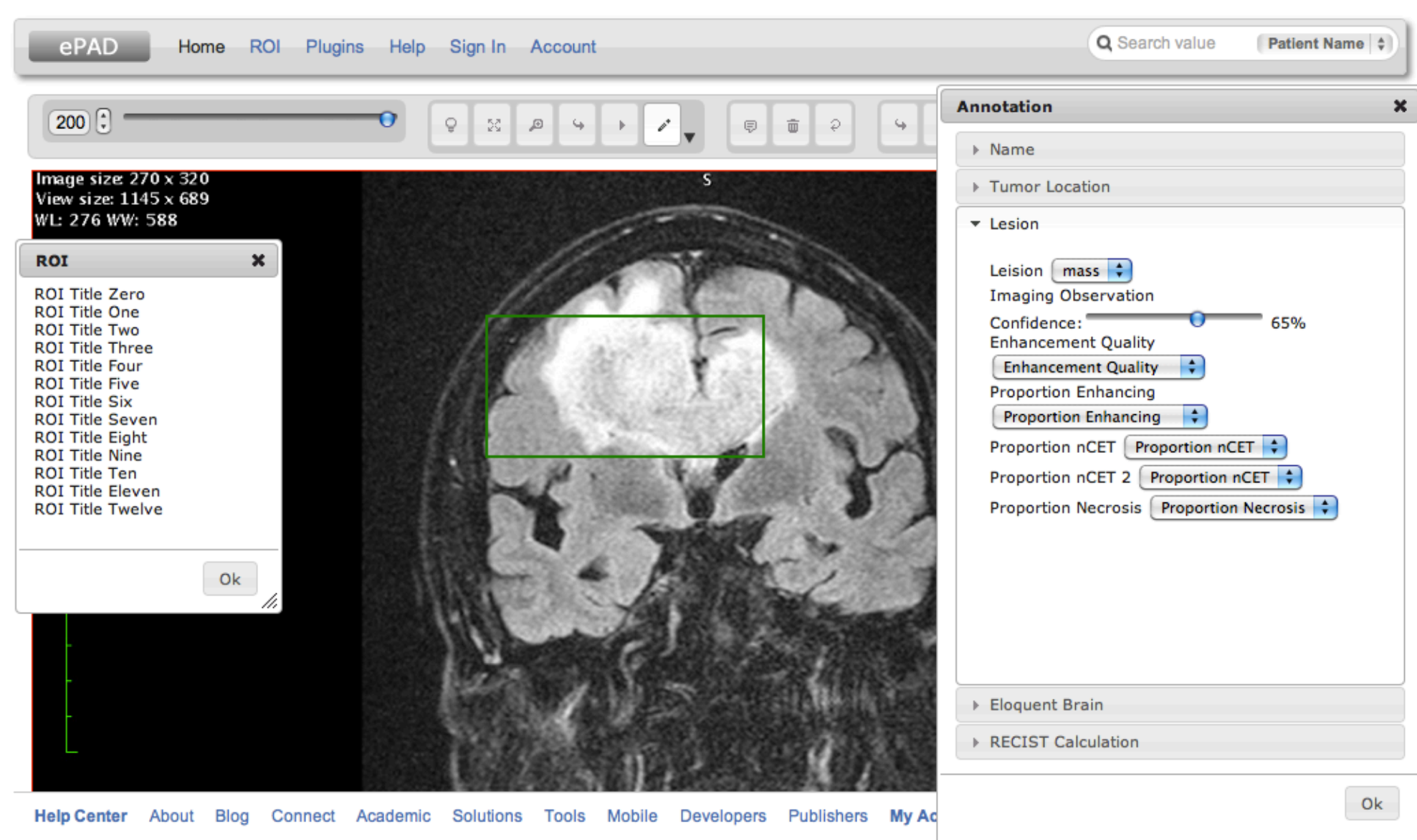
ARCHITECTURE



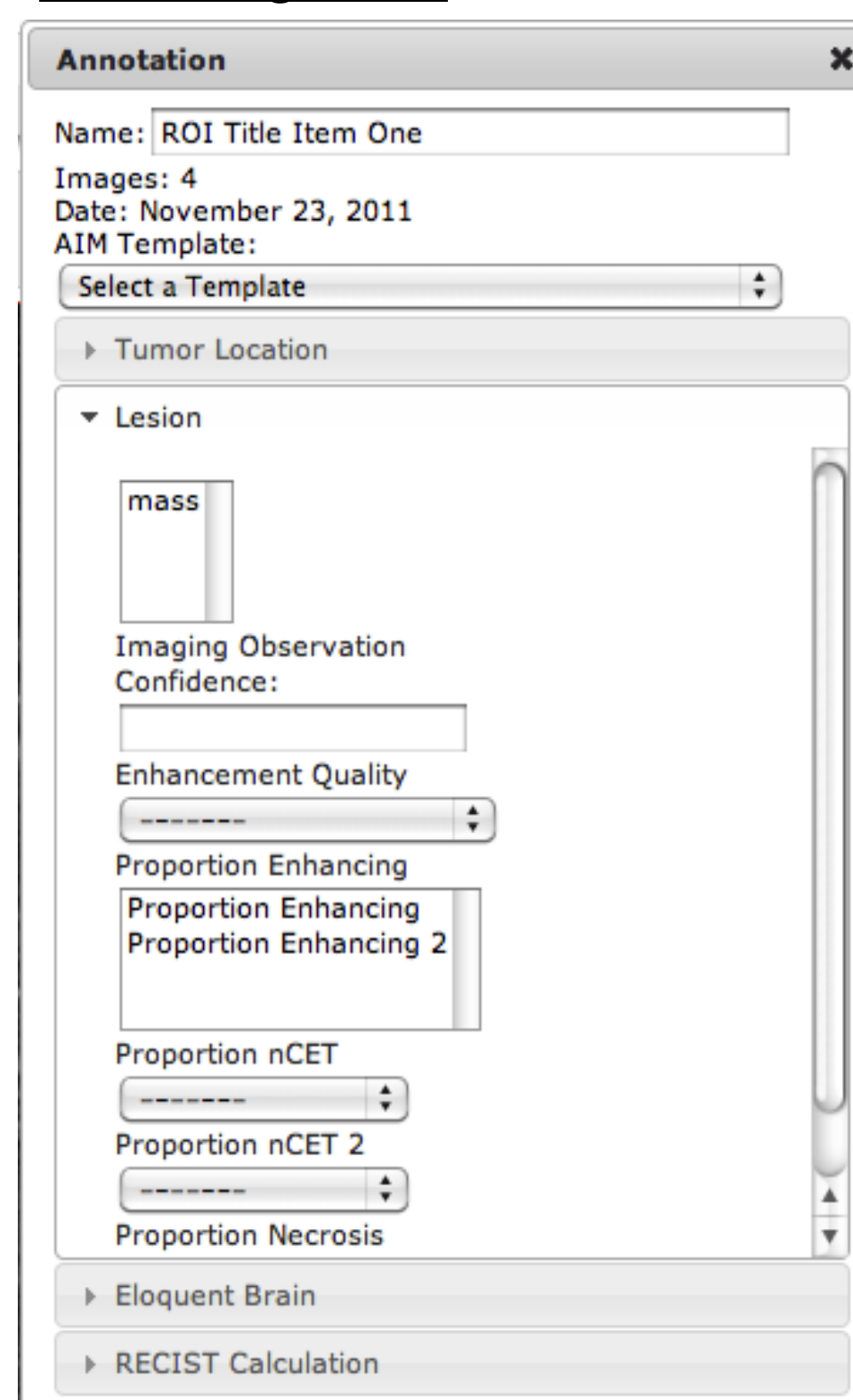
Communication **between** ePAD and the client workstation occurs via a proxy; we are also developing vendor-specific API calls (where available) to make the integration even more seamless. AIM data is stored **in** XML files on the server and can **be** searched **as** a database of AIM annotations. Plugins may be added to ePAD for image processing and analysis. We will be exhibiting ePAD at RSNA in November 2011 to show **its** features, operation and potential benefits to radiologists.

DISCUSSION

Developments in quantitative imaging are occurring rapidly, but improved radiology practice is thwarted by slow and variable vendor adoption of cutting-edge advancements. Our rich Web-based image viewing architecture enables new tools, such as AIM, to be executed on any platform, including vendor workstations, provided they run a Web browser. Ultimately, we foresee a paradigm where semantic image annotation and capture of machine-accessible image content via AIM will be as seamless as DICOM implementations currently provide with image data.



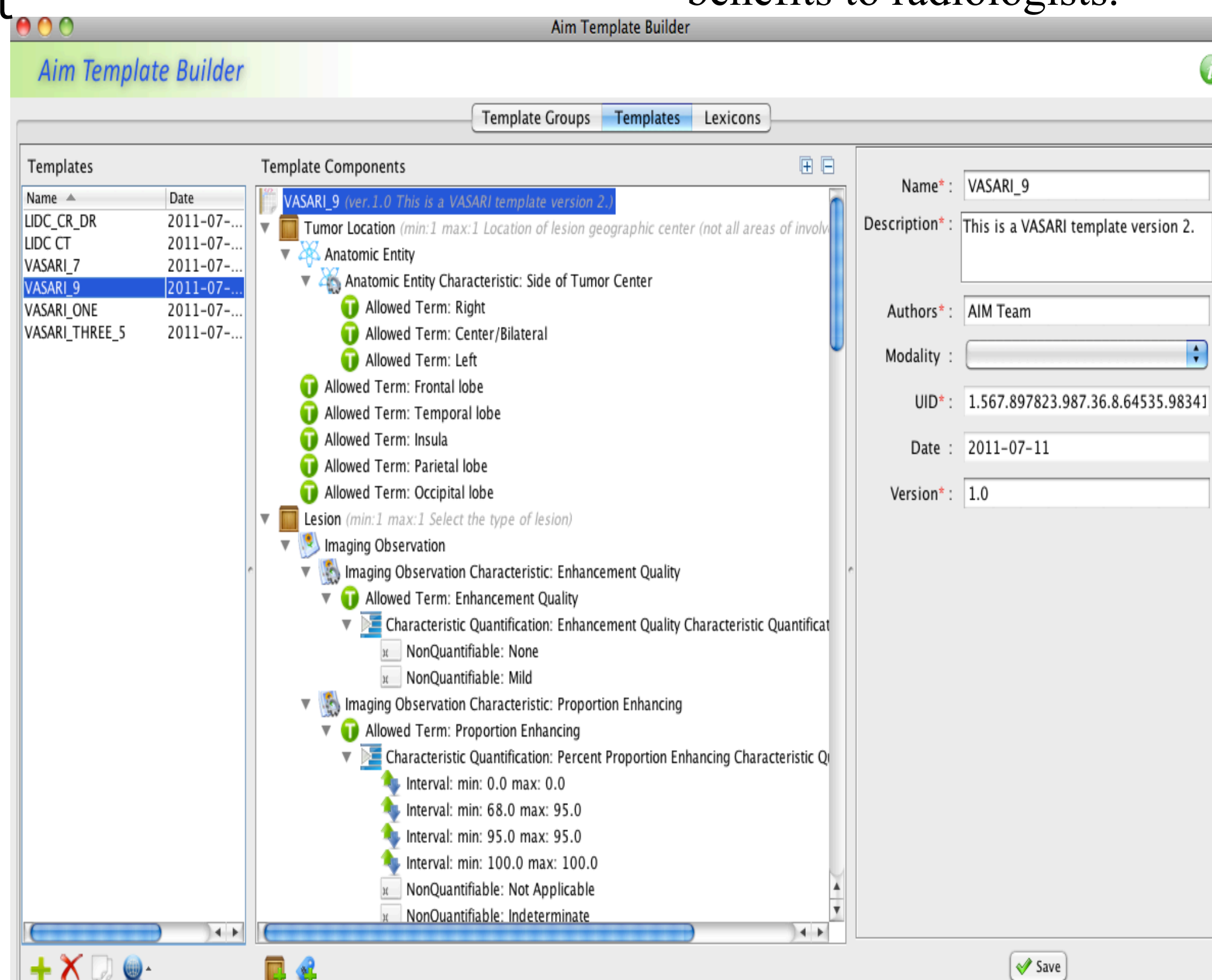
ePAD rich Web client



Annotation window in ePAD

BACKGROUND

The cancer Biomedical Informatics Grid (caBIG) Annotation and Image Markup (AIM) standard can empower radiologists by enabling image metadata access, exchange, and usage; however, AIM is generally not accessible in clinical practice since vendor adoption in clinical workstations is slow and variable. Our goal is to provide a freely-accessible method **for** universal radiologist access to AIM benefits in a cross-platform tool that can be integrated into all radiology workstations.



The AIM template Builder (ATB) is a separate application for creating the annotation templates used by ePAD for collecting radiologist annotations (Figure to the right).

CONCLUSIONS

We developed a cross-platform Web-based image viewing/semantic annotation tool to enable radiologists to access the benefits of image metadata collection/exchange in clinical practice. We believe this approach will catalyze adoption and dissemination of the AIM standard and empower radiologists with the benefits of image metadata sharing and interoperability.