

Architecture Non-Priority Initiatives

OIT Architecture began summarizing important non-priority initiatives here in 2011.

Number	Year	Task	Status
1	2011	Center for Health Discovery HL7 and DICOM integrations	OIT Architecture worked with Research & Health Sciences IT and University Technology Services to implement HL7 and DICOM integration infrastructure. The Emory University Enterprise Service Bus is now capable of receiving and routing HL7 messages from Emory Healthcare, medical devices and instruments, and other potential sources. These messages can be parsed and processed by our integration services and routed to target systems such as the Center for Health Discovery Portal web application. During this project, the team also implemented services to receive DICOM objects from radiology devices and PACS and convert these objects to XML messages that can be parsed by our integration infrastructure and routed to endpoints. Now when clients of the Center for Health Discovery are scanned on the GE iDXA bone densitometer, their results in the formats of HL7 messages and DICOM objects are acquired securely by the Emory University Enterprise Service Bus, logged, processed, and routed to the CHD Portal application and stored in its research database.
2	2011	Emory Healthcare /Executive Health HL7 lab result integration	OIT Architecture worked with Emory Healthcare and Research & Health Sciences IT to take delivery of all HL7 messages from Emory Healthcare for lab results stored in EeMR and route them to the Center for Health Discovery. The same HL7 message parsing and processing infrastructure developed for the iDXA integration was used for this project. This integration allows the Center to build a more complete picture of study participants who are also receiving services from Emory Healthcare.
3	2011	Shibbolizing i2b2	i2b2 (Informatics for Integrating Biology and the Bedside) is an NIH-funded National Center for Biomedical Computing based at Partners HealthCare System. They are developing a framework for informatics that allows researchers to use existing clinical data for research and discovery to develop targeted therapies for individuals with diseases having genetic origins. This software is in use at many sites, but no site had as yet integrated i2b2 with Shibboleth for authentication in a repeatable way. OIT architecture developed a repeatable strategy for Shibbolizing i2b2. This will be used by the Center for Comprehensive Informatics at Emory and it will be contributed back to the i2b2 project.
4	2011	Credit Card Processing Infrastructure	OIT Architecture and University Technology Services studied the features of the First Data Global Gateway for credit card processing and developed a pattern for implementing simple retail and registration use cases using this service and Cascade. UTS and Research & Health Sciences are working to launch this as a business service for Emory units.
5	2011	Reusable Research Materials Marketplace	OIT Architecture worked with the Executive Office of Business Process Analysis to gather requirements for a Reusable Research Materials Marketplace where users could post items they no longer needed which could be procured by other users who were in need of those items. This included workflows for submission, approvals, procurement and delivery as well as integrations with other systems like PeopleSoft. Additionally, the analysis looked at how to incorporate this marketplace into the SciQuest eProcurement product currently in use as well as mobile alternatives specifically for material submission, tracking and procurement.
6	2011	Hibernate Persistence for OpenEAI RDBMS Connector	One feature of the OpenII Toolkit for OpenEAI ("Toolkit") is a Relational Database Management System (RDBMS) connector, which exposes data in relational databases as services on an Enterprise Service Bus. The RDBMS connector abstracts the layer used to map objects to and from their underlying data structures. The default persistence implementation allows analysts or developers to map message objects to the underlying database using standard SQL statements. In response to work related to the RAPID project implementation, OIT Architecture added a new persistence implementation that uses Hibernate to perform the mappings between objects and their underlying data structures, thus enhancing the functionality of the Toolkit.
7	2011	RAPID	OIT Architecture provided guidance and technical assistance in the design, testing and implementation of the RAPID web application and supporting integrations. Beyond collaborating with RHSIT in identifying potential web application frameworks (Google Web Toolkit) and establishing standard methodologies for using those frameworks, OIT Architecture provided resources to actually perform the work for the first release of RAPID. This included web application development, integration development and using Shibboleth for authentication. RHSIT decided not to use the data service and integration capabilities designed by OIT Architecture and re-implemented much of the application using their own design.
8	2011	LMSXCP (LMS Extended Control Panel)	OIT Architecture provided UTS guidance and technical assistance in the design and development of the LMSXCP web application and supporting integrations. As with the RAPID application mentioned above, this extended beyond collaboration regarding investigating Adobe Flex and defining the methodologies that would be used to develop Flex based applications at Emory, it also involved providing detailed training, support and resources to help implement certain features within the application itself including using Shibboleth for authentication.
9	2011	PKU Mobile and Web Applications	OIT Architecture worked with the Department of Human Genetics to develop requirements and estimates for mobile and web applications related to the management and treatment of the metabolic disorder Phenylketonuria (PKU).
10	2011	Immunization Tracking Mobile and Web Applications	OIT Architecture worked with the School of Nursing to develop requirements and estimates for mobile and web applications related to immunization tracking.
11	2011	HIV Tracking Mobile and Web Applications	OIT Architecture worked with the School of Nursing to develop requirements and estimates for mobile and web applications related to helping patients with HIV take and track adherence to their prescribed medications.
12	2011	Sleep Diary Mobile and Web Applications	OIT Architecture worked with the School of Nursing to develop requirements and estimates for mobile and web applications related to helping patients with sleep disorders track and manage their sleep patterns.
13	2011 /12	Epilepsy Mobile and Web Applications (WebEase)	OIT Architecture worked with the Rollins School of Public Health Behavioral Sciences & Health Education Department to develop requirements and estimates for mobile and web applications related to helping patients, doctors and researchers manage various factors related to Epilepsy. This project has been funded and OIT architecture is now working with the same group of people to build both the new mobile application along with a new version of the web application (WebEase) that will adhere to OIT standards.

14	2012	Google Web Toolkit Reference Guide	OIT Architecture developed a comprehensive Google Web Toolkit Reference Guide, which document in detail how Emory build web applications using our preferred architectures. We vetted the document with UTS and RWIT developers who provided feedback and supplemented some sections of the document. The reference guide can now be used to both train new developers and be used as a conformance guide.
15	2012	Master Patient Participant Index	OIT Architecture provided CCI and RWIT with analysis, design, implementation, and testing support for the Master Patient Participant Index (MPPI) Service. OIT Architecture developed the ESB service and web service facade which exposes the CCI MPPI API to other services for integration. This work will complete in July 2012 and deploy in production in August 2012.
16	2012	Glenn Study Integrations	OIT Architecture provided RWIT with analysis, design, and training for the ESB connectors for the Glenn Study integrations. RWIT staff subsequently implemented a LIMS connector, RedCap connector, and a Study Management System web application, and tested integrations between these applications and the MPPI service.
17	2012	OpenEAI Sample Message Generation Automation	OIT Architecture developed scripts to generate sample messages and automate an additional step in ESB data service analysis and design.
18	2012	ESB Service Hibernate Persistence Generation	OIT Architecture group developed Hibernate persistence generation for ESB services. This generation application takes the MOA and service configuration as inputs and generates and regenerates on demand a useful and intelligible persistence layer for the object model using Hibernate. This allows the analysis and design process to focus on the service-level object model and not the database.
19	2012	WebEase 2.0 (RSPH Epilepsy Education Web and Mobile Apps)	OIT Architecture worked with researchers from the School of Public Health and School of Nursing to re-implement the WebEase web application using Emory's GWT application architecture and design and build mobile applications that implement the same functions. This work is in progress and scheduled to complete in September 2012.
20	2012	HIPAA Audit Logging Service (HALS) 1.0	OIT Architecture developed an ESB, Web Service, and Web Application for implementing HIPAA audit logging requirements developed by the CISO. The ESB and Web Services are completed and scheduled for production deployment in August 2012. The web application for viewing audit logs is scheduled for completion in September 2012.
21	2012	Emory Commons Analysis and Design	OIT Architecture group participated in the Emory Commons integration analysis and design sessions which began in June 2012.
22	2012	OpenEAI Authorization Module	OIT Architecture developed OpenEAI Authorization Module. In the past, each web service or web app has to use AuthorizationClient in the code to call AuthorizationService to check its permission. This module provides usage of AuthorizationService by web application or web services simply through configuration without coding.
23	2012	Authorization Service Extension (Version 2.0)	OIT Architecture developed Authorization Service Extension. This extension provides the functionality that each request reply can serve many permissions instead of just one, at the same time completely back-compatible with the prior version.
24	2013	Assist UTS Integration Team in replacement of SonicMQ with IBM MQ Series (OneIT Experience Architecture Review Process Recommendation)	Participated in IBM WebSphere MQ training. Updated OpenEAI 4.0 and 5.0 beta with changes to support JMS 2.0 required for use with IBM WebSphere MQ version 7. Assisted with testing of ESB connectors and services using the new IBM message transport.
25	2013	Assist RWIT and UTS on Emory Commons Integration analysis, design, and implementation	Participated in the analysis, design, and development phase of the Emory Commons proof-of-concept. Implemented request result caching in OpenEAI Foundation Components to improve performance of frequently repeated queries. Provided a performance review, assessment, and tuning assistance.
26	2013	Developed Emory Internal Mobile Application Distribution Prototype	Emory OIT makes enterprise mobile applications available for download to authorized Emory people. Enterprise mobile applications are mobile applications intended only for internal use by Emory people or preliminary internal use by Emory people prior to general public release in an application marketplace like the Apple AppStore or Google Play. This internal distribution method is in a proof-of-concept stage and is presently intended only to support internal development and testing processes. In 2013 Emory will either formalize this approach into a production service or implement some other internal mobile application distribution approach as a production service.
27	2013	WebEase (RSPH Epilepsy Education mobile and web app) 2.0	Completed WebEase mobile and the WebEase web application rebuild. Testing and cutover planning are in progress.

28	2013	HIPAA Audit Logging Service SIEM Integration	Completed an ESB connector for the Security Information Event Management System (SIEM), so that it can consume events from the HIPAA Audit Logging Service. Working with Information Security to implement this integration in production.
29	2013	Review and document EHC adapter framework	Unable to make progress on this goal, because we have not received the dependent Emory libraries required to compile the adapter framework nor any examples or documentation.
30	2013	Assist Carlos Museum, Marketing & Communications with Trumba Paid Events	Worked with Marketing & Communication and Finance to demonstrate Trumba Paid events operating with demonstration gateway accounts from Authorize.net. In order to take this farther, we need real accounts and we haven't made any progress on that yet. Waiting on Finance and John Connerat.
31	2013	Developed an electronic version of the Carlos Museum Guidebook and developed a publication strategy	Engaged the consultants who produced the printed guidebook to evaluate several electronic formats. Settled on ePub and produced a guidebook with high definition images, video, and sound content. Working now to make the guidebook available for sale on iTunes and provide an Android reader for the guidebook.
32	2013	eBirt Connector	Developed the eBirt Connector to provision and maintain user profiles in the Symplectic Elements system that implements new features of the eBirt application.
33	2013	Identity Provisioning Application	Developed a scheduled application that can be used to provision Emory identities to a new application. This application could be used in conjunction with any new Emory application for which an ESB connector has been developed to consume FullPerson synchronization messages. The provisioning application can be configured with a query that defines a set of identities that meet the criteria specified in the query. The application then publishes FullPerson create sync messages for all of these people. The messages should be routed to the desired endpoint for processing. After this initial provisioning run FullPerson create, update and delete synchronization messages should be routed to these endpoints.
34	2013	OpenEAI Request Result Caching	Added result caching features to the OpenEAI PointToPointProducer to dramatically increase the performance of applications that make many, repeated requests for the same results. These features mostly accelerate application interface redendering as a user navigates and application within a session. This feature was specifically added to accelerate Emory Commons performance, but is generally useful for any application that repeats requests operations.
35	2013	Functional Testing with Selenium	Evaluated and documented Selenium open source framework. Functionally tested WebEase web application. Demonstrated with UTS Integration team.
36	2013	OpenEAI Servicegen Enhancements	Enhanced OpenEAI Servicegen tool such that it is now completely platform-independent (functional under both Mac/Linux /Windows platform) and Emory independent. Migrated from Emory repository to OpenEAI repository.
37	2013	JMS Send Webapp Enhancements	Enhanced JMS Send Web application with topic message subscription.
38	2013	IBM AppScan Assessment	Worked with OIT Security group and IBM consultants to evaluate IBM AppScan security software against our preferred web application frameworks.
39	2013	Assist RWIT with Jasper Reports Implementation	Assisted RWIT in providing single signon (via Shibboleth) for their use of Jasper Reports.
40	2013	CEPAR Mobile Application Estimate	Worked with Emory's Office of Critical Event Preparedness and Response (CEPAR) on specifications and estimates for the development of a mobile CEPAR application providing native mobile (iOS) functionality that compliments and extends the functionality available at the http://emergency.emory.edu/ web site.
41	2013	Molecular Vision Journal Assessment	Performed an initial process review and automation assessment for the online journal Molecular Visions . We outlined next steps to complete detailed process document and work with the RWIT Web Development Group, UTS Integration Team, and OIT Architecture to prepare cost estimates for two scenarios 1) tweaking the current process with integrations and Emory content management services and 2) developing a custom web application to support the journal's processes.
42	2013	Documented current mobile application review process and proposed a formalized review process	Worked with the Office of Technology Transfer, Marketing & Communications, Legal Counsel, and UTS to document the current mobile application review and distribution processes . One of the problems with the current process is there is no formal representation from each of these units and for any application that might collect, operate on, or transmit ePHI, Information Security and Emory Healthcare compliance people also need to be involved. There are simply too many touchpoints and approvals required to continue to perform this process informally. OIT Architecture proposed a formalized process.
43	2013	Mass Transfusion Protocol (MTP) Mobile Application Estimate	The Surgery Department has developed a mobile application to perform a mass transfusion protocol suitability assessment. The designers of the applications would now like to store ePHI for each person for which the assessment is performed. The OIT Architecture Group performed analysis and prepared a proposal for secure, HIPAA-compliant back-end services to support the Mass Transfusion Protocol mobile application. The surgery department has not identified any funding to date.

44	2014	Emory Mobile App Catalog	<p>Completed the Emory Mobile App Catalog proof-of-concept effort to evaluate and establish internal mobile app distribution infrastructure. The Emory Mobile App Catalogue is a type of internal, enterprise app store for Emory users. Among the many purposes of such an app catalog are to:</p> <ol style="list-style-type: none"> 1. Present both mobile apps that Emory develops and mobile apps Emory uses to Emory people in one, organized place 2. Automate the complex signing and distribution process for mobile apps 3. Allow any authorized Emory person to distribute mobile apps to Emory people quickly and efficiently 4. Support distribution and feedback on applications during development and beta testing cycles 5. Restrict access to specific collaboration groups or distribute to all Emory people 6. "Hybridize" mobile web apps to work and appear more like native apps 7. Curate categories of mobile apps that are of particular interest to groups of Emory people 8. Serve as a mobile application inventory for policy makers, marketing, and other groups that need to know about current and pending Emory mobile in development or in use by Emory <p>The specific solution we are testing with is Apperian EASE. Detailed documentation on this product is available at https://help.apperian.com/display/pub/About+EASE. Apperian EASE includes a native iOS, Android, and an HTML5 version of its app catalog. Be sure to download the native version for your platform for the full experience. This is what most end users would experience. There are some benefits to the HTML5 catalog as well, which we can discuss in upcoming demonstrations.</p>
45	2014	Emory Mobile App Distribution Process	Assumed the Emory Mobile App distribution process from UTS, documented the process, and drafted new Emory policies for mobile apps with the Office of Technology Transfer, Marketing and Communications, LITS Chief Business Officer, and Legal Counsel.
46	2014	Massive Transfusion Protocol Mobile Web App	<p>The Massive Transfusion Protocol (MTP) Mobile application is a mobile application designed to accept input from trauma physicians and provide an assessment of the probability the patient will benefit from MTP. The application stores the input and the assessment, called a case record, in a research database. The application is presently used by Emory physicians at Grady Hospital.</p> <p>The MTP app is also the new archetype for a mobile presentation of a web app developed with Emory's GWT web application framework.</p>
47	2014	Emory Healthcare Mobile for Clinicians Prototype	The idea of Emory Healthcare Mobile for Clinicians began in discussions with Emory Healthcare's Chief Medical Information Officer and departments wanting to share protocol information. In discussing a mobile application to deliver this content, we envisioned an application that could deliver a set of services including reference data, calculators, directory information, and more. We have developed a prototype of this application to demonstrate how such an app might look and we've included information about the Antithrombotic Therapy Interruption Protocol.
48	2014	WebEase Testing	Assisted the RSPH with testing and problem remediation for the WebEase web and mobile applications completed in FY 2013.
49	2014	HIPAA Audit Proxy Service	In March 2014, the IT Architecture Group completed the HIPAA Auditing Proxy Service (HAPS) . HAPS looks at the request bound for an endpoint that exposes ePHI, determines it's action, derives any implied data changes, and then creates a HIPAA Audit Log Entry to send to the HIPAA Audit Logging Service (HALS) if that request is successful. This means that the HIPAA audit logging function can now be inserted into composite applications at runtime rather than coded into them at development time. WebEase, WebEase Mobile, and the Massive Transfusion Protocol Mobile Web App will be the first applications to implement HIPAA Audit Logging by sending their request through HAPS.
50	2014	Internal Mobile App Distribution	Utilizing the Emory Mobile App Catalog (re: item #44 above), the IT Architecture Group published 12 distinct internal mobile apps that can be made available to anyone within Emory. These apps were both native mobile iOS apps (11 apps) as well as mobile web applications (1) which are built to run on both mobile and desktop platforms and utilize our existing GWT frameworks and patterns.
51	2014	Public Marketplace App Distribution	The IT Architecture group published or assisted in publishing three new or updated versions of native iOS apps to the public app store (Apple). In doing so, we streamlined the process by which applications are reviewed and submitted and centralized the management and coordination of those efforts going forward. We also worked with the LITS Business/Administration office to coordinate where potential revenue from these applications goes.