

Enterprise Integration with Open Source: A Portal Architecture

Venkat Mahadevan
Dan Gornstein

ApacheCon 2014

About MITRE

MITRE is a private, independent, not-for-profit organization, chartered to work in the public interest

Founded in 1958 to provide engineering and technical services to the U.S. Air Force

Supports a broad and diverse set of sponsors within the U.S. government, as well as internationally

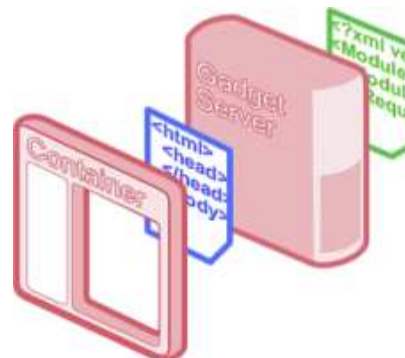
Currently manages Federally Funded Research and Development Centers for the:

- Department of Defense
- Federal Aviation Administration
- Internal Revenue Service/
Department of Veterans Affairs
- Department of Homeland Security
- Administrative Office of the U.S. Courts
- Department of Health and Human Services



Background

- **Our corporate portal platform**
 - Originally developed using Apache Shindig
 - Code base was open sourced in 2011 as an Apache project called Apache Rave
- **Apache Rave is defined as “a web and social mashup engine that aggregates and serves web widgets/gadgets.”**
- **Rave uses Apache Shindig to render Open Social gadgets, proxy requests, and handle REST and RPC requests.**



Apache Rave as an Integration Platform

- **Leverage Rave for developing applications comprised of information from many heterogeneous systems**
- **“People Profiles” is a Rave-based application**

“People Profiles”

- **Rich person profile information helps to find the right person and expertise across the company**
- **Example Use Case:**
 - Project Manager needs experts in Java, knowledgeable in Agile methodologies, at Bedford location, available for this assignment
- **Information about employees spread across multiple applications**
- **Information aggregation, loosely coupled, is crucial and is the key**

Phonebook

Department Head
R501 | MITRE
781-271-
@mitre.org
1K113 | K Building | Bedford

Specialty: Software Apps Developmt

About Me [LinkedIn](#)

- agile development
- apache ccla
- apache ccla for mitre
- apache rave
- apache streams
- collaboration technology
- enterprise architecture
- enterprise search
- javascript
- knowledge sharing
- recommender systems
- social networking
- software development
- software engineering

RECENT ACTIVITIES

Community Share show 5 | 10 | 20

- Rolling Roadmap Feb A...pptx 3/22/14
- Dev Ops Useful Stuff.aspx 3/17/14
- Agenda.aspx 3/16/14
- KM Awards Next Gen.xlsx 3/16/14
- Reports and Visualiza...xlsx 3/16/14

Employee Share show 5 | 10 | 20

- KSPG People Skills an...pptx 3/4/14
- Project One Slide.pptx 3/3/14
- R501 Dept Meeting Feb...pptx 2/24/14
- Portfolio and Project....docx 2/13/14
- Portfolio Projects Ou...pptx 2/13/14

[view transfer](#) [edit transfer](#) [about me](#) [temp space](#) [search](#)

PHONEBOOK [TECH STATURE](#)

Contact Beth [Edit](#)

Office: 781-271-
Mobile: 774-454-
Fax: 781-271-7564
Mailstop: K117

As of 10:22 AM Today | Next Day

9am 10 11 12 1 2 3 4 5 6 7 8pm

Note: new R501 site
<http://communityshare.mitre.org/sites/R501/SitePages/Home...>
Lavender, Beth A, 02/08/2014 4:11 PM

Administrator:

Alt Contact:

Administrative

Employee Number:

Signature Level:

Hire Date: January 2,

Rehire: July 17,

Coverage



Project Charges

As of: 3/9/2014 show 10 | 20 | All

Hours	Percent	Project #	Name
500	63.74%		AA DEPT OPS
151	19.27%		MT MITRE WAY TOOLS
84	10.65%		PD PROJ & PEOPLE DEV
50	6.34%		A1 PROJECT PAGES

FY12 | FY13 | FY14

Organization

Org Chart

Reports To:

Department: R501 - KW App Development & Maint

Division: R500 - Knowledge Info&Collab Solution

Super Division: R010 - Ctr Information & Technology

Center:

Section:

Communities

show 10 | 20 | All

- R501
- KICS Project Reviews
- Knowledge, Information, and Collaboration Solutions
- MITREs Internet Presence
- CI&T Business Operations
- ITSM Process Excellence Program
- Project and People Profiles - Data and Analytics
- People Profiles
- CI&T Applications Development
- Center for Connected Government

PEOPLE

[People](#) | [MII Search](#) | [Projects](#) | [Proj/Task #](#) | [Orgs](#) | [Communities](#) | [More](#)

Find a person by name, dept., skill, topic, and more
DISCOVER EXPLORE HELP

[People Profiles Help](#)

Department Head | R501 | MITRE
781-271-XXXX

1K113 | K Building | Bedford
Specialty: Software Apps Developm

[About Me](#) [LinkedIn](#)

agile development apache cda apache cda for mitre
apache rave apache streams collaboration technology
enterprise architecture enterprise search javascrypt
knowledge sharing recommender systems
social networking software development
software engineering

RECENT ACTIVITIES

- Community Share
- Employee Share

PHONEBOOK
TECH STATURE

Education

Degrees

Additional Courses

- 10/2012 **Agile Coaching**
Agile
- 9/2010 **Certified Scrum Product Owner** HR
- 5/2009 **HTML 5**
MITRE Institute
- 3/2009 **DoD Architecture Framework and Engineering**
MITRE Institute
- 3/2009 **Overview of the DoDAF and Eng** HR
- 3/2005 **Enterprise Architecture**
MITRE Institute

Technical Activities

Prototypes

- A People Recommender - MaPP**
Use Apache Mahout to match Tech Stature tags to job tags.
- An Event Recommender - Event Recommender**
Proof of concept using Apache Mahout collaborative filtering algorithm to recommend events to MITRE staff. Uses implicit feedback via "add to calendar" as a convenience feature for the users.
- CVW - Collaborative Virtual Workspace - Integrating Framework for Collaborative Computing**
Developed the CVW prototype using MUDs. Develop object locking model to investigate object management framework for collaborative systems.
- Gloria - SRFS**
Smalltalk / Xerox Parc Analyst system extensions to support SRF
- OpenID - OpenID**
OpenID for the enterprise; integrated with our SSO for automatic provisioning of OpenID identifiers. Mainly used to SSO to systems outside our firewall. Provides prototype groups easy startup to SSO.

Experiences

MITRE Experience

- 2011 - now **People Profiles**
Product Owner
Rich profile of MITRE staff to enable better connections and finding the right person for the job.
- 2010 - now **Event Recommender Innovation Project**
Principal Investigator
- 2011 - 2012 **Tech Stature Transition**
Product Owner
Transition a Ruby on Rails prototype to CI&T production environment
- 2011 **Job Families**
Product Owner
Refactor people data source for the MII Phonebook and MII Org Charts to display the new MITRE Job Families
- 2010 **Collaboration Systems**
Product Owner
Lead effort to resolve critical touch panel lock up issue.
- 2008 - 2010 **MITRE Partnership Network**
Lead
Define and develop infrastructure for external social and business networking with MITRE's Partners.
- 2001 - 2007 **MITRE Enterprise Architecture**
Project Lead
The MITRE Enterprise Architecture described MITRE's vision and roadmap for knowledge and collaboration capabilities. It was driven by three high level guiding principles that were socialized and agreed upon by MITRE.

Previous Work Experience

Foreign Languages

Publications

Presentations

- 9/2012 **Event Recommender**
Lavender, Beth A
Presented at: ACM Recommender Systems 2012, Dublin, Ireland

Professional Activities

Conferences Attended

- 3/2014 **FluentConf 2014**
Attendee
- 9/2012 **ACM Recommender Systems 2012**
Poster Presentation
- 10/2011 **Gartner Symposium IT/Xpo 2011**
<http://www.gartner.com/technology/symposium/orlando/>
- 10/2010 **Gartner Symposium IT/Xpo 2010** Orlando, FL
- 10/2009 **Gartner Symposium IT/Xpo 2009** Orlando, FL
Attendee
- 1/2009 **Enterprise 2.0**
Attendee
- 1/2008 **MIT Emerging Technologies**
Attendee

Professional Organizations

- 2014 - now **OpenSocial Foundation (OSF)**
Board Member

Committees

- 2004 - now **FFRDC CIO Enterprise Architecture Working Group (Technical Committee)**
Co-Chair

Tech Transfer

Software Contributions

- Apache Rave**
User
- Apache Streams**
Architecture/design guidance
- Open ID**
Business Lead

Partnerships

Industry Appointments

- 2010 - now **FFRDC CIO Council Enterprise Architecture Working Group: Co-chairman**

Awards

© 2014 The MITRE Corporation. All rights reserved.

Approved for Public Release; Distribution Unlimited 14-1200

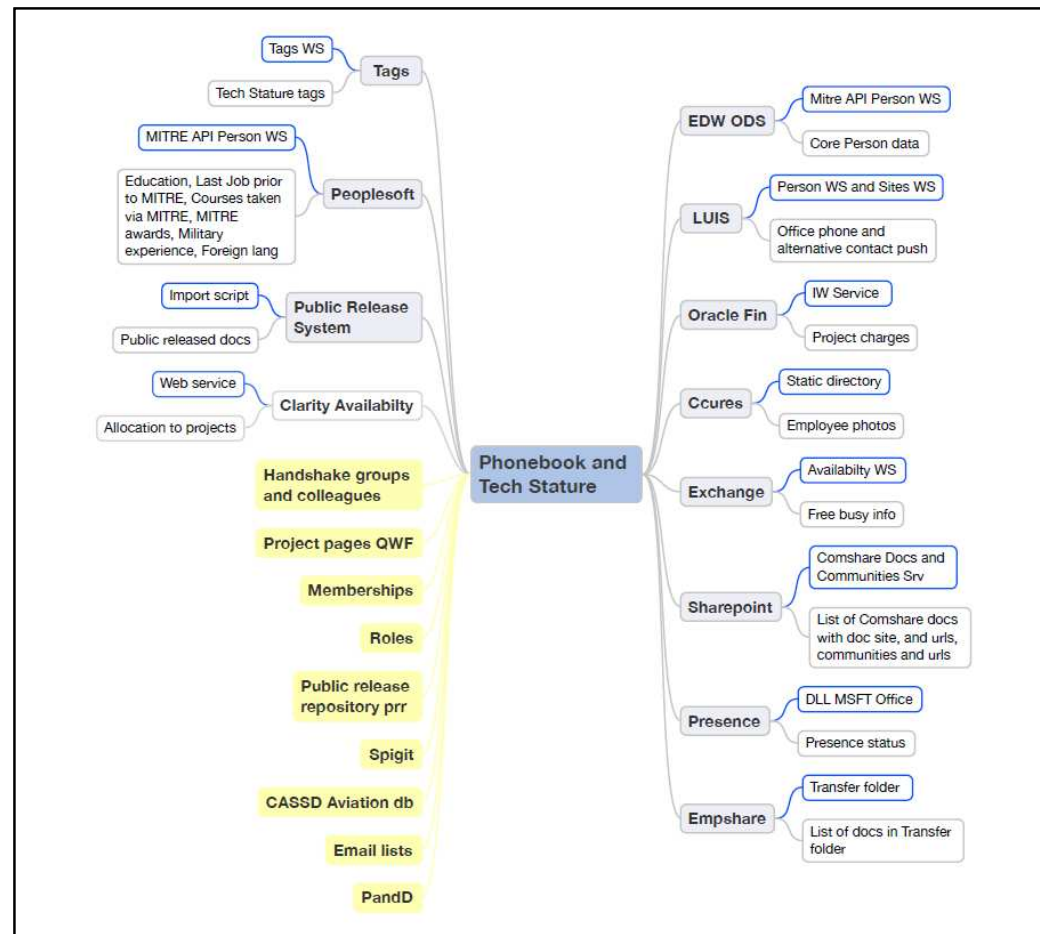
Benefits of Using Apache Rave

- **Modular & isolated code**
 - Allows team to easily split up features to be worked on
 - Allows for rapid development
- **Easily move pieces of functionality**
 - Just move gadget to different location (data based)
- **Easy integration of code from outside development teams**
 - Due to iFrames, no need to worry about breaking things in application

More Benefits of Using Apache Rave

■ Client-side (vs server-side) integration of information from *many* different sources

- HR Systems
- Financial Systems
- MSFT SharePoint
- MSFT Exchange
- MSFT Lync
- Corp file share
- Metadata stores
- User input
- more ..



Looking Ahead...

- **Working to integrate Apache Streams into applications built on Apache Rave**
 - Build a streams gadget for integration on Rave-based applications
 - Provide Activity Streams with an “Embedded Experience” using our OpenSocial gadgets

Questions?

For additional questions, please contact:

Venkat Mahadevan (venkatm@mitre.org)

Dan Gornstein (dgornstein@mitre.org)