Project Title: eFilePlus Academic Personnel System

Submitted By

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Team Members

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Project Summary

The eFilePlus Academic Personnel System at UCR represents a significant improvement of the academic personnel review process for faculty. Assembling and reviewing faculty merit and promotion portfolios online is faster, simpler and more efficient using this stable, secure, and flexible system. Updated, accurate, and comprehensible information is essential to the faculty review process and the eFilePlus system provides faculty with a secure, web-based, environment in which to maintain academic accomplishments and process academic actions.

During this process, UCR Information Technology Solutions (ITS) worked in collaboration with the Academic Personnel Office to build and deploy an online web application for eFilePlus. This system supports a wide range of academic review types including merits, promotions, appraisals, career reviews, advancements, reappointments, and quinquennials.

Project Narrative

Prior to implementing the eFilePlus application, campus departments were required to use an outdated system with a difficult to use UI. The eFilePlus application was written from the ground up using a modern technology stack and a UI component library that is both responsive and adheres to web accessibility standards. The goal of the eFilePlus project was to 1) improve the way faculty were able to update their bibliographies and professional activity information and to improve the entire review process as a whole for academic personnel, and 2) to build the system with multi-tenancy in mind to allow other campuses to use the application without having to build and host a similar system independently.

The previous legacy system was fraught with issues from a software architectural point of view. It became increasingly difficult to keep the software up to date as business rules regarding the academic review process changed from year to year. Many of these business rules were embedded in the legacy software making it difficult to keep up to date with new and changing requirements. The eFilePlus application addresses these issues with a more flexible, data-driven architecture.
The eFilePlus application had a positive impact on users. The user experience features a simple and easy-to-navigate interface, stepping user’s through the review process. For convenience, candidate reviews can be based off previous review data making it easier to produce accurate and up to date CV information.

The success of the project is measured by the ease of use by faculty and academic personnel as well as reduced maintenance time for development teams. Significantly less training was required for eFilePlus than the legacy system and very few usability help-desk tickets have been submitted since its launch.

**Project Timeline**

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**Technology Highlights**

- **Multi-Tenancy.** The eFilePlus System was built with multi-tenancy to support data separation between tenants.

- **Rapid Development.** Deployment of this online system was completed in 1 year.

- eFilePlus uses **Single Sign-on** (CAS) for authentication and the campus Enterprise Access Control System (EACS) for authorization.

- **Integration.** The eFilePlus system is integrated with teaching load data from the Banner SIS.

- **eFilePlus is built with Grails and Angular.** This high-productivity development stack enables UCR to build web applications like eFilePlus in a very short timeframe.

- **Built for Mobile.** The eFilePlus implementation is “responsive” and built to work on mobile devices (e.g. tablets, smart phones).

- **Common Infrastructure.** eFilePlus leverages existing infrastructure (e.g. virtual machines, storage, and database) thereby allowing developers to focus on development and not on backend configuration details.

- **Centralized API Architecture.** eFilePlus relies on core business data models such as personnel information, authorization information, and organization structure information which are provided via RESTful API microservices. This allows the application to store less data at the application level and rely on up to date centralized data stores.
EFilePlus *takes advantage of a suite of application development tools* that allows for rapid development:

- **The Grails 3 Framework.** A Java Spring based web framework that uses convention over configuration and builds from the popular Spring MVC framework.
- **Angular 5.** A Google-developed Single Page Application (SPA) front-end framework.
- **IntelliJ IDE** supporting Java, Groovy, Typescript and Grails Model View Controller (MVC) design pattern.
- Common infrastructure (e.g. virtual machines, storage, and database).
- **Ansible/VMWare** to automatically provision Virtual Machines.
- **Jenkins** to create new builds.
- **Rundeck** for deployment.
- **JBoss Fuse** Enterprise Service Bus (ESB) to provide web service integration for:
  - User authorization
  - Person information
  - Accountability structure (orgs and depts.)
  - HR Data Warehouse

**Build and Development Process**

![Diagram showing the build and deployment process](image-url)

*Figure 1 – Grails Build and Deployment Process*
Infrastructure
eFilePlus leverages existing infrastructure (e.g. virtual machines, storage, and database) thereby allowing developers to focus on development and not on backend configuration details.

Figure 2 – Grails Application and Support Architecture
eFilePlus Functionality

The system captures every facet of a faculty member's professional career and is used for a routed, paperless review of advancements, appraisals, career reviews, merits, promotions, quinquennials, and reappointments.

eFilePlus allows users to see at a glance which reviews are awaiting action and the current status of each review. [Figure 3]

Figure 3 – List of Reviews in Progress and Awaiting Action for User
eFilePlus organizes the content of a candidate review into different sections: CV Overview, Settings, Documents, Comments, Recommendations/Decisions, and Actions. [Figure 4]

Figure 4 – Candidate Review Details

**CV Overview**

Contains the candidate’s professional activities and bibliography of publications and creative activities. This data is organized into the following sections:

1. Bibliography of Publications (Current Bibliography, List at Last Advance, Difference List)
2. Bibliography of Creative Activities (Current Bibliography, List at Last Advance, Difference List)
3. Patents (Current List, List at Last Advance, Difference List)
4. Professional Services and Extension Activities
5. University Service
6. Public Service
7. Teaching Records
8. Teaching Releases
9. Teaching Statements
10. Other Teaching Information
11. Student Instruction
12. Student Sponsorship
13. Grants
14. Gifts
15. Memberships
16. Honors and Awards
17. Employment History
18. Education
19. Self-Statements
20. Other Non-Confidential Documents
21. Letters from Other Departments/Programs, Institutes, and Centers

**Settings**
The *Settings* tab contains components that allow the user to adjust settings and configuration for the review such as creating committees and assigning eligible users a role on the different committees.

**Documents**
The *Documents* tab contains a document repository for the review and allows users to upload supporting documents for the review process. There are 53 supported document types, each setup with specific edit/view permissions.

**Comments**
The *Comments* tab contains all the viewable comments for a review and allows users to add additional comments. The system allows the author to choose which roles have access to view the comment.

**Recommendations/Decisions**
The *Recommendations/Decisions* tab contains a history of all actions, approvals, and recommendations/decisions that have been taken in the current review. The history is filtered based on the user's role as each type of recommendation/decision has specific view permissions and can be confidential.

**Actions**
The *Actions* tab contains the available list of actions that a user can take on a review. The types of actions available depends on the user's role and the current stage of the review.
The “Routing/Checkout Panel” slide out provides a centralized place for users to view the current status of individual checkouts of the review as well as display the available options to route the review through the various stages. [Figure 5]
eFilePlus Roles
The eFilePlus system supports several roles at various stages of the review.

1. Department Review
   a. File Preparer
   b. Candidate
   c. Department Chair
   d. Faculty Reviewer

2. College Review
   a. Dean's Analyst
   b. Associate Dean Lead
   c. Associate Dean Reviewer
   d. Dean

3. CAP Review
   a. CAP Analyst
   b. CAP Chair
   c. CAP Vice Chair
   d. CAP Member
   e. CAP Reader 1 and Reader 2
   f. Senate Chair
   g. Senate Representative
   h. Senate Member

4. Academic Personnel Office Review
   a. APO Analyst
   b. Vice Provost for Academic Personnel
   c. Provost & EVC
   d. Chancellor

eFilePlus Routing
Routing within eFilePlus follows a specific Department – College – APO Review – CAP Review – APO Final Review chain. The candidate review may be checked out to various users along the way. [Figure 6]
Figure 6 – Routing/Check-Out Flow