MAINTAINING OPENACS-BASED WEB APPLICATIONS OVER DECADES & MANAGING TECHNICAL DEBT

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BACKGROUND

• Started with ACS 3.x back in 2000
• Began with a few developers, PI, project manager, graphic designer, and interns
• 80+ projects – administrative, clinical, research data collection / management
• Oldest currently in operation OpenACS 5.2.2 on Oracle DB
CHALLENGES

- System administration software and hardware
- Managing features / code
- OpenACS upgrades
- Project operation / support
- Technical debt
OLD DEVELOPMENT PRACTICES

- Used CVS / SVN – concurrent version software
- Installed modules from central repository
- Customized central project packages for each project
- Created inhouse modules and further customization
NEW CHALLENGES

- Compliance
- Security
- Changes in administrative / business rules
- Integration with SAAS systems – ServiceNow, RobinPowered, etc…
- Covid (shift in work environment & team dynamics)
- Cloud operations and optimization
CURRENT DEVELOPMENT PRACTICES

- Github
- AWS Cloud
- CI/CD pipeline (automation)
- Upgrading OpenACS / Naviserver frequently
- Standardization of internal practices
- Project management (SCRUM)
- Part of larger organization (access resources / shared administration)
DEV PRACTICES – TECHNICAL DEBT

- AWS CodePipeline
- Github Submodules
- Central Project Package
- Package files are stored in folder separate form (pkg-content)
- Package extension
AWS CODEPIPELINE

- Pull request on feature push
- Trigger of unit test cases
- Trigger of EOE test cases
GITHUB SUBMODULES

Maintains package-specific versions with a copy in the repository

- Package versions are part of the project
- Project upgrade with updated package versions
GITHUB SUBMODULE:

Project 1 -> Survey Package
   | Release-1.3.1
   | Release-2.3.5
   | Project 2

[submodule "packages/ctrl-audit-log"]
  path = packages/ctrl-audit-log
  url = https://github.com/uclahs-ctrl/oacs-pkg_ctrl-audit-log.git

[submodule "packages/ctrl-db-util"]
  path = packages/ctrl-db-util
  url = https://github.com/uclahs-ctrl/oacs-pkg_ctrl-db-util.git

[submodule "packages/ctrl-procs"]
  path = packages/ctrl-procs
  url = https://github.com/uclahs-ctrl/oacs-pkg_ctrl-procs.git

[submodule "packages/ctrl-login"]
  path = packages/ctrl-login
  url = https://github.com/uclahs-ctrl/oacs-pkg_ctrl-login.git
PACKAGE EXTENSION

- Creates new package with the same parameters as extension packages
- Customization of individual page (previously we would create a directory under www/${site_map} )
- Multiple instances of customized pages
- Customization is portable to other projects
- Upgrades to underlying packages
CENTRAL PROJECT PACKAGE

- Create a central package for the project
- Container for resources
- Container for configurations – package parameters
- Container for project functionality – pages, tcl, db
- Project versioning that matches the GitHub versioning
PACKAGE CONTENT FOLDER

- • Upgrade without worrying about the loss of content
- • Package content versioned by Git
- • Moving files from dev to staging to prod

${project}/pkg-content/${package_name}/....
PACKAGE CONTENT AND SUBSITES

/subsite1/forms/eval

/pkg-content/ctrl-surveys/subsite1/eval

/subsite2/forms/eval

/pkg-content/ctrl-surveys/subsite2/eval
PACKAGE: TRACKER LITE

Tracker Lite - entity attributes tracking and engagement
PROJECT SHOWCASE: DIF

Data Informed Futures – questionnaire management and dissemination for students / participants
PROJECT SHOWCASE: OUTREACH (CRM)
THANK YOU

• FEEDBACK
• QUESTIONS