



How PG&E's Move to the Cloud Has Streamlined Assessments

Jeff Wagner

Pacific Gas and Electric Company (PG&E)

Testing & Assessment Strategist, Principal



About PG&E

Pacific Gas and Electric Company (PG&E)

- ▶ One of the largest combined natural gas and electric utilities in the U.S.
- ▶ Based in San Francisco
- ▶ 23,000 employees
- ▶ Delivers natural gas and electric service to 16M people in northern and central California (70,000 sq. miles).
- ▶ Regulated by the California Public Utilities Commission (CPUC)

PG&E Academy

- ▶ Design, develop and deliver training and performance support
- ▶ Technical, Systems & Professional Development
- ▶ Classroom, eLearning, Performance support

2016 Metrics

- ▶ 132,570 Student Days
- ▶ 37,709 assessments delivered



Questionmark at PG&E

- ▶ Using for 9 years
- ▶ High stakes exams (Wage Progression Exams)
- ▶ Knowledge assessments (Tests)
- ▶ Knowledge checks (Quizzes)
- ▶ Performance assessments (Skill)
- ▶ Scantron where computers/networks unavailable
- ▶ OnDemand customer since Sept. 2016



Polls

- Are you an OnDemand or OnPremise customer?
- Do you use a Learning Management System (LMS)?
- Is your LMS integrated with Questionmark?
- Do you use SAP?
- Do you use iPads to deliver assessments?



Overview

Pacific Gas and Electric Company's migration to Questionmark OnDemand has increased system uptime, enabled us to test offsite (outside the PG&E firewall and network) and improved browser compatibility.

Having moved our installation from OnPremise to OnDemand, we anticipate a reduction in infrastructure and operational costs as well as quicker access to new Questionmark features and functionality.



Case Study

This case study will focus on three key aspects of our successful move to the cloud:

- ▶ The migration process, collaborating with Questionmark from start to finish.
- ▶ Implementation of the SAP connector with SAP My Learning, which has helped us reduce administrative work such as scheduling assessments and has allowed us to provide assessment scores to participants in real time.
- ▶ Mobile delivery of assessments, which has reduced our dependency on paper and decreased administrative overhead associated with scanning. It has improved instructor safety and ergonomics through quicker setup and teardown. Transporting lighter devices has also increased safety by posing fewer tripping hazards than those that occur with hard-wired laptops. We will demonstrate how we use iPads to deliver assessments.



Session Objectives:

- ▶ Understand what is required to migrate from OnPremise to OnDemand.
- ▶ Learn how PG&E implemented the SAP Connector to deliver assessments through our learning management system.
- ▶ See how iPads are used to deliver Questionmark assessments.



Project Overview

- ▶ Two phases
 - Phase 1 to be the migration from OnPremise to OnDemand (October SAP Release) and creating an interface to maintain the existing data exchanges from Questionmark to PG&E SAP LSO
 - Phase 2 to be the enabling of the SAP Connector and developing additional interfaces for processes outside the delivered SAP Connector (December SAP Release)



Benefits of Migration

- ▶ Flexibility to test offsite (such as hotel) outside the PG&E firewall and network
- ▶ Ability to deliver knowledge and skill assessments to mobile devices such as iPad
- ▶ Improved ergonomics with the use of consumer tablets compared with laptops - quicker setup and teardown, lighter to transport, lighter than CF-19 Toughbook used for equipment qualifications, increased safety (tripping hazards are reduced than if using hard-wired laptops)
- ▶ Quicker access to new Questionmark features and functionality
- ▶ Resolution of existing system bugs that exist in OnPremise
- ▶ Increase system uptime to 99%
- ▶ Increased support of system issues
- ▶ Doubling of current allotment of authoring licenses (currently 25, proposed 50)
- ▶ Compatibility with newer browsers such as Internet Explorer 10/11
- ▶ Reduction in administrative time to schedule Questionmark assessments when using SAP Connector
- ▶ Reduce dependence on scantron for Questionmark assessments
- ▶ Capability to integrate with SAP Business Warehouse (BW) as OnDemand solution offers OData support

Understand what is required to migrate from OnPremise to OnDemand.

Questionmark Project Timeline

Description	Phase	March	April	May	June	July	8/1	8/8	8/15	8/22	8/29	9/5	9/12	9/19	9/26	10/3	10/10	10/17	10/24	10/31	11/7	11/14	11/21	11/28	12/5	12/12	12/19	12/26
Intake	1	█																										
Plan/Analyze	1		█	█	█	█	█																					
Design	1						█	█	█																			
Build / Unit Testing	1									█	█	█	█															
Test (QA)	1												█	█	█	█												
Deploy	1									8/22					9/23				10/23									
Stabilize	1																											
Plan/Analyze	2						█	█	█																			
Design	2									█	█	█																
Build / Unit Testing	2												█	█	█	█	█	█	█	█	█							
Test (QA)	2																											
Deploy	2																											
Stabilize	2																											



Team

- ▶ Business Stakeholders – Sponsor, Owner, Subject Matter Expert
- ▶ IT Stakeholders – Sponsor, Portfolio Leads
- ▶ Core Project Team – IT Project Manager, IT Business Analyst, Solution Architect, Application Development Leads, Risk Advisor, Test Lead, Business Planner, Service Introduction Lead, Systems Admin, Disaster Recovery
- ▶ Questionmark – Howard Eisenberg, Dan Ross, Cecil Trussell, Tom Leggett, Theresa Swearingen, Kelly Sawyer, Steve Lay, Greg Appel, Scott Thatcher, David Hunt
- ▶ User Acceptance Test Team – Authors, Schedulers, Instructors, PMA
- ▶ Packaging Team
- ▶ Firewall Team
- ▶ Sourcing Team
- ▶ Legal Team
- ▶ Security Review Team



Intake

- ▶ Business Case
- ▶ Role-Based Staffing Plan
- ▶ Complexity Calculator
- ▶ Concept Estimate
- ▶ Sourcing Engage Form



Plan/Analyze

- ▶ Deliverable Responsibility Matrix
- ▶ Project Scope & Charter
- ▶ Business Impact Analysis
- ▶ Project Work Plan
- ▶ First Glance Change Assessment
- ▶ Business Process Design
- ▶ Detailed Functional Requirements
- ▶ Detailed Non-Functional Requirements
- ▶ Initial System Security Package
- ▶ Requirements Traceability Matrix



Plan/Analyze

- ▶ Solution Blueprint
- ▶ High Level Architecture
- ▶ Test Strategy
- ▶ Performance Test Plan
- ▶ Service Introduction Plan
- ▶ Job Estimate



Plan/Analyze

- ▶ Master Services Agreement w/Questionmark
- ▶ Quote from Questionmark
- ▶ Migration Scope Of Work
- ▶ Third Party Review – Security Questionnaire
- ▶ SAP Connector Guide
- ▶ Schedule Sponsor meetings – IT and LOB



Questionmark Calls/Meetings

- ▶ 3/23
- ▶ 4/21, 4/29
- ▶ 6/17
- ▶ 7/13, 7/15, 7/27
- ▶ 8/3, 8/15, 8/24, 8/30
- ▶ 9/6
- ▶ 9/19 – weekly
- ▶ 9/21 – 10/7 – daily stabilization calls with Theresa Swearingen, Dan Ross and Tom Leggett
- ▶ 9/29
- ▶ 10/12 – cybersecurity email spoofing
- ▶ 11/4, 11/8 – leading zero
- ▶ 12/7 – Results Application Programming Interface (API)



Migration Dates

- ▶ **Option 1: 9/23 – 9/26**
 - Assumes the migration can occur over the weekend
 - Additional costs
- ▶ **Option 2: 9/25 – 9/28**
 - Assumes the migration can start on Sunday to reduce resources working over full weekend and cost
 - Additional costs
- ▶ **Option 3: 9/26 – 9/29**
 - Assumes migration occurs over the working week



Design

- ▶ Application Detailed Design
- ▶ Application Disaster Recovery Plan
- ▶ Infrastructure Design Specification

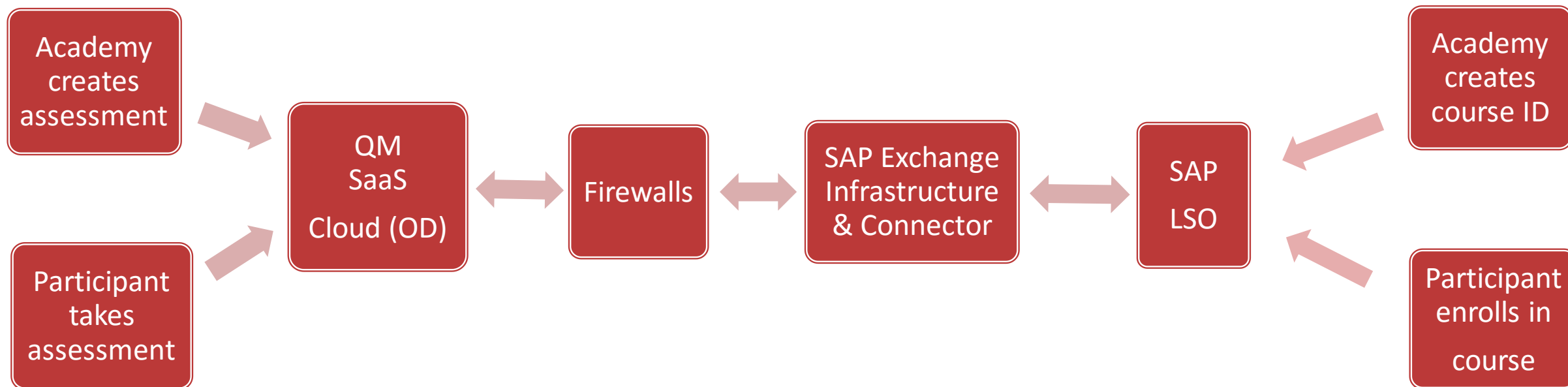


Design

- ▶ NextGen DEV sandbox and access for developers
- ▶ NextGen OnDemand system demo – Kelly Sawyer
- ▶ Selected Classic OnDemand
- ▶ Weekly team meetings
- ▶ Architecture – Enterprise Integration (EI) vs Process Integration (PI)
- ▶ Design doc – meet with Howard Eisenberg



High Level Architecture





Build / Unit Test

- ▶ Test model
- ▶ Scripts | Product Test
- ▶ Scripts | Performance Test
- ▶ Scripts | User Acceptance Test
- ▶ Scripts | Integration
- ▶ Operational Readiness Test Plan
- ▶ Firewall exception request



Identify Risks

- ▶ MSA and PO
- ▶ Resource Constraints
- ▶ QA server and database setup



Test

- ▶ Test Results
- ▶ Disaster Recovery Exercise Report
- ▶ Run Book
- ▶ Code Migration Plan
- ▶ Deployment Plan



Test

- ▶ Assign Responsibilities for system testing – UAT team
- ▶ Conduct Testing

QM User Acceptance Testing and System Validation

- ▶ Document issues

QM OnDemand QA Testing Issues

- ▶ Review existing job aids and online help

Job Aids

- ▶ Create or update job aids
- ▶ Assist in training users
- ▶ Production Assessment ID cleanup
- ▶ New version of Authoring Manager – packaged and available for authors



TSC Service Introduction

- ▶ Disaster Recovery
- ▶ Update Service Management Center (SMC)
- ▶ [Support Model](#)



Deploy

- ▶ Checklist Go/No-Go
- ▶ 8/22-8/30 QA Trial Migration
- ▶ Cutover plan
- ▶ Redirects on URLs



Deploy

- ▶ Production 9/23-9/26 – disable 5PM on 9/22, ready by 9/26
- ▶ Weather delays on SAP Phase 1 migration 10/15 => 10/23
- ▶ SAP and EI Change Advisory Board (CAB) approval
- ▶ Created new provider in SAP: QMP => QMC
- ▶ SAP Phase 2 migration cutover 12/11



Stabilize

- ▶ Asset Decommissioning Plan
- ▶ Lessons Learned
- ▶ Checklist | Project Closeout



Stabilize

- ▶ Results Application Programming Interface (API)
- ▶ Daily calls with QM to work critical and high issues
- ▶ Results Warehouse rebuilt
- ▶ QMWISe licenses
- ▶ Failed SAP batch job
- ▶ Data validation
- ▶ Scantron validation



Lessons Learned

- ▶ Multiple project managers were used
- ▶ Change Management
- ▶ Communication – SAP outage, QM outage
- ▶ Created Email groups
- ▶ Created FAQs
- ▶ Created Job Aids
- ▶ Created Videos
- ▶ My Learning – ability to access assessment early - risk
- ▶ Backup for vacation
- ▶ Wi-Fi vs. Mi-Fi



Tickets

- ▶ Number of tickets - 71
- ▶ Number of tickets closed – 56 (79%)
- ▶ Number of tickets open – 5 (7%)
- ▶ Number of tickets escalated – 10 (14%)



Open Issues

Number	Issue Number	Subject
1000159870		Reports Not Running/Progress Bar
1000167255		Error Running Survey Report
1000168131		Error 50000 When Submitting Results
1000169093		Error During Observer Login
1000169990		Observational Assessments not launching



Escalated Issues

Number	Issue Number	Subject
1000158112	38066	Questionmark App for iPad Froze on Explanation Question
1000159152	38497	Mobile Delivery not rendering text entry with numerical values on Fill in Blanks Questions
1000159370	38492	Launching assessment through IPAD app with Questionmark Secure for IPAD not working as expected
1000159438	37723	Text controls and Contrast control issue.
1000160912	33245	Email Broadcast - Address spoofed
1000162010	38599	FW: Questionmark October Release - Validation of results
1000163483	38617	FW: Results Importer - Report Data & Results API Mismatch QM QA
1000163654	36705	RE: UTC time stamps appear incorrect in QMWISE API
1000166498		Coaching Report Error - Email
1000167321		Assessment Freezes When Submitting via iPad App



Next Steps

- ▶ Resolve open/escalated issues
- ▶ Review roadmap on NextGen migration
- ▶ Test Printing and Scanning



SAP Connector

- ▶ Considerable programming is needed for SAP Connector to work
- ▶ There are two parts to this configuration:
 - Part 1: Define and configure the services that will be used, using **Enterprise Services Builder**
 - Part 2: Configure the communication channels between the sender and receiver services, using **Integration Builder**.

My Learning Demo



My Learning

- ▶ Monitor Login
- ▶ Real time vs. 24 hour delayed scores
 - Real-time – one attempt per day; delayed – multiple attempts per day
- ▶ Knowledge assessments (pass/fail) only, not knowledge checks (completed)
- ▶ Initial attempt is not scheduled by LDS/LC; participant searches My Learning, books knowledge assessment course, and launches training (assessment)
- ▶ Can take additional attempts in the same day using Questionmark portal (assessment must be scheduled by LDS/LC)
- ▶ Can access Documentum for open book assessments
- ▶ Can cancel assessment which deletes the schedule



Linking assessment with SAP

- ▶ What types of assessments – pass/fail only, not knowledge checks
- ▶ Allow run from integration checked – Questionmark Author
- ▶ Allow open access to assessment unchecked – Questionmark Author
- ▶ Questionmark Author will provide Assessment ID to LDS/LC
- ▶ Auto. Progress Update,
 - Select No automatic update if you want scores to upload from Questionmark to SAP My Learning with a 24 hour delay. Use 24 hour delayed scores for all new assessments and apprentice programs
 - Select Automatic update if you want scores to upload real-time. Use real-time scores only after assessment is established and has gone through several cohorts
- ▶ Set proper validity period
- ▶ Use QMC provider (Questionmark Cloud), not QMP
- ▶ Uncheck the “No Display in Intranet” and make sure the validity date is from start time of the course in SAP
- ▶ Remove from Search Results is unchecked



Linking assessment with SAP

- ▶ Use 24 hour delayed scores for all new assessments and apprentice programs
- ▶ Use real-time scores only after assessment is established and has gone through several cohorts



Scheduling of Assessments

- ▶ Required if taking knowledge assessment/check via iPad or Questionmark portal
- ▶ Required for skill assessments
- ▶ Not required if taking knowledge assessment through My Learning

iPad Demos

- ▶ Knowledge assessment
- ▶ Skill assessment



iPad Limitations

- ▶ Not using Questionmark Secure
 - Can use Questionmark for iPad app or Safari browser (bookmark URL) – assessments are scheduled by LDS/LC
 - No open-book assessments requiring Documentum
- ▶ Questionmark Secure
 - Can only use Safari browser (bookmark URL), not Questionmark app for iPad – assessments are scheduled by LDS/LC
 - Questionmark Secure uses Guided Access

Q&A

