Camp Administration Information System

Requirements and Design Document

V0.1

High-level requirements

- Facilitate application/acceptance process (both campers and volunteers)

- Streamline camp planning, coordination, and preparation

- Provide mechanism for tracking camper medications check-in and administration

- Ease coordination and communication between geographically distributed planning team members

- Support automated notifications based on configurable workflow definitions

History

- Existing functionality is built on the Intuit service called QuickBase, which is an extensible and configurable online database

- Use of QuickBase is offered at no cost for Intuit employees, so JEMS Special Camp has been able to make use of this benefit since its director has been employed by Intuit

- The original capability was developed so that various planning team members (who were geographically separated) could coordinate camp application, registration, and planning activities

- Capability was extended via custom Heroku-resident web-based apps to include additional add-on functionality to support camp health supervisor medication administration

- JEMS Mount Hermon youth camps have also made use of this capability (minus the custom add-on med admin functionality) since 2014

The need

- Special Camp director was laid off by Intuit in September 2014
- Ownership of the JEMS Special Camp and Youth Camps QuickBase applications has been transferred to another Intuit employee, who is the last Special Camp volunteer still employed by Intuit
- Intuit has just announced (end of August 2015) that they will be divesting the QuickBase product
- It would be very expensive to pay for the QuickBase service on an ongoing basis
- Thus, we are looking for a lower-cost alternative to provide the same or similar functionality, but focused on specific camp administration needs as identified in the *High Level Requirements* slide
- Ideally, we would like to design and deploy the solution in such a way that this service could be easily customized and offered as a service to other non-profit organizations with similar needs, at a much-lower cost than currently-available alternate solutions

Desirable characteristics

- Low recurring cost

- Single data repository with no possibility of outdated data being referenced/accessed by any system user at any time

- Simple, intuitive, consistent, web-based user interface (mobile-specific UI for camp applicants, recommenders, and suggestions is a plus)

- Secure data storage and retrieval, preferably encrypted both in transit and when stored

- Access controls, allowing only camp planning team access to stored data and online distributed camp planning functions

- Ability for camp application contents to be saved and worked on at a later time, before actual submission

- Could be easily customized and offered as a service to other non-profit organizations with similar needs, at a much-lower cost than currently-available alternate solutions

High-level design
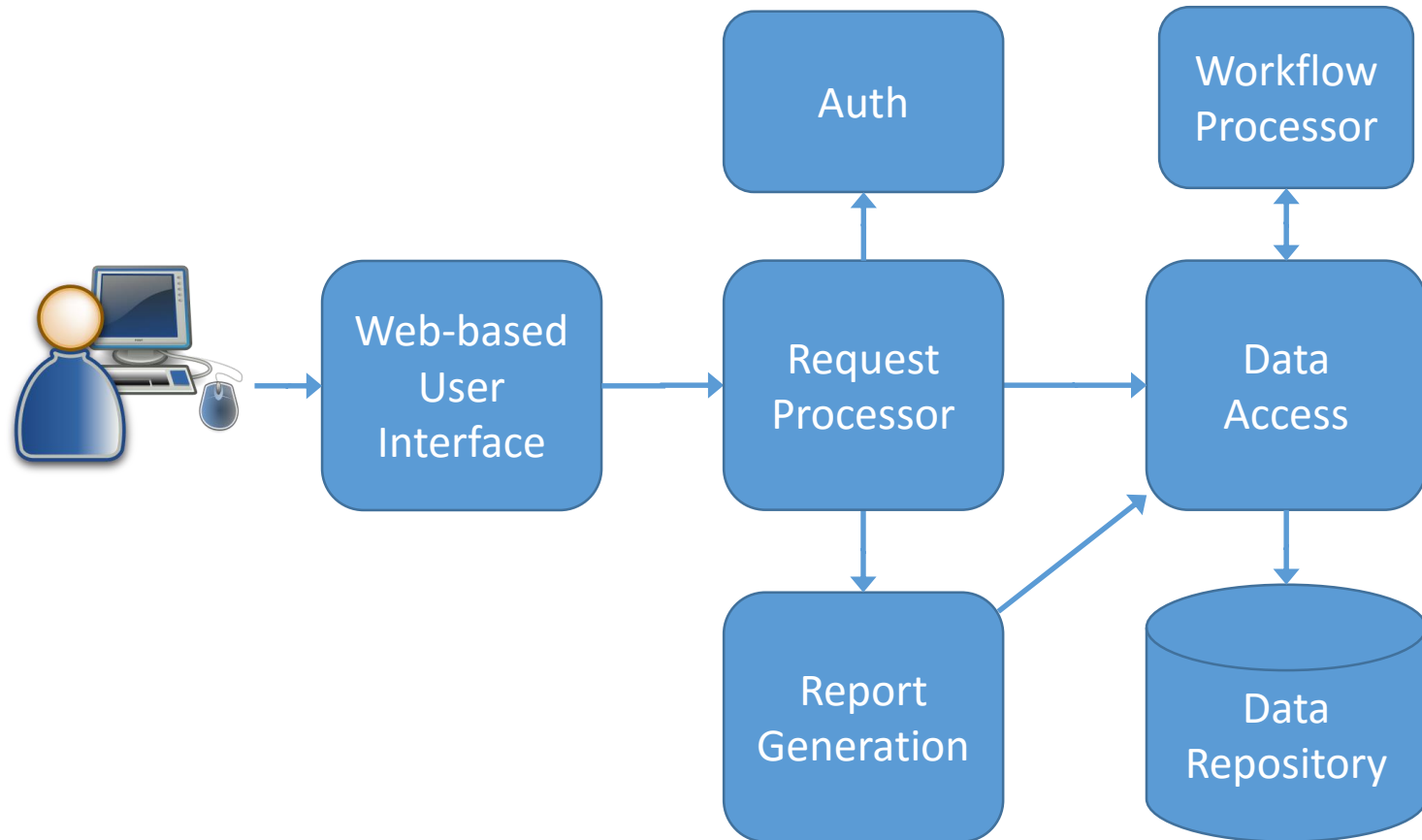
High-level design

- This high-level design should be considered as the target end-state model toward which to build

- It is acknowledged that several intermediate (phased) implementation stages may be required in order to ultimately achieve this target goal

Web-based User Interface

- Consistent look-and-feel across all functions
- Automatically presents appropriate user interface, whether web browser or mobile client optimized platform
- Interacts with *Request Processor* module via published API
  - All *Request Processor* interactions encrypted via SSL
  - All *Request Processor* transactions are authenticated
- Allows for multiple simultaneous user accesses
- Handles <u>all</u> system interactions for general (non-administrative) users
- No personal/sensitive information is stored locally by this module

Request Processor

- Receives, processes, and fulfills requests from *Web-based User Interface* client via published API
    - All interactions with *Web-based User Interface* encrypted via SSL
    - All transactions with *Web-based User Interface* are authenticated
- Only permits request fulfillment after user/transaction is properly authenticated and deemed appropriate for identified user's role
- Interacts with *Data Access* module on behalf of authenticated/authorized users, to retrieve and store data
- Interacts with *Report Generation* module on behalf of authenticated/authorized users, to make data-centric reports available for access by users

Auth

- Receives authentication requests from *Request Processor* module
  - User credentials presented, credentials validated, authentication status and user role (if authentication successful) is returned
  - Session identity presented, session validated, session authentication status is returned, session activity and timeout is tracked
- No credentials or identity tokens are stored in unencrypted form

Report Generation

- Receives, processes, and fulfills requests from *Request Processor* module
    - It is up to the *Request Processor* module to validate user identify and appropriate rights before sending a request to this *Report Generation* module to be processed and fulfilled

- Interacts with *Data Access* module on behalf of authenticated/authorized users, to retrieve data from which reports are generated

- Passes generated report content (or online references to generated reports) back to *Request Processor* module, after report is successfully created

Data Access

- Receives, processes, and fulfills data access requests from *Request Processor* module
    - It is up to the *Request Processor* module to validate user identity and appropriate rights before sending a request to this *Data Access* module to be processed and fulfilled

- Receives, processes, and fulfills data access requests from *Report Generation* module
    - It is assumed that requests from the *Report Generation* module have already been vetted and confirmed, with respect to requestor authorization

- Successful CRUD operations are reported to the *Workflow Processor* module in the event that the data operation should result in kicking off other related events (e.g., e-mail notification, updating of other data fields, etc.)

Workflow Processor

- Receives notification of successful data CRUD operations from the *Data Access* module

- Kicks off other related events (e.g., e-mail notification) associated with the just-implemented CRUD operation

- Communicates follow-on request(s) back to the *Data Access* module if the just-implemented CRUD operation requires associated changes to other data fields (e.g., updating "Full Name" field when either FirstName or LastName field is updated)

Data Repository

- Stores and indexes data in nonvolatile memory storage

- Retrieves data via SQL-compatible query language

- Works with *Data Access* module to ensure that personal/sensitive information is encrypted when stored

Implementation Phase 1
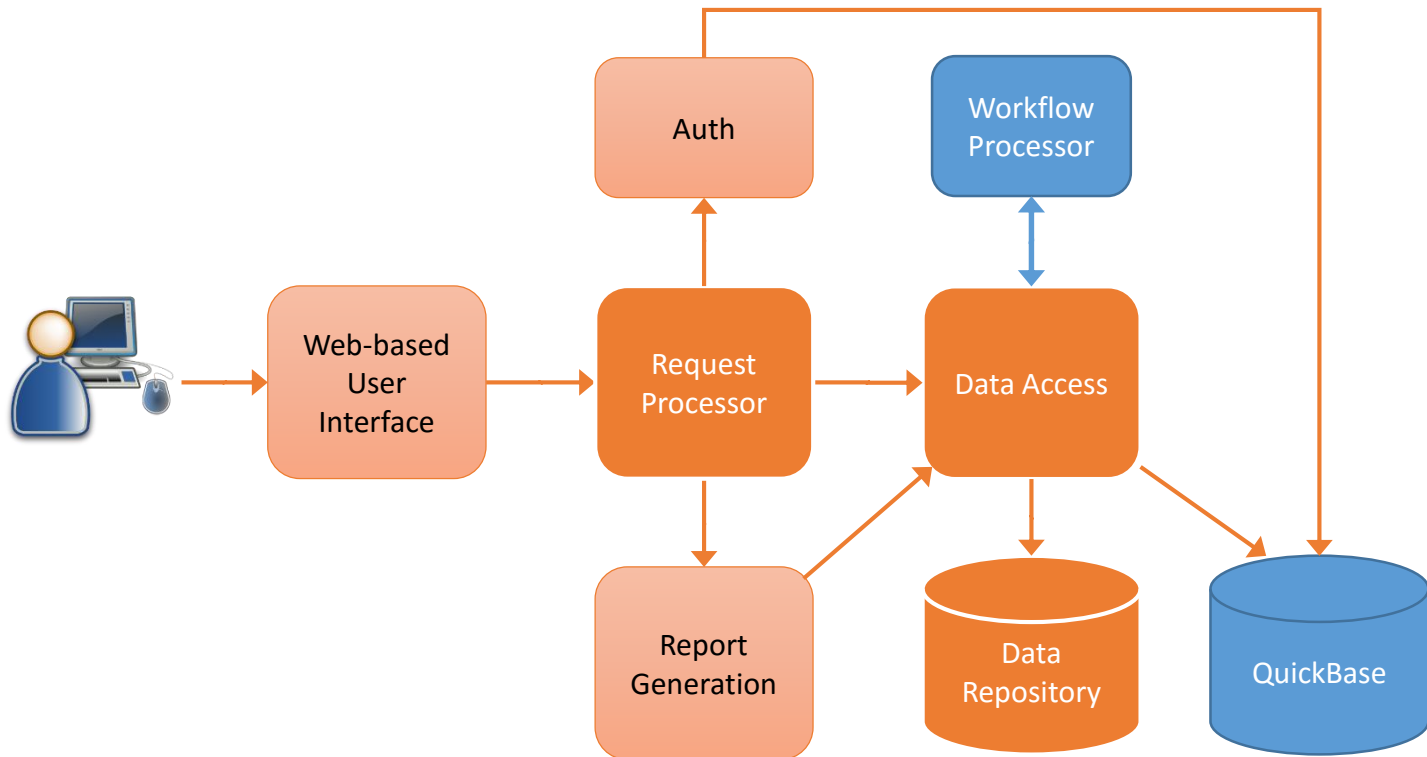
Implementation Phase 1

- It is proposed that QuickBase continue to be updated with data during this implementation phase, in order to be able to leverage its rich reporting and workflow capabilities

- All data updates to QuickBase, however, will be proxied through a new *Data Access* module, which will also keep a local database up-to-date and synchronized

- No Health Supervisor updates will be permitted directly to QuickBase, but would need to be accommodated via modified web-based UI

- Med schedule report/print functionality will need to obtain its data from the new *Data Access* module rather than directly from QuickBase, and should not cache any data itself

Web-based User Interface
Implementation Phase 1

- Modify existing web-based med scheduling UI to add:
  - CRUD of medications information
  - Update of camper health/med notes
- Support only browser-based (non-mobile) users
- Modify existing web-based UI to make data requests through new *Request Processor* module
- Update existing web-based UI for more seamless and integrated access to med schedule report/print capability
- Add ability for anonymous Internet users to:
  - Submit an aide application form (with ability to save and continue later before actual submission)
  - Submit an aide recommendation

Request Processor
Implementation Phase 1

- Initially can be implemented as a part of existing web-based UI (non-JavaScript)

- Continues to leverage QuickBase authentication credentials for user authentication/authorization, but directed through a new *Auth* module

- Interacts with new *Data Access* module on behalf of authenticated/authorized users, to retrieve and store data

- Better integrates with existing med schedule report/print capability

- Adds no new reporting capabilities; these will continue to be supported by QuickBase reporting during Phase 1

Auth

Implementation Phase 1

- Continues to pass-through user credentials to QuickBase, and verifies the validity of those credentials
- No real change to existing auth functionality

Report Generation
Implementation Phase 1

- No substantial change to existing med schedule report/print functionality

- Med schedule report/print functionality will need to obtain its data from the new *Data Access* module rather than directly from QuickBase, and should not cache any data itself

- Adds no new reporting capabilities; these will continue to be supported by QuickBase reporting during Phase 1

Data Access

Implementation Phase 1

- Define appropriate API and security/trust mechanism to support data access requests and fulfillment, to be leveraged by *Request Processor* and *Report Generation* modules

- Ensures that data is always in sync between local database and QuickBase repositories

- Updates QuickBase repositories as needed, so that QuickBase reporting and workflow management capabilities can continue to be used during Phase 1

Workflow Processor
Implementation Phase 1

- Handle limited e-mail based notifications for fixed workflow situations such as:
  - Sending a link to recommenders as identified by aide applicant, to direct the recommenders to a web page to submit their recommendation
  - Sending e-mail notices to aide applicants, such as a confirmation of acceptance, request for vaccination, suggestion to obtain CPR and First Aid certification, etc.

- Making workflow processing more flexible and configurable will be in scope for a future implementation phase

Data Repository
Implementation Phase 1

- Possibly implement via PostgreSQL database, on same host as *Data Access* module

- Works with *Data Access* module to ensure that personal/sensitive information is encrypted when stored

- Preferably, encryption is done on a per-camp basis, with different encryption keys generated/referenced for each camp instance
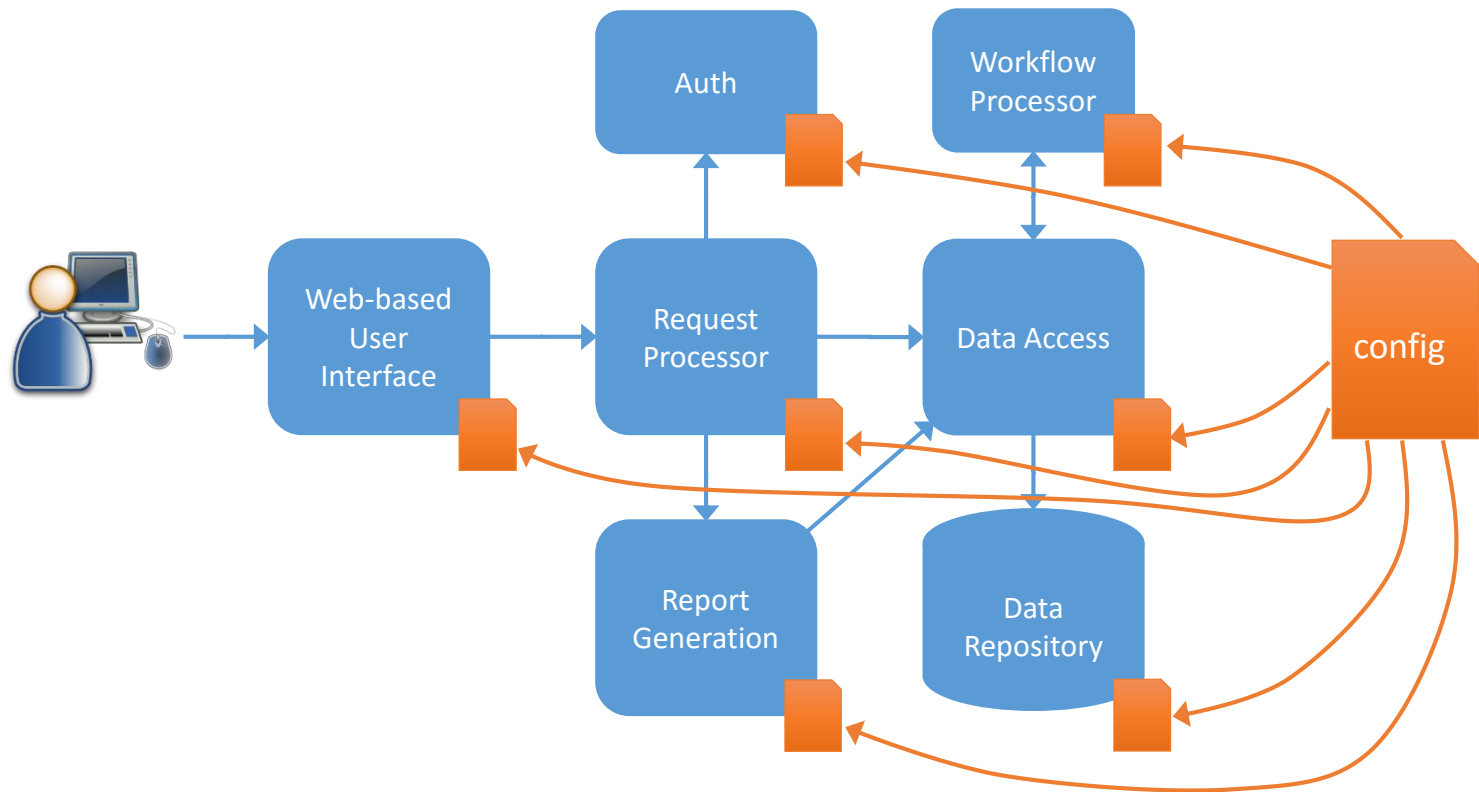
Future Phases

Transition to a service offered to non-profits
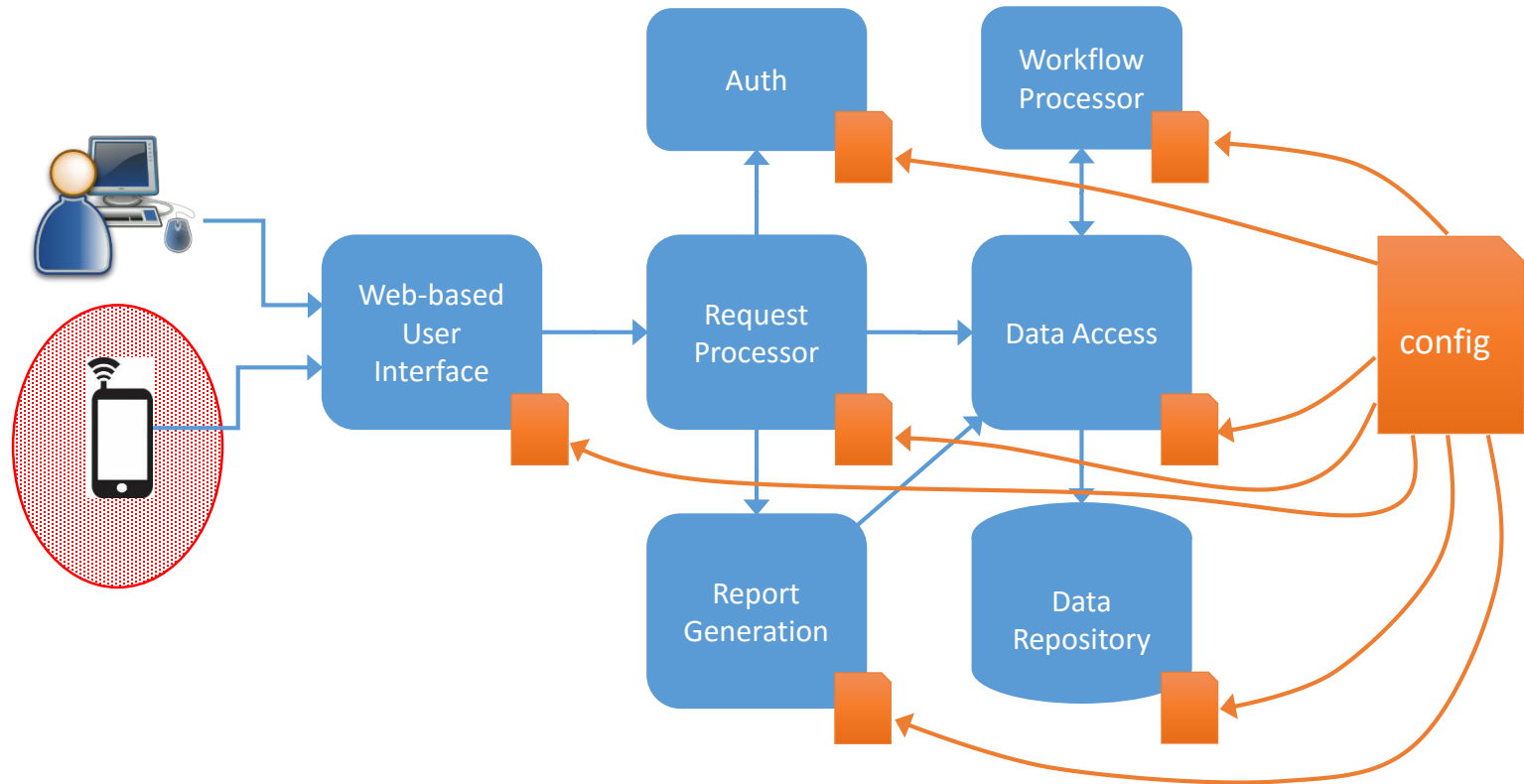
Implementation Phase 2
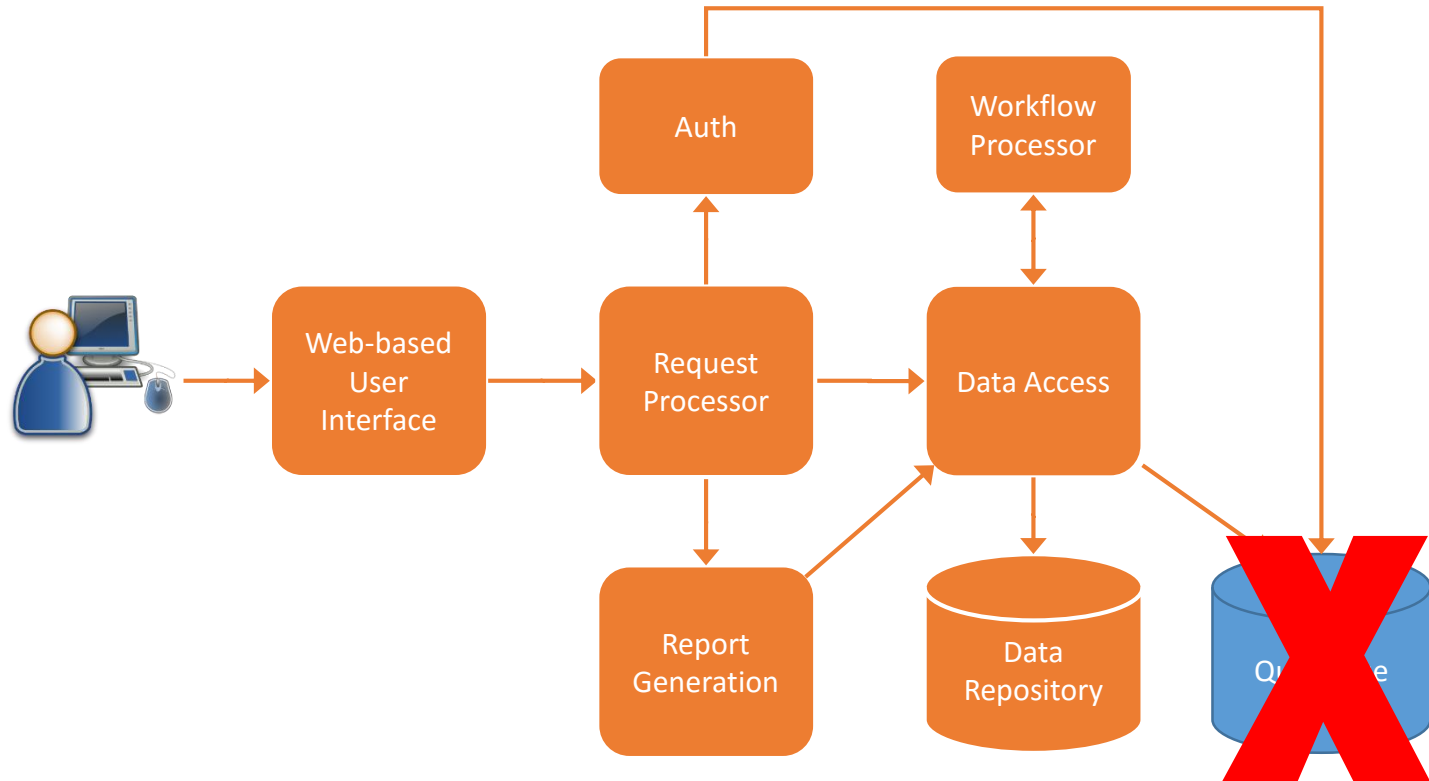
- Make all modules fully functional, phase out QuickBase dependency

Implementation Phase 3

- Make all modules fully, flexibly, and easily configurable while requiring <u>no</u> code modifications

Implementation Phase 4

- Add mobile (smartphone) user interface

Implementation Phase 5
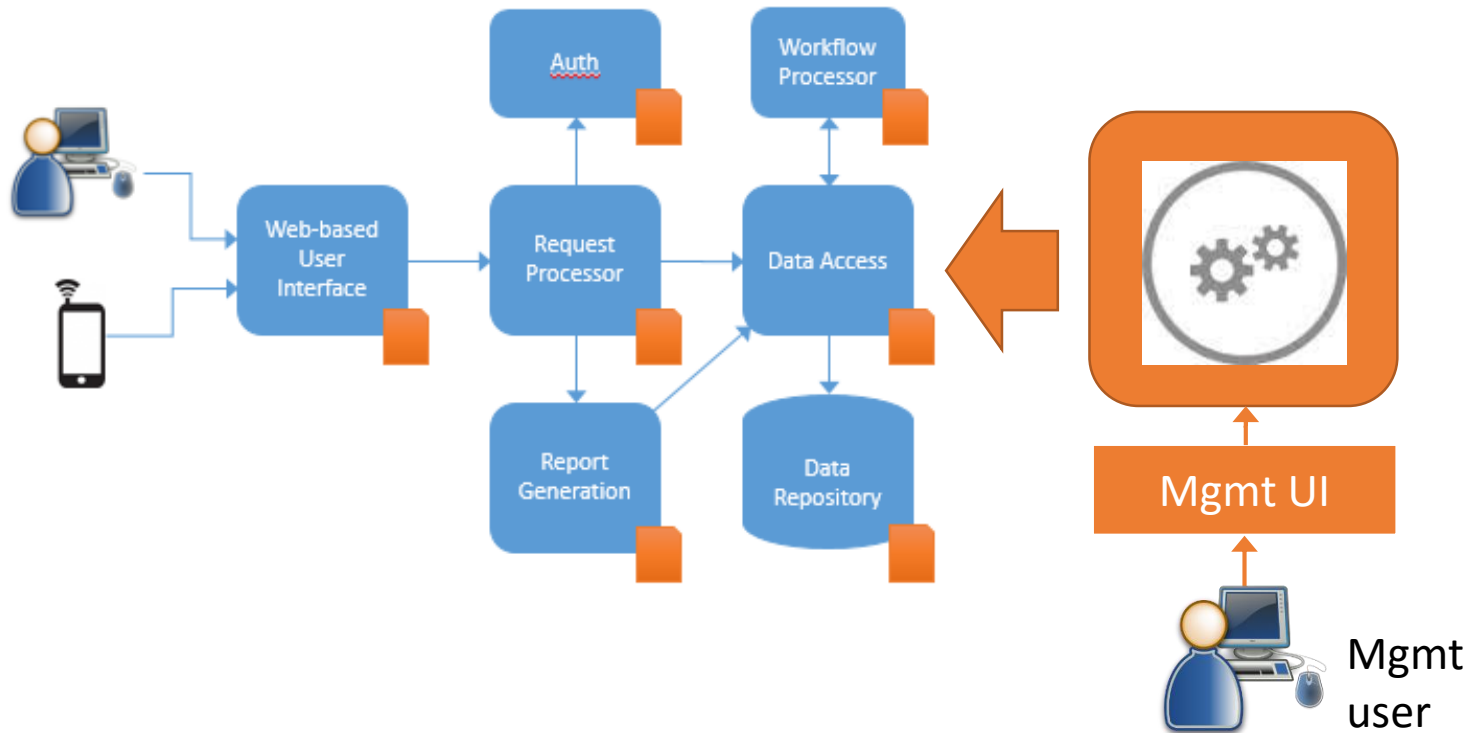
- Create a central configuration management capability

Implementation Phase 6
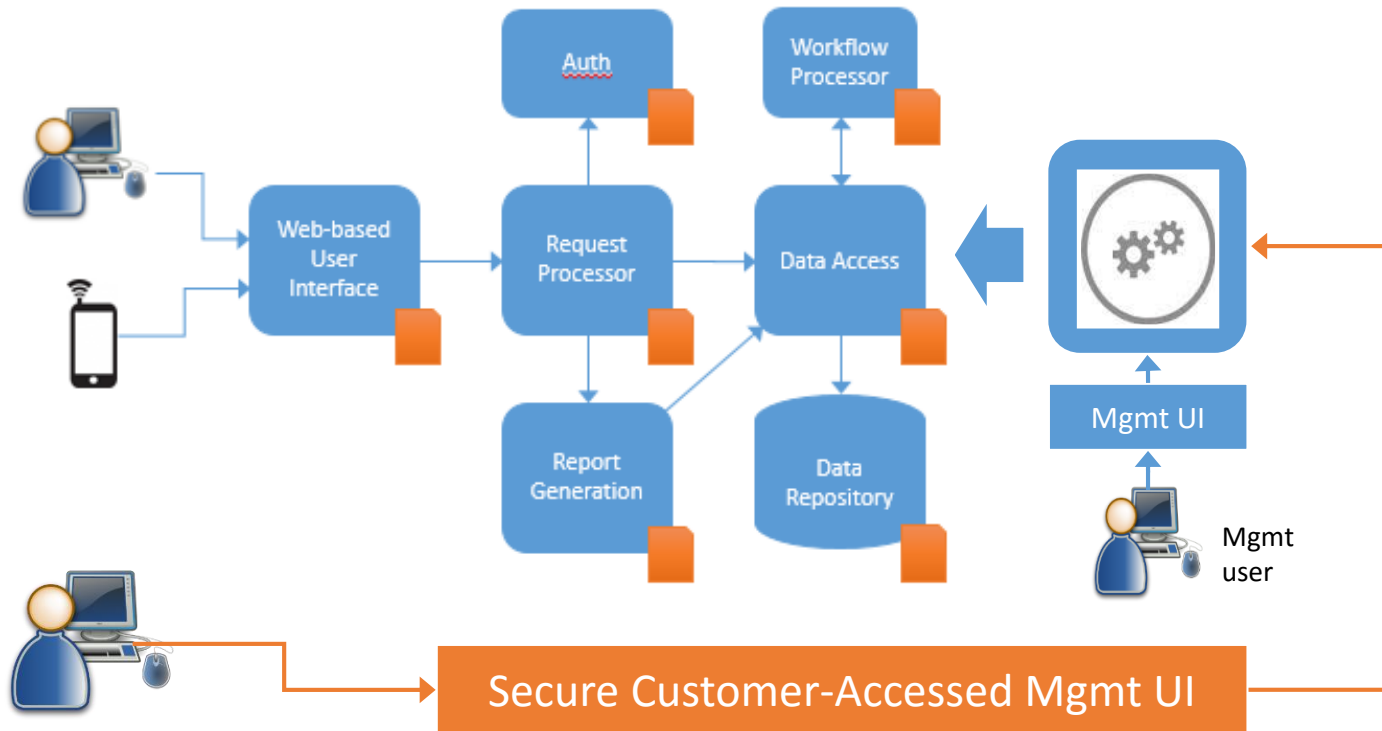
- Create customer-accessed configuration management capability

Implementation Phase 7
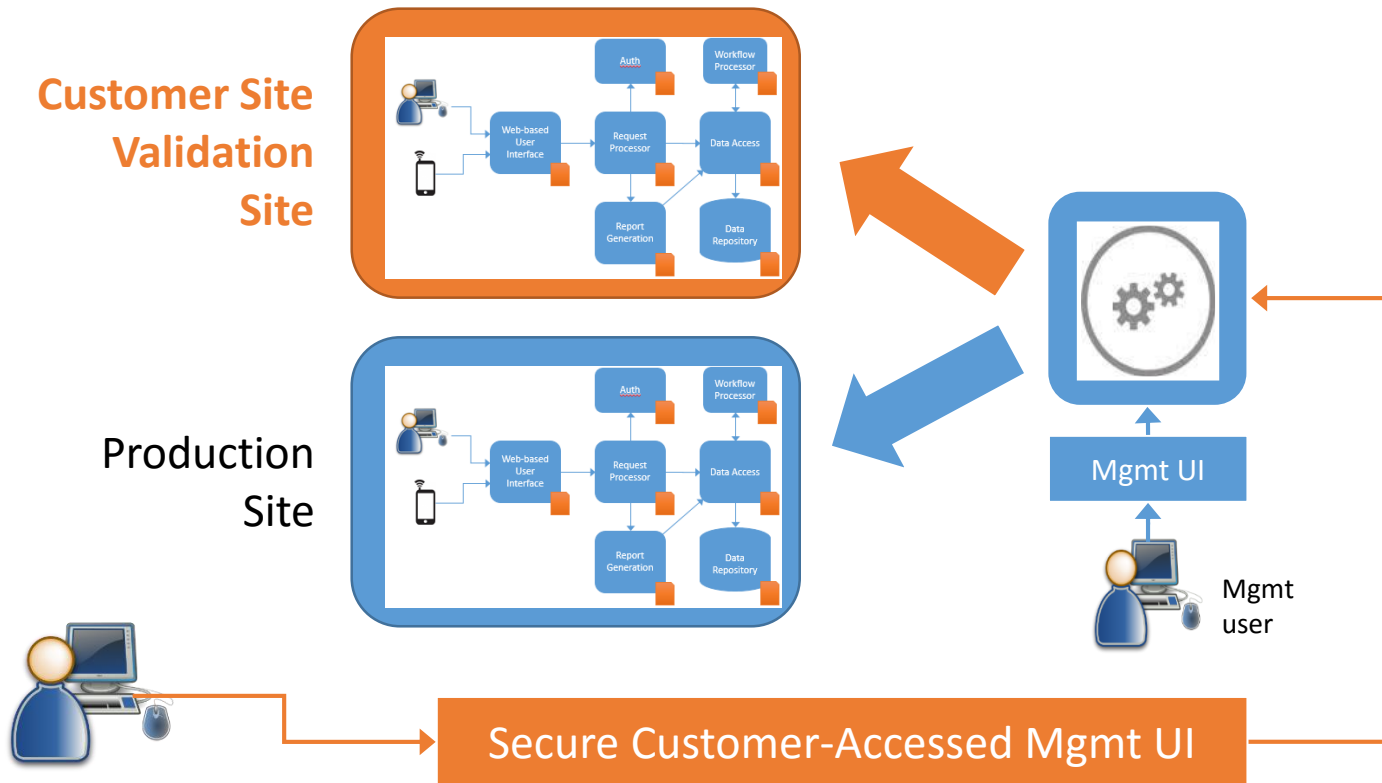
- Create auto site-deploy capability to support customer site validation

Implementation Phase 8

Customer Site
Validation
Site

Production
Site

Payment
Processing
Service

Mgmt UI

Mgmt
user

Secure Customer-Accessed Mgmt UI

Billing and Payment Processing Add-On
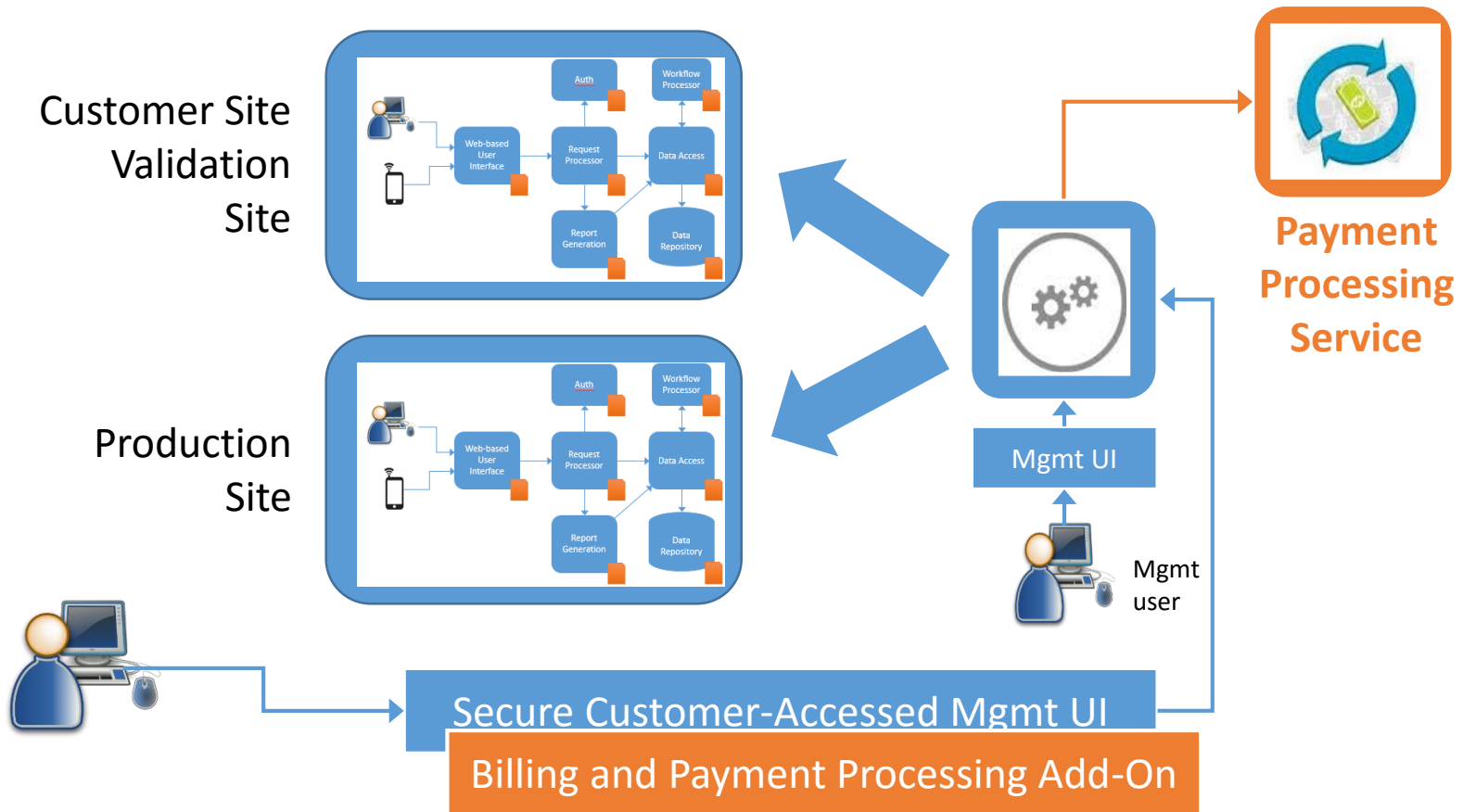
- Add payment processing functionality for customer billing of deployed service

Implementation Phase 9

Customer Site Validation Site

Production Site

Mgmt UI

Mgmt user

Secure Customer-Accessed Mgmt and Billing/Payment UI
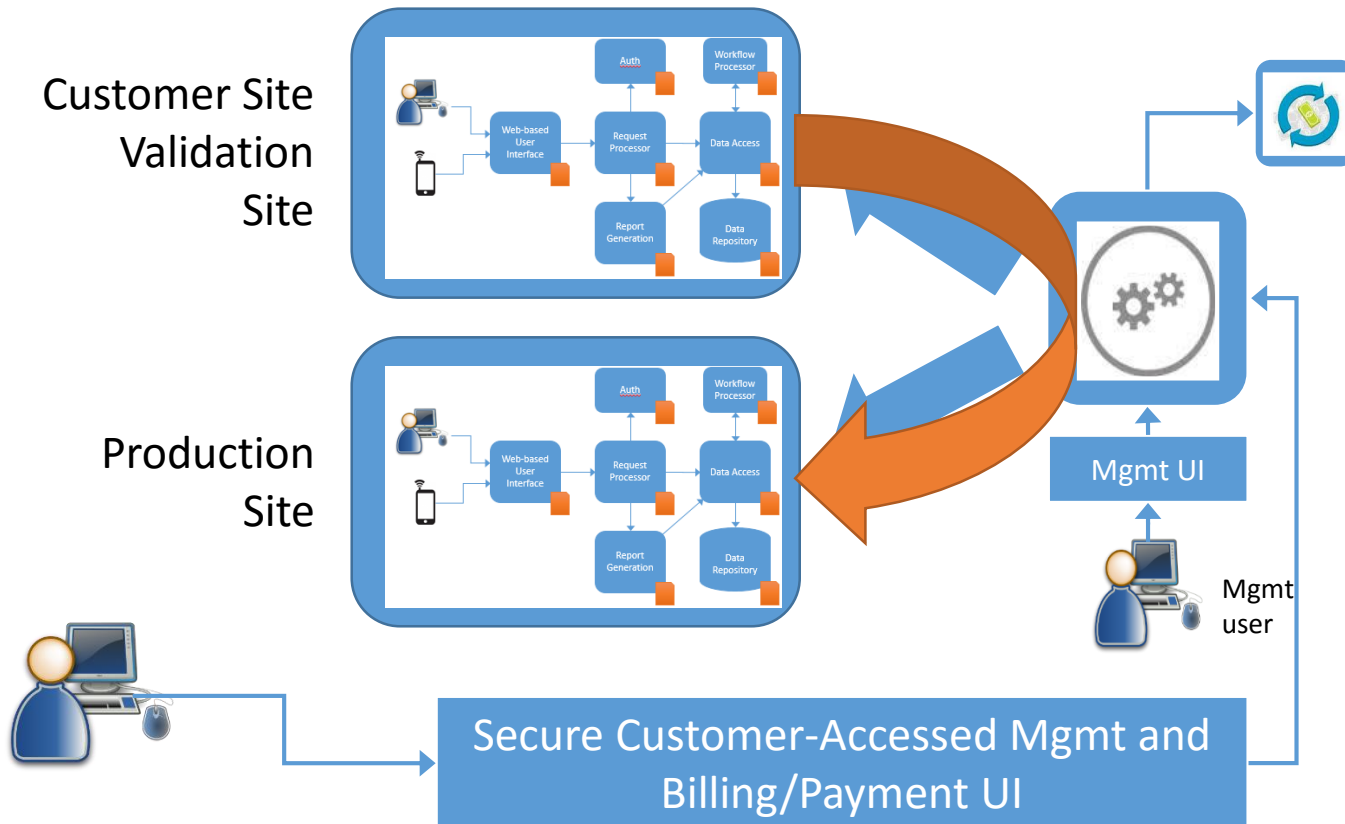
- Scale auto-deploy capability for customer-initiated on-the-fly live production deployment after validation

Implementation Phase 10

Customer Site Validation Site

Production Site

Remove camp instance and stop billing

Mgmt UI

Mgmt user

Secure Customer-Accessed Mgmt and Billing/Payment UI
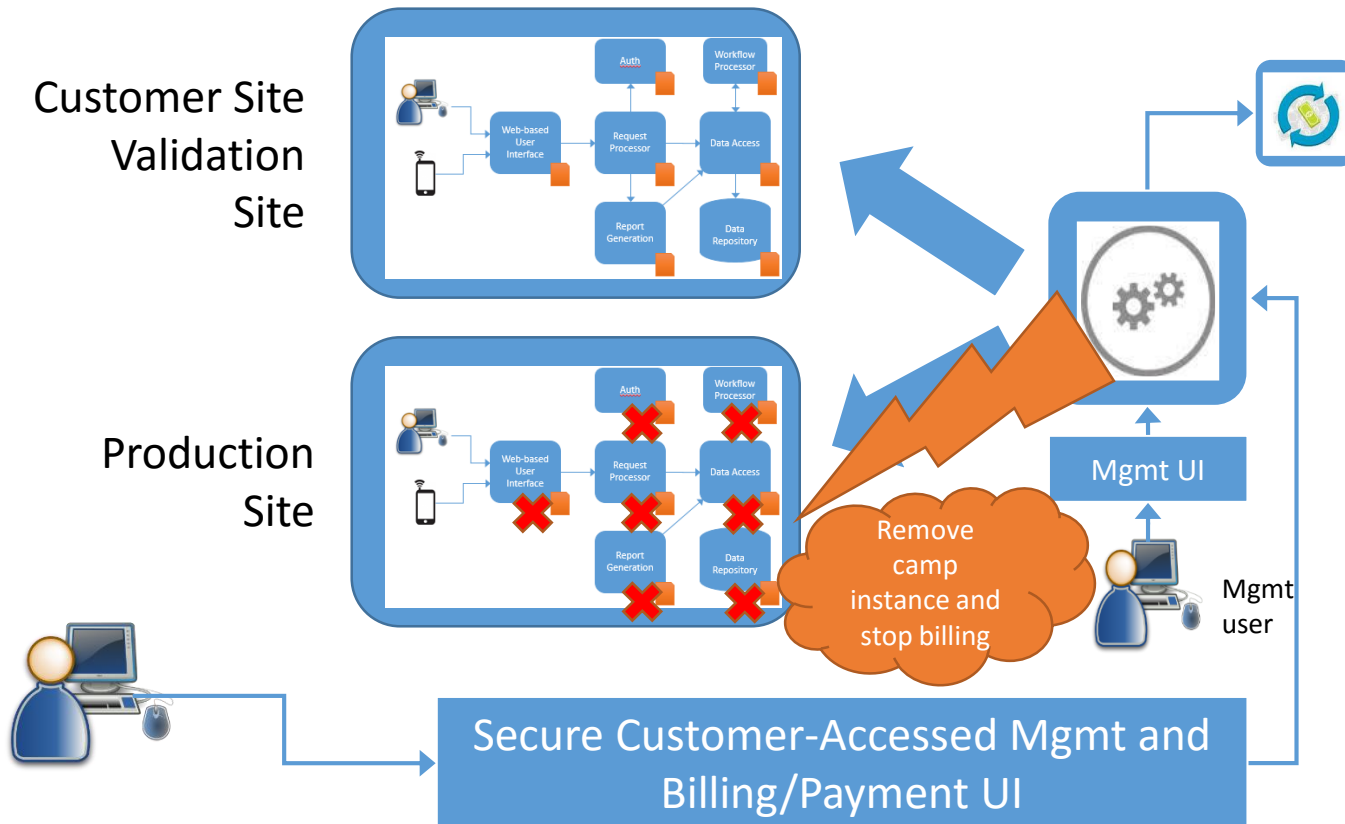
- Add auto de-provisioning capability for tear-down after customer use is complete

Implementation Phase 11

Customer Site Validation Site

Production Site

Mgmt UI

Mgmt user

Secure Customer-Accessed Mgmt and Billing/Payment UI
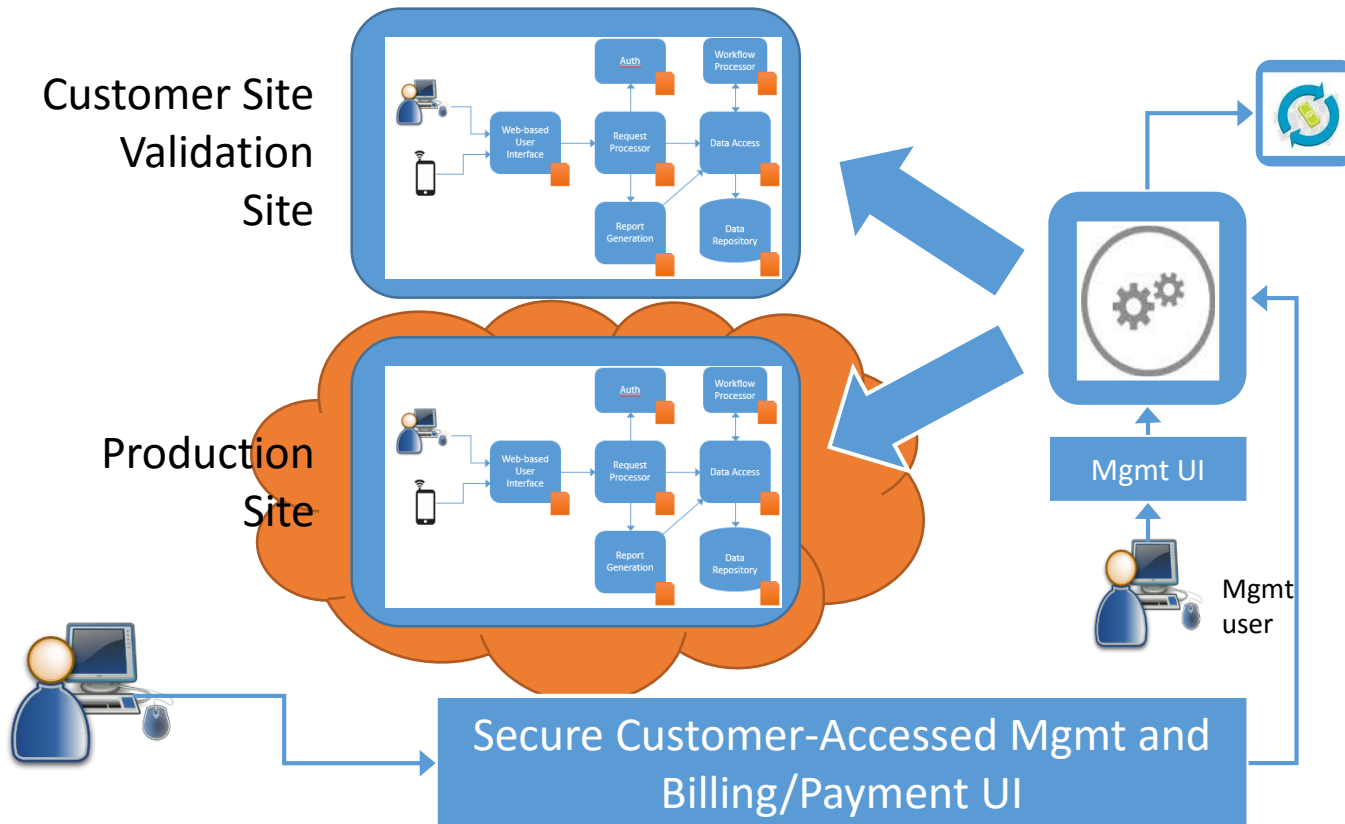
- Cloud-enable server/service provisioning

Implementation Phase 12

Customer Site Validation Site

Customer site redirection

Production Site

Mgmt UI

Mgmt user

Secure Customer-Accessed Mgmt and Billing/Payment UI
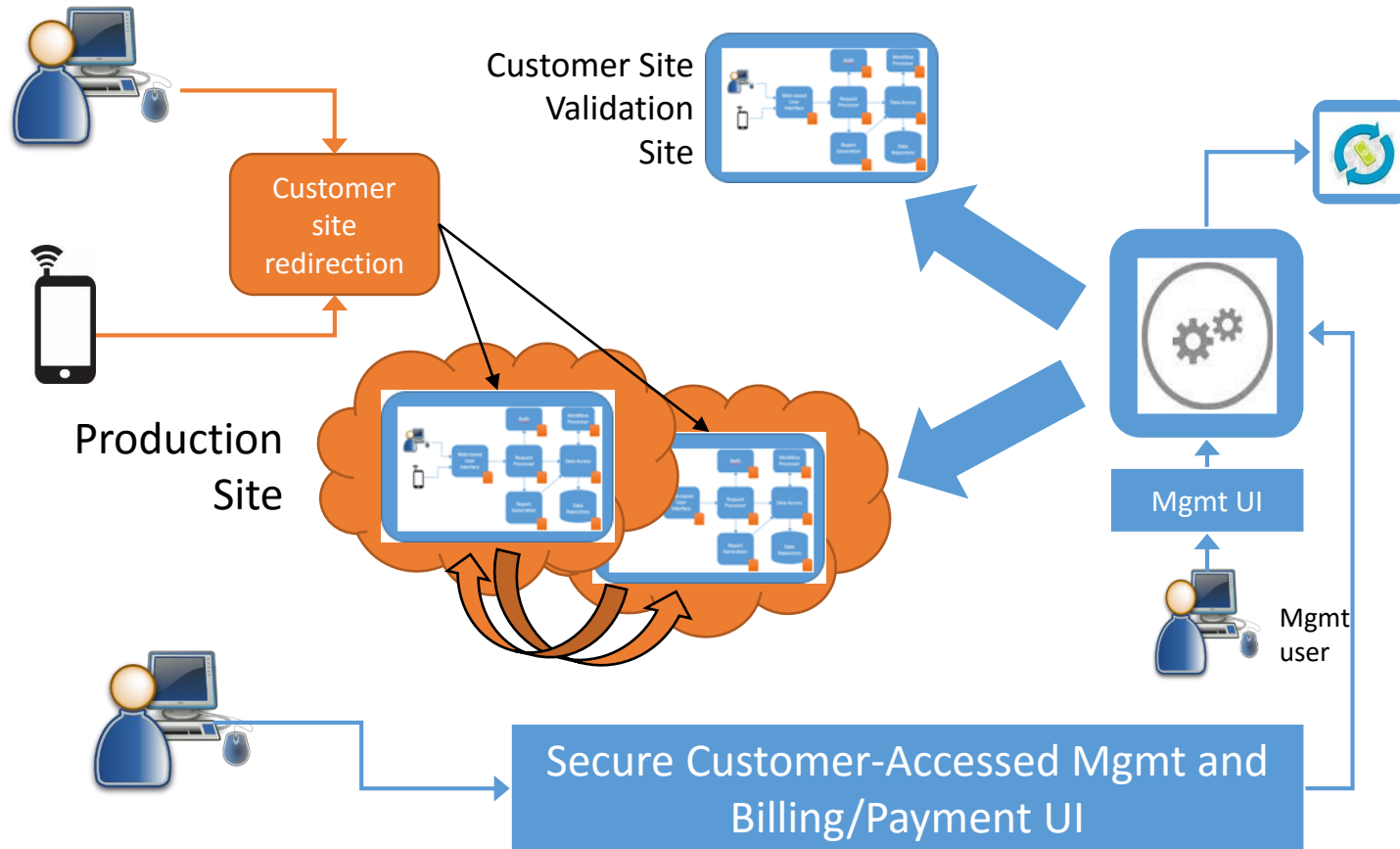
- Add auto backup, restore, and migration functionality

Implementation Phase 13

Customer Site
Validation
Site

Production
Site

Customer
site
redirection

Mgmt UI

Mgmt
user

+ add cloud
provisioning controls

Secure Customer-Accessed Mgmt and
Billing/Payment UI
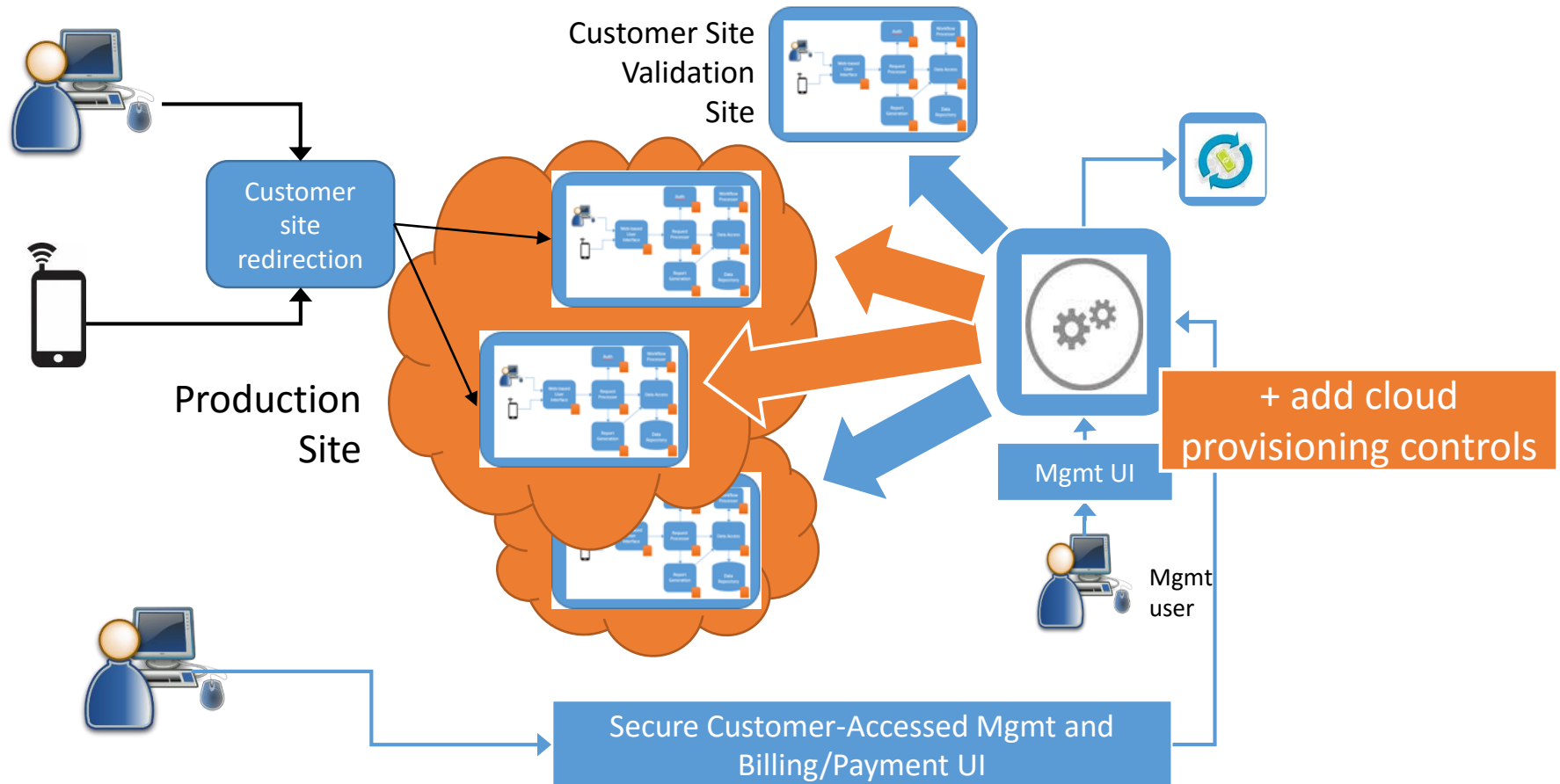
- Add automated multi-server provisioning, de-provisioning, and scaling

Implementation Phase 14

Customer Site Validation Site

Customer site redirection

Production Site

Add controls to adjust and migrate customers based on monitored utilization

Mgmt UI with cloud provisioning

Mgmt user

Secure Customer-Accessed Mgmt and Billing/Payment UI
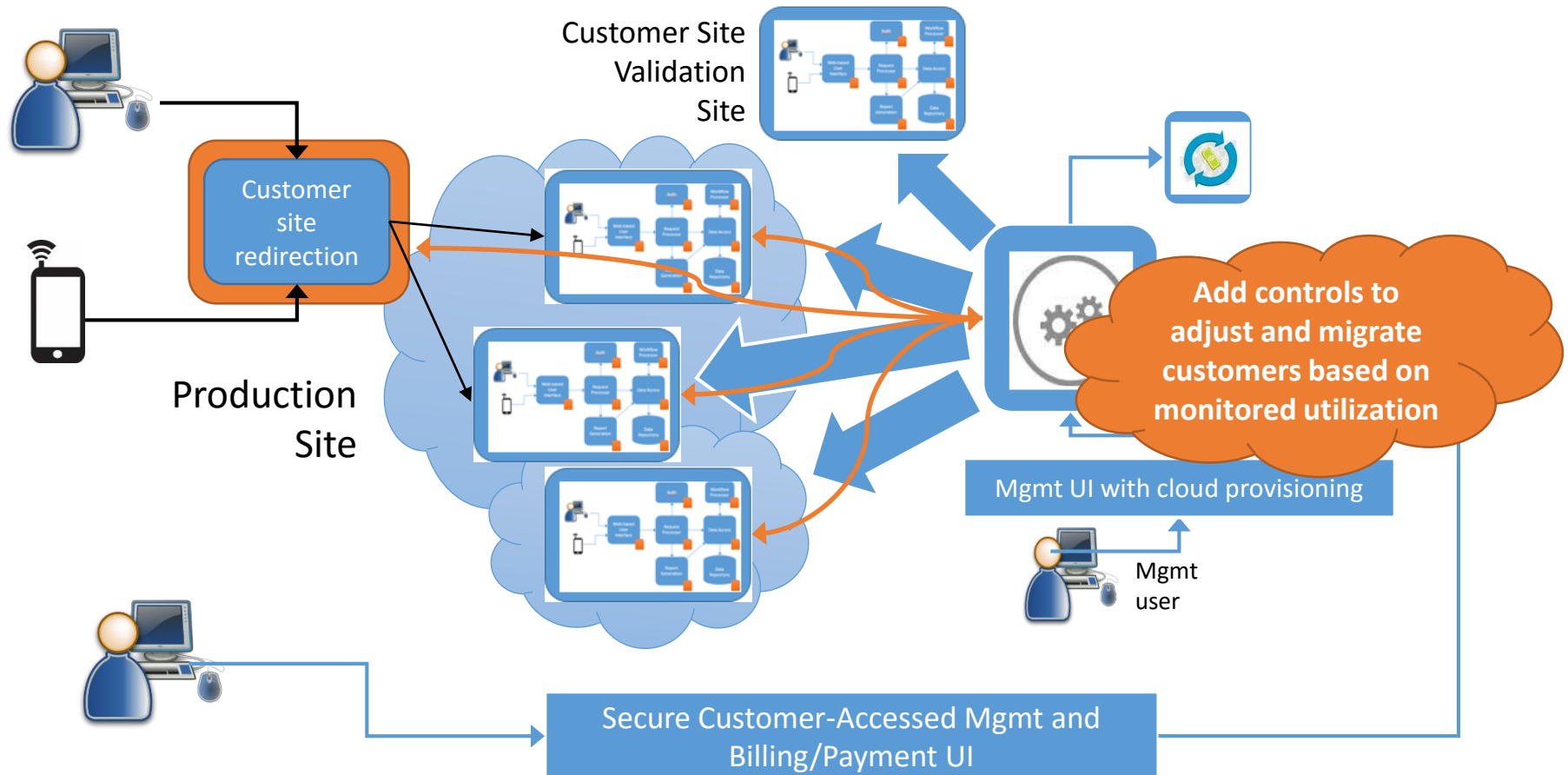
- Add utilization monitoring, automated customer load distribution, and auto-failover

Implementation Phase 15

Customer Site Validation Site

Leverage and automate these controls

Customer site redirection

Production Site

Add controls to adjust and migrate customers based on monitored utilization

Mgmt UI with cloud provisioning

Mgmt user

Secure Customer-Accessed Mgmt and Billing/Payment UI
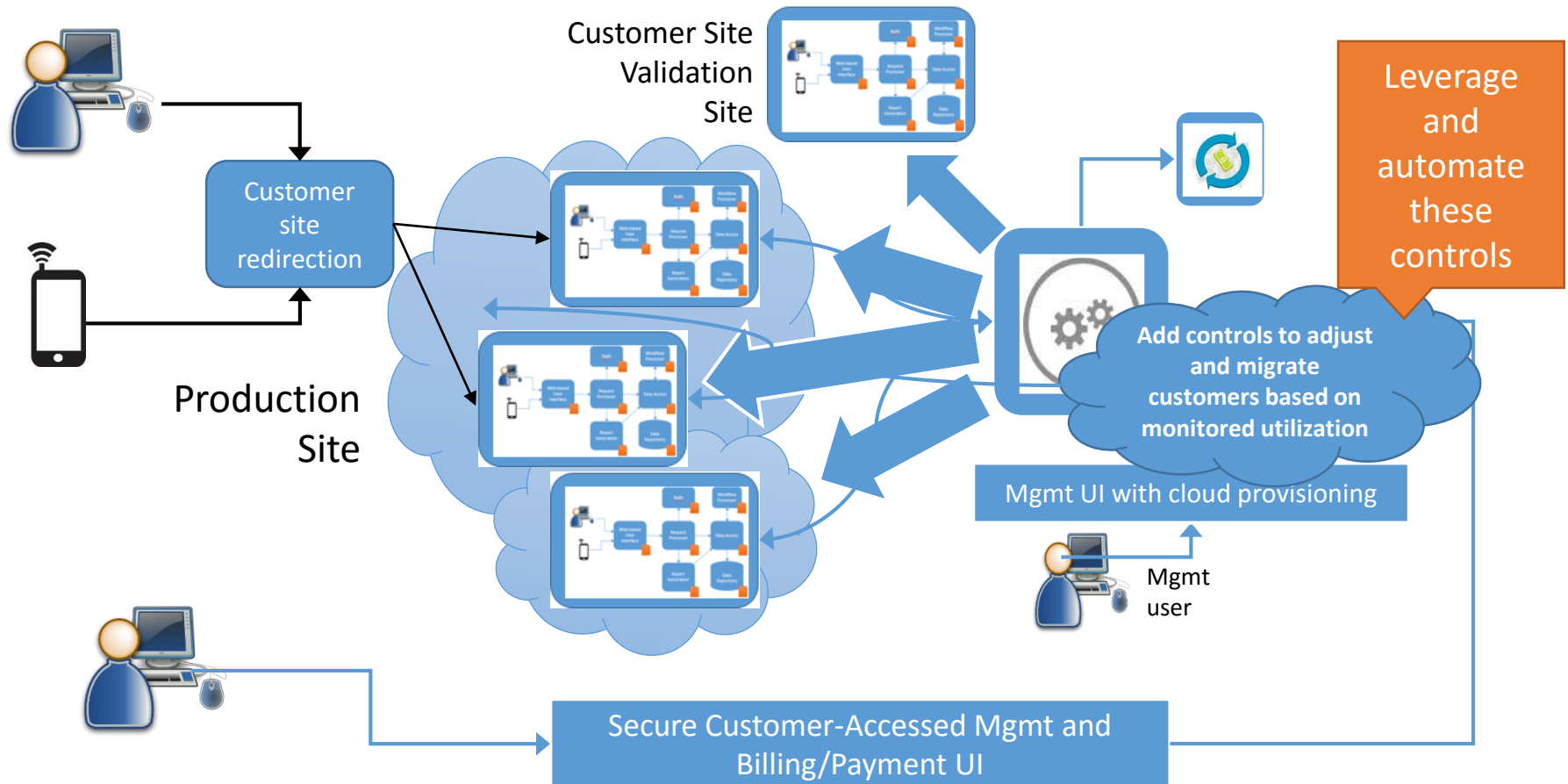
- Automate server provisioning/de-provisioning and transparent service distribution/migration based on continuously-monitored usage/load

Reference

Existing QuickBase tables and fields

Supported entity types

- Campers
- Meds
- Med Administration Schedules
- Aides (Staff)
- Housing Resources
- Aide Assessments/Recommendations
- Scholarship Requests
- Staff Responsibilities
- Care Groups
- Volunteer Recruiting Contacts
- Improvement Ideas/Suggestions

NOTE: red = not used   orange = reference to entity in another table
grey = reference to attribute in another table   *italic* = calculated field

Camper entity attributes

Date received
Sent Migrated eProfile Form
Received Signed Camper Profile Form
Received Updated eProfile Form
Signed consent form received
Accepted 2015
First Name
Last Name
a.k.a.
Full name (last name, first name)
Gender
Birthdate
Parents/Guardians
Address
City
State
Zipcode
Region
Phone
2nd Phone
Emergency Number
Emerg. No. Note
Alt. Emergency No.
Alt. Emerg. No. Note

Email
Physician Name
Physician Phone No.
New or Returning?
L.A. Bus
Registrar comment
Scholarship needed?
Full or partial scholarship?
Scholarship approved
Scholarship Note
Reg Payment Received
Reg Payment Note
Dorm Room
Camper Care Group
Camper Care Group Lead
Functional Grade Level
Shoe size
T-shirt size
Camper profile form (document attachment)
Medication
Special health/med notes

Spending Money Received
Spending Money Amount
Prescriptions
Add Prescription
Date Created
Date Modified
Full Name
ID#
JEMS reg card received
Last Modified By
Record Owner
Related dorm room

Med entity attributes

Related camper
camper - Full Name
Medication or Supplement Name
Purpose
Dosage
Dispensing frequency
Special instructions
Health supervisor dispensed med?
# of Scheduled Med Administrations
Add Med Schedule Item
blank
camper - Accepted 2015
camper - Full name (last name, first name)
camper - L.A. Bus
camper - Special health/med notes
Date Created
Date Modified
Last Modified By
Med admin schedule
Med Administration Schedule

Med Admin Schedule item entity attributes

Related Prescription
Prescription - blank
Prescription - Related camper
Prescription - camper - Full name (last name, first name)
Prescription - Medication or Supplement Name
MedScheduleDateTime
MedScheduleDayOfWeek
MedScheduleTimeOfDay
Prescription - Special instructions
Prescription - Dispensing frequency
Prescription - Purpose
Prescription - camper - Full Name
Prescription - Record ID#
Prescription - Health supervisor dispensed med?
Prescription - camper - L.A. Bus
Med Dispensed
Date Created
Date Modified
Last Modified By
Prescription - Dosage
Record ID#
Record Owner

Volunteer/staff entity attributes (1)

blank
FirstName
LastName
FullName
MaidenGivenName
LegalOtherName
Gender
TShirtSize
Birthday
EmailAddress
CurrentAddress
CurrentCity
CurrentState
CurrentZip
HomePhone
CellorWorkPhone
PermAddress
PermCity
PermState
PermZip
PermPhone
RosterAddresstoUse
RosterPhoneNumberApproval
PreviousResidencesLastFiveYears

EmergencyContact
EmergencyPhone
EmergencyContact2
EmergencyPhone2
ChurchName
ChurchInfo
CollegeInfo
OccupationEmployer
JEMSMountHermonExperience
ActiveService
OtherLeaderExperience
LeaderTraining
WorkedwithDevelopmentallyDisabled
CurrentService
SummaryofChristianGospel
CPRTrained
CPRInstructor
FirstAidTrained
FirstAidInstructor
Lifeguard
MedicalExperience
JapaneseLanguage
ASLConversant

CurrentLifeExperience
PersonalTestimony
ChristianGrowth
ChurchCommunityInvolvement
WhyApplying
FeelingsaboutWorkingwithDevelopmentallyDisabled
HowDidYouLearnAboutSpecialCamp
StrengthsWeaknesses
PersonalNeedsConcerns
GrowthChallengeOpportunities
WaystoImprove
NumberYearsasPastAide
LastYearServed

Volunteer/staff entity attributes (2)

IllegalDrugUse
AlcoholDrugTreatment
AlcoholDrugTreatmentExplanation
CrimeArrestConviction
CrimeArrestConvictionExplanation
SexualRelationswithMinor
CrimeInvolvingChildren
CrimeInvolvingChildrenExplanation
ChildAbuseVictim
PastorCounselorRequest
AttendingRegionalAideTraining
AttendingPreCampPlanningRetreat
AttendingRegionalAideTeamBuilding
AttendingSaturdayTeamBuilding
ReasonforNotAttendingPreCampEvents

ChurchPastorReferralName
ChurchPastorReferralTitle
ChurchPastorReferralAddress
ChurchPastorReferralPhone
ChurchPastorReferralEmail
ChurchLeaderReferralName
ChurchLeaderReferralTitle
ChurchLeaderReferralAddress
ChurchLeaderReferralPhone
ChurchLeaderReferralEmail
PersonalReferralName
PersonalReferralRelationship
PersonalReferralAddress
PersonalReferralPhone
PersonalReferralEmail

ActivitiesGeneral
Carnival
Pool
BowlingOrganize
FieldGames
Storytelling
Recreation
MorningExercises
LeadNatureWalk
TeachingGeneral
Lessons
ArtsandCrafts
WorshipPrayerGeneral
CamperWorship
AideWorship
StaffDevotions
PrayerTeam
MediaGeneral
Photography
CampBooklet
CampPublicity

Volunteer/staff entity attributes (3)

AdministrationGeneral	AllWeek	CanBringCanopy
CampRegistration	RegFee	NumberOfCanopies
TeamBuilding	Sun	MandatoryAcknowledgment
TeamBuildingMeals	Mon	ElectronicSignature
CampCheckIn	Tues	Notes
SuppliesandEquipment	Wed	OnlineApplication (document attachment)
Transportation	Thurs	AideClassification
Finances	Fri	CoreTeam
AreaofServiceLABus	BowlingParticipate	Region
AreaofServiceCabinLead	BowlingProficiency	AcknowledgedReceiptofApplication
AreaofServiceCabinCoLead	BowlingHelper	LettersofRecommendationReceived
LastYearasCabinLead	ShoeSize	Reference1RecommendationLetter
MainCampSharing	ScholarshipNeedAnticipated	Requested
NichigoSharing	ScholarshipApplicationForm	Reference1Checked
CollegeCampSharing	ScholarshipNoticeSent	Reference2RecommendationLetter
AssistwithAideTraining	ScholarshipAmountGranted	Requested
ParticipateinInformationalMeeting	CoreTeamDiscount	Reference2Checked
ParticipateinNewAideTraining	DiscountedRegFee	Reference3RecommendationLetter
BeaDesignatedBuddytoNewAide	AmountDue	Requested
HelpLeadTrainingSessions	CanBringOwnCotOrAirMattress	Reference3Checked
HelpPrepareTrainingContent	CotOrAirMattress	NSROCCheckedfforApplicant
AreaofServiceOther	CotOrAirMattressSize	BackgroundCheckConfirmed
	ShareCotOrAitMattress	Accepted2015
	CanBringWalkieTalkie	AcceptanceLetterSent
	NumberOfWalkieTalkies	DateofAcceptance

Volunteer/staff entity attributes (4)

SentBackgroundCheckReminder	Staying off-property	Add scholarship request
SentCPRFirstAidNotificationEmail	JEMS reg card received	# of scholarship requests
SentVaccinationRequestEmail	PaymentReceived	# of Aide Assessment Forms
CPREvidenceReceived	PaymentNotes	DateCreated
FirstAidEvidenceReceived	camp photo ordered?	DateModified
HealthHistoryFormSubmitted	IsACareGroupLead	LastModifiedBy
ApplicationPrinted	Dorm Room	possessive
ApplicationSigned	Camper Care Group	pronoun
AttendedInformationalMeeting	Camper Care Group Lead	RecordID
AttendedAideTraining	Textplaceholder	RecordOwner
TrainingLocation	Responsibilities	
AttendedPreCampPlanningRetreat	AddResponsibility	
AttendedTeamBuilding	Forms	
TeamBuildingLocation	Add Form	
AttendedCPRFirstAidTraining	Aide fee: Saturday dinner	
CPRFirstAidTrainingLocation	Aide fee: Sunday lunch	
ChurchPointofContact	Aide fee: Mandatory	
StaffTshirt	Aide fee: Staff t-shirt	
CompTshirt?	Aide fee: Bowling	
StaffTshirtReceived	Aide fee: TOTAL	
	scholarship requests	

Housing + Care Group attributes

Dorm Room
Camper Care Group
Camper Care Group Lead
campers
Add camper
aides
Add aide
Date Created
Date Modified
Last Modified By
Record ID#
Record Owner

Aide Assessment / Recommendation attributes

RecommenderName	GoodJudgment
RecommenderEmailAddress	WorksWellasaTeam
ChurchName	AbleToConfront
ChurchNameOther	Flexible
ContactPermission	HardWorking
AideName	PersonalMoralLifestyle
LengthofTimeKnown	OtherInformation
KnowApplicantHowWell	VerySuitable
Relationship	CanBecomeWellSuited
Responsibilities	HaveReservations
CommunicatesGospelWell	OtherReservationRecommendation
LeadershipAbility	OtherReservationRecommendationText
TakesInitiative	OtherReservationExplanation
EmotionallyStable	aide - FullName

Scholarship Request attributes

First Name
Last Name
Parent/Guardian Name
E-mail Address
Church
Scholarship amount requested
Scholarship reason
Other financial assistance
Testimony for scholarship donors acknowledgment
Scholarship submission acknowledgment
Scholarship type
Notes:
Granted 2015
Date Granted
Text placeholder
Related aide
aide - FullName

Staff Responsibility attributes

High-level category
Responsibility
Related aide
aide - Full Name
Confirmed?

Volunteer Recruiting Contact attributes

ChurchName
ChurchAddress
ChurchCityStateZip
PastorName
PastorSalutation
PastorEmail
Region
AideContactConfirmed
AideContact
AideAddress
AideCityStateZip
AideEmail
AidePrimaryPhone
AideAlternatePhone
AideFirstName
AideSubjectPronoun
AideSeekTense
AideObjectPronoun
AideVerb
PromoPacketSent
ChurchSupportLetterSent
ChurchSupportEmailSent

Improvement Idea/Suggestion attributes

Name
Category
Source of suggestion
Idea or Suggestion