INTEL OpenSource TECHNOLOGY CENTER

IRIS - the Web Tools to Query Everything about Tizen Development

Jianfeng Ding

Agenda

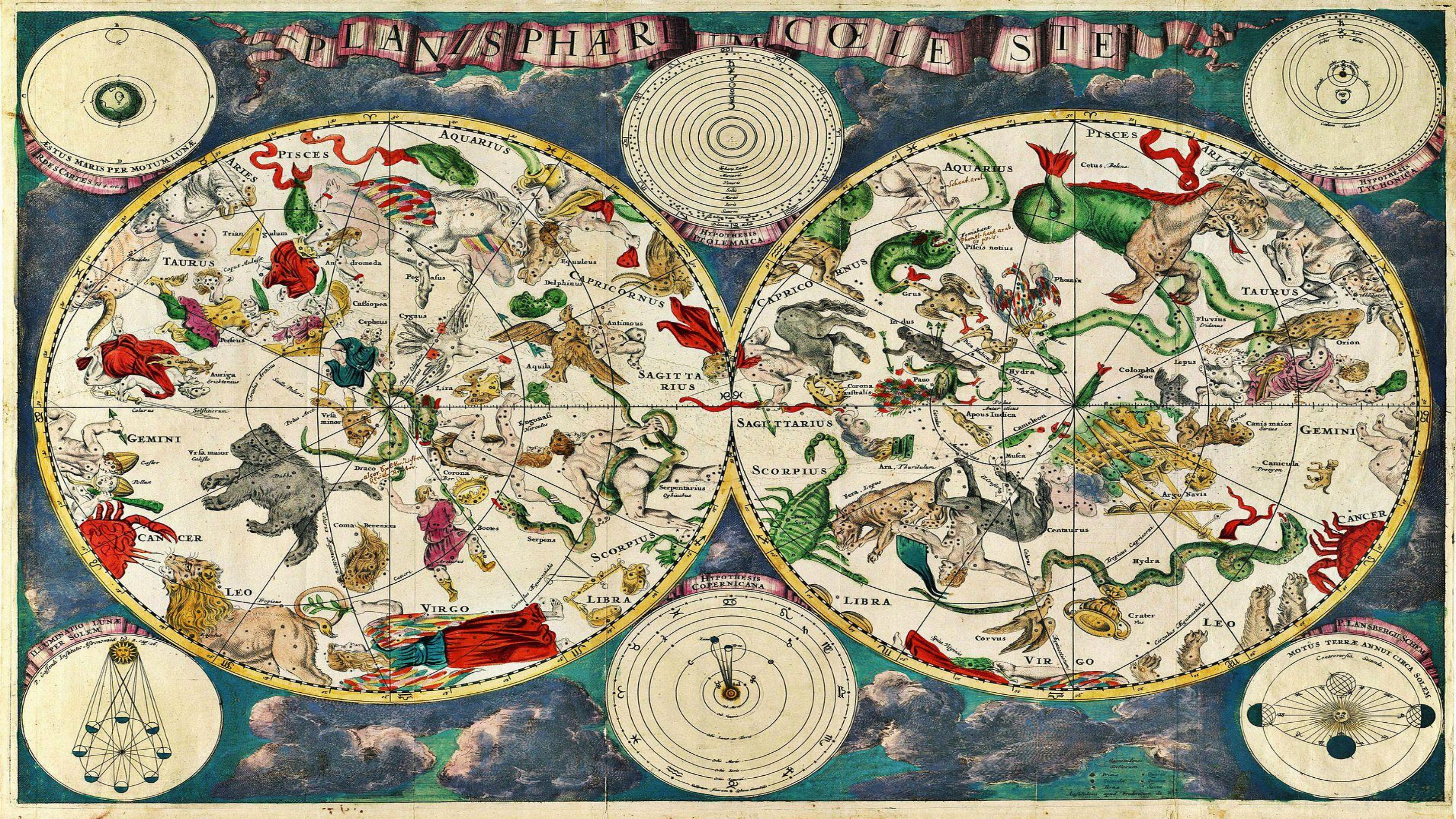
- IRIS Introduction
- Types of information about Tizen development
- Application I – “Package Database”
- Application II – “Submissions”
- More applications in the plan
- Architecture design of IRIS
- CICD solution in IRIS development

IRIS Introduction

- IRIS – “Infrastructure and Release Information System”
- Data collection and integration for Tizen platform development information
- Web interface or RESTful API for data querying
- Django based, with modular and pluggable architecture design
- URL: https://panel.tizen.org

Sometime the DATA Looks Like:

There are Many Connections among Them


PLANISPHÆRIUM CŒLESTE
ÆSTUS MARIS PER MOTUM LUNÆ
HYPOTHESIS PTOLEMAICA
HYPOTHESIS TYCHONICA
HYPOTHESIS COPERNICANA
ILLUMINATIO LUNÆ PER SOLEM
P. LANSBERGII SCHEMA
MOTUS TERRÆ ANNUI CIRCA SOLEM
ARIES
PISCES
AQUARIUS
TAURUS
Triangulum
Andromeda
Pegasus
Equuleus
Delphinus
CAPRICORNUS
Cassiopea
Cepheus
Cygnus
Perseus
Auriga
Lira
Aquila
Antinous
SAGITTARIUS
GEMINI
Ursa maior
Ursa minor
Draco
Corona
Engonasi
CANCER
Coma Berenices
Bootes
Serpens
Serpentarius
SCORPIUS
LEO
VIRGO
LIBRA
Cetus
Piscis notius
Grus
Phoenix
Indus
Corona Australis
Pavo
Hydra
Apous Indica
Cameleon
Musca
Fluvius Eridanus
Orion
Lepus
Colomba Noe
Canis maior
Canicula
Argo Navis
Ara, Thuribulum
Fera, Lupus
Centaurus
Hydra
Crater
Corvus

Types of Information about Tizen Development

- Packages list, with the domain, license, maintainer settings for each
- All the maintainers, architects for every domain or package
- Every commit for all the packages, and their status
- Every submission to building system, and status
- The snapshots and images for pre-release and product projects
- Verification results for all the outputs
- Building results for every package

Continues...

- All the logging data and exceptions for backend services in tizen.org
- Every activities in the development workflow
- All the meta data from several special git trees
- etc., etc.

- IRIS will collect all these data, aggregate them into database schemas, and provide the UI to show the interesting parts. STEP by STEP.

IRIS Portal

IRIS is a data-aggregation service for release engineering.

This is the main portal for accessing different applications

Package Database »

IRIS Package Database. Contains metadata about packages, such as maintainers, developers, reviewers, versioning.

Submissions »

IRIS Submissions. Contains metadata about CI and build system statuses and package integration.

Application I – “Package Database”

- Packages
  - Git path
  - License
  - Domain
  - Maintainers
  - Binary outputs
- Domains and Subdomains
- Register users
  - Anonymous access will not show the sensitive data, like email address
- Products and Images

Git tree information for all trees

Git path	Domain	Subdomain	Maintainers	Integrators	Reviewers
platform/core/appfw/alarm-manager	App Framework	Alarm	Song, hokwon		
platform/core/appfw/com-core	App Framework	Application Communication	Park, Youngjoo	Park, Sung-jae	
platform/core/appfw/message-port	App Framework	Application Communication	Lee, Hyunbin	Bae, Sunwook	
platform/core/appfw/message-port-dbus	App Framework	Application Communication	Valluri, Amarnath		
platform/core/appfw/app-checker	App Framework	Application Core	Ham, Dongeup		
platform/core/appfw/app-core	App Framework	Application Core	Bae, Sunwook		
platform/core/appfw/appcore-agent	App Framework	Application Core	Bae, Sunwook		

Git tree information for platform/upstream/attr

Architects 0	Maintainers 1	Integrators 1	Reviewers 0
	Peters, Brad	Lee, Hyunbin	

Git path	Product	Domain	Subdomain	Packages	Licenses
platform/upstream/attr	Tizen:Common Tizen:IVI Tizen:Mobile	App Framework	Application Utility	attr attr-docs libattr libattr-devel libattr-devel-static	GNU General Public License GNU Lesser General Public License v2.1 or later

Domain information for all domains

Domain name	Architects	Maintainers	Integrators	Reviewers	Subdomains
App Framework	Chung, Jinmin Lee, Semun Peters, Brad	Desneux (sdx), Stéphane douglas, william DURAND, Baptiste Ham, Dongeup Lee, Semun McCarty, Patrick Park, Youngjoo Schaufler, Casey Ware, Ryan	Bae, Sunwook Dahyeong, Kim HYE KIM, EUN Jang, Jinkun Jang, Du-Young Jeon, Youngho Jeong, Gyeongseok Kim, Deokhyun Kim, Hyungdeuk Kim, joohyun ko, YoungSub Lee, Hyunbin Lee, SeungWon Lee, KyeongWoo Lee, Jaeho lim, byounghui	Im, Jiwoong Jang, Sangyoon Jung, Daehyeon Kil, Inkyun Lim, Cecil	Alarm Application Communication Application Core Application Installer Application Launcher Application Utility Configuration Database Notification Uncategorized

Domain information for Messaging

Architects 3	Maintainers 6	Integrators 5	Reviewers 3
Chung, Jinmin	ar Foll, Dominig	Ahn, Jaemin	Choi, Jaepil
Chung, Sang-Hun	Choi, Doosoon	bertrand, nicolas	Kis, Zoltan
Kis, Zoltan	Kis, Zoltan	HYE KIM, EUN	Tessier, Ronald
	Schaufler, Casey	Kim, Deokhyun	
	Tessier, Ronald	lim, byounghui	
	Ware, Ryan		

Subdomains in this domain

- Cellular
- Email
- Uncategorized

Subdomain information for Graphics & UI Framework / Qt

Architects 0	Maintainers 2	Integrators 0	Reviewers 0
	Bachmann, Manuel Coval, Philippe		

Gittrees in this subdomain

- platform/upstream/qtbase
- platform/upstream/qtchooser
- platform/upstream/qtdeclarative
- platform/upstream/qtgraphicaleffects
- platform/upstream/qtimageformats
- platform/upstream/qtmultimedia

User information for Ding, JF

Last name	First name	Email
Ding	JF	jian-feng.ding@intel.com

Domains involved in

Subdomains involved in

Subdomain name	Subdomain role
Platform Development / Build	MAINTAINER
Mobile / Configuration	MAINTAINER
SCM / GBS Metadata	MAINTAINER

Git trees involved in

Product information for Tizen:IVI

Name	Description
Tizen:IVI	The Tizen IVI project provides a Free and Open-Source Software (FOSS) OS development platform for IVI embedded computing systems. Leveraging the Tizen code base for mobile computers and handsets and extending its functionality into vehicles, the Tizen IVI solution will enable modern portable applications providing rich Internet and multimedia experiences to consumers while they travel.

Git trees related to this product

Git tree	Domain	Subdomain
platform/core/appfw/alarm-manager	App Framework	Alarm
platform/core/appfw/com-core	App Framework	Application Communication
platform/core/appfw/app-checker	App Framework	Application Core
platform/core/appfw/app-core	App Framework	Application Core
platform/core/appfw/appcore-agent	App Framework	Application Core
platform/core/appfw/status	App Framework	Application Core

Image information for all images

Name	Target	Architecture	Product
commin-wayland-mbr-i586	ia32-wayland	ia32	Tizen:Common
common-qa-unsafe-wayland-mbr-i586	ia32-wayland	ia32	Tizen:Common
commin-wayland-mbr-x86_64	x86_64-wayland	x86_64	Tizen:Common
common-qa-unsafe-wayland-mbr-x86_64	x86_64-wayland	x86_64	Tizen:Common
common-emulator-qa-unsafe-wayland-mbr-i586	arm-wayland	ia32	Tizen:Common
common-emulator-wayland-mbr-i586	arm-wayland	ia32	Tizen:Common
common-installer-mbr-i586	arm-wayland	ia32	Tizen:Common
common-minimal-mbr-i586	arm-wayland	ia32	Tizen:Common
common-qa-unsafe-wayland-mbr-i586	arm-wayland	ia32	Tizen:Common
common-wayland-mbr-i586	arm-wayland	ia32	Tizen:Common
common-minimal-mbr-x86_64	arm-wayland	x86_64	Tizen:Common
common-qa-unsafe-wayland-mbr-x86_64	arm-wayland	x86_64	Tizen:Common
common-wayland-mbr-x86_64	arm-wayland	x86_64	Tizen:Common

Data Source of Packages and Domain information

- “/scm/meta/git” in review.tizen.org
  - “domains” file is for the domain and subdomain definitions, and list all the maintainers.
  - “trees” file is to define which domain/subdomain the git tree belongs to
  - Every commit merge of this git tree will trigger an automatic job to sync the data to IRIS database, by calling IRIS’s RESTful apis.
  - And there is a backend script to sync the changes to Gerrit server setting as well.
- “/scm/git-obs-mapping” and “/scm/meta/snapshot-repo-conf”

Application II – “Submissions”

- All submissions list
  - Three classes according status: open, accepted, rejected
- For each submission, the details of it will be shown
  - Git trees are included in this submission
  - The author, the status, the submit time and the last status update time
  - The building results for each affected package in pre-release project
  - The generated images for pre-release verifications

All My

tag, SHA-1, email or git project Search

All open submissions

Name	Status	Owner	Git Tree	Product	Updated
submit/tizen_2.0/20130216.101418	Submitted	otctools	tools/gbs		57 minutes ago
submit/tizen/20141013.155855	Image building	Rees, Kevron	profile/ivi/automotive-message-broker	Tizen:IVI	21 hours ago
submit/tizen/20141014.081817	Image building	chanho61.park	platform/kernel/linux-3.10	Tizen:Common Tizen:IVI	22 hours ago

All | My

tag, SHA-1, email or git project
Search

All accepted submissions

Name	Status	Owner	Git Tree	Product	Updated
submit/tizen/20141015.022242	Accepted	Zheng, Wu	platform/core/connectivity/bluetooth-frwk	Tizen:Common Tizen:IVI	59 minutes ago
submit/tizen_common/20141014.135300	Accepted	DURAND, Baptiste	platform/core/appfw/slp-pkgmgr platform/core/appfw/aul-1 platform/framework/web/crosswalk	Tizen:Common	15 hours ago
submit/tizen_ivi/20141014.000000	Accepted	ning.w.wang	platform/core/appfw/slp-pkgmgr platform/upstream/weston platform/upstream/qtdeclarative platform/upstream/pulseaudio	Tizen:IVI	1 day ago
submit/tizen_common/20141013.223309	Accepted	Desneux (sdx), Stéphane	platform/upstream/pulseaudio	Tizen:Common	1 day, 7 hours ago

All My

tag, SHA-1, email or git project Search

All rejeted submissions

Name	Status	Owner	Git Tree	Product	Updated
submit/tizen/20141013.162359	Rejected	Whiteman, John	platform/upstream/libcap	Tizen:Common Tizen:IVI	12 hours ago
submit/tizen/20141013.132110	Rejected	Wereski, Maciej	platform/upstream/dialog	Tizen:Common Tizen:IVI	19 hours ago

Submission information for submit/tizen_ivi/20141014.000000

Status	Accepted
Owner	ning.w.wang
Created	1 day, 4 hours ago
Updated	1 day ago

Tizen:IVI

Packages | Image | Accepted

Accepted by tizenrobot

```
SR 29454 is set to accepted state. Your submission has been accepted into Tizen IVI project.
-
After rebuild your package(s) will end up in the latest IVI snapshot repositories:
i586 atom repository: https://download.tizen.org/snapshots/tizen/ivi/latest/repos/atom/
i586 emulator repository: https://download.tizen.org/snapshots/tizen/ivi/latest/repos/emulator/
-
You can find latest snapshot images in the latest IVI snapshot repository:
i586 EFI image: https://download.tizen.org/snapshots/tizen/ivi/latest/images/atom/ivi-efi-i586/
i586 MBR image: https://download.tizen.org/snapshots/tizen/ivi/latest/images/atom/ivi-mbr-i586/
i586 MBR emulator image: https://download.tizen.org/snapshots/tizen/ivi/latest/images/emulator/ivi-mbr-i586-emul/
-
Your package(s) will be included into the next daily release.
```

Where are the Raw Data from?

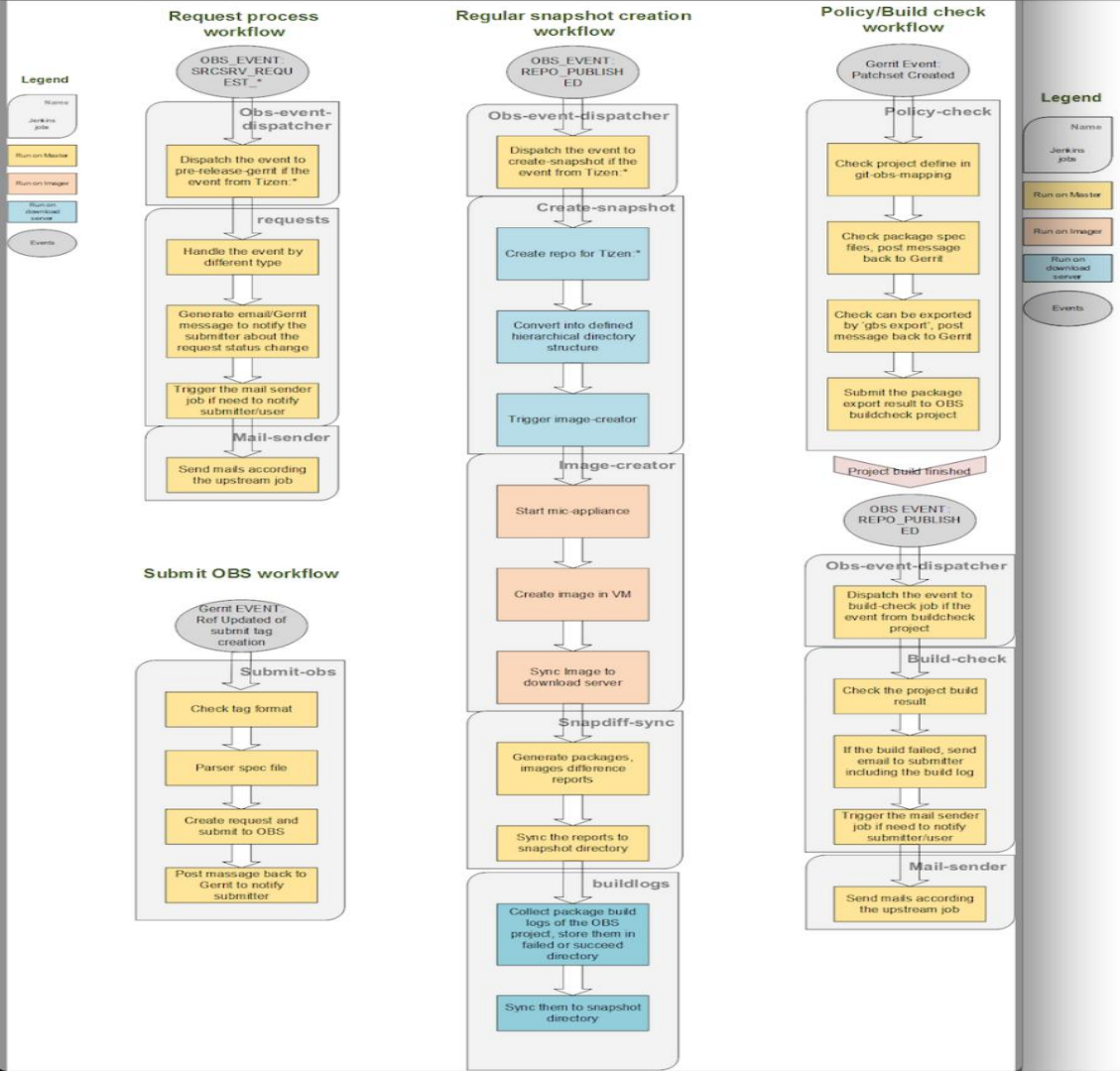
• For all the backend CI services, precisely Jenkins jobs, we have inserted many data collection points.

• In every data collection point, the jobs will call IRIS RESTful api to push raw json data.

• In IRIS side, there are some data collector worker entries to cook the raw data and save the normalized output to database.

• The data collection points inside the Jenkins jobs are very lightweight and will not generate too much extra latencies.

• The apache/mod_wsgi + Django infrastructure setup can provide the paralleling ability for free.


Request process workflow
OBS_EVENT: SRCSRV_REQUEST_*
Obs-event-dispatcher
Dispatch the event to pre-release-gerrit if the event from Tizen:*
requests
Handle the event by different type
Generate email/Gerrit message to notify the submitter about the request status change
Trigger the mail sender job if need to notify submitter/user
Mail-sender
Send mails according the upstream job
Regular snapshot creation workflow
OBS_EVENT: REPO_PUBLISHED
Obs-event-dispatcher
Dispatch the event to create-snapshot if the event from Tizen:*
Create-snapshot
Create repo for Tizen:*
Convert into defined hierarchical directory structure
Trigger image-creator
Image-creator
Start mic-appliance
Create image in VM
Sync Image to download server
Snapdiff-sync
Generate packages, images difference reports
Sync the reports to snapshot directory
buildlogs
Collect package build logs of the OBS project, store them in failed or succeed directory
Sync them to snapshot directory
Policy/Build check workflow
Gerrit Event: Patchset Created
Policy-check
Check project define in git-obs-mapping
Check package spec files, post message back to Gerrit
Check can be exported by "gbs export", post message back to Gerrit
Submit the package export result to OBS buildcheck project
Project build finished
OBS EVENT: REPO_PUBLISHED
Obs-event-dispatcher
Dispatch the event to build-check job if the event from buildcheck project
Build-check
Check the project build result
If the build failed, send email to submitter including the build log
Trigger the mail sender job if need to notify submitter/user
Mail-sender
Send mails according the upstream job
Legend
Name
Jenkins jobs
Run on Master
Run on Imager
Run on download server
Events
Submit OBS workflow
Gerrit EVENT: Ref Updated of submit tag creation
Submit-obs
Check tag format
Parser spec file
Create request and submit to OBS
Post massage back to Gerrit to notify submitter
Pre-release OBS project creation workflow
Git tags: submit/* pushed
Pre-release-gerrit
Fetch the tag
Create OBS project home:prerelease:<target_project>:<tags_name>
Pre-release OBS project deletion workflow
OBS_EVENT: SRCSRV_DELETE_PROJECT
Obs-event-dispatcher
Dispatch the event to pre-release-gerrit if the event from home:prerlelease:aa:bb:cc
Pre-release-cleanup
Delete the home:prerelease:aa:bb:cc repo
Pre-release repositories creation workflow
OBS_EVENT: REPO_PUBLISHED
Obs-event-dispatcher
Dispatch the event to pre-release-gerrit if the event from home:prerlelease:*
Pre-release-create
Create repo for home:prerelease:*
Modify the repo ks files, make them pointing to prerelease repo
Trigger image-creator
Image-creator
Start mic-appliance
Create image in VM
Sync Image to download server
Post-image-creation
Update image info to OBS prerelease projects

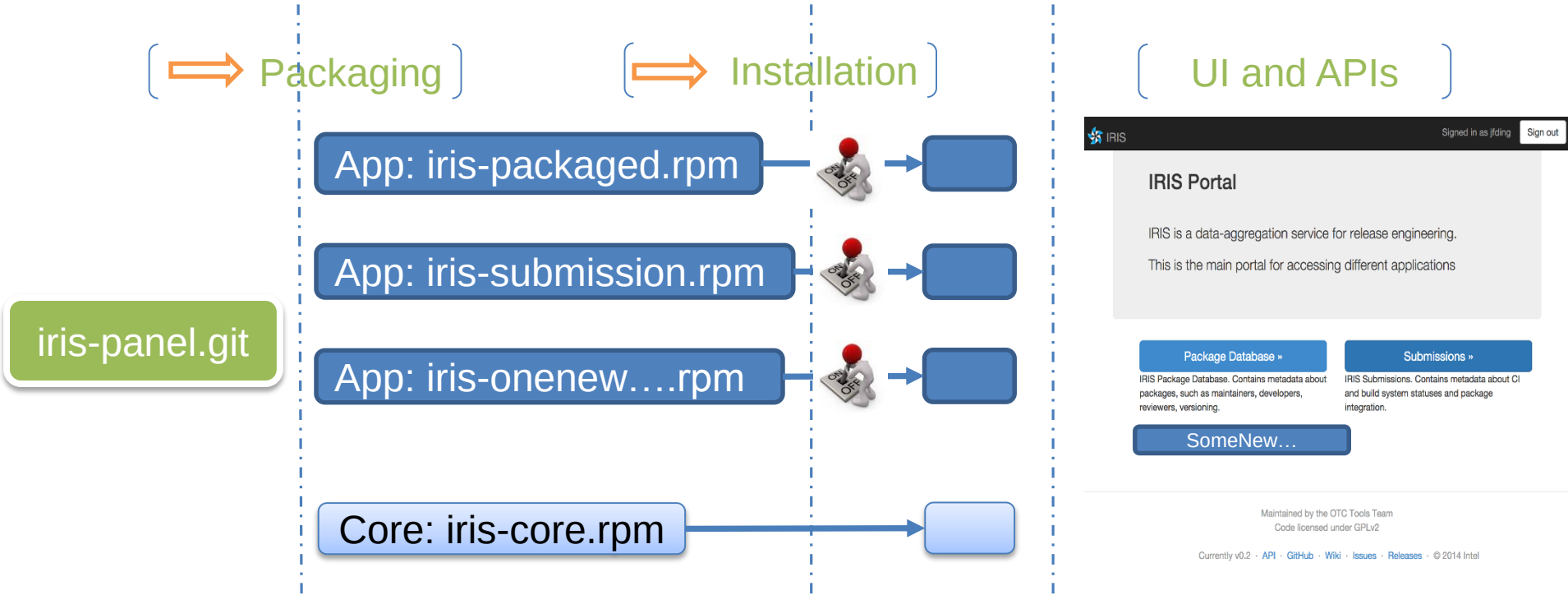
Other Applications in the Road …

- According our plan, the following applications are being worked on:
  - “Reports”
    - The statistic report for all patches and submission in tizen.org
    - Will be shown in visible and informative way, like data table, trending charts, and changes timeline, etc.
    - Mails subscription support
  - “Snapshots” - Provide an interface to compare the difference of every pair of snapshots (and images inside them).

Architecture of IRIS Overview

- Backend
  - Django 1.6, with a minimal set of Django plugins for RESTful API and data migratation, e.g.
  - Apache+mod_wsgi as the deployment infrastructure choice
- Frontend
  - Using bootstrap CSS framework for unified and neat enough style
  - Jquery 1.x with several plugins
  - Using Bower tool for frontend components packaging management

Modularized Approaching for Django Applications



CICD Solution in IRIS Development

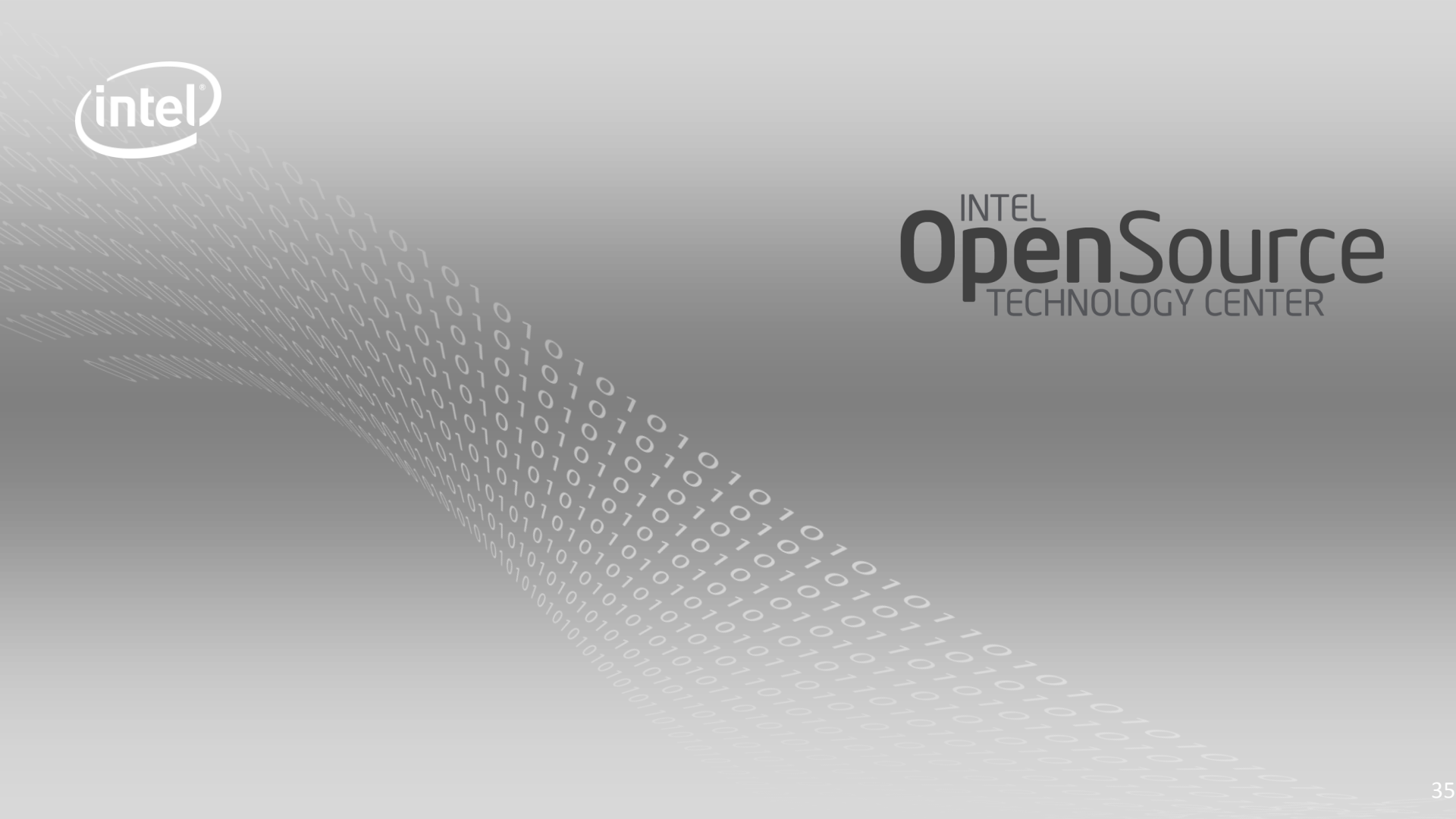
- Continuous Integration solution
  - Gerrit+Jenkins+OBS, the whole automatic workflow will help developer to generate installable rpm files for every merged source code commit.
  - Both unittest and webbrowser automation testings with Selenium will be covered in the workflow.
- Continuous Delivery/Deployment solution
  - With the tools Vagrant, Virtualbox/libvirt, ansible
  - To setup the unified environment for debugging, staging, and product

“Infrastructure as Code”

References

- Please use it and provide us feedbacks: https://panel.tizen.org/
- Issue tracker: https://bugs.tizen.org/jira/browse/TINF/component/11900
- Source code: https://github.com/01org/iris-panel
-

Q&A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