# MEDIA THEME INTRODUCTION

# FREE SOFTWARE IN BROADCASTING

MATHIAS COINCHON, MICHAEL BARROCO
EBU TECHNOLOGY & INNOVATION

RMLL BRUXELLES - 14TH JUNE 2013

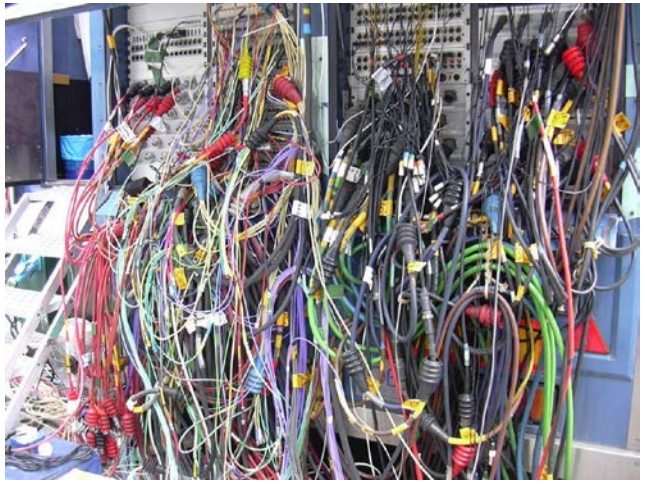
EBU
OPERATING EUROVISION AND EURORADIO

# TV&RADIO BROADCASTING

EBU
OPERATING EUROVISION AND EURORADIO

# MEDIA PRODUCTION CONTEXT

Complex production infrastructures
Migration from tape to file
Media Asset Management platforms
Huge storage and network demand
(an HD camera outputs 3 gigabits/s)
Different file formats, interfaces
Archiving
Metadata



In progress: Migration to all IP for studio infrastructure

High CAPEX, big industry players, niche market

# MEDIA DELIVERY CONTEXT

Broadcast platforms (DVB, DAB)
Broadband platform (Home, mobile), IPTV
Lots of coding formats (MPEG, etc)

Hybrid Broadcast/Broadband (HBBTV, RadioDNS)
Second screen
Interactivity
Authentication and data isolation need

Lots of user platforms (IOS, Android, Samsung SmartTV,..)

# IN THIS CONTEXT...

We need standards

We need interoperability

We need flexibility

We need reliable solutions

We need guaranty

We need to control the costs

# HOW CAN FREE SOFTWARE HELP BROADCASTERS ?

Promote standards, speed up adoption
Reference implementations

Open interface

Avoid vendor lock-in, deprecation

Do not re-invent the wheel, rely on existing developments

Reduce costs

Customisation

# THE INTERNET WEB 2.0 WORLD

EBU
OPERATING EUROVISION AND EURORADIO

# INTERNET IS BUILT ON OPEN SOURCE SOFTWARE

> 75% Web server, Mail servers, DNS

Facebook, Twitter, Google, Netflix use and release open source software

*"Twitter is built on open source software, from the back-end to the front-end. Twitter engineers use, contribute to and release a lot of open source software. We support a variety of open source organizations and are grateful to the open source community for their contributions, and want to maintain our healthy, reciprocal relationship."*
(extract from Twitter developer site)

# TWITTER OPEN SOURCE CENTER

http://twitter.github.io/

open source

**Twitter is built on open source software.**

Want to help? Join the Flock

Visit dev.twitter.com

Logos and other goodies

## Statistics

**107** public repos
**197** members

opensource@twitter.com

## Recently updated View All on GitHub

scalding Jun 12, 2013 · 810 stargazers · 174 forks
zipkin Jun 12, 2013 · 998 stargazers · 81 forks
recess Jun 12, 2013 · 776 stargazers · 68 forks

### bootstrap
JavaScript

An HTML, CSS, and JS toolkit designed to kickstart development of webapps and sites

### typeahead.js
JavaScript

typeahead.js is a fast and fully-featured autocomplete library

### flight
JavaScript

A lightweight, component-based JavaScript framework

### zipkin
Scala

Zipkin is a distributed tracing system

### mysql
C++

MySQL fork maintained and used at Twitter

### recess
JavaScript

A simple and attractive code quality tool for CSS built on top of LESS

### scalding
Scala

A Scala API for Cascading

# WHY ?

**Technology is becoming complex**
Easier to re-use instead of re-implementing

**Open source as “de facto” standards**
Easier Integration, availability of tools, documentation, more easy to find skilled people

**“Crowdsourcing”**
benefit from bug report, corrections, add-ons from the community

# WHAT PROJECTS RELATED TO BROADCASTING ?

# FREE OPEN SOURCE FOR MEDIA

Lots of projects

Some are great
Some are great but not for professional use
Some are useful when integrated
Some are crap, unfinished, unreliable

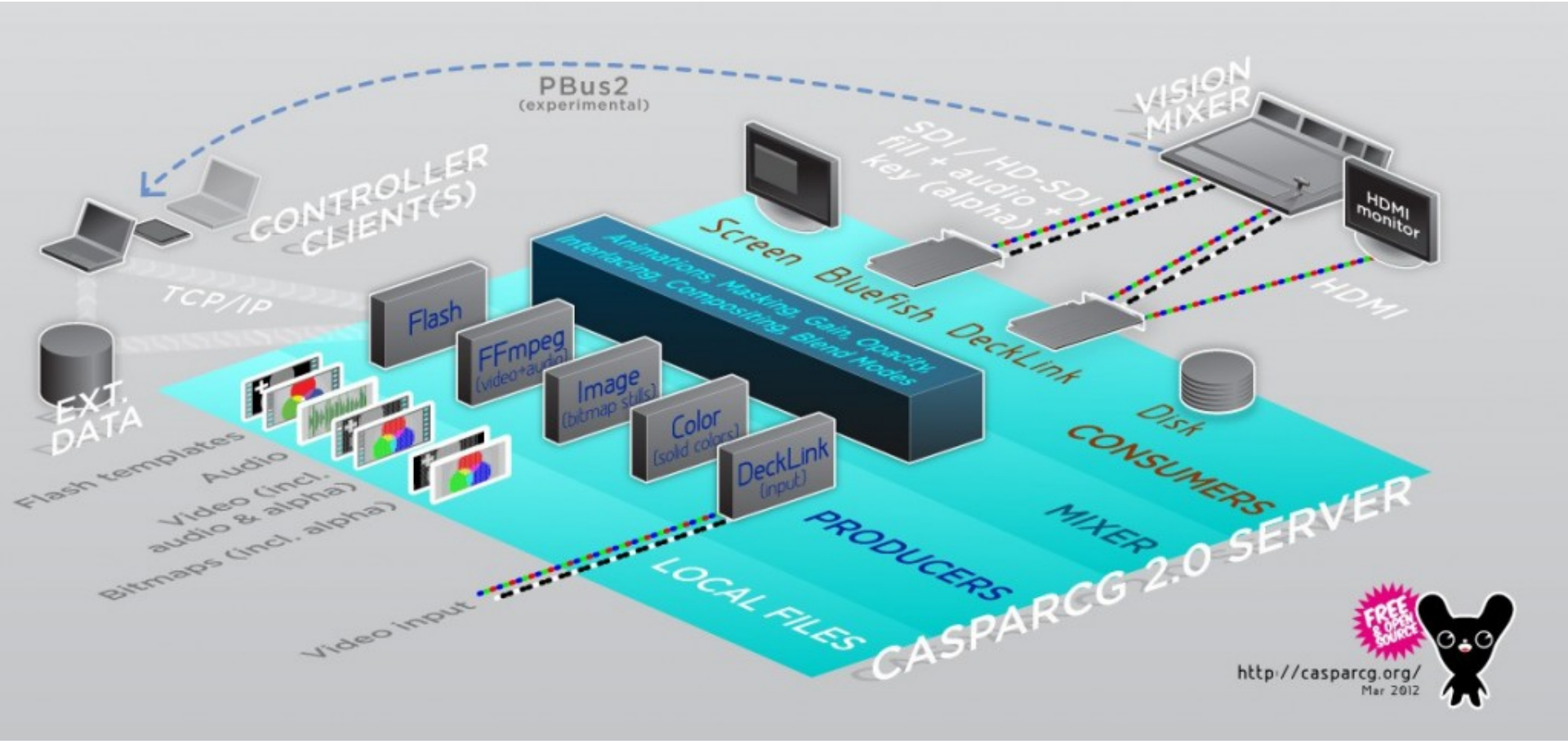
The professional media community is small at the moment

# FROM RMLL 2012 – MEDIA THEME

Apertus – open digital cinema camera
Open hardware SDI card
RAI Hyper Media News aggregation system
CasparCG - graphics and video playout
Blender – Open Source 3D content creation suite
FreeLCS – Free EBU R128 loudness correction
Airtime2 – Radio playout, broadcasting
OBE project - Open Broadcast Encoder
MXF low latency streaming demonstrator
PJSIP – SIP and mediastack
Television, IPTV headend, Internet TV distribution
Digital radio (CRC mmbTools) and EBU RadioDNS tools
Apache modules for adaptive streaming

CASPAR CG

# Graphics and video playout software



# TV APPLICATION LAYER

Open source library for building applications for Connected TV devices.

# MEDIA ENCODING/DECODING

**FFmpeg, Open Broadcast Encoder**

Encoding for headend (IPTV, DTV, Contribution)

**Opus**

Free/Open and royalty-free audio encoder for music and speech
Just standardised at IETF, already included in Firefox, Chrome, Opera

*Professional listening test in progress by EBU*

# DIGITAL RADIO BROADCASTING

CRC MMBTools
Software Defined Radio implementation of DAB/DAB+ digital radio
(DAB is royalty free since 01/2013)

Interesting for local/community radio or experimenters.
Deployment plan in progress in Switzerland

Wiki on SDR for broadcasting: opendigitalradio.org

# RMLL 2013

Plugins and API for news and radio with Newscoop/Airtime

Opus for audio over IP in broadcast

Audio loudness measurement with open software

SDK for handling MXF with EBUCore metadata

Upipe video pipelines for multimedia transcoders, streamers and players

Open Source Cloud Infrastructure for Encoding and Distribution (OSCIED)

# CAN THE EBU PLAY A ROLE ?

EBU
OPERATING EUROVISION AND EURORADIO

# EUROPEAN BROADCASTING UNION

World biggest association of broadcasters
75 members from 56 countries

Service for members
Technical coordination, standardisation, advice

Worldwide transmission network (satellite, fiber).
News, sport exchange.

# THE WAY FORWARD

Further seminars ( already done: Open source 2007, RMLL 2012 and RMLL 2013)
Further developer events (already done: Radiohack)

Tools: MXF tools, RadioDNS libraries, OSCIED,...

**Select/Host/Disseminate projects**
**Promote exchange and collaboration between broadcasters, build a community**

Create a **portal**

# THE WAY FORWARD

Open source is becoming the standardisation in the software world

An opportunity to promote standards and open interfaces to improve flexibility between systems

A domain for collaboration between broadcasters

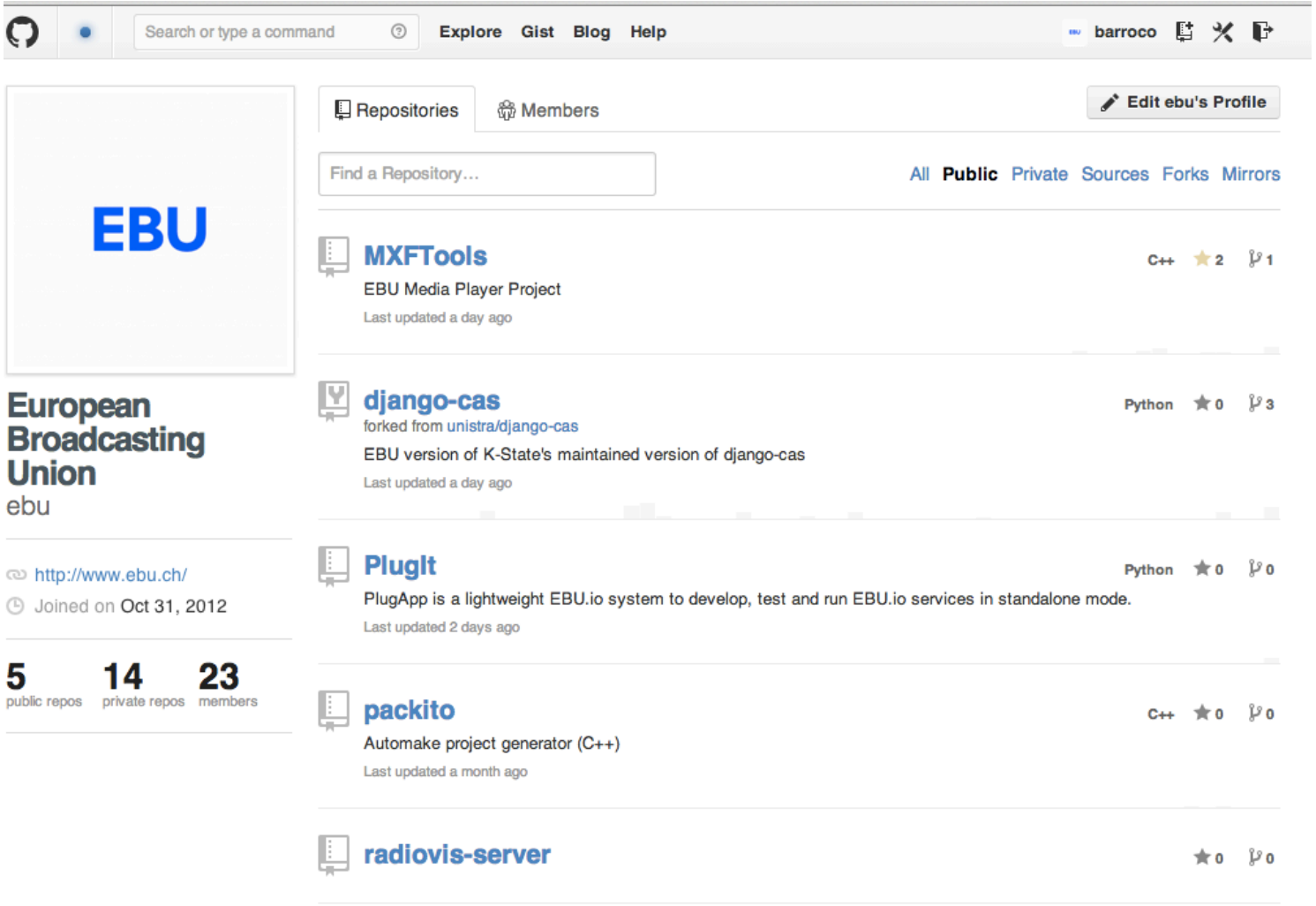
An opportunity to implement concepts on the devices and in industry

**“Less paperware, more software”**

# 2ND PART:
# MAKE IT HAPPEN

# EBU DEVELOPMENT STRATEGY

## SINGLE LOCATION



# EBU DEVELOPMENT STRATEGY

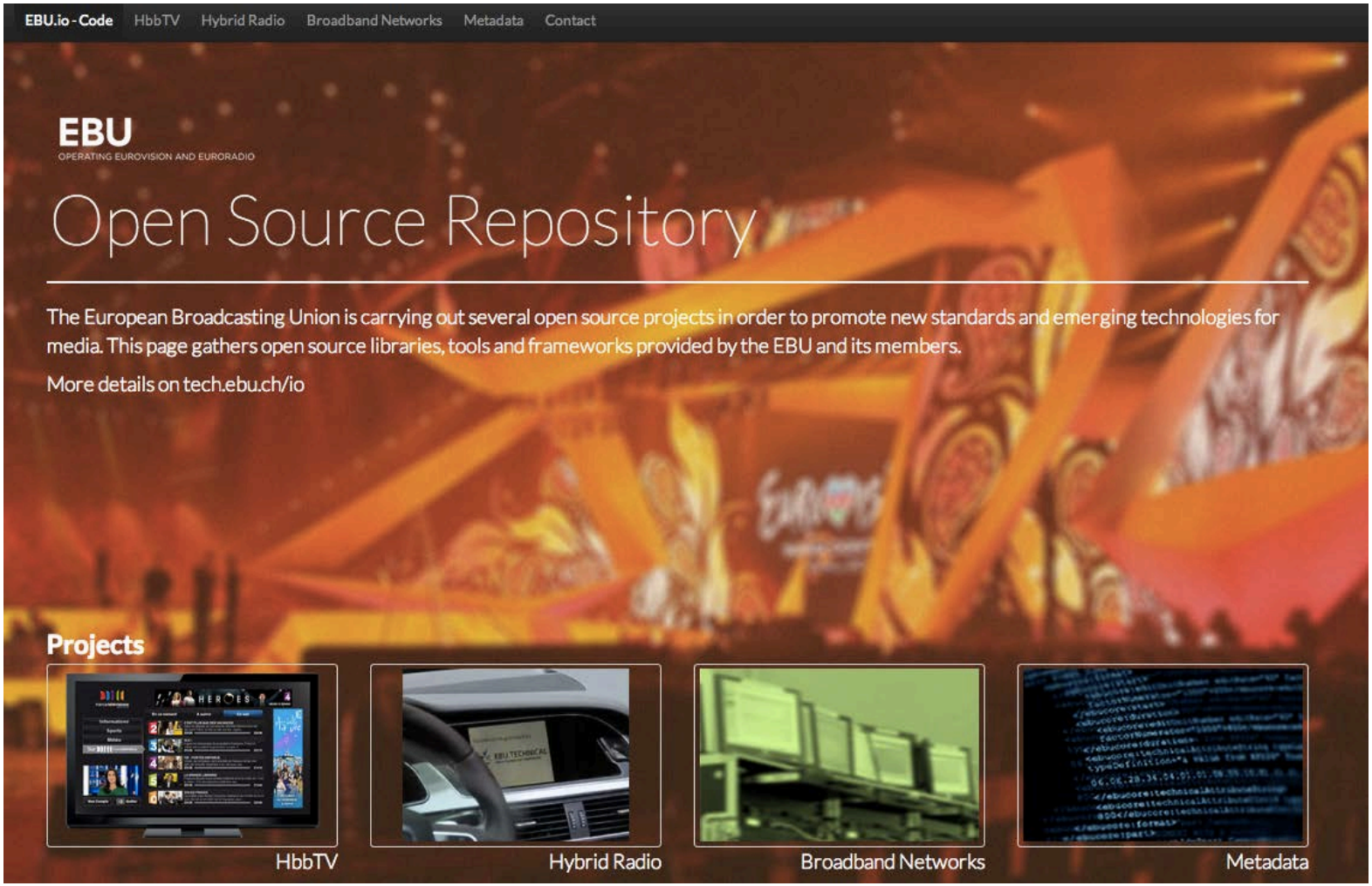
## SOFTWARE DEVELOPMENT GUIDELINES

- Publish projects in a consistent state
- Preservation of knowledge
- Availability
- Credibility

# NETFLIX OPEN SOURCE CENTER

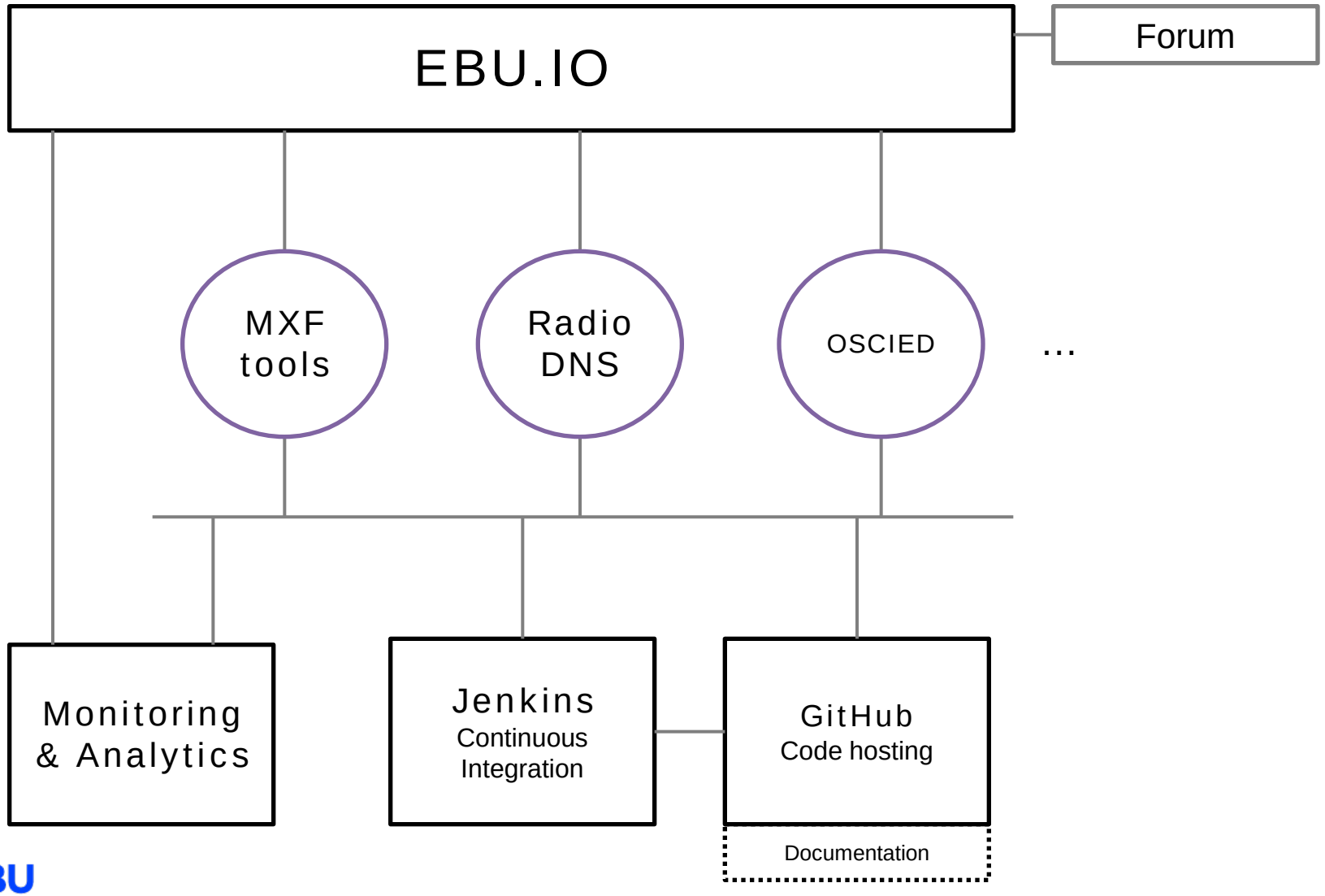
http://netflix.github.io/

# EBU.GITHUB.IO



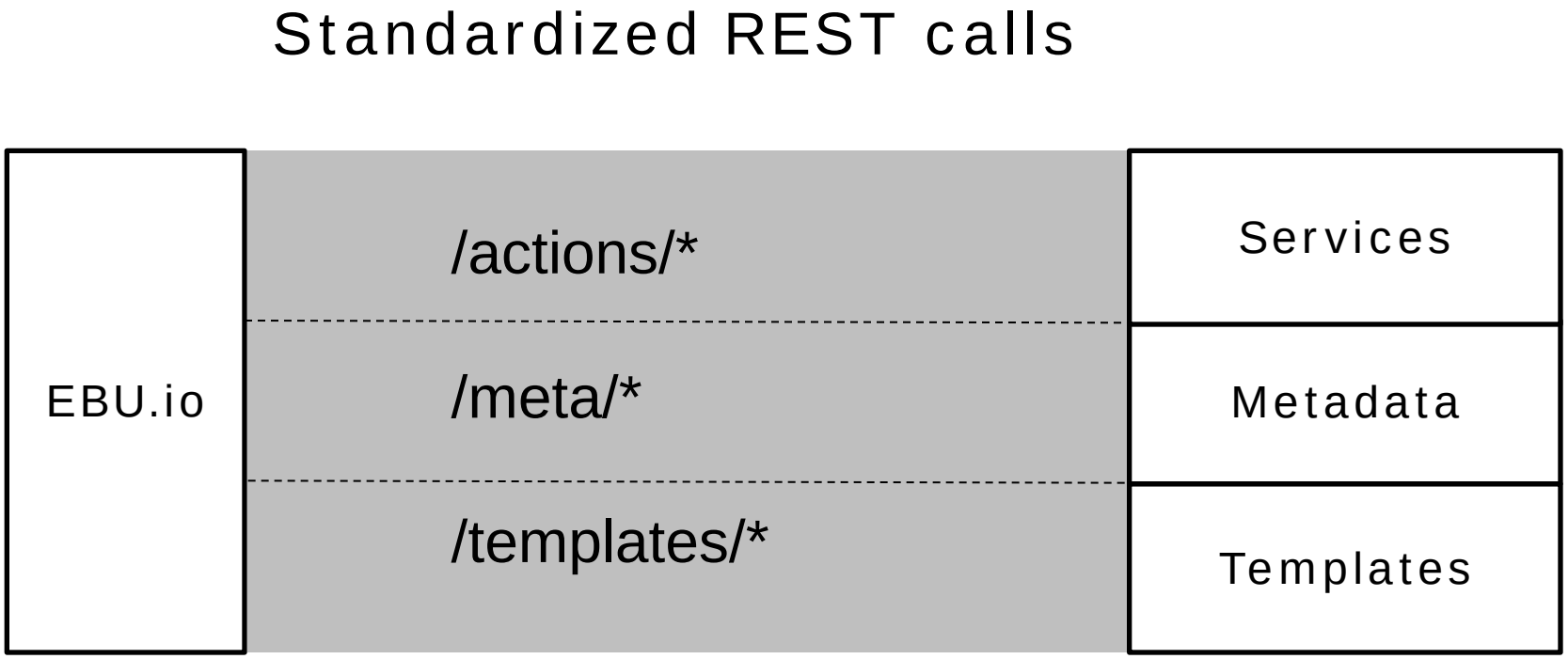
# EBU.GITHUB.IO

# ebu.io – inputs & outputs



# EBU.io – PROJECTS integration architecture

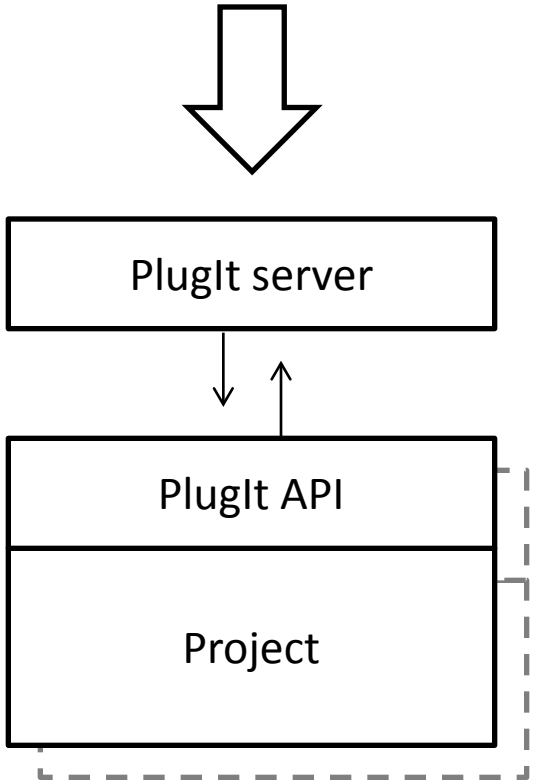
Make systems available through a single user interface



# PlugIt FRAMEWORK
# KEY FEATURES

github.com/ebu/PlugIt
*Release: September 2013*

- The service is self contained and ready to be integrated with others.
- Standalone server included
- Language independent : Standardized REST API calls
- The project contains the logic and the views.
- Self documented



# EBU.io – Crowd based features

- Curator

| | |
|---|---|
| IN: | Project Name / Url |
| objective: | Identify quickly awesome and crappy projects |
| OUT: | Gather experience of people on it and provide a crowd based rating |

# EBU.io – Crowd based features

- Incubator

| | |
|---|---|
| IN: | Project supported by somebody and can interest members or somebody else. |
| objective: | Find an opportunity to solve the "lack of time" effect |
| OUT: | Gather interested people and organize a coding workshop |

# EBU.io – Crowd based features

- Engineering blog

| | |
|---|---|
| IN: | Small development or piece of code |
| objective: | Build quickly and easily knowledge on any software project and improve collaboration. |
| OUT: | Publish and index it within a blog post and link it to the relevant projects. |

# EBU.IO BASED ON OPEN SOURCE

| | |
|---|---|
| Web Framework: | Django (Python) |
| Front-end Framework: | Bootstrap |
| Front-end Libraries: | Backbone.js, JQuery, D3, … |
| Message broker: | RabbitMQ, Celery |
| Deployment tool: | Fabric |
| Continuous Integration: | Jenkins |

# AWESOME TOOLS AND PROJECTS YOU WILL FIND ON EBU.IO

MXF tools

OSCIED

RadioDNS and familly

Internal EBU projects

# ROADMAP

September 2013:

- Release EBU projects on EBU.io
- Release PlugIt

from October 2013:

- Iterative rollout of crowd based features

EBU
OPERATING EUROVISION AND EURORADIO

# EBU.io Stay in touch

We will let you know when we will be up and running.

Name

Organization

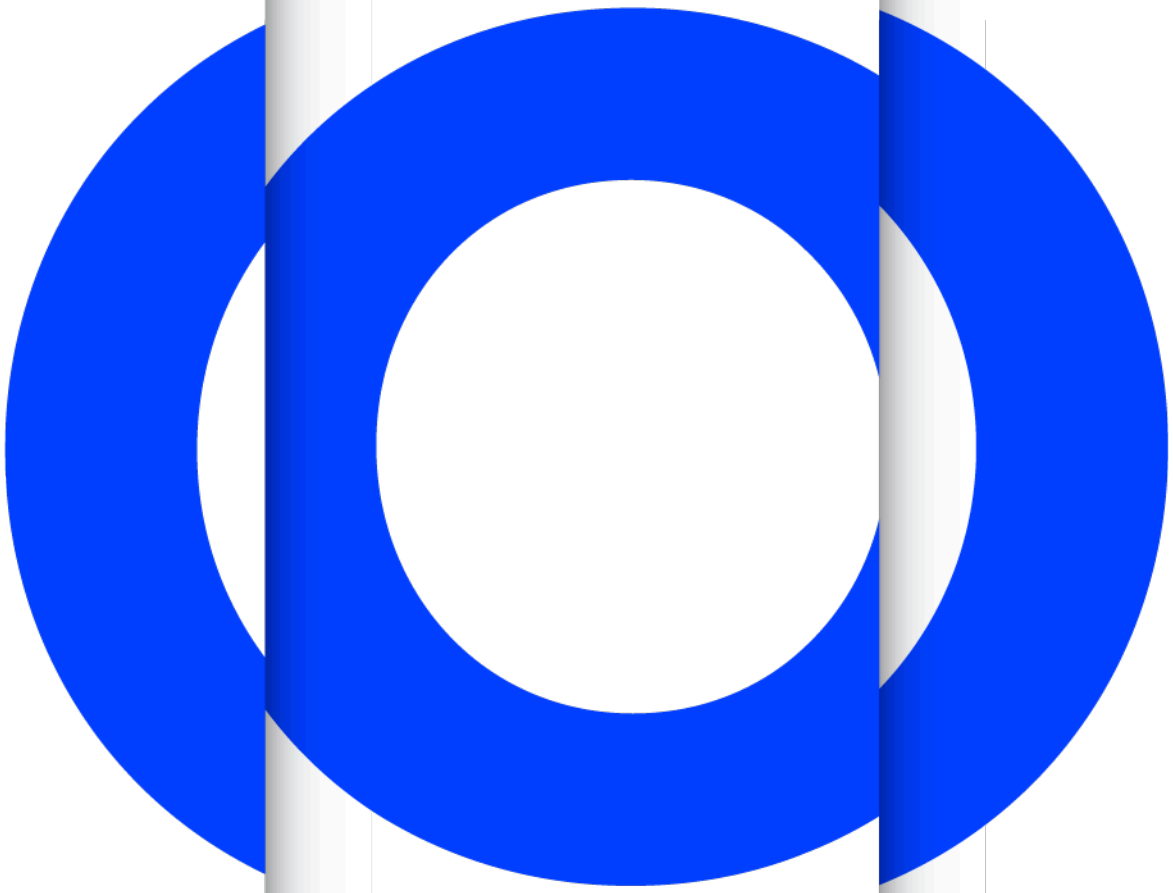
Email

Ok

EBU

OPERATING EUROVISION AND EURORADIO

Contact details:

Michael Barroco
barroco@ebu.ch

Mathias Coinchon
coinchon@ebu.ch