

# Why is Open Source Important to Samsung and What Are We Doing About It?

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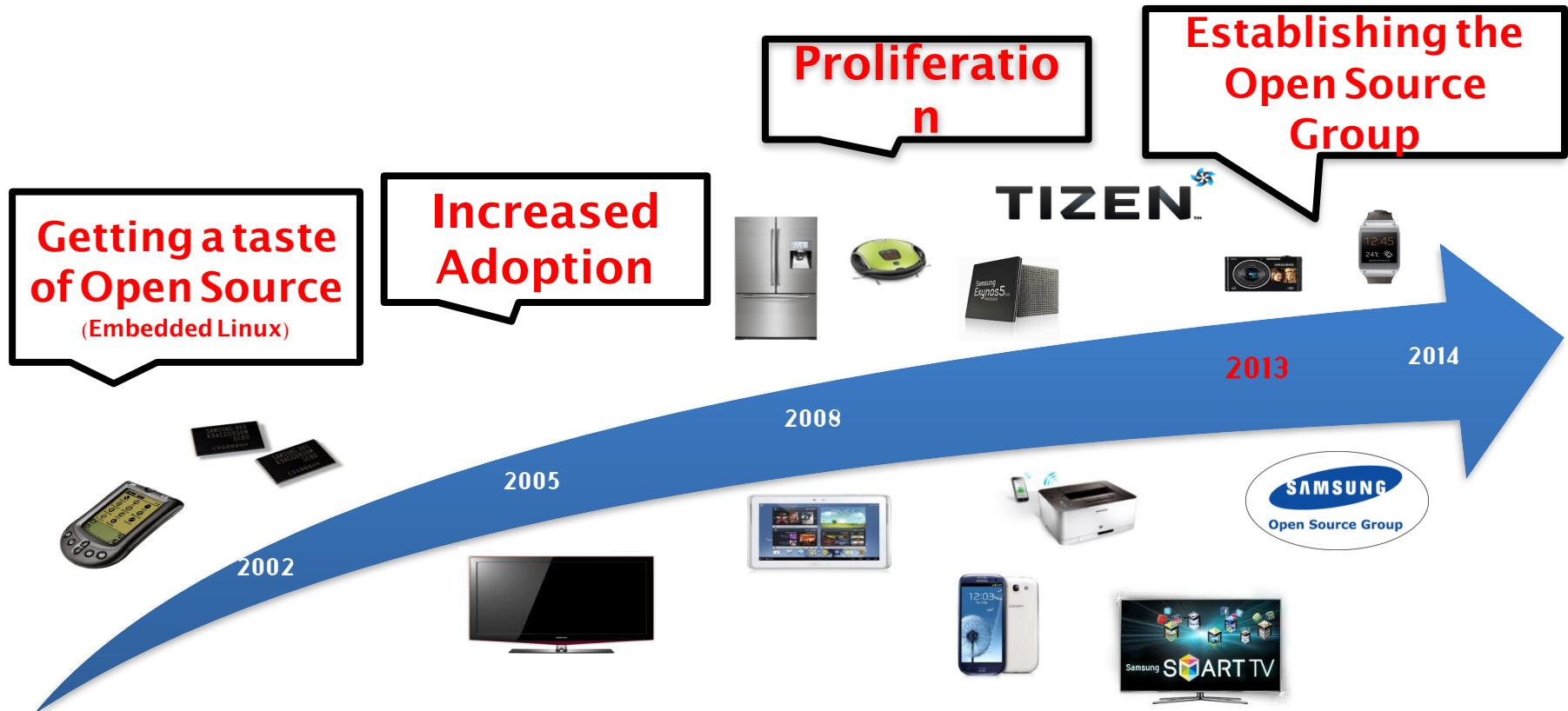
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# Some History



# Why is Open Source Important to Samsung?



## **But, Most Importantly**

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**Let's ask ourselves this one question:**

**Can we build #TheNextBigThing without  
using open source software?**

# Open Source Product Strategies

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## [1] Building with OSS

Product  
or  
Service

Open  
Source

This model gives us the ability to create proprietary software or service that work on top of OSS.

## [2] Building on OSS

Product  
or  
Service

Open  
Source

In this model, proprietary software or services have strong dependencies upon OSS and almost any new product will heavily depend on OSS to succeed.



# The Open Source Group



# Open Source Group Mission

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*Open  
Source  
Leadership*

# On Open Source Leadership

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## ● **Open source leadership can't be given.**

- It must be earned. You earn it by consistent participation and contribution.

## ● **Open source leadership can not be taken away.**

- You lose it by lack of participation and contributions.

# Open Source Group: Current Focus Areas

## Non-Technical

Open Source Foundations

Legal Compliance

Evangelism  
Strategy  
Community

## Technical

Media

Standards

Virtualization

Web

Graphics

System

# What do our Open Source developers do?

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1. Upstream development 50%+ of their time on key OSS components.
2. Helping R&D and product teams on OSS components.
3. Knowledge transfer internally: technical training on open source components, educating on open source development, mentoring junior or non open source developers.
4. Being visible internally + externally: papers, conferences, community events, etc.
5. Special projects / new ideas.



# Is it working?



# Example 1: Linux Kernel

Linux Foundation Kernel Report March 2012

Company Name	Number of Changes	Percent of Total
None	46,982	17.9%
Red Hat	31,261	11.9%
Novell	16,738	6.4%
Intel	16,219	6.2%
IBM	16,073	6.1%
Unknown	13,342	5.1%
Consultant	7,986	3.0%
Oracle	5,542	2.1%
Academia	3,421	1.3%
Nokia	3,272	1.2%
Fujitsu	3,156	1.2%
Texas Instruments	2,982	1.1%
Broadcom	2,916	1.1%
Linux Foundation	2,890	1.1%
Google	2,620	1.0%
Analog Devices	2,595	1.0%
SGI	2,578	1.0%
AMD	2,510	1.0%
Parallels	2,419	0.9%
Freescale	2,265	0.9%
Cisco	2,259	0.9%
HP	2,158	0.8%
Renesas Technology	2,092	0.8%
MontaVista	2,019	0.8%
Atheros Communications	1,960	0.7%
Wolfson Microelectronics	1,952	0.7%
Marvell	1,752	0.7%
NetApp	1,746	0.7%
Linutronix	1,656	0.6%
Samsung	1,650	0.6%

Linux Foundation Kernel Report Sept 2013

Company	Changes	Total
None	12,550	13.6%
Red Hat	9,483	10.2%
Intel	8,108	8.8%
Texas Instruments	3,814	4.1%
Linaro	3,791	4.1%
SUSE	3,212	3.5%
Unknown	3,032	3.3%
IBM	2,858	3.1%
Samsung	2,415	2.6%
Google	2,255	2.4%
Vision Engraving Systems	2,107	2.3%
Consultants	1,529	1.7%
Wolfson Microelectronics	1,516	1.6%
Oracle	1,248	1.3%
Broadcom	1,205	1.3%

Linux Foundation Kernel Report Feb 2015

Company	Changes	Total
None	11,968	12.4%
Intel	10,108	10.5%
Red Hat	8,078	8.4%
Linaro	5,415	5.6%
Samsung	4,290	4.4%
Unknown	3,842	4.0%
IBM	3,081	3.2%
SUSE	2,890	3.0%
Consultants	2,451	2.5%
Texas Instruments	2,269	2.4%
Vision Engraving Systems	2,089	2.2%
Google	2,048	2.1%
Renesas Electronics	2,004	2.1%
Freescale	1,690	1.8%
Free Electrons	1,463	1.5%
FOSS Outreach Program for Women	1,418	1.5%
Oracle	1,166	1.2%
AMD	1,109	1.1%
NVIDIA	1,078	1.1%
Broadcom	1,001	1.0%
Huawei Technologies	971	1.0%
ARM	788	0.8%
Pengutronix	763	0.8%
Cisco	723	0.7%
Qualcomm	679	0.7%
Fujitsu	672	0.7%
Linux Foundation	670	0.6%
Imagination Technologies	579	0.6%
QLogic	545	0.6%
Logitech Technology	531	0.5%

From 30<sup>th</sup> to 5<sup>th</sup> top position in < 4 years

# Increased Sign-offs (2013 vs. 2015)

Company	Signoffs	Percent
Red Hat	20,369	25.7%
The Linux Foundation	9,561	12.0%
Intel	7,244	9.1%
Google	4,605	5.8%
None	4,155	5.2%
SUSE	3,275	4.1%
Samsung	2,684	3.4%
Wolfson Microelectronics	2,474	3.1%
Texas Instruments	2,372	3.0%
IBM	2,245	2.8%

Company	Signoffs	Percent
Red Hat	16,963	18.8%
Linux Foundation	13,357	14.8%
Intel	11,045	12.2%
Linaro	8,422	9.3%
Google	5,207	5.8%
Samsung	4,728	5.2%
None	3,372	3.7%
SUSE	2,653	2.9%
IBM	2,208	2.4%
Texas Instruments	1,948	2.2%
Renesas Electronics	1,409	1.6%
Consultants	1,362	1.5%
Facebook	1,006	1.1%

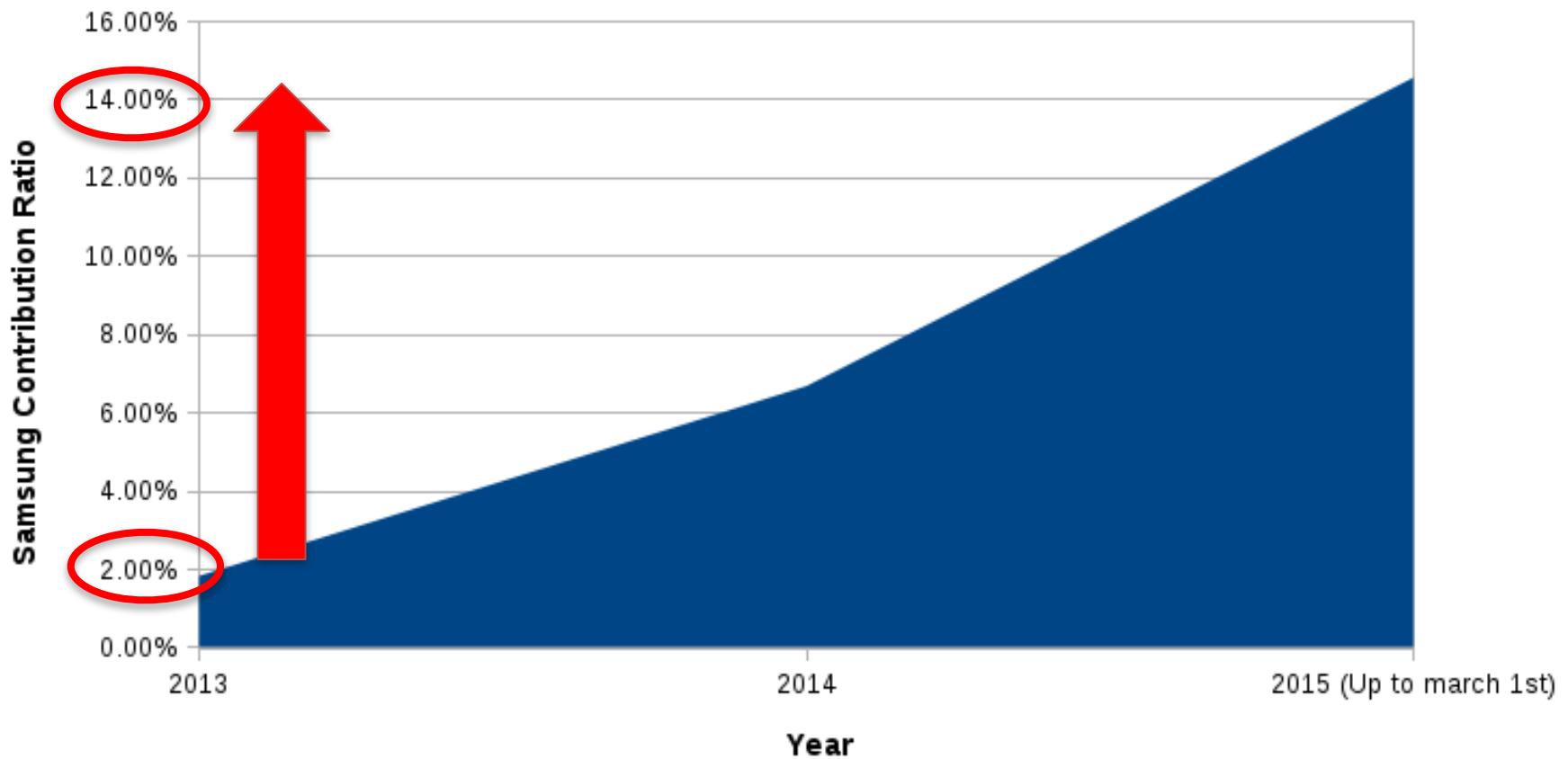
# Newcomers from Samsung to Kernel (2014-2015)

Company	# New devs
Intel	147
Samsung	48
IBM	47
Google	43
Huawei Technologies	37
Red Hat	32
Freescale	31
Linaro	26
Texas Instruments	23
Marvell	15
NVIDIA	15

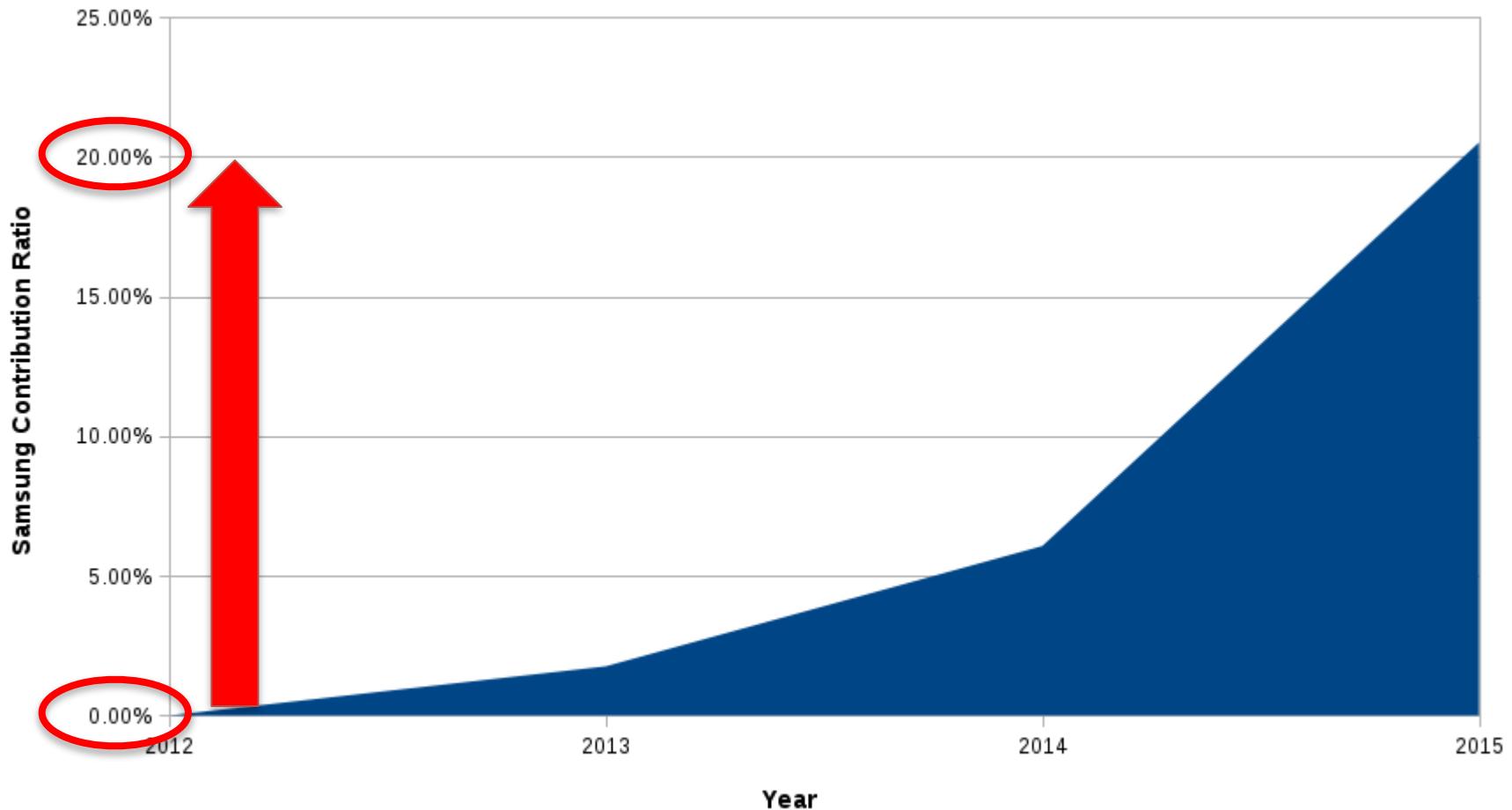
## Supporting factors:

1. Open source developer track
2. Maintainership Program
3. Open Source Frontiership Program

## Example 2: Wayland



## Example 3: Gstreamer + Plugins





# On the compliance side...



# Compliance hiccups fall under 6 buckets

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- 1. Policy failure                          Employee did not follow policy / internal guidelines
- 1. Process failure                          Process oversight, corner cases, human error
- 2. Tooling failure perfect                 Industrial scale automation leads to defects as you the tool or its usage
- 3. IP Failure                                Copy / Paste
- 4. SW Procurement failure Incoming non-compliance via 3<sup>rd</sup> party
- 1. Misc. failure                            Notice error, code versioning error, web site access error, etc.

# **Learning from our experiences ...**

- |                          |                                                                          |
|--------------------------|--------------------------------------------------------------------------|
| 1. Training              | Formal training delivered by the Open Source Group (OSG)                 |
| 2. Policy                | Training + ongoing seminars + lighter and localized policy               |
| 1. Process               | Training + clearer, more efficient and localized process                 |
| 2. Tooling               | Training + additional tooling (including in-house)                       |
| 3. SW Procurement        | Training + reform agreements + templates                                 |
| 4. IP Failure            | Require approval for code re-use                                         |
| 5. Misc.                 | Update process to include verification steps                             |
| 1. Direct hotline to OSG | Open Source Group acts as advisor on any open source compliance inquiry. |

# The Compliance Infrastructure

Portals	Compliance	Education	Inventory	Communication
Internal	Usage Process + Policy	Training	Inventory Management	Internal
External	Distribution Process + Policy	Guidelines	Audit 3 <sup>rd</sup> Party Code	External
	Auditing Process + Policy	Licenses		
	Checklists	New Employee Orientation		
	Attribution Policy			
	Documentation Policy			
	Compliance part of development			
	Dedicated Team			
	Scoreboard			



# Building a Leadership Infrastructure

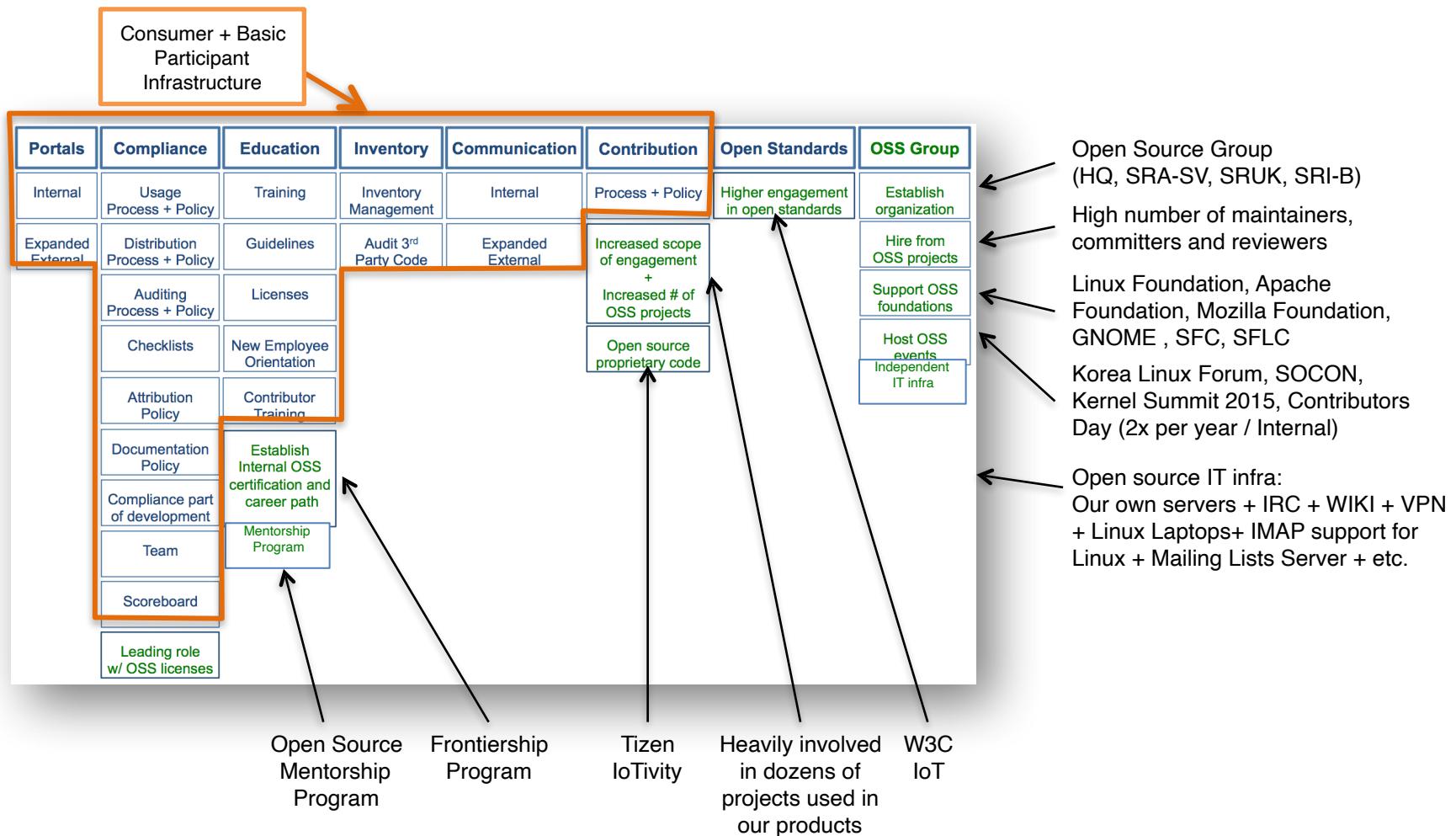


# Infrastructure to Support Drive to OSS Leadership

Open Source Infrastructure for Leader Scenario							
Portals	Compliance	Education	Inventory	Communication	Contribution	Open Standards	OSS Group
Internal	Usage Process + Policy	Training	Inventory Management	Internal	Process + Policy	High engagement in open standards	Establish organization
External	Distribution Process + Policy	Guidelines	Audit 3 <sup>rd</sup> Party Code	External	Increased scope of engagement + Increased # of OSS projects		Hire from OSS projects
	Auditing Process + Policy	Licenses			Open source proprietary code		Support OSS foundations
	Checklists	New Employee Orientation					Host OSS events
	Attribution Policy	Contributor Training					Independent IT Infra
	Documentation Policy	Establish Internal OSS certification and career path					
	Compliance part of development						
	Dedicated Team	Mentorship Program					
	Scoreboard						
	Active with OSS Licensing						



# We continue to build the leadership blocks



**Leadership blocks were established in 2013 & 2014**

# Thought Leadership (US Team)

**2013**

**10 publications**

**30 conference talks**

**Numerous conferences sponsorships**

**Established social media presence**

**2014**

**7 technical publications**

**58 conference talks**

**22 media mentions (incl. 2x in WSJ)**

**Numerous conferences sponsorships**

**Sponsored Outreachy Program**

**2015**

**Established: <http://blogs.s-osg.org/>**

**35 conference talks**

**23 media mentions**

**Numerous conferences sponsorships**

**Sponsored Outreachy Program**

Samsung Talks About Its Aggressive Linux Talent Recruitment Strategy

Wednesday, 22 May 2013 06:41 | Jennifer Cloer |  Exclusive

APRIL 16, 2013

**Samsung flexes its open source muscles where you might not expect**

**Open source goes corporate at Samsung**

Posted 01 Oct 2014 by [Ben Lloyd Pearson](#) 

Rating: ★★★★☆ (7 votes)

How Samsung is Bringing Open Source Culture Inside the Firewall

Thursday, 27 March 2014 14:27 | Libby Clark |  Exclusive

May 5, 2014, 5:51 PM ET

**Open Source ‘Eating’ Software World: Samsung**

LINUX.COM

HOW  
**SAMSUNG**  
IS EVOLVING  
INTO AN  
**OPEN SOURCE**  
COMPANY

# Samsung & the Korean Open Source involvement

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- Increased # of Korean companies active with OSS foundations
- Increased # of Open Source conferences in Korea
  - Led by Samsung: Korea Linux Forum, SOSCON, Kernel Summit, etc.
- Significant increase in contributions to key Open Source projects in past 5 years
- Very active local open source communities



# Closing Thoughts



# Why Focus on Open Source R&D?

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**Open Source R&D is very important to our business.**

- Allows shared development and lowers R&D cost.
- Helps us accelerate product development and innovation.
- Gives us strong influence on technologies used in products.

# Open Collaboration Principles

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- We can't hire all the smart people in the world.
  - => We need to find a way to tap into their knowledge and influence favorable outcomes in external projects.
- Open source R&D creates significant value.
  - => Internal R&D claims portion of that value.
- We don't need to originate the research to use it and benefit from it.

# More Emphasis on Software Innovation

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- More R&D collaboration
- Better programming and development skills
- Better architectural skills
- Better software and system design skills
- Better integration skills

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OPEN SOURCE DEV  
MODEL CHARACTERISTICS

# We Are Adapting to Collaborative R&D

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## Culture

Collaboration  
Transparency  
Meritocracy

## Processes

Contribution  
Governance  
Organizational

## Tools

Knowledge  
Reuse  
Metrics

**We're on the right path.**

May 5, 2014, 5:51 PM ET

# Open Source ‘Eating’ Software World: Samsung

Article

Comments

By RACHAEL KING

Reporter



Samsung Electronics is ramping up its contributions to various open source projects as the company depends more on open source software in its products. The company sees open source software as a faster path to innovation.



# Questions / Discussion

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