



산업과 예술의 만남

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Open Source Software

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Disclaimer: The slides are borrowed from many sources!

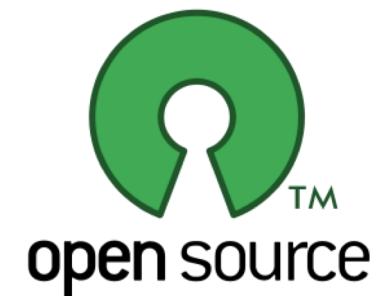
WHAT IS OPEN SOURCE ?

- In production and development, open source is a philosophy, or a methodology that promotes free redistribution and access to a product's design or ideas and implementation details.
 - open as in free
 - open as in access
 - open as in over time
 - open as in not closed
 - open as in reuse and change
 - open as in any place and for anyone



OPEN SOURCE VS. CLOSED SOURCE

- View/Modify the source code of an application or software.
- Open source software is released to the development community and undergoes a secondary phase of evolution, but closed source software is developed in isolation with a small team of developers.
- Developer support and large community to help.
- Open Source is more secure and bugs and vulnerabilities are fixed often.



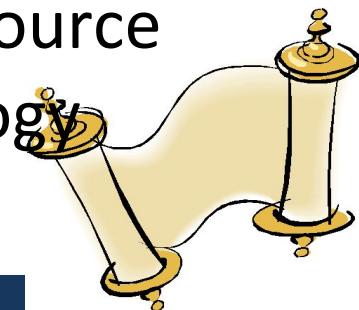
CRITERIA FOR OPEN SOURCE

- Source Code
- Derived Works
- Free Redistribution
- Distribution of License
- Integrity of The Author's Source Code
- License Must Not Restrict Other Software
- No Discrimination Against Persons or Groups
- No Discrimination Against Fields of Endeavor

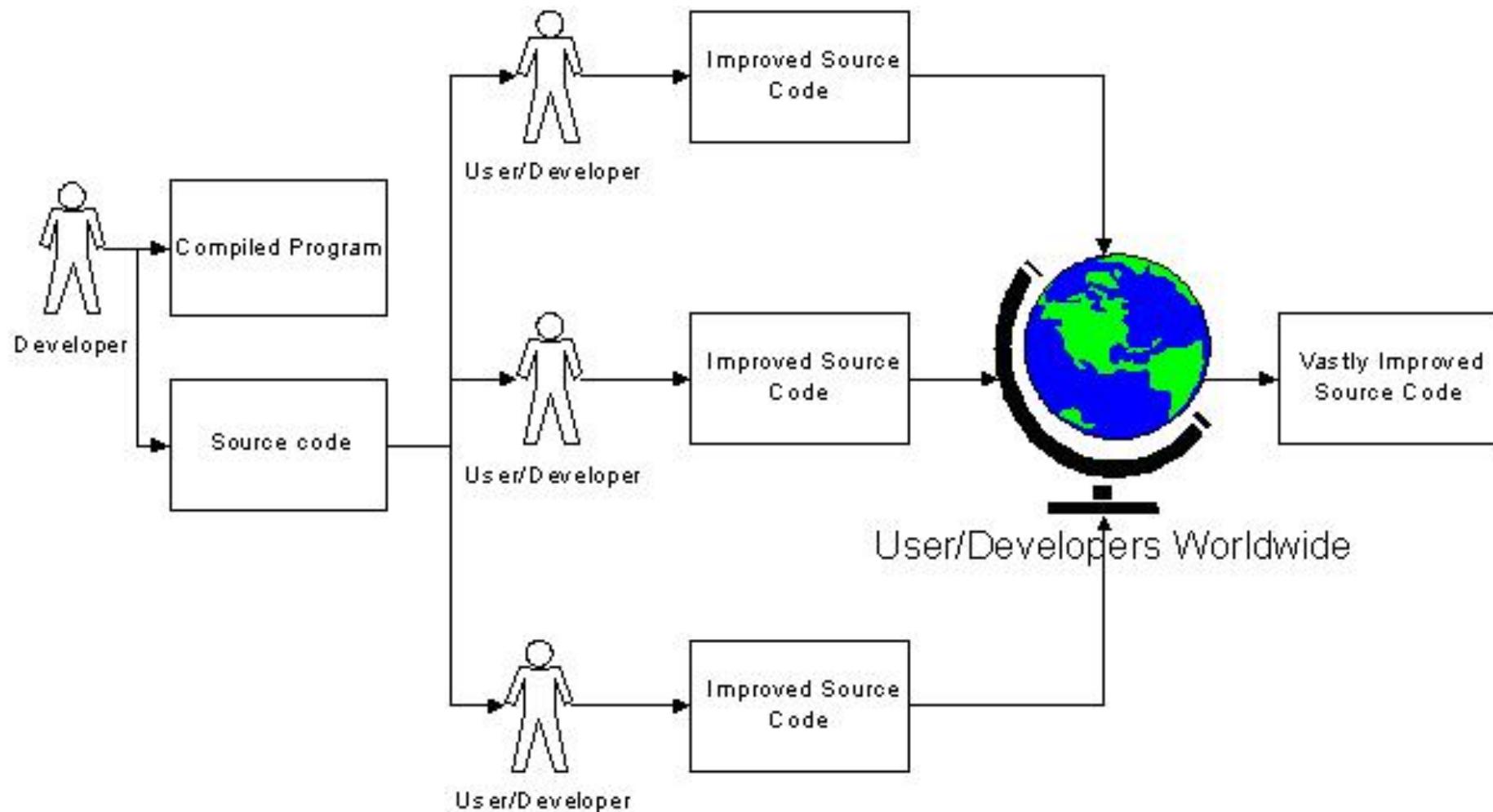


HISTORY OF OPEN SOURCE

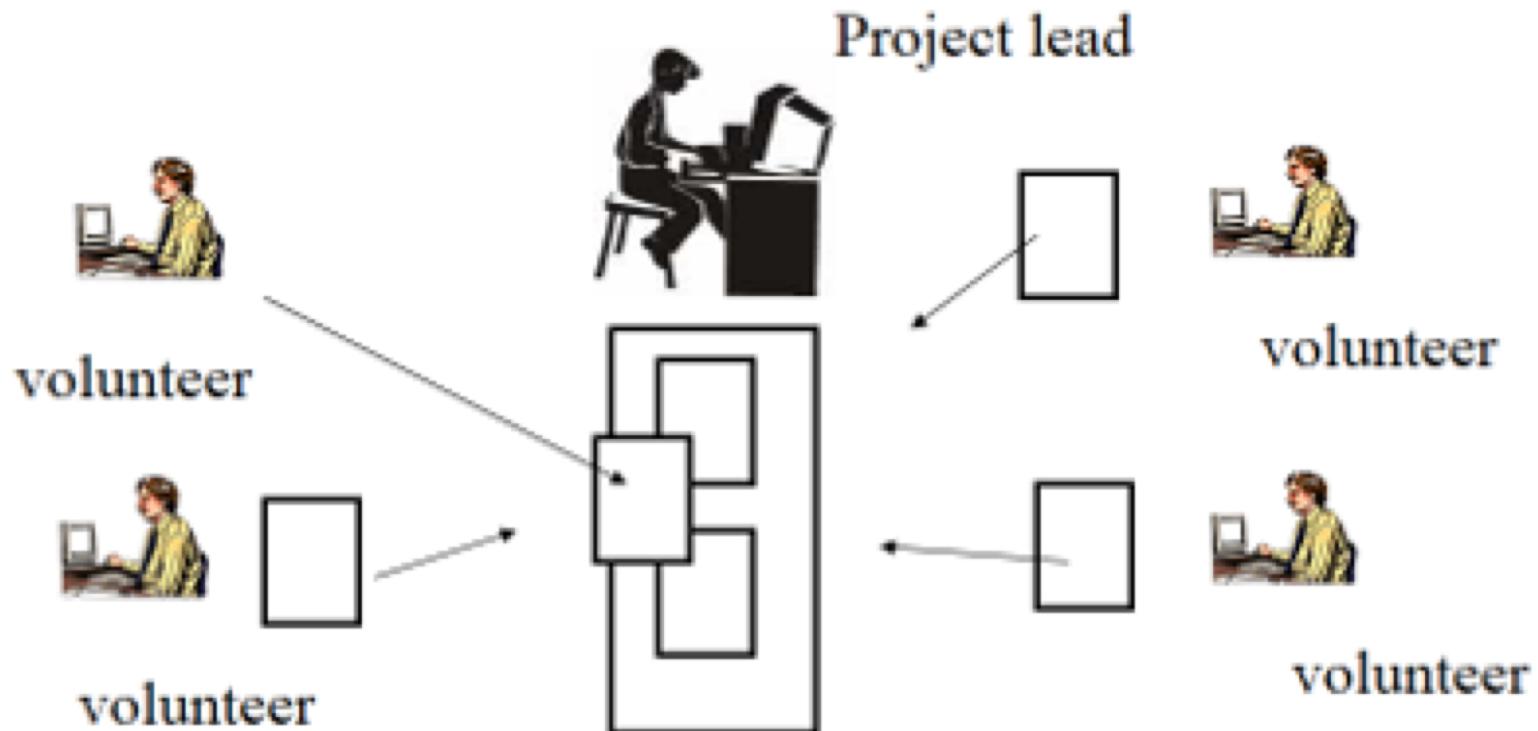
- The concept of free sharing of technological information existed long before computers.
- Similar to open standards, researchers with access to Advanced Research Projects Agency Network (ARPANET) used a process called Request for Comments to develop telecommunication network protocols which led to the birth of the INTERNET in 1969.
- The term Open Source was adopted by a group of people held at Palo Alto, California. "Open Source Summit" organized in April 1998 by technology publisher Tim O'Reilly.



HOW OPEN SOURCE WORKS ?



OPEN SOURCE DEVELOPMENT MODEL



ADVANTAGES OF OPEN SOURCE

- Availability of source code
 - ❖ Source code to understand and learn from
 - ❖ Do not have to re-invent the wheel
 - ❖ Free as in “freedom”
- Does not depend on vendor
 - ❖ Can choose additional support
 - ❖ Can fix bugs and adapt to change in requirements as well as technology
- Quality and Customizability in open source is better **if supported by a big community.**
- Costs much less than proprietary counterparts.



SOME DISADVANTAGES OF OPEN SOURCE

- Not generally straightforward to use and requires a certain learning curve to use and get accustomed.
- Incompatibility issue with software and hardware.
(3rd party drivers)
- Bad codes, and some unqualified people who uses it.
- Software quality assurance process is widely not transparent
- No financial incentive.



EXAMPLES OF OPEN SOURCE

Application software :

- 7-Zip
- Eclipse
- GIMP
- Chromium
- Blender
- Mozilla Firefox
- Open Office

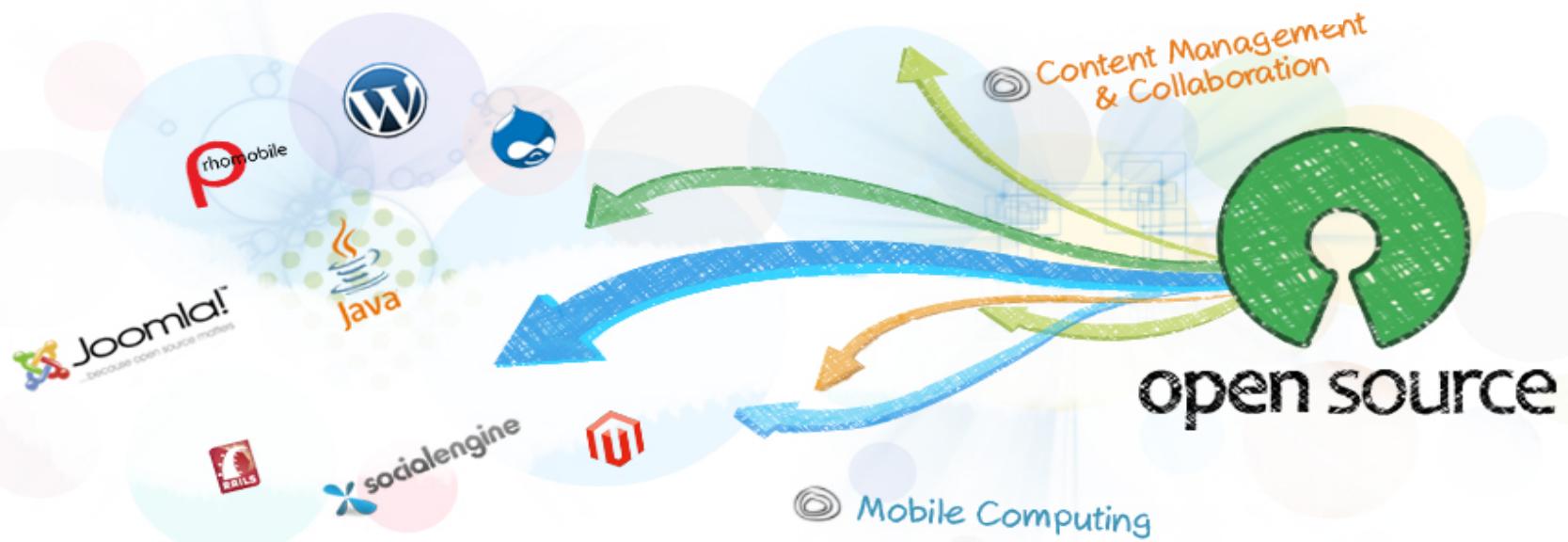
Operating Systems: Programming Language :

- Android
- Linux
- FreeBSD
- ReactOS
- Haiku
- FreeDOS
- Perl
- PHP
- Python
- Ruby
- PHDL
- Prolog



EXAMPLES OF OPEN SOURCE

Server Software:



OPEN SOURCE DIGITAL CONTENT

Wikimedia Foundation

Wikimedia is owned and operated by the Wikimedia Foundation, a non-profit foundation dedicated to bringing free content to the world. The various Wikimedia projects are listed below:



WIKIPEDIA
The Free Encyclopedia



WIKISOURCE



MediaWiki

a multilingual free
encyclopedia

Wiktionary
[ˈwɪkʃənri] *n.*,
a wiki-based Open
Content dictionary

Wiktionary.org



WIKINews



**WIKIMEDIA
META-WIKI**



WIKIVERSITY



**WIKIMEDIA
COMMONS**



WIKIMEDIA



WIKIBOOKS



WIKISPECIES
free species directory



**WIKIMEDIA
INCUBATOR**



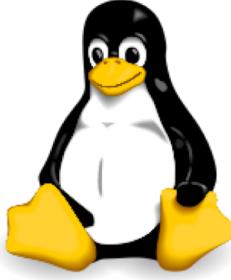
COMMONS
OPEN EDUCATIONAL
RESOURCES

OPEN SOURCE DIGITAL CONTENT

- **Wiki**
 - A wiki is a website which allows people to add, modify, or delete the content via a web browser usually using a simplified markup language or a rich-text editor. Wikis use specialized wiki software and are usually created collaboratively. Wikis serve many different purposes, such as knowledge management and notetaking. Wikis can be community websites and intranets, for example. Some permit control over different functions. For example, editing rights may permit changing, adding or removing material. Others may permit access without enforcing access control. Other rules may also be imposed to organize content. Ward Cunningham, the developer of the first wiki software, WikiWikiWeb, originally described it as "the simplest online database that could possibly work". "[Wiki](#)" is a Hawaiian word meaning "fast" or "quick".

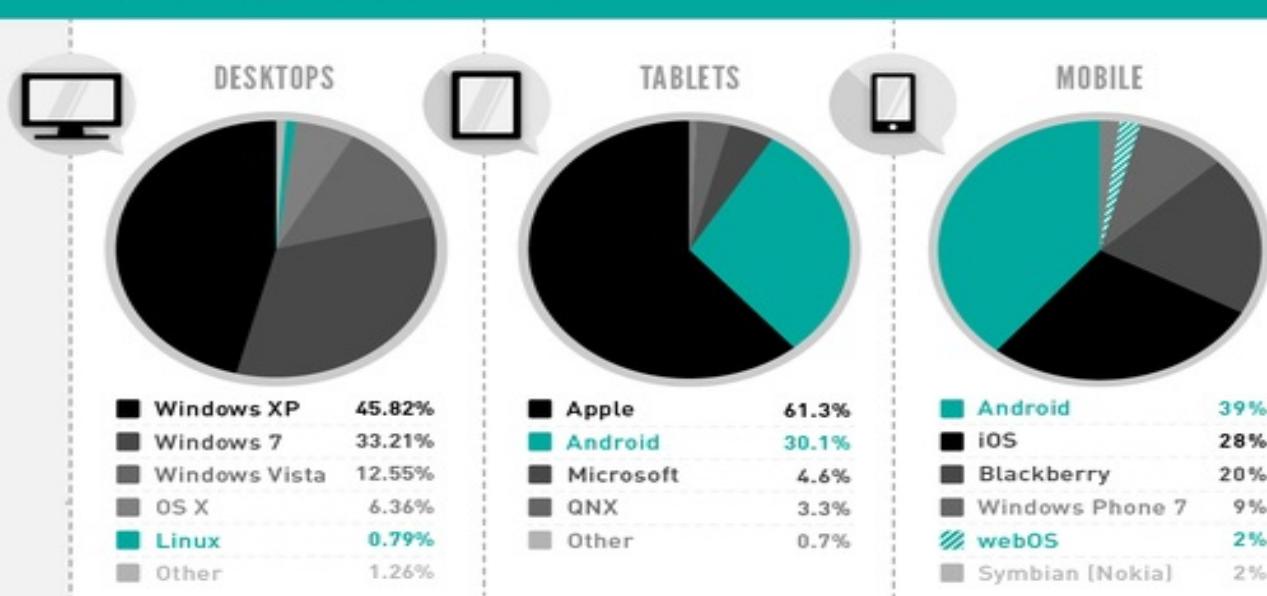


MORE EXAMPLES - LINUX



- Linux is a computer operating system assembled under the model of free and open source software development and distribution. Originated in the [GNU](#) Project, initiated in 1983 by [Richard Stallman](#), in the Free Software Foundation. More than 90% of today's supercomputers use Linux. It powers around 4.8% of todays modern computers. Thousands of distros are available.

LINUX MARKET SHARES



MORE EXAMPLES- ANDROID



- Linux-based operating system designed primarily for mobile devices such as smartphones and tablet computers.
- Android is open source and Google releases the code under the Apache License after acquiring it from Android Inc.
- Most widely used mobile platform with over 7,00,000 apps in google play store, over 25 billion app downloads with 750 million devices running on Android.
- Android Source Code Available at : <http://source.android.com/>



How Linux started back then?

- <https://www.youtube.com/watch?v=o8NPllzkFhE>
 - ~6:00



OPEN SOURCE OFFICE SOFTWARES

- **Open Office:** Apache OpenOffice is an open-source office productivity software suite with official website OpenOffice.org, launched in 2002 under the Apache License
- **LibreOffice:** Developed by The Document Foundation, it is licensed under the GNU Lesser General Public License (LGPL). It supports Windows, Macintosh and GNU/Linux systems.
- **NeoOffice:** Primarily designed for Mac users and is distributed under the GNU General Public License.
- **Koffice:** It is a open source office suite licensed under the LGPL. It is available for Windows, Linux, FreeBSD and Mac OS X systems.



LICENSE AND COPYRIGHTS

- About 55% of these projects use a copyleft license.
- But the 6 most common licenses cover about 90% of open source projects.
 - GNU General Public License (GPL)
 - GNU "Lesser" General Public License (LGPL)
 - Mozilla Public License 2.0
 - Eclipse Public License
 - Apache License 2.0
 - BSD License
 - MIT License



GPL vs. MIT License

GNU GPLv3

Permissions	Conditions	Limitations
<ul style="list-style-type: none">● Commercial use● Distribution● Modification● Patent use● Private use	<ul style="list-style-type: none">● Disclose source● License and copyright notice● Same license● State changes	<ul style="list-style-type: none">● Liability● Warranty

MIT License

Can be distributed under different terms and without source code

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MYTHS ABOUT OPEN SOURCE

(FOSS = Free and Open Source Software)

- FOSS is “free”.
- FOSS isn't reliable or supported.
- Making a software open source, anyone can change it.
- The open source license is too liberal.
- If you make your software open source, volunteer coders will fix all of your problems for free.



CONCLUSION

- Common platform for sharing ideas and putting them into action by developers or other people who wishes to improve a product/software.
 - We are in the Open Source Revolution where people collaborate to create, produce software or technology.
 - Based upon the key advantages of Open source technology, we can finally conclude that open source deserves the increasing popularity.
-
- ❖ GNU General Public License (GPL) - <http://www.gnu.org>
 - ❖ Open Source Licenses - <http://opensource.org/licenses>
 - ❖ Open Source Initiative & Information - <http://opensource.org>
 - ❖ Repository of Open Source Softwares - <http://sourceforge.net>
 - ❖ Open source software development – <http://github.com>



Appendix



Where to find open source projects

- github.com
- sourceforge.net
- [Apache.org](https://www.apache.org)



Apache Software Foundation (ASF)

- <https://projects.apache.org/projects.html?number>
- Project evolution
 - Incubator → ASF
 - <http://incubator.apache.org/guides/proposal.html>



Apache Software Foundation (ASF)

Projects by number of committer

-  [Apache Hadoop](#): 181 committers, 92 PMC members
-  [Apache OpenOffice](#): 141 committers, 28 PMC members
-  [Apache CloudStack](#): 116 committers, 47 PMC members
-  [Apache Ambari](#): 98 committers, 45 PMC members
-  [Apache Cordova](#): 92 committers, 89 PMC members
-  [Apache Geode](#): 87 committers, 46 PMC members
-  [Apache Subversion](#): 83 committers, 45 PMC members
-  [Apache Cocoon](#): 80 committers, 32 PMC members
-  [Apache MyFaces](#): 78 committers, 44 PMC members
-  [Apache Hive](#): 75 committers, 42 PMC members
-  [Apache HBase](#): 73 committers, 41 PMC members



'Google' open source reference architecture...



Apache Hadoop Ecosystem



Ambari

Provisioning, Managing and Monitoring Hadoop Clusters



Sqoop
Data Exchange



Zookeeper
Coordination



Oozie
Workflow



Pig
Scripting



Mahout
Machine Learning

R Connectors

Statistics



Hive
SQL Query



Hbase
Columnar Store



YARN Map Reduce v2

Distributed Processing Framework



Flume
Log Collector

HDFS

Hadoop Distributed File System



Hadoop Ecosystem (source: quantfarm.com)

