Flume环境部署和配置详解及案例大全

flume是一个分布式、可靠、和高可用的海量日志采集、聚合和传输的系统。支持在日志系统中定制各类数据发送方，用于收集数据;同时，Flume提供对数据进行简单处理，并写到各种数据接受方(比如文本、HDFS、Hbase等)的能力 。

一、什么是Flume?

flume 作为 cloudera 开发的实时日志收集系统，受到了业界的认可与广泛应用。Flume 初始的发行版本目前被统称为 Flume OG（original generation），属于 cloudera。但随着 FLume 功能的扩展，Flume OG 代码工程臃肿、核心组件设计不合理、核心配置不标准等缺点暴露出来，尤其是在 Flume OG 的最后一个发行版本 0.94.0 中，日志传输不稳定的现象尤为严重，为了解决这些问题，2011 年 10 月 22 号，cloudera 完成了 Flume-728，对 Flume 进行了里程碑式的改动：重构核心组件、核心配置以及代码架构，重构后的版本统称为 Flume NG（next generation）；改动的另一原因是将 Flume 纳入 apache 旗下，cloudera Flume 改名为 Apache Flume。

flume的特点：

flume是一个分布式、可靠、和高可用的海量日志采集、聚合和传输的系统。支持在日志系统中定制各类数据发送方，用于收集数据;同时，Flume提供对数据进行简单处理，并写到各种数据接受方(比如文本、HDFS、Hbase等)的能力 。

flume的数据流由事件(Event)贯穿始终。事件是Flume的基本数据单位，它携带日志数据(字节数组形式)并且携带有头信息，这些Event由Agent外部的Source生成，当Source捕获事件后会进行特定的格式化，然后Source会把事件推入(单个或多个)Channel中。你可以把Channel看作是一个缓冲区，它将保存事件直到Sink处理完该事件。Sink负责持久化日志或者把事件推向另一个Source。

flume的可靠性

当节点出现故障时，日志能够被传送到其他节点上而不会丢失。Flume提供了三种级别的可靠性保障，从强到弱依次分别为：end-to-end（收到数据agent首先将event写到磁盘上，当数据传送成功后，再删除；如果数据发送失败，可以重新发送。），Store on failure（这也是scribe采用的策略，当数据接收方crash时，将数据写到本地，待恢复后，继续发送），Besteffort（数据发送到接收方后，不会进行确认）。

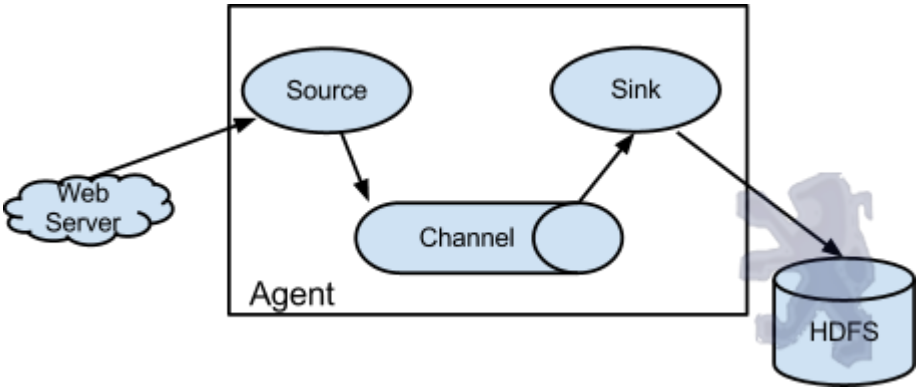
flume的可恢复性：

还是靠Channel。推荐使用FileChannel，事件持久化在本地文件系统里(性能较差)。

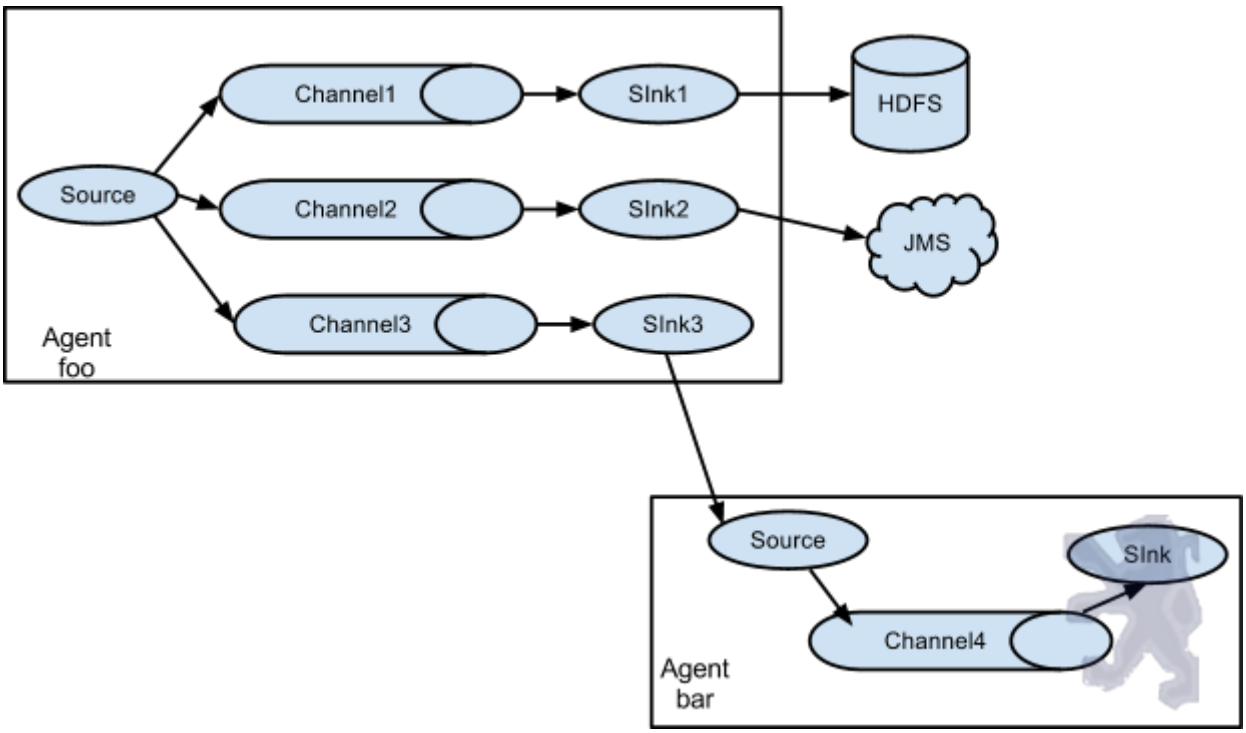
flume的一些核心概念：

Agent使用JVM 运行Flume。每台机器运行一个agent，但是可以在一个agent中包含多个sources和sinks。
Client生产数据，运行在一个独立的线程。
Source从Client收集数据，传递给Channel。
Sink从Channel收集数据，运行在一个独立线程。
Channel连接 sources 和 sinks ，这个有点像一个队列。
Events可以是日志记录、 avro 对象等。

Flume以agent为最小的独立运行单位。一个agent就是一个JVM。单agent由Source、Sink和Channel三大组件构成，如下图：



值得注意的是，Flume提供了大量内置的Source、Channel和Sink类型。不同类型的Source,Channel和Sink可以自由组合。组合方式基于用户设置的配置文件，非常灵活。比如：Channel可以把事件暂存在内存里，也可以持久化到本地硬盘上。Sink可以把日志写入HDFS, HBase，甚至是另外一个Source等等。Flume支持用户建立多级流，也就是说，多个agent可以协同工作，并且支持Fan-in、Fan-out、Contextual Routing、Backup Routes，这也正是NB之处。如下图所示:



二、flume的官方网站在哪里？
http://flume.apache.org/

三、在哪里下载？

http://www.apache.org/dyn/closer.cgi/flume/1.5.0/apache-flume-1.5.0-bin.tar.gz

四、如何安装？
1)将下载的flume包，解压到/home/hadoop目录中，你就已经完成了50%：）简单吧

2)修改 flume-env.sh 配置文件,主要是JAVA_HOME变量设置

```
root@m1:/home/hadoop/flume-1.5.0-bin# cp conf/flume-
env.sh.template conf/flume-env.sh
root@m1:/home/hadoop/flume-1.5.0-bin# vi conf/flume-env.sh
# Licensed to the Apache Software Foundation (ASF) under
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# or more contributor license agreements. See the NOTICE
file
# distributed with this work for additional information
# regarding copyright ownership. The ASF licenses this
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```

```
# distributed under the License is distributed on an "AS
IS" BASIS,
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permissions and
# limitations under the License.

# If this file is placed at FLUME_CONF_DIR/flume-env.sh,
it will be sourced
# during Flume startup.

# Enviroment variables can be set here.

JAVA_HOME=/usr/lib/jvm/java-7-oracle

# Give Flume more memory and pre-allocate, enable remote
monitoring via JMX
#JAVA_OPTS="-Xms100m -Xmx200m -
Dcom.sun.management.jmxremote"

# Note that the Flume conf directory is always included in
the classpath.
#FLUME_CLASSPATH=""
```

3)验证是否安装成功

```
root@m1:/home/hadoop# /home/hadoop/flume-1.5.0-
bin/bin/flume-ng version
Flume 1.5.0
Source code repository: https://git-wip-
us.apache.org/repos/asf/flume.git
Revision: 8633220df808c4cd0c13d1cf0320454a94f1ea97
Compiled by hshreedharan on Wed May 7 14:49:18 PDT 2014
From source with checksum a01fe726e4380ba0c9f7a7d222db961f
root@m1:/home/hadoop#
```

出现上面的信息，表示安装成功了

五、flume的案例

1)案例1：Avro

Avro可以发送一个给定的文件给Flume，Avro 源使用AVRO RPC机制。

a)创建agent配置文件

```
root@m1:/home/hadoop#vi /home/hadoop/flume-1.5.0-
bin/conf/avro.conf

```

```
a1.sources = r1
a1.sinks = k1
a1.channels = c1

# Describe/configure the source
a1.sources.r1.type = avro
a1.sources.r1.channels = c1
a1.sources.r1.bind = 0.0.0.0
a1.sources.r1.port = 4141

# Describe the sink
a1.sinks.k1.type = logger

# Use a channel which buffers events in memory
a1.channels.c1.type = memory
a1.channels.c1.capacity = 1000
a1.channels.c1.transactionCapacity = 100

# Bind the source and sink to the channel
a1.sources.r1.channels = c1
a1.sinks.k1.channel = c1
```

b)启动flume agent a1

```
root@m1:/home/hadoop# /home/hadoop/flume-1.5.0-bin/bin/flume-ng agent -c . -f /home/hadoop/flume-1.5.0-bin/conf/avro.conf -n a1 -Dflume.root.logger=INFO,console
```

c)创建指定文件

```
root@m1:/home/hadoop# echo "hello world" > /home/hadoop/flume-1.5.0-bin/log.00
```

d)使用avro-client发送文件

```
root@m1:/home/hadoop# /home/hadoop/flume-1.5.0-bin/bin/flume-ng avro-client -c . -H m1 -p 4141 -F /home/hadoop/flume-1.5.0-bin/log.00
```

f)在m1的控制台，可以看到以下信息，注意最后一行：

```
root@m1:/home/hadoop/flume-1.5.0-bin/conf# /home/hadoop/flume-1.5.0-bin/bin/flume-ng agent -c . -f /home/hadoop/flume-1.5.0-bin/conf/avro.conf -n a1 -Dflume.root.logger=INFO,console
```

```
Info: Sourcing environment configuration script
/home/hadoop/flume-1.5.0-bin/conf/flume-env.sh
Info: Including Hadoop libraries found via
(/home/hadoop/hadoop-2.2.0/bin/hadoop) for HDFS access
Info: Excluding /home/hadoop/hadoop-
2.2.0/share/hadoop/common/lib/slf4j-api-1.7.5.jar from
classpath
Info: Excluding /home/hadoop/hadoop-
2.2.0/share/hadoop/common/lib/slf4j-log4j12-1.7.5.jar from
classpath
...
-08-10 10:43:25,112 (New I/O worker #1) [INFO -
org.apache.avro.ipc.NettyServer$NettyServerAvroHandler.han
dleUpstream(NettyServer.java:171)] [id: 0x92464c4f,
/192.168.1.50:59850 :> /192.168.1.50:4141] UNBOUND
-08-10 10:43:25,112 (New I/O worker #1) [INFO -
org.apache.avro.ipc.NettyServer$NettyServerAvroHandler.han
dleUpstream(NettyServer.java:171)] [id: 0x92464c4f,
/192.168.1.50:59850 :> /192.168.1.50:4141] CLOSED
-08-10 10:43:25,112 (New I/O worker #1) [INFO -
org.apache.avro.ipc.NettyServer$NettyServerAvroHandler.cha
nnelClosed(NettyServer.java:209)] Connection to
/192.168.1.50:59850 disconnected.
-08-10 10:43:26,718 (SinkRunner-PollingRunner-
DefaultSinkProcessor) [INFO -
org.apache.flume.sink.LoggerSink.process(LoggerSink.java:7
0)] Event: { headers:{} body: 68 65 6C 6C 6F 20 77 6F 72
6C 64         hello world }
```

2)案例2：Spool
Spool监测配置的目录下新增的文件，并将文件中的数据读取出来。需要注意两点：
1) 拷贝到spool目录下的文件不可以再打开编辑。
2) spool目录下不可包含相应的子目录
a)创建agent配置文件

```
root@m1:/home/hadoop# vi /home/hadoop/flume-1.5.0-
bin/conf/spool.conf
a1.sources = r1
a1.sinks = k1
a1.channels = c1
# Describe/configure the source
a1.sources.r1.type = spooldir
a1.sources.r1.channels = c1
a1.sources.r1.spoolDir = /home/hadoop/flume-1.5.0-bin/logs
a1.sources.r1.fileHeader = true
# Describe the sink
a1.sinks.k1.type = logger
# Use a channel which buffers events in memory
a1.channels.c1.type = memory
```

```
a1.channels.c1.capacity = 1000
a1.channels.c1.transactionCapacity = 100
# Bind the source and sink to the channel
a1.sources.r1.channels = c1
a1.sinks.k1.channel = c1
```

b)启动flume agent a1

```
root@m1:/home/hadoop# /home/hadoop/flume-1.5.0-bin/bin/flume-ng agent -c . -f /home/hadoop/flume-1.5.0-bin/conf/spool.conf -n a1 -Dflume.root.logger=INFO,console
```

c)追加文件到/home/hadoop/flume-1.5.0-bin/logs目录

```
root@m1:/home/hadoop# echo "spool test1" > /home/hadoop/flume-1.5.0-bin/logs/spool_text.log
```

d)在m1的控制台，可以看到以下相关信息：

```
/08/10 11:37:13 INFO source.SpoolDirectorySource: Spooling Directory Source runner has shutdown.
/08/10 11:37:13 INFO source.SpoolDirectorySource: Spooling Directory Source runner has shutdown.
/08/10 11:37:14 INFO avro.ReliableSpoolingFileEventReader: Preparing to move file /home/hadoop/flume-1.5.0-bin/logs/spool_text.log to /home/hadoop/flume-1.5.0-bin/logs/spool_text.log.COMPLETED
/08/10 11:37:14 INFO source.SpoolDirectorySource: Spooling Directory Source runner has shutdown.
/08/10 11:37:14 INFO source.SpoolDirectorySource: Spooling Directory Source runner has shutdown.
/08/10 11:37:14 INFO sink.LoggerSink: Event: { headers: {file=/home/hadoop/flume-1.5.0-bin/logs/spool_text.log} body: 73 70 6F 6F 6C 20 74 65 73 74 31        spool test1 }
/08/10 11:37:15 INFO source.SpoolDirectorySource: Spooling Directory Source runner has shutdown.
/08/10 11:37:15 INFO source.SpoolDirectorySource: Spooling Directory Source runner has shutdown.
/08/10 11:37:16 INFO source.SpoolDirectorySource: Spooling Directory Source runner has shutdown.
/08/10 11:37:16 INFO source.SpoolDirectorySource: Spooling Directory Source runner has shutdown.
/08/10 11:37:17 INFO source.SpoolDirectorySource: Spooling Directory Source runner has shutdown.
```

3)案例3：Exec
EXEC执行一个给定的命令获得输出的源,如果要使用tail命令，必选使得file足够大才能看到输出内容
a)创建agent配置文件

```
root@m1:/home/hadoop# vi /home/hadoop/flume-1.5.0-bin/conf/exec_tail.conf
a1.sources = r1
a1.sinks = k1
a1.channels = c1
# Describe/configure the source
a1.sources.r1.type = exec
a1.sources.r1.channels = c1
a1.sources.r1.command = tail -F /home/hadoop/flume-1.5.0-bin/log_exec_tail
# Describe the sink
a1.sinks.k1.type = logger
# Use a channel which buffers events in memory
a1.channels.c1.type = memory
a1.channels.c1.capacity = 1000
a1.channels.c1.transactionCapacity = 100
# Bind the source and sink to the channel
a1.sources.r1.channels = c1
a1.sinks.k1.channel = c1
```

b)启动flume agent a1

```
root@m1:/home/hadoop# /home/hadoop/flume-1.5.0-bin/bin/flume-ng agent -c . -f /home/hadoop/flume-1.5.0-bin/conf/exec_tail.conf -n a1 -Dflume.root.logger=INFO,console
```

c)生成足够多的内容在文件里

```
root@m1:/home/hadoop# for i in {1..100};do echo "exec tail$i" >> /home/hadoop/flume-1.5.0-bin/log_exec_tail;echo $i;sleep 0.1;done
```

e)在m1的控制台，可以看到以下信息：

```
-08-10 10:59:25,513 (SinkRunner-PollingRunner-DefaultSinkProcessor) [INFO - org.apache.flume.sink.LoggerSink.process(LoggerSink.java:70)] Event: { headers:{} body: 65 78 65 63 20 74 61 69 6C 20 74 65 73 74    exec tail test }

```

```
-08-10 10:59:34,535 (SinkRunner-PollingRunner-
DefaultSinkProcessor) [INFO -
org.apache.flume.sink.LoggerSink.process(LoggerSink.java:7
0)] Event: { headers:{} body: 65 78 65 63 20 74 61 69 6C
20 74 65 73 74    exec tail test }
-08-10 11:01:40,557 (SinkRunner-PollingRunner-
DefaultSinkProcessor) [INFO -
org.apache.flume.sink.LoggerSink.process(LoggerSink.java:7
0)] Event: { headers:{} body: 65 78 65 63 20 74 61 69 6C
31          exec tail1 }
-08-10 11:01:41,180 (SinkRunner-PollingRunner-
DefaultSinkProcessor) [INFO -
org.apache.flume.sink.LoggerSink.process(LoggerSink.java:7
0)] Event: { headers:{} body: 65 78 65 63 20 74 61 69 6C
32          exec tail2 }
-08-10 11:01:41,180 (SinkRunner-PollingRunner-
DefaultSinkProcessor) [INFO -
org.apache.flume.sink.LoggerSink.process(LoggerSink.java:7
0)] Event: { headers:{} body: 65 78 65 63 20 74 61 69 6C
33          exec tail3 }
-08-10 11:01:41,181 (SinkRunner-PollingRunner-
DefaultSinkProcessor) [INFO -
org.apache.flume.sink.LoggerSink.process(LoggerSink.java:7
0)] Event: { headers:{} body: 65 78 65 63 20 74 61 69 6C
34          exec tail4 }
-08-10 11:01:41,181 (SinkRunner-PollingRunner-
DefaultSinkProcessor) [INFO -
org.apache.flume.sink.LoggerSink.process(LoggerSink.java:7
0)] Event: { headers:{} body: 65 78 65 63 20 74 61 69 6C
35          exec tail5 }
-08-10 11:01:41,181 (SinkRunner-PollingRunner-
DefaultSinkProcessor) [INFO -
org.apache.flume.sink.LoggerSink.process(LoggerSink.java:7
0)] Event: { headers:{} body: 65 78 65 63 20 74 61 69 6C
36          exec tail6 }
....
....
....
-08-10 11:01:51,550 (SinkRunner-PollingRunner-
DefaultSinkProcessor) [INFO -
org.apache.flume.sink.LoggerSink.process(LoggerSink.java:7
0)] Event: { headers:{} body: 65 78 65 63 20 74 61 69 6C
39 36        exec tail96 }
-08-10 11:01:51,550 (SinkRunner-PollingRunner-
DefaultSinkProcessor) [INFO -
org.apache.flume.sink.LoggerSink.process(LoggerSink.java:7
0)] Event: { headers:{} body: 65 78 65 63 20 74 61 69 6C
39 37        exec tail97 }
```

```
-08-10 11:01:51,551 (SinkRunner-PollingRunner-
DefaultSinkProcessor) [INFO -
org.apache.flume.sink.LoggerSink.process(LoggerSink.java:7
0)] Event: { headers:{} body: 65 78 65 63 20 74 61 69 6C
39 38        exec tail98 }
-08-10 11:01:51,551 (SinkRunner-PollingRunner-
DefaultSinkProcessor) [INFO -
org.apache.flume.sink.LoggerSink.process(LoggerSink.java:7
0)] Event: { headers:{} body: 65 78 65 63 20 74 61 69 6C
39 39        exec tail99 }
-08-10 11:01:51,551 (SinkRunner-PollingRunner-
DefaultSinkProcessor) [INFO -
org.apache.flume.sink.LoggerSink.process(LoggerSink.java:7
0)] Event: { headers:{} body: 65 78 65 63 20 74 61 69 6C
31 30 30       exec tail100 }
```

4)案例4：Syslogtcp
Syslogtcp监听TCP的端口做为数据源
a)创建agent配置文件

```
root@m1:/home/hadoop# vi /home/hadoop/flume-1.5.0-
bin/conf/syslog_tcp.conf
a1.sources = r1
a1.sinks = k1
a1.channels = c1
# Describe/configure the source
a1.sources.r1.type = syslogtcp
a1.sources.r1.port = 5140
a1.sources.r1.host = localhost
a1.sources.r1.channels = c1
# Describe the sink
a1.sinks.k1.type = logger
# Use a channel which buffers events in memory
a1.channels.c1.type = memory
a1.channels.c1.capacity = 1000
a1.channels.c1.transactionCapacity = 100
# Bind the source and sink to the channel
a1.sources.r1.channels = c1
a1.sinks.k1.channel = c1
```

b)启动flume agent a1

```
root@m1:/home/hadoop# /home/hadoop/flume-1.5.0-
bin/bin/flume-ng agent -c . -f /home/hadoop/flume-1.5.0-
bin/conf/syslog_tcp.conf -n a1 -
Dflume.root.logger=INFO,console
```

c)测试产生syslog

```
root@m1:/home/hadoop# echo "hello idoall.org syslog" | nc localhost 5140
```

d)在m1的控制台，可以看到以下信息：

```
/08/10 11:41:45 INFO node.PollingPropertiesFileConfigurationProvider: Reloading configuration file:/home/hadoop/flume-1.5.0-bin/conf/syslog_tcp.conf
/08/10 11:41:45 INFO conf.FlumeConfiguration: Added sinks: k1 Agent: a1
/08/10 11:41:45 INFO conf.FlumeConfiguration: Processing:k1
/08/10 11:41:45 INFO conf.FlumeConfiguration: Processing:k1
/08/10 11:41:45 INFO conf.FlumeConfiguration: Post-validation flume configuration contains configuration for agents: [a1]
/08/10 11:41:45 INFO node.AbstractConfigurationProvider: Creating channels
/08/10 11:41:45 INFO channel.DefaultChannelFactory: Creating instance of channel c1 type memory
/08/10 11:41:45 INFO node.AbstractConfigurationProvider: Created channel c1
/08/10 11:41:45 INFO source.DefaultSourceFactory: Creating instance of source r1, type syslogtcp
/08/10 11:41:45 INFO sink.DefaultSinkFactory: Creating instance of sink: k1, type: logger
/08/10 11:41:45 INFO node.AbstractConfigurationProvider: Channel c1 connected to [r1, k1]
/08/10 11:41:45 INFO node.Application: Starting new configuration:{ sourceRunners:{r1=EventDrivenSourceRunner: {
source:org.apache.flume.source.SyslogTcpSource{name:r1,state:IDLE} }} sinkRunners:{k1=SinkRunner: {
policy:org.apache.flume.sink.DefaultSinkProcessor@6538b14 counterGroup:{ name:null counters:{} } }} channels: {c1=org.apache.flume.channel.MemoryChannel{name: c1}} }
/08/10 11:41:45 INFO node.Application: Starting Channel c1
/08/10 11:41:45 INFO instrumentation.MonitoredCounterGroup: Monitored counter group for type: CHANNEL, name: c1: Successfully registered new MBean.
/08/10 11:41:45 INFO instrumentation.MonitoredCounterGroup: Component type: CHANNEL, name: c1 started
```

```
/08/10 11:41:45 INFO node.Application: Starting Sink k1
/08/10 11:41:45 INFO node.Application: Starting Source r1
/08/10 11:41:45 INFO source.SyslogTcpSource: Syslog TCP
Source starting...
/08/10 11:42:15 WARN source.SyslogUtils: Event created
from Invalid Syslog data.
/08/10 11:42:15 INFO sink.LoggerSink: Event: { headers:
{Severity=0, flume.syslog.status=Invalid, Facility=0}
body: 68 65 6C 6C 6F 20 69 64 6F 61 6C 6C 2E 6F 72 67
hello idoall.org }
```

5)案例5：JSONHandler

a)创建agent配置文件

```
root@m1:/home/hadoop# vi /home/hadoop/flume-1.5.0-
bin/conf/post_json.conf
a1.sources = r1
a1.sinks = k1
a1.channels = c1
# Describe/configure the source
a1.sources.r1.type =
org.apache.flume.source.http.HTTPSource
a1.sources.r1.port = 8888
a1.sources.r1.channels = c1
# Describe the sink
a1.sinks.k1.type = logger
# Use a channel which buffers events in memory
a1.channels.c1.type = memory
a1.channels.c1.capacity = 1000
a1.channels.c1.transactionCapacity = 100
# Bind the source and sink to the channel
a1.sources.r1.channels = c1
a1.sinks.k1.channel = c1
```

b)启动flume agent a1

```
root@m1:/home/hadoop# /home/hadoop/flume-1.5.0-
bin/bin/flume-ng agent -c . -f /home/hadoop/flume-1.5.0-
bin/conf/post_json.conf -n a1 -
Dflume.root.logger=INFO,console
```

c)生成JSON 格式的POST request

```
root@m1:/home/hadoop# curl -X POST -d '[{ "headers" :{"a"
: "a1","b" : "b1"},"body" : "idoall.org_body"}]'
http://localhost:8888
```

d)在m1的控制台，可以看到以下信息：

/

```
08/10 11:49:59 INFO node.Application: Starting Channel c1
/08/10 11:49:59 INFO
instrumentation.MonitoredCounterGroup: Monitored counter
group for type: CHANNEL, name: c1: Successfully registered
new MBean.
/08/10 11:49:59 INFO
instrumentation.MonitoredCounterGroup: Component type:
CHANNEL, name: c1 started
/08/10 11:49:59 INFO node.Application: Starting Sink k1
/08/10 11:49:59 INFO node.Application: Starting Source r1
/08/10 11:49:59 INFO mortbay.log: Logging to
org.slf4j.impl.Log4jLoggerAdapter(org.mortbay.log) via
org.mortbay.log.Slf4jLog
/08/10 11:49:59 INFO mortbay.log: jetty-6.1.26
/08/10 11:50:00 INFO mortbay.log: Started
SelectChannelConnector@0.0.0.0:8888
/08/10 11:50:00 INFO
instrumentation.MonitoredCounterGroup: Monitored counter
group for type: SOURCE, name: r1: Successfully registered
new MBean.
/08/10 11:50:00 INFO
instrumentation.MonitoredCounterGroup: Component type:
SOURCE, name: r1 started
/08/10 12:14:32 INFO sink.LoggerSink: Event: { headers:
{b=b1, a=a1} body: 69 64 6F 61 6C 6C 2E 6F 72 67 5F 62 6F
64 79  idoall.org_body }
```

6)案例6：Hadoop sink

其中关于hadoop2.2.0部分的安装部署，请参考文章《ubuntu12.04+hadoop2.2.0+zookeeper3.4.5+hbase0.96.2+hive0.13.1分布式环境部署》

a)创建agent配置文件

```
root@m1:/home/hadoop# vi /home/hadoop/flume-1.5.0-
bin/conf/hdfs_sink.conf
a1.sources = r1
a1.sinks = k1
a1.channels = c1
# Describe/configure the source
a1.sources.r1.type = syslogtcp
a1.sources.r1.port = 5140
a1.sources.r1.host = localhost
a1.sources.r1.channels = c1
# Describe the sink
a1.sinks.k1.type = hdfs
a1.sinks.k1.channel = c1
```

```
a1.sinks.k1.hdfs.path =
hdfs://m1:9000/user/flume/syslogtcp
a1.sinks.k1.hdfs.filePrefix = Syslog
a1.sinks.k1.hdfs.round = true
a1.sinks.k1.hdfs.roundValue = 10
a1.sinks.k1.hdfs.roundUnit = minute
# Use a channel which buffers events in memory
a1.channels.c1.type = memory
a1.channels.c1.capacity = 1000
a1.channels.c1.transactionCapacity = 100
# Bind the source and sink to the channel
a1.sources.r1.channels = c1
a1.sinks.k1.channel = c1
```

b)启动flume agent a1

```
root@m1:/home/hadoop# /home/hadoop/flume-1.5.0-
bin/bin/flume-ng agent -c . -f /home/hadoop/flume-1.5.0-
bin/conf/hdfs_sink.conf -n a1 -
Dflume.root.logger=INFO,console
```

c)测试产生syslog

```
root@m1:/home/hadoop# echo "hello idoall flume -> hadoop
testing one" | nc localhost 5140
```

d)在m1的控制台，可以看到以下信息：

```
/08/10 12:20:39 INFO
instrumentation.MonitoredCounterGroup: Monitored counter
group for type: CHANNEL, name: c1: Successfully registered
new MBean.
/08/10 12:20:39 INFO
instrumentation.MonitoredCounterGroup: Component type:
CHANNEL, name: c1 started
/08/10 12:20:39 INFO node.Application: Starting Sink k1
/08/10 12:20:39 INFO node.Application: Starting Source r1
/08/10 12:20:39 INFO
instrumentation.MonitoredCounterGroup: Monitored counter
group for type: SINK, name: k1: Successfully registered
new MBean.
/08/10 12:20:39 INFO
instrumentation.MonitoredCounterGroup: Component type:
SINK, name: k1 started
/08/10 12:20:39 INFO source.SyslogTcpSource: Syslog TCP
Source starting...
```

```
/08/10 12:21:46 WARN source.SyslogUtils: Event created
from Invalid Syslog data.
/08/10 12:21:49 INFO hdfs.HDFSSequenceFile: writeFormat =
Writable, UseRawLocalFileSystem = false
/08/10 12:21:49 INFO hdfs.BucketWriter: Creating
hdfs://m1:9000/user/flume/syslogtcp//Syslog.1407644509504.
tmp
/08/10 12:22:20 INFO hdfs.BucketWriter: Closing
hdfs://m1:9000/user/flume/syslogtcp//Syslog.1407644509504.
tmp
/08/10 12:22:20 INFO hdfs.BucketWriter: Close tries
incremented
/08/10 12:22:20 INFO hdfs.BucketWriter: Renaming
hdfs://m1:9000/user/flume/syslogtcp/Syslog.1407644509504.t
mp to
hdfs://m1:9000/user/flume/syslogtcp/Syslog.1407644509504
/08/10 12:22:20 INFO hdfs.HDFSEventSink: Writer callback
called.
```

e)在m1上再打开一个窗口，去hadoop上检查文件是否生成

```
root@m1:/home/hadoop# /home/hadoop/hadoop-2.2.0/bin/hadoop
fs -ls /user/flume/syslogtcp
Found 1 items
-rw-r--r--  3 root supergroup    155 2014-08-10 12:22
/user/flume/syslogtcp/Syslog.1407644509504
root@m1:/home/hadoop# /home/hadoop/hadoop-2.2.0/bin/hadoop
fs -cat /user/flume/syslogtcp/Syslog.1407644509504
SEQ!org.apache.hadoop.io.LongWritable"org.apache.hadoop.io
.BytesWritable^;>Gv$hello idoall flume -> hadoop testing
one
```

7)案例7：File Roll Sink

a)创建agent配置文件

```
root@m1:/home/hadoop# vi /home/hadoop/flume-1.5.0-
bin/conf/file_roll.conf
a1.sources = r1
a1.sinks = k1
a1.channels = c1
# Describe/configure the source
a1.sources.r1.type = syslogtcp
a1.sources.r1.port = 5555
a1.sources.r1.host = localhost
a1.sources.r1.channels = c1
# Describe the sink
a1.sinks.k1.type = file_roll
a1.sinks.k1.sink.directory = /home/hadoop/flume-1.5.0-
bin/logs
```

```
# Use a channel which buffers events in memory
a1.channels.c1.type = memory
a1.channels.c1.capacity = 1000
a1.channels.c1.transactionCapacity = 100
# Bind the source and sink to the channel
a1.sources.r1.channels = c1
a1.sinks.k1.channel = c1
```

b)启动flume agent a1

```
root@m1:/home/hadoop# /home/hadoop/flume-1.5.0-bin/bin/flume-ng agent -c . -f /home/hadoop/flume-1.5.0-bin/conf/file_roll.conf -n a1 -Dflume.root.logger=INFO,console
```

c)测试产生log

```
root@m1:/home/hadoop# echo "hello idoall.org syslog" | nc localhost 5555
root@m1:/home/hadoop# echo "hello idoall.org syslog 2" | nc localhost 5555
```

d)查看/home/hadoop/flume-1.5.0-bin/logs下是否生成文件,默认每30秒生成一个新文件

```
root@m1:/home/hadoop# ll /home/hadoop/flume-1.5.0-bin/logs
总用量 272
drwxr-xr-x 3 root root  4096 Aug 10 12:50 ./
drwxr-xr-x 9 root root  4096 Aug 10 10:59 ../
-rw-r--r-- 1 root root   50 Aug 10 12:49 1407646164782-1
-rw-r--r-- 1 root root   0 Aug 10 12:49 1407646164782-2
-rw-r--r-- 1 root root   0 Aug 10 12:50 1407646164782-3
root@m1:/home/hadoop# cat /home/hadoop/flume-1.5.0-bin/logs/1407646164782-1 /home/hadoop/flume-1.5.0-bin/logs/1407646164782-2
hello idoall.org syslog
hello idoall.org syslog 2
```

8)案例8：Replicating Channel Selector

Flume支持Fan out流从一个源到多个通道。有两种模式的Fan out，分别是复制和复用。在复制的情况下，流的事件被发送到所有的配置通道。在复用的情况下，事件被发送到可用的渠道中的一个子集。Fan out流需要指定源和Fan out通道的规则。

这次我们需要用到m1,m2两台机器

a)在m1创建replicating_Channel_Selector配置文件

```
root@m1:/home/hadoop# vi /home/hadoop/flume-1.5.0-bin/conf/replicating_Channel_Selector.conf
```

```
a1.sources = r1
a1.sinks = k1 k2
a1.channels = c1 c2
# Describe/configure the source
a1.sources.r1.type = syslogtcp
a1.sources.r1.port = 5140
a1.sources.r1.host = localhost
a1.sources.r1.channels = c1 c2
a1.sources.r1.selector.type = replicating
# Describe the sink
a1.sinks.k1.type = avro
a1.sinks.k1.channel = c1
a1.sinks.k1.hostname = m1
a1.sinks.k1.port = 5555
a1.sinks.k2.type = avro
a1.sinks.k2.channel = c2
a1.sinks.k2.hostname = m2
a1.sinks.k2.port = 5555
# Use a channel which buffers events in memory
a1.channels.c1.type = memory
a1.channels.c1.capacity = 1000
a1.channels.c1.transactionCapacity = 100
a1.channels.c2.type = memory
a1.channels.c2.capacity = 1000
a1.channels.c2.transactionCapacity = 100
```

b)在m1创建replicating_Channel_Selector_avro配置文件

```
root@m1:/home/hadoop# vi /home/hadoop/flume-1.5.0-
bin/conf/replicating_Channel_Selector_avro.conf
a1.sources = r1
a1.sinks = k1
a1.channels = c1
# Describe/configure the source
a1.sources.r1.type = avro
a1.sources.r1.channels = c1
a1.sources.r1.bind = 0.0.0.0
a1.sources.r1.port = 5555
# Describe the sink
a1.sinks.k1.type = logger
# Use a channel which buffers events in memory
a1.channels.c1.type = memory
a1.channels.c1.capacity = 1000
a1.channels.c1.transactionCapacity = 100
# Bind the source and sink to the channel
a1.sources.r1.channels = c1
a1.sinks.k1.channel = c1
```

c)在m1上将2个配置文件复制到m2上一份

```
root@m1:/home/hadoop/flume-1.5.0-bin# scp -r
/home/hadoop/flume-1.5.0-
bin/conf/replicating_Channel_Selector.conf
root@m2:/home/hadoop/flume-1.5.0-
bin/conf/replicating_Channel_Selector.conf
root@m1:/home/hadoop/flume-1.5.0-bin# scp -r
/home/hadoop/flume-1.5.0-
bin/conf/replicating_Channel_Selector_avro.conf
root@m2:/home/hadoop/flume-1.5.0-
bin/conf/replicating_Channel_Selector_avro.conf<br>
```

d)打开4个窗口，在m1和m2上同时启动两个flume agent

```
root@m1:/home/hadoop# /home/hadoop/flume-1.5.0-
bin/bin/flume-ng agent -c . -f /home/hadoop/flume-1.5.0-
bin/conf/replicating_Channel_Selector_avro.conf -n a1 -
Dflume.root.logger=INFO,console
root@m1:/home/hadoop# /home/hadoop/flume-1.5.0-
bin/bin/flume-ng agent -c . -f /home/hadoop/flume-1.5.0-
bin/conf/replicating_Channel_Selector.conf -n a1 -
Dflume.root.logger=INFO,console
```

e)然后在m1或m2的任意一台机器上，测试产生syslog

```
root@m1:/home/hadoop# echo "hello idoall.org syslog" | nc
localhost 5140
```

f)在m1和m2的sink窗口，分别可以看到以下信息,这说明信息得到了同步：

```
/08/10 14:08:18 INFO ipc.NettyServer: Connection to
/192.168.1.51:46844 disconnected.
/08/10 14:08:52 INFO ipc.NettyServer: [id: 0x90f8fe1f,
/192.168.1.50:35873 => /192.168.1.50:5555] OPEN
/08/10 14:08:52 INFO ipc.NettyServer: [id: 0x90f8fe1f,
/192.168.1.50:35873 => /192.168.1.50:5555] BOUND:
/192.168.1.50:5555
/08/10 14:08:52 INFO ipc.NettyServer: [id: 0x90f8fe1f,
/192.168.1.50:35873 => /192.168.1.50:5555] CONNECTED:
/192.168.1.50:35873
/08/10 14:08:59 INFO ipc.NettyServer: [id: 0xd6318635,
/192.168.1.51:46858 => /192.168.1.50:5555] OPEN
/08/10 14:08:59 INFO ipc.NettyServer: [id: 0xd6318635,
/192.168.1.51:46858 => /192.168.1.50:5555] BOUND:
```

```
/192.168.1.50:5555
/08/10 14:08:59 INFO ipc.NettyServer: [id: 0xd6318635,
/192.168.1.51:46858 => /192.168.1.50:5555] CONNECTED:
/192.168.1.51:46858
/08/10 14:09:20 INFO sink.LoggerSink: Event: { headers:
{Severity=0, flume.syslog.status=Invalid, Facility=0}
body: 68 65 6C 6C 6F 20 69 64 6F 61 6C 6C 2E 6F 72 67
hello idoall.org }
```

9)案例9：Multiplexing Channel Selector

a)在m1创建Multiplexing_Channel_Selector配置文件

```
root@m1:/home/hadoop# vi /home/hadoop/flume-1.5.0-
bin/conf/Multiplexing_Channel_Selector.conf
a1.sources = r1
a1.sinks = k1 k2
a1.channels = c1 c2
# Describe/configure the source
a1.sources.r1.type =
org.apache.flume.source.http.HTTPSource
a1.sources.r1.port = 5140
a1.sources.r1.channels = c1 c2
a1.sources.r1.selector.type = multiplexing
a1.sources.r1.selector.header = type
#映射允许每个值通道可以重叠。默认值可以包含任意数量的通道。
a1.sources.r1.selector.mapping.baidu = c1
a1.sources.r1.selector.mapping.ali = c2
a1.sources.r1.selector.default = c1
# Describe the sink
a1.sinks.k1.type = avro
a1.sinks.k1.channel = c1
a1.sinks.k1.hostname = m1
a1.sinks.k1.port = 5555
a1.sinks.k2.type = avro
a1.sinks.k2.channel = c2
a1.sinks.k2.hostname = m2
a1.sinks.k2.port = 5555
# Use a channel which buffers events in memory
a1.channels.c1.type = memory
a1.channels.c1.capacity = 1000
a1.channels.c1.transactionCapacity = 100
a1.channels.c2.type = memory
a1.channels.c2.capacity = 1000
a1.channels.c2.transactionCapacity = 100
```

b)在m1创建Multiplexing_Channel_Selector_avro配置文件

```
root@m1:/home/hadoop# vi /home/hadoop/flume-1.5.0-bin/conf/Multiplexing_Channel_Selector_avro.conf
a1.sources = r1
a1.sinks = k1
a1.channels = c1
# Describe/configure the source
a1.sources.r1.type = avro
a1.sources.r1.channels = c1
a1.sources.r1.bind = 0.0.0.0
a1.sources.r1.port = 5555
# Describe the sink
a1.sinks.k1.type = logger
# Use a channel which buffers events in memory
a1.channels.c1.type = memory
a1.channels.c1.capacity = 1000
a1.channels.c1.transactionCapacity = 100
# Bind the source and sink to the channel
a1.sources.r1.channels = c1
a1.sinks.k1.channel = c1
```

c)将2个配置文件复制到m2上一份

```
root@m1:/home/hadoop/flume-1.5.0-bin# scp -r /home/hadoop/flume-1.5.0-bin/conf/Multiplexing_Channel_Selector.conf root@m2:/home/hadoop/flume-1.5.0-bin/conf/Multiplexing_Channel_Selector.conf
root@m1:/home/hadoop/flume-1.5.0-bin# scp -r /home/hadoop/flume-1.5.0-bin/conf/Multiplexing_Channel_Selector_avro.conf root@m2:/home/hadoop/flume-1.5.0-bin/conf/Multiplexing_Channel_Selector_avro.conf
```

d)打开4个窗口，在m1和m2上同时启动两个flume agent

```
root@m1:/home/hadoop# /home/hadoop/flume-1.5.0-bin/bin/flume-ng agent -c . -f /home/hadoop/flume-1.5.0-bin/conf/Multiplexing_Channel_Selector_avro.conf -n a1 -Dflume.root.logger=INFO,console
root@m1:/home/hadoop# /home/hadoop/flume-1.5.0-bin/bin/flume-ng agent -c . -f /home/hadoop/flume-1.5.0-bin/conf/Multiplexing_Channel_Selector.conf -n a1 -Dflume.root.logger=INFO,console
```

e)然后在m1或m2的任意一台机器上，测试产生syslog

```
root@m1:/home/hadoop# curl -X POST -d '[{ "headers" : {"type" : "baidu"},"body" : "idoall_TEST1"}]' http://localhost:5140 && curl -X POST -d '[{ "headers" : {"type" : "ali"},"body" : "idoall_TEST2"}]' http://localhost:5140 && curl -X POST -d '[{ "headers" : {"type" : "qq"},"body" : "idoall_TEST3"}]' http://localhost:5140
```

f)在m1的sink窗口，可以看到以下信息：

```
14/08/10 14:32:21 INFO node.Application: Starting Sink k1
14/08/10 14:32:21 INFO node.Application: Starting Source r1
14/08/10 14:32:21 INFO source.AvroSource: Starting Avro source r1: { bindAddress: 0.0.0.0, port: 5555 }...
14/08/10 14:32:21 INFO instrumentation.MonitoredCounterGroup: Monitored counter group for type: SOURCE, name: r1: Successfully registered new MBean.
14/08/10 14:32:21 INFO instrumentation.MonitoredCounterGroup: Component type: SOURCE, name: r1 started
14/08/10 14:32:21 INFO source.AvroSource: Avro source r1 started.
14/08/10 14:32:36 INFO ipc.NettyServer: [id: 0xcf00eea6, /192.168.1.50:35916 => /192.168.1.50:5555] OPEN
14/08/10 14:32:36 INFO ipc.NettyServer: [id: 0xcf00eea6, /192.168.1.50:35916 => /192.168.1.50:5555] BOUND: /192.168.1.50:5555
14/08/10 14:32:36 INFO ipc.NettyServer: [id: 0xcf00eea6, /192.168.1.50:35916 => /192.168.1.50:5555] CONNECTED: /192.168.1.50:35916
14/08/10 14:32:44 INFO ipc.NettyServer: [id: 0x432f5468, /192.168.1.51:46945 => /192.168.1.50:5555] OPEN
14/08/10 14:32:44 INFO ipc.NettyServer: [id: 0x432f5468, /192.168.1.51:46945 => /192.168.1.50:5555] BOUND: /192.168.1.50:5555
14/08/10 14:32:44 INFO ipc.NettyServer: [id: 0x432f5468, /192.168.1.51:46945 => /192.168.1.50:5555] CONNECTED: /192.168.1.51:46945
14/08/10 14:34:11 INFO sink.LoggerSink: Event: { headers: {type=baidu} body: 69 64 6F 61 6C 6C 5F 54 45 53 54 31       idoall_TEST1 }
14/08/10 14:34:57 INFO sink.LoggerSink: Event: { headers: {type=qq} body: 69 64 6F 61 6C 6C 5F 54 45 53 54 33       idoall_TEST3 }
```

g)在m2的sink窗口，可以看到以下信息：

```
14/08/10 14:32:27 INFO node.Application: Starting Sink k1
14/08/10 14:32:27 INFO node.Application: Starting Source
r1
14/08/10 14:32:27 INFO source.AvroSource: Starting Avro
source r1: { bindAddress: 0.0.0.0, port: 5555 }...
14/08/10 14:32:27 INFO
instrumentation.MonitoredCounterGroup: Monitored counter
group for type: SOURCE, name: r1: Successfully registered
new MBean.
14/08/10 14:32:27 INFO
instrumentation.MonitoredCounterGroup: Component type:
SOURCE, name: r1 started
14/08/10 14:32:27 INFO source.AvroSource: Avro source r1
started.
14/08/10 14:32:36 INFO ipc.NettyServer: [id: 0x7c2f0aec,
/192.168.1.50:38104 => /192.168.1.51:5555] OPEN
14/08/10 14:32:36 INFO ipc.NettyServer: [id: 0x7c2f0aec,
/192.168.1.50:38104 => /192.168.1.51:5555] BOUND:
/192.168.1.51:5555
14/08/10 14:32:36 INFO ipc.NettyServer: [id: 0x7c2f0aec,
/192.168.1.50:38104 => /192.168.1.51:5555] CONNECTED:
/192.168.1.50:38104
14/08/10 14:32:44 INFO ipc.NettyServer: [id: 0x3d36f553,
/192.168.1.51:48599 => /192.168.1.51:5555] OPEN
14/08/10 14:32:44 INFO ipc.NettyServer: [id: 0x3d36f553,
/192.168.1.51:48599 => /192.168.1.51:5555] BOUND:
/192.168.1.51:5555
14/08/10 14:32:44 INFO ipc.NettyServer: [id: 0x3d36f553,
/192.168.1.51:48599 => /192.168.1.51:5555] CONNECTED:
/192.168.1.51:48599
14/08/10 14:34:33 INFO sink.LoggerSink: Event: { headers:
{type=ali} body: 69 64 6F 61 6C 6C 5F 54 45 53 54 32
idoall_TEST2 }
```

可以看到，根据header中不同的条件分布到不同的channel上

10)案例10：Flume Sink Processors
failover的机器是一直发送给其中一个sink，当这个sink不可用的时候，自动发送到下一个sink。

a)在m1创建Flume_Sink_Processors配置文件

```
root@m1:/home/hadoop# vi /home/hadoop/flume-1.5.0-
bin/conf/Flume_Sink_Processors.conf

a1.sources = r1
a1.sinks = k1 k2
a1.channels = c1 c2

```

```
#这个是配置failover的关键，需要有一个sink group
a1.sinkgroups = g1
a1.sinkgroups.g1.sinks = k1 k2
#处理的类型是failover
a1.sinkgroups.g1.processor.type = failover
#优先级，数字越大优先级越高，每个sink的优先级必须不相同
a1.sinkgroups.g1.processor.priority.k1 = 5
a1.sinkgroups.g1.processor.priority.k2 = 10
#设置为10秒，当然可以根据你的实际状况更改成更快或者很慢
a1.sinkgroups.g1.processor.maxpenalty = 10000

# Describe/configure the source
a1.sources.r1.type = syslogtcp
a1.sources.r1.port = 5140
a1.sources.r1.channels = c1 c2
a1.sources.r1.selector.type = replicating


# Describe the sink
a1.sinks.k1.type = avro
a1.sinks.k1.channel = c1
a1.sinks.k1.hostname = m1
a1.sinks.k1.port = 5555

a1.sinks.k2.type = avro
a1.sinks.k2.channel = c2
a1.sinks.k2.hostname = m2
a1.sinks.k2.port = 5555

# Use a channel which buffers events in memory
a1.channels.c1.type = memory
a1.channels.c1.capacity = 1000
a1.channels.c1.transactionCapacity = 100

a1.channels.c2.type = memory
a1.channels.c2.capacity = 1000
a1.channels.c2.transactionCapacity = 100
```

b)在m1创建Flume_Sink_Processors_avro配置文件

```
root@m1:/home/hadoop# vi /home/hadoop/flume-1.5.0-
bin/conf/Flume_Sink_Processors_avro.conf

a1.sources = r1
a1.sinks = k1
a1.channels = c1

# Describe/configure the source
```

```
a1.sources.r1.type = avro
a1.sources.r1.channels = c1
a1.sources.r1.bind = 0.0.0.0
a1.sources.r1.port = 5555

# Describe the sink
a1.sinks.k1.type = logger

# Use a channel which buffers events in memory
a1.channels.c1.type = memory
a1.channels.c1.capacity = 1000
a1.channels.c1.transactionCapacity = 100

# Bind the source and sink to the channel
a1.sources.r1.channels = c1
a1.sinks.k1.channel = c1
```

c)将2个配置文件复制到m2上一份

```
root@m1:/home/hadoop/flume-1.5.0-bin# scp -r
/home/hadoop/flume-1.5.0-
bin/conf/Flume_Sink_Processors.conf
root@m2:/home/hadoop/flume-1.5.0-
bin/conf/Flume_Sink_Processors.conf
root@m1:/home/hadoop/flume-1.5.0-bin# scp -r
/home/hadoop/flume-1.5.0-
bin/conf/Flume_Sink_Processors_avro.conf
root@m2:/home/hadoop/flume-1.5.0-
bin/conf/Flume_Sink_Processors_avro.conf
```

d)打开4个窗口，在m1和m2上同时启动两个flume agent

```
root@m1:/home/hadoop# /home/hadoop/flume-1.5.0-
bin/bin/flume-ng agent -c . -f /home/hadoop/flume-1.5.0-
bin/conf/Flume_Sink_Processors_avro.conf -n a1 -
Dflume.root.logger=INFO,console
root@m1:/home/hadoop# /home/hadoop/flume-1.5.0-
bin/bin/flume-ng agent -c . -f /home/hadoop/flume-1.5.0-
bin/conf/Flume_Sink_Processors.conf -n a1 -
Dflume.root.logger=INFO,console
```

e)然后在m1或m2的任意一台机器上，测试产生log

```
root@m1:/home/hadoop# echo "idoall.org test1 failover" |
nc localhost 5140
```

f)因为m2的优先级高，所以在m2的sink窗口，可以看到以下信息，而m1没有：

```
14/08/10 15:02:46 INFO ipc.NettyServer: Connection to
/192.168.1.51:48692 disconnected.
14/08/10 15:03:12 INFO ipc.NettyServer: [id: 0x09a14036,
/192.168.1.51:48704 => /192.168.1.51:5555] OPEN
14/08/10 15:03:12 INFO ipc.NettyServer: [id: 0x09a14036,
/192.168.1.51:48704 => /192.168.1.51:5555] BOUND:
/192.168.1.51:5555
14/08/10 15:03:12 INFO ipc.NettyServer: [id: 0x09a14036,
/192.168.1.51:48704 => /192.168.1.51:5555] CONNECTED:
/192.168.1.51:48704
14/08/10 15:03:26 INFO sink.LoggerSink: Event: { headers:
{Severity=0, flume.syslog.status=Invalid, Facility=0}
body: 69 64 6F 61 6C 6C 2E 6F 72 67 20 74 65 73 74 31
idoall.org test1 }
```

g)这时我们停止掉m2机器上的sink(ctrl+c)，再次输出测试数据：

```
root@m1:/home/hadoop# echo "idoall.org test2 failover" |
nc localhost 5140
```

h)可以在m1的sink窗口，看到读取到了刚才发送的两条测试数据：

```
14/08/10 15:02:46 INFO ipc.NettyServer: Connection to
/192.168.1.51:47036 disconnected.
14/08/10 15:03:12 INFO ipc.NettyServer: [id: 0xbcf79851,
/192.168.1.51:47048 => /192.168.1.50:5555] OPEN
14/08/10 15:03:12 INFO ipc.NettyServer: [id: 0xbcf79851,
/192.168.1.51:47048 => /192.168.1.50:5555] BOUND:
/192.168.1.50:5555
14/08/10 15:03:12 INFO ipc.NettyServer: [id: 0xbcf79851,
/192.168.1.51:47048 => /192.168.1.50:5555] CONNECTED:
/192.168.1.51:47048
14/08/10 15:07:56 INFO sink.LoggerSink: Event: { headers:
{Severity=0, flume.syslog.status=Invalid, Facility=0}
body: 69 64 6F 61 6C 6C 2E 6F 72 67 20 74 65 73 74 31
idoall.org test1 }
14/08/10 15:07:56 INFO sink.LoggerSink: Event: { headers:
{Severity=0, flume.syslog.status=Invalid, Facility=0}
body: 69 64 6F 61 6C 6C 2E 6F 72 67 20 74 65 73 74 32
idoall.org test2 }
```

i)我们再在m2的sink窗口中，启动sink：

```
root@m1:/home/hadoop# /home/hadoop/flume-1.5.0-bin/bin/flume-ng agent -c . -f /home/hadoop/flume-1.5.0-bin/conf/Flume_Sink_Processors_avro.conf -n a1 -Dflume.root.logger=INFO,console
```

j)输入两批测试数据：

```
root@m1:/home/hadoop# echo "idoall.org test3 failover" | nc localhost 5140 && echo "idoall.org test4 failover" | nc localhost 5140
```

k)在m2的sink窗口，我们可以看到以下信息，因为优先级的关系，log消息会再次落到m2上：

```
14/08/10 15:09:47 INFO node.Application: Starting Sink k1
14/08/10 15:09:47 INFO node.Application: Starting Source r1
14/08/10 15:09:47 INFO source.AvroSource: Starting Avro source r1: { bindAddress: 0.0.0.0, port: 5555 }...
14/08/10 15:09:47 INFO instrumentation.MonitoredCounterGroup: Monitored counter group for type: SOURCE, name: r1: Successfully registered new MBean.
14/08/10 15:09:47 INFO instrumentation.MonitoredCounterGroup: Component type: SOURCE, name: r1 started
14/08/10 15:09:47 INFO source.AvroSource: Avro source r1 started.
14/08/10 15:09:54 INFO ipc.NettyServer: [id: 0x96615732, /192.168.1.51:48741 => /192.168.1.51:5555] OPEN
14/08/10 15:09:54 INFO ipc.NettyServer: [id: 0x96615732, /192.168.1.51:48741 => /192.168.1.51:5555] BOUND: /192.168.1.51:5555
14/08/10 15:09:54 INFO ipc.NettyServer: [id: 0x96615732, /192.168.1.51:48741 => /192.168.1.51:5555] CONNECTED: /192.168.1.51:48741
14/08/10 15:09:57 INFO sink.LoggerSink: Event: { headers:{Severity=0, flume.syslog.status=Invalid, Facility=0} body: 69 64 6F 61 6C 6C 2E 6F 72 67 20 74 65 73 74 32 idoall.org test2 }
14/08/10 15:10:43 INFO ipc.NettyServer: [id: 0x12621f9a, /192.168.1.50:38166 => /192.168.1.51:5555] OPEN
14/08/10 15:10:43 INFO ipc.NettyServer: [id: 0x12621f9a, /192.168.1.50:38166 => /192.168.1.51:5555] BOUND: /192.168.1.51:5555
14/08/10 15:10:43 INFO ipc.NettyServer: [id: 0x12621f9a, /192.168.1.50:38166 => /192.168.1.51:5555] CONNECTED: /192.168.1.50:38166
```

```
14/08/10 15:10:43 INFO sink.LoggerSink: Event: { headers:
{Severity=0, flume.syslog.status=Invalid, Facility=0}
body: 69 64 6F 61 6C 6C 2E 6F 72 67 20 74 65 73 74 33
idoall.org test3 }
14/08/10 15:10:43 INFO sink.LoggerSink: Event: { headers:
{Severity=0, flume.syslog.status=Invalid, Facility=0}
body: 69 64 6F 61 6C 6C 2E 6F 72 67 20 74 65 73 74 34
idoall.org test4 }
```

11)案例11：Load balancing Sink Processor

load balance type和failover不同的地方是，load balance有两个配置，一个是轮询，一个是随机。两种情况下如果被选择的sink不可用，就会自动尝试发送到下一个可用的sink上面。

a)在m1创建Load_balancing_Sink_Processors配置文件

```
root@m1:/home/hadoop# vi /home/hadoop/flume-1.5.0-
bin/conf/Load_balancing_Sink_Processors.conf

a1.sources = r1
a1.sinks = k1 k2
a1.channels = c1

#这个是配置Load balancing的关键，需要有一个sink group
a1.sinkgroups = g1
a1.sinkgroups.g1.sinks = k1 k2
a1.sinkgroups.g1.processor.type = load_balance
a1.sinkgroups.g1.processor.backoff = true
a1.sinkgroups.g1.processor.selector = round_robin

# Describe/configure the source
a1.sources.r1.type = syslogtcp
a1.sources.r1.port = 5140
a1.sources.r1.channels = c1



# Describe the sink
a1.sinks.k1.type = avro
a1.sinks.k1.channel = c1
a1.sinks.k1.hostname = m1
a1.sinks.k1.port = 5555

a1.sinks.k2.type = avro
a1.sinks.k2.channel = c1
a1.sinks.k2.hostname = m2
a1.sinks.k2.port = 5555

# Use a channel which buffers events in memory
a1.channels.c1.type = memory
```

```
a1.channels.c1.capacity = 1000
a1.channels.c1.transactionCapacity = 100
```

b)在m1创建Load_balancing_Sink_Processors_avro配置文件

```
root@m1:/home/hadoop# vi /home/hadoop/flume-1.5.0-
bin/conf/Load_balancing_Sink_Processors_avro.conf

a1.sources = r1
a1.sinks = k1
a1.channels = c1

# Describe/configure the source
a1.sources.r1.type = avro
a1.sources.r1.channels = c1
a1.sources.r1.bind = 0.0.0.0
a1.sources.r1.port = 5555

# Describe the sink
a1.sinks.k1.type = logger

# Use a channel which buffers events in memory
a1.channels.c1.type = memory
a1.channels.c1.capacity = 1000
a1.channels.c1.transactionCapacity = 100

# Bind the source and sink to the channel
a1.sources.r1.channels = c1
a1.sinks.k1.channel = c1
```

c)将2个配置文件复制到m2上一份

```
root@m1:/home/hadoop/flume-1.5.0-bin# scp -r
/home/hadoop/flume-1.5.0-
bin/conf/Load_balancing_Sink_Processors.conf
root@m2:/home/hadoop/flume-1.5.0-
bin/conf/Load_balancing_Sink_Processors.conf
root@m1:/home/hadoop/flume-1.5.0-bin# scp -r
/home/hadoop/flume-1.5.0-
bin/conf/Load_balancing_Sink_Processors_avro.conf
root@m2:/home/hadoop/flume-1.5.0-
bin/conf/Load_balancing_Sink_Processors_avro.conf
```

d)打开4个窗口，在m1和m2上同时启动两个flume agent

```
root@m1:/home/hadoop# /home/hadoop/flume-1.5.0-bin/bin/flume-ng agent -c . -f /home/hadoop/flume-1.5.0-bin/conf/Load_balancing_Sink_Processors_avro.conf -n a1 -Dflume.root.logger=INFO,console
root@m1:/home/hadoop# /home/hadoop/flume-1.5.0-bin/bin/flume-ng agent -c . -f /home/hadoop/flume-1.5.0-bin/conf/Load_balancing_Sink_Processors.conf -n a1 -Dflume.root.logger=INFO,console
```

e)然后在m1或m2的任意一台机器上，测试产生log，一行一行输入，输入太快，容易落到一台机器上

```
root@m1:/home/hadoop# echo "idoall.org test1" | nc localhost 5140
root@m1:/home/hadoop# echo "idoall.org test2" | nc localhost 5140
root@m1:/home/hadoop# echo "idoall.org test3" | nc localhost 5140
root@m1:/home/hadoop# echo "idoall.org test4" | nc localhost 5140
```

f)在m1的sink窗口，可以看到以下信息：

```
14/08/10 15:35:29 INFO sink.LoggerSink: Event: { headers:{Severity=0, flume.syslog.status=Invalid, Facility=0} body: 69 64 6F 61 6C 6C 2E 6F 72 67 20 74 65 73 74 32 idoall.org test2 }
14/08/10 15:35:33 INFO sink.LoggerSink: Event: { headers:{Severity=0, flume.syslog.status=Invalid, Facility=0} body: 69 64 6F 61 6C 6C 2E 6F 72 67 20 74 65 73 74 34 idoall.org test4 }
```

g)在m2的sink窗口，可以看到以下信息：

```
14/08/10 15:35:27 INFO sink.LoggerSink: Event: { headers:{Severity=0, flume.syslog.status=Invalid, Facility=0} body: 69 64 6F 61 6C 6C 2E 6F 72 67 20 74 65 73 74 31 idoall.org test1 }
14/08/10 15:35:29 INFO sink.LoggerSink: Event: { headers:{Severity=0, flume.syslog.status=Invalid, Facility=0} body: 69 64 6F 61 6C 6C 2E 6F 72 67 20 74 65 73 74 33 idoall.org test3 }
```

说明轮询模式起到了作用。

12)案例12：Hbase sink

a)在测试之前，请先参考《ubuntu12.04+hadoop2.2.0+zookeeper3.4.5+hbase0.96.2+hive0.13.1分布式环境部署》将hbase启动

b)然后将以下文件复制到flume中：

```
cp /home/hadoop/hbase-0.96.2-hadoop2/lib/protobuf-java-2.5.0.jar /home/hadoop/flume-1.5.0-bin/lib
cp /home/hadoop/hbase-0.96.2-hadoop2/lib/hbase-client-0.96.2-hadoop2.jar /home/hadoop/flume-1.5.0-bin/lib
cp /home/hadoop/hbase-0.96.2-hadoop2/lib/hbase-common-0.96.2-hadoop2.jar /home/hadoop/flume-1.5.0-bin/lib
cp /home/hadoop/hbase-0.96.2-hadoop2/lib/hbase-protocol-0.96.2-hadoop2.jar /home/hadoop/flume-1.5.0-bin/lib
cp /home/hadoop/hbase-0.96.2-hadoop2/lib/hbase-server-0.96.2-hadoop2.jar /home/hadoop/flume-1.5.0-bin/lib
cp /home/hadoop/hbase-0.96.2-hadoop2/lib/hbase-hadoop2-compat-0.96.2-hadoop2.jar /home/hadoop/flume-1.5.0-bin/lib
cp /home/hadoop/hbase-0.96.2-hadoop2/lib/hbase-hadoop-compat-0.96.2-hadoop2.jar /home/hadoop/flume-1.5.0-bin/lib@@@
cp /home/hadoop/hbase-0.96.2-hadoop2/lib/htrace-core-2.04.jar /home/hadoop/flume-1.5.0-bin/lib
```

c)确保test_idoall_org表在hbase中已经存在，test_idoall_org表的格式以及字段请参考《ubuntu12.04+hadoop2.2.0+zookeeper3.4.5+hbase0.96.2+hive0.13.1分布式环境部署》中关于hbase部分的建表代码。

d)在m1创建hbase_simple配置文件

```
root@m1:/home/hadoop# vi /home/hadoop/flume-1.5.0-bin/conf/hbase_simple.conf

a1.sources = r1
a1.sinks = k1
a1.channels = c1

# Describe/configure the source
a1.sources.r1.type = syslogtcp
a1.sources.r1.port = 5140
a1.sources.r1.host = localhost
a1.sources.r1.channels = c1

# Describe the sink
a1.sinks.k1.type = logger
a1.sinks.k1.type = hbase
a1.sinks.k1.table = test_idoall_org
a1.sinks.k1.columnFamily = name
a1.sinks.k1.column = idoall
```

```
a1.sinks.k1.serializer =
org.apache.flume.sink.hbase.RegexHbaseEventSerializer
a1.sinks.k1.channel = memoryChannel

# Use a channel which buffers events in memory
a1.channels.c1.type = memory
a1.channels.c1.capacity = 1000
a1.channels.c1.transactionCapacity = 100

# Bind the source and sink to the channel
a1.sources.r1.channels = c1
a1.sinks.k1.channel = c1
```

e)启动flume agent

```
/home/hadoop/flume-1.5.0-bin/bin/flume-ng agent -c . -f
/home/hadoop/flume-1.5.0-bin/conf/hbase_simple.conf -n a1
-Dflume.root.logger=INFO,console
```

f)测试产生syslog

```
root@m1:/home/hadoop# echo "hello idoall.org from flume" |
nc localhost 5140
```

g)这时登录到hbase中，可以发现新数据已经插入

```
root@m1:/home/hadoop# /home/hadoop/hbase-0.96.2-
hadoop2/bin/hbase shell
2014-08-10 16:09:48,984 INFO [main]
Configuration.deprecation: hadoop.native.lib is
deprecated. Instead, use io.native.lib.available
HBase Shell; enter 'help<RETURN>' for list of supported
commands.
Type "exit<RETURN>" to leave the HBase Shell
Version 0.96.2-hadoop2, r1581096, Mon Mar 24 16:03:18 PDT
2014

hbase(main):001:0> list
TABLE

SLF4J: Class path contains multiple SLF4J bindings.
SLF4J: Found binding in [jar:file:/home/hadoop/hbase-
0.96.2-hadoop2/lib/slf4j-log4j12-
1.6.4.jar!/org/slf4j/impl/StaticLoggerBinder.class]
SLF4J: Found binding in [jar:file:/home/hadoop/hadoop-
2.2.0/share/hadoop/common/lib/slf4j-log4j12-
```

```
1.7.5.jar!/org/slf4j/impl/StaticLoggerBinder.class]
SLF4J: See
http://www.slf4j.org/codes.html#multiple_bindings for an
explanation.
hbase2hive_idoall

hive2hbase_idoall

test_idoall_org

3 row(s) in 2.6880 seconds

=> ["hbase2hive_idoall", "hive2hbase_idoall",
"test_idoall_org"]
hbase(main):002:0> scan "test_idoall_org"
ROW
COLUMN+CELL

 10086                          column=name:idoall,
timestamp=1406424831473,
value=idoallvalue

1 row(s) in 0.0550 seconds

hbase(main):003:0> scan "test_idoall_org"
ROW
COLUMN+CELL

 10086                          column=name:idoall,
timestamp=1406424831473,
value=idoallvalue

 1407658495588-XbQCOZrKK8-0
column=name:payload, timestamp=1407658498203, value=hello
idoall.org from
flume
2 row(s) in 0.0200 seconds

hbase(main):004:0> quit
```

经过这么多flume的例子测试，如果你全部做完后，会发现flume的功能真的很强大，可以进行各种搭配来完成你想要的工作，俗话说师傅领进门，修行在个人，如何能够结合你的产品业务，将flume更好的应用起来，快去动手实践吧。